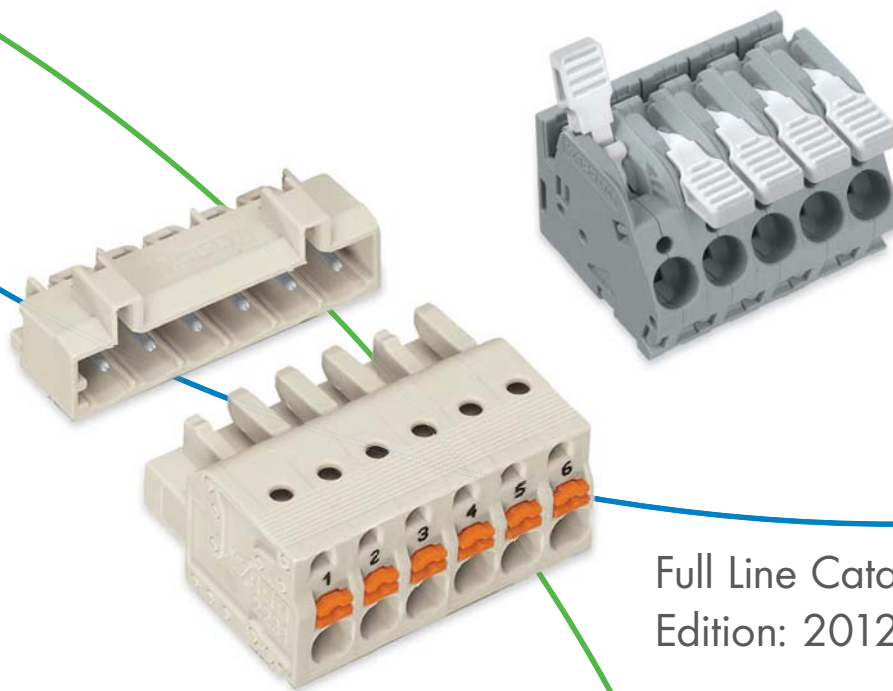


Connectors and PCB Terminal Blocks



Full Line Catalog, Volume 2
Edition: 2012/2013

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CAGE CLAMP®

CAGE CLAMP® 

POWER CAGE CLAMP

FIT CLAMP®

PUSH WIRE®

TOPJOB®

TOPJOB® 

WINSTA®

WAGO®

X-COM®

X-COM® 

JUMPFLEX®

TO-PASS®

ProServe®

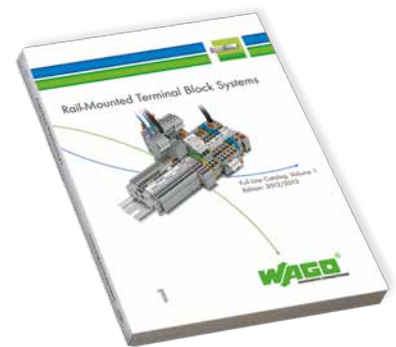
EPSITRON®

picoMAX®

WAGO Full Line Catalogs

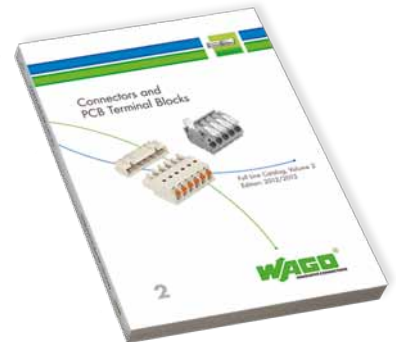
Volume 1, Rail-Mounted Terminal Block Systems

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- Modular Connectors (X-COM®-SYSTEM and X-COM®S-SYSTEM)
- Patchboard Systems
- Terminal Strips
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- WINSTA® RD - Cable Assemblies
- WINSTA® KNX - Pluggable Connectors
- WINSTA® IDC - Flat Cables



Operation of WAGO Connection Technologies *

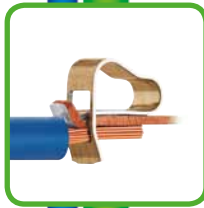
CAGE CLAMP® S



The universal connection with "SPECIAL"

- Handling:
- Open clamping unit
 - Insert the conductor
 - Release clamp - done!
 - Terminate both solid and ferruled conductors by simply pushing them in - no operating tool needed.

CAGE CLAMP®



The universal connection for solid, stranded and fine-stranded conductors

- Handling:
- Open clamping unit
 - Insert the conductor
 - Release clamp - done!

POWER CAGE CLAMP®



The universal connection for conductors larger than 6 AWG (16 mm²)

- Handling:
- Open clamping unit by turning appropriate hex wrench, or operating tool, counter-clockwise.
 - Press integrated latch to open clamping unit for hands-free wiring.
 - Insert conductor until it hits backstop.
 - A small, counter-clockwise rotation closes the clamp, securing conductor.

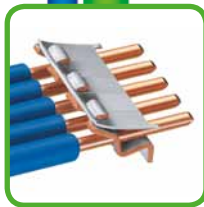
FIT CLAMP®



Insulation Displacement Connection (IDC)

- Handling:
- Push stripped conductor into the IDC contact using an operating tool.

PUSH WIRE®




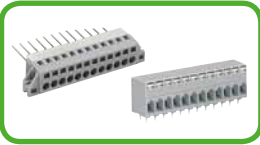



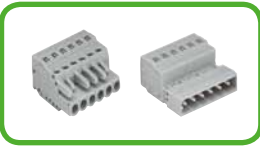

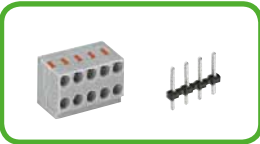

PUSH WIRE® connection for solid and stranded conductors (depending on model used)

- Handling:
- Tool-free, twist-free terminations for solid and rigid stranded conductors - simply push into unit.

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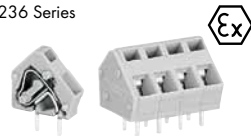
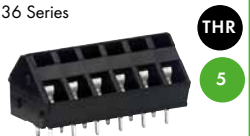
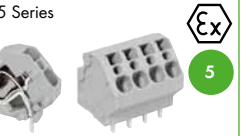






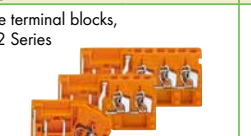







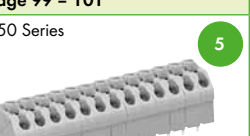






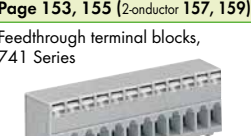

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PCB Terminal Blocks









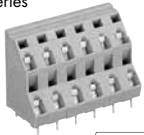










- Product Overview by Pin Spacing -










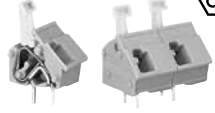




2.5 mm, 2.54 mm 0.098 in, 1.0 in	3.5 mm, 3.81 mm / 0.138 in, 0.15 in		3.96 mm, 4 mm 0.156 in
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<p>218 Series</p>  <p>THR</p> <p>CAGE CLAMP</p> <p>0.08 - 0.5 mm² / AWG 28 - 20 Page 85</p>			<p>2060 Series</p>  <p>4 SMT</p> <p>CAGE CLAMP</p> <p>0.34 - 0.75 mm² / AWG 24 - 18 Page 119</p>
<p>233 Series</p>  <p>CAGE CLAMP</p> <p>0.08 - 0.5 mm² / AWG 28 - 20 Page 89</p>	<p>235 Series</p>  <p>3.81</p> <p>CAGE CLAMP</p> <p>0.5 - 1.5 mm² / AWG 20 - 16 Page 133</p>	<p>805 Series</p>  <p>3.5</p> <p>CAGE CLAMP</p> <p>0.2 - 1.5 mm² / AWG 24 - 16 Page 147</p>	<p>235 Series</p>  <p>CAGE CLAMP</p> <p>0.5 - 1.5 mm² / AWG 20 - 16 Page 135</p>
<p>234 Series</p>  <p>CAGE CLAMP</p> <p>0.08 - 0.5 mm² / AWG 28 - 20 Page 91</p>	<p>250 Series</p>  <p>3.5</p> <p>CAGE CLAMP</p> <p>0.2 - 1.5 mm² / AWG 24 - 16 Page 125</p>	<p>250 Series</p>  <p>THR 3.5</p> <p>CAGE CLAMP</p> <p>0.2 - 1.5 mm² / AWG 24 - 16 Page 127</p>	
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<p>250 Series</p>  <p>THR 2.5</p> <p>CAGE CLAMP</p> <p>0.08 - 0.5 mm² / AWG 24 - 20 Page 127</p>	<p>251 Series</p>  <p>3.5</p> <p>FIT CLAMP PUSH WIRE</p> <p>0.5 - 1.0/1.5 mm² / AWG 20 - 18/16 Page 171 "sol."</p>	<p>235 Series</p>  <p>3.81</p> <p>PUSH WIRE</p> <p>0.5 - 1.5 mm² / AWG 20 - 16 Page 151 "sol."</p>	
 <p>PUSH WIRE</p> <p>0.2 - 0.5 mm² / AWG 24 - 20 Page 173</p>	<p>744 Series</p>  <p>3.5</p> <p>PUSH WIRE</p> <p>0.5 - 1.5 mm² / AWG 20 - 16 Page 169 "sol."</p>	<p>735 Series</p>  <p>3.81</p> <p>PUSH WIRE</p> <p>0.5 - 1.5 mm² / AWG 20 - 16 Page 175 "sol."</p>	

5 mm, 5.08 mm / 0.197 in, 0.2 in			
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<p>255 Series</p>  <p>Ex</p> <p>CAGE CLAMP[®]</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 95 - 97</p>	<p>256 Series</p>  <p>Ex</p> <p>CAGE CLAMP[®]</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 99 - 101</p>	<p>257 Series</p>  <p>Ex</p> <p>CAGE CLAMP[®]</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 103 - 105</p>	
<p>235 Series</p>  <p>CAGE CLAMP[®]</p> <p>0.5 - 1.5 mm² / AWG 20 - 14 Page 137, 139 (2-conductor 179, 181)</p>	<p>250 Series</p>  <p>5</p> <p>CAGE CLAMP[®]</p> <p>0.5 - 1.5 mm² / AWG 20 - 16 Page 129</p>	<p>250 Series</p>  <p>5</p> <p>CAGE CLAMP[®]</p> <p>2 x 0.5 - 1.5 mm² / AWG 20 - 16 Page 131</p>	<p>804 Series</p>  <p>5</p> <p>CAGE CLAMP[®]</p> <p>0.2 - 2.5 mm² / AWG 28 - 12 Page 149</p>
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PCB Terminal Blocks

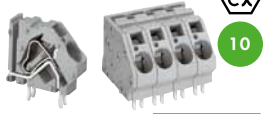
- Product Overview by Pin Spacing -

7.5 mm, 7.62 mm / 0.295 in, 0.3 in		
<p>236 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 21, 23</p>	<p>745 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.08 - 4 mm² / AWG 28 - 12 Page 29</p>	<p>745 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.2 - 4 mm² / AWG 28 - 12 Page 33, 35</p>
<p>745 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.2 - 6 mm² / AWG 24 - 10 Page 37, 39, 41</p>		<p>746 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>2 x 0.5 - 10 mm² / 2 x AWG 20 - 8 Page 117</p>
<p>739 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 76, 77</p>	<p>739 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 72, 73</p>	<p>2706 Series</p>  <p>7.5</p> <p>CAGE CLAMP®</p> <p>0.5 - 6 mm² / AWG 20 - 10 Page 107, 109</p>
<p>736 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 48, 52</p>	<p>737 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 56, 60</p>	
<p>255 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 95 - 97</p>	<p>256 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 99 - 101</p>	<p>257 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 103 - 105</p>
<p>235 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.5 - 1.5 mm² / AWG 20 - 14 Page 137, 139, [2-conductor 179, 181]</p>	<p>250 Series</p>  <p>7.5</p> <p>CAGE CLAMP®</p> <p>0.5 - 1.5 mm² / AWG 20 - 16 Page 129</p>	<p>804 Series</p>  <p>7.5</p> <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 28 - 12 Page 149</p>
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<p>Feedthrough terminal blocks, 741 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 211, 213, 215, 217</p>		

10 mm, 10.16 mm / 0.394 in, 0.4 in	
<p>236 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 21, 23</p>	<p>745 Series</p>  <p>Ex</p> <p>10</p> <p>CAGE CLAMP®</p> <p>0.08 - 4 mm² / AWG 28 - 12 Page 31</p>
<p>745 Series</p>  <p>Ex</p> <p>10</p> <p>CAGE CLAMP®</p> <p>0.2 - 6 mm² / AWG 24 - 10 Page 37, 39, 41</p>	<p>745 Series</p>  <p>Ex</p> <p>10</p> <p>CAGE CLAMP®</p> <p>0.2 - 16 mm² / AWG 24 - 6 Page 43, 45</p>
<p>2706 Series</p>  <p>10</p> <p>CAGE CLAMP®</p> <p>0.5 - 6 mm² / AWG 20 - 10 Page 107, 109</p>	<p>2716 Series</p>  <p>10</p> <p>CAGE CLAMP®</p> <p>0.2 - 16 mm² / AWG 24 - 6 Page 111, 113</p>
<p>736 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 49, 53</p>	<p>737 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 57, 61</p>
<p>255 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 95 - 97</p>	<p>256 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 99 - 101</p>
<p>235 Series</p>  <p>Ex</p> <p>CAGE CLAMP®</p> <p>0.5 - 1.5 mm² / AWG 20 - 14 Page 137, 139, [2-conductor 179, 181]</p>	
<p>235 Series</p>  <p>PUSH WIRE®</p> <p>0.5 - 2.5 mm² / AWG 20 - 14 "sol." Page 153, 155, [2-conductor 157, 159]</p>	<p>254 Series</p>  <p>PUSH WIRE®</p> <p>0.5 - 2.5 mm² / AWG 20 - 12 "sol." Page 163, 165</p>
<p>Feedthrough terminal blocks, 741 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12* Page 211, 213, 215, 217</p>	

10 mm, 10,16 mm

745 Series



10

CAGE CLAMP®

0.08 - 4 mm² / AWG 28 - 12

Page 33, 35

739 Series



CAGE CLAMP®

0.08 - 2.5 mm² / AWG 28 - 12*

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257 Series



CAGE CLAMP®

0.08 - 2.5 mm² / AWG 28 - 12*

Page 103 - 105

12.5 mm / 0.492 in

745 Series



CAGE CLAMP®

0.08 - 4 mm² / AWG 28 - 12

Page 31

745 Series



CAGE CLAMP®

0.2 - 6 mm² / AWG 24 - 10

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2706 Series



CAGE CLAMP®

0.5 - 6 mm² / AWG 20 - 10

Page 107, 109

15 mm / 0.591 in

745 Series



CAGE CLAMP®

0.2 - 6 mm² / AWG 24 - 10

Page 39

745 Series



CAGE CLAMP®

0.2 - 16 mm² / AWG 24 - 6

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2716 Series



CAGE CLAMP®

1.5 - 16 mm² / AWG 16 - 6

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20 mm / 0.787 in

745 Series



CAGE CLAMP®

0.2 - 16 mm² / AWG 24 - 6

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MCS - MULTI CONNECTION SYSTEM

- Product Overview by Pin Spacing -

MICRO 2.5 mm / 0.098 in	MINI 3.5 mm, 3.81 mm / 0.138 in, 0.15 in			MINI HD 3.5 mm / 0.138 in
Female connectors, 733 Series  CAGE CLAMP® 0.08 - 0.5 mm ² / AWG 28 - 20 Page 227	Female connectors, 734 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 14 Page 245, 246	Female connectors with locking levers, 734 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 14 Page 245, 246	Female connectors with screw flanges, 734 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 14 Page 245	Female connectors, 713 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 16 Page 285
Female connectors with locking levers, 733 Series  CAGE CLAMP® 0.08 - 0.5 mm ² / AWG 28 - 20 Page 227	Female connectors with snap-in mounting feet, 721 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 14 Page 246, 247	Female connectors with push-buttons, 2734 Series  CAGE CLAMP® 0.2 - 1.5 mm ² / AWG 24 - 14 Page 249, 250	Female connectors with push-buttons and locking levers, 2734 Series  CAGE CLAMP® 0.2 - 1.5 mm ² / AWG 24 - 14 Page 249, 250	Female connectors with separators, 713 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 16 Page 285
Male headers with solder pins, 733 Series  Page 229	Female connectors with push-buttons and fixing flanges, 2734 Series  CAGE CLAMP® 0.2 - 1.5 mm ² / AWG 24 - 14 Page 249, 251	Female connectors with push-buttons and fixing flanges, 2734 Series  CAGE CLAMP® 3.5 0.2 - 1.5 mm ² / AWG 24 - 14 Page 250		Female connectors with screw flanges, 713 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 16 Page 285
Male headers, 733 Series  Page 229	Male headers with solder pins, 734 Series  Page 253, 257	Male headers with solder pins and threaded flanges, 734 Series  CAGE CLAMP® 3.5 Page 254	Male headers, 734 Series  Page 255, 258	Male headers with solder pins, 713 Series  THR Page 287, (THR: Page 291, 292)
Male headers with solder pins, 733 Series  THR Page 231, 232	Double-deck male headers with solder pins, 734 Series  Page 256, 259	Male headers with solder pins, 734 Series  THR Page 261 - 263		Male headers with solder pins and separators, 713 Series  THR Page 288, (THR: Page 293, 294)
Male connectors, 733 Series  CAGE CLAMP® 0.08 - 0.5 mm ² / AWG 28 - 20 Page 235	Male connectors, 734 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 14 Page 265, 267	Male connectors with snap-in mounting feet, 734 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 14 Page 266, 267	Male connectors with fixing flanges, 734 Series  CAGE CLAMP® 0.08 - 1.5 mm ² / AWG 28 - 14 Page 265, 266	Male headers with solder pins and threaded flanges, 713 Series  THR Page 289, (THR: Page 295, 296)
	Male connectors with threaded flanges, 734 Series  CAGE CLAMP® 3.5 0.08 - 1.5 mm ² / AWG 28 - 14 Page 265	Combi strips, 734 Series  CAGE CLAMP® 3.5 3.5 mm ² / 0.08 - 1.5 mm ² Page 269		
	Female headers with solder pins, 734 Series  Page 271, 272	Female headers with solder pins and locking levers, 734 Series  Page 271 - 273		

MIDI 100 % Protected Against Mismatching 5 mm / 0.197 in			
<p>Female connectors, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 305</p>	<p>Female connectors with locking levers, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 305</p>	<p>Female connectors with fixing flanges, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 305, 306</p>	<p>Female connectors with snap-in mounting feet, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 306</p>
<p>Angled female connectors, 722 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 307</p>	<p>Female connectors with fixing flanges for panel mounting, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 309</p>	<p>Female connectors with snap-in mounting feet for panel mounting, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 309</p>	
<p>Female connectors with push-buttons, 2721 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 311</p>	<p>Female connectors with push-buttons and snap-in mounting feet, 2721 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 311</p>	<p>Female connectors with push-buttons and locking levers, 2721 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 311</p>	<p>Female connectors with push-buttons and fixing flanges, 2721 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 312</p>
<p>2-conductor female connectors, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 315</p>	<p>2-conductor female connectors with locking levers, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 315</p>		
<p>Male headers with solder pins, 721 Series</p>  <p>Page 317, 318</p>	<p>Male headers, 721 Series</p>  <p>Page 317</p>		
<p>Male connectors, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 321</p>	<p>Male connectors with snap-in mounting feet, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 321</p>	<p>Male connectors with fixing flanges, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 321</p>	<p>Male connectors with snap-in flanges, 721 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 323</p>
<p>Female headers with solder pins, 722 Series</p>  <p>Page 325</p>	<p>Female headers with solder pins and locking levers, 722 Series</p>  <p>Page 325, 326</p>	<p>Female headers with solder pins and fixing flanges, 722 Series</p>  <p>Page 326</p>	<p>Female headers with solder pins and spacers, 722 Series</p>  <p>Page 327</p>
<p>Male connectors for rail-mounted terminal blocks, 721 Series</p>  <p>Page 329</p>	<p>Female connectors for rail-mounted terminal blocks, 722 Series</p>  <p>Page 331</p>	<p>Female connectors for rail-mounted terminal blocks with locking levers, 722 Series</p>  <p>Page 332</p>	

MCS - MULTI CONNECTION SYSTEM

- Product Overview by Pin Spacing -

MIDI Classic 5 mm, 5.08 mm / 0.197 in, 0.2 in				
<p>Female connectors, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 367, 370</p>	<p>Female connectors with integrated end plate, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 367, 370</p>	<p>Female connectors with snap-in mounting feet, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 369, 371</p>	<p>Female connectors with locking levers, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 368, 371</p>	<p>Female connectors with fixing flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 368, 372</p>
<p>Angled female connectors, 232 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 369, 373</p>	<p>Female connectors with screw flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 371</p>	<p>Female connectors with fixing flanges for panel mounting, 731 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 375</p>	<p>Female connectors with snap-in mounting feet for panel mounting, 731 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 375</p>	
<p>Female connectors with push-buttons, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 377, 379</p>	<p>Female connectors with push-buttons and integrated end plate, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 377, 379</p>	<p>Female connectors with push-buttons and snap-in mounting feet, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 378, 380</p>	<p>Female connectors with push-buttons and locking levers, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 377, 379</p>	<p>Female connectors with push-buttons and fixing flanges, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 378, 380</p>
<p>Female connectors with push-buttons and screw flanges, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 380</p>	<p>2-conductor female connectors, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 383, 384</p>	<p>2-conductor female connectors with locking levers, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 383, 384</p>	<p>2-conductor female connectors with screw flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 384</p>	
<p>Male headers with solder pins, 231 Series</p>  <p>Page 387, 388, 390, 391</p>	<p>Male headers with solder pins and fixing flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>Page 388, 389</p>	<p>Male headers with solder pins and threaded flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>Page 391, 392</p>	<p>Male headers for double-deck assembly, 232 Series</p>  <p>Page 395</p>	<p>Male headers with solder pins, 231 Series</p>  <p>THR CAGE CLAMP®</p> <p>Page 397 - 400</p>
<p>Male connectors, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 403, 405</p>	<p>Male connectors with snap-in mounting feet, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 403, 405</p>	<p>Male connectors with fixing flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 403, 405</p>	<p>Male connectors with snap-in flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 404, 406</p>	<p>Male connectors with threaded flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 406</p>
<p>Male connectors with snap-in flanges and threaded flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 406</p>	<p>Double-pin male connectors for DIN 35 rail mounting, 232 Series</p>  <p>Page 409</p>		<p>Female headers with solder pins, 232 Series</p>  <p>Page 411, 414</p>	<p>Female headers with solder pins and locking levers, 232 Series</p>  <p>Page 411, 412, 414, 415</p>
<p>Female headers with solder pins and fixing flanges, 232 Series</p>  <p>Page 412, 415</p>	<p>Female headers with solder pins and spacers, 232 Series</p>  <p>Page 412, 416</p>	<p>Male connectors for rail-mounted terminal blocks, 231 Series</p>  <p>CAGE CLAMP®</p> <p>Page 419</p>	<p>Female connectors for rail-mounted terminal blocks, 232 Series</p>  <p>CAGE CLAMP®</p> <p>Page 421</p>	<p>Female connectors for rail-mounted terminal blocks with locking levers, 232 Series</p>  <p>CAGE CLAMP®</p> <p>Page 422</p>

MIDI 100% Protected Against Mismatching 7.5 mm / 0.295 in			
Female connectors, 721 Series  <small>CAGE CLAMP®</small>	Female connectors with snap-in mounting feet, 721 Series  <small>CAGE CLAMP®</small>	Female connectors with locking levers, 721 Series  <small>CAGE CLAMP®</small>	Female connectors with fixing flanges, 721 Series  <small>CAGE CLAMP®</small>
0.08 - 2.5 mm ² / AWG 28 - 12 Page 335	0.08 - 2.5 mm ² / AWG 28 - 12 Page 336	0.08 - 2.5 mm ² / AWG 28 - 12 Page 335	0.08 - 2.5 mm ² / AWG 28 - 12 Page 335, 336
Female connectors with fixing flanges for panel mounting, 721 Series  <small>CAGE CLAMP®</small>	Female connectors with snap-in mounting feet for panel mounting, 721 Series  <small>CAGE CLAMP®</small>		
0.08 - 2.5 mm ² / AWG 28 - 12 Page 339	0.08 - 2.5 mm ² / AWG 28 - 12 Page 339		
Female connectors with push- buttons, 2721 Series  <small>CAGE CLAMP®</small>	Female connectors with push- buttons and snap-in mounting feet, 2721 Series  <small>CAGE CLAMP®</small>	Female connectors with push- buttons and locking levers, 2721 Series  <small>CAGE CLAMP®</small>	Female connectors with push- buttons and fixing flanges, 2721 Series  <small>CAGE CLAMP®</small>
0.2 - 2.5 mm ² / AWG 24 - 12 Page 341	0.2 - 2.5 mm ² / AWG 24 - 12 Page 341	0.2 - 2.5 mm ² / AWG 24 - 12 Page 341	0.2 - 2.5 mm ² / AWG 24 - 12 Page 342
2-conductor female connectors, 721 Series  <small>CAGE CLAMP®</small>	2-conductor female connectors with locking levers, 721 Series  <small>CAGE CLAMP®</small>		
0.2 - 2.5 mm ² / AWG 24 - 12 Page 345	0.2 - 2.5 mm ² / AWG 24 - 12 Page 345		
Male headers with solder pins, 721 Series  			
Page 347, 348			
Male connectors, 723 Series  <small>CAGE CLAMP®</small>	Male connectors with snap-in mounting feet, 723 Series  <small>CAGE CLAMP®</small>	Male connectors with fixing flanges, 723 Series  <small>CAGE CLAMP®</small>	Male connectors with snap-in flanges, 721 Series  <small>CAGE CLAMP®</small>
0.08 - 2.5 mm ² / AWG 28 - 12 Page 351	0.08 - 2.5 mm ² / AWG 28 - 12 Page 351	0.08 - 2.5 mm ² / AWG 28 - 12 Page 351	0.08 - 2.5 mm ² / AWG 28 - 12 Page 353
Female headers with solder pins, 722 Series  	Female headers with solder pins and locking levers, 722 Series  	Female headers with solder pins and fixing flanges, 722 Series  	Female headers with solder pins and spacers, 722 Series 
Page 355	Page 355, 356	Page 356	Page 357

MCS - MULTI CONNECTION SYSTEM

- Product Overview by Pin Spacing -

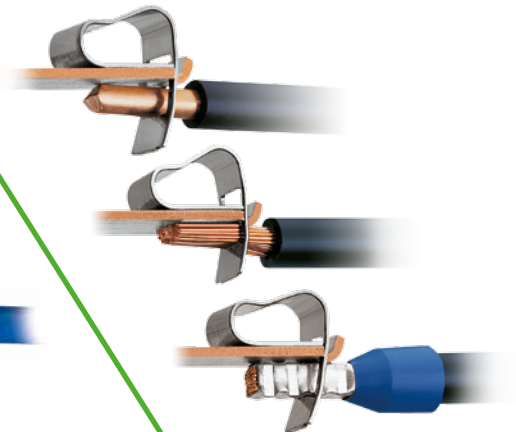
MIDI Classic 7.5 mm, 7.62 mm / 0.295 in, 0.3 in				MAXI 7.62 mm / 0.3 in
<p>Female connectors, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 425, 427</p>	<p>Female connectors with snap-in mounting feet, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 426, 428</p>	<p>Female connectors with locking levers, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 425, 427</p>	<p>Female connectors with fixing flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 425, 426, 427, 428</p>	<p>Female connectors, 831 Series</p>  <p>CAGE CLAMP®</p> <p>0.5 - 10 mm² / AWG 20 - 8 Page 493</p>
<p>Angled female connectors, 732 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 426, 428</p>	<p>Female connectors with fixing flanges for panel mounting, 731 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 431</p>	<p>Female connectors with snap-on mounting feet for panel mounting, 731 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 431</p>		<p>Female connectors with locking levers, 831 Series</p>  <p>CAGE CLAMP®</p> <p>0.5 - 10 mm² / AWG 20 - 8 Page 493</p>
<p>Female connectors with push-buttons, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 433, 434</p>	<p>Female connectors with push-buttons and snap-in mounting feet, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 433, 434</p>	<p>Female connectors with push-buttons and locking levers, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 433, 435</p>	<p>Female connectors with push-buttons and fixing flanges, 2231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 434, 435</p>	<p>Male headers with solder pins, 831 Series</p>  <p>Page 495</p>
<p>2-conductor female connectors, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 437, 438</p>	<p>2-conductor female connectors with locking levers, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.2 - 2.5 mm² / AWG 24 - 12 Page 437, 438</p>			<p>Male connectors, 831 Series</p>  <p>CAGE CLAMP®</p> <p>0.5 - 10 mm² / AWG 20 - 8 Page 497</p>
<p>Male headers with solder pins, 231 Series</p>  <p>Page 441, 442, 444, 445</p>	<p>Male headers with solder pins and fixing flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>Page 442, 443</p>	<p>Male headers with solder pins, 231 Series</p>  <p>THR</p> <p>CAGE CLAMP®</p> <p>Page 447 - 450</p>		<p>Male connectors for DIN 35 rail mounting, 831 Series</p>  <p>CAGE CLAMP®</p> <p>0.5 - 10 mm² / AWG 20 - 8 Page 497</p>
<p>Male connectors, 731 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 453, 454</p>	<p>Male connectors with snap-in mounting feet, 731 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 453, 455</p>	<p>Male connectors with fixing flanges, 731 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 453, 454</p>	<p>Male connectors with snap-in flanges, 231 Series</p>  <p>CAGE CLAMP®</p> <p>0.08 - 2.5 mm² / AWG 28 - 12 Page 453, 455</p>	
<p>Double-pin male connectors for DIN 35 rail mounting, 232 Series</p>  <p>Page 457</p>				
<p>Female headers with solder pins, 232 Series</p>  <p>Page 459, 462</p>	<p>Female headers with solder pins and locking levers, 232 Series</p>  <p>Page 459, 460, 462, 463</p>	<p>Female headers with solder pins and fixing flanges, 232 Series</p>  <p>Page 460, 463</p>	<p>Female headers with solder pins and spacers, 232 Series</p>  <p>Page 461, 464</p>	

Connection Technologies for PCB Terminal Blocks

CAGE CLAMP®

The universal connection for solid, stranded and fine-stranded conductors

Open clamping unit, insert the conductor, release clamp – done!

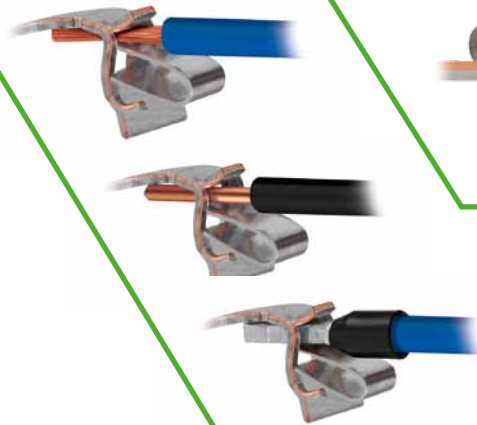


CAGE CLAMP® S

The universal connection with "SPECIAL"

Open clamping unit, insert the conductor, release clamp – done!

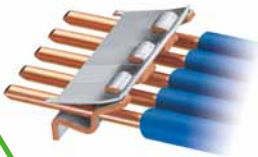
Terminate both solid and ferruled conductors by simply pushing them in – no operating tool needed.



PUSH WIRE®

PUSH WIRE® connection for solid and stranded conductors (depending on model used)

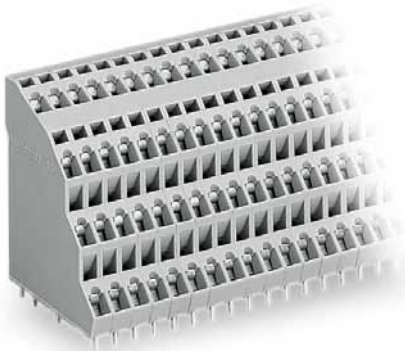
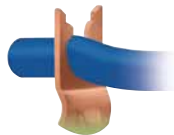
Tool-free, twist-free terminations for solid and rigid stranded conductors – simply push into unit.



FIT CLAMP®

Insulation Displacement Connection (IDC)

Insert unstripped conductor into the clamping unit. Press on the IDC contact using an operating tool until fully engaged.



Product overview sorted by pin spacing, see pages 4 – 7



Modular PCB Terminal Blocks and Strips with Screwdriver Actuation, CAGE CLAMP®

Nominal Cross Section	Series	Pages
0.5 mm ² /AWG 20	233	18 - 19
2.5 mm ² /AWG 12	236	20 - 25
4; 6; 16 mm ² /AWG 12, 10, 6	745	26 - 45
2.5 mm ² /AWG 12	736	46 - 53
2.5 mm ² /AWG 12	737	47 - 61
2.5 mm ² /AWG 12	738	62 - 65
1.5; 2.5 mm ² /AWG 14, 12	739	70 - 77
2.5 mm ² /AWG 12	740	78 - 79



Modular PCB Terminal Blocks and Strips with Push-Buttons, Locking Slides and Levers, CAGE CLAMP®

0.5 mm ² /AWG 20	218	82 - 85
0.5 mm ² /AWG 20	233	88 - 89
0.5 mm ² /AWG 20	234	90 - 91
2.5 mm ² /AWG 12	255	94 - 97
2.5 mm ² /AWG 12	256	98 - 101
2.5 mm ² /AWG 12	257	102 - 105
6 mm ² /AWG 10	2706	106 - 109
16 mm ² /AWG 6	2716	110 - 113



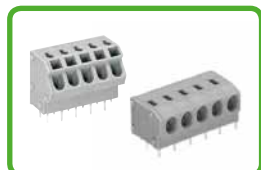
PCB Terminal Strips with Screwdriver Actuation, CAGE CLAMP®S

1.5 mm ² /AWG 16	816	114 - 115
10 mm ² /AWG 8	746	116 - 117



PCB Terminal Strips with Push-Buttons, CAGE CLAMP®S

0.75 mm ² /AWG 18	2060	118 - 119
0.5; 1.5; 2.5 mm ² /AWG 20, 16, 14	250	122 - 131
0.75; 1.5 mm ² /AWG 18, 16	235	132 - 139
1.5 mm ² /AWG 16	2081	140 - 143
1.5 mm ² /AWG 16	805	146 - 147
2.5 mm ² /AWG 12	804	148 - 149



Modular PCB Terminal Blocks and Strips with Screwdriver Actuation, PUSH WIRE®

0.75; 1.5; 2.5 mm ² /AWG 18, 16, 14	235	150 - 159
2.5 mm ² /AWG 12	254	162 - 165
1.5 mm ² /AWG 16	253	166 - 167
1.5 mm ² /AWG 16	744	168 - 169
1.5 mm ² /AWG 16	251	170 - 171



Modular PCB Terminal Blocks and Strips with Push-Buttons, PUSH WIRE®

0.5 mm ² /AWG 20	2080	172 - 173
1.5 mm ² /AWG 16	735	174 - 177
0.75; 1.5 mm ² /AWG 18, 16	235	178 - 181



Disconnect, Test and Fuse Terminal Blocks with Screwdriver Actuation, CAGE CLAMP®

2.5 mm ² /AWG 12	742	184 - 195
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Accessories for PCB Terminal Blocks

196 - 199

Accessories, General - Section 10

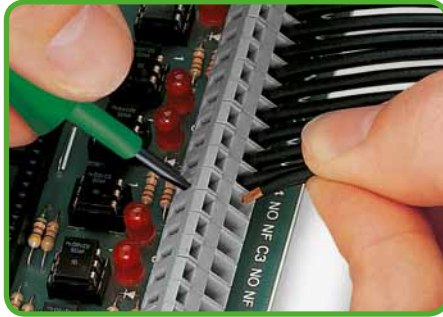
524 - 546

Description and Handling

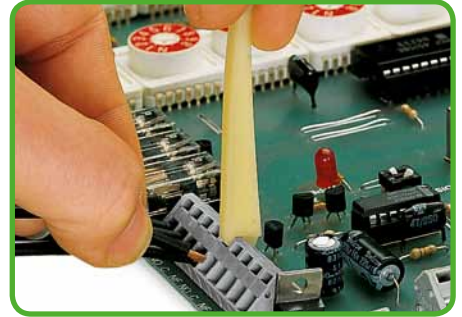
233, 236, 736, 737, 738, 739, 740 and 745 Series



Inserting conductor via 3.5 mm screwdriver. Screwdriver actuation parallel to conductor entry.

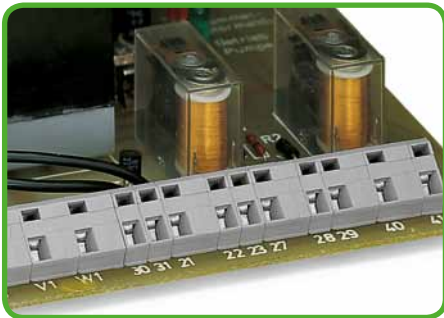


Inserting conductor via 3.5 mm screwdriver. Screwdriver actuation perpendicular to conductor entry.



Inserting conductor via operating tool.

Pin spacing combination



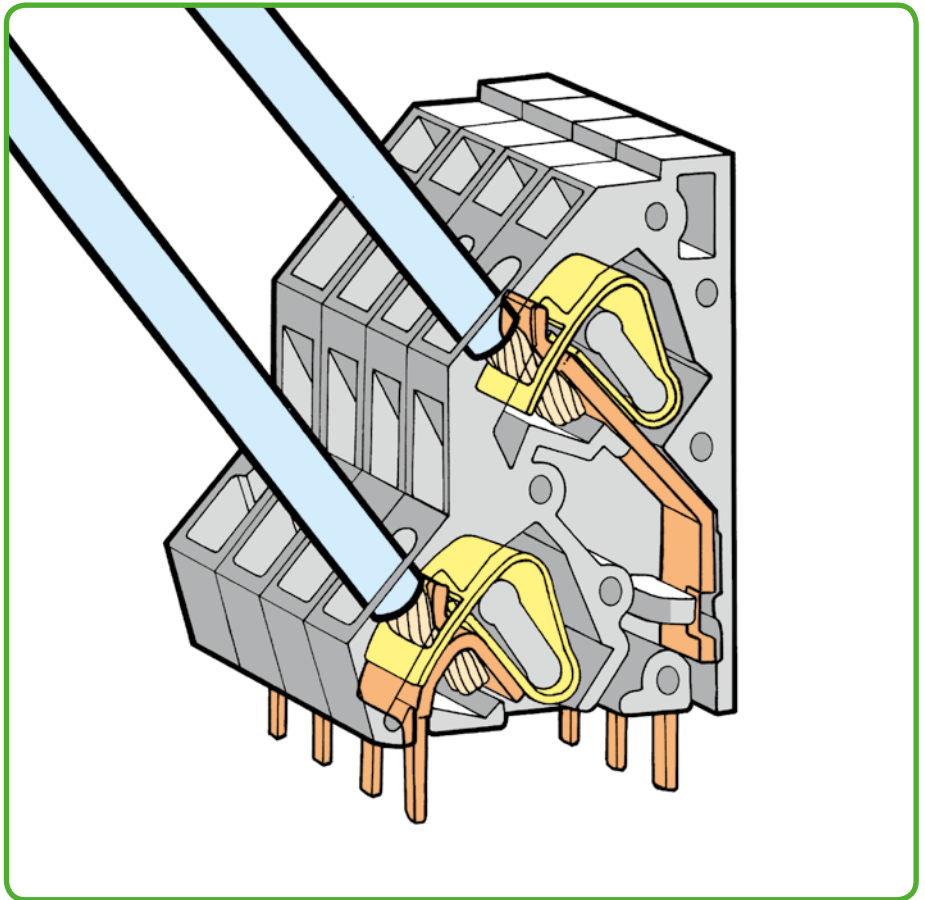
Combining terminal blocks with different pin spacing.

Space-efficient configuration



Terminal strips placed behind each other save space – staggering them by half the pin spacing simplifies subsequent wiring of the first row.

736 Series



Marking

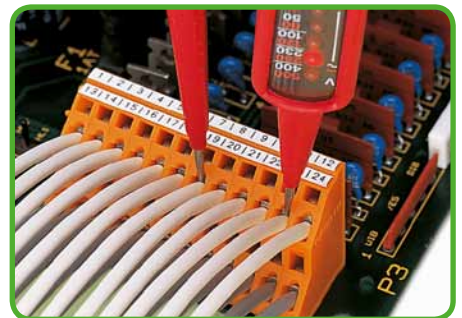


Marking via self-adhesive strips ...



... or factory direct printing.

Testing



Testing via contact area above the conductors.



CAGE CLAMP® clamps the following copper conductors:*

solid



stranded

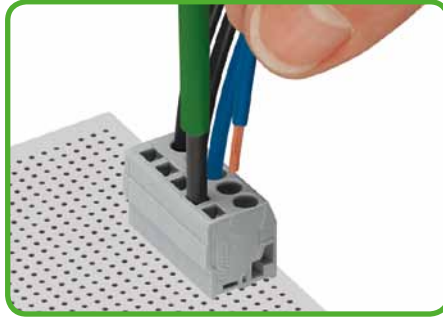


fine-stranded, also with tinned single strands

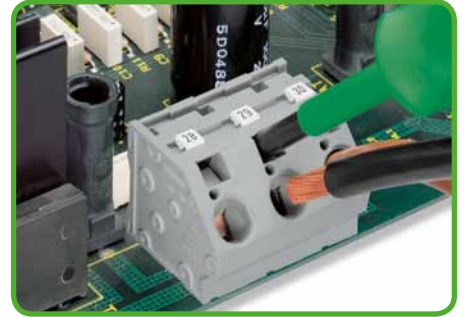
* For aluminum conductors, see notes in Section 11.



Inserting conductor perpendicular to screwdriver actuation - 740 Series.

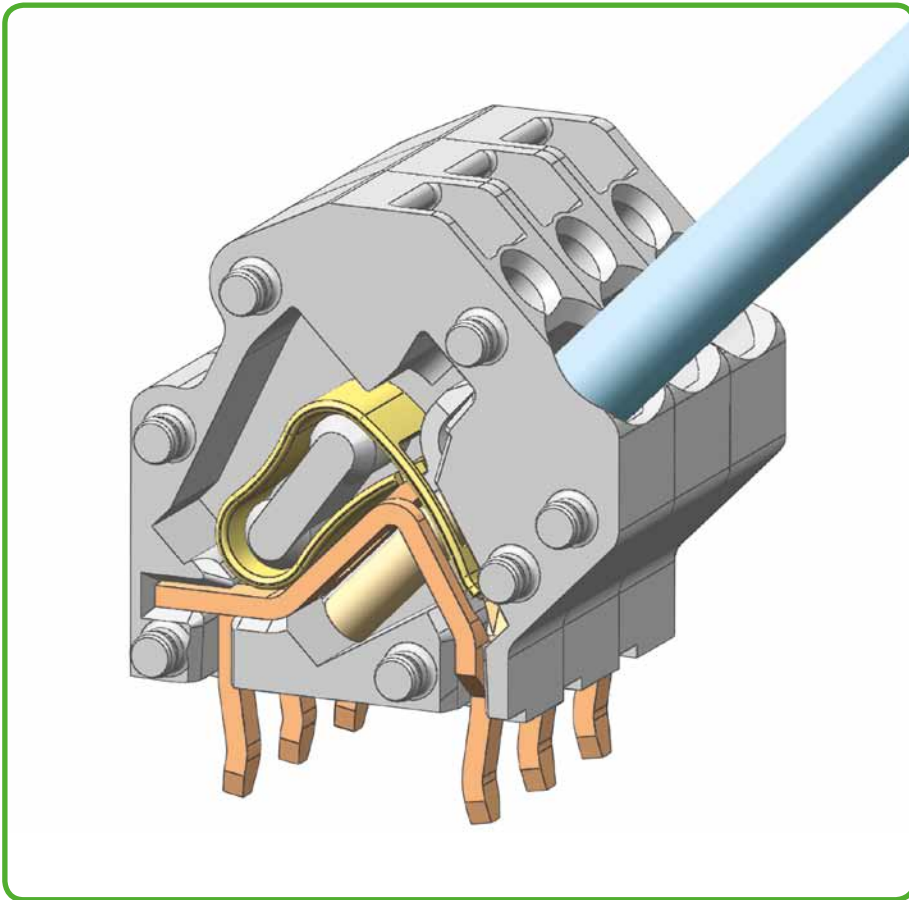


Inserting conductor parallel to screwdriver actuation - 739 Series.

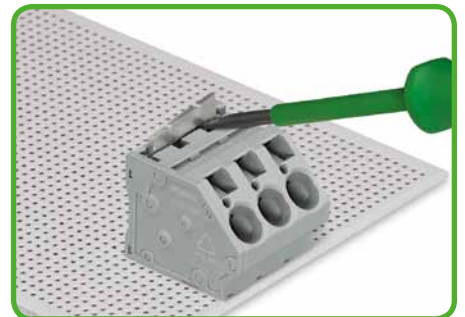


Inserting/removing conductor via 5.5 mm screwdriver - 745 Series, 16 mm².

745 Series



To insert comb-style jumper bar, push it down using a screwdriver until it hits the backstop - 745 Series.



To remove comb-style jumper bar, lift it up using a screwdriver - 745 Series.

Space requirement



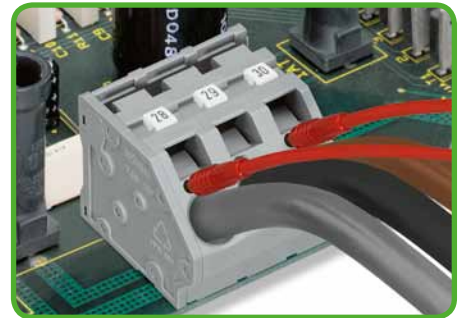
Low space requirements due to high-density design - double-deck terminal strip - 736 Series.

Marking



Marking with miniature WSB and WMB markers or factory direct printing - 745 Series.

Testing



Testing with test plug - 745 Series.



fine-stranded, tip-bonded

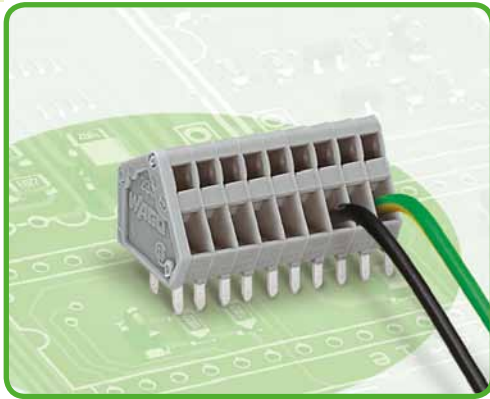


fine-stranded with crimped ferrules (gas-tight)



fine-stranded with crimped pin terminal (gas-tight)

PCB Terminal Strips 0.5 mm² Pin Spacing 2.5 mm, 2.54 mm 233 Series



- Compact terminal strips with CAGE CLAMP® connection, screwdriver actuation parallel or perpendicular to conductor entry
- Double solder pins for high mechanical stability
- Custom color combinations
- For 233 Series with push-buttons, see page 89

Technical data:

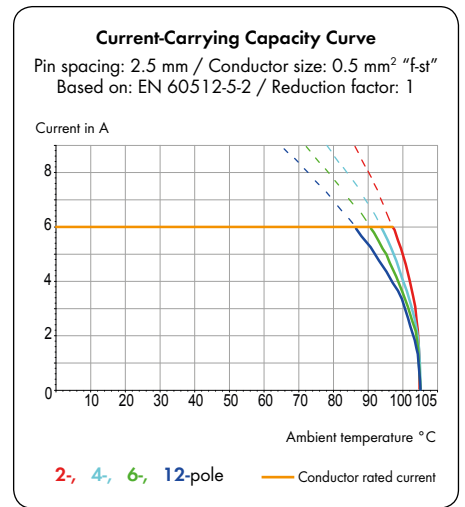
Pin Spacing	2.5 mm 0.098 in			2.54 mm 0.1 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	63 V	160 V	320 V	63 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	6 A	6 A	6 A	6 A	6 A	6 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	150 V	-	-	150 V	-	-
Nominal current UL	4 A	-	-	4 A	-	-
Nominal current CSA	4 A	-	-	4 A	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 0.5 mm ² *
Conductor size: fine-stranded	0.08 - 0.5 mm ² *
Conductor size: fine-stranded	0.25 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 mm ² (with uninsulated ferrule)
AWG	28 - 20
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	30° to PCB
Solder pin: length/width	4 mm / 0.5 x 0.75 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



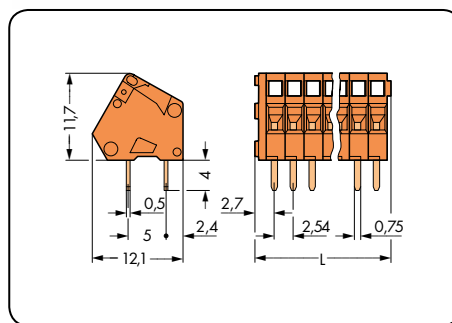
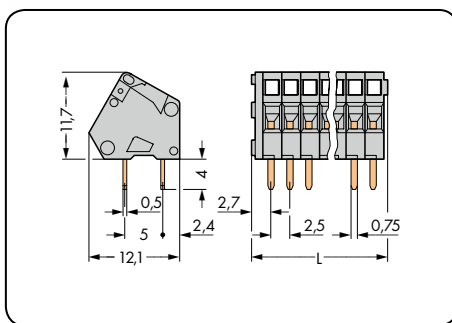
233 Series accessories:

Page:

Marking accessories	540 - 543
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* Terminating 0.75 mm² / AWG 18 conductors is possible; however insulation diameter does not allow clamping units to be terminated in a row.

Pin spacing 2.5 mm / 0.098 in		Pin spacing 2.54 mm / 0.1 in	
0.08 – 0.5 mm ² 160 V/2.5 kV/2 6 A	AWG 28 – 20 150 V/4 A	0.08 – 0.5 mm ² 160 V/2.5 kV/2 6 A	AWG 28 – 20 150 V/4 A



L = (pole no. x pin spacing) + 2.3 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 2 solder pins/pole, gray			Terminal strip, 2 solder pins/pole, orange		
2	233-102	600 (6 x 100)	2	233-402	600 (6 x 100)
3	233-103	500 (4 x 125)	3	233-403	500 (4 x 125)
4	233-104	400 (4 x 100)	4	233-404	400 (4 x 100)
5	233-105	340 (4 x 85)	5	233-405	340 (4 x 85)
6	233-106	280 (4 x 70)	6	233-406	280 (4 x 70)
7	233-107	240 (4 x 60)	7	233-407	240 (4 x 60)
8	233-108	220 (4 x 55)	8	233-408	220 (4 x 55)
9	233-109	200 (4 x 50)	9	233-409	200 (4 x 50)
10	233-110	180 (4 x 45)	10	233-410	180 (4 x 45)
12	233-112	140 (4 x 35)	12	233-412	140 (4 x 35)
16	233-116	100 (4 x 25)	16	233-416	100 (4 x 25)
24	233-124	80 (4 x 20)	24	233-424	80 (4 x 20)
Item No. Suffix: Colored Terminal Strips (Production and prices depend on quantity required)			Item No. Suffix: Colored Terminal Strips (Production and prices depend on quantity required)		
● light green	...../000-017		● yellow	...../000-002	
● red	...../000-005		● black	...../000-004	
● green	...../000-023		● blue	...../000-006	
			● brown	...../000-014	
Ordering example: Terminal strip, 2.5 mm pin spacing, 8-pole, green: 233-108/000-023			Ordering example: Terminal strip, 2.54 mm pin spacing, 8-pole, brown: 233-408/000-014		

Modular PCB Terminal Blocks 2.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 236 Series



- Modular terminal blocks with CAGE CLAMP® connection, screwdriver actuation parallel or perpendicular to conductor entry
- versions with Ex e (increased safety) approval
- For custom terminal strip assemblies
- Operating tools for factory wiring
- 45° conductor entry angle provides a wide variety of applications and wiring options
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart

Technical data:

Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III III II			III III II			III III II		
Overtoltage category	III III II			III III II			III III II		
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A

Conductor and solder pin data:

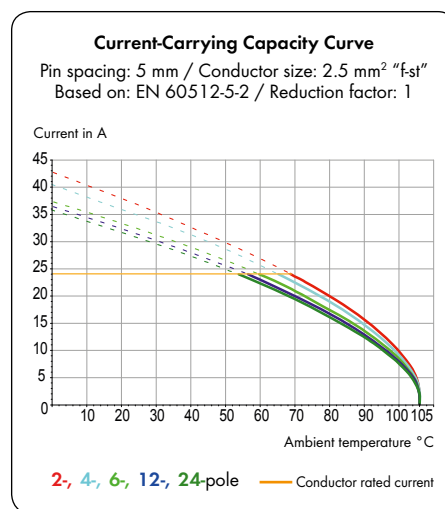
Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 (3.6; 5.5) mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	5/5.08 mm 0.2 in	7.5/7.62 mm 0.3 in	10/10.16 mm 0.4 in
Rating per	ATEX: PTB 06 ATEX 1061 U IECEx: PTB 06.0042 U		
Rated voltage	176 V	275 V	440 V
Nominal current	16 A	16 A	16 A



236 Series accessories:

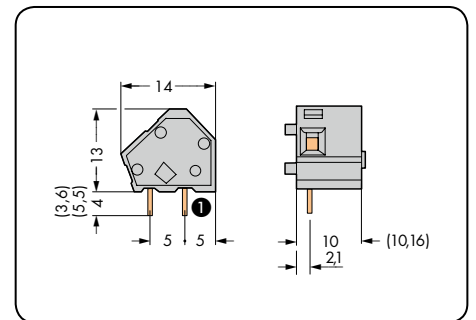
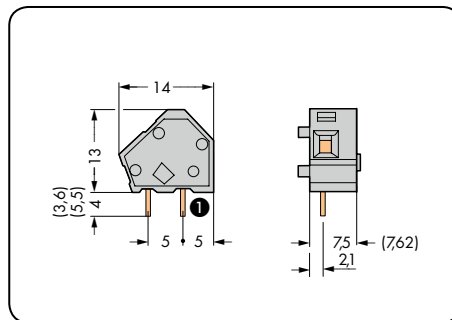
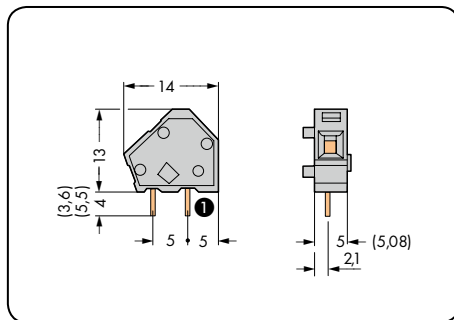
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Modular PCB Terminal Blocks 2.5 mm²

CAGE CLAMP®

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 1000 V/8 kV/2 24 A	AWG 28 - 12 300 V/10 A



① Solder pin position for modular terminal block with one solder pin (rear side)

Color	Item No.	Item No.	Pack. Unit	Color	Item No.	Item No.	Pack. Unit	Color	Item No.	Item No.	Pack. Unit
Modular terminal block				Modular terminal block				Modular terminal block			
1 solder pin/pole		2 solder pins/pole		1 solder pin/pole		2 solder pins/pole		1 solder pin/pole		2 solder pins/pole	
gray	236-101	236-401	600 (6 x 100)	gray	236-201	236-501	400 (4 x 100)	gray	236-301	236-601	300 (3 x 100)
red	236-710	236-740	600 (6 x 100)	dark gray	236-722	236-752	400 (4 x 100)	dark gray	236-732	236-762	300 (3 x 100)
yellow	236-711	236-741	600 (6 x 100)	light gray	236-723	236-753	400 (4 x 100)	light gray	236-733	236-763	300 (3 x 100)
dark gray	236-712	236-742	600 (6 x 100)	① blue	236-724	236-754	400 (4 x 100)	① blue	236-734	236-764	300 (3 x 100)
light gray	236-713	236-743	600 (6 x 100)	green	236-725	236-755	400 (4 x 100)	green	236-735	236-765	300 (3 x 100)
blue	236-714	236-744	600 (6 x 100)	orange	236-726	236-756	400 (4 x 100)	orange	236-736	236-766	300 (3 x 100)
green	236-715	236-745	600 (6 x 100)	light green	236-727	236-757	400 (4 x 100)	light green	236-737	236-767	300 (3 x 100)
orange	236-716	236-746	600 (6 x 100)	black	236-855	236-852	400 (4 x 100)	black	236-856	236-853	300 (3 x 100)
light green	236-717	236-747	600 (6 x 100)	brown	236-885	236-882	400 (4 x 100)				
purple	236-894	236-891	600 (6 x 100)								
black	236-854	236-851	600 (6 x 100)								
brown	236-884	236-881	600 (6 x 100)								
○ Ex e II	236-743/999-950			○ Ex e II	236-753/999-950			○ Ex e II	236-763/999-950		
				① Suitable for Ex i applications				① Suitable for Ex i applications			
Item no. suffix for 2 solder pins/pole with 3.6 mm long solder pins: /334-000											
Item no. suffix for 2 solder pins/pole with 5.5 mm long solder pins: /332-000											

End plates for 236 Series, snap-on type, 1 mm/0.039 in thick	Color	Item No.	Pack. Unit
	gray	236-100	100
	dark gray	236-200	100
	light gray	236-300	100
	blue	236-400	100
	green	236-500	100
	orange	236-600	100
	light green	236-700	100
	red	236-800	100
black	236-850	100	

For other colors, please contact factory.



PCB Terminal Strips 2.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 236 Series



- Terminal strips with CAGE CLAMP® connection, screwdriver actuation parallel or perpendicular to conductor entry
- versions with Ex e (increased safety) approval
- Mixed-color terminal strips from factory
- Operating tools for factory wiring
- 45° conductor entry angle provides a wide variety of applications and wiring options
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart

Technical data:

Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A

Conductor and solder pin data:

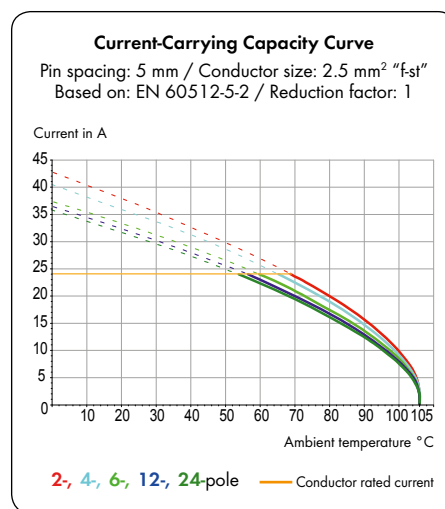
Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 (3.6; 5.5) mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	5/5.08 mm 0.2 in	7.5/7.62 mm 0.3 in	10/10.16 mm 0.4 in
Rating per	ATEX: PTB 06 ATEX 1061 U		IECEX: PTB 06.0042 U
Rated voltage	176 V	275 V	440 V
Nominal current	16 A	16 A	16 A

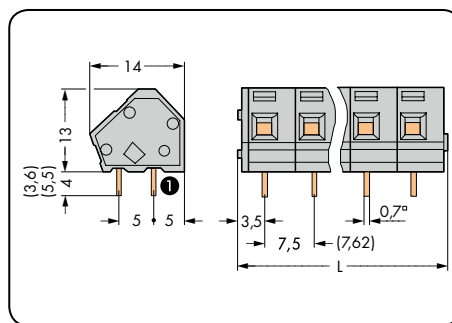
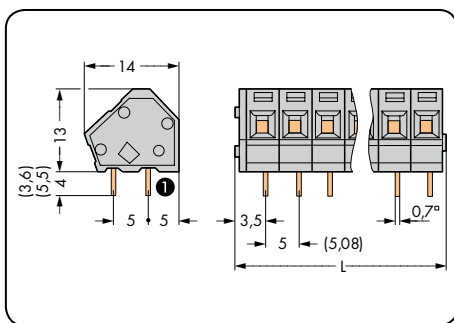


236 Series accessories:

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Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 – 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 – 12 300 V/10 A	0.08 – 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 – 12 300 V/10 A	0.08 – 2.5 mm ² 1000 V/8 kV/2 24 A	AWG 28 – 12 300 V/10 A



L = (pole no. x pin spacing) + 2.3 mm

① Solder pin position for modular terminal block with 1 solder pin (rear side)

Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
Terminal strip, 2 solder pins/pole, gray				Terminal strip, 2 solder pins/pole, gray				Terminal strip, 2 solder pins/pole, gray			
1 solder pin/pole		2 solder pins/pole		1 solder pin/pole		2 solder pins/pole		1 solder pin/pole		2 solder pins/pole	
2	236-102	236-402	420 (4 x 105)	2	236-202	236-502	280 (4 x 70)	2	236-302	236-602	200 (4 x 50)
3	236-103	236-403	280 (4 x 70)	3	236-203	236-503	200 (4 x 50)	3	236-303	236-603	140 (4 x 35)
4	236-104	236-404	220 (4 x 55)	4	236-204	236-504	140 (4 x 35)	4	236-304	236-604	100 (4 x 25)
6	236-106	236-406	140 (4 x 35)	6	236-206	236-506	100 (4 x 25)	6	236-306	236-606	80 (4 x 20)
8	236-108	236-408	100 (4 x 25)	8	236-208	236-508	80 (4 x 20)	8	236-308	236-608	60 (4 x 15)
12	236-112	236-412	80 (4 x 20)	12	236-212	236-512	40 (4 x 10)	12	236-312	236-612	40 (4 x 10)
16	236-116	236-416	60 (4 x 15)	16	236-216	236-516	40 (4 x 10)	16	236-316	236-616	20 (4 x 5)
24	236-124	236-424	40 (4 x 10)	24	236-224	236-524	20 (4 x 5)	24	236-324	236-624	20 (4 x 5)
36	236-136	236-436	20 (4 x 5)								
48	236-148	236-448	20 (4 x 5)								

Item no. suffix for 2 solder pins/pole with 3.6 mm long solder pins: /334-000

Item no. suffix for 2 solder pins/pole with 5.5 mm long solder pins: /332-000

Item no. suffixes for Ex e II and Ex i applications:

- Ex e II /000-009/999-950 (Ex e II only for PCB Terminal Strips with 2 solder pins/pole)
- ① Ex i /000-006 (only for 7.5/7.62 mm and 10/10.16 mm pin spacing)

Ordering example:

Terminal strip, 10/10.16 mm pin spacing,
8-pole, Ex e II: **236-608/000-009/999-950**

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

- black /000-004
- ① blue /000-006
- dark gray /000-008
- light gray /000-009
- orange /000-012
- light green /000-017
- green /000-023

Ordering example:

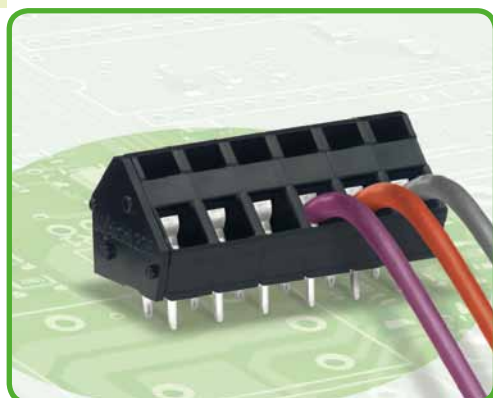
Terminal strip, 5/5.08 mm pin spacing,
2 solder pins/pole
8-pole, orange: **236-408/000-012**



PCB Terminal Strips 2.5 mm², THR (Through-Hole Reflow*)

Pin Spacing 5 mm

236 Series



- Terminal strips made of high-temperature resistant plastic are suitable for SMT reflow soldering
- Tape-and-reel packaging
- Double solder pins for high mechanical stability

Technical data:

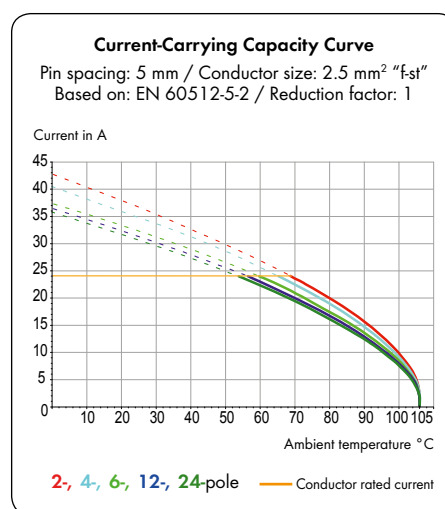
Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	200 V	320 V	320 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	24 A	24 A	24 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	3.6 mm / 0.7 x 0.7 mm
Solder pin: metal plated hole	Ø 1.1 ^{+0.1} mm

Material data:

Material group	III a
Insulating material	Nylon 4.6 (PA 4.6)
Flammability rating per UL 94	V2
Lower/Upper temperature limit	-60 °C / +115 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

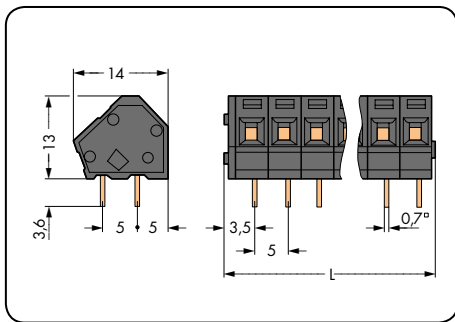


236 Series accessories:

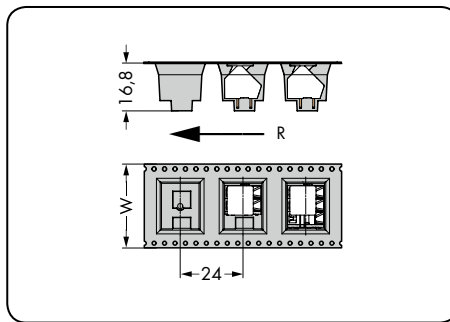
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Pin spacing 5 mm / 0.197 in 0.08 – 2.5 mm ² AWG 28 – 12 320 V/4 kV/2 24 A 300 V/10 A		Terminal strips in tape-and-reel packaging Pin spacing 5 mm / 0.197 in 0.08 – 2.5 mm ² AWG 28 – 12 320 V/4 kV/2 24 A 300 V/10 A	
--	--	---	--



L = (pole no. x pin spacing) + 2.3 mm



W = Tape width
R = Feed direction

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Terminal strip, THR, 2 solder pins/pole, black			Terminal strips with additional suction pad in tape-and-reel packaging acc. to IEC 60286-3, black (mm)		
2	236-402/334-604	420 (4 x 105)	2	236-402/334-604/997-405	32
3	236-403/334-604	280 (4 x 70)	3	236-403/334-604/997-405	32
4	236-404/334-604	220 (4 x 55)	4	236-404/334-604/997-406	44
5	236-405/334-604	180 (4 x 45)	5	236-405/334-604/997-406	44
6	236-406/334-604	140 (4 x 35)	6	236-406/334-604/997-406	44
Reel diameter: 330 mm, 120 pieces per reel					

1 Modular PCB Terminal Blocks 4 mm² Pin Spacing 5 mm 745 Series

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- Modular terminal blocks with screwdriver-actuated CAGE CLAMP® for custom terminal strip assemblies
- versions with Ex e (increased safety) approval
- Spacers for higher voltage applications
- Double solder pins for high mechanical stability
- Space-efficient configuration of terminal strips placed behind each other
- Integrated test port

Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	32 A	32 A	32 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	20 A	-	10 A
Nominal current CSA	20 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 4 mm ²
Conductor size: fine-stranded	0.08 - 4 mm ²
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.8 x 1.2 mm
Solder pin: drilled hole diameter	1.5 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

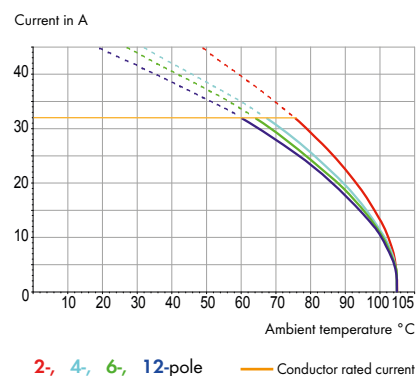
Pin Spacing	5 mm 0.197 in
Rating per	
ATEX: PTB 06 ATEX 1014 U IECEX: IECEX PTB 06.0039 U	
Rated voltage	176 V
Nominal current	27 A

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.

Current-Carrying Capacity Curve

Pin spacing: 5 mm / Conductor size: 4 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1

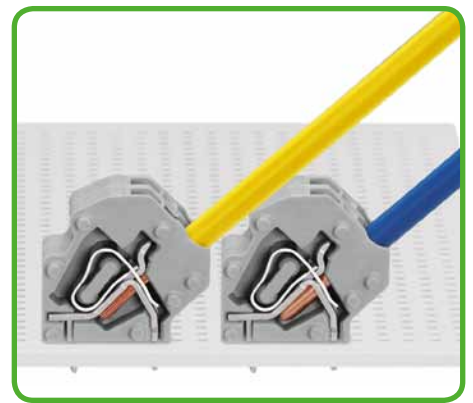
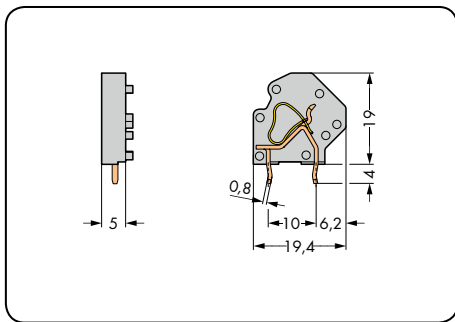


745 Series accessories:

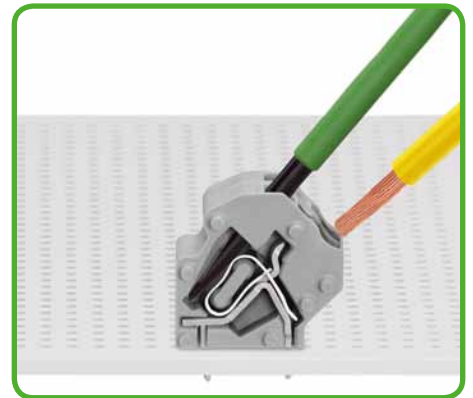
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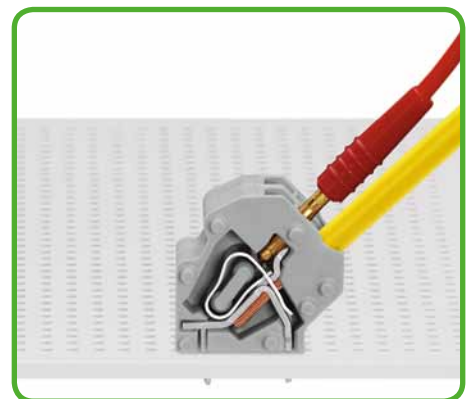
Pin spacing 5 mm / 0.197 in	
0.08 – 4 mm ² 320 V/4 kV/2 32 A	AWG 28 – 12 300 V/10 A




Saving space: 2 terminal strips arranged behind each other.



Inserting a conductor via 3.5 mm screwdriver.



Testing with Ø 2 mm test plug.

Color	Item No.	Pack. Unit
Modular terminal block, 2 solder pins/pole		
● gray	745-3801	200
○ light gray	745-3803	200
● blue	745-3804	200
● green-yellow	745-3807	200
● light green	745-3808	200
○ Ex e II	745-3803/999-950	
Product Accessories		
Spacer for extending pin spacing, 2.5 mm thick, gray		
	745-3138	200 (4 x 50)

End plates, 745 Series	Item No.	Pack. Unit
● gray	745-3100	1000 (10 x 100)
● blue	745-3100/000-006	1000 (10 x 100)
○ light gray	745-3100/000-009	1000 (10 x 100)
● green-yellow	745-3100/000-016	1000 (10 x 100)
● light green	745-3100/000-017	1000 (10 x 100)



PCB Terminal Strips 4 mm² Pin Spacing 5 mm, 7.5 mm 745 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- versions with Ex e (increased safety) approval
- Space-efficient configuration of terminal strips placed behind each other
- Custom color combinations
- Double solder pins for high mechanical stability
- Integrated test ports

Technical data:

Pin Spacing	5 mm 0.197 in			7.5 mm 0.295 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtension category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	500 V	630 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV
Nominal current	32 A	32 A	32 A	32 A	32 A	32 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	150 V	300 V
Nominal current UL	20 A	-	10 A	20 A	20 A	10 A
Nominal current CSA	20 A	-	10 A	20 A	20 A	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 4 mm ²
Conductor size: fine-stranded	0.08 - 4 mm ²
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.8 x 1.2 mm
Solder pin: drilled hole diameter	1.5 ^{+0.1} mm

Material data:

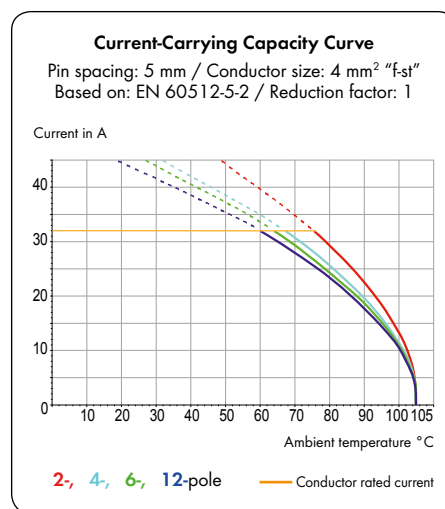
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	5 mm 0.197 in	7.5 mm 0.295 in
	Rating per	ATEX: PTB 06 ATEX 1014 U IECEx: IECEx PTB 06.0039 U
Rated voltage	176 V	352 V
Nominal current	27 A	27 A

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.

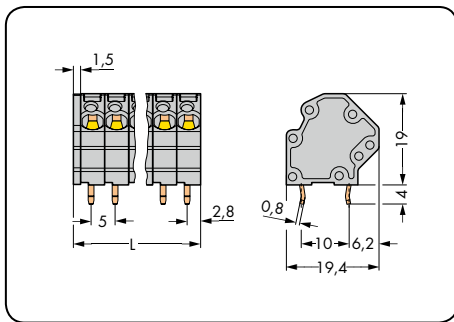


745 Series accessories:

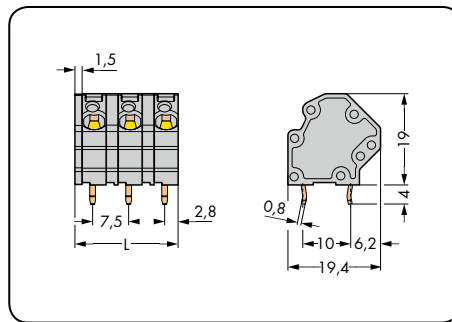
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Pin spacing 5 mm / 0.197 in		Pin spacing 7.5 / 0.295 in	
0.08 – 4 mm ²	AWG 28 – 12	0.08 – 4 mm ²	AWG 28 – 12
320 V/4 kV/2 32 A	300 V/10 A	630 V/6 kV/2 32 A	300 V/10 A



L = (pole no. x pin spacing) + 1.5 mm



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 2 solder pins/pole, gray			Terminal strip, 2 solder pins/pole, gray		
2	745-3102	276	2	745-3152	228
3	745-3103	192	3	745-3153	144
4	745-3104	144	4	745-3154	108
5	745-3105	120	5	745-3155	84
6	745-3106	96	6	745-3156	72
7	745-3107	84	7	745-3157	60
8	745-3108	72	8	745-3158	48
9	745-3109	60	9	745-3159	48
10	745-3110	60	10	745-3160	36
11	745-3111	48	11	745-3161	36
12	745-3112	48	12	745-3162	36

Item no. suffixes for Ex e II and Ex i applications:

○ Ex e II ...-.../000-009/999-950	Ordering example:
● Ex i ...-.../000-006 (only for 7.5 mm pin spacing)	Terminal strip, 7.5 mm pin spacing,
	8-pole, Ex e II: 745-3158/000-009/999-950

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● blue ...-.../000-006	Ordering example:
○ light gray ...-.../000-009	Terminal strip, 5 mm pin spacing
● green-yellow ...-.../000-016	8-pole, light gray: 745-3108/000-009
● light green ...-.../000-017	

PCB Terminal Strips 4 mm² Pin Spacing 10 mm, 12.5 mm 745 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- versions with Ex e (increased safety) approval
- UL approval up to 600 V for 12.5 mm pin spacing
- Custom color combinations
- Double solder pins for high mechanical stability
- Integrated test ports

Technical data:

Pin Spacing	10 mm 0.394 in			12.5 mm 0.492 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	800 V	1000 V	1000 V	1000 V	1000 V	1000 V
Rated surge voltage	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV
Nominal current	32 A	32 A	32 A	32 A	32 A	32 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	300 V	300 V	600 V	600 V	600 V	-
Nominal current UL	20 A	20 A	5 A	20 A	20 A	-
Nominal current CSA	20 A	20 A	5 A	20 A	20 A	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 4 mm ²
Conductor size: fine-stranded	0.08 - 4 mm ²
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.8 x 1.2 mm
Solder pin: drilled hole diameter	1.5 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

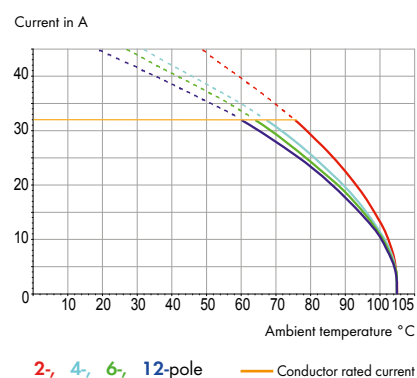
Pin Spacing	10 mm 0.394 in	12.5 mm 0.492 in
Rating per	ATEX: PTB 06 ATEX 1014 U IECEx: IECEx PTB 06.0039 U	
Rated voltage	440 V	550 V
Nominal current	27 A	27 A

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.

Current-Carrying Capacity Curve

Pin spacing: 5 mm / Conductor size: 4 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1

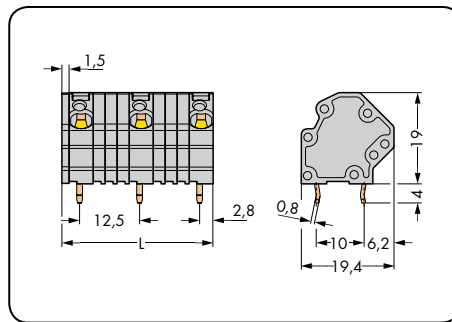
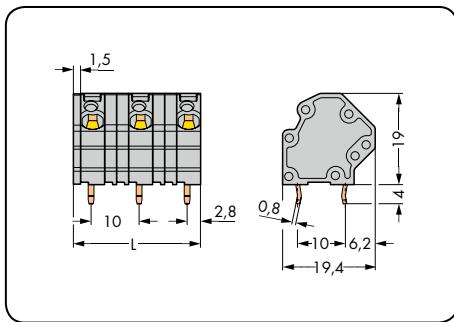


745 Series accessories:

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Pin spacing 10 mm / 0.394 in		Pin spacing 12.5 mm / 0.492 in	
0.08 – 4 mm ²	AWG 28 – 12	0.08 – 4 mm ²	AWG 28 – 12
1000 V/8 kV/2 32 A	300 V/20 A	1000 V/8 kV/2 32 A	600 V/20 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 2 solder pins/pole, gray			Terminal strip, 2 solder pins/pole, gray		
2	745-3202	192	2	745-3252	168
3	745-3203	120	3	745-3253	96
4	745-3204	84	4	745-3254	72
5	745-3205	60	5	745-3255	48
6	745-3206	48	6	745-3256	36
7	745-3207	48	7	745-3257	36
8	745-3208	36	8	745-3258	24
9	745-3209	36	9	745-3259	24
10	745-3210	24	10	745-3260	24
11	745-3211	24	11	745-3261	24
12	745-3212	24	12	745-3262	12

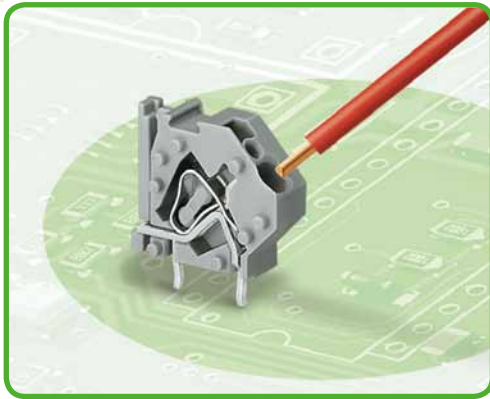
Item no. suffixes for Ex e II and Ex i applications:

○ Ex e II/000-009/999-950	Ordering example: Terminal strip, 12.5 mm pin spacing 8-pole, Ex e II: 745-3258/000-009/999-950
● Ex i/000-006	

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● blue/000-006	Ordering example: Terminal strip, 10 mm pin spacing 8-pole, light gray: 745-3208/000-009
○ light gray	...../000-009
● green-yellow	...../000-016
● light green	...../000-017

Modular PCB Terminal Blocks with Jumper Slots 4 mm² Pin Spacing 5 mm, 7.5 mm, 10 mm 745 Series



- Modular terminal blocks with screwdriver-actuated CAGE CLAMP® for custom terminal strip assemblies
- versions with Ex e (increased safety) approval
- Comb-style jumper bars for commoning and distributing potentials
- Double solder pins for high mechanical stability
- Integrated test port
- Marker slot for miniature WSB markers

Technical data:

Pin Spacing	5 mm 0.197 in			7.5 mm 0.295 in			10 mm 0.394 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	500 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	32 A	32 A	32 A	32 A	32 A	32 A	32 A	32 A	32 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	150 V	300 V	300 V	150 V	300 V
Nominal current UL	20 A	-	10 A	20 A	20 A	10 A	20 A	20 A	10 A
Nominal current CSA	20 A	-	10 A	20 A	20 A	10 A	20 A	20 A	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 4 mm ²
Conductor size: fine-stranded	0.08 - 4 mm ²
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.8 x 1.2 mm
Solder pin: drilled hole diameter	1.5 ^{+0.1} mm

Material data:

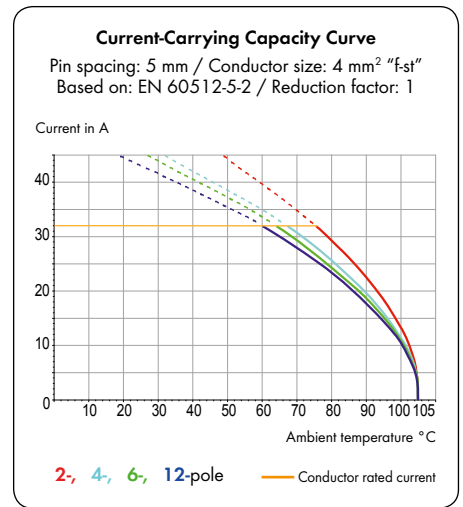
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	5 mm 0.197 in	7.5 mm 0.295 in	10 mm 0.394 in
Rating per	ATEX: PTB 06 ATEX 1014 U IECEx: IECEx PTB 06.0039 U		
Rated voltage	176 V	352 V	440 V
Nominal current without jumpers	27 A	27 A	27 A
Nominal current with jumpers	21 A	21 A	21 A

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.

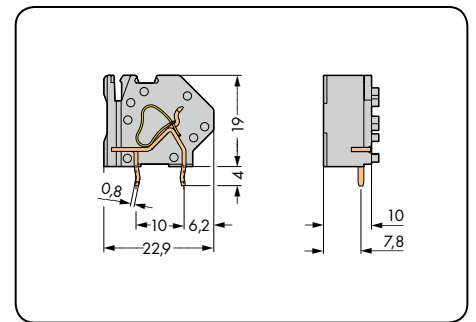
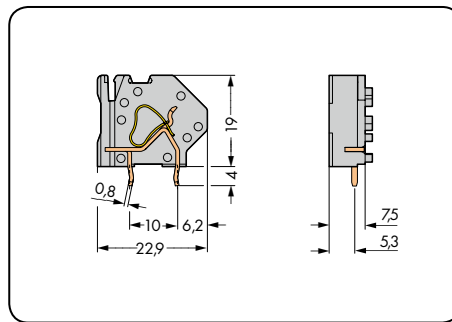
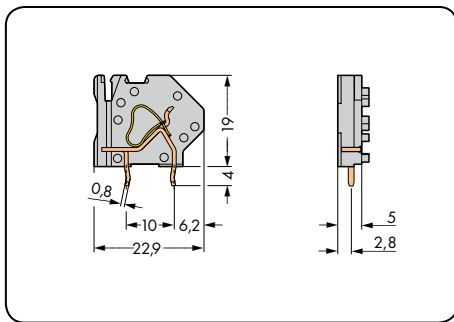


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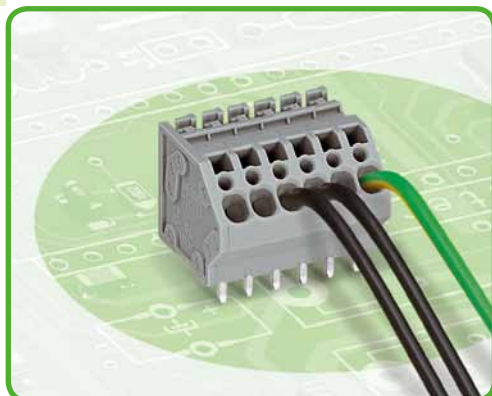
Pin spacing 5 mm / 0.197 in		Pin spacing 7.5 mm / 0.295 in		Pin spacing 10 mm / 0.394 in	
0.08 – 4 mm ² 320 V/4 kV/2 32 A	AWG 28 – 12 300 V/10 A	0.08 – 4 mm ² 630 V/6 kV/2 32 A	AWG 28 – 12 300 V/10 A	0.08 – 4 mm ² 1000 V/8 kV/2 32 A	AWG 28 – 12 300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Modular terminal block with jumper slot, 2 solder pins/pole			Modular terminal block with jumper slot, 2 solder pins/pole			Modular terminal block with jumper slot, 2 solder pins/pole		
● gray	745-801	200 (4 x 50)	● gray	745-811	200 (4 x 50)	● gray	745-821	200 (4 x 50)
○ light gray	745-803	200 (4 x 50)	○ light gray	745-813	200 (4 x 50)	○ light gray	745-823	200 (4 x 50)
① blue	745-804	200 (4 x 50)	① blue	745-814	200 (4 x 50)	① blue	745-824	200 (4 x 50)
● green-yellow	745-807	200 (4 x 50)	● green-yellow	745-817	200 (4 x 50)	● green-yellow	745-827	200 (4 x 50)
● light green	745-808	200 (4 x 50)	● light green	745-818	200 (4 x 50)	● light green	745-828	200 (4 x 50)
○ Ex e II	745-803/999-950		○ Ex e II	745-813/999-950		○ Ex e II	745-823/999-950	
			① Suitable for Ex i applications			① Suitable for Ex i applications		

End plates, 745 Series – 4 mm ²	Item No.	Pack. Unit
	745-100	1000 (10 x 100)
	745-140	500 (5 x 100)
	745-145	500 (5 x 100)
Item no. suffixes for end plates in different colors:		
● blue	...../000-006	Ordering example: End plate with fixing flange, light gray: 745-140/000-009
○ light gray	...../000-009	
● green-yellow	...../000-016	
● light green	...../000-017	

PCB Terminal Strips with Jumper Slots 4 mm² Pin Spacing 5 mm, 7.5 mm, 10 mm 745 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- versions with Ex e (increased safety) approval
- Comb-style jumper bars for commoning and distributing potentials
- Custom color combinations
- Double solder pins for high mechanical stability
- Integrated test ports
- Marker slot for miniature WSB markers

Technical data:

Pin Spacing	5 mm 0.197 in			7.5 mm 0.295 in			10 mm 0.394 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage*	320 V	320 V	630 V	500 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	32 A	32 A	32 A	32 A	32 A	32 A	32 A	32 A	32 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	150 V	300 V	300 V	150 V	300 V
Nominal current UL	20 A	-	10 A	20 A	20 A	10 A	20 A	20 A	10 A
Nominal current CSA	20 A	-	10 A	20 A	20 A	10 A	20 A	20 A	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 4 mm ²
Conductor size: fine-stranded	0.08 - 4 mm ²
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.8 x 1.2 mm
Solder pin: drilled hole diameter	1.5 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

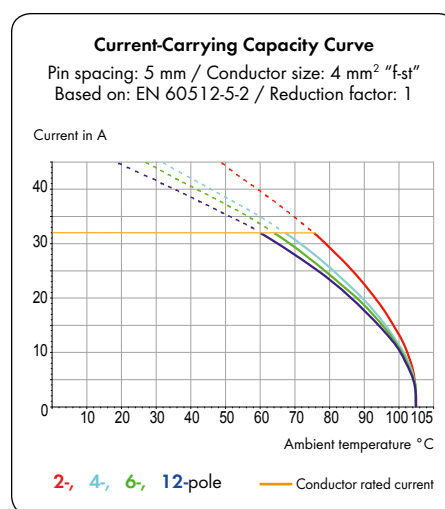
Technical data for Ex e II () versions:

Pin Spacing	5 mm 0.197 in	7.5 mm 0.295 in	10 mm 0.394 in
Rating per	ATEX: PTB 06 ATEX 1014 U IECEx: IECEx PTB 06.0039 U		
Rated voltage	176 V	352 V	440 V
Nominal current without jumpers	27 A	27 A	27 A
Nominal current with jumpers	21 A	21 A	21 A

* Using adjacent jumpers, the rated voltage is reduced to 250 V with 5 mm pin spacing in Category III/3 and to 400 V with 7.5 mm pin spacing in Category III/3.

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.

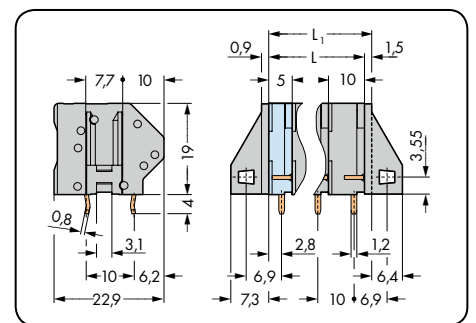
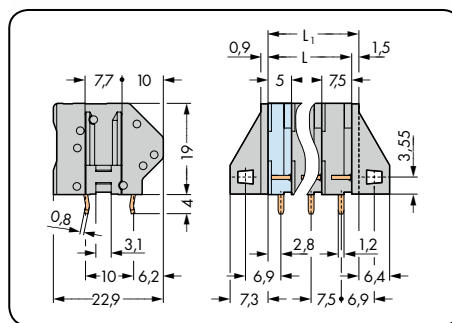
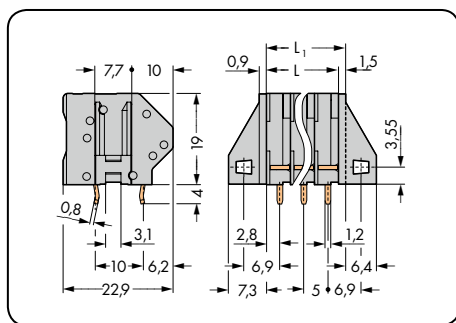
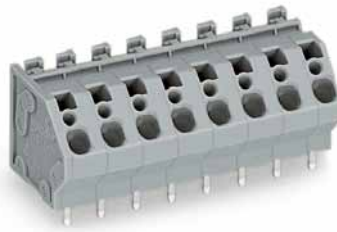


745 Series accessories:

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Pin spacing 5 mm / 0.197 in		Pin spacing 7.5 mm / 0.295 in		Pin spacing 10 mm / 0.394 in	
0.08 – 4 mm ²	AWG 28 – 12	0.08 – 4 mm ²	AWG 28 – 12	0.08 – 4 mm ²	AWG 28 – 12
320 V/4 kV/2 32 A	300 V/10 A	630 V/6 kV/2 32 A	300 V/10 A	1000 V/8 kV/2 32 A	300 V/10 A



L = (pole no. - 1) x pin spacing + 5 mm
 L₁ = L + 1.5 mm \triangleq without fixing flanges

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with jumper slot, 2 solder pins/pole, gray			Terminal strip with jumper slot, 2 solder pins/pole, gray			Terminal strip with jumper slot, 2 solder pins/pole, gray		
2	745-102	230	2	745-152	180	2	745-202	160
3	745-103	160	3	745-153	120	3	745-203	100
4	745-104	120	4	745-154	90	4	745-204	70
5	745-105	100	5	745-155	70	5	745-205	50
6	745-106	80	6	745-156	60	6	745-206	40
7	745-107	70	7	745-157	50	7	745-207	40
8	745-108	60	8	745-158	40	8	745-208	30
9	745-109	50	9	745-159	40	9	745-209	30
10	745-110	50	10	745-160	30	10	745-210	20
12	745-112	40	12	745-162	30	12	745-212	20

Item no. suffix for terminal strips with fixing flanges:/005-000

Item no. suffixes for Ex e II and Ex i applications:

○ Ex e II	...../000-009/999-950	Ordering examples:
● Ex i	...../000-006 (only for 7.5 mm and 10 mm pin spacing)	Terminal strip with fixing flanges, 10 mm pin spacing, 8-pole, Ex e II: 745-208/005-009/999-950

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● black	...../000-004	Ordering examples:
● blue	...../000-006	Terminal strip without fixing flanges, 5 mm pin spacing, 8-pole, light gray: 745-108/000-009 (...../000-... without fixing flanges)
○ light gray	...../000-009	
● green-yellow	...../000-016	
● light green	...../000-017	Terminal strip with fixing flanges, 5 mm pin spacing, 8-pole, light gray: 745-108/005-009 (...../005-... with fixing flanges)
● green	...../000-023	

Modular PCB Terminal Blocks with Jumper Slots 6 mm² Pin Spacing 7.5 mm, 10 mm 745 Series



- Modular terminal blocks with screwdriver-actuated CAGE CLAMP® for custom terminal strip assemblies
- versions with Ex e (increased safety) approval
- Comb-style jumper bars for commoning and distributing potentials
- Spacers for higher voltage applications
- Double solder pins for high mechanical stability
- Integrated test port
- Marker slot for miniature WSB and WMB markers

Technical data:

Pin Spacing	7.5 mm 0.295 in			10 mm 0.394 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	41 A	41 A	41 A	41 A	41 A	41 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	300 V	150 V	300 V	300 V	150 V	300 V
Nominal current UL	30 A	30 A	10 A	30 A	30 A	10 A
Nominal current CSA	30 A	30 A	10 A	30 A	30 A	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.2 – 6 mm ²
Conductor size: fine-stranded	0.2 – 6 mm ²
Conductor size: fine-stranded	0.25 – 4 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 – 4 mm ² (with uninsulated ferrule)
AWG	24 – 10
Strip length	11 – 12 mm / 0.39 – 0.43 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4.5 mm / 1 x 1.4 mm
Solder pin: drilled hole diameter	1.8 ^{+0.1} mm

Material data:

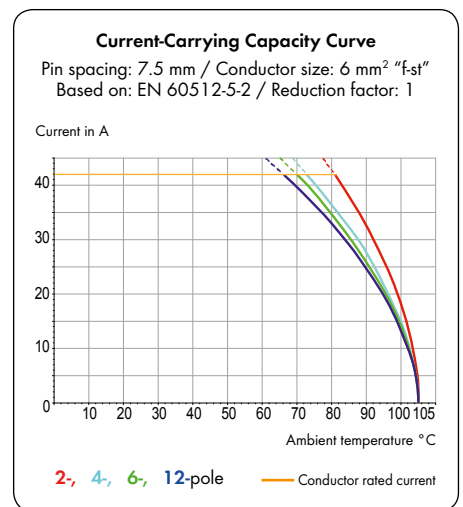
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	7.5 mm 0.295 in	10 mm 0.394 in
Rating per	ATEX: PTB 06 ATEX 1014 U IECEx: IECEx PTB 06.00039 U	
Rated voltage	275 V	440 V
Nominal current without jumpers	37 A	37 A
Nominal current with jumpers	31 A	31 A

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.

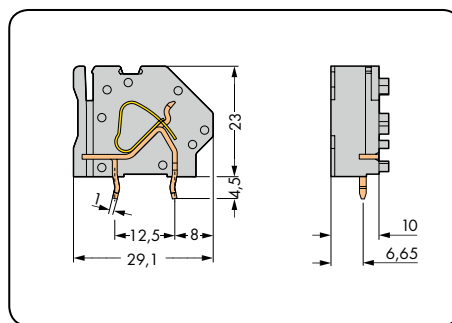
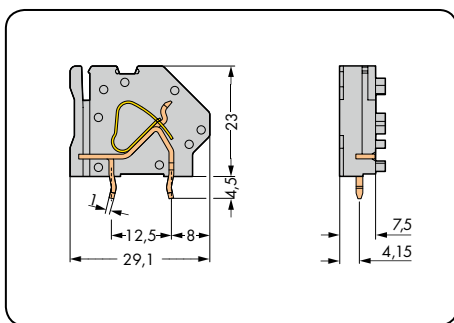



745 Series accessories:




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Pin spacing 7.5 mm / 0.295 in		Pin spacing 10 mm / 0.394 in	
0.2 – 6 mm ²	AWG 24 – 10	0.2 – 6 mm ²	AWG 24 – 10
630 V/6 kV/2 41 A	300 V/10 A	1000 V/8 kV/2 41 A	300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Modular terminal block with jumper slot, 2 solder pins/pole			Modular terminal block with jumper slot, 2 solder pins/pole		
● gray	745-831	100 (2 x 50)	● gray	745-841	100 (2 x 50)
○ light gray	745-833	100 (2 x 50)	○ light gray	745-843	100 (2 x 50)
① blue	745-834	100 (2 x 50)	① blue	745-844	100 (2 x 50)
● green-yellow	745-837	100 (2 x 50)	● green-yellow	745-847	100 (2 x 50)
● light green	745-838	100 (2 x 50)	● light green	745-848	100 (2 x 50)
○ Ex e II	745-833/999-950		○ Ex e II	745-843/999-950	
① Suitable for Ex i applications			① Suitable for Ex i applications		
Product Accessories	Item No.	Pack. Unit			
Spacer (commoning via spacer is not possible) 2.5 mm thick, gray					
	745-338	500 (10 x 50)			

End plates, 745 Series – 6 mm ²	Item No.	Pack. Unit
	End plate, snap-on type, 1.6 mm thick, gray	745-300 100
	End plate with fixing flange, gray	745-340 50
	End plate with fixing flange, gray	745-345 50
Item no. suffixes for end plates in different colors:		
● blue	... /000-006	Ordering example:
○ light gray	... /000-009	End plate with fixing flange,
● green-yellow	... /000-016	light gray: 745-340/000-009
● light green	... /000-017	

1 PCB Terminal Strips 6 mm² Pin Spacing 10 mm, 12.5 mm, 15 mm 745 Series

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- Terminal strips with screwdriver-actuated CAGE CLAMP® (cannot be commoned!)
- versions with Ex e (increased safety) approval
- UL approval up to 600 V for 12.5 mm pin spacing
- Custom color combinations
- Double solder pins for high mechanical stability
- Integrated test ports
- Marker slot for miniature WSB and WMB markers

Technical data:

Pin Spacing	10 mm 0.394 in			12.5 mm 0.492 in			15 mm 0.591 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	800 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
Rated surge voltage	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV
Nominal current	41 A	41 A	41 A	41 A	41 A	41 A	41 A	41 A	41 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	300 V	600 V	600 V	600 V	-	600 V	600 V	-
Nominal current UL	10 A	10 A	5 A	30 A	30 A	-	30 A	30 A	-
Nominal current CSA	10 A	10 A	5 A	30 A	30 A	-	30 A	30 A	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.2 - 6 mm ²
Conductor size: fine-stranded	0.2 - 6 mm ²
Conductor size: fine-stranded	0.25 - 4 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 4 mm ² (with uninsulated ferrule)
AWG	24 - 10
Strip length	11 - 12 mm / 0.43 - 0.47 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4.5 mm / 1 x 1.4 mm
Solder pin: drilled hole diameter	1.8 ^{+0.1} mm

Material data:

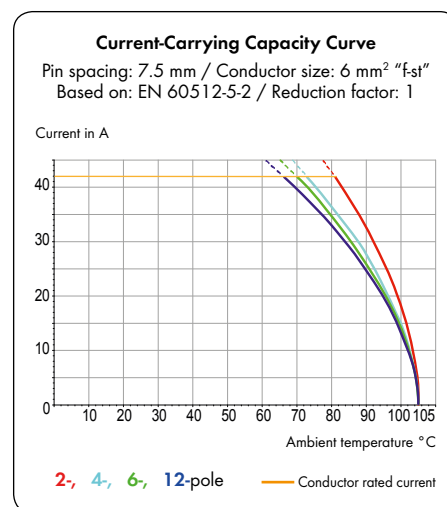
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	10 mm 0.394 in	12.5 mm 0.492 in	15 mm 0.591 in
Rating per	ATEX: PTB 06 ATEX 1014 U IECEx: IECEx PTB 06.0039 U		
Rated voltage	440 V	550 V	690 V
Nominal current	37 A	37 A	37 A

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.

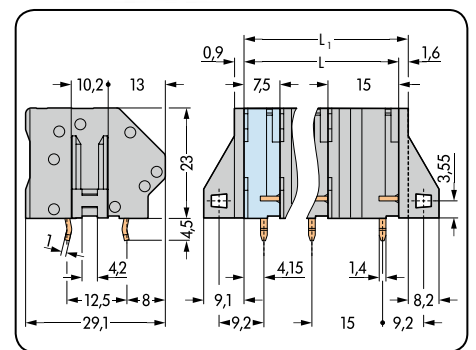
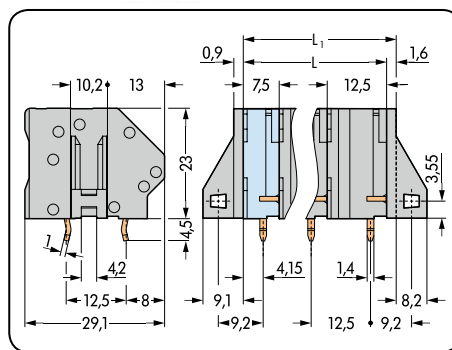
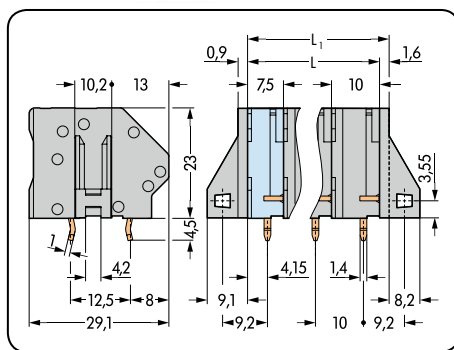
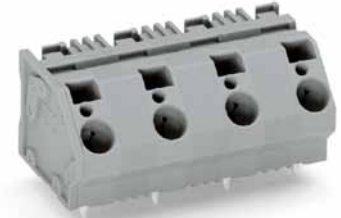
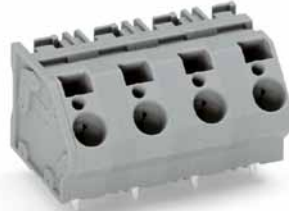
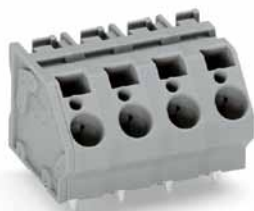


745 Series accessories:

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Pin spacing 10 mm / 0.394 in		Pin spacing 12.5 mm / 0.492 in		Pin spacing 15 mm / 0.591 in	
0.2 – 6 mm ²	AWG 24 – 10	0.2 – 6 mm ²	AWG 24 – 10	0.2 – 6 mm ²	AWG 24 – 10
1000 V/8 kV/2 41 A	300 V/10 A	1000 V/8 kV/2 41 A	600 V/30 A	1000 V/8 kV/2 41 A	600 V/30 A



L = (pole no. - 1) x pin spacing + 7.5 mm
 L₁ = L + 1.6 mm $\hat{=}$ without fixing flanges

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 2 solder pins/pole, gray			Terminal strip, 2 solder pins/pole, gray			Terminal strip, 2 solder pins/pole, gray		
2	745-1352	104	2	745-1402	80	2	745-1452	64
3	745-1353	72	3	745-1403	48	3	745-1453	40
4	745-1354	48	4	745-1404	40	4	745-1454	32
5	745-1355	40	5	745-1405	32	5	745-1455	24
6	745-1356	32	6	745-1406	24	6	745-1456	16
7	745-1357	24	7	745-1407	24	7	745-1457	16
8	745-1358	24	8	745-1408	16	8	745-1458	16
9	745-1359	24	9	745-1409	16	9	745-1459	8
10	745-1360	16	10	745-1410	16	10	745-1460	8
12	745-1362	16	12	745-1412	8	12	745-1462	8

Item no. suffix for terminal strips with fixing flanges: /005-000

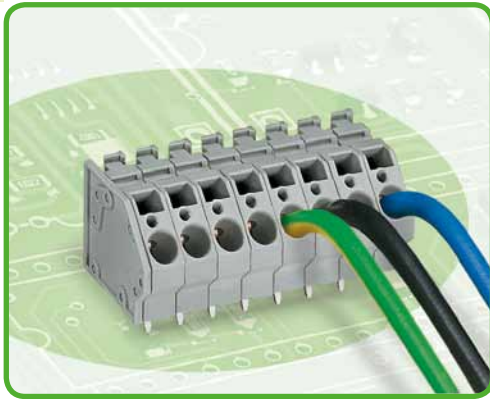
Item no. suffixes for Ex e II and Ex i applications:

○ Ex e II	. . . . . /000-009/999-950	Ordering examples:	
● Ex i	. . . . . /000-006	Terminal strip without fixing flanges, 10 mm pin spacing, 8-pole, Ex e II:	745-1358/000-009/999-950
		Terminal strip with fixing flanges, 10 mm pin spacing, 8-pole, Ex e II:	745-1358/005-009/999-950

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● black	. . . . . /000-004	Ordering examples:	
● blue	. . . . . /000-006	Terminal strip without fixing flanges, 10 mm pin spacing, 8-pole, light gray:	745-1358/000-009 (. /000- . . . without fixing flanges)
○ light gray	. . . . . /000-009		
● green-yellow	. . . . . /000-016	with fixing flanges, 10 mm pin spacing, 8-pole, light gray:	745-1358/005-009 (. /005- . . . with fixing flanges)
● light green	. . . . . /000-017		
● green	. . . . . /000-023		

PCB Terminal Strips with Jumper Slots 6 mm² Pin Spacing 7.5 mm, 10 mm 745 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- versions with Ex e (increased safety) approval
- Comb-style jumper bars for looping through and distributing potentials
- Custom color combinations
- double solder pins for high mechanical stability
- Integrated test ports
- Marker slot for miniature WSB and WMB markers

Technical data:

Pin Spacing	7.5 mm 0.295 in			10 mm 0.394 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage*	500 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	41 A	41 A	41 A	41 A	41 A	41 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	300 V	150 V	300 V	300 V	150 V	300 V
Nominal current UL	30 A	30 A	10 A	30 A	30 A	10 A
Nominal current CSA	30 A	30 A	10 A	30 A	30 A	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.2 - 6 mm ²
Conductor size: fine-stranded	0.2 - 6 mm ²
Conductor size: fine-stranded	0.25 - 4 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 4 mm ² (with uninsulated ferrule)
AWG	24 - 10
Strip length	11 - 12 mm / 0.43 - 0.47 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4.5 mm / 1 x 1.4 mm
Solder pin: drilled hole diameter	1.8 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

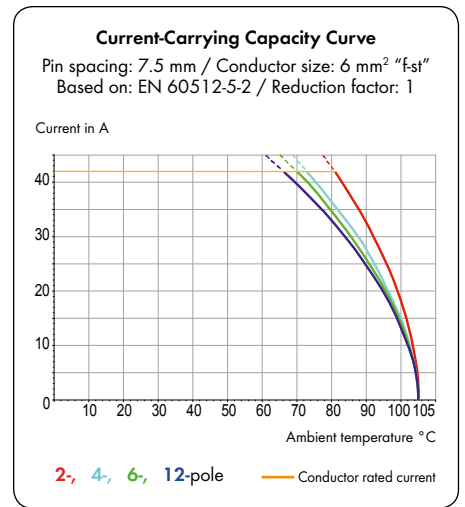
Technical data for Ex e II () versions:

Pin Spacing	7.5 mm 0.295 in	10 mm 0.394 in
Rating per	ATEX: PTB 06 ATEX 1014 U IECEx: IECEx PTB 06.0039 U	
Rated voltage	275 V	440 V
Nominal current without jumpers	37 A	37 A
Nominal current with jumpers	31 A	31 A

* Using adjacent jumpers, the rated voltage is reduced to 400 V with pin spacing of 7.5 mm in Category III/3.

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.



745 Series accessories:

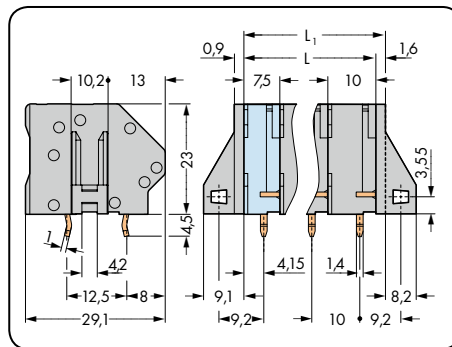
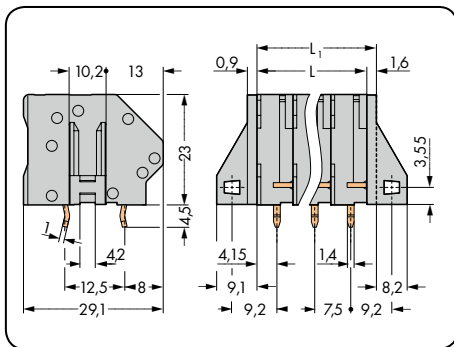
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PCB Terminal Strips with Jumper Slots 6 mm²

CAGE CLAMP®

Pin spacing 7.5 mm / 0.295 in		Pin spacing 10 mm / 0.394 in	
0.2 – 6 mm ² 630 V/6 kV/2 41 A	AWG 24 – 10 300 V/10 A	0.2 – 6 mm ² 1000 V/8 kV/2 41 A	AWG 24 – 10 300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 7.5 \text{ mm}$
 $L_1 = L + 1.6 \text{ mm}$ Δ without fixing flanges

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with jumper slot, 2 solder pins/pole, gray			Terminal strip with jumper slot, 2 solder pins/pole, gray		
2	745-302	128	2	745-352	104
3	745-303	88	3	745-353	72
4	745-304	64	4	745-354	48
5	745-305	48	5	745-355	40
6	745-306	40	6	745-356	32
7	745-307	40	7	745-357	24
8	745-308	32	8	745-358	24
9	745-309	24	9	745-359	24
10	745-310	24	10	745-360	16
12	745-312	16	12	745-362	16

Item no. suffix for terminal strips with fixing flanges: /005-000

Item no. suffixes for Ex e II and Ex i applications:

○ Ex e II	. . . . . /000-009/999-950	Ordering examples:	
● Ex i	. . . . . /000-006	Terminal strip without fixing flanges, 10 mm pin spacing, 8-pole, Ex e II:	745-358/000-009/999-950
		Terminal strip with fixing flanges, 10 mm pin spacing, 8-pole, Ex e II:	745-358/005-009/999-950

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● black	. . . . . /000-004	Ordering examples:	
● blue	. . . . . /000-006	Terminal strip without fixing flanges, 10 mm pin spacing, 8-pole, light gray:	745-308/000-009 (. /000- . . . without fixing flanges)
○ light gray	. . . . . /000-009		
● green-yellow	. . . . . /000-016	with fixing flanges, 10 mm pin spacing, 8-pole, light gray:	745-308/005-009 (. /005- . . . with fixing flanges)
● light green	. . . . . /000-017		
● green	. . . . . /000-023		

Modular PCB Terminal Blocks with Jumper Slots 16 mm² Pin Spacing 10 mm, 15 mm, 20 mm 745 Series



- Modular terminal blocks with screwdriver-actuated CAGE CLAMP® for custom terminal strip assemblies
- versions with Ex e (increased safety) approval
- UL approval up to 600 V for 20 mm pin spacing
- Comb-style jumper bars for commoning and distributing potentials
- Four solder pins for high mechanical stability
- Integrated test port
- Marker slot for miniature WSB and WMB markers

Technical data:

Pin Spacing	10 mm 0.394 in			15 mm 0.591 in			20 mm 0.787 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	630 V	1000 V	1000 V	1000 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	8 kV	8 kV	8 kV	12 kV	12 kV	12 kV
Nominal current	76 A	76 A	76 A	76 A	76 A	76 A	76 A	76 A	76 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	300 V	600 V	600 V	600 V	-
Nominal current UL	10 A	-	10 A	65 A	65 A	5 A	65 A	65 A	-
Nominal current CSA	10 A	-	10 A	65 A	65 A	5 A	65 A	65 A	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.2 - 16 mm ²
Conductor size: fine-stranded	0.2 - 16 mm ²
Conductor size: fine-stranded	0.25 - 10 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 10 mm ² (with uninsulated ferrule)
AWG	24 - 6
Strip length	12 - 13 mm / 0.47 - 0.51 in
Conductor entry angle	45° to PCB
Solder pin: length/width	6.5 (5) mm / 1.2 x 1.6 mm
Solder pin: drilled hole diameter	2.2 ^{+0.1} mm

Material data:

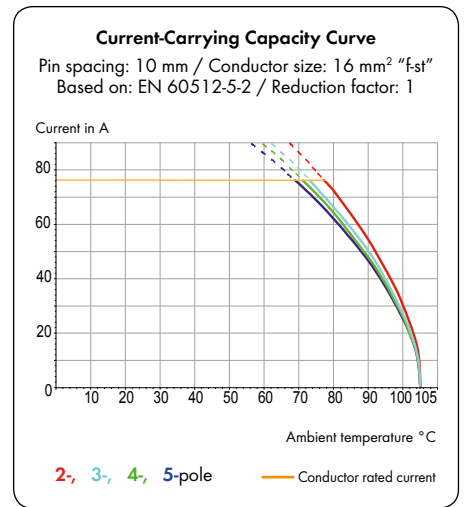
Material group	I
Insulation material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	10 mm 0.394 in	15 mm 0.591 in	20 mm 0.787 in
Rating per	ATEX: PTB 06 ATEX 1014 U IECEx: IECEx PTB 06.0039 U		
Rated voltage	220 V	440 V	690 V
Nominal current without jumpers	71 A	71 A	71 A
Nominal current with jumpers	53 A	53 A	53 A

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.

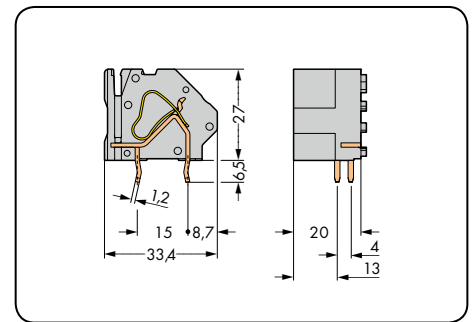
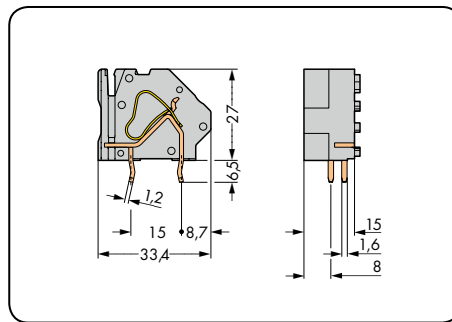
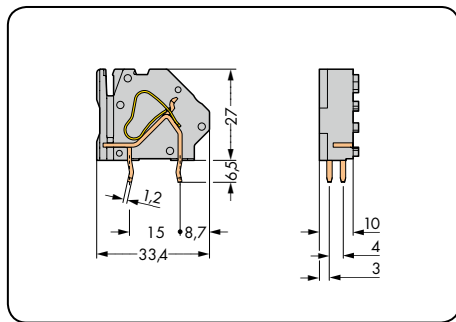


745 Series accessories:




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Test plugs	538

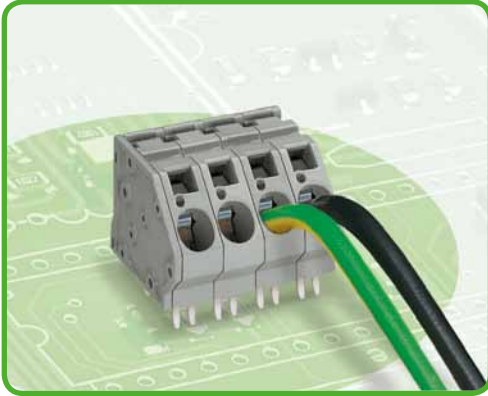
Pin spacing 10 mm / 0.394 in		Pin spacing 15 mm / 0.591 in		Pin spacing 20 mm / 0.787 in	
0.2 – 16 mm ²	AWG 24 – 6	0.2 – 16 mm ²	AWG 24 – 6	0.2 – 16 mm ²	AWG 24 – 6
320 V/4 kV/2 76 A	300 V/10 A	1000 V/8 kV/2 76 A	300 V/65 A	1000 V/12 kV/2 76 A	600 V/65 A



Color	Order No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Modular terminal block with jumper slot, 4 solder pins/pole			Modular terminal block with jumper slot, 4 solder pins/pole			Modular terminal block with jumper slot, 4 solder pins/pole		
● gray	745-851/006-000	100	● gray	745-871/006-000	100	● gray	745-881/006-000	50
○ light gray	745-853/006-000	100	○ light gray	745-873/006-000	100	○ light gray	745-883/006-000	50
① blue	745-854/006-000	100	① blue	745-874/006-000	100	① blue	745-884/006-000	50
● green-yellow	745-857/006-000	100	● green-yellow	745-877/006-000	100	● green-yellow	745-887/006-000	50
● light green	745-858/006-000	100	● light green	745-878/006-000	100	● light green	745-888/006-000	50
○ Ex e II	745-853/006-000/999-950		○ Ex e II	745-873/006-000/999-950		○ Ex e II	745-883/006-000/999-950	
① Suitable for Ex i applications			① Suitable for Ex i applications			① Suitable for Ex i applications		
Item no. suffix for modular terminal blocks with 5 mm long solder pins:			...-.../007-000					

End plates, 745 Series – 16 mm ²	Item No.	Pack. Unit
	745-500	500 (10 x 50)
	745-540	200 (4 x 50)
	745-545	200 (4 x 50)
Item no. suffixes for end plates in different colors:		
● blue	...-.../000-006	Ordering example:
○ light gray	...-.../000-009	End plate with fixing flange,
● green-yellow	...-.../000-016	light gray: 745-540/000-009
● light green	...-.../000-017	

PCB Terminal Strips with Jumper Slots 16 mm² Pin Spacing 10 mm, 15 mm, 20 mm 745 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- versions with Ex e (increased safety) approval
- UL approval up to 600 V for 20 mm pin spacing
- Comb-style jumper bars for commoning and distributing potentials
- Four solder pins for high mechanical stability
- Integrated test ports
- Marker slot for miniature WSB and WMB markers

Technical data:

Pin Spacing	10 mm 0.394 in			15 mm 0.591 in			20 mm 0.787 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	630 V	1000 V	1000 V	1000 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	8 kV	8 kV	8 kV	12 kV	12 kV	12 kV
Nominal current	76 A	76 A	76 A	76 A	76 A	76 A	76 A	76 A	76 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	300 V	600 V	600 V	600 V	-
Nominal current UL	10 A	-	10 A	65 A	65 A	5 A	65 A	65 A	-
Nominal current CSA	10 A	-	10 A	65 A	65 A	5 A	65 A	65 A	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.2 - 16 mm ²
Conductor size: fine-stranded	0.2 - 16 mm ²
Conductor size: fine-stranded	0.25 - 10 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 10 mm ² (with uninsulated ferrule)
AWG	24 - 6
Strip length	12 - 13 mm / 0.47 - 0.51 in
Conductor entry angle	45° to PCB
Solder pin: length/width	6.5 (5) mm / 1.2 x 1.6 mm
Solder pin: drilled hole diameter	2.2 ^{+0.1} mm

Material data:

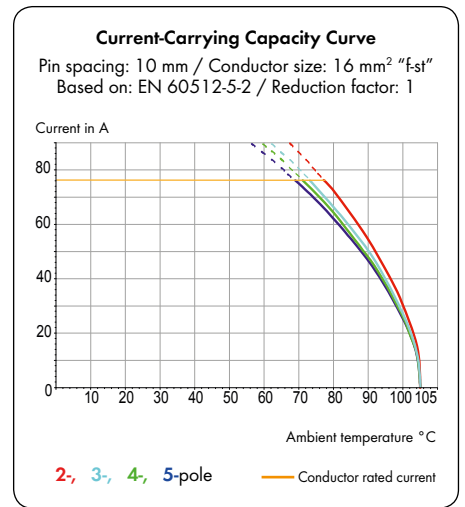
Material group	I
Insulation material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	10 mm 0.394 in	15 mm 0.591 in	20 mm 0.787 in
Rating per	ATEX: PTB 06 ATEX 1014 U IECEx: IECEx PTB 06.0039 U		
Rated voltage	220 V	440 V	690 V
Nominal current without jumpers	71 A	71 A	71 A
Nominal current with jumpers	53 A	53 A	53 A

Note on UL approval for 600 V:

The conductor entry is for field and factory wiring and meets spacing requirements for 600 V UL (Use Group: C). The solder pins are for factory wiring only. The suitability and spacing shall be evaluated in the end-use equipment, based on relevant end-product standard.



745 Series accessories:

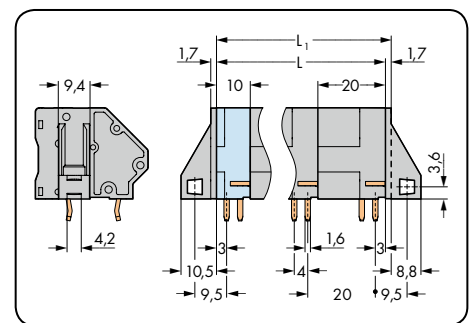
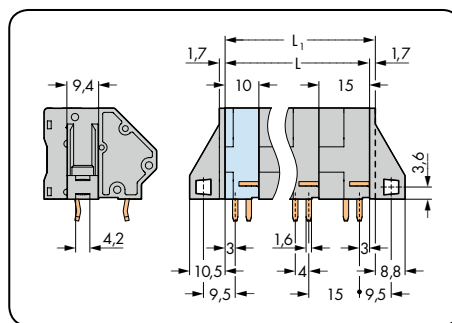
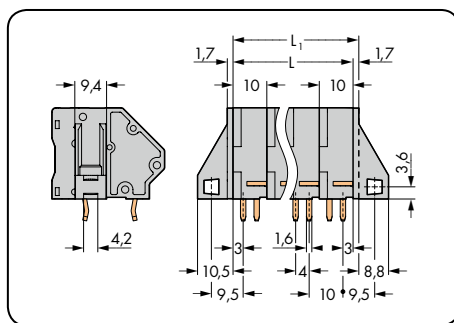
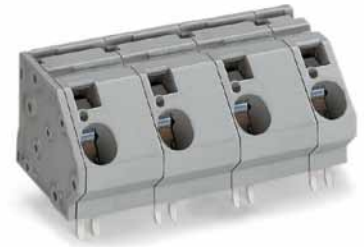
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PCB Terminal Strips with Jumper Slots 16 mm²

CAGE CLAMP®

Pin spacing 10 mm / 0.394 in		Pin spacing 15 mm / 0.591 in		Pin spacing 20 mm / 0.787 in	
0.2 - 16 mm ²	AWG 24 - 6	0.2 - 16 mm ²	AWG 24 - 6	0.2 - 16 mm ²	AWG 24 - 6
320 V/4 kV/2 76 A	300 V/10 A	1000 V/8 kV/2 76 A	300 V/65 A	1000 V/12 kV/2 76 A	600 V/65 A



L = (pole no. - 1) x pin spacing + 10 mm
L₁ = L + 1.7 mm Δ without fixing flanges

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with jumper slot, 4 solder pins/pole, gray			Terminal strip with jumper slot, 4 solder pins/pole, gray			Terminal strip with jumper slot, 4 solder pins/pole, gray		
2	745-502/006-000	48	2	745-602/006-000	36	2	745-652/006-000	32
3	745-503/006-000	32	3	745-603/006-000	24	3	745-653/006-000	20
4	745-504/006-000	24	4	745-604/006-000	16	4	745-654/006-000	12
5	745-505/006-000	20	5	745-605/006-000	12	5	745-655/006-000	8
Item no. suffix for terminal strips with fixing flanges:			. . . . . /011-000					
Item no. suffix for terminal strips with 5 mm long solder pins:			. . . . . /007-000					

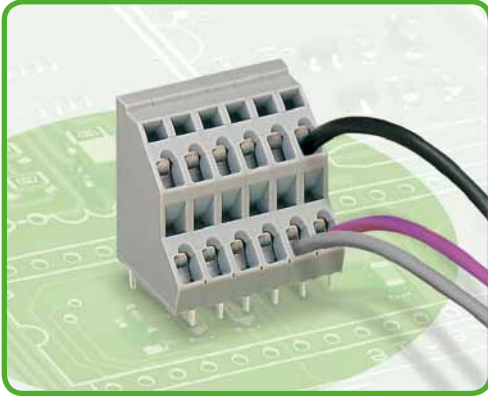
Item no. suffixes for Ex e II and Ex i applications:

○ Ex e II	. . . . . /000-009/999-950	Ordering examples:
● Ex i	. . . . . /000-006	Terminal strip without fixing flange, 10 mm pin spacing, 5-pole, Ex e II: 745-505/006-009/999-950
		Terminal strip with fixing flanges, 10 mm pin spacing, 5-pole, Ex e II: 745-505/011-009/999-950

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● black	. . . . . /000-004	Ordering examples:
● blue	. . . . . /000-006	Terminal strip without fixing flange, 20 mm pin spacing, 5-pole, light gray: 745-655/006-009 (. /006- . . . without fixing flanges)
○ light gray	. . . . . /000-009	
● green-yellow	. . . . . /000-016	
● light green	. . . . . /000-017	Terminal strip with fixing flanges, 20 mm pin spacing, 5-pole, light gray: 745-655/011-009 (. /011- . . . with fixing flanges)
● green	. . . . . /000-023	

Double-Deck PCB Terminal Strips 2.5 mm² Pin Spacing 5 mm, 7.5 mm, 10 mm 736 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- High-density, double-deck design for space-efficient wiring of multiple conductors in confined areas
- Custom direct marking for all termination levels
- Terminal strips with commoning strips for distributing potentials, see pages 67 – 69

Technical data:

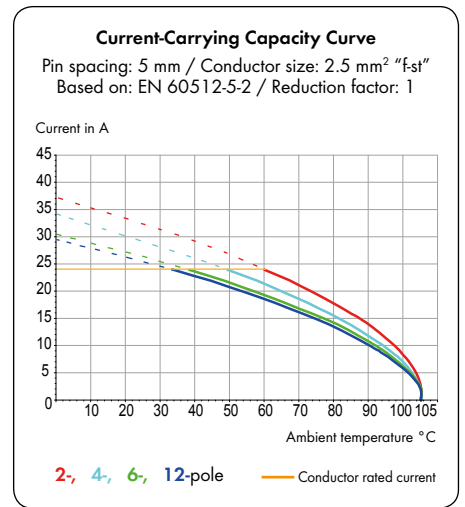
Pin Spacing	5 mm 0.179 in			7.5 mm 0.295 in			10 mm 0.394 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per									
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	21 A	21 A	21 A	21 A	21 A	21 A	21 A	21 A	21 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 – 2.5 mm ²
Conductor size: fine-stranded	0.08 – 2.5 mm ²
Conductor size: fine-stranded	0.25 – 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 – 2.5 mm ² (with uninsulated ferrule)
AWG	28 – 12 (12: THHN, THWN)
Strip length	5 – 6 mm / 0.20 – 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulation material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



736 Series accessories:

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Double-Deck PCB Terminal Strips 2.5 mm²

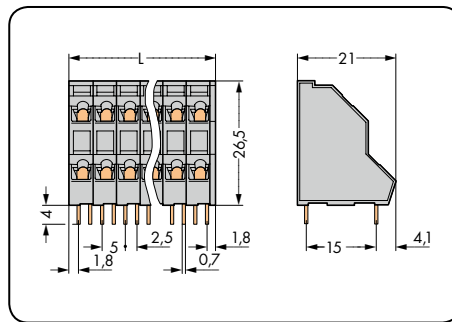
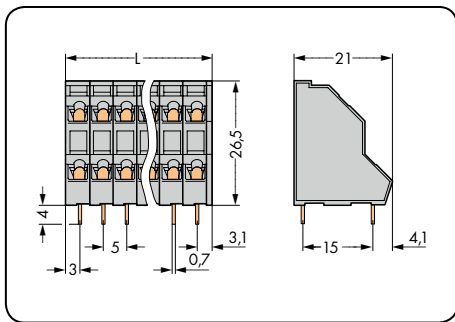
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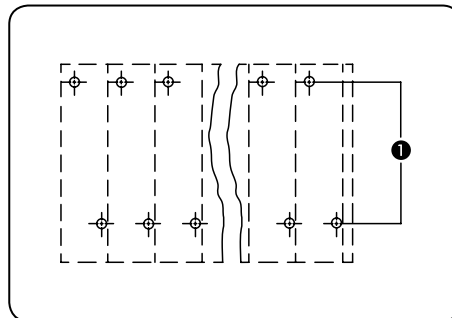
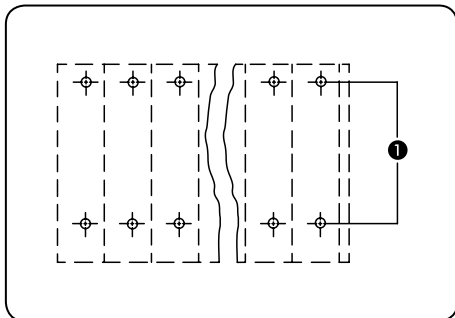
47

1

Solder pins in line Pin spacing 5 mm / 0.197 in		Solder pins staggered Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 21 A	300 V/10 A	320 V/4 kV/2 21 A	300 V/10 A



$L = (\text{pole no.} \times \text{pin spacing}) + 1 \text{ mm}$



Solder pins in line

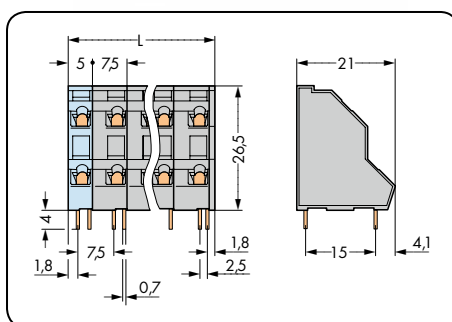
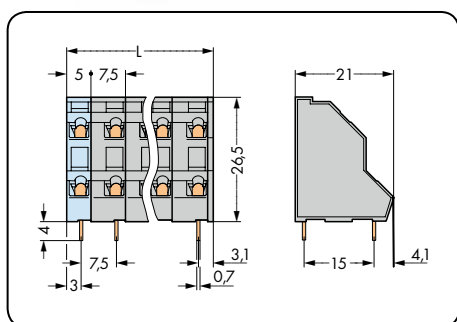
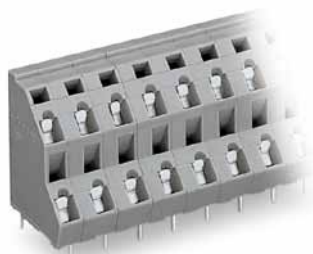
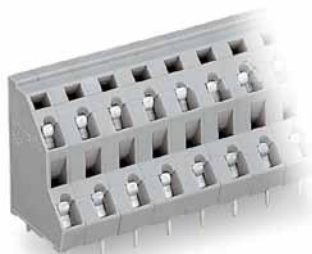
Solder pins staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
 320 V/4 kV/3 (III)
 320 V/4 kV/2 (III)
 630 V/4 kV/2 (II)

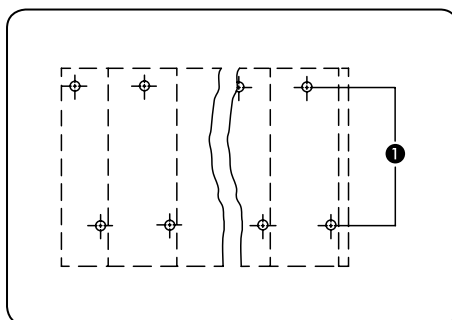
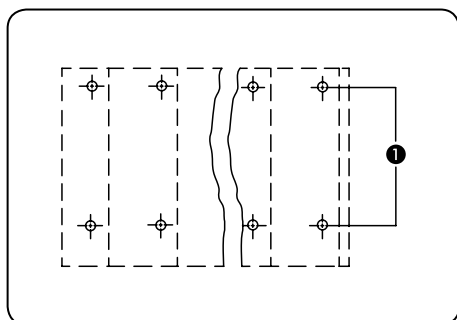
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-deck terminal strip, 2 solder pins in line, gray			Double-deck terminal strip, 2 solder pins staggered by half the pin spacing, gray		
2 x 2	736-102	161	2 x 2	736-202	161
3 x 2	736-103	112	3 x 2	736-203	112
4 x 2	736-104	84	4 x 2	736-204	84
6 x 2	736-106	56	6 x 2	736-206	56
8 x 2	736-108	42	8 x 2	736-208	42
12 x 2	736-112	28	12 x 2	736-212	28
16 x 2	736-116	21	16 x 2	736-216	21
24 x 2	736-124	14	24 x 2	736-224	14

Double-Deck PCB Terminal Strips 2.5 mm² 736 Series

Solder pins in line Pin spacing 7.5 mm / 0.295 in		Solder pins staggered Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/6 kV/2 21 A	300 V/10 A	630 V/6 kV/2 21 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1 \text{ mm}$



Solder pins in line

Solder pins staggered by half the pin spacing

- ❶ Voltage rating between adjacent poles:
 - 320 V/4 kV/3 (III)
 - 320 V/4 kV/2 (III)
 - 630 V/4 kV/2 (II)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-deck terminal strip, 2 solder pins in line, gray			Double-deck terminal strip, 2 solder pins staggered by half the pin spacing, gray		
2 x 2	736-502	133	2 x 2	736-552	133
3 x 2	736-503	84	3 x 2	736-553	84
4 x 2	736-504	63	4 x 2	736-554	63
6 x 2	736-506	42	6 x 2	736-556	42
8 x 2	736-508	28	8 x 2	736-558	28
12 x 2	736-512	21	12 x 2	736-562	21
16 x 2	736-516	14	16 x 2	736-566	14

Double-Deck PCB Terminal Strips 2.5 mm²

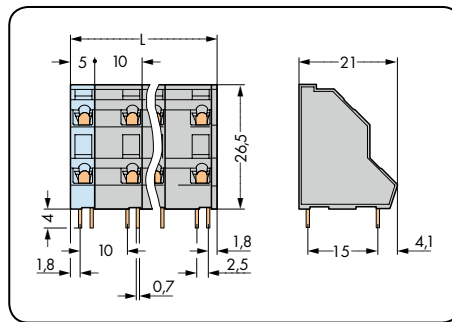
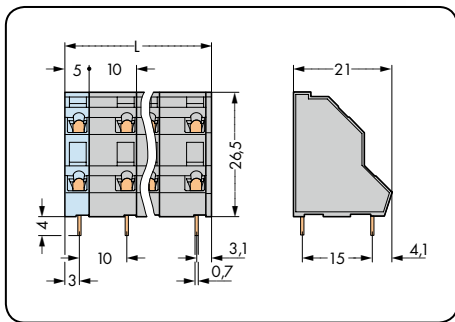
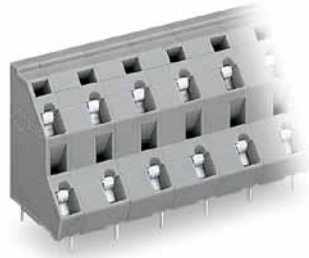
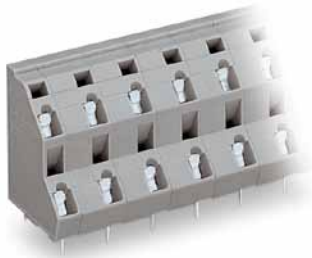
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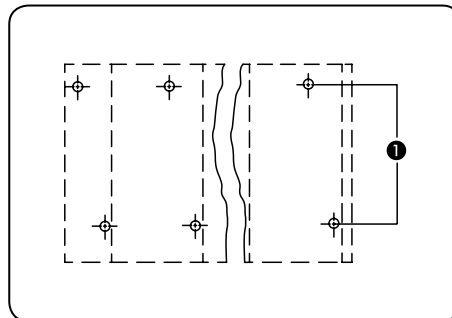
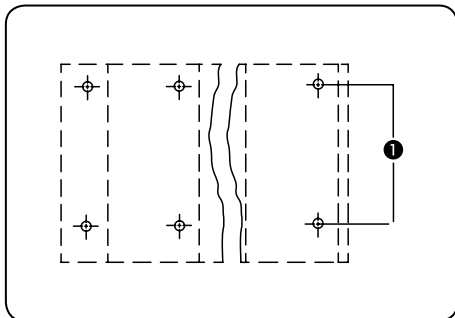
49

1

Solder pins in line Pin spacing 10 mm / 0.394 in		Solder pins staggered Pin spacing 10 mm / 0.394 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
1000 V/8 kV/2 21 A	300 V/10 A	1000 V/8 kV/2 21 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1 \text{ mm}$



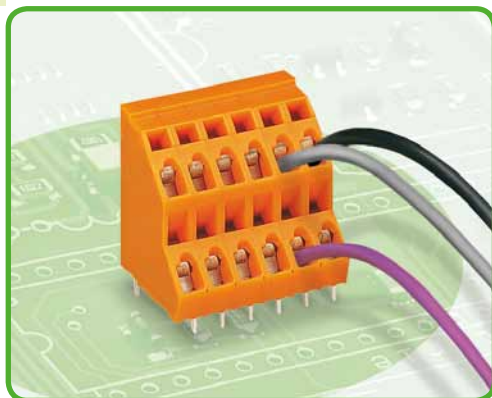
Solder pins in line

Solder pins staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
 320 V/4 kV/3 (III)
 320 V/4 kV/2 (III)
 630 V/4 kV/2 (II)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-deck terminal strip, 2 solder pins in line, gray			Double-deck terminal strip, 2 solder pins staggered by half the pin spacing, gray		
2 x 2	736-702	112	2 x 2	736-752	112
3 x 2	736-703	70	3 x 2	736-753	70
4 x 2	736-704	49	4 x 2	736-754	49
6 x 2	736-706	28	6 x 2	736-756	28
8 x 2	736-708	21	8 x 2	736-758	21
12 x 2	736-712	14	12 x 2	736-762	14

Double-Deck PCB Terminal Strips 2.5 mm² Pin Spacing 5.08 mm, 7.62 mm, 10.16 mm 736 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- High-density, double-deck design for space-efficient wiring of multiple conductors in confined areas
- Custom direct marking for all termination levels
- Terminal strips with commoning strips for distributing potentials, see pages 67 – 69

Technical data:

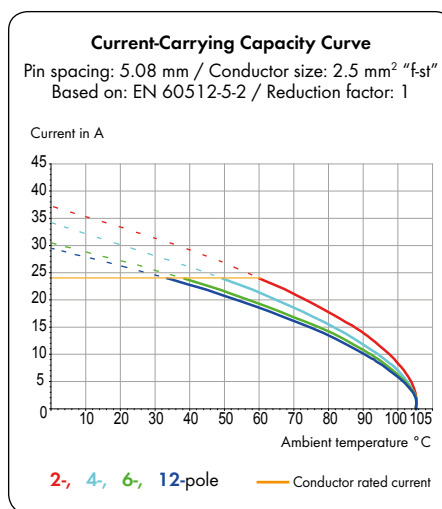
Pin Spacing	5.08 mm 0.2 in			7.62 mm 0.3 in			10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per									
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	21 A	21 A	21 A	21 A	21 A	21 A	21 A	21 A	21 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 – 2.5 mm ²
Conductor size: fine-stranded	0.08 – 2.5 mm ²
Conductor size: fine-stranded	0.25 – 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 – 2.5 mm ² (with uninsulated ferrule)
AWG	28 – 12 (12: THHN, THWN)
Strip length	5 – 6 mm / 0.20 – 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulation material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



736 Series accessories:

Page:

Marking accessories	540 – 543
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Commoning strips	67 – 69
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Double-Deck PCB Terminal Strips 2.5 mm²

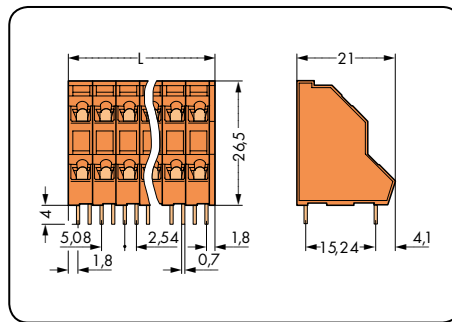
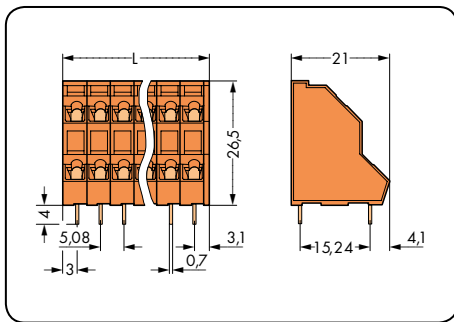
CAGE CLAMP®

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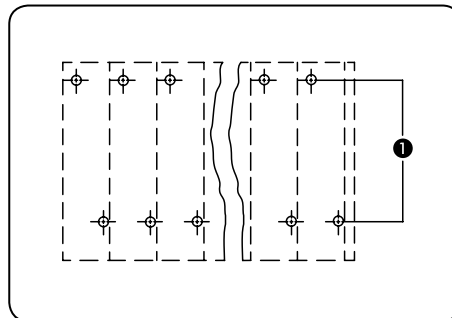
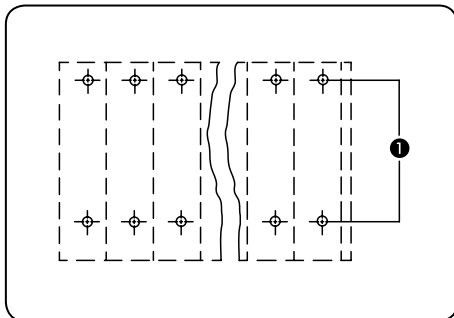
51

1

Solder pins in line Pin spacing 5.08 mm / 0.2 in		Solder pins staggered Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 21 A	300 V/10 A	320 V/4 kV/2 21 A	300 V/10 A



L = (pole no. x pin spacing) + 1 mm



Solder pins in line

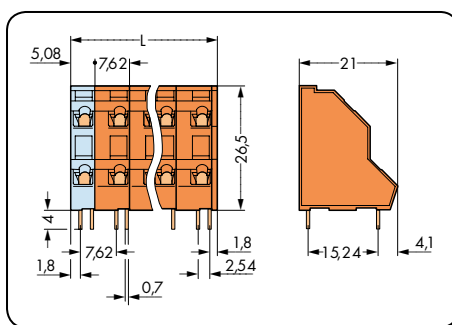
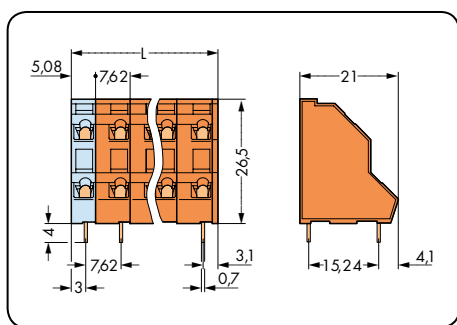
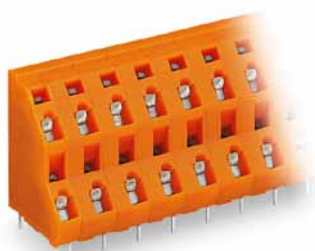
Solder pins staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
320 V/4 kV/3 (III)
320 V/4 kV/2 (III)
630 V/4 kV/2 (II)

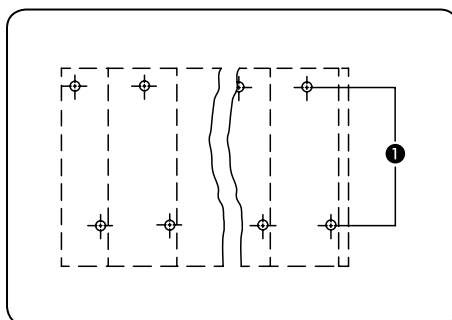
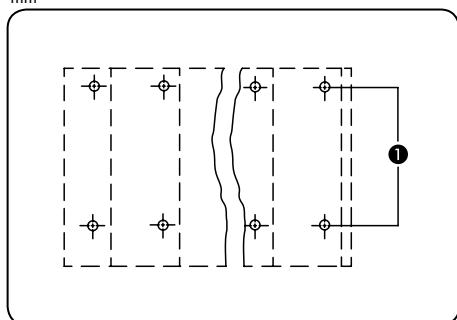
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-deck terminal strip, 2 solder pins in line, orange			Double-deck terminal strip, 2 solder pins staggered by half the pin spacing, orange		
2 x 2	736-302	161	2 x 2	736-402	161
3 x 2	736-303	112	3 x 2	736-403	112
4 x 2	736-304	84	4 x 2	736-404	84
6 x 2	736-306	56	6 x 2	736-406	56
8 x 2	736-308	42	8 x 2	736-408	42
12 x 2	736-312	28	12 x 2	736-412	28
16 x 2	736-316	21	16 x 2	736-416	21
24 x 2	736-324	14	24 x 2	736-424	14

Double-Deck PCB Terminal Strips 2.5 mm² 736 Series

Solder pins in line Pin spacing 7.62 mm / 0.3 in		Solder pins staggered Pin spacing 7.62 mm / 0.3 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/6 kV/2 21 A	300 V/10 A	630 V/6 kV/2 21 A	300 V/10 A



L = (pole no. - 1) x pin spacing + 5.08 mm + 1 mm



Solder pins in line

Solder pins staggered by half the pin spacing

- 1 Voltage rating between adjacent poles:
320 V/4 kV/3 (III)
320 V/4 kV/2 (III)
630 V/4 kV/2 (II)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-deck terminal strip, 2 solder pins in line, orange			Double-deck terminal strip, 2 solder pins staggered by half the pin spacing, orange		
2 x 2	736-602	133	2 x 2	736-652	133
3 x 2	736-603	84	3 x 2	736-653	84
4 x 2	736-604	63	4 x 2	736-654	63
6 x 2	736-606	35	6 x 2	736-656	35
8 x 2	736-608	28	8 x 2	736-658	28
12 x 2	736-612	14	12 x 2	736-662	14
16 x 2	736-616	14	16 x 2	736-666	14

Double-Deck PCB Terminal Strips 2.5 mm²

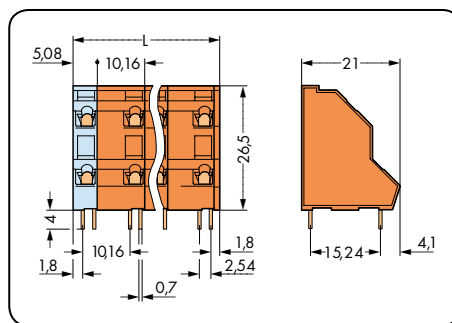
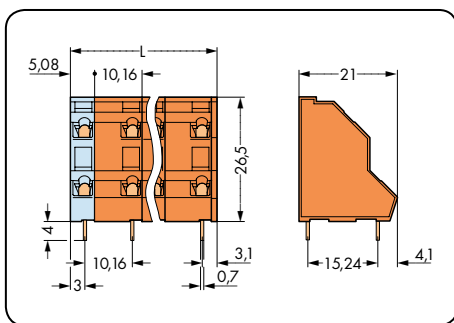
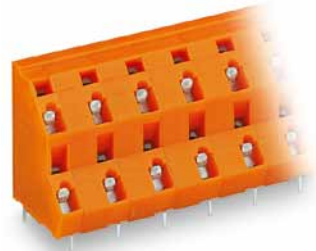
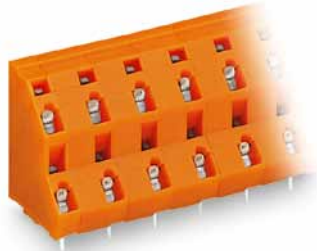
CAGE CLAMP®

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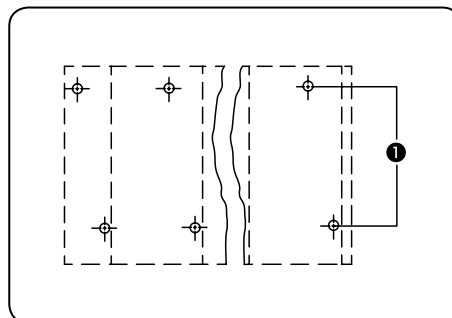
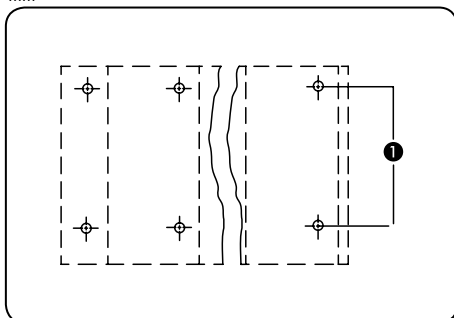
53

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Solder pins in line Pin spacing 10.16 mm / 0.4 in		Solder pins staggered Pin spacing 10.16 mm / 0.4 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
1000 V/8 kV/2 21 A	300 V/10 A	1000 V/8 kV/2 21 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm} + 1 \text{ mm}$



Solder pins in line

Solder pins staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
320 V/4 kV/3 (III)
320 V/4 kV/2 (III)
630 V/4 kV/2 (II)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-deck terminal strip, 2 solder pins in line, orange			Double-deck terminal strip, 2 solder pins staggered by half the pin spacing, orange		
2 x 2	736-802	112	2 x 2	736-852	112
3 x 2	736-803	70	3 x 2	736-853	70
4 x 2	736-804	49	4 x 2	736-854	49
6 x 2	736-806	28	6 x 2	736-856	28
8 x 2	736-808	21	8 x 2	736-858	21
12 x 2	736-812	14	12 x 2	736-862	14

1 Triple-Deck PCB Terminal Strips 2.5 mm² Pin Spacing 5 mm, 7.5 mm, 10 mm 737 Series

54



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- High-density, triple-deck design for space-efficient wiring of multiple conductors in confined areas
- Custom direct marking for all termination levels
- Terminal strips with commoning strips for distributing potentials, see pages 67 – 69

Technical data:

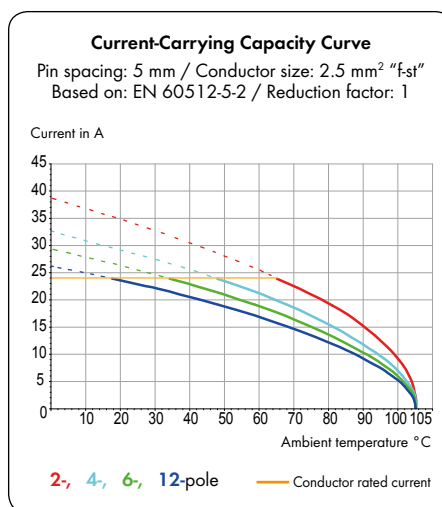
Pin Spacing	5 mm 0.179 in			7.5 mm 0.295 in			10 mm 0.394 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per									
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	21 A	21 A	21 A	21 A	21 A	21 A	21 A	21 A	21 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 – 2.5 mm ²
Conductor size: fine-stranded	0.08 – 2.5 mm ²
Conductor size: fine-stranded	0.25 – 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 – 2.5 mm ² (with uninsulated ferrule)
AWG	28 – 12 (12: THHN, THWN)
Strip length	5 – 6 mm / 0.20 – 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulation material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated



737 Series accessories:

Page:

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Triple-Deck PCB Terminal Strips 2.5 mm²

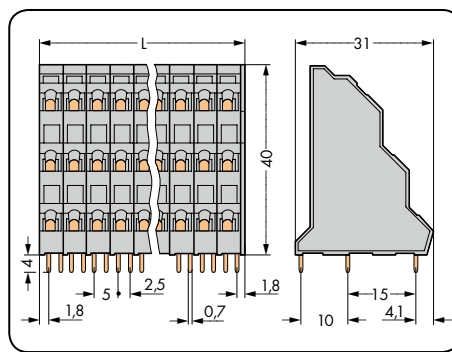
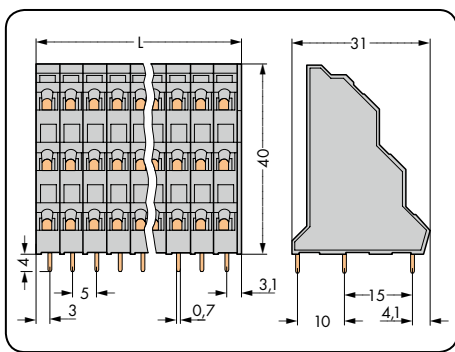
CAGE CLAMP®

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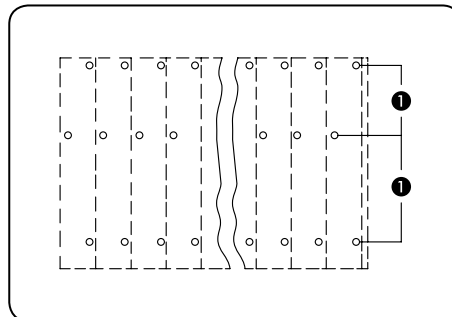
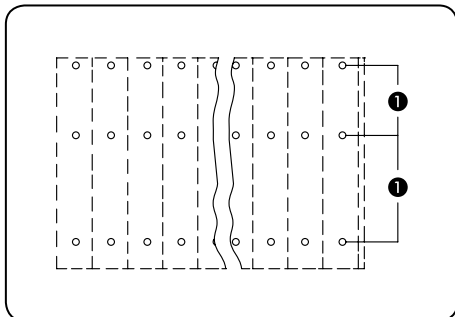
55

1

Solder pins in line Pin spacing 5 mm / 0.197 in		Solder pins staggered Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 21 A	300 V/10 A	320 V/4 kV/2 21 A	300 V/10 A



L = (pole no. x pin spacing) + 1 mm



Solder pins in line

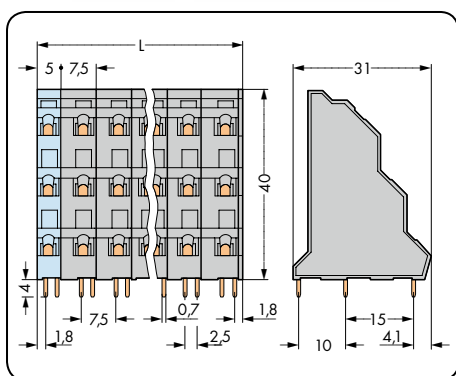
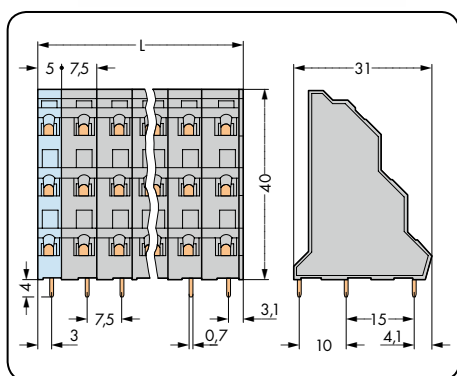
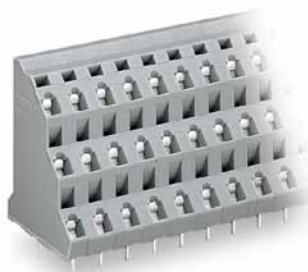
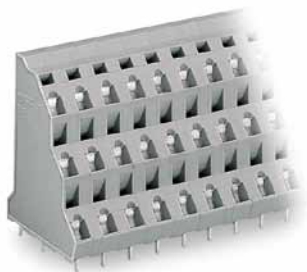
Solder pins for deck 2 staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
320 V/4 kV/3 (III)
320 V/4 kV/2 (III)
630 V/4 kV/2 (II)

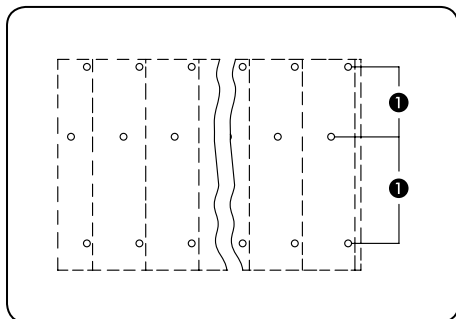
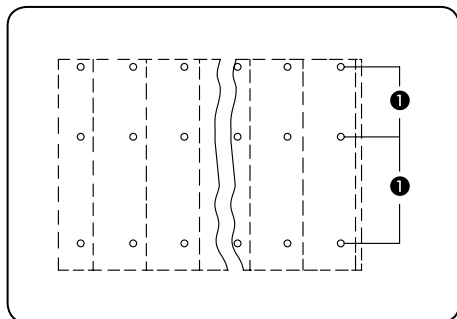
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Triple-deck terminal strip, 3 solder pins in line, gray			Triple-deck terminal strip, solder pins for deck 2 staggered by half the pin spacing, gray		
2 x 3	737-102	92	2 x 3	737-202	92
3 x 3	737-103	64	3 x 3	737-203	64
4 x 3	737-104	48	4 x 3	737-204	48
6 x 3	737-106	32	6 x 3	737-206	32
8 x 3	737-108	24	8 x 3	737-208	24
12 x 3	737-112	16	12 x 3	737-212	16
16 x 3	737-116	12	16 x 3	737-216	12
24 x 3	737-124	8	24 x 3	737-224	8

Triple-Deck PCB Terminal Strips 2.5 mm² 737 Series

Solder pins in line Pin spacing 7.5 mm / 0.295 in		Solder pins staggered Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/6 kV/2 21 A	300 V/10 A	630 V/6 kV/2 21 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1 \text{ mm}$



Solder pins in line

Solder pins for deck 2 staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
320 V/4 kV/3 (III)
320 V/4 kV/2 (III)
630 V/4 kV/2 (II)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Triple-deck terminal strip, 3 solder pins in line, gray			Triple-deck terminal strip, solder pins for deck 2 staggered by half the pin spacing, gray		
2 x 3	737-502	76	2 x 3	737-552	76
3 x 3	737-503	48	3 x 3	737-553	48
4 x 3	737-504	36	4 x 3	737-554	36
6 x 3	737-506	24	6 x 3	737-556	24
8 x 3	737-508	16	8 x 3	737-558	16
12 x 3	737-512	8	12 x 3	737-562	8
16 x 3	737-516	8	16 x 3	737-566	8

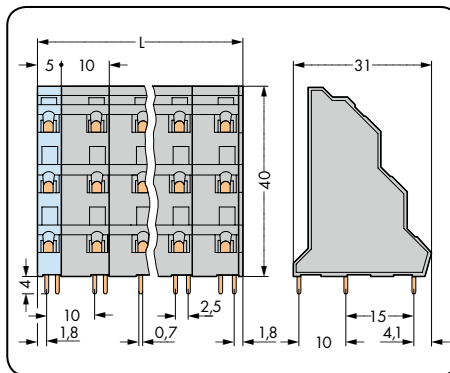
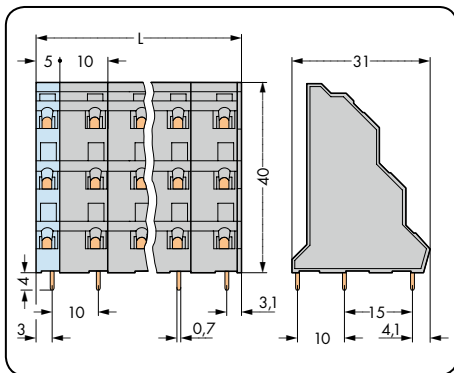
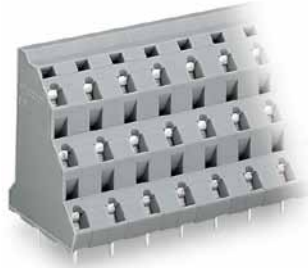
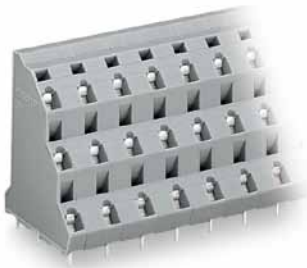
Triple-Deck PCB Terminal Strips 2.5 mm²

CAGE CLAMP®

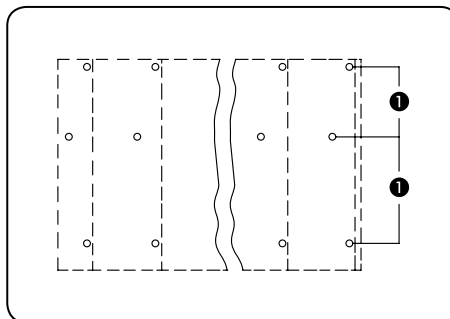
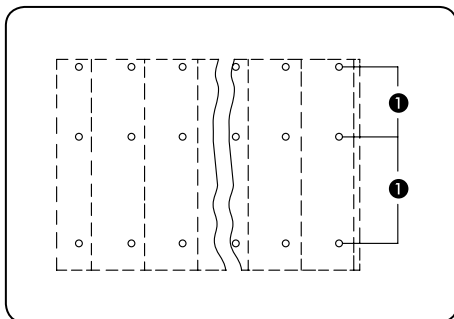
1
57

1

Solder pins in line Pin spacing 10 mm / 0.394 in		Solder pins staggered Pin spacing 10 mm / 0.394 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
1000 V/8 kV/2 21 A	300 V/10 A	1000 V/8 kV/2 21 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1 \text{ mm}$



Solder pins in line

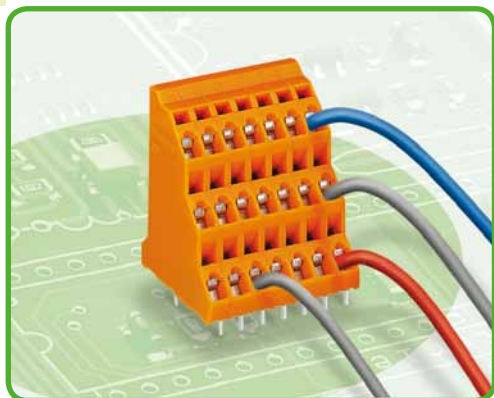
Solder pins for deck 2 staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
 320 V/4 kV/3 (III)
 320 V/4 kV/2 (III)
 630 V/4 kV/2 (II)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Triple-deck terminal strip, 3 solder pins in line, gray			Triple-deck terminal strip, solder pins for deck 2 staggered by half the pin spacing, gray		
2 x 3	737-702	64	2 x 3	737-752	64
3 x 3	737-703	40	3 x 3	737-753	40
4 x 3	737-704	28	4 x 3	737-754	28
6 x 3	737-706	16	6 x 3	737-756	16
8 x 3	737-708	12	8 x 3	737-758	12
12 x 3	737-712	8	12 x 3	737-762	8

For other lengths or colors, mixed-color, as well as direct marking, please contact factory.

Triple-Deck PCB Terminal Strips 2.5 mm² Pin Spacing 5.08 mm, 7.62 mm, 10.16 mm 737 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- High-density, triple-deck design for space-efficient wiring of multiple conductors in confined areas
- Custom direct marking for all termination levels
- Terminal strips with commoning strips for distributing potentials, see pages 67 – 69

Technical data:

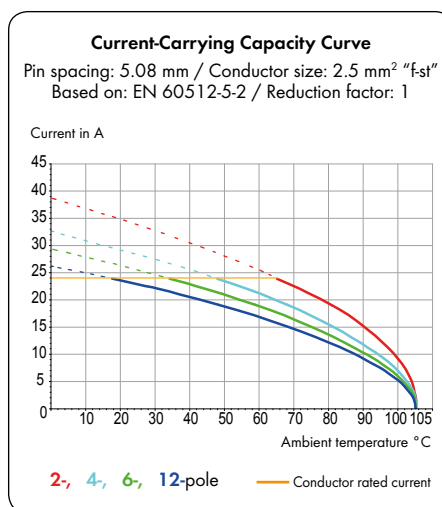
Pin Spacing	5.08 mm 0.2 in			7.62 mm 0.3 in			10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per									
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	21 A	21 A	21 A	21 A	21 A	21 A	21 A	21 A	21 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 – 2.5 mm ²
Conductor size: fine-stranded	0.08 – 2.5 mm ²
Conductor size: fine-stranded	0.25 – 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 – 2.5 mm ² (with uninsulated ferrule)
AWG	28 – 12 (12: THHN, THWN)
Strip length	5 – 6 mm / 0.20 – 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulation material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



737 Series accessories:

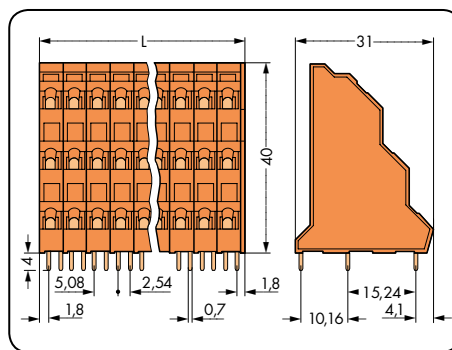
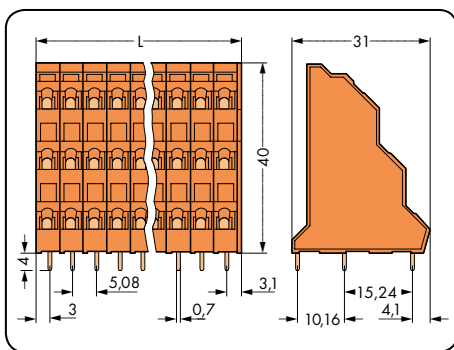
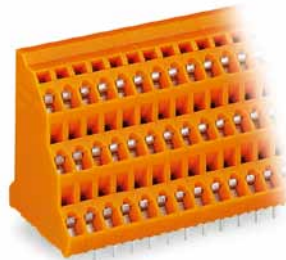
Page:

Marking accessories	540 – 543
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Commoning strips	67 – 69
Test plug modules	198 – 199

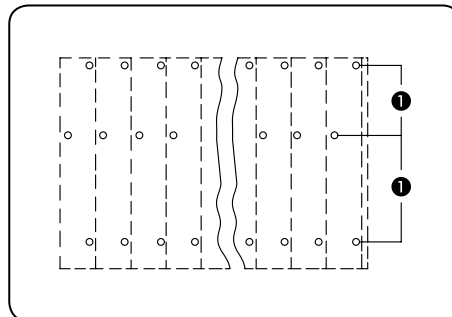
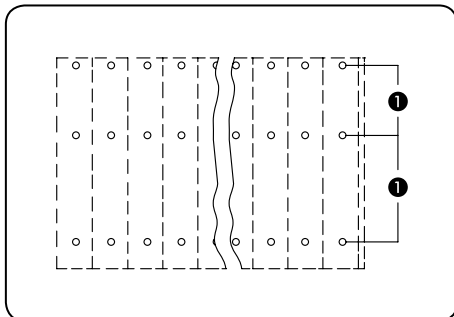
Triple-Deck PCB Terminal Strips 2.5 mm²

CAGE CLAMP®

Solder pins in line Pin spacing 5.08 mm / 0.2 in		Solder pins staggered Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 21 A	300 V/10 A	320 V/4 kV/2 21 A	300 V/10 A



L = (pole no. x pin spacing) + 1 mm



Solder pins in line

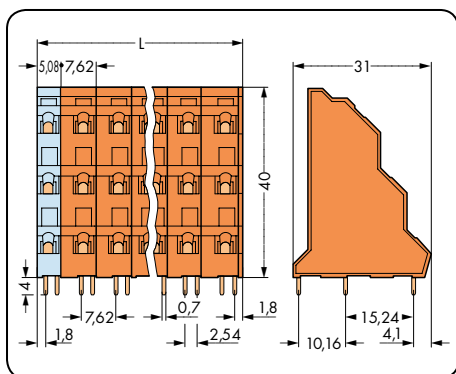
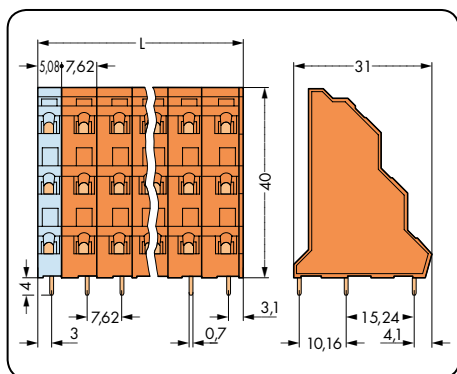
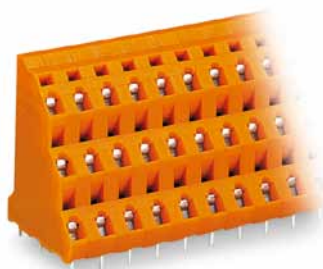
Solder pins for deck 2 staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
320 V/4 kV/3 (III)
320 V/4 kV/2 (III)
630 V/4 kV/2 (II)

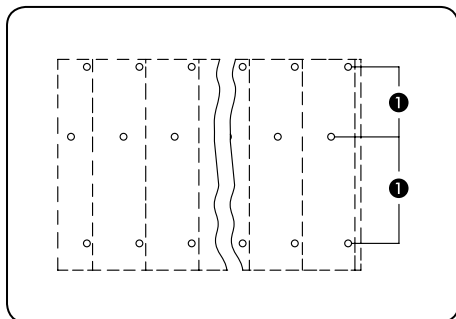
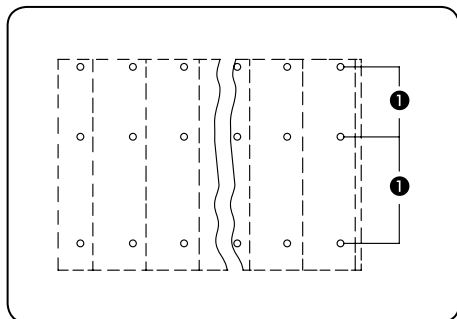
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Triple-deck terminal strip, 3 solder pins in line, orange			Triple-deck terminal strip, solder pins for deck 2 staggered by half the pin spacing, orange		
2 x 3	737-302	92	2 x 3	737-402	92
3 x 3	737-303	64	3 x 3	737-403	64
4 x 3	737-304	48	4 x 3	737-404	48
6 x 3	737-306	32	6 x 3	737-406	32
8 x 3	737-308	24	8 x 3	737-408	24
12 x 3	737-312	16	12 x 3	737-412	16
16 x 3	737-316	12	16 x 3	737-416	12
24 x 3	737-324	8	24 x 3	737-424	8

Triple-Deck PCB Terminal Strips 2.5 mm² 737 Series

Solder pins in line Pin spacing 7.62 mm / 0.3 in		Solder pins staggered Pin spacing 7.62 mm / 0.3 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/6 kV/2 21 A	300 V/10 A	630 V/6 kV/2 21 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm} + 1 \text{ mm}$



Solder pins in line

Solder pins for deck 2 staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
320 V/4 kV/3 (III)
320 V/4 kV/2 (III)
630 V/4 kV/2 (II)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Triple-deck terminal strip, 3 solder pins in line, orange			Triple-deck terminal strip, solder pins for deck 2 staggered by half the pin spacing, orange		
2 x 3	737-602	76	2 x 3	737-652	76
3 x 3	737-603	48	3 x 3	737-653	48
4 x 3	737-604	36	4 x 3	737-654	36
6 x 3	737-606	20	6 x 3	737-656	20
8 x 3	737-608	16	8 x 3	737-658	16
12 x 3	737-612	8	12 x 3	737-662	8
16 x 3	737-616	8	16 x 3	737-666	8

Triple-Deck PCB Terminal Strips 2.5 mm²

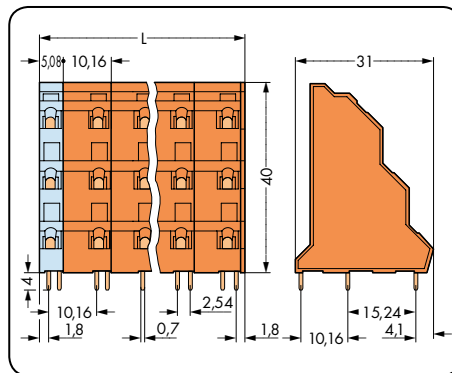
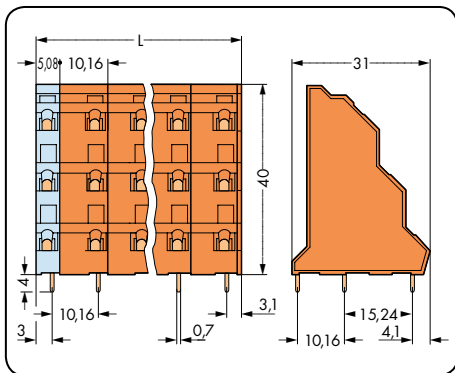
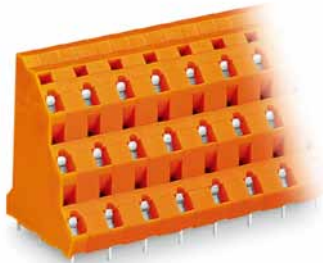
CAGE CLAMP®

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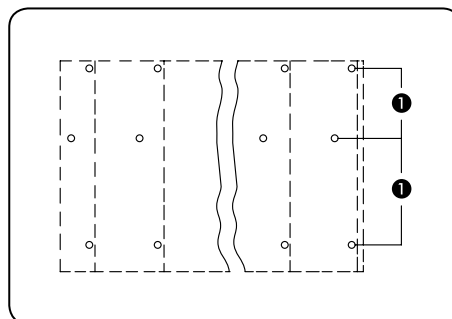
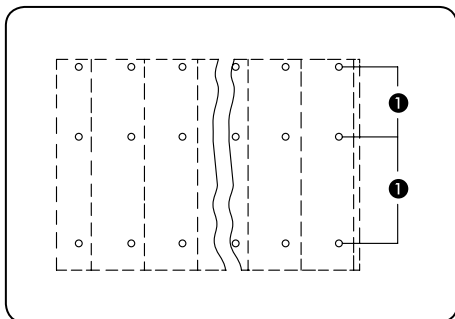
61

1

Solder pins in line Pin spacing 10.16 mm / 0.4 in		Solder pins staggered Pin spacing 10.16 mm / 0.4 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
1000 V/8 kV/2 21 A	300 V/10 A	1000 V/8 kV/2 21 A	300 V/10 A



$$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm} + 1 \text{ mm}$$



Solder pins in line

Solder pins for deck 2 staggered by half the pin spacing

- ① Voltage rating between adjacent poles:
 320 V/4 kV/3 (III)
 320 V/4 kV/2 (III)
 630 V/4 kV/2 (II)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Triple-deck terminal strip, 3 solder pins in line, orange			Triple-deck terminal strip, solder pins for deck 2 staggered by half the pin spacing, orange		
2 x 3	737-802	64	2 x 3	737-852	64
3 x 3	737-803	40	3 x 3	737-853	40
4 x 3	737-804	28	4 x 3	737-854	28
6 x 3	737-806	16	6 x 3	737-856	16
8 x 3	737-808	12	8 x 3	737-858	12
12 x 3	737-812	8	12 x 3	737-862	8

Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

WAGO®

Quadruple-Deck PCB Terminal Strips 2.5 mm² Pin Spacing 5 mm 738 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- High-density, quadruple-deck design for space-efficient wiring of multiple conductors in confined areas
- Angled conductor entry and CAGE CLAMP® actuation streamline operation
- Custom direct marking for all termination levels
- Terminal strips with commoning strips for distributing potentials, see pages 67 - 69

Technical data:

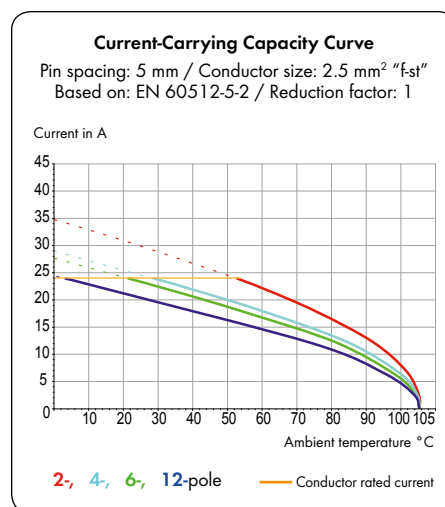
Pin Spacing	5 mm 0.179 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	18 A	18 A	18 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



738 Series accessories:

Page:

Marking accessories	540 - 543
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Commoning strips	67 - 69
Test plug modules	198 - 199

Quadruple-Deck PCB Terminal Strips 2.5 mm²

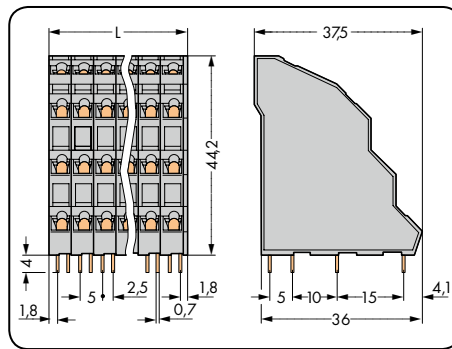
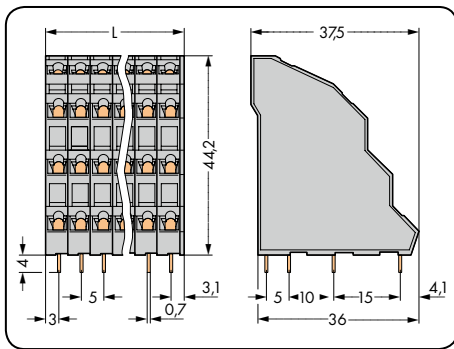
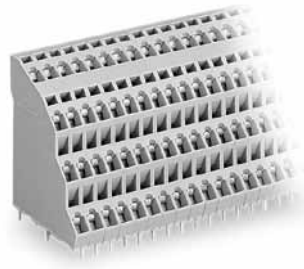
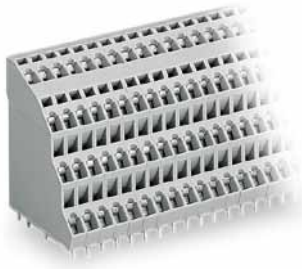
CAGE CLAMP®

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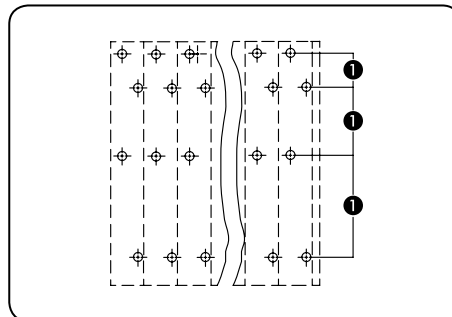
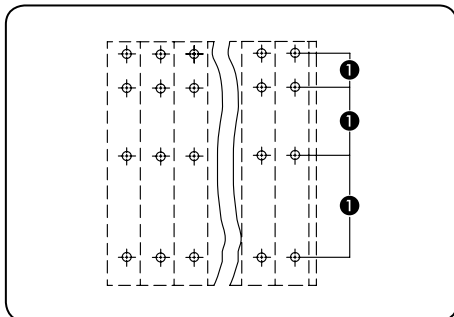
63

1

Pin spacing 5 mm / 0.197 in		Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 18 A	300 V/10 A	320 V/4 kV/2 18 A	300 V/10 A



L = (pole no. x pin spacing) + 1 mm



Solder pins in line

- ① Voltage rating between adjacent poles:
320 V/4 kV/3 (III)
320 V/4 kV/2 (III)
630 V/4 kV/2 (II)

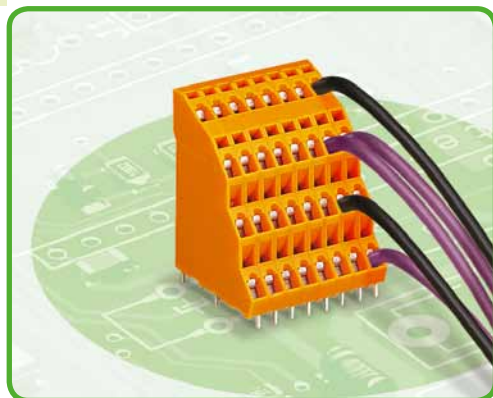
Solder pins for deck 2 and 4 staggered by half the pin spacing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Quadruple-deck terminal strip, 4 solder pins in line, gray			Quadruple-deck terminal strip, solder pins for deck 2 and 4 staggered by half the pin spacing, gray		
2 x 4	738-102	72	2 x 4	738-202	72
3 x 4	738-103	48	3 x 4	738-203	48
4 x 4	738-104	36	4 x 4	738-204	36
6 x 4	738-106	24	6 x 4	738-206	24
8 x 4	738-108	18	8 x 4	738-208	18
12 x 4	738-112	12	12 x 4	738-212	12
16 x 4	738-116	9	16 x 4	738-216	9
24 x 4	738-124	6	24 x 4	738-224	6

Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

WAGO®

Quadruple-Deck PCB Terminal Strips 2.5 mm² Pin Spacing 5.08 mm 738 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- High-density, quadruple-deck design for space-efficient wiring of multiple conductors in confined areas
- Angled conductor entry and CAGE CLAMP® actuation streamline operation
- Custom direct marking for all termination levels
- Terminal strips with commoning strips for distributing potentials, see pages 67 - 69

Technical data:

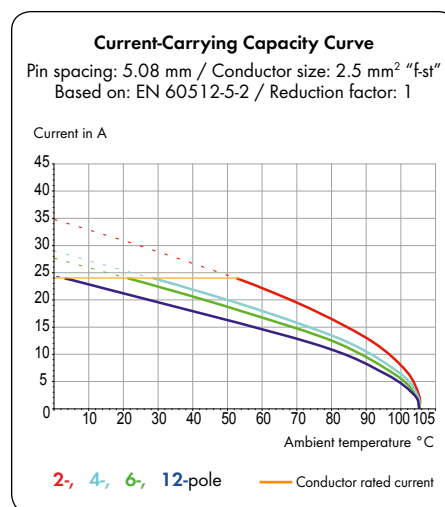
Pin Spacing	5.08 mm 0.2 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	18 A	18 A	18 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



738 Series accessories:

Page:

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Quadruple-Deck PCB Terminal Strips 2.5 mm²

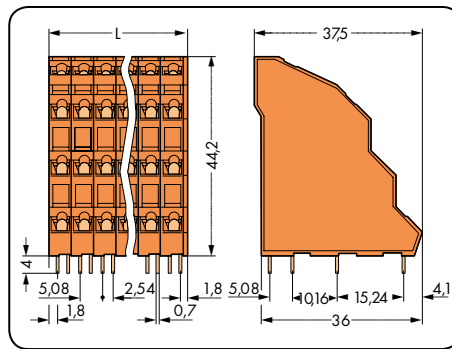
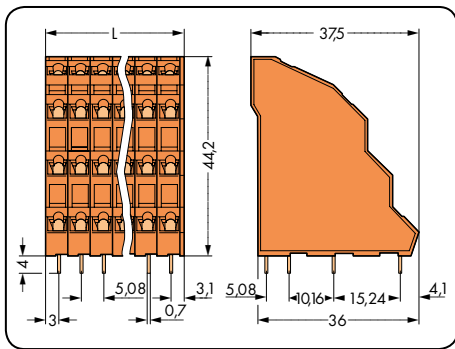
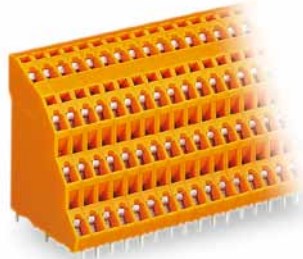
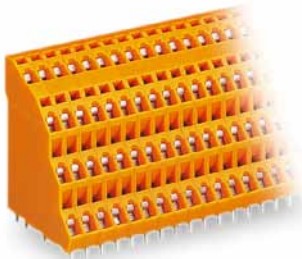
CAGE CLAMP®

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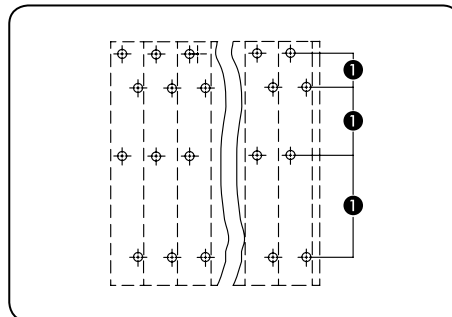
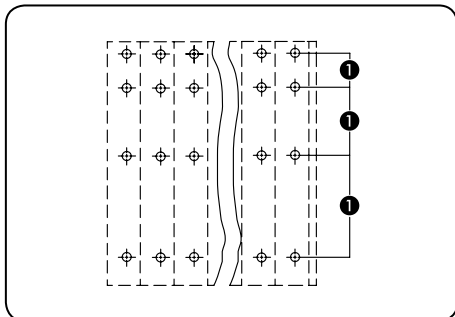
65

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Pin spacing 5.08 mm / 0.2 in		Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 18 A	300 V/10 A	320 V/4 kV/2 18 A	300 V/10 A



L = (pole no. x pin spacing) + 1 mm



Solder pins in line

- ① Voltage rating between adjacent poles:
320 V/4 kV/3 (III)
320 V/4 kV/2 (III)
630 V/4 kV/2 (II)

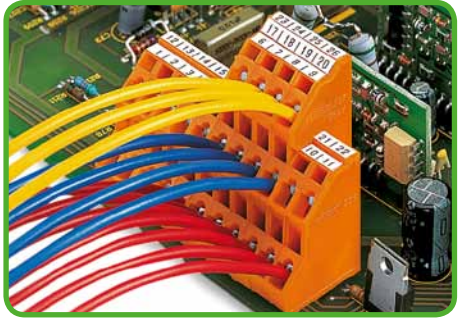
Solder pins for deck 2 and 4 staggered by half the pin spacing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Quadruple-deck terminal strip, 4 solder pins in line, orange			Quadruple-deck terminal strip, solder pins for deck 2 and 4 staggered by half the pin spacing, orange		
2 x 4	738-302	69	2 x 4	738-402	72
3 x 4	738-303	48	3 x 4	738-403	48
4 x 4	738-304	36	4 x 4	738-404	36
6 x 4	738-306	24	6 x 4	738-406	24
8 x 4	738-308	18	8 x 4	738-408	18
12 x 4	738-312	12	12 x 4	738-412	12
16 x 4	738-316	9	16 x 4	738-416	9
24 x 4	738-324	6	24 x 4	738-424	6

Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

WAGO®

Combination of Multilevel PCB Terminal Strips 736, 737 and 738 Series



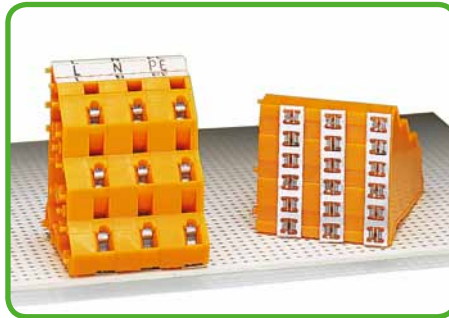
<p>Example of combination: Double-deck (736 Series) and triple-deck terminal strips (737 Series), contact factory</p>	<p>Example of combination: Double-deck (736 Series) and triple-deck terminal strips (737 Series), contact factory</p>	



<p>Example of combination: Triple-deck (737 Series) and quadruple-deck terminal strips (738 Series), contact factory</p>	<p>Example of combination: Triple-deck (737 Series) and quadruple-deck terminal strips (738 Series), contact factory</p>	

Commoning Strips for PCB Terminal Strips, 236, 255, 256, 257, 736, 737 and 738 Series

Horizontal commoning	Vertical commoning for 736 and 737 Series only starting from pin spacing 7.5 mm / 0.295 in	
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Horizontal commoning Indicates the connection of adjacent potentials <ul style="list-style-type: none"> for example, to common the "+" and "-" supply lines when using terminal blocks for sensor and actuator applications for example, as a ground (earth) commoning strip, where use of the printed circuit traces is not permitted by regulations for continuous looping of ground circuits. 	Vertical commoning The solder pins of a terminal block (in line) are commoned to one potential <ul style="list-style-type: none"> for example, in vertical direction to allow bussing of a 3-conductor supply and distribution terminal up to 10 A. Also, in some instances, wiring changes can be made without resorting to new PCB schematics and marking.	
---	--	--

Horizontal commoning

Connection of adjacent terminals

- for example, as "-" supply line in terminal blocks for actuators (max. 10 A total current)
- for example, as ground (earth) commoning strip, where printed circuit traces are not permitted by regulations for continuous looping of ground circuits (max. short-time withstand current 70 A/mm² for 1 sec. Standard compliance must be ensured for end use!)

Note: Interruption of horizontal commoning reduces spacing to the adjacent solder pins.

Vertical commoning

Connection of terminals arranged in front of each other

- for example, as 3-conductor supply and distribution terminal block (up to 10A)

New "commoning" strips are now available for commoning custom designed PCB terminal strips. They allow commoning of pins in either the direction along the assembly, or of all levels in a multi-level terminal strip for each pole. The commoning strips are factory fitted, so please refer to the order form on Pages 1.68 and 1.69.

Commoning allows terminal blocks of common potentials to be created.

These commoning strips are available for the following pin spacings:

- 5 mm, 5.08 mm (up to 20 poles)
- 7.5 mm, 7.62 mm (up to 16 poles)
- 10 mm, 10.16 mm (up to 12 poles).

In cases where not all pins use the commoning strip, unequal height is compensated for by a spacer.

Order Form "Commoned PCB Terminal Strips"

236, 255, 256, 257
736, 737, 738 Series

Customer's name: _____

Drawing no.: _____

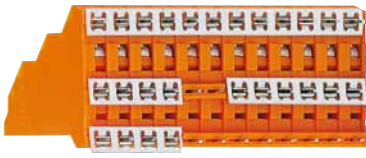
WAGO item no.: _____

Change note number	5			
	4			
	3			
	2			
	1			
Original	Change note	Date	Name	

Page **of**

Checked by: _____

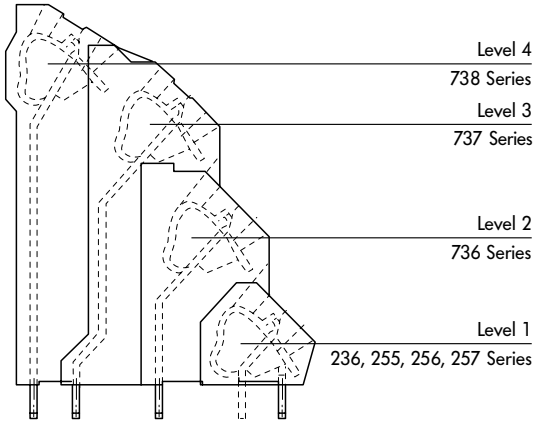
Ordering example: Horizontal commoning



n the case of terminal strips with different pin spacings please state the size of the pin

Item changed Item position	Item no.	Pin spacing	Commoning scheme					Marking												
			B = jumper					level												
End plate: for 736, 737, 738 Series			4	3	2	1	4	3	2	1	Terminal block marking in sense of reading									
1																				
2																				
3																				
4																				
5	737-312	5																		
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				

Design of terminal strip



Ordering example: Vertical commoning



n the case of terminal strips with different pin spacings please state the size of the pin

Item changed Item position	Item no.	Pin spacing	Commoning scheme					Marking												
			B = jumper					level												
End plate: for 736, 737, 738 Series			4	3	2	1	4	3	2	1	Terminal block marking in sense of reading									
1																				
2																				
3																				
4																				
5	737-505	7.5																		
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				

Spacers are automatically factory assembled. For terminal strips with different pin spacings, please state the size of the pin spacing instead of the item no.

Item changed Item position	Item no.	Pin spacing	Commoning scheme					Marking												
			B = jumper					level												
End plate: for 736, 737, 738 Series			4	3	2	1	4	3	2	1	Terminal block marking in sense of reading									
1																				
2																				
3																				
4																				
5																				
6																				
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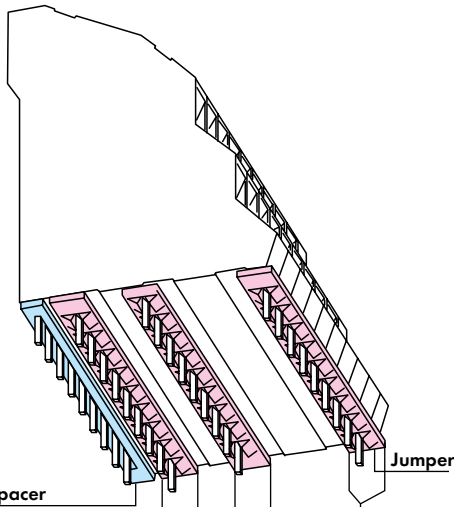
End plate for: 236, 255, 256, 257 Series

Technical Information on "Commoned PCB Terminal Strips"

Use of commoning strips must account for both the specific conditions of the planned application, as well as relevant standards for the normal operating conditions in which operational failures (can) occur.

Horizontal commoning

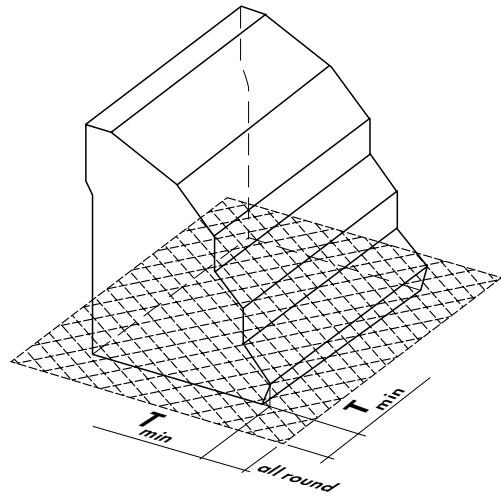
(236, 255, 256, 257, 736, 737, 738 Series)



Clearances and creepage distances (in mm)	1.7	4.5	4.2
80 V/2.5 kV/3 (III)			
160 V/2.5 kV/2 (III)			
320 V/2.5 kV/2 (II)			
320 V/4 kV/3 (III)			
320 V/4 kV/2 (III)			
630 V/4 kV/2 (II)			
320 V/4 kV/3 (III)			
320 V/4 kV/2 (III)			
630 V/4 kV/2 (II)			

- Mixing of pin spacing only possible with 5 mm, 5.08 mm, 10 mm and 10.16 mm
- Arrangement of solder pins (736, 737, 738 Series) in line or staggered
- 236 Series: Version with only one solder pin cannot be commoned!
- In case of different potentials within one level, ensure that at least one interim terminal block must remain uncommoned in order to maintain the necessary creepage distances and clearances (see also the ordering example).

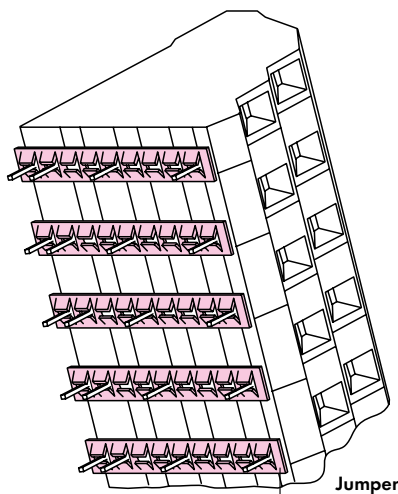
Distances to adjacent potentials



Recommendation: $T_{min} = 5 \text{ mm}$

Please note that the distance between the commoning strips and adjacent potentials must comply with requirements for the end application as specified in the relevant standard.

Vertical commoning (only possible with multilevel PCB terminal blocks of 736, 737 Series)



Pin spacing	Creepage distance in mm	Clearance in mm	Voltage
7.5 mm, 7.62 mm	1.7	1.7	80 V/2.5 kV/3 (III)
	1.7	1.7	160 V/2.5 kV/2 (III) 320 V/2.5 kV/2 (II)
10 mm, 10.16 mm	4.2	4.2	320 V/4 kV/3 (III)
	4.2	4.2	320 V/4 kV/2 (III)
	4.2	4.2	630 V/4 kV/2 (II)

- Not possible with 5 mm and 5.08 mm pin spacings!
- Arrangement of solder pins always in line

PCB Terminal Strips 1.5 mm² and 2.5 mm², Press-In Technology

Pin Spacing 3.5 mm, 3.81 mm, 5 mm, 5.08 mm, 7.5 mm, 7.62 mm

739 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- Vertical conductor entry and conductor operation provide for space-saving positioning/grouping
- Press-in technology saves costs, no additional soldering process required
- For information on press-in tool design, please contact factory.

Technical data:

Pin Spacing	3.5 mm, 3.81 mm 0.138 in, 0.15 in			5 mm, 5.08 mm 0.197 in, 0.2 in			7.5 mm, 7.62 mm 0.295 in, 0.3 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	250 V	320 V	630 V	500 V	630 V	1000 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV
Nominal current	4 A	4 A	4 A	8 A	8 A	8 A	8 A	8 A	8 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	4 A	-	4 A	8 A	-	8 A	8 A	-	8 A
Nominal current CSA	-	-	-	-	-	-	-	-	-

Conductor and press-in pin data for 3.5/3.81 mm pin spacing:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 1.5 mm ²
Conductor size: fine-stranded	0.08 - 1.5 mm ²
Conductor size: fine-stranded	0.25 - 1.0 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 14 (14: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	90° to PCB
Press-in pin: length/width	3.4 mm / 0.6 mm
Press-in pin: recom. drilled hole diameter	1.15 ^{±0.025} mm
Press-in pin: metal-plated hole diameter	1.0 mm (HAL Sn)
Press-in pin: metal-plated hole diameter	1.0 mm (Chem. Sn)

Conductor and press-in pin data for 5/5.08 mm and 7.5/7.62 mm pin spacing:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	90° to PCB
Press-in pin: length/width	3.6 mm / 0.8 mm
Press-in pin: recom. drilled hole diameter	1.6 ^{±0.025} mm
Press-in pin: metal-plated hole diameter	1.45 mm (HAL Sn)
Press-in pin: metal-plated hole diameter	1.45 mm (Chem. Sn)

Material data:

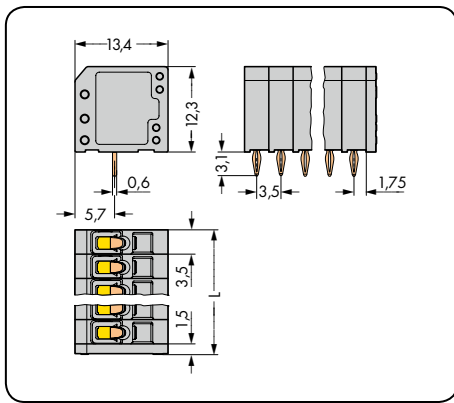
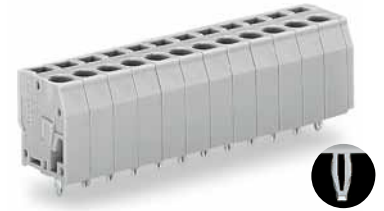
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-40 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu}) / Copper alloy for press-in technology
Contact plating	tin-plated

739 Series accessories:

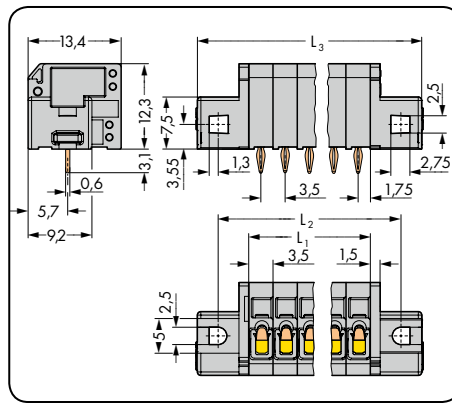
Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Screws	546

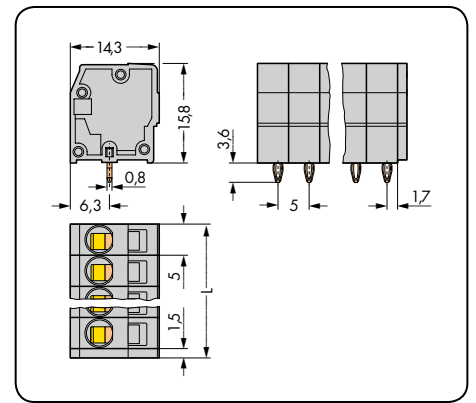
Pin spacing 3.5 mm / 0.138 in		With fixing flanges Pin spacing 3.5 mm / 0.138 in		Pin spacing 5 mm / 0.197 in	
0.08 - 1.5 mm ² 160 V/2.5 kV/2 4 A	AWG 28 - 14 300 V/4 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 4 A	AWG 28 - 14 300 V/4 A	0.08 - 2.5 mm ² 320 V/4 kV/2 8 A	AWG 28 - 12 300 V/8 A



L = pole no. x pin spacing + 1.5 mm



L₁ = pole no. x pin spacing
L₂ = L₁ + 8.8 mm
L₃ = L₁ + 14.8 mm



L = (pole no. x pin spacing) + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 1 press-in pin/pole, gray			Terminal strip with fixing flanges, 1 press-in pin/pole, gray			Terminal strip, 1 press-in pin/pole, gray		
			2	739-302/100-000/001-000	220 (4 x 55)			
3	739-303/100-000	400 (4 x 100)	3	739-303/100-000/001-000	180 (4 x 45)	3	739-103/100-000	280 (4 x 70)
4	739-304/100-000	300 (4 x 75)	4	739-304/100-000/001-000	160 (4 x 40)	4	739-104/100-000	220 (4 x 55)
5	739-305/100-000	240 (4 x 60)	5	739-305/100-000/001-000	140 (4 x 35)	5	739-105/100-000	180 (4 x 45)
6	739-306/100-000	200 (4 x 50)	6	739-306/100-000/001-000	120 (4 x 30)	6	739-106/100-000	140 (4 x 35)
7	739-307/100-000	180 (4 x 45)	7	739-307/100-000/001-000	120 (4 x 30)	7	739-107/100-000	120 (4 x 30)
8	739-308/100-000	160 (4 x 40)	8	739-308/100-000/001-000	100 (4 x 25)	8	739-108/100-000	100 (4 x 25)
9	739-309/100-000	140 (4 x 35)	9	739-309/100-000/001-000	100 (4 x 25)	9	739-109/100-000	100 (4 x 25)
10	739-310/100-000	120 (4 x 30)	10	739-310/100-000/001-000	80 (4 x 20)	10	739-110/100-000	80 (4 x 20)
12	739-312/100-000	100 (4 x 25)	12	739-312/100-000/001-000	80 (4 x 20)	12	739-112/100-000	60 (4 x 15)

Item No. Suffixes:
Colored Terminal Strips, 5 mm Pin Spacing

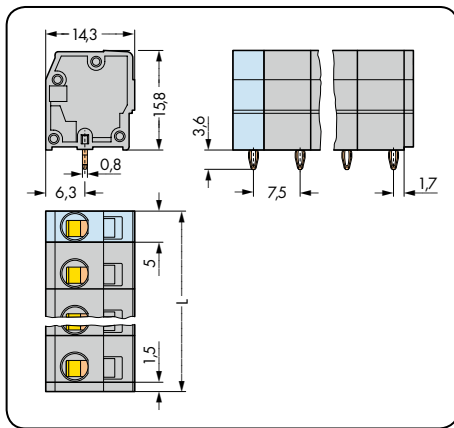
- black ...-.../100-004
- red ...-.../100-005
- blue ...-.../100-006
- brown ...-.../100-014
- light green ...-.../100-017
- green ...-.../100-023

Ordering example:
Terminal strip, 5 mm pin spacing
8-pole, brown: **739-108/100-014**

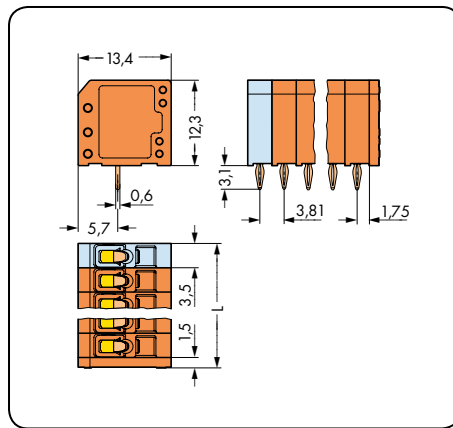
(Production and prices depend on quantity required)

PCB Terminal Strips 1.5 mm² and 2.5 mm², Press-In Technology

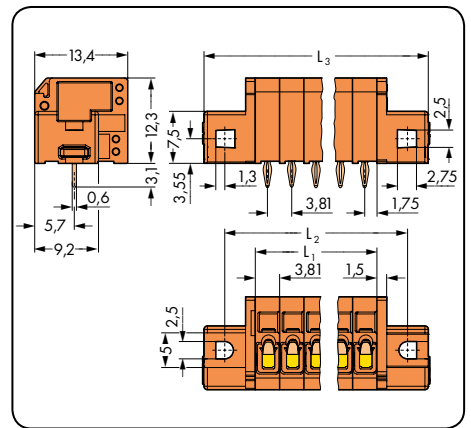
Pin spacing 7.5 mm / 0.295 in		Pin spacing 3.81 mm / 0.15 in		With fixing flanges Pin spacing 3.81 mm / 0.15 in	
0.08 - 2.5 mm ² 630 V/6 kV/2 8 A	AWG 28 - 12 300 V/8 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 4 A	AWG 28 - 14 300 V/4 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 4 A	AWG 28 - 14 300 V/4 A



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



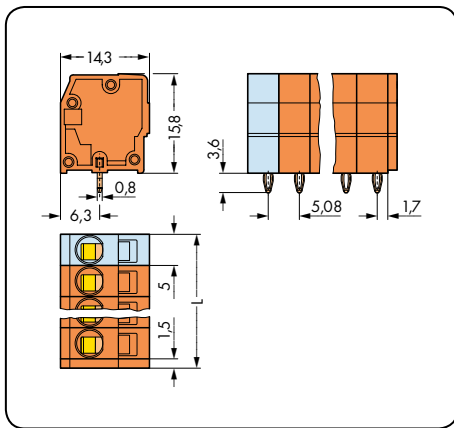
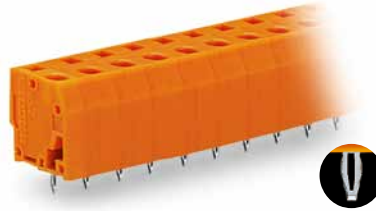
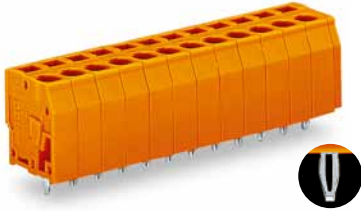
L = pole no. x pin spacing + 3.5 mm + 1.5 mm



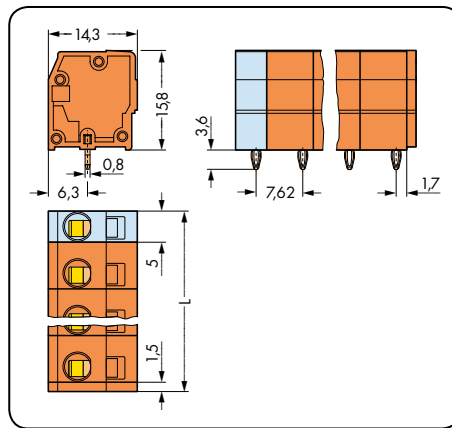
L₁ = pole no. x pin spacing
L₂ = L₁ + 8.8 mm
L₃ = L₁ + 14.8 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 1 press-in pin/pole, gray			Terminal strip, 1 press-in pin/pole, orange			Terminal strip with fixing flanges, 1 press-in pin/pole, orange		
3	739-203/100-000	220 (4 x 55)	3	739-333/100-000	360 (4 x 90)	2	739-332/100-000/001-000	200 (4 x 50)
4	739-204/100-000	160 (4 x 40)	4	739-334/100-000	280 (4 x 70)	3	739-333/100-000/001-000	180 (4 x 45)
5	739-205/100-000	120 (4 x 30)	5	739-335/100-000	220 (4 x 55)	4	739-334/100-000/001-000	160 (4 x 40)
6	739-206/100-000	100 (4 x 25)	6	739-336/100-000	180 (4 x 45)	5	739-335/100-000/001-000	140 (4 x 35)
7	739-207/100-000	80 (4 x 20)	7	739-337/100-000	160 (4 x 40)	6	739-336/100-000/001-000	120 (4 x 30)
8	739-208/100-000	80 (4 x 20)	8	739-338/100-000	140 (4 x 35)	7	739-337/100-000/001-000	100 (4 x 25)
9	739-209/100-000	60 (4 x 15)	9	739-339/100-000	120 (4 x 30)	8	739-338/100-000/001-000	100 (4 x 25)
10	739-210/100-000	60 (4 x 15)	10	739-340/100-000	120 (4 x 30)	9	739-339/100-000/001-000	80 (4 x 20)
12	739-212/100-000	40 (4 x 10)	12	739-342/100-000	100 (4 x 25)	10	739-340/100-000/001-000	80 (4 x 20)
						12	739-342/100-000/001-000	60 (4 x 15)

Pin spacing 5.08 mm / 0.2 in		Pin spacing 7.62 mm / 0.3 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 8 A	AWG 28 - 12 300 V/8 A	0.08 - 2.5 mm ² 630 V/6 kV/2 8 A	AWG 28 - 12 300 V/8 A



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



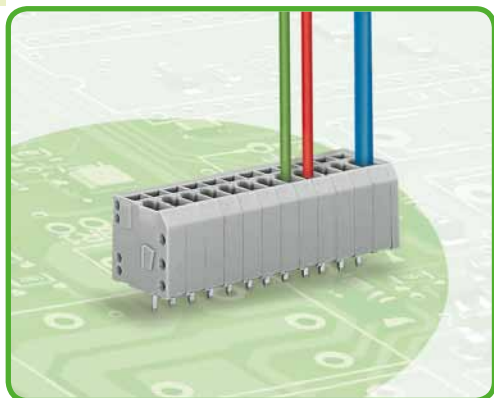
L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm

Unique features of WAGO press-in technology:

- Press-in pin features spring-loaded style expanding contact zone to provide greater retention and stability
- Suitable for all printed circuit boards with the correct tin plating for press-in connectors
- Metal-plated hole with optimum diameter
 - 1.0 or 1.45^{+0.02}_{-0.06} mm (HAL Sn)
 - 1.0 or 1.45^{+0.02}_{-0.06} mm (Chem. Sn)
- Press-in pin for PCB thickness from 1.4 to 3 mm
- Press-in length of approx 3.2 mm
 - no unnecessary projection on underside of PCB
- Low press-in force required
 - reduces wear and tear on PCB and components
- High retention force within the PCB - doubles the values required by DIN EN 60352-5
- Robust bonded connection
- Excellent elastic spring behavior
- No deformation of the metal-plated end hole
- Length of contact area ≥ 1.3 mm
- No deformation of multilayer PCBs
- Minimal tin removal in the contact hole
 - reduces wear and tear on PCB and contact points

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 1 press-in pin/pole, orange			Terminal strip, 1 press-in pin/pole, orange		
3	739-153/100-000	280 (4 x 70)	3	739-233/100-000	220 (4 x 55)
4	739-154/100-000	220 (4 x 55)	4	739-234/100-000	160 (4 x 40)
5	739-155/100-000	160 (4 x 40)	5	739-235/100-000	120 (4 x 30)
6	739-156/100-000	140 (4 x 35)	6	739-236/100-000	100 (4 x 25)
7	739-157/100-000	120 (4 x 30)	7	739-237/100-000	80 (4 x 20)
8	739-158/100-000	100 (4 x 25)	8	739-238/100-000	80 (4 x 20)
9	739-159/100-000	100 (4 x 25)	9	739-239/100-000	60 (4 x 15)
10	739-160/100-000	80 (4 x 20)	10	739-240/100-000	60 (4 x 15)
12	739-162/100-000	60 (4 x 15)	12	739-242/100-000	40 (4 x 10)

PCB Terminal Strips 1.5 mm² and 2.5 mm² Pin Spacing 3.5 mm, 3.81 mm, 5 mm, 5.08 mm, 7.5 mm, 7.62 mm 739 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP®
- Vertical conductor entry and conductor operation provide for space-saving positioning/grouping

Technical data:

Pin Spacing	3.5 mm, 3.81 mm 0.138 in, 0.15 in			5 mm, 5.08 mm 0.197 in, 0.2 in			7.5 mm, 7.62 mm 0.295 in, 0.3 in			10 mm 0.394 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2	3	2	2
Rated voltage				320 V	320 V	630 V	500 V	630 V	1000 V	500 V	630 V	1000 V
Rated surge voltage				4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	6 kV	6 kV	6 kV
Rated voltage 3.5 mm	160 V	160 V	320 V									
Rated surge voltage 3.5 mm	2.5 kV	2.5 kV	2.5 kV									
Rated voltage 3.81 mm	200 V	320 V	500 V									
Rated surge voltage 3.81 mm	4 kV	4 kV	4 kV									
Nominal current	17,5 A	17,5 A	17,5 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	6 A	-	6 A	12 A	-	10 A	12 A	-	10 A	12 A	-	10 A
Nominal current CSA	-	-	-	12 A	-	10 A	8 A	-	8 A	8 A	-	8 A

Conductor and solder pin data for 3.5/3.81 mm pin spacing:

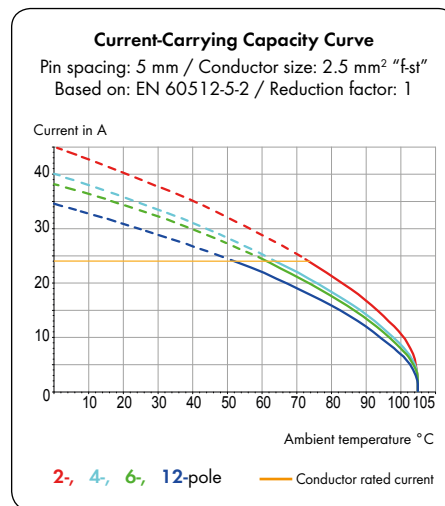
Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 1.5 mm ²
Conductor size: fine-stranded	0.08 - 1.5 mm ²
Conductor size: fine-stranded	0.25 - 1.0 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 14 (14: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	90° to PCB
Solder pin: length/width	3.4 mm / 0.6 x 0.8 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Conductor and solder pin data for 5/5.08 mm and 7.5/7.62 mm pin spacing:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	90° to PCB
Solder pin: length/width	3.2 mm / 0.8 x 1.2 mm
Solder pin: drilled hole diameter	1.6 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



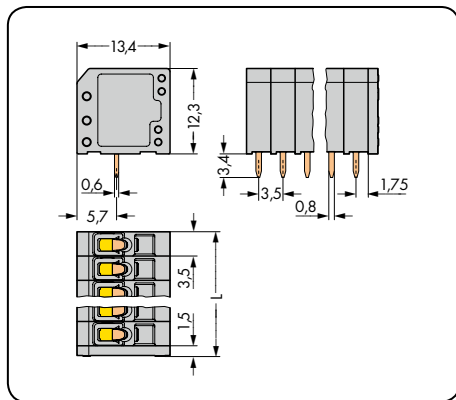
Current-Carrying Capacity Curve for 3,5 mm and 3,81 mm, see www.wago.com

739 Series accessories:

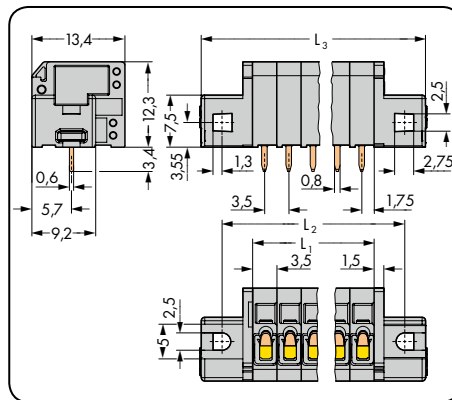
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Marking accessories	540 - 543
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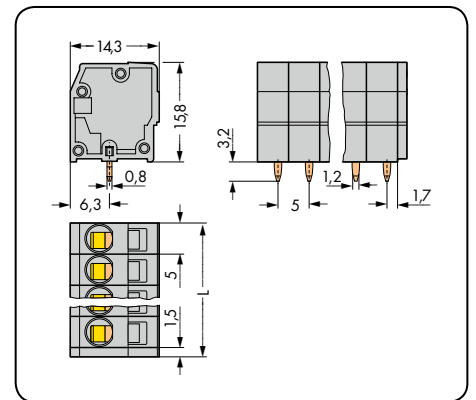
Pin spacing 3.5 mm / 0.138 in		With fixing flanges Pin spacing 3.5 mm / 0.138 in		Pin spacing 5 mm / 0.197 in	
0.08 - 1.5 mm ² 160 V/2.5 kV/2 17.5 A	AWG 28 - 14 300 V/6 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 17.5 A	AWG 28 - 14 300 V/6 A	0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A



L = (pole no. x pin spacing) + 1.5 mm



L₁ = pole no. x pin spacing
L₂ = L₁ + 8.8 mm
L₃ = L₁ + 14.8 mm



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 1 solder pin/pole, gray			Terminal strip with fixing flanges, 1 solder pin/pole, gray			Terminal strip, 1 solder pin/pole, gray		
2	739-302	560 (4 x 140)	2	739-302/001-000	220 (4 x 55)	2	739-102	400 (4 x 100)
3	739-303	400 (4 x 100)	3	739-303/001-000	180 (4 x 45)	3	739-103	280 (4 x 70)
4	739-304	300 (4 x 75)	4	739-304/001-000	160 (4 x 40)	4	739-104	220 (4 x 55)
5	739-305	240 (4 x 60)	5	739-305/001-000	140 (4 x 35)	5	739-105	180 (4 x 45)
6	739-306	200 (4 x 50)	6	739-306/001-000	120 (4 x 30)	6	739-106	140 (4 x 35)
7	739-307	180 (4 x 45)	7	739-307/001-000	120 (4 x 30)	7	739-107	120 (4 x 30)
8	739-308	160 (4 x 40)	8	739-308/001-000	100 (4 x 25)	8	739-108	100 (4 x 25)
9	739-309	140 (4 x 35)	9	739-309/001-000	100 (4 x 25)	9	739-109	100 (4 x 25)
10	739-310	120 (4 x 30)	10	739-310/001-000	80 (4 x 20)	10	739-110	80 (4 x 20)
12	739-312	100 (4 x 25)	12	739-312/001-000	80 (4 x 20)	12	739-112	60 (4 x 15)
						16	739-116	40 (4 x 10)
						24	739-124	20 (4 x 5)

Item No. Suffixes:
Colored Terminal Strips, 5 mm Pin Spacing:

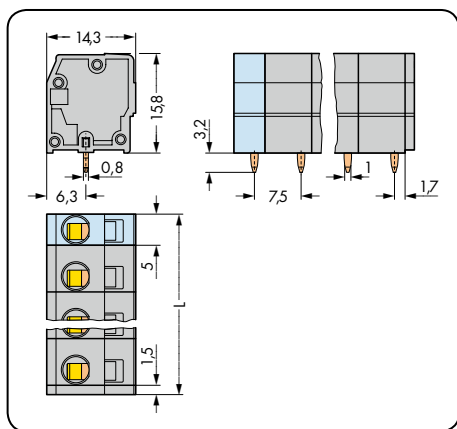
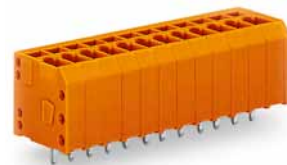
- black /000-004
- red /000-005
- blue /000-006
- brown /000-014
- light green /000-017
- green /000-023

Ordering example:
 Terminal strip, 5 mm pin spacing
 8-pole, brown: **739-108/000-014**

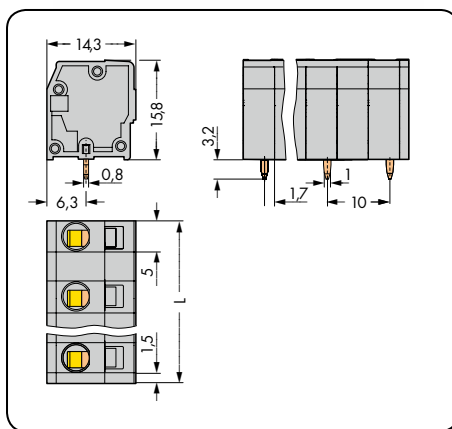
(Production and prices depend on quantity required)

PCB Terminal Strips 1.5 mm² and 2.5 mm²

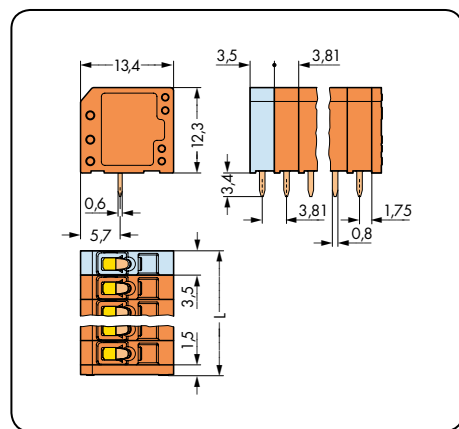
Pin spacing 7.5 mm / 0.295 in		Pin spacing 10 mm / 0.394 in		Pin spacing 3.81 mm / 0.15 in	
0.08 - 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 - 12 300 V/10 A	0,08 - 2,5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 1.5 mm ² 320 V/4 kV/2 17.5 A	AWG 28 - 14 300 V/6 A



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



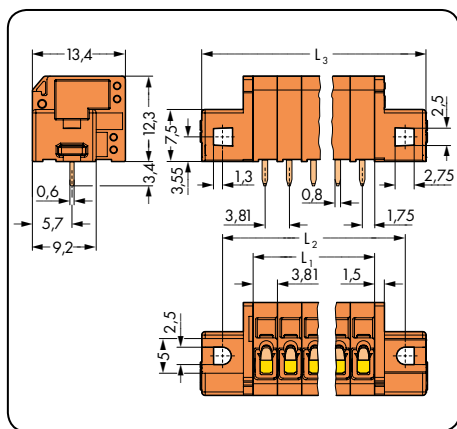
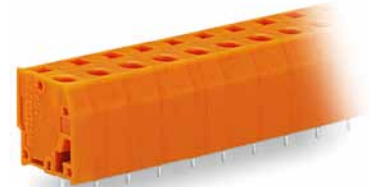
L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



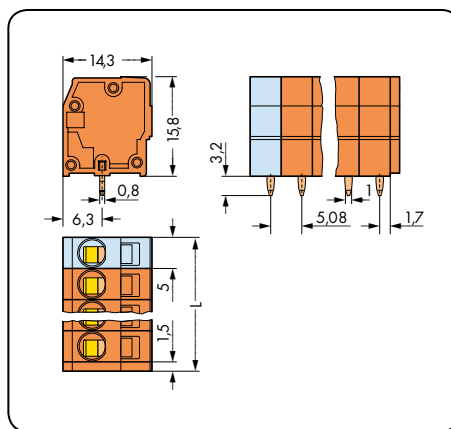
L = (pole no. - 1) x pin spacing + 3.5 mm + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 1 solder pin/pole, gray			Terminal strip, 1 solder pin/pole, gray			Terminal strip, 1 solder pin/pole, orange		
2	739-202	340 (4 x 85)	2	739-3202	280 (4 x 70)	2	739-332	520 (4 x 130)
3	739-203	220 (4 x 55)	3	739-3203	180 (4 x 45)	3	739-333	360 (4 x 90)
4	739-204	160 (4 x 40)	4	739-3204	120 (4 x 30)	4	739-334	280 (4 x 70)
5	739-205	120 (4 x 30)	5	739-3205	100 (4 x 25)	5	739-335	220 (4 x 55)
6	739-206	100 (4 x 25)	6	739-3206	80 (4 x 20)	6	739-336	180 (4 x 45)
7	739-207	80 (4 x 20)	7	739-3207	60 (4 x 15)	7	739-337	160 (4 x 40)
8	739-208	80 (4 x 20)	8	739-3208	60 (4 x 15)	8	739-338	140 (4 x 35)
9	739-209	60 (4 x 15)	9	739-3209	40 (4 x 10)	9	739-339	120 (4 x 30)
10	739-210	60 (4 x 15)	10	739-3210	40 (4 x 10)	10	739-340	120 (4 x 30)
12	739-212	40 (4 x 10)	11	739-3211	40 (4 x 10)	12	739-342	100 (4 x 25)
			12	739-3212	40 (4 x 10)			

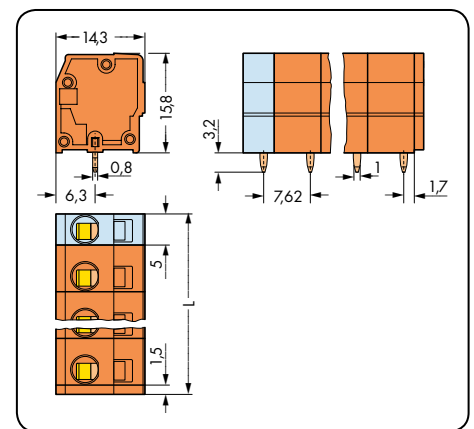
with fixing flanges Pin spacing 3.81 mm / 0.15 in		Pin spacing 5.08 mm / 0.2 in		Pin spacing 7.62 mm / 0.3 in	
0.08 - 1.5 mm ² 320 V/4 kV/2 17.5 A	AWG 28 - 14 300 V/6 A	0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 - 12 300 V/10 A



L_1 = pole no. x pin spacing
 L_2 = L_1 + 8.8 mm
 L_3 = L_1 + 14.8 mm



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with fixing flanges, 1 solder pin/pole, orange,			Terminal strip, 1 solder pin/pole, orange			Terminal strip, 1 solder pin/pole, orange		
2	739-332/001-000	200 (4 x 50)	2	739-152	400 (4 x 100)	2	739-232	340 (4 x 85)
3	739-333/001-000	180 (4 x 45)	3	739-153	280 (4 x 70)	3	739-233	220 (4 x 55)
4	739-334/001-000	160 (4 x 40)	4	739-154	220 (4 x 55)	4	739-234	160 (4 x 40)
5	739-335/001-000	140 (4 x 35)	5	739-155	160 (4 x 40)	5	739-235	120 (4 x 30)
6	739-336/001-000	120 (4 x 30)	6	739-156	140 (4 x 35)	6	739-236	100 (4 x 25)
7	739-337/001-000	100 (4 x 25)	7	739-157	120 (4 x 30)	7	739-237	80 (4 x 20)
8	739-338/001-000	100 (4 x 25)	8	739-158	100 (4 x 25)	8	739-238	80 (4 x 20)
9	739-339/001-000	80 (4 x 20)	9	739-159	100 (4 x 25)	9	739-239	60 (4 x 15)
10	739-340/001-000	80 (4 x 20)	10	739-160	80 (4 x 20)	10	739-240	60 (4 x 15)
12	739-342/001-000	60 (4 x 15)	12	739-162	60 (4 x 15)	12	739-242	40 (4 x 10)
			16	739-166	40 (4 x 10)			
			24	739-174	20 (4 x 5)			

PCB Terminal Strips 2.5 mm² Pin Spacing 5 mm 740 Series



- Terminal strips with screwdriver-actuated CAGE CLAMP® connection
- Top-of-unit actuation, side-entry termination
- Pin and dimensions compatible with screw-type terminal blocks of similar design
- Terminal strips may be positioned adjacently without losing any poles

Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	300 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	16 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	6 - 7 mm / 0.24 - 0.28 in
Conductor entry angle	0° to PCB
Solder pin: length/width	5.1 mm / 0.8 x 1 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

740 Series accessories:

Page:

Marking accessories	540 - 543
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PCB Terminal Strips 2.5 mm²

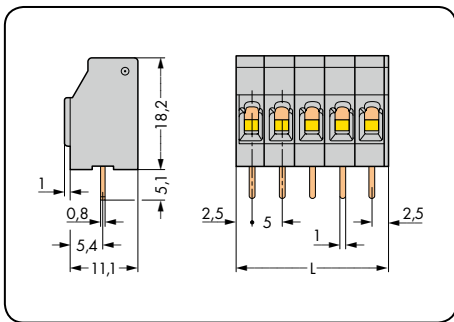
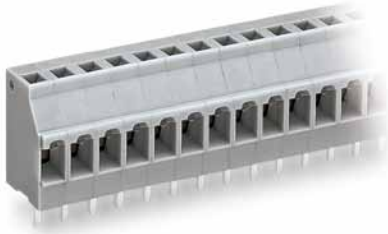
CAGE CLAMP®

1
79

1

Pin spacing 5 mm / 0.197 in

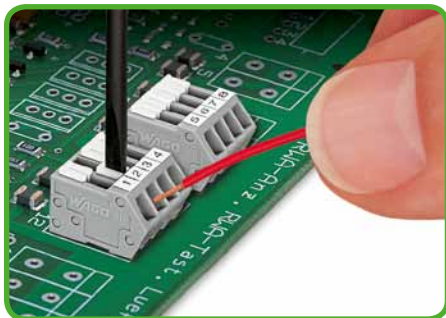
0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 16 A	300 V/10 A



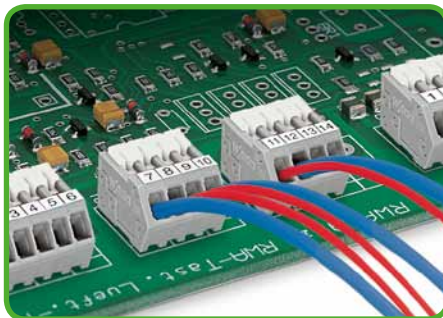
L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit	Item No. Suffixes: Colored Terminal Strips, 5 mm Pin Spacing
Terminal strip, 1 solder pin/pole, gray			
2	740-102	460 (4 x 115)	● black ...-.../000-004
3	740-103	300 (4 x 75)	● blue ...-.../000-006
4	740-104	240 (4 x 60)	○ light gray Δ RAL 7035 ...-.../000-021
5	740-105	180 (4 x 45)	● green ...-.../000-023
6	740-106	140 (4 x 35)	
7	740-107	120 (4 x 30)	Ordering example:
8	740-108	100 (4 x 25)	Terminal strip, 5 mm pin spacing,
9	740-109	100 (4 x 25)	12-pole, green: 740-112/000-023
10	740-110	80 (4 x 20)	
12	740-112	60 (4 x 15)	
16	740-116	60 (4 x 15)	
24	740-124	40 (4 x 10)	(Production and prices depend on quantity required)

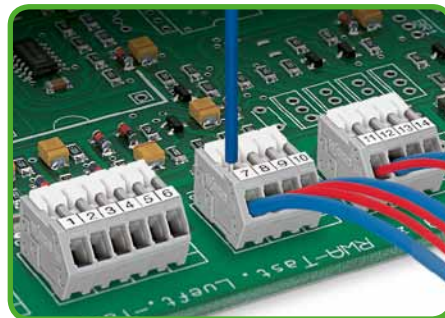




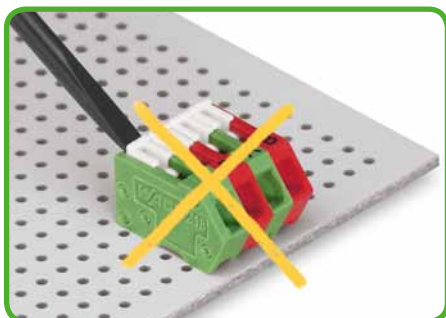
Terminating stranded conductors in confined spaces requires a great deal of patience, unless you use the new 218 Series terminal strips. The clamping units of these strips can be held open during termination process via integrated locking slide.



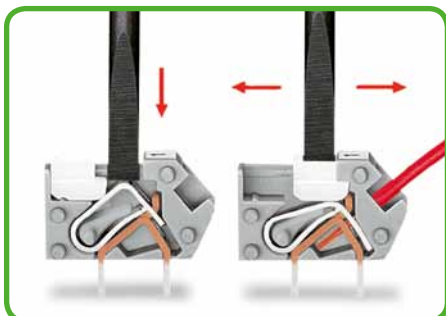
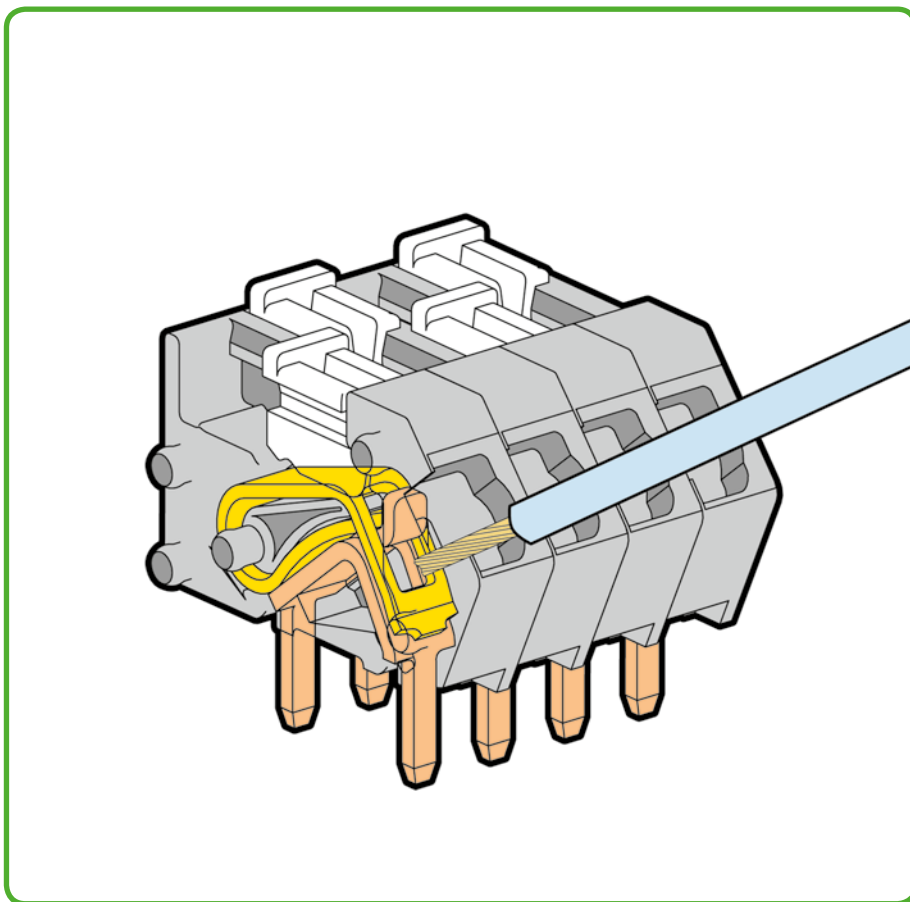
Terminating 0.75 mm² / AWG 18 conductors is possible; however insulation diameter does not allow clamping units to be terminated in a row with this conductor size.



Testing directly on the clamping spring.



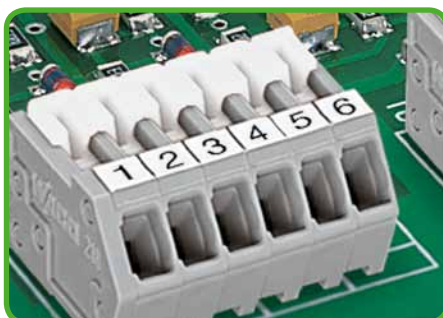
Incorrect - Do not operate the locking slides from the back.



Conductor termination: To momentarily open clamping unit, use screwdriver and then insert stripped conductor. To open clamping unit for extended period, move locking slide toward conductor entry hole. Then fully insert stripped conductor and move locking slide back to original position (also possible perform with fingernail).



Insulating housings available in different colors.



Marking via self-adhesive strips or ...



... factory direct printing.



CAGE CLAMP® clamps the following copper conductors:*

solid



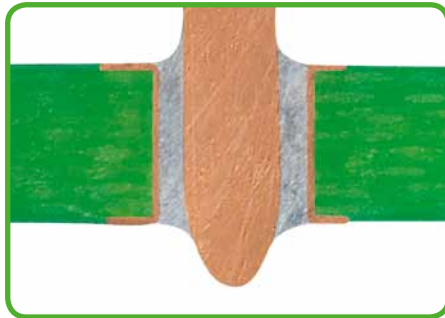
stranded



fine-stranded, also with tinned single strands

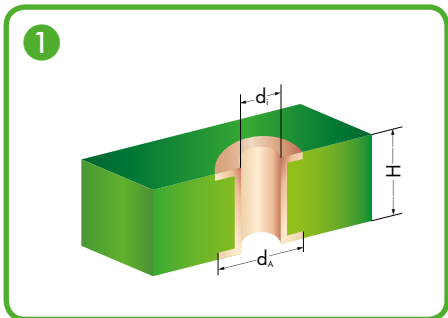
* For aluminum conductors, see notes in Section 11.

THR Soldering Process (Through-Hole Reflow)

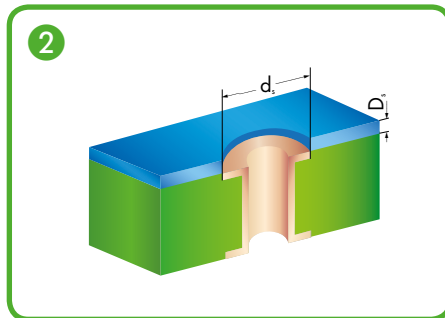


By using high-temperature resistant plastic and a streamlined pin design, the WAGO Through-Hole Reflow headers and PCB terminal blocks meet requirements for SMT process capability while maintaining necessary stability. The headers and THR PCB terminal blocks are simply pushed into the solder paste-filled PCB holes and then soldered along with the SMT components via reflow soldering. The previous wave soldering process is no longer necessary. The result is a perfect connection - both mechanically and electrically.

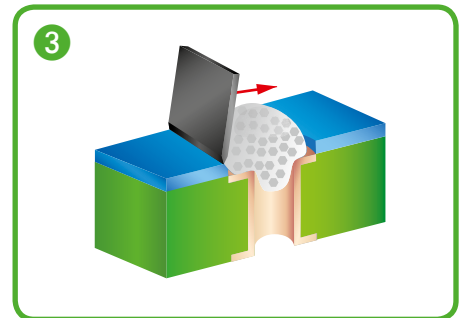
Terminal strips with additional suction pad in tape-and-reel packaging according to IEC 60286-3.



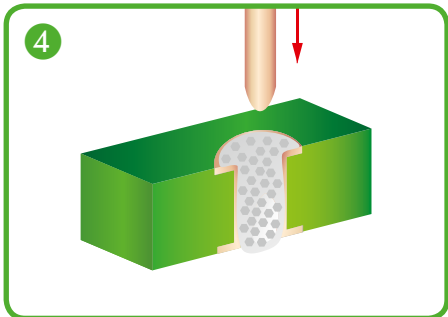
Metal-plated PCB hole



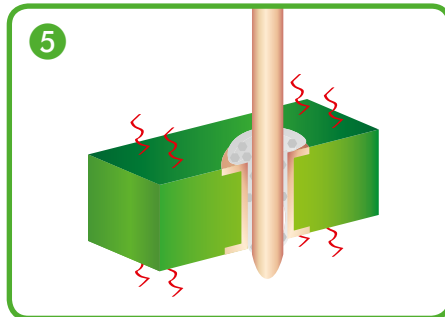
SMD positioning pattern



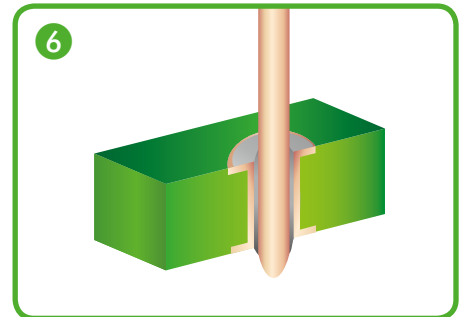
Application of solder paste



Component assembly automatic/by hand



Reflow soldering process



THR soldering joint

Series	d _i (mm)	d _A (mm)	H(mm)	d _s (mm)	D _s (μm)	d(mm)	L(mm)
218	1,1 ^{+0,1}	1,9	< 2	1,8	150	0,9	2,8
236	1,1 ^{+0,1}	2,2	< 2	2,1	150	0,9	3,6
250	1,1 ^{+0,1}	2,0	< 2	1,9	150	0,9	3,6
2081	1,1 ^{+0,1}	2,0	< 2	1,9	150	0,9	3,6

WAGO recommends a temperature profile that adheres to EN 61760-1 and the use of forced convection ovens for processing THR components.

- d_i: Inner diameter of metal-plated PCB hole
- d_A: Outer diameter of metal-plated PCB bore hole*
- H: PCB thickness
- d_s: Pattern hole diameter
- D_s: Pattern thickness
- d: Pin diagonal
- L: Pin length

* When laying out the metal-plated bore holes, the clearance and creepage distance requirements - as specified in the equipment standards - must be considered.



fine-stranded, tip-bonded



fine-stranded with ferrules (gas-tight crimped)



fine-stranded with crimped pin terminal (gas-tight)

PCB Terminal Strips with Locking Slides 0.5 mm² Pin Spacing 2.5 mm, 2.54 mm 218 Series



- Terminal strips are just 8.1 mm high and feature an innovative, locking slide-actuated CAGE CLAMP®
- Several clamping units can be held open simultaneously
- Easy termination of stranded conductors in tight spaces (e.g., bus connectors)

Technical data:

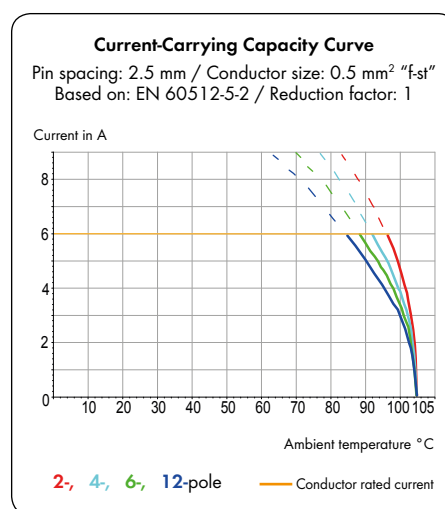
Pin Spacing	2.5 mm 0.098 in			2.54 mm 0.1 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	80 V	160 V	320 V	80 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	6 A	6 A	6 A	6 A	6 A	6 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	150 V	-	-	150 V	-	-
Nominal current UL	4 A	-	-	4 A	-	-
Nominal current CSA	4 A	-	-	4 A	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 0.5 mm ² *
Conductor size: fine-stranded	0.08 - 0.5 mm ² *
Conductor size: fine-stranded	0.25 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 mm ² (with uninsulated ferrule)
AWG	28 - 20*
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	40° to PCB
Solder pin: length/width	2.8 mm / 0.5 x 0.75 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



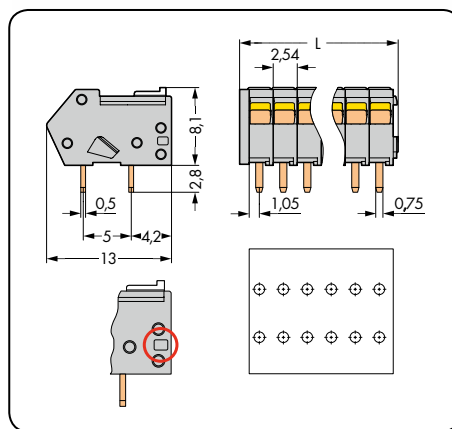
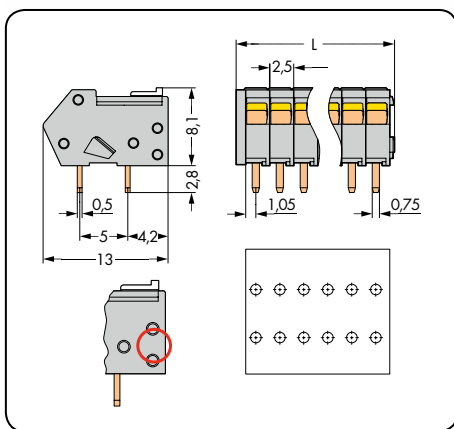
218 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Test pin	538

* Terminating 0.75 mm² / AWG 18 conductors is possible; however insulation diameter does not allow clamping units to be terminated in a row.

Pin spacing 2.5 mm / 0.098 in		Pin spacing 2.54 mm / 0.1 in	
0.08 – 0.5 mm ²	AWG 28 – 20	0.08 – 0.5 mm ²	AWG 28 – 20
160 V/2.5 kV/2 6 A	150 V/4 A	160 V/2.5 kV/2 6 A	150 V/4 A



L = (pole no. x pin spacing) + 1.5 mm

○ A groove at the back of the terminal strip differentiates between the two pin spacings.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with locking slides, 2 solder pins/pole in line, gray, locking slides, white			Terminal strip with locking slides, 2 solder pins/pole in line, gray, locking slides, white		
2	218-102	1000 (10 x 100)	2	218-502	1000 (10 x 100)
3	218-103	1000 (10 x 100)	3	218-503	1000 (10 x 100)
4	218-104	500 (5 x 100)	4	218-504	500 (5 x 100)
5	218-105	500 (5 x 100)	5	218-505	500 (5 x 100)
6	218-106	280 (4 x 70)	6	218-506	280 (4 x 70)
7	218-107	240 (4 x 60)	7	218-507	240 (4 x 60)
8	218-108	220 (4 x 55)	8	218-508	220 (4 x 55)
9	218-109	200 (4 x 50)	9	218-509	200 (4 x 50)
10	218-110	180 (4 x 45)	10	218-510	160 (4 x 40)
11	218-111	160 (4 x 40)	11	218-511	160 (4 x 40)
12	218-112	140 (4 x 35)	12	218-512	140 (4 x 35)
13	218-113	140 (4 x 35)	13	218-513	140 (4 x 35)
14	218-114	120 (4 x 30)	14	218-514	120 (4 x 30)
15	218-115	120 (4 x 30)	15	218-515	120 (4 x 30)
16	218-116	100 (4 x 25)	16	218-516	100 (4 x 25)
:	:		:	:	
21	218-121	80 (4 x 20)	21	218-521	80 (4 x 20)
22	218-122	80 (4 x 20)	22	218-522	80 (4 x 20)
23	218-123	80 (4 x 20)	23	218-523	80 (4 x 20)
24	218-124	60 (4 x 15)	24	218-524	60 (4 x 15)

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● black/000-004	Ordering example: Terminal strip, 2.5 mm pin spacing, 8-pole, orange 2 solder pins in line: 218-108/000-012
● red	...../000-005
● blue	...../000-006
● orange	...../000-012
● green	...../000-023
○ white	...../000-050

Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

PCB Terminal Strips with Locking Slides 0.5 mm², THR (Through-Hole Reflow*) Pin Spacing 2.5 mm, 2.54 mm 218 Series



- Terminal strips are just 8.1 mm high and feature an innovative, locking slide-actuated CAGE CLAMP®
- Several clamping units can be held open simultaneously
- Easy termination of stranded conductors in tight spaces (e.g., bus connectors)
- THR soldering provides integration into SMT assembly and soldering processes

Technical data:

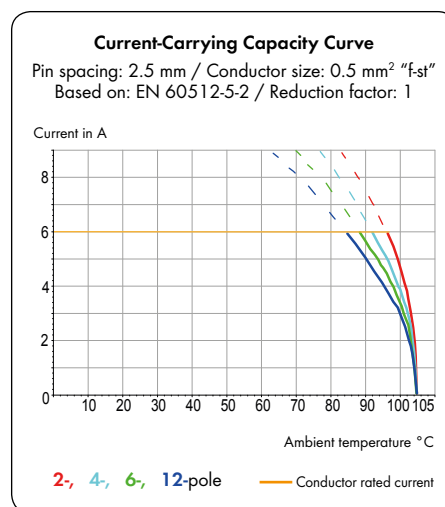
Pin Spacing	2.5 mm 0.098 in			2.54 mm 0.1 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	32 V	160 V	160 V	32 V	160 V	160 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	6 A	6 A	6 A	6 A	6 A	6 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	-	-	-	-	-	-
Nominal current UL	-	-	-	-	-	-
Nominal current CSA	-	-	-	-	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 0.5 mm ² **
Conductor size: fine-stranded	0.08 - 0.5 mm ² **
Conductor size: fine-stranded	0.25 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 mm ² (with uninsulated ferrule)
AWG	28 - 20**
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	40° to PCB
Solder pin: length/width	2.8 mm / 0.5 x 0.75 mm
Solder pin: metal-plated hole diam.	1.1 ^{+0.1} mm

Material data:

Material group	III a
Insulating material	Nylon 4.6 (PA 4.6)
Flammability rating per UL 94	V2
Lower/Upper temperature limit	-60 °C / +115 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



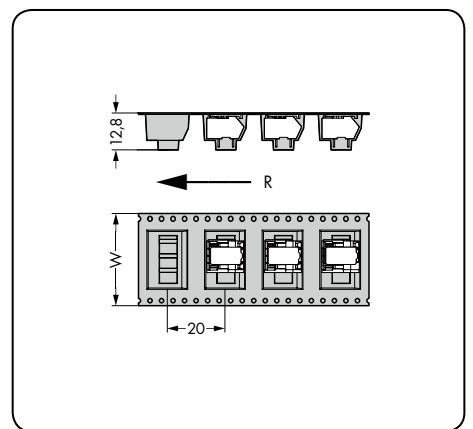
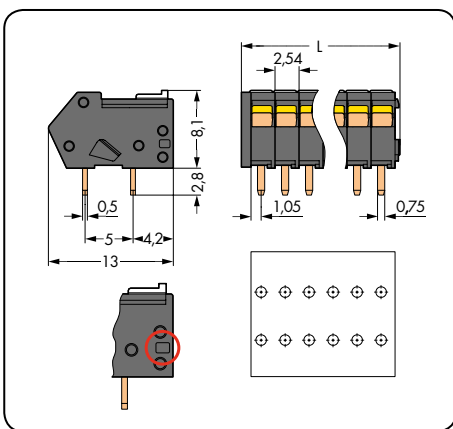
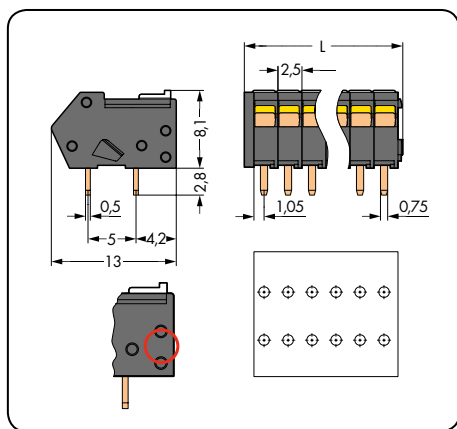
218 Series accessories:

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Test pin	538

** Terminating 0.75 mm² / AWG 18 conductors is possible; however insulation diameter does not allow clamping units to be terminated in a row.

Pin spacing 2.5 mm / 0.098 in 0.08 – 0.5 mm ² | AWG 28 – 20 160 V/2.5 kV/2 6 A		Pin spacing 2.54 mm / 0.1 in 0.08 – 0.5 mm ² | AWG 28 – 20 160 V/2.5 kV/2 6 A		Terminal strips in tape-and-reel packaging Pin spacing 2.5 mm Pin Spacing 2.54 mm
--	--	---	--	--



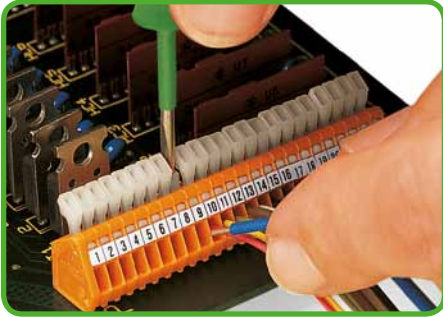
L = (pole no. x pin spacing) + 1.5 mm

○ A groove at the back of the terminal strip differentiates between the two pin spacings.

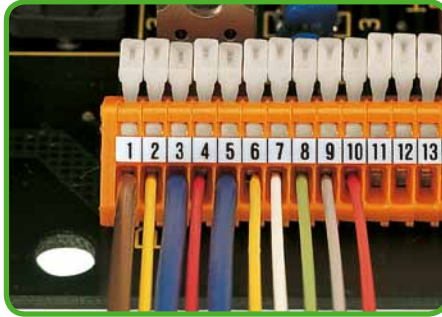
W = Tape width
R = Feed direction

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Terminal strip with locking slides, 2 solder pins/pole in line, black, locking slides, white			Terminal strip with locking slides, 2 solder pins/pole in line, black, locking slides, white			Terminal strips with additional suction pad in tape-and-reel packaging acc. to IEC 60286-3, 2.5 mm pin spacing:		
2	218-102/000-604	1000 (10 x 100)	2	218-502/000-604	1000 (10 x 100)	2	218-102/000-604/997-403	(mm) 16
3	218-103/000-604	1000 (10 x 100)	3	218-503/000-604	1000 (10 x 100)	3	218-103/000-604/997-405	32
4	218-104/000-604	500 (5 x 100)	4	218-504/000-604	500 (5 x 100)	4	218-104/000-604/997-405	32
5	218-105/000-604	500 (5 x 100)	5	218-505/000-604	500 (5 x 100)	5	218-105/000-604/997-405	32
6	218-106/000-604	280 (4 x 70)	6	218-506/000-604	280 (4 x 70)	6	218-106/000-604/997-405	32
7	218-107/000-604	240 (4 x 60)	7	218-507/000-604	240 (4 x 60)	7	218-107/000-604/997-405	32
						Terminal strips with additional suction pad in tape-and-reel packaging acc. to IEC 60286-3, 2.54 mm pin spacing:		
						(mm)		
						2	218-502/000-604/997-403	16
						3	218-503/000-604/997-405	32
						4	218-504/000-604/997-405	32
						5	218-505/000-604/997-405	32
						6	218-506/000-604/997-405	32
						7	218-507/000-604/997-405	32
						330 mm reel diameter, 250 pieces per reel		

1 Description and Handling 233 and 234 Series with Push-Buttons



Inserting/removing conductor via push-button.

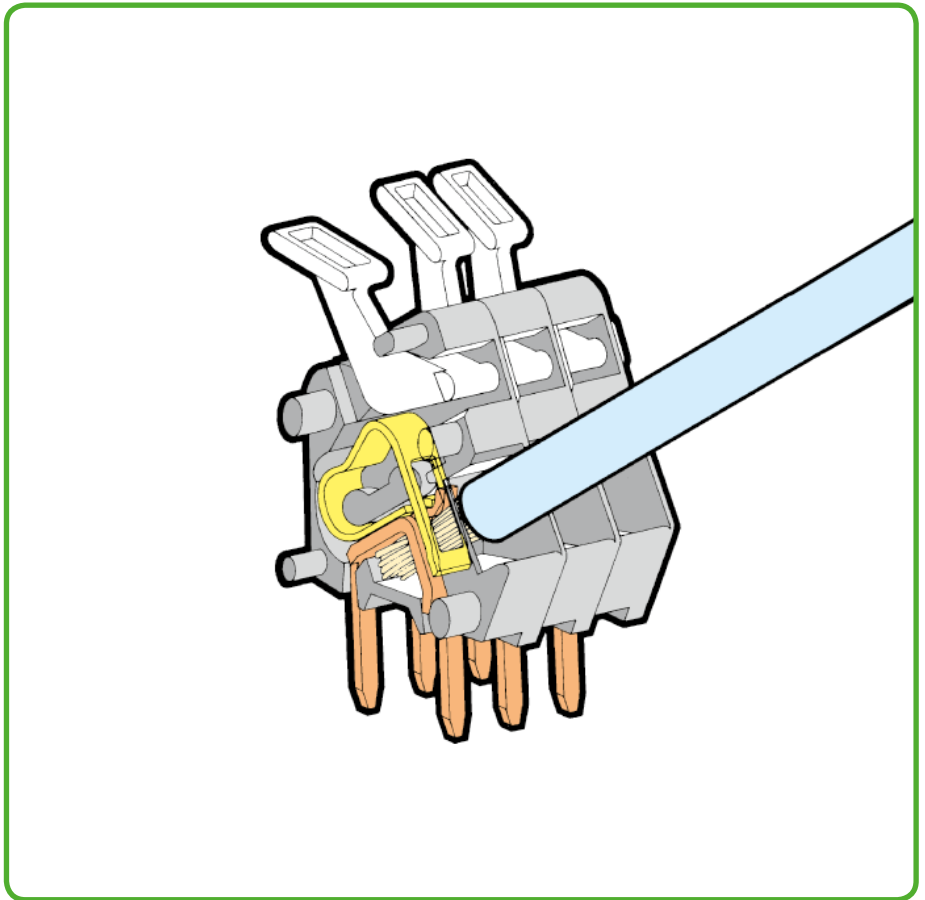


Nominal cross-section 0.5 mm²/AWG 20;
0.75 mm²/AWG 18 only in every other position.



Marking via self-adhesive strips or factory direct printing.

233 Series



CAGE CLAMP® clamps the following copper conductors:*

solid

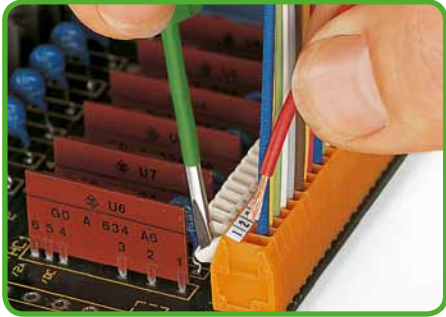


stranded



fine-stranded,
also with tinned
single strands

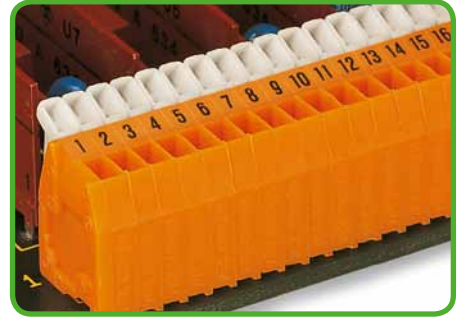
* For aluminum conductors, see notes in Section 11.



Inserting/removing conductor via push-button.

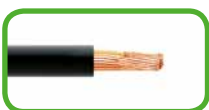
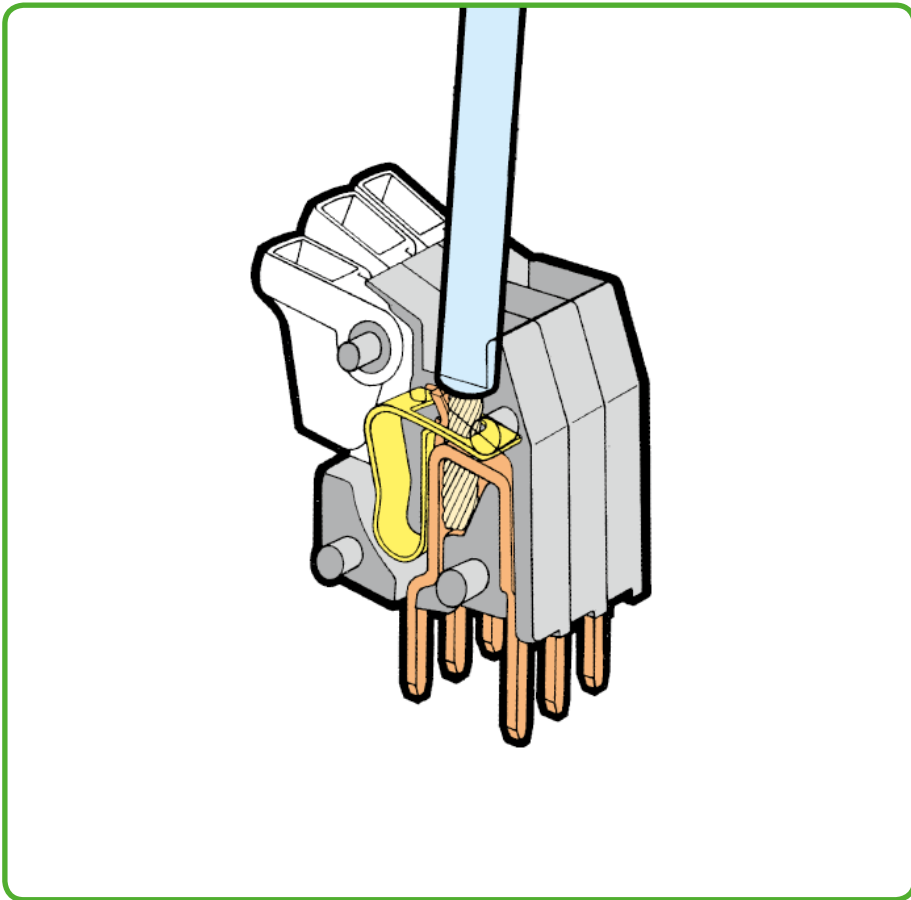


Nominal cross-section 0.5 mm²/AWG 20;
0.75 mm²/AWG 18 only in every other position.



Marking via self-adhesive strips or factory direct printing.

234 Series



fine-stranded,
tip-bonded



fine-stranded with
crimped ferrules
(gas-tight)



fine-stranded with
crimped pin terminal
(gas-tight)

PCB Terminal Strips with Push-Buttons 0.5 mm² Pin Spacing 2.5 mm, 2.54 mm 233 Series



- Terminal strips with push-button actuated CAGE CLAMP®
- Double solder pins for high stability on the PCB
- Ideal for in-the-field wiring thanks to simplified push-button actuation
- Convenient, tool-free operation
- For 233 Series without push-buttons, see page 19

Technical data:

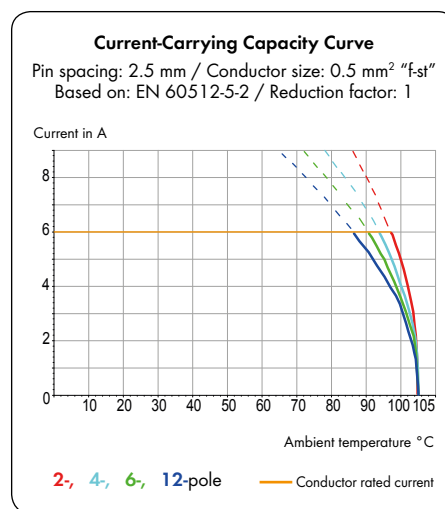
Pin Spacing	2.5 mm 0.098 in			2.54 mm 0.1 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	63 V	160 V	320 V	63 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	6 A	6 A	6 A	6 A	6 A	6 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	150 V	-	-	150 V	-	-
Nominal current UL	4 A	-	-	4 A	-	-
Nominal current CSA	4 A	-	-	4 A	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid*	0.08 - 0.5 mm ² *
Conductor size: fine stranded*	0.08 - 0.5 mm ² *
Conductor size: fine-stranded	0.25 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 mm ² (with uninsulated ferrule)
AWG*	28 - 20*
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	30° to PCB
Solder pin: length/width	4 mm / 0.5 x 0.75 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



233 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528

* Terminating 0.75 mm² / AWG 18 conductors is possible; however insulation diameter does not allow clamping units to be terminated in a row.

PCB Terminal Strips with Push-Buttons 0.5 mm²

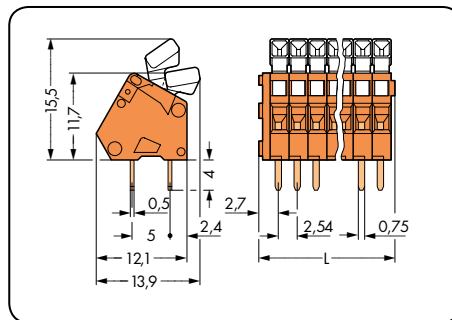
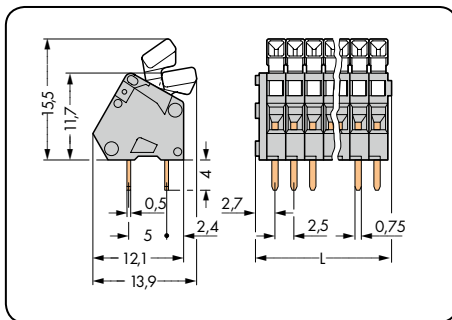
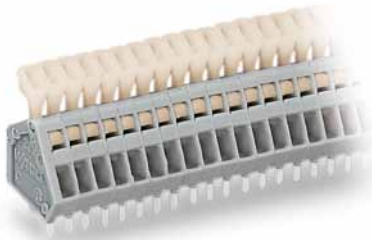
CAGE CLAMP®

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Pin spacing 2.5 mm / 0.098 in		Pin spacing 2.54 mm / 0.1 in	
0.08 – 0.5 mm ²	AWG 28 – 20	0.08 – 0.5 mm ²	AWG 28 – 20
160 V/2.5 kV/2 6 A	150 V/4 A	160 V/2.5 kV/2 6 A	150 V/4 A



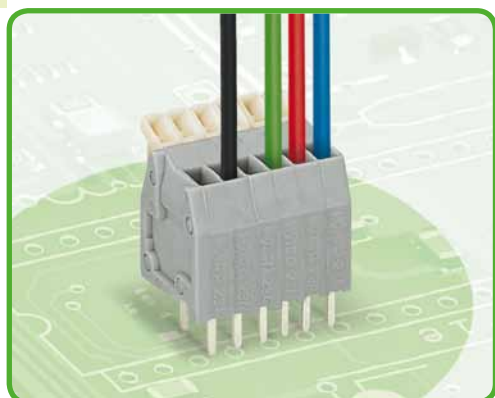
L = (pole no. x pin spacing) + 2.3 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons, 2 solder pins/pole, gray			Terminal strip with push-buttons, 2 solder pins/pole, orange		
2	233-202	600 (6 x 100)	2	233-502	600 (6 x 100)
3	233-203	500 (4 x 125)	3	233-503	500 (4 x 125)
4	233-204	400 (4 x 100)	4	233-504	400 (4 x 100)
5	233-205	340 (4 x 85)	5	233-505	340 (4 x 85)
6	233-206	280 (4 x 70)	6	233-506	280 (4 x 70)
7	233-207	240 (4 x 60)	7	233-507	240 (4 x 60)
8	233-208	220 (4 x 55)	8	233-508	220 (4 x 55)
9	233-209	200 (4 x 50)	9	233-509	200 (4 x 50)
10	233-210	180 (4 x 45)	10	233-510	180 (4 x 45)
12	233-212	140 (4 x 35)	12	233-512	140 (4 x 35)
16	233-216	100 (4 x 25)	16	233-516	100 (4 x 25)
24	233-224	80 (4 x 20)	24	233-524	80 (4 x 20)
Item No. Suffixes: Colored Terminal Strips, 2.5 mm Pin Spacing			Item No. Suffixes: Colored Terminal Strips, 2.54 mm Pin Spacing		
● light green	...-.../000-017		● yellow	...-.../000-002	
● red	...-.../000-005		● black	...-.../000-004	
● green	...-.../000-023		● red	...-.../000-005	
			● blue	...-.../000-006	
			● brown	...-.../000-014	
			○ white	...-.../000-050	
Ordering example: Terminal strip, 2.5 mm pin spacing, 8-pole, green: 233-208/000-023			Ordering example: Terminal strip, 2.54 mm pin spacing, 8-pole, brown: 233-508/000-014		
(Production and prices depend on quantity required)			(Production and prices depend on quantity required)		

Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.



PCB Terminal Strips with Push-Buttons 0.5 mm² Pin Spacing 2.5 mm, 2.54 mm 234 Series



- Terminal strips with push-button actuated CAGE CLAMP®
- Double solder pins for high stability on the PCB
- Ideal for in-the-field wiring thanks to simplified push-button actuation
- Convenient, tool-free operation

Technical data:

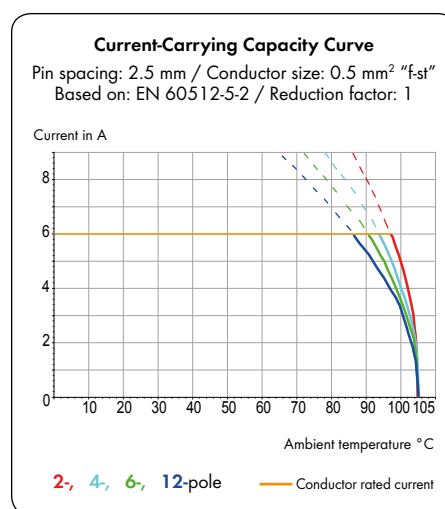
Pin Spacing	2.5 mm 0.098 in			2.54 mm 0.1 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	63 V	160 V	320 V	63 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	6 A	6 A	6 A	6 A	6 A	6 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	150 V	-	-	150 V	-	-
Nominal current UL	4 A	-	-	4 A	-	-
Nominal current CSA	4 A	-	-	4 A	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 0.5 mm ²
Conductor size: fine-stranded	0.08 - 0.5 mm ²
Conductor size: fine-stranded	0.25 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 mm ² (with uninsulated ferrule)
AWG	28 - 20
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	90° to PCB
Solder pin: length/width	4 mm / 0.5 x 0.75 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



234 Series accessories:

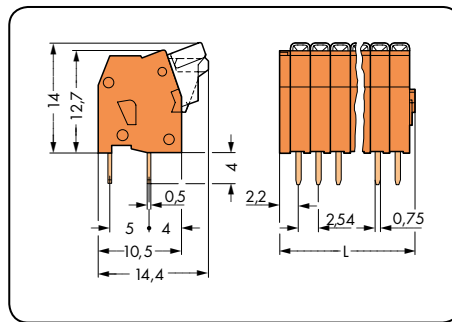
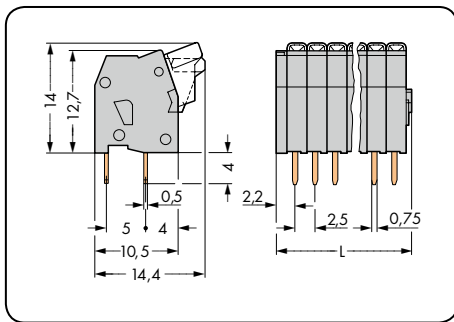
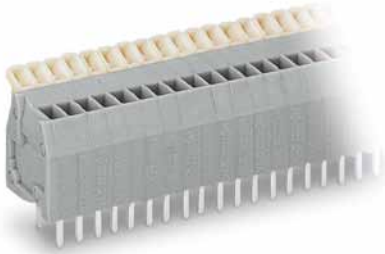
Page:

Marking accessories	540 - 543
Operating tools	526 - 528

PCB Terminal Strips with Push-Buttons 0.5 mm²

CAGE CLAMP®

Pin spacing 2.5 mm / 0.098 in		Pin spacing 2.54 mm / 0.1 in	
0.08 – 0.5 mm ²	AWG 28 – 20	0.08 – 0.5 mm ²	AWG 28 – 20
160 V/2.5 kV/2 6 A	150 V/4 A	160 V/2.5 kV/2 6 A	150 V/4 A



L = (pole no. x pin spacing) + 2.2 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons, 2 solder pins/pole, gray			Terminal strip with push-buttons, 2 solder pins/pole, orange		
2	234-202	600 (6 x 100)	2	234-502	600 (6 x 100)
3	234-203	520 (4 x 130)	3	234-503	520 (4 x 130)
4	234-204	400 (4 x 100)	4	234-504	400 (4 x 100)
5	234-205	340 (4 x 85)	5	234-505	340 (4 x 85)
6	234-206	280 (4 x 70)	6	234-506	280 (4 x 70)
7	234-207	240 (4 x 60)	7	234-507	240 (4 x 60)
8	234-208	220 (4 x 55)	8	234-508	220 (4 x 55)
9	234-209	200 (4 x 50)	9	234-509	200 (4 x 50)
10	234-210	180 (4 x 45)	10	234-510	180 (4 x 45)
12	234-212	140 (4 x 35)	12	234-512	140 (4 x 35)
16	234-216	100 (4 x 25)	16	234-516	100 (4 x 25)
24	234-224	80 (4 x 20)	24	234-524	80 (4 x 20)

Item No. Suffixes:
Colored Terminal Strips, 2.54 mm Pin Spacing

● yellow	...-.../000-002
● red	...-.../000-005
● blue	...-.../000-006
○ white	...-.../000-050

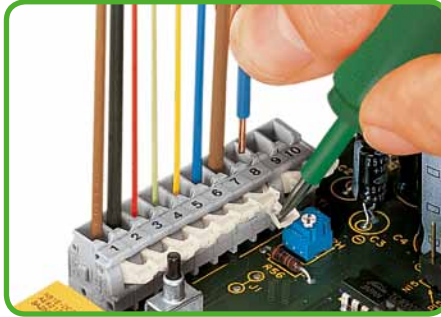
Ordering example:
Terminal strip, 2.54 mm pin spacing
8-pole, red: **234-508/000-005**

(Production and prices depend on quantity required)

1 Description and Handling 255, 256, 257, 2706 and 2716 Series



Inserting/removing conductor via push-button - 256 Series.



Inserting/removing conductor via push-button - 255 Series.



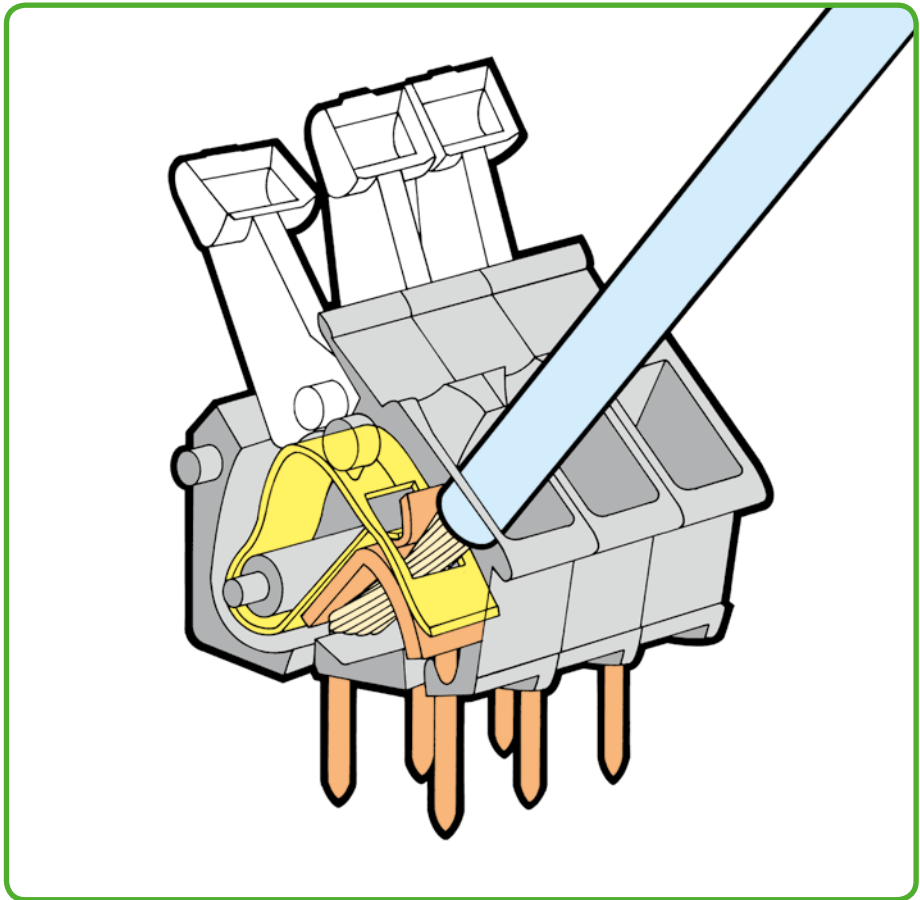
Inserting/removing conductor via finger-operated lever - 255 Series.

Finger-operated levers



Inserting/removing conductor via finger-operated lever - 256 Series.

255, 256 and 257 Series

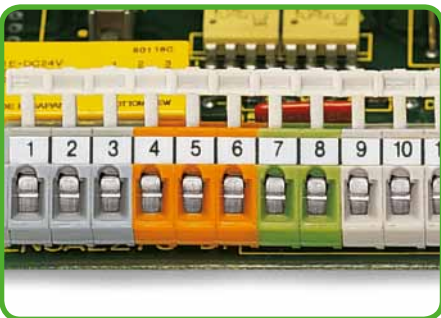


Pin spacing 2.5/2.54 mm



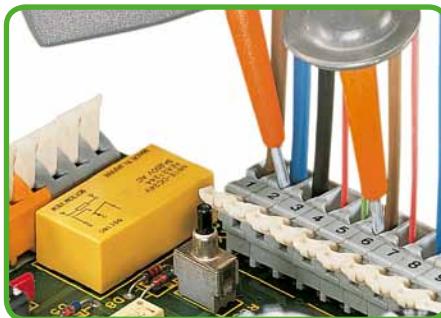
Possible conductor arrangement with terminal strips staggered (for 256 Series only).

Formation of groups



Formation of groups using housings of different colors.

Testing



Testing with test probes.

Testing



Testing with test plug modules.



CAGE CLAMP® clamps the following copper conductors:*

solid



stranded



fine-stranded, also with tinned single strands

* For aluminum conductors, see notes in Section 11.

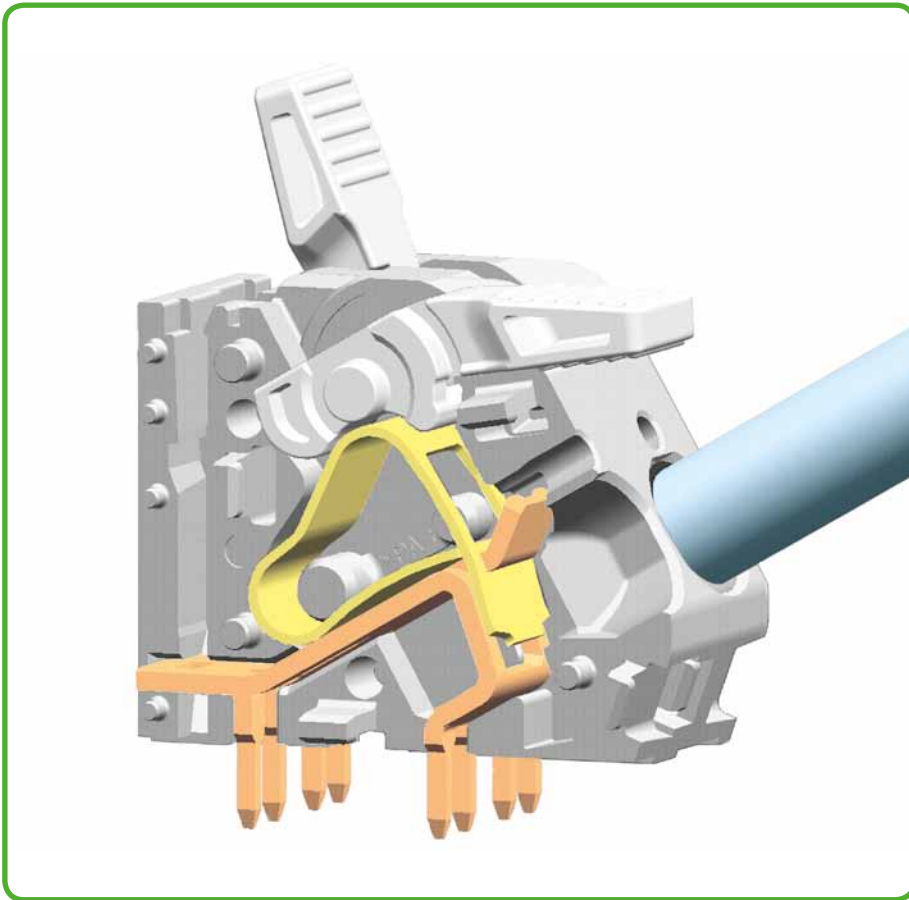


To open the clamping unit, pull the operating lever all the way back - 2706 and 2716 Series.

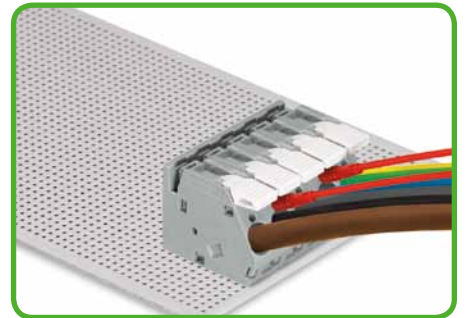


Inserting/removing conductor - 2706 and 2716 Series.

2706 and 2716 Series



Testing

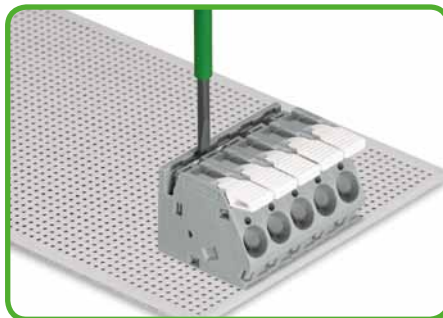


Testing with test plug - 2716 Series

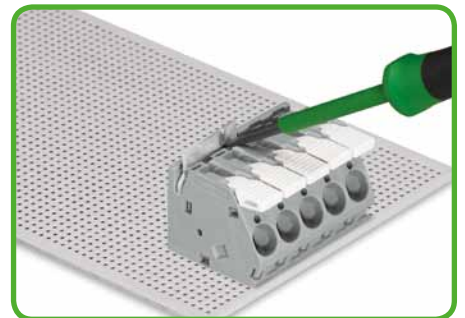
Commoning



Insert the comb-style jumper bar and ...



... push it down using a screwdriver until fully inserted - 2706 and 2716 Series.



To remove the comb-style jumper bar, lift it up using a screwdriver - 2706 and 2716 Series.



fine-stranded, tip-bonded

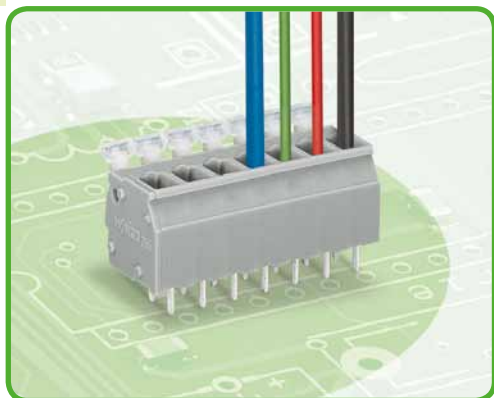


fine-stranded with crimped ferrules (gas-tight)



fine-stranded with crimped pin terminal (gas-tight)

Modular PCB Terminal Blocks and Strips with Push-Buttons 2.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 255 Series



- Modular terminal blocks and terminal strips with push-button actuated CAGE CLAMP® termination
- ⓧ version with Ex e (increased safety) approval
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Ideal for in-the-field wiring thanks to simplified push-button actuation
- Convenient, tool-free operation

Technical data:

Pin Spacing	5/5.08 mm 0.197/0.2 in			7.5/7.62 mm 0.295/0.3 in			10/10.16 mm 0.394/0.4 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	500 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A

Conductor and solder pin data:

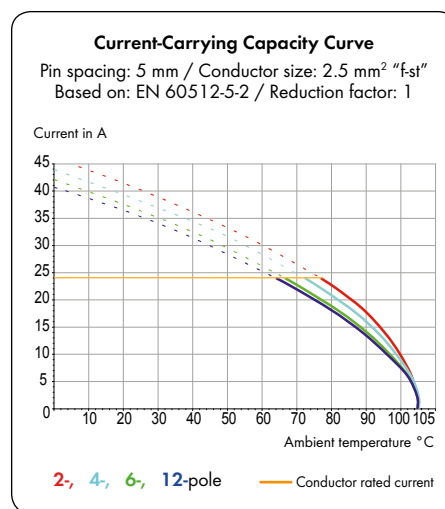
Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	90° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II (ⓧ) versions:

Pin Spacing	5/5.08 mm 0.197/0.2 in	7.5/7.62 mm 0.295/0.3 in	10/10.16 mm 0.394/0.4 in
Rating per	ATEX: PTB 06 ATEX 1061 U IECEx: IECEx PTB 06.0042 U		
Rated voltage	176 V	352 V	550 V
Nominal current	16 A	16 A	16 A



255 Series accessories:

Page:

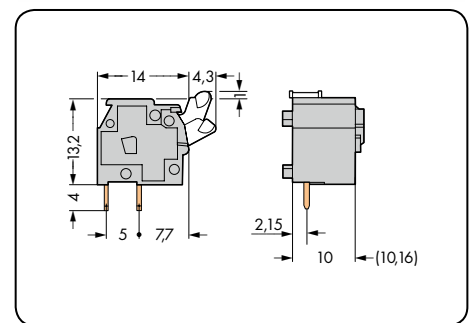
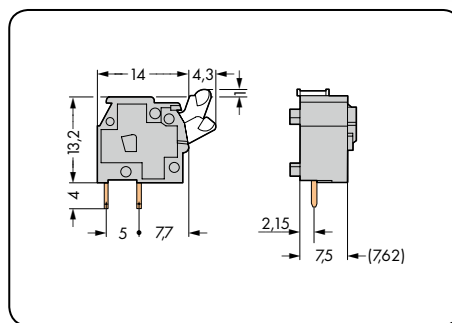
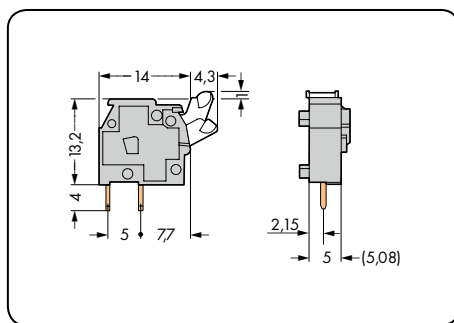
Marking accessories	540 - 543
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Test plug adapter	196




Modular PCB Terminal Blocks with Push-Buttons 2.5 mm²


CAGE CLAMP®

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Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 1000 V/8 kV/2 24 A	AWG 28 - 12 300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Modular terminal block with push-button, 2 solder pins/pole			Modular terminal block with push-button, 2 solder pins/pole			Modular terminal block with push-button, 2 solder pins/pole		
gray	255-401	500 (5 x 100)	gray	255-501	400 (4 x 100)	gray	255-601	300 (3 x 100)
red	255-740	500 (5 x 100)	red	255-750	400 (4 x 100)	red	255-760	300 (3 x 100)
yellow	255-741	500 (5 x 100)	yellow	255-751	400 (4 x 100)	yellow	255-761	300 (3 x 100)
dark gray	255-742	500 (5 x 100)	dark gray	255-752	400 (4 x 100)	dark gray	255-762	300 (3 x 100)
light gray	255-743	500 (5 x 100)	light gray	255-753	400 (4 x 100)	light gray	255-763	300 (3 x 100)
blue	255-744	500 (5 x 100)	blue	255-754	400 (4 x 100)	blue	255-764	300 (3 x 100)
orange	255-746	500 (5 x 100)	orange	255-756	400 (4 x 100)	orange	255-766	300 (3 x 100)
light green	255-747	500 (5 x 100)	light green	255-757	400 (4 x 100)	light green	255-767	300 (3 x 100)
black	255-748	500 (5 x 100)	black	255-758	400 (4 x 100)	black	255-768	300 (3 x 100)
○ Ex e II	255-743/999-950		○ Ex e II	255-753/999-950		○ Ex e II	255-763/999-950	
			① Suitable for Ex i applications			① Suitable for Ex i applications		
Product Accessories	Item No.	Pack. Unit	Product Accessories	Item No.	Pack. Unit	Product Accessories	Item No.	Pack. Unit
Spacer, doubles pin spacing 5/5.08 mm, gray			Spacer, doubles pin spacing 7.5/7.62 mm, gray			Spacer, doubles pin spacing 10/10.16 mm, gray		
	255-801	500 (5 x 100)		255-811	400 (4 x 100)		255-821	500 (5 x 100)

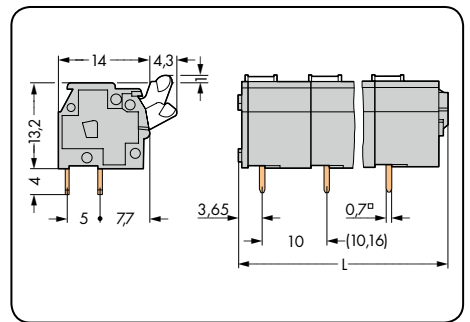
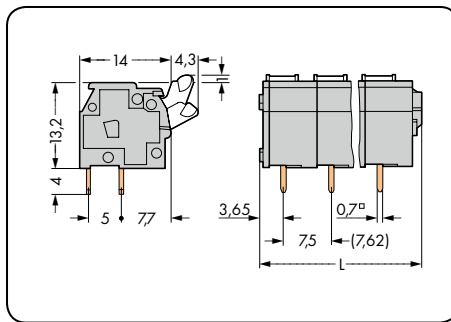
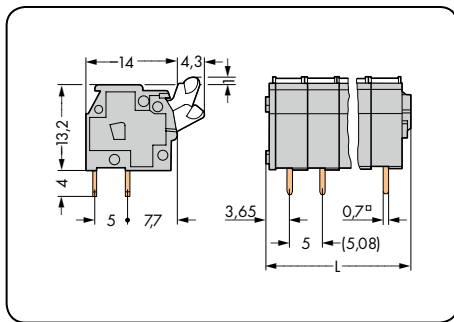
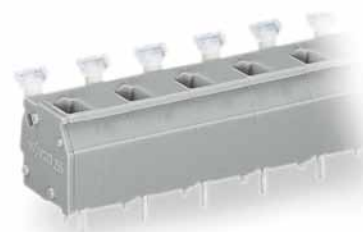
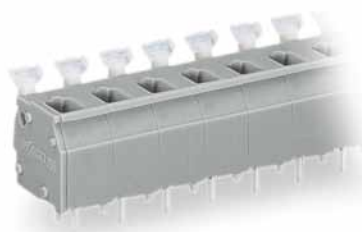
End plates for 255 Series, snap-on type, 1 mm/0.039 in thick	Color	Item No.	Pack. Unit
	gray	255-100	100
	dark gray	255-200	100
	light gray	255-300	100
	blue	255-400	100
	red	255-500	100
	orange	255-600	100
	light green	255-700	100
	black	255-800	100

Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

WAGO®

PCB Terminal Strips with Push-Buttons 2.5 mm²

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 1000 V/8 kV/2 24 A	AWG 28 - 12 300 V/10 A



$L = (\text{pole no.} \times \text{pin spacing}) + 2.9 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons, 2 solder pins/pole, gray			Terminal strip with push-buttons, 2 solder pins/pole, gray			Terminal strip with push-buttons, 2 solder pins/pole, gray		
2	255-402	400 (4 x 100)	2	255-502	280 (4 x 70)	2	255-602	200 (4 x 50)
3	255-403	280 (4 x 70)	3	255-503	180 (4 x 45)	3	255-603	140 (4 x 35)
4	255-404	200 (4 x 50)	4	255-504	140 (4 x 35)	4	255-604	100 (4 x 25)
5	255-405	160 (4 x 40)	5	255-505	120 (4 x 30)	5	255-605	80 (4 x 20)
6	255-406	140 (4 x 35)	6	255-506	100 (4 x 25)	6	255-606	60 (4 x 15)
7	255-407	120 (4 x 30)	7	255-507	80 (4 x 20)	7	255-607	60 (4 x 15)
8	255-408	100 (4 x 25)	8	255-508	60 (4 x 15)	8	255-608	60 (4 x 15)
9	255-409	100 (4 x 25)	9	255-509	60 (4 x 15)	9	255-609	40 (4 x 10)
10	255-410	80 (4 x 20)	10	255-510	60 (4 x 15)	10	255-610	40 (4 x 10)
12	255-412	60 (4 x 15)	12	255-512	40 (4 x 10)	12	255-612	40 (4 x 10)
16	255-416	60 (4 x 15)	16	255-516	40 (4 x 10)	16	255-616	20 (4 x 5)
24	255-424	40 (4 x 10)	24	255-524	20 (4 x 5)	24	255-624	20 (4 x 5)
36	255-436	20 (4 x 5)						
48	255-448	20 (4 x 5)						

Item no. suffixes for Ex e II and Ex i applications:

- Ex e II /000-009/999-950
- Ex i /000-006 (only for 7.5/7.62 mm and 10/10.16 mm pin spacing)

Ordering example:
Terminal strip, 10/10.16 mm pin spacing,
10-pole, Ex e II: **255-610/000-009/999-950**

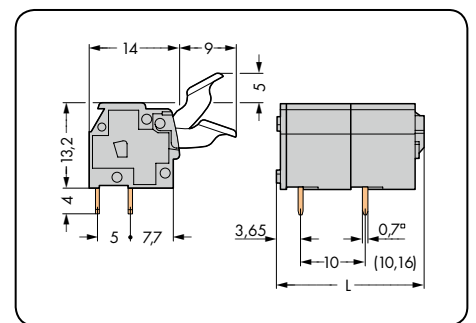
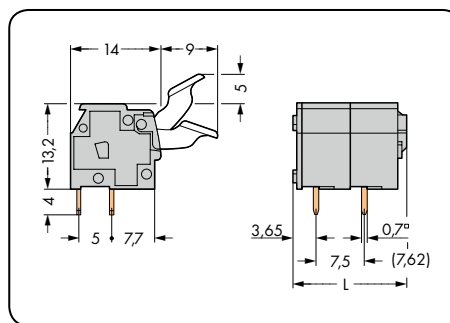
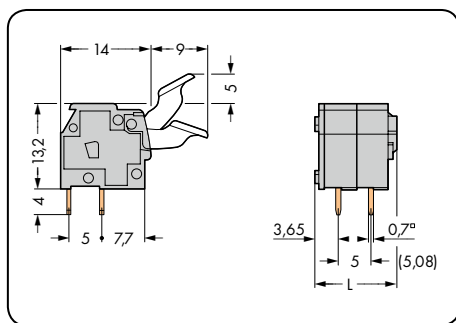
Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

- red /000-005
 - blue /000-006
 - dark gray /000-008
 - light gray /000-009
 - orange /000-012
 - light green /000-017
- Ordering example:**
Terminal strip, 5/5.08 mm pin spacing,
8-pole, orange: **255-408/000-012**



Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 – 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 – 12 300 V/10 A	0.08 – 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 – 12 300 V/10 A	0.08 – 2.5 mm ² 1000 V/8 kV/2 24 A	AWG 28 – 12 300 V/10 A



L = (pole no. x pin spacing) + 2.9 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with finger-operated levers, 2 solder pins/pole, gray			Terminal strip with finger-operated levers, 2 solder pins/pole, gray			Terminal strip with finger-operated levers, 2 solder pins/pole, gray		
2	255-402/333-000	400 (4 x 100)	2	255-502/333-000	280 (4 x 70)	2	255-602/333-000	200 (4 x 50)
3	255-403/333-000	280 (4 x 70)	3	255-503/333-000	180 (4 x 45)	3	255-603/333-000	140 (4 x 35)
4	255-404/333-000	200 (4 x 50)	4	255-504/333-000	140 (4 x 35)	4	255-604/333-000	100 (4 x 25)
5	255-405/333-000	160 (4 x 40)	5	255-505/333-000	120 (4 x 30)	5	255-605/333-000	80 (4 x 20)
6	255-406/333-000	140 (4 x 35)	6	255-506/333-000	100 (4 x 25)	6	255-606/333-000	60 (4 x 15)
7	255-407/333-000	120 (4 x 30)	7	255-507/333-000	80 (4 x 20)	7	255-607/333-000	60 (4 x 15)
8	255-408/333-000	100 (4 x 25)	8	255-508/333-000	60 (4 x 15)	8	255-608/333-000	60 (4 x 15)
9	255-409/333-000	100 (4 x 25)	9	255-509/333-000	60 (4 x 15)	9	255-609/333-000	40 (4 x 10)
10	255-410/333-000	80 (4 x 20)	10	255-510/333-000	60 (4 x 15)	10	255-610/333-000	40 (4 x 10)
12	255-412/333-000	60 (4 x 15)	12	255-512/333-000	40 (4 x 10)	12	255-612/333-000	40 (4 x 10)
16	255-416/333-000	60 (4 x 15)	16	255-516/333-000	40 (4 x 10)	16	255-616/333-000	20 (4 x 5)
24	255-424/333-000	40 (4 x 10)	24	255-524/333-000	20 (4 x 5)	24	255-624/333-000	20 (4 x 5)
Note: For lengths greater than 3 poles (5/5.08 mm pin spacing), finger lever operation for center levers may not be possible due to finger size/spacing limitations.								

Item no. suffixes for Ex e II and Ex i applications:

- Ex e II .../333-009/999-950
- Ex i .../333-006 (only for 7.5/7.62 mm and 10/10.16 mm pin spacing)

Ordering example:

Terminal strip, 10/10.16 mm pin spacing, 10-pole, Ex e II: **255-610/333-009/999-950**

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

- red .../333-005
- blue .../333-006
- dark gray .../333-008
- light gray .../333-009
- orange .../333-012
- light green .../333-017

Ordering example:

Terminal strip, 5/5.08 mm pin spacing, 2-pole, orange: **255-402/333-012**



Modular PCB Terminal Blocks and Strips with Push-Buttons 2.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 256 Series



- Modular terminal blocks and terminal strips with push-button actuated CAGE CLAMP® termination
- version with Ex e (increased safety) approval
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Ideal for in-the-field wiring thanks to simplified push-button actuation
- Convenient, tool-free operation

Technical data:

Pin Spacing	5/5.08 mm 0.197/0.2 in			7.5/7.62 mm 0.295/0.3 in			10/10.16 mm 0.394/0.4 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	320 V	320 V	630 V	500 V	630 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A

Conductor and solder pin data:

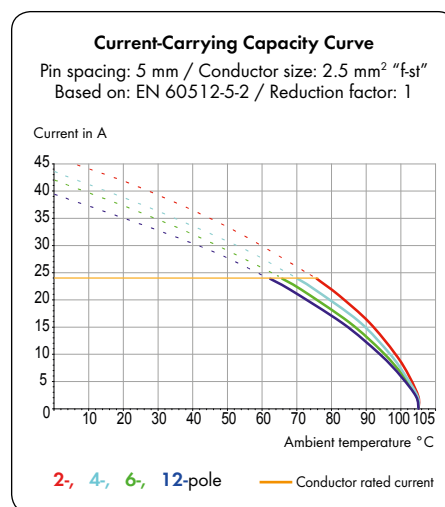
Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 (5.5) mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	5/5.08 mm 0.197/0.2 in	7.5/7.62 mm 0.295/0.3 in	10/10.16 mm 0.394/0.4 in
Rating per	ATEX: PTB 06 ATEX 1061 U IECEx: IECEx PTB 06.0042 U		
Rated voltage	176 V	275 V	352 V
Nominal current	16 A	16 A	16 A

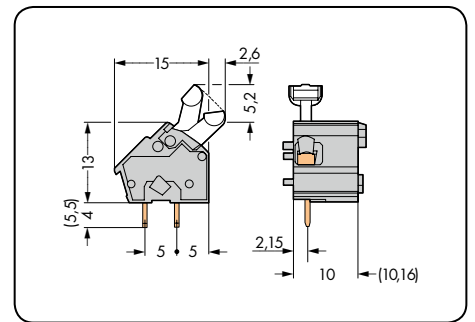
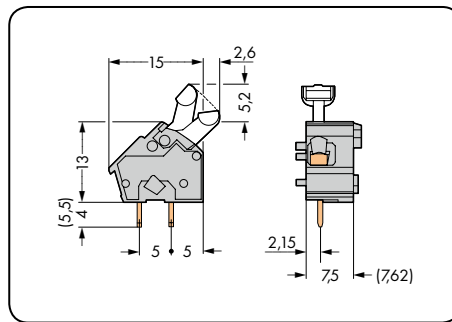
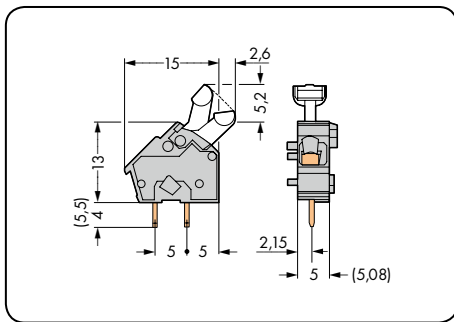


256 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528
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Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 - 12 300 V/10 A

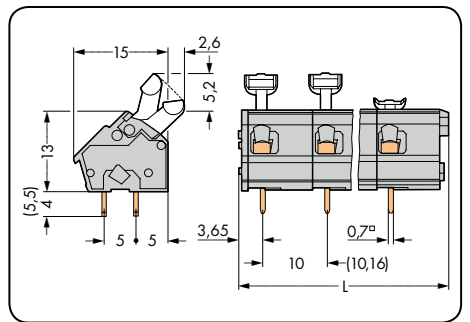
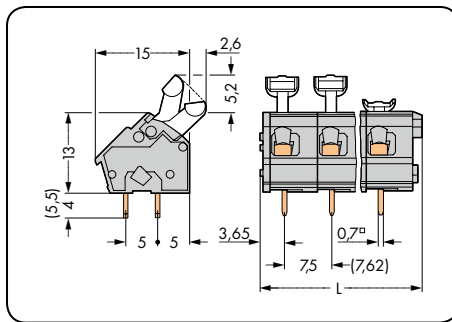
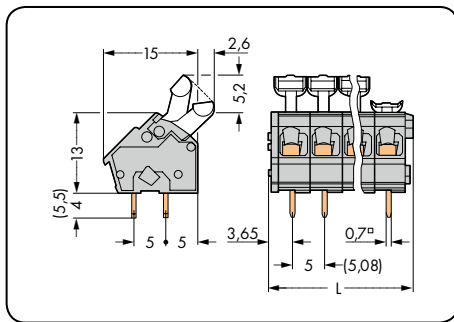
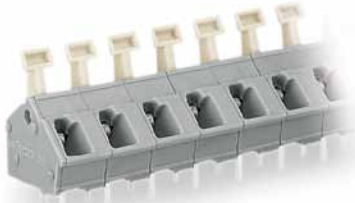


Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Modular terminal block with push-button, 2 solder pins/pole			Modular terminal block with push-button, 2 solder pins/pole			Modular terminal block with push-button, 2 solder pins/pole		
gray	256-401	600 (6 x 100)	gray	256-501	400 (4 x 100)	gray	256-601	300 (3 x 100)
red	256-740	600 (6 x 100)	red	256-750	400 (4 x 100)	red	256-760	300 (3 x 100)
dark gray	256-742	600 (6 x 100)	dark gray	256-752	400 (4 x 100)	dark gray	256-762	300 (3 x 100)
light gray	256-743	600 (6 x 100)	light gray	256-753	400 (4 x 100)	light gray	256-763	300 (3 x 100)
blue	256-744	600 (6 x 100)	blue	256-754	400 (4 x 100)	blue	256-764	300 (3 x 100)
orange	256-746	600 (6 x 100)	orange	256-756	400 (4 x 100)	orange	256-766	300 (3 x 100)
light green	256-747	600 (6 x 100)	light green	256-757	400 (4 x 100)	light green	256-767	300 (3 x 100)
Ex e II	256-743/999-950		Ex e II	256-753/999-950		Ex e II	256-763/999-950	
			① Suitable for Ex i applications			① Suitable for Ex i applications		
Item no. suffix for modular terminal blocks with 5.5 mm long solder pins: /332-000								

End plates for 256 Series, snap-on type, 1 mm/0.039 in thick		Color	Item No.	Pack. Unit
		gray	256-100	100
		dark gray	256-200	100
		light gray	256-300	100
		blue	256-400	100
		red	256-500	100
		orange	256-600	100
		light green	256-700	100
		black	256-800	100

PCB Terminal Strips with Push-Buttons 2.5 mm²

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 24 A	300 V/10 A	320 V/4 kV/2 24 A	300 V/10 A	630 V/6 kV/2 24 A	300 V/10 A



$L = (\text{pole no.} \times \text{pin spacing}) + 2.9 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons, 2 solder pins/pole, gray			Terminal strip with push-buttons, 2 solder pins/pole, gray			Terminal strip with push-buttons, 2 solder pins/pole, gray		
2	256-402	400 (4 x 100)	2	256-502	280 (4 x 70)	2	256-602	200 (4 x 50)
3	256-403	280 (4 x 70)	3	256-503	180 (4 x 45)	3	256-603	140 (4 x 35)
4	256-404	200 (4 x 50)	4	256-504	140 (4 x 35)	4	256-604	100 (4 x 25)
5	256-405	160 (4 x 40)	5	256-505	120 (4 x 30)	5	256-605	80 (4 x 20)
6	256-406	140 (4 x 35)	6	256-506	100 (4 x 25)	6	256-606	60 (4 x 15)
7	256-407	120 (4 x 30)	7	256-507	80 (4 x 20)	7	256-607	60 (4 x 15)
8	256-408	100 (4 x 25)	8	256-508	60 (4 x 15)	8	256-608	60 (4 x 15)
9	256-409	100 (4 x 25)	9	256-509	60 (4 x 15)	9	256-609	40 (4 x 10)
10	256-410	80 (4 x 20)	10	256-510	60 (4 x 15)	10	256-610	40 (4 x 10)
12	256-412	60 (4 x 15)	12	256-512	40 (4 x 10)	12	256-612	40 (4 x 10)
16	256-416	60 (4 x 15)	16	256-516	40 (4 x 10)	16	256-616	20 (4 x 5)
24	256-424	40 (4 x 10)	24	256-524	20 (4 x 5)	24	256-624	20 (4 x 5)
36	256-436	20 (4 x 5)						
48	256-448	20 (4 x 5)						

Item no. suffix for terminal strips with 5.5 mm long solder pins: /332-000

Item no. suffixes for Ex e II and Ex i applications:

- Ex e II /000-009/999-950
- Ex i /000-006 (only for 7.5/7.62 mm and 10/10.16 mm pin spacing)

Ordering example:

Terminal strip, 10/10.16 mm pin spacing, 10-pole, Ex e II: **256-610/000-009/999-950**

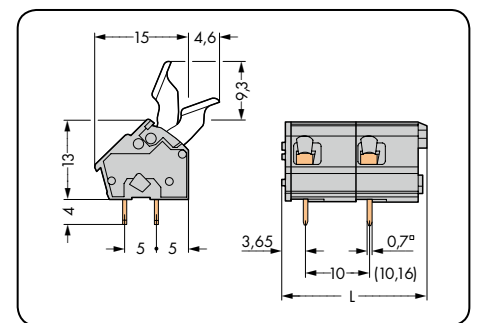
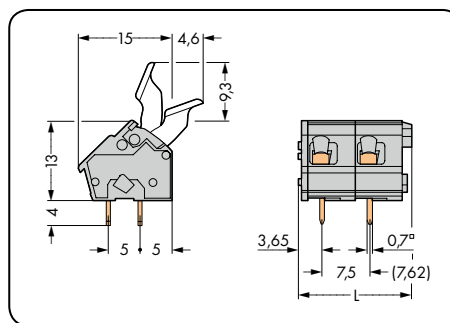
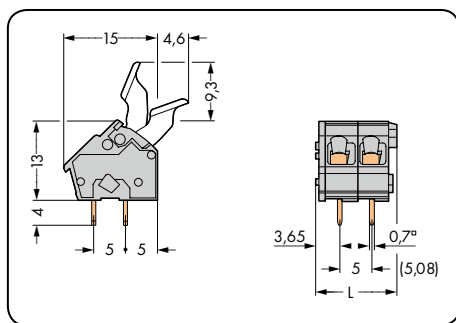
Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

- red /000-005
 - blue /000-006
 - dark gray /000-008
 - light gray /000-009
 - orange /000-012
 - light green /000-017
- Ordering example:
Terminal strip, 5/5.08 mm pin spacing, 8-pole, orange: **256-408/000-012**



Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 - 12 300 V/10 A



L = (pole no. x pin spacing) + 2.9 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with finger-operated levers, 2 solder pins/pole, gray			Terminal strip with finger-operated levers, 2 solder pins/pole, gray			Terminal strip with finger-operated levers, 2 solder pins/pole, gray		
2	256-402/333-000	400 (4 x 100)	2	256-502/333-000	280 (4 x 70)	2	256-602/333-000	200 (4 x 50)
3	256-403/333-000	280 (4 x 70)	3	256-503/333-000	180 (4 x 45)	3	256-603/333-000	140 (4 x 35)
4	256-404/333-000	200 (4 x 50)	4	256-504/333-000	140 (4 x 35)	4	256-604/333-000	100 (4 x 25)
5	256-405/333-000	160 (4 x 40)	5	256-505/333-000	120 (4 x 30)	5	256-605/333-000	80 (4 x 20)
6	256-406/333-000	140 (4 x 35)	6	256-506/333-000	100 (4 x 25)	6	256-606/333-000	60 (4 x 15)
7	256-407/333-000	120 (4 x 30)	7	256-507/333-000	80 (4 x 20)	7	256-607/333-000	60 (4 x 15)
8	256-408/333-000	100 (4 x 25)	8	256-508/333-000	60 (4 x 15)	8	256-608/333-000	60 (4 x 15)
9	256-409/333-000	100 (4 x 25)	9	256-509/333-000	60 (4 x 15)	9	256-609/333-000	40 (4 x 10)
10	256-410/333-000	80 (4 x 20)	10	256-510/333-000	60 (4 x 15)	10	256-610/333-000	40 (4 x 10)
12	256-412/333-000	60 (4 x 15)	12	256-512/333-000	40 (4 x 10)	12	256-612/333-000	40 (4 x 10)
16	256-416/333-000	60 (4 x 15)	16	256-516/333-000	40 (4 x 10)	16	256-616/333-000	20 (4 x 5)
24	256-424/333-000	40 (4 x 10)	24	256-524/333-000	20 (4 x 5)	24	256-624/333-000	20 (4 x 5)
Note: For lengths greater than 3 poles (5/5.08 mm pin spacing), finger lever operation for center levers may not be possible due to finger size/spacing limitations.								

Item no. suffixes for Ex e II and Ex i applications:

- Ex e II .../333-009/999-950
- Ex i .../333-006 (only for 10/10.16 mm pin spacing)

Ordering example:

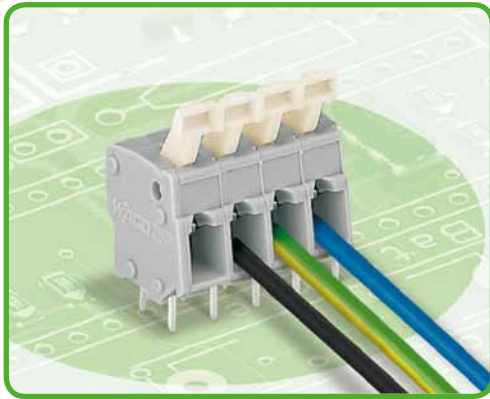
Terminal strip, 10/10.16 mm pin spacing, 10-pole, Ex e II: 256-610/333-009/999-950

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

- red .../333-005
 - blue .../333-006
 - dark gray .../333-008
 - light gray .../333-009
 - orange .../333-012
 - light green .../333-017
- Ordering example:
Terminal strip, 5/5.08 mm pin spacing, 2-pole, orange: 256-402/333-012



Modular PCB Terminal Blocks and Strips with Push-Buttons 2.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 257 Series



- Modular terminal blocks and terminal strips with push-button actuated CAGE CLAMP®
- versions with Ex e (increased safety) approval
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Ideal for in-the-field wiring thanks to simplified push-button actuation
- Convenient, tool-free operation
- Versions with angled push-buttons for simple top-of-unit actuation

Technical data:

Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A	15 A	-	10 A

Conductor and solder pin data:

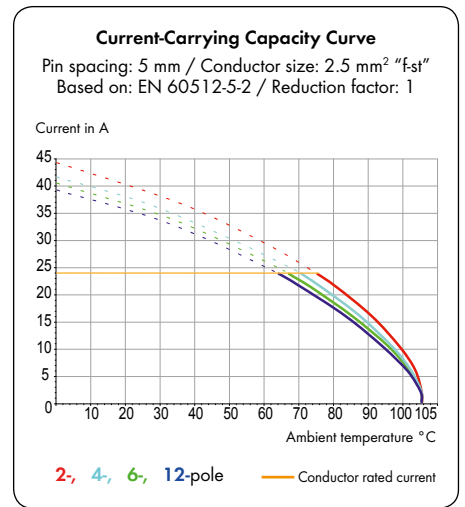
Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	0° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

Technical data for Ex e II () versions:

Pin Spacing	5/5.08 mm 0.2 in	7.5/7.62 mm 0.3 in	10/10.16 mm 0.4 in
Rating per	ATEX: PTB 06 ATEX 1061 U IECEx: IECEx PTB 06.0042 U		
Rated voltage	176 V	275 V	440 V
Nominal current	16 A	16 A	16 A



257 Series accessories:

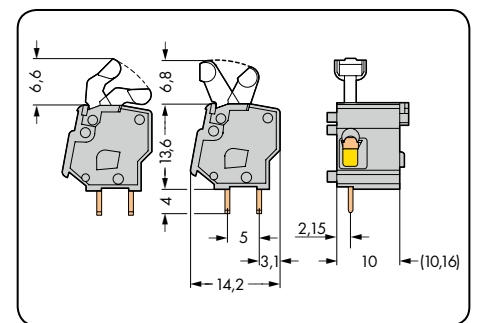
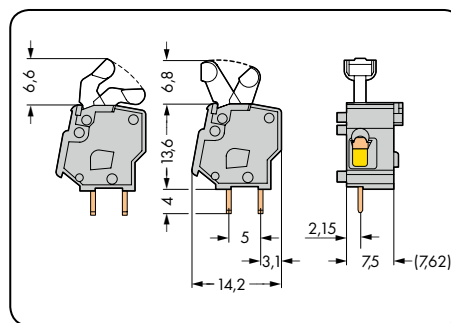
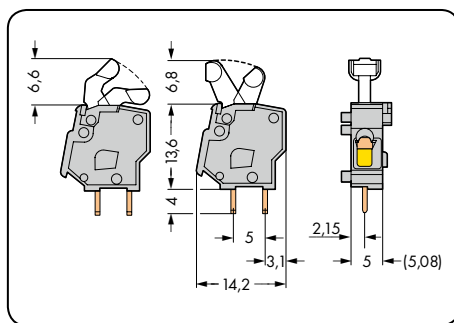
Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Commoning strips	67 - 69
Test plug adapter	196

Modular PCB Terminal Blocks with Push-Buttons 2.5 mm²

CAGE CLAMP®

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 1000 V/8 kV/2 24 A	AWG 28 - 12 300 V/10 A



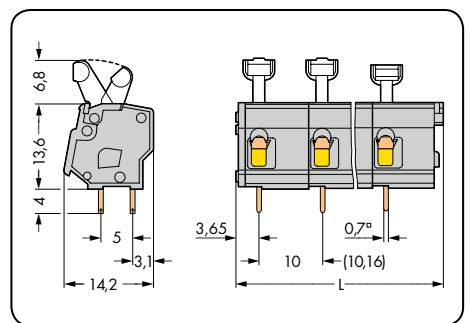
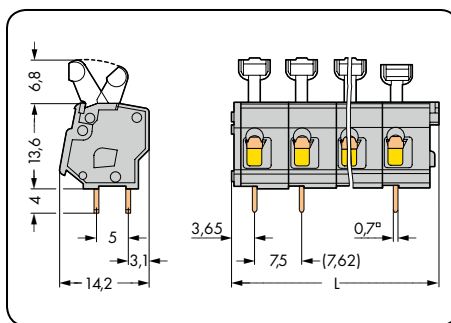
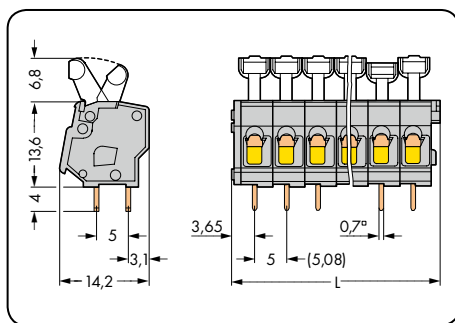
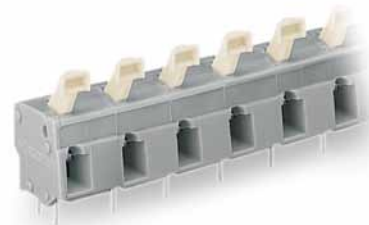
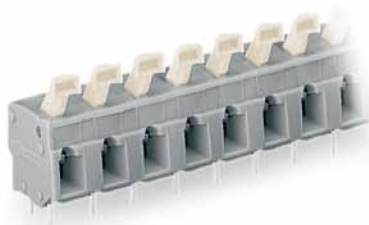
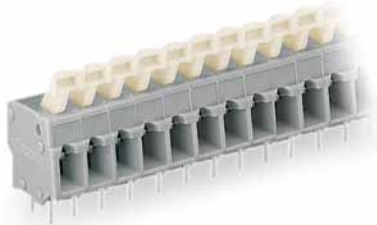
Color	Item No.	Item No.	Pack. Unit	Color	Item No.	Item No.	Pack. Unit	Color	Item No.	Item No.	Pack. Unit
Modular terminal block with push-button, 2 solder pins/pole				Modular terminal block with push-button, 2 solder pins/pole				Modular terminal block with push-button, 2 solder pins/pole			
	Angled push-button	Straight push-button			Angled push-button	Straight push-button			Angled push-button	Straight push-button	
gray	257-451	257-401	500 (5 x 100)	gray	257-551	257-501	400 (4 x 100)	gray	257-651	257-601	300 (3 x 100)
red	257-840	257-740	500 (5 x 100)	red	257-850	257-750	400 (4 x 100)	red	257-860	257-760	300 (3 x 100)
dark gray	257-842	257-742	500 (5 x 100)	dark gray	257-852	257-752	400 (4 x 100)	dark gray	257-862	257-762	300 (3 x 100)
light gray	257-843	257-743	500 (5 x 100)	light gray	257-853	257-753	400 (4 x 100)	light gray	257-863	257-763	300 (3 x 100)
blue	257-844	257-744	500 (5 x 100)	blue	257-854	257-754	400 (4 x 100)	blue	257-864	257-764	300 (3 x 100)
orange	257-846	257-746	500 (5 x 100)	orange	257-856	257-756	400 (4 x 100)	orange	257-866	257-766	300 (3 x 100)
light green	257-847	257-747	500 (5 x 100)	light green	257-857	257-757	400 (4 x 100)	light green	257-867	257-767	300 (3 x 100)
Ex e II	257-843/999-950			Ex e II	257-853/999-950			Ex e II	257-863/999-950		
				①	Suitable for Ex i applications			①	Suitable for Ex i applications		
Product Accessories	Item No.		Pack. Unit	Product Accessories	Item No.		Pack. Unit	Product Accessories	Item No.		Pack. Unit
Spacer for doubling the pin spacing 5/5.08 mm, gray				Spacer for doubling the pin spacing 7.5/7.62 mm, gray				Spacer for doubling the pin spacing 10/10.16 mm, gray			
	257-801		500 (5 x 100)		257-811		400 (4 x 100)		257-821		300 (3 x 100)

End plates for 257 Series, snap-on type, 1 mm/0.039 in thick	Color	Item No.	Pack. Unit
	gray	257-100	100
	dark gray	257-200	100
	light gray	257-300	100
	blue	257-400	100
	red	257-500	100
	orange	257-600	100
	light green	257-700	100

For other colors, please contact factory.

PCB Terminal Strips with Push-Buttons 2.5 mm²

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 1000 V/8 kV/2 24 A	AWG 28 - 12 300 V/10 A



L = (pole no. x pin spacing) + 2.9 mm Dimensions for angled push-buttons, see page 103

Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
Terminal strip with push-buttons, 2 solder pins/pole, gray				Terminal strip with push-buttons, 2 solder pins/pole, gray				Terminal strip with push-buttons, 2 solder pins/pole, gray			
	Angled push-button	Straight push-button			Angled push-button	Straight push-button			Angled push-button	Straight push-button	
2	257-452	257-402	400 (4 x 100)	2	257-552	257-502	280 (4 x 70)	2	257-652	257-602	200 (4 x 50)
3	257-453	257-403	280 (4 x 70)	3	257-553	257-503	200 (4 x 50)	3	257-653	257-603	140 (4 x 35)
4	257-454	257-404	220 (4 x 55)	4	257-554	257-504	140 (4 x 35)	4	257-654	257-604	100 (4 x 25)
5	257-455	257-405	180 (4 x 45)	5	257-555	257-505	120 (4 x 30)	5	257-655	257-605	80 (4 x 20)
6	257-456	257-406	140 (4 x 35)	6	257-556	257-506	100 (4 x 25)	6	257-656	257-606	80 (4 x 20)
7	257-457	257-407	120 (4 x 30)	7	257-557	257-507	80 (4 x 20)	7	257-657	257-607	60 (4 x 15)
8	257-458	257-408	100 (4 x 25)	8	257-558	257-508	80 (4 x 20)	8	257-658	257-608	60 (4 x 15)
9	257-459	257-409	100 (4 x 25)	9	257-559	257-509	60 (4 x 15)	9	257-659	257-609	40 (4 x 10)
10	257-460	257-410	80 (4 x 20)	10	257-560	257-510	60 (4 x 15)	10	257-660	257-610	40 (4 x 10)
12	257-462	257-412	80 (4 x 20)	12	257-562	257-512	40 (4 x 10)	12	257-662	257-612	40 (4 x 10)
16	257-466	257-416	60 (4 x 15)	16	257-566	257-516	40 (4 x 10)	16	257-666	257-616	20 (4 x 5)
24	257-474	257-424	40 (4 x 10)	24	257-574	257-524	20 (4 x 5)	24	257-674	257-624	20 (4 x 5)
36	257-486	257-436	20 (4 x 5)								
48	257-498	257-448	20 (4 x 5)								

Item no. suffixes for Ex e II and Ex i applications:

- Ex e II Ex e II ... /000-009/999-950
- Ex i ... /000-006 (only for 10/10.16 mm pin spacing)

Ordering example:

Terminal strip, 10/10.16 mm pin spacing, 10-pole, Ex e II: **257-660/000-009/999-950**

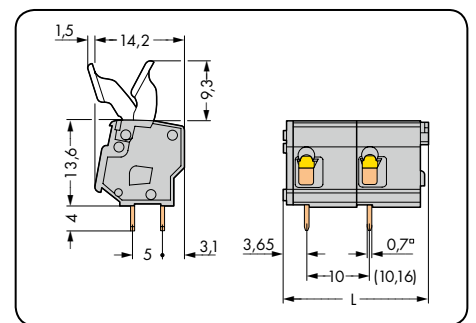
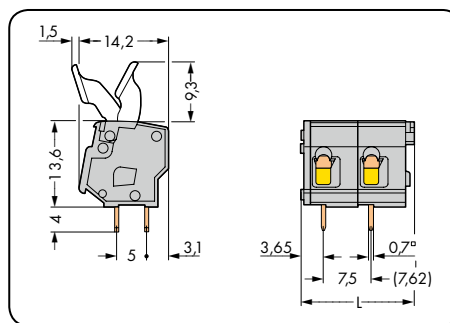
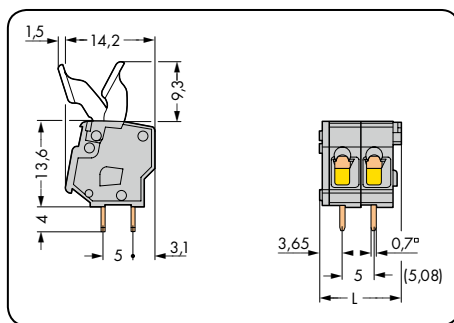
Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

- red ... /000-005
 - blue ... /000-006
 - dark gray ... /000-008
 - light gray ... /000-009
 - orange ... /000-012
 - light green ... /000-017
- Ordering example:**
Terminal strip, 5/5.08 mm pin spacing
8-pole, orange: **257-408/000-012**



Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.08 – 2.5 mm ² 320 V/4 kV/2 24 A	AWG 28 – 12 300 V/10 A	0.08 – 2.5 mm ² 630 V/6 kV/2 24 A	AWG 28 – 12 300 V/10 A	0.08 – 2.5 mm ² 1000 V/8 kV/2 24 A	AWG 28 – 12 300 V/10 A



L = (pole no. x pin spacing) + 2.9 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with finger-operated levers, 2 solder pins/pole, gray			Terminal strip with finger-operated levers, 2 solder pins/pole, gray			Terminal strip with finger-operated levers, 2 solder pins/pole, gray		
2	257-402/333-000	400 (4 x 100)	2	257-502/333-000	280 (4 x 70)	2	257-602/333-000	200 (4 x 50)
3	257-403/333-000	280 (4 x 70)	3	257-503/333-000	200 (4 x 50)	3	257-603/333-000	140 (4 x 35)
4	257-404/333-000	220 (4 x 55)	4	257-504/333-000	140 (4 x 35)	4	257-604/333-000	100 (4 x 25)
5	257-405/333-000	180 (4 x 45)	5	257-505/333-000	120 (4 x 30)	5	257-605/333-000	80 (4 x 20)
6	257-406/333-000	140 (4 x 35)	6	257-506/333-000	100 (4 x 25)	6	257-606/333-000	80 (4 x 20)
7	257-407/333-000	120 (4 x 30)	7	257-507/333-000	80 (4 x 20)	7	257-607/333-000	60 (4 x 15)
8	257-408/333-000	100 (4 x 25)	8	257-508/333-000	80 (4 x 20)	8	257-608/333-000	60 (4 x 15)
9	257-409/333-000	100 (4 x 25)	9	257-509/333-000	60 (4 x 15)	9	257-609/333-000	40 (4 x 10)
10	257-410/333-000	80 (4 x 20)	10	257-510/333-000	60 (4 x 15)	10	257-610/333-000	40 (4 x 10)
12	257-412/333-000	80 (4 x 20)	12	257-512/333-000	40 (4 x 10)	12	257-612/333-000	40 (4 x 10)
16	257-416/333-000	60 (4 x 15)	16	257-516/333-000	40 (4 x 10)	16	257-616/333-000	20 (4 x 5)
24	257-424/333-000	40 (4 x 10)	24	257-524/333-000	20 (4 x 5)	24	257-624/333-000	20 (4 x 5)
Note: For lengths greater than 3 poles (5/5.08 mm pin spacing), finger lever operation for center levers may not be possible due to finger size/spacing limitations.								

Item no. suffixes for Ex e II and Ex i applications:

- Ex e II .../333-009/999-950
- Ex i .../333-006 (only for 10/10.16 mm pin spacing)

Ordering example:

Terminal strip, 10/10.16 mm pin spacing;
10-pole, Ex e II: 257-610/333-009/999-950

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

- red .../333-005
 - blue .../333-006
 - dark gray .../333-008
 - light gray .../333-009
 - orange .../333-012
 - light green .../333-017
- Ordering example:
Terminal strip, 5/5.08 mm pin spacing
2-pole, orange: 257-402/333-012



PCB Terminal Strips with Operating Levers 6 mm² Pin Spacing 7.5 mm, 10 mm, 12.5 mm 2706 Series



- High-current terminal strips with lever-actuated CAGE CLAMP®
- Tool-free opening and closing – fingers open/close levers
- Several clamping units can be held open simultaneously – convenient for terminating multi-core cables
- Double solder pins per contact point for high mechanical stability
- 600 V UL for 12.5 mm pin spacing

Technical data:

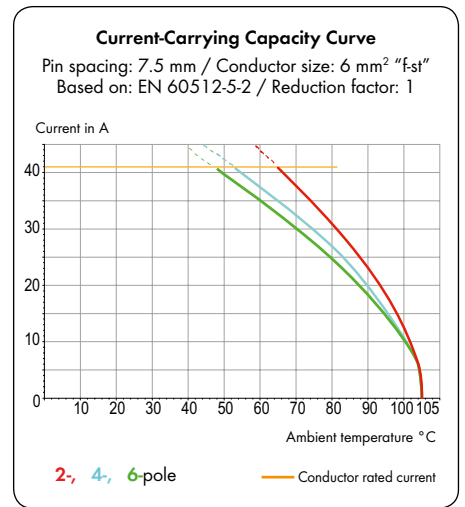
Pin Spacing	7,5 mm 0.295 in			10 mm 0.394 in			12,5 mm 0.492 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	800 V	1000 V	1000 V	1000 V	1000 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV	8 kV	8 kV	8 kV
Nominal current	41 A	41 A	41 A	41 A	41 A	41 A	41 A	41 A	41 A
Approvals per	UL/CSA*			UL/CSA*			UL/CSA*		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	150 V	300 V	300 V	300 V	600 V	300 V	600 V	-
Nominal current UL	30 A	30 A	30 A	30 A	30 A	5 A	30 A	30 A	-
Nominal current CSA	-	-	-	-	-	-	-	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.5 - 6 mm ²
Conductor size: fine-stranded	0.5 - 6 mm ²
Conductor size: fine-stranded	0.5 - 6 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.5 - 6 mm ² (with uninsulated ferrule)
AWG	20 - 10
Strip length	11 - 12 mm / 0.43 - 0.47 in
Conductor entry angle	30° to PCB
Solder pin: length/width	4.5 mm / 1.0 x 1.4 mm
Solder pin: drilled hole diameter	1.8 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Polyamide 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



2706 Series accessories:

Page:

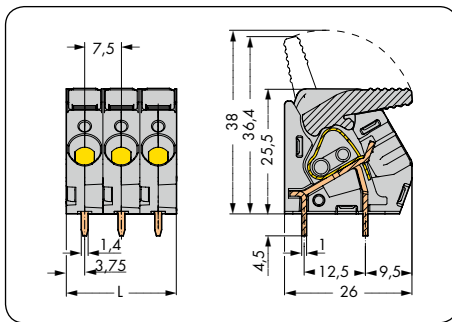
Marking accessories	540 - 543
Test plugs	538

PCB Terminal Strips with Operating Levers 6 mm²

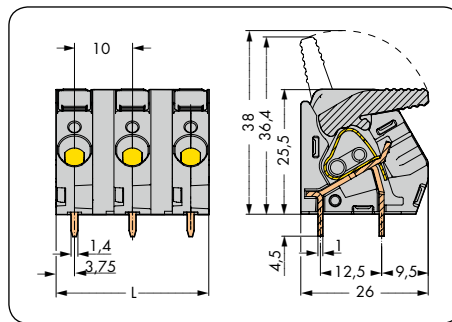
CAGE CLAMP®

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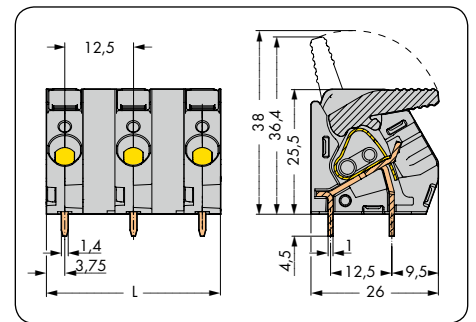
Pin spacing 7.5 mm / 0.295 in		Pin spacing 10 mm / 0.394 in		Pin spacing 12.5 mm / 0.492 in	
0.5 – 6 mm ²	AWG 20 – 10	0.5 – 6 mm ²	AWG 20 – 10	0.5 – 6 mm ²	AWG 20 – 10
630 V/6 kV/2 41 A	150 V/30 A	1000 V/8 kV/2 41 A	300 V/30 A	1000 V/8 kV/2 41 A	600 V/30 A



L = pole no. x pin spacing



L = (pole no. x pin spacing) - 2.5 mm



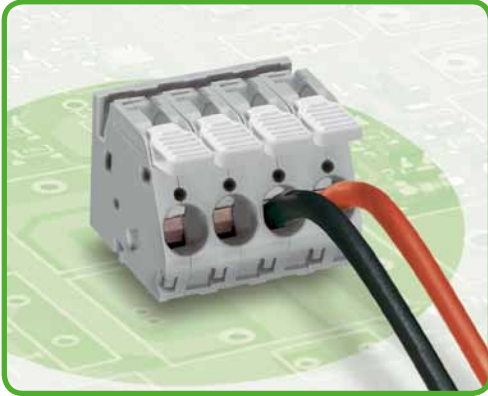
L = (pole no. x pin spacing) - 5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with operating levers, gray			Terminal strip with operating levers, gray			Terminal strip with operating levers, gray		
2	2706-102	85	2	2706-202	70	2	2706-302	65
3	2706-103	55	3	2706-203	45	3	2706-303	40
4	2706-104	40	4	2706-204	30	4	2706-304	35
5	2706-105	30	5	2706-205	25	5	2706-305	20
6	2706-106	25	6	2706-206	20	6	2706-306	15
7	2706-107	20	7	2706-207	15	7	2706-307	15
8	2706-108	20	8	2706-208	15	8	2706-308	10
9	2706-109	15	9	2706-209	10	9	2706-309	10
10	2706-110	15	10	2706-210	10	10	2706-310	10
11	2706-111	15	11	2706-211	10	11	2706-311	5
12	2706-112	15	12	2706-212	10	12	2706-312	5

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● blue /000-006	Ordering example: Terminal strip with operating levers, 10 mm pin spacing, 8-pole, light gray: 2706-208/000-009
○ light gray	... .. /000-009
● green-yellow	... .. /000-016
● light green	... .. /000-017

PCB Terminal Strips with Operating Levers and Jumper Slots 6 mm² Pin Spacing 7.5 mm, 10 mm 2706 Series



- High-current terminal strips with lever-actuated CAGE CLAMP®
- Tool-free opening and closing – fingers open/close levers
- Several clamping units can be held open simultaneously – convenient for terminating multi-core cables
- Double solder pins per contact point for high mechanical stability
- Versions with commoning option for distributing potentials

Technical data:

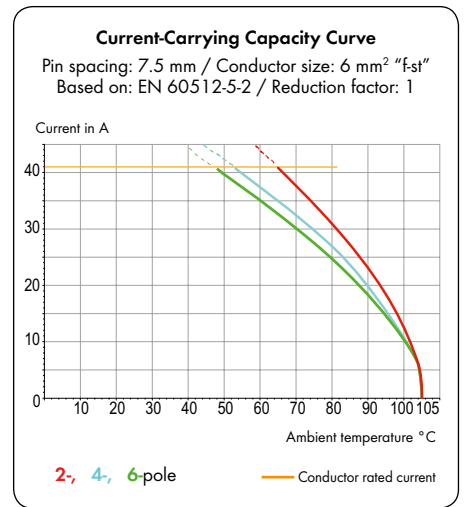
Pin Spacing	7,5 mm 0.295 in			10 mm 0.394 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage*	500 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	41 A	41 A	41 A	41 A	41 A	41 A
Approvals per	UL/CSA*			UL/CSA*		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	150 V	300 V	300 V	300 V	600 V
Nominal current UL	30 A	30 A	30 A	30 A	30 A	5 A
Nominal current CSA	-	-	-	-	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.5 – 6 mm ²
Conductor size: fine-stranded	0.5 – 6 mm ²
Conductor size: fine-stranded	0.5 – 6 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.5 – 6 mm ² (with uninsulated ferrule)
AWG	20 – 10
Strip length	11 – 12 mm / 0.43 – 0.47 in
Conductor entry angle	30° to PCB
Solder pin: length/width	4.5 mm / 1.0 x 1.4 mm
Solder pin: drilled hole diameter	1.8 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Polyamide 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



2706 Series accessories:

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* Using adjacent jumpers, the rated voltage is reduced to 400 V with pin spacing of 7.5 mm in Category III/3.

PCB Terminal Strips with Operating Levers and Jumper Slots 6 mm²

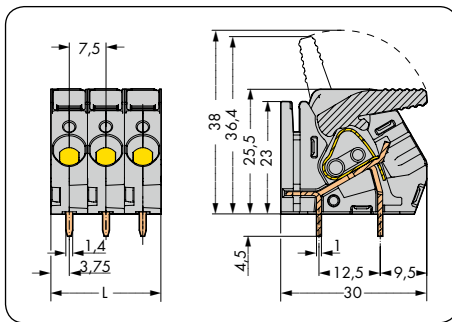
CAGE CLAMP®

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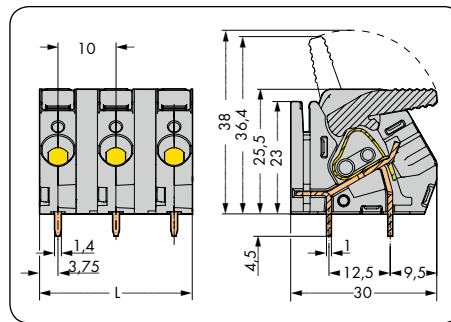
109

1

Pin spacing 7.5 mm / 0.295 in		Pin spacing 10 mm / 0.394 in	
0.5 – 6 mm ²	AWG 20 – 10	0.5 – 6 mm ²	AWG 20 – 10
630 V/6 kV/2 41 A	150 V/30 A	1000 V/8 kV/2 41 A	300 V/30 A



L = pole no. x pin spacing



L = (pole no. x pin spacing) - 2.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with operating levers and jumper slot, gray			Terminal strip with operating levers and jumper slot, gray		
2	2706-152	85	2	2706-252	70
3	2706-153	55	3	2706-253	45
4	2706-154	40	4	2706-254	30
5	2706-155	30	5	2706-255	25
6	2706-156	25	6	2706-256	20
7	2706-157	20	7	2706-257	15
8	2706-158	20	8	2706-258	15
9	2706-159	15	9	2706-259	10
10	2706-160	15	10	2706-260	10
11	2706-161	15	11	2706-261	10
12	2706-162	15	12	2706-262	10

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● blue /000-006	Ordering example: Terminal strip with operating levers and jumper slot, 10 mm pin spacing 8-pole, light gray: 2706-358/000-009
○ light gray	... .. /000-009
● green-yellow	... .. /000-016
● light green	... .. /000-017

PCB Terminal Strips with Operating Levers 16 mm² Pin Spacing 10 mm, 15 mm 2716 Series



- High-current terminal strips with lever-actuated CAGE CLAMP®
- Tool-free opening and closing - fingers open/close levers
- Several clamping units can be held open simultaneously - convenient for terminating multi-core cables
- Four solder pins per contact point for high mechanical stability
- 600 V UL for 15 mm pin spacing
- Pin and dimensions compatible to high-current, screw-type terminal blocks

Technical data:

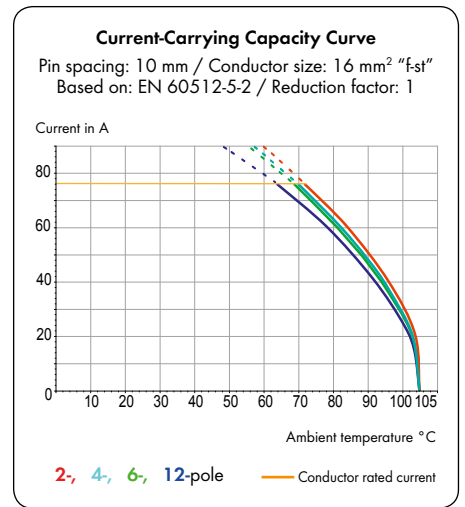
Pin Spacing	10 mm 0.394 in			15 mm 0.591 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	800 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	8 kV	8 kV	8 kV
Nominal current	76 A	76 A	76 A	76 A	76 A	76 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	150 V	300 V	600 V	600 V	-
Nominal current UL	55 A	55 A	10 A	65 A	65 A	-
Nominal current CSA	-	-	-	-	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	1.5 - 16 mm ²
Conductor size: fine-stranded	1.5 - 16 mm ²
Conductor size: fine-stranded	1.5 - 10 mm ² (with insulated ferrule)
Conductor size: fine-stranded	1.5 - 10 mm ² (with uninsulated ferrule)
AWG	16 - 6
Strip length	12 - 13 mm / 0.47 - 0.51 in
Conductor entry angle	30° to PCB
Solder pin: length/width	4.5 mm / 0.95 x 1.2 mm
Solder pin: drilled hole diameter	1.6 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



2716 Series accessories:

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Test plugs	538

PCB Terminal Strips with Operating Levers 16 mm²

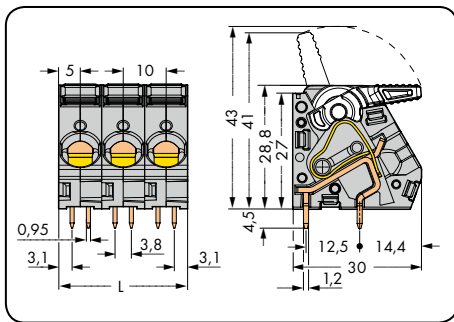
CAGE CLAMP®

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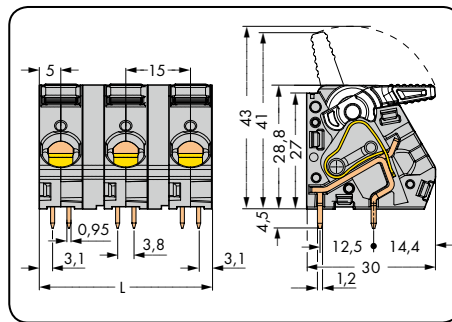
111

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Pin spacing 10 mm / 0.394 in		Pin spacing 15 mm / 0.591 in	
1.5 - 16 mm ²	AWG 16 - 6	1.5 - 16 mm ²	AWG 16 - 6
320 V/4 kV/2 76 A	150 V/55 A	1000 V/8 kV/2 76 A	600 V/65 A



L = pole no. x pin spacing



L = (pole no. x pin spacing) - 5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with operating levers, gray			Terminal strip with operating levers, gray		
2	2716-102	65	2	2716-202	50
3	2716-103	40	3	2716-203	30
4	2716-104	30	4	2716-204	20
5	2716-105	25	5	2716-205	15
6	2716-106	20	6	2716-206	15
7	2716-107	15	7	2716-207	10
8	2716-108	15	8	2716-208	10

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● blue/000-006	Ordering example: Terminal strip, 10 mm pin spacing 8-pole, light gray: 2716-108/000-009
○ light gray	....../000-009
● green-yellow	....../000-016
● light green	....../000-017

PCB Terminal Strips with Operating Levers and Jumper Slots 16 mm² Pin Spacing 10 mm, 15 mm 2716 Series



- High-current terminal strips with lever-actuated CAGE CLAMP®
- Tool-free opening and closing - fingers open/close levers
- Several clamping units can be held open simultaneously - convenient for terminating multi-core cables
- Four solder pins per contact point for high mechanical stability
- 600 V UL for 15 mm pin spacing
- Versions with commoning option for distributing potentials

Technical data:

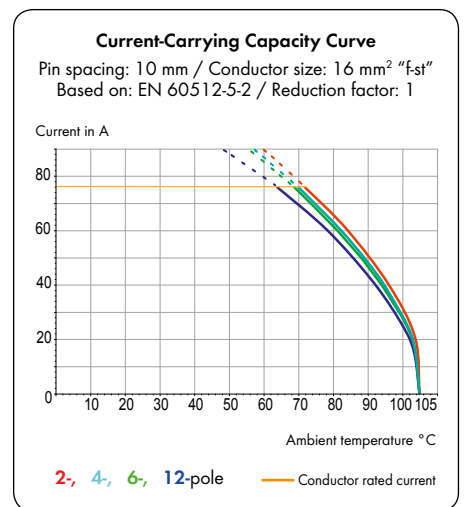
Pin Spacing	10 mm 0.394 in			15 mm 0.591 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	800 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	8 kV	8 kV	8 kV
Nominal current	76 A	76 A	76 A	76 A	76 A	76 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	150 V	300 V	600 V	600 V	-
Nominal current UL	55 A	55 A	10 A	55 A	65 A	-
Nominal current CSA	-	-	-	-	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	1.5 - 16 mm ²
Conductor size: fine-stranded	1.5 - 16 mm ²
Conductor size: fine-stranded	1.5 - 10 mm ² (with insulated ferrule)
Conductor size: fine-stranded	1.5 - 10 mm ² (with uninsulated ferrule)
AWG	16 - 6
Strip length	12 - 13 mm / 0.47 - 0.51 in
Conductor entry angle	30° to PCB
Solder pin: length/width	4.5 mm / 0.95 x 1.2 mm
Solder pin: drilled hole diameter	1.6 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



2716 Series accessories:

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PCB Terminal Strips with Operating Levers and Jumper Slots 16 mm²

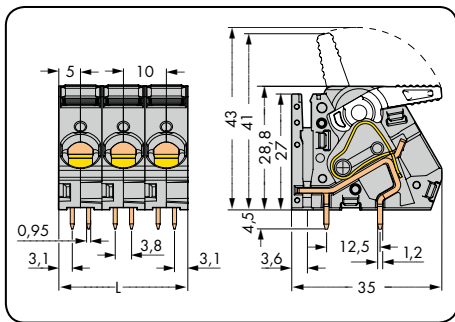
CAGE CLAMP®

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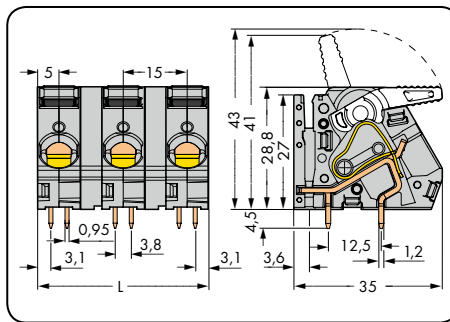
113

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Pin spacing 10 mm / 0.394 in		Pin spacing 15 mm / 0.591 in	
1.5 - 16 mm ²	AWG 16 - 6	1.5 - 16 mm ²	AWG 16 - 6
320 V/4 kV/2 76 A	150 V/55 A	1000 V/8 kV/2 76 A	600 V/65 A



L = pole no. x pin spacing



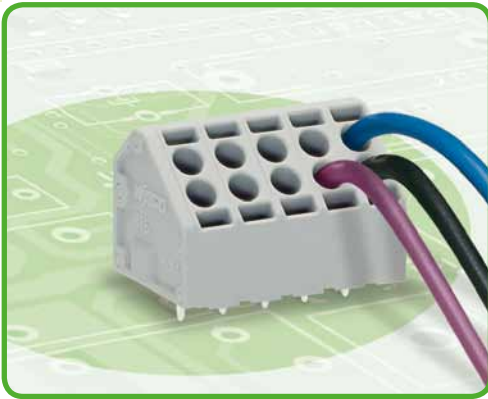
L = (pole no. x pin spacing) - 5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with operating levers and jumper slot, gray			Terminal strip with operating levers and jumper slot, gray		
2	2716-152	52	2	2716-252	40
3	2716-153	32	3	2716-253	24
4	2716-154	24	4	2716-254	16
5	2716-155	20	5	2716-255	12
6	2716-156	16	6	2716-256	12
7	2716-157	12	7	2716-257	8
8	2716-158	12	8	2716-258	8

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● blue/000-006	Ordering example: Terminal strip, 10 mm pin spacing 8-pole, light gray: 2716-158/000-009
○ light gray	....../000-009
● green-yellow	....../000-016
● light green	....../000-017

2-Conductor PCB Terminal Strips 1.5 mm² Pin Spacing 5 mm 816 Series



- 2-conductor terminal strips with screwdriver-actuated CAGE CLAMP®S
- Double entries for supply and power distribution
- Simple, reliable connection via clamping units featuring individual operating slots
- Push-in termination of solid and ferruled, fine-stranded conductors

Technical data:

Pin Spacing	5 mm 0.197 in				
Rating per	IEC/EN 60664-1				
Overtoltage category	III	III	II		
Pollution degree	3	2	2		
Rated voltage	320 V	320 V	630 V		
Rated surge voltage	4 kV	4 kV	4 kV		
Nominal current	14 A	14 A	14 A		
Approvals per	UL/CSA				
Use group UL 1059	B	C	D		
Rated voltage	300 V	-	300 V		
Nominal current UL	10 A	-	10 A		
Nominal current CSA	8 A	-	-		

Conductor and solder pin data:

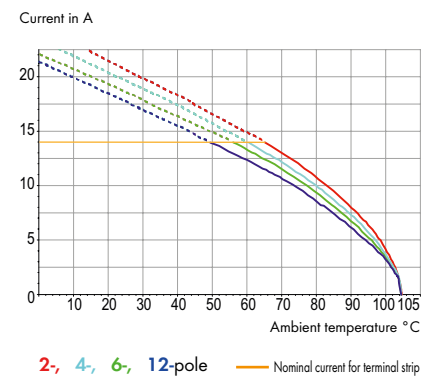
Connection technology	CAGE CLAMP®S
Conductor size: solid	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.2 - 1 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.2 - 1.5 mm ² (with uninsulated ferrule)
AWG	24 - 16
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	45° to PCB
Solder pin: length/width	3.5 mm/0.138 in. / 0.8 x 0.5 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated

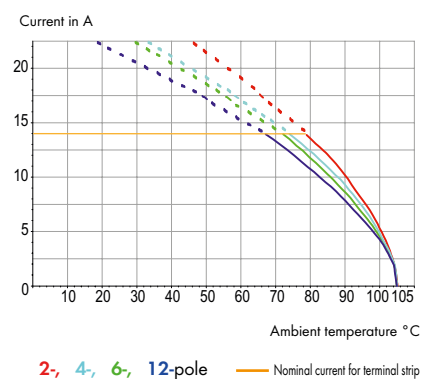
Current-Carrying Capacity Curve: Conductor - Solder Pin

Pin spacing: 5 mm / Conductor size: 1.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1



Current-Carrying Capacity: Conductor - Conductor

Pin spacing: 5 mm / Conductor size: 1.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1



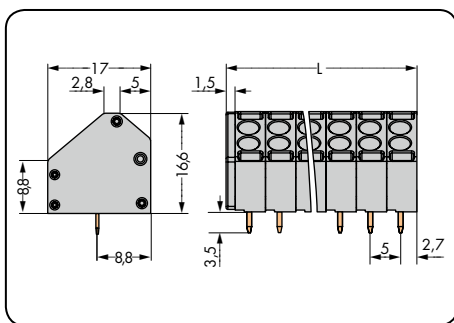
816 Series accessories:

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2-Conductor PCB Terminal Strips 1.5 mm²

Pin spacing 5 mm / 0.197 in 2 x 0.2 - 1.5 mm ² 2 x AWG 24 - 16 320 V/4 kV/2 14 A 300 V/10 A	Handling
---	-----------------



L = (pole no. x pin spacing) + 1.5 mm

Pole No.	Item No.	Pack. Unit	Item No. Suffixes: Colored Terminal Strips, 5 mm Pin Spacing
2-conductor terminal strip, gray			
2	816-102	400	● yellow ...-.../000-002
3	816-103	250	● blue ...-.../000-006
4	816-104	200	● orange ...-.../000-012
5	816-105	175	
6	816-106	150	
7	816-107	125	Ordering example:
8	816-108	100	Terminal strip, 5 mm pin spacing
9	816-109	100	8-pole, orange: 816-108/000-012
10	816-110	80	
11	816-111	80	(Production and prices depend on quantity required)
12	816-112	60	



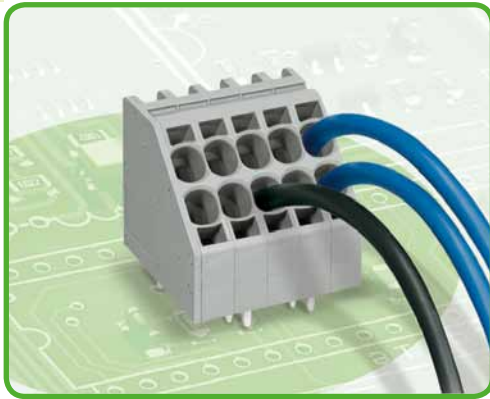
Open clamping unit via 3.5 mm screwdriver to insert/remove fine-stranded conductors.

Push in solid and ferruled, fine-stranded conductors until fully inserted.



Mixed-color terminal strips available upon request.

2-Conductor PCB Terminal Strips 10 mm² Pin Spacing 7.5 mm 746 Series



- 2-conductor terminal strips with screwdriver-actuated CAGE CLAMP®S
- Double entries for supply and distribution of potentials
- Simple, reliable connection via clamping units featuring individual operating slots
- 600 V to UL 1059
- Push-in termination of solid and ferruled, fine-stranded conductors
- Marker slot for miniature WSB and WMB markers

Technical data:

Pin Spacing	7.5 mm 0.295 in				
Rating per	IEC/EN 60664-1				
Overtoltage category	III	III	II		
Pollution degree	3	2	2		
Rated voltage	800 V	1000 V	1000 V		
Rated surge voltage	8 kV	8 kV	8 kV		
Nominal current	50 A	50 A	50 A		
Approvals per	UL/CSA				
Use group UL 1059	B	C	D		
Rated voltage	600 V	600 V	-		
Nominal current UL	50 A	50 A	-		
Nominal current CSA	44 A	44 A	-		

Conductor and solder pin data:

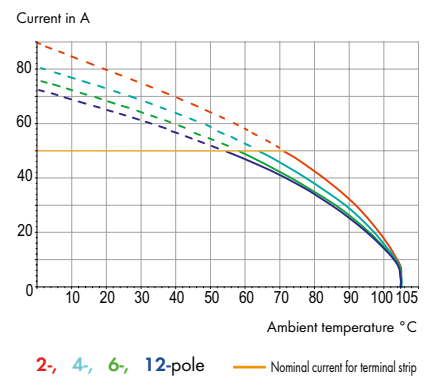
Connection technology	CAGE CLAMP®S
Conductor size: solid	0.5 - 10 mm ²
Conductor size: fine-stranded	0.5 - 10 mm ²
Conductor size: fine-stranded	0.5 - 6 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.5 - 6 mm ² (with uninsulated ferrule)
AWG	20 - 8
Strip length	13 - 15 mm / 0.51 - 0.59 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4.4 mm / 1.6 x 1.2 mm
Solder pin: drilled hole diameter	2.2 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

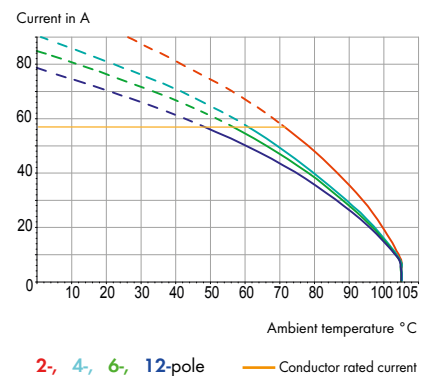
Current-Carrying Capacity Curve: Conductor - Solder Pin

Pin spacing: 7.5 mm / Conductor size: 10 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1



Current-Carrying Capacity: Conductor - Conductor

Pin spacing: 7.5 mm / Conductor size: 10 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1



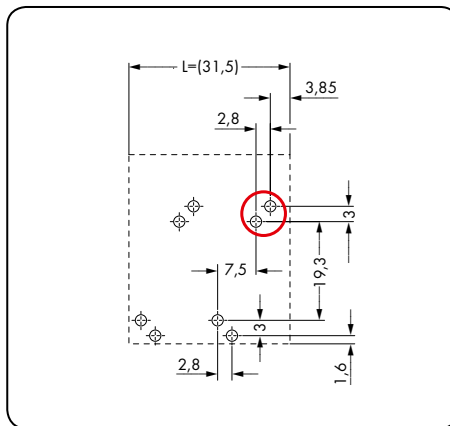
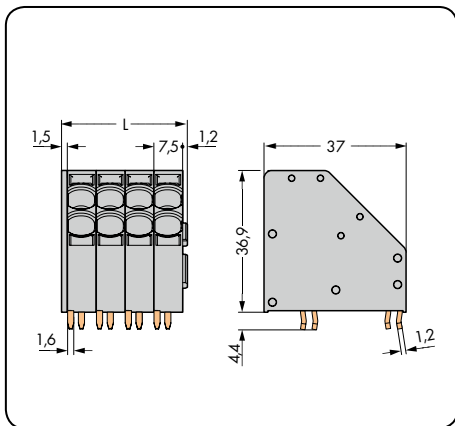
746 Series accessories:

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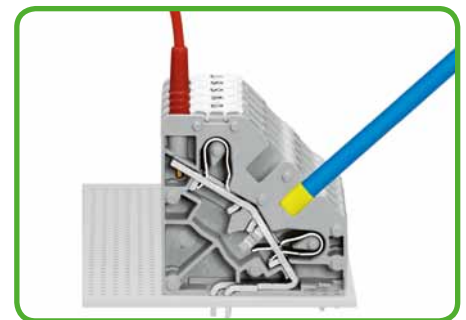
2-Conductor PCB Terminal Strips 10 mm²

Pin spacing 7.5 mm / 0.295 in 2 x 0.5 – 10 mm ² 2 x AWG 20 – 8 1000 V/8 kV/2 50 A 600 V/50 A	Handling
--	-----------------



L = (pole no. x pin spacing) + 2.7 mm
 ○ first solder pins, right rear side

Pole No.	Item No.	Pack. Unit	Item No. Suffixes: Colored Terminal Strips, 7.5 mm Pin Spacing
2-conductor terminal strip, 2 staggered solder pins/pole, gray			
2	746-2302	60	○ light gray /000-009
3	746-2303	40	① blue /000-006
4	746-2304	64	● green-yellow /000-016
5	746-2305	48	● light green /000-017
6	746-2306	40	
7	746-2307	16	① Suitable for Ex i applications
8	746-2308	32	
9	746-2309	24	Ordering example:
10	746-2310	24	Terminal strip, 7.5 mm pin spacing
12	746-2312	16	8-pole, light gray: 746-2308/000-009
			(Production and prices depend on quantity required)



Inserting solid and ferruled, fine-stranded conductors by simply pushing them in. Testing with Ø 2 mm test plug.



Inserting fine-stranded conductors via 5.5 mm screwdriver.



Mixed-color terminal strips available upon request.

SMD Terminal Blocks with Push-Buttons 0.75 mm² Pin Spacing 4 mm 2060 Series



- SMD terminal blocks with CAGE CLAMP®S connection and push-buttons
- A total height of only 4.5 mm helps reduce shadowing in LED applications
- Available in tape-and-reel packaging for automated assembly

Technical data:

Pin Spacing	4 mm 0.157 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	63 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	9 A	9 A	9 A
Approvals per	UL 1977		
Rated voltage, 1-pole	600 V		
Rated voltage for 2 poles and more	250 V		
Nominal current UL	9 A		

Conductor data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.2 - 0.75 mm ²
Conductor size: fine-stranded	0.2 - 0.75 mm ²
Conductor size: fine-stranded	0.25 - 0.34 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 0.34 mm ² (with uninsulated ferrule)
AWG	24 - 18
Strip length	6 - 7 mm / 0.24 - 0.28 in
Conductor entry angle	0° to PCB

Material data:

Material group	I
Insulating material	Glass fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Copper alloy
Contact plating	tin-plated

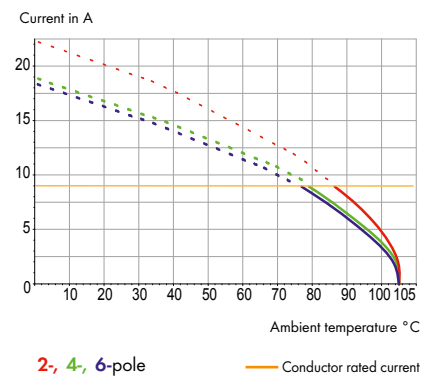
Application notes:

Suitable for lead-free, reflow-soldering profiles acc. to DIN EN 61760-1 and IEC 60068-2-58 up to max. 260 °C peak temperature. Due to customer specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), it is recommended that trial runs are conducted to ensure product and process compatibility under actual manufacturing conditions.

Recommendation for stencil: Material thickness, 150 µm. Stencil layout identical to pad layout.

Current-Carrying Capacity Curve

Pin spacing: 4 mm / Conductor size: 0.75 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1



2060 Series accessories:

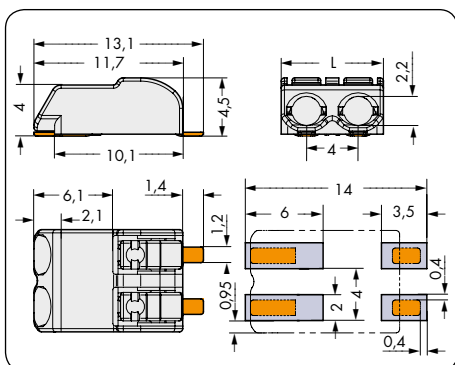
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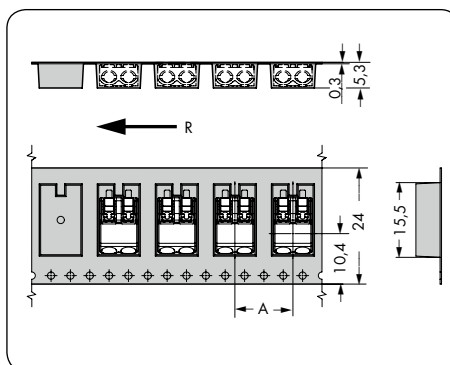
SMD Terminal Blocks with Push-Buttons 0.75 mm²

Pin spacing 4 mm / 0.157 in

0.2 - 0.75 mm² | AWG 24 - 18
160 V/2.5 kV/2 9 A



$L = (\text{pole no.} \times \text{pin spacing}) - 0.1 \text{ mm}$



R = Feed direction
 $A = (\text{pole no.} \times \text{pin spacing}) + 4 \text{ mm}$



Group arrangement is possible without losing any poles.

Pole No.	Item No.	Pack. Unit/ pieces per reel
SMD terminal blocks with push-buttons in tape-and-reel packaging, light gray*		
1	2060-401/998-404	1500
2	2060-402/998-404	1000
3	2060-403/998-404	750
Reel diameter: 330 mm		



Inserting solid conductors via push-in termination.

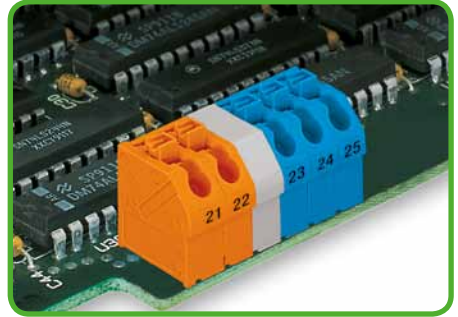
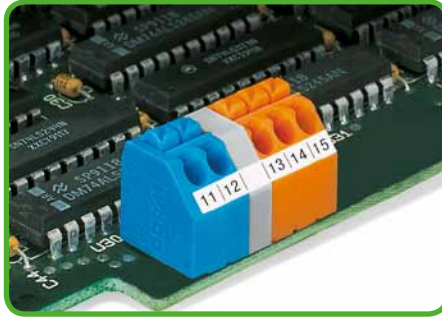
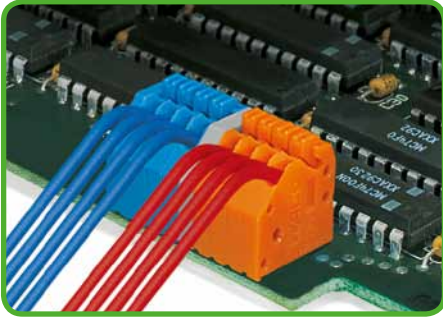


Insert/remove fine-stranded conductors by lightly pressing on push-button (e.g., using a 233-335 operating tool or a ball point pen).



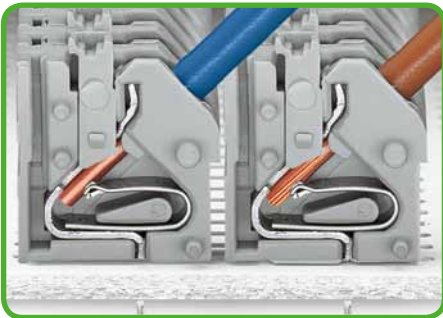
*Depending on reflow soldering temperatures and times, color deviations may occur for light gray connectors. These deviations will have no impact on functionality.

1 System Description and Handling 250 and 235 Series



Marking via self-adhesive strips or factory direct printing. Mixed-color terminal strips (with or without spacer) available upon request.

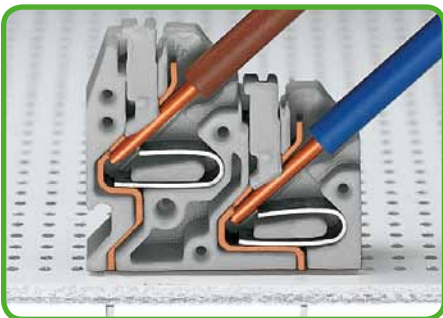
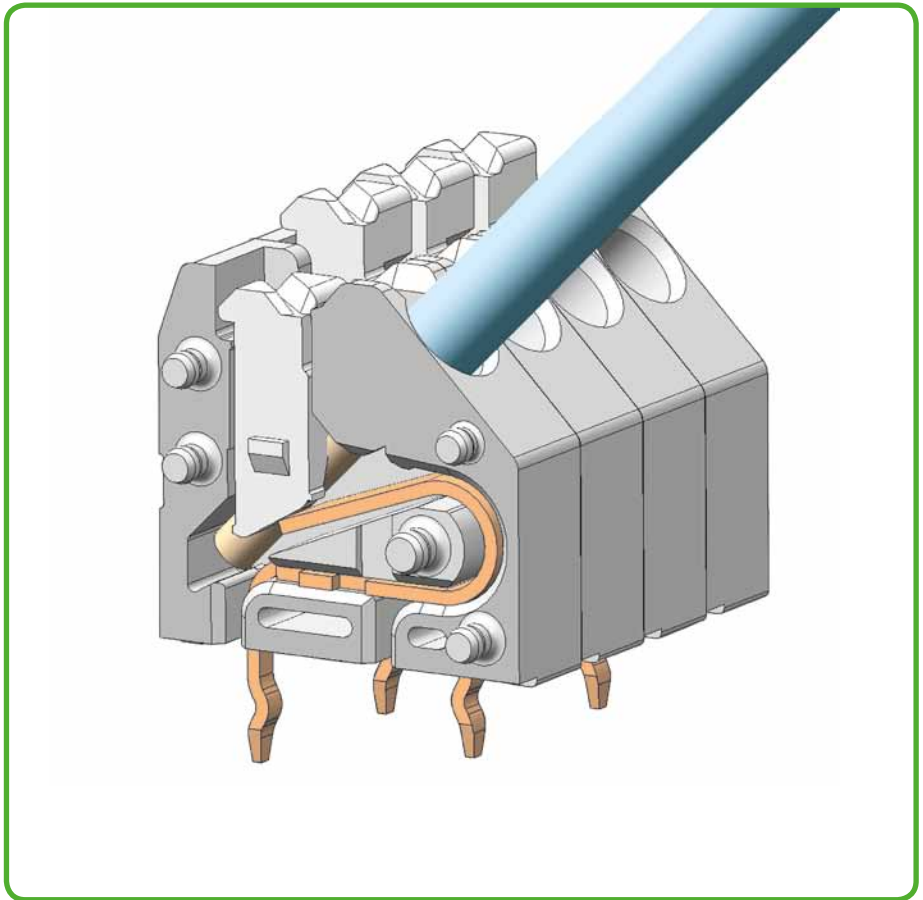
250 Series



Space-saving wiring, 250 Series – 5 mm pin spacing.



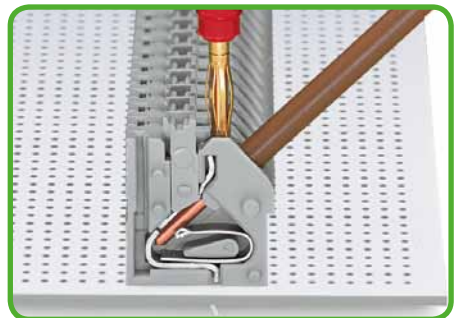
Inserting solid conductors via push-in termination. Inserting fine-stranded conductors via push-buttons, 250 Series – 3.5 mm pin spacing.



Space-saving wiring. Push-in termination of solid conductors.



Testing with \varnothing 1 mm test pin, on the conductor, 250 Series – 2.5 to 3.5 mm pin spacing.



Testing with \varnothing 2 mm test plug, touch contact with current bar, 250 Series – 5 mm pin spacing.

CAGE CLAMP[®]S for 250 and 235 Series clamps the following copper conductors:*

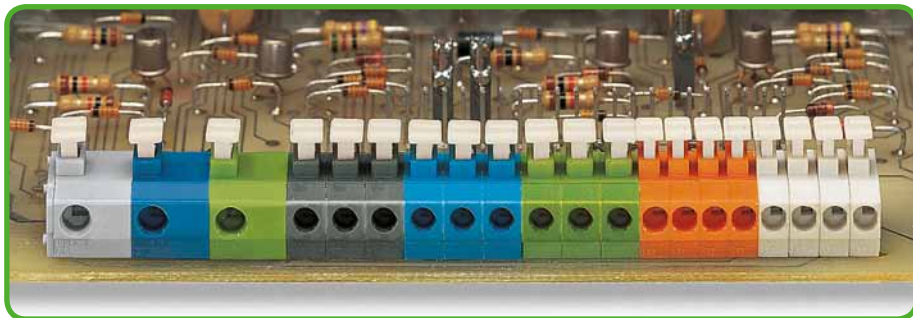


solid



fine-stranded, also with tinned single strands

* For aluminum conductors, see notes in Section 11.

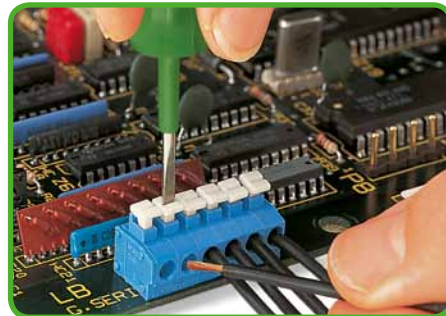
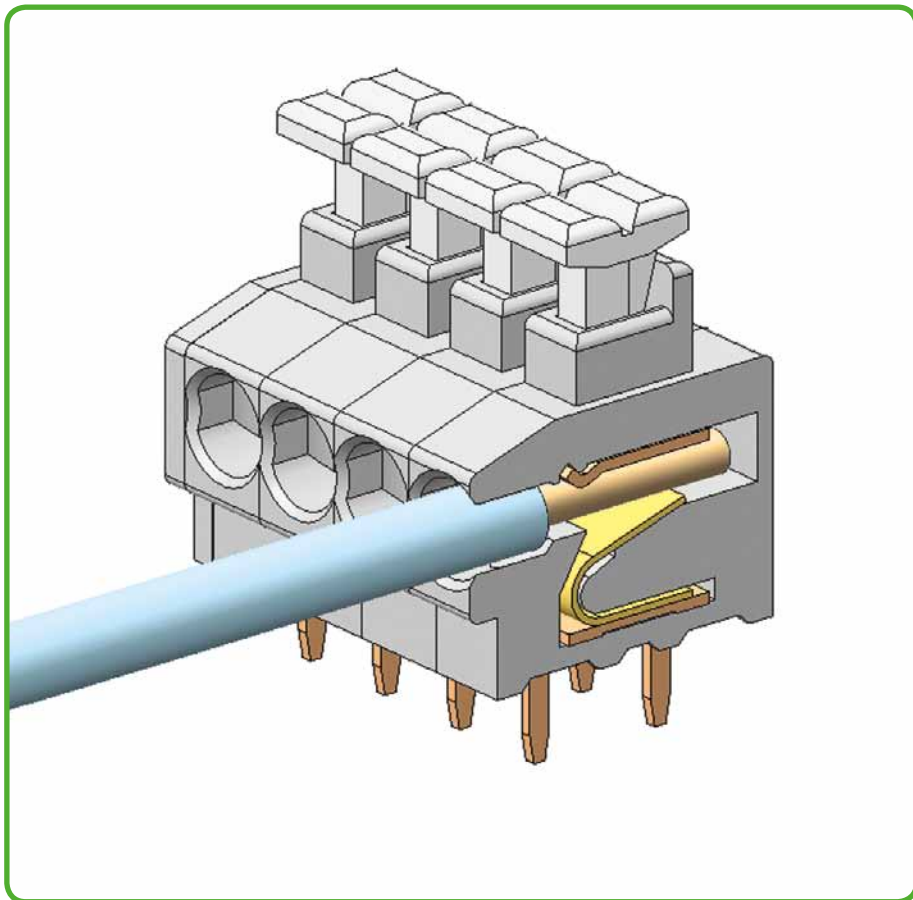


Combining 1- and 2-conductor terminal blocks, also with different housing colors and pin spacing.
 1 = Pin spacing 10/10.16 mm 3 = Pin spacing 3.81 mm 3 = Pin spacing 3.81 mm
 2 = Pin spacing 5/5.08 mm 4 = Pin spacing 3.96/4 mm 4 = Pin spacing 3.96/4 mm

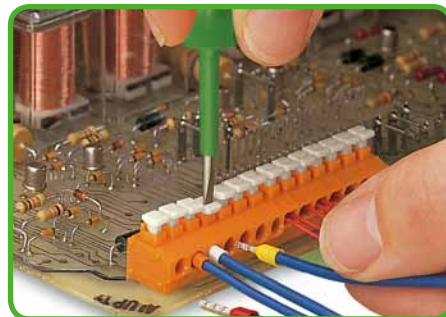


Inserting solid conductor via push-in termination.

235 Series

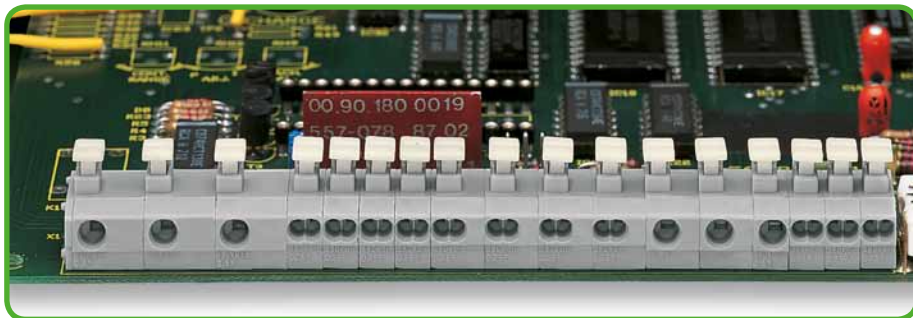


Inserting/removing fine-stranded conductor via push-button.

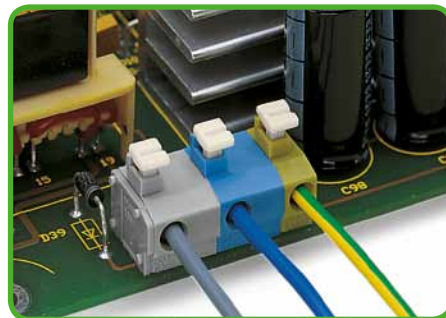


Inserting/removing ferruled fine-stranded conductor via push-button.

Formation of mixed terminal strips



Combining 1- and 2-conductor terminal blocks with different pin spacing.



Application example: Power supply terminal strip.



fine-stranded, tip-bonded

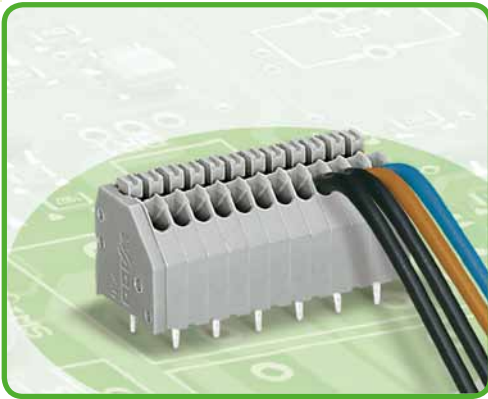


fine-stranded with ferrules (gas-tight crimped)



fine-stranded with pin-end connector (gas-tight crimped)

PCB Terminal Strips with Push-Buttons 0.5 mm² Pin Spacing 2.5 mm, 2.54 mm 250 Series



- Compact terminal strips with push-buttons
- Push-in termination of solid conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring
- Custom color combinations
- Terminal strips with spacers also available upon request

Technical data:

Pin Spacing	2.5 mm 0.098 in			2.54 mm 0.1 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	4 A	4 A	4 A	4 A	4 A	4 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	5 A	-	5 A	5 A	-	5 A
Nominal current CSA	2 A	-	2 A	2 A	-	2 A

Conductor and solder pin data:

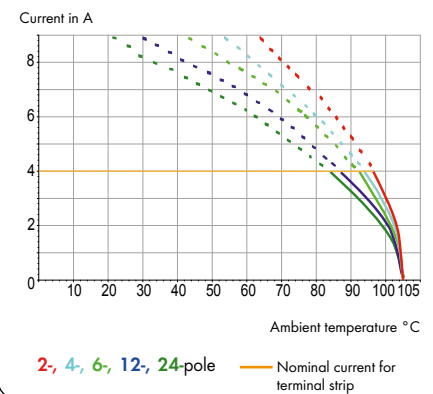
Connection technology	CAGE CLAMP®S
Conductor size: solid	0.14 - 0.5 mm ² (Ø 0.4 - 0.8 mm)
Conductor size: fine-stranded	0.2 - 0.5 mm ²
AWG	24 - 20 (26 "sol.")
Strip length	8.5 - 9.5 mm / 0.32 - 0.36 in
Conductor entry angle	45° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.75 mm
Solder pin: drilled hole diameter	1.1 ^{-0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Copper alloy
Contact plating	Copper

Current-Carrying Capacity Curve

Pin spacing: 2.5 mm / Conductor size: 0.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1



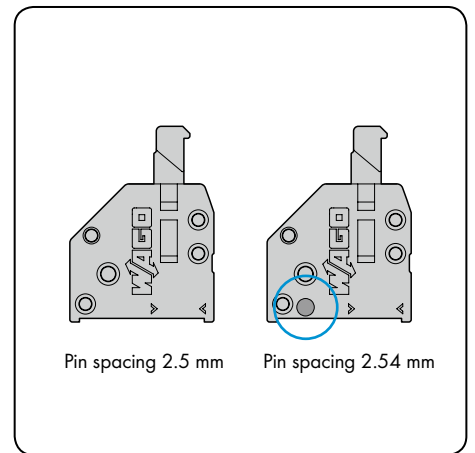
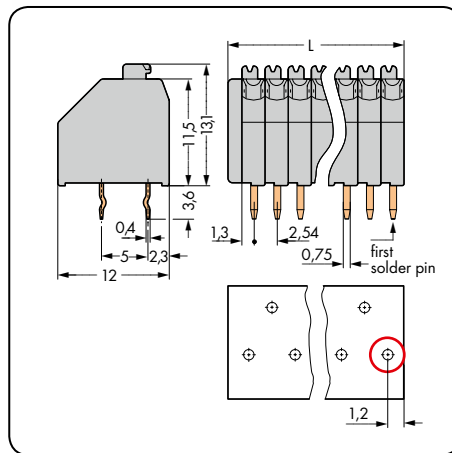
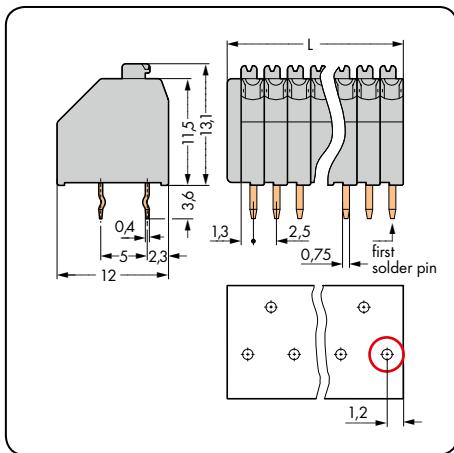
250 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Test pin	538

PCB Terminal Strips with Push-Buttons 0.5 mm²

Pin spacing 2.5 mm / 0.098 in		Pin spacing 2.54 mm / 0.1 in	
0.2 – 0.5 mm ²	AWG 24 – 20	0.2 – 0.5 mm ²	AWG 24 – 20
160 V/2.5 kV/2 4 A	300 V/5 A	160 V/2.5 kV/2 4 A	300 V/5 A

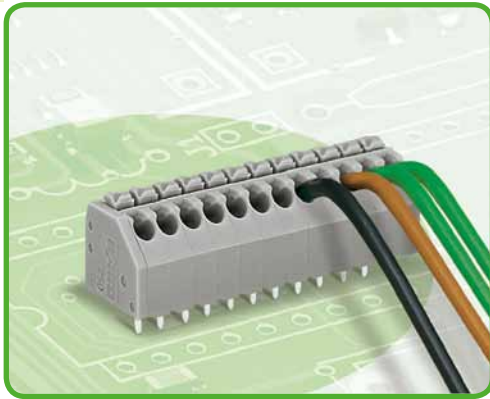


L = (pole no. x pin spacing) + 1.5 mm
 ○ first solder pin, right front side

A groove at the back of the terminal strip helps differentiate between the two pin spacings.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Terminal strip with push-buttons, 1 staggered solder pin/pole, gray			Terminal strip with push-buttons, 1 staggered solder pin/pole, gray			Item no. suffixes for colored terminal strips:		
2	250-402	720 (4 x 180)	2	250-1402	720 (4 x 180)	● black	..... /000-004	
3	250-403	520 (4 x 130)	3	250-1403	520 (4 x 130)	● red	..... /000-005	
4	250-404	400 (4 x 100)	4	250-1404	400 (4 x 100)	● blue	..... /000-006	
5	250-405	340 (4 x 85)	5	250-1405	340 (4 x 85)	○ light gray	..... /000-009	
6	250-406	280 (4 x 70)	6	250-1406	280 (4 x 70)	● orange	..... /000-012	
7	250-407	240 (4 x 60)	7	250-1407	240 (4 x 60)	● green	..... /000-023	
8	250-408	220 (4 x 55)	8	250-1408	200 (4 x 50)	● violet	..... /000-024	
9	250-409	200 (4 x 50)	9	250-1409	180 (4 x 45)	○ white	..... /000-050	
10	250-410	180 (4 x 45)	10	250-1410	160 (4 x 40)	Ordering example:		
11	250-411	160 (4 x 40)	11	250-1411	160 (4 x 40)	Terminal strip, 2.5 mm pin spacing		
12	250-412	140 (4 x 35)	12	250-1412	140 (4 x 35)	8-pole, orange: 250-408/000-012		
13	250-413	140 (4 x 35)	13	250-1413	120 (4 x 30)	(Production and prices depend on quantity required)		
14	250-414	120 (4 x 30)	14	250-1414	120 (4 x 30)			
15	250-415	120 (4 x 30)	15	250-1415	120 (4 x 30)			
16	250-416	100 (4 x 25)	16	250-1416	100 (4 x 25)			
17	250-417	100 (4 x 25)	17	250-1417	100 (4 x 25)			
18	250-418	80 (4 x 20)	18	250-1418	100 (4 x 25)			
19	250-419	80 (4 x 20)	19	250-1419	80 (4 x 20)			
20	250-420	80 (4 x 20)	20	250-1420	80 (4 x 20)			
21	250-421	80 (4 x 20)	21	250-1421	80 (4 x 20)			
22	250-422	80 (4 x 20)	22	250-1422	80 (4 x 20)			
23	250-423	80 (4 x 20)	23	250-1423	60 (4 x 15)			
24	250-424	60 (4 x 15)	24	250-1424	60 (4 x 15)			

PCB Terminal Strips with Push-Buttons 1.5 mm² Pin Spacing 3.5 mm 250 Series



- Compact terminal strips with push-buttons
- Push-in termination of solid and ferruled, fine-stranded conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring
- Custom color combinations
- Terminal strips with spacers also available upon request

Technical data:

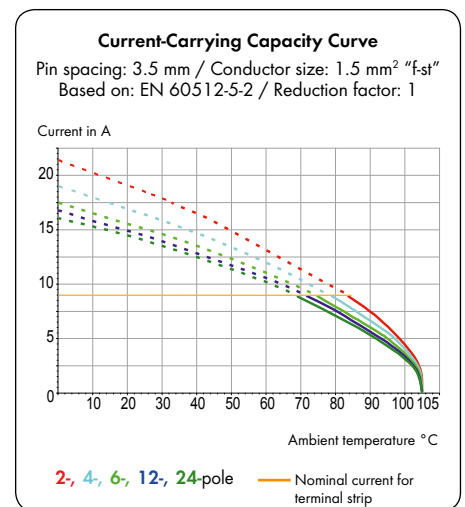
Pin Spacing	1 solder pin/pole, front 3.5 mm / 0.138 in			1 solder pin/pole, staggered 3.5 mm / 0.138 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtension category	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	250 V	320 V	630 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	4 kV	4 kV	4 kV
Nominal current	8 A	8 A	8 A	8 A	8 A	8 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	5 A	-	5 A	5 A	-	5 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.25 - 1 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1 mm ² (with uninsulated ferrule)
AWG	24 - 16
Strip length	8.5 - 9.5 mm / 0.32 - 0.36 in
Conductor entry angle	45° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.75 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Copper alloy
Contact plating	Copper



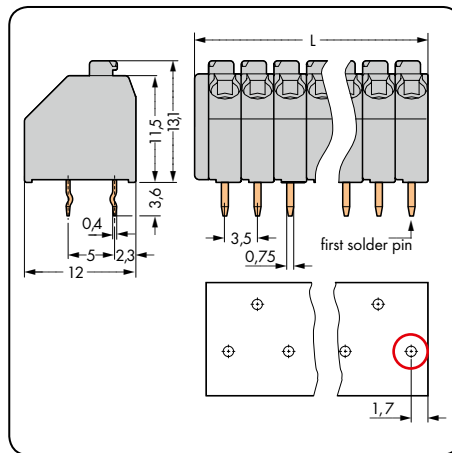
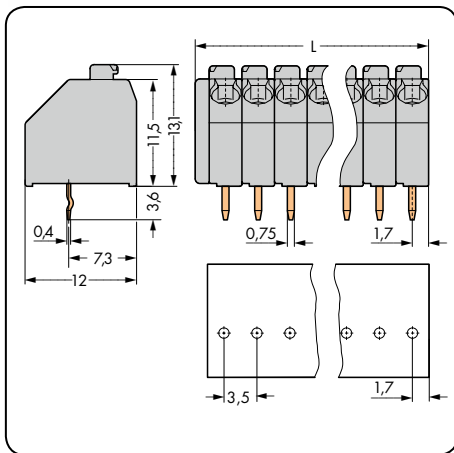
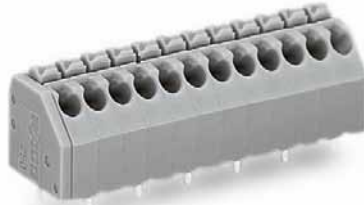
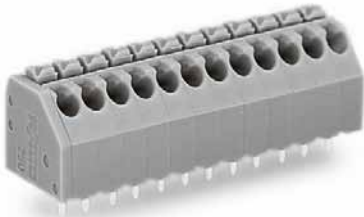
250 Series accessories:

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PCB Terminal Strips with Push-Buttons 1.5 mm²

1 solder pin/pole, in-line Pin spacing 3.5 mm / 0.138 in		1 solder pin/pole, staggered Pin spacing 3.5 mm / 0.138 in		Item no. suffixes for colored terminal strips
0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16	
160 V/2.5 kV/2 8 A	300 V/5 A	320 V/4 kV/2 8 A	300 V/5 A	



L = (pole no. x pin spacing) + 1.5 mm
 ○ first solder pin, right front side

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Terminal strip with push-buttons, 1 in-line solder pin/pole, gray			Terminal strip with push-buttons, 1 staggered solder pin/pole, gray			Item no. suffixes for colored terminal strips:		
2	250-102	560 (4 x 140)	2	250-202	560 (4 x 140)	● yellow	..... /000-002	
3	250-103	400 (4 x 100)	3	250-203	400 (4 x 100)	● light blue	..... /000-003	
4	250-104	300 (4 x 75)	4	250-204	300 (4 x 75)	● black	..... /000-004	
5	250-105	240 (4 x 60)	5	250-205	240 (4 x 60)	● red	..... /000-005	
6	250-106	200 (4 x 50)	6	250-206	200 (4 x 50)	● blue	..... /000-006	
7	250-107	180 (4 x 45)	7	250-207	180 (4 x 45)	○ light gray	..... /000-009	
8	250-108	160 (4 x 40)	8	250-208	160 (4 x 40)	● orange	..... /000-012	
9	250-109	140 (4 x 35)	9	250-209	140 (4 x 35)	● brown	..... /000-014	
10	250-110	120 (4 x 30)	10	250-210	120 (4 x 30)	● light green	..... /000-017	
11	250-111	120 (4 x 30)	11	250-211	120 (4 x 30)	● green	..... /000-023	
12	250-112	100 (4 x 25)	12	250-212	100 (4 x 25)	● violet	..... /000-024	
13	250-113	100 (4 x 25)	13	250-213	100 (4 x 25)	○ white	..... /000-050	
14	250-114	80 (4 x 20)	14	250-214	80 (4 x 20)	● pink	..... /000-051	
15	250-115	80 (4 x 20)	15	250-215	80 (4 x 20)			
16	250-116	80 (4 x 20)	16	250-216	80 (4 x 20)			
17	250-117	80 (4 x 20)	17	250-217	80 (4 x 20)			
18	250-118	60 (4 x 15)	18	250-218	60 (4 x 15)			
19	250-119	60 (4 x 15)	19	250-219	60 (4 x 15)			
20	250-120	60 (4 x 15)	20	250-220	60 (4 x 15)			
21	250-121	60 (4 x 15)	21	250-221	60 (4 x 15)			
22	250-122	60 (4 x 15)	22	250-222	60 (4 x 15)			
23	250-123	60 (4 x 15)	23	250-223	60 (4 x 15)			
24	250-124	40 (4 x 10)	24	250-224	40 (4 x 10)			
						Ordering example: Terminal strip, 3.5 mm pin spacing 8-pole, orange: 250-108/000-012		
						(Production and prices depend on quantity required)		

PCB Terminal Strips with Push-Buttons 0.5 mm² and 1.5 mm², THR (Through-Hole Reflow*)

Pin Spacing 2.5 mm, 3.5 mm

250 Series



- Cost-effective integration of high-temperature resistant THR terminal strips into SMT reflow soldering processes
- Versions with suction pads are available in tape-and-reel packaging for automated assembly
- Push-in termination of solid and ferruled, fine-stranded conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring

Technical data:

Pin Spacing	2.5 mm 0.098 in			3.5 mm 0.138 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	250 V	200 V	320 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	4 kV	4 kV	4 kV
Nominal current	4 A	4 A	4 A	8 A	8 A	8 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	5 A	-	5 A	5 A	-	5 A
Nominal current CSA	2 A	-	2 A	10 A	-	10 A

Conductor and solder pin data for 2.5 mm version:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.14 - 0.5 mm ² (Ø 0.4 - 0.8 mm)
Conductor size: fine-stranded	0.2 - 0.5 mm ²
AWG	24 - 20 (26 "sol.")
Strip length	8.5 - 9.5 mm / 0.32 - 0.36 in
Conductor entry angle	45° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.75 mm
Solder pin: metal-plated hole diameter	1 ^{+0.1} mm

Conductor and solder pin data for 3.5 mm version:

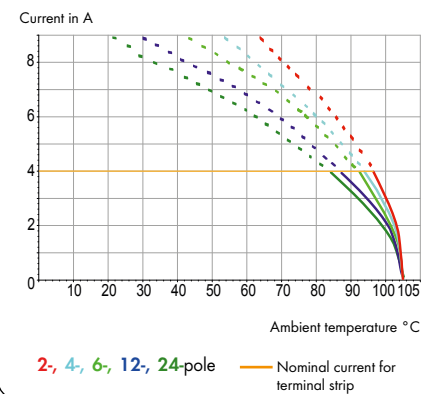
Connection technology	CAGE CLAMP®S
Conductor size: solid	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.25 - 1 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1 mm ² (with uninsulated ferrule)
AWG	24 - 16
Strip length	8.5 - 9.5 mm / 0.32 - 0.36 in
Conductor entry angle	45° to PCB
Solder pin: length/width	2.4 mm / 0.4 x 0.75 mm
Solder pin: metal-plated hole diameter	1 ^{+0.1} mm

Material data:

Material group	III a
Insulating material	Nylon 4.6 (PA 4.6)
Flammability rating per UL 94	V2
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Copper alloy
Contact plating	Copper

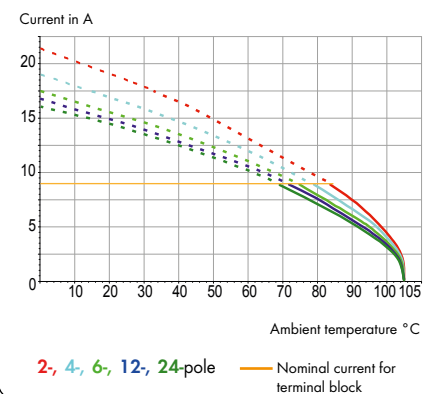
Current-Carrying Capacity Curve

Pin spacing: 2.5 mm / Conductor size: 0.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1



Current-Carrying Capacity Curve

Pin spacing: 3.5 mm / Conductor size: 1.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 1



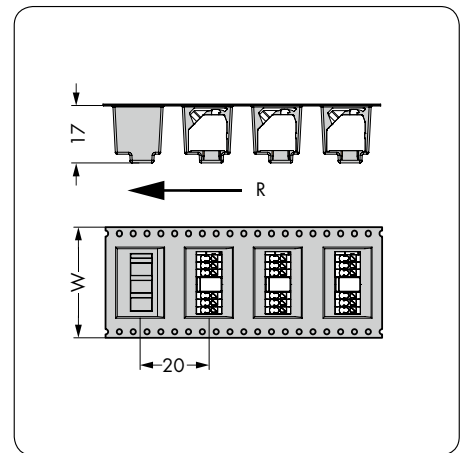
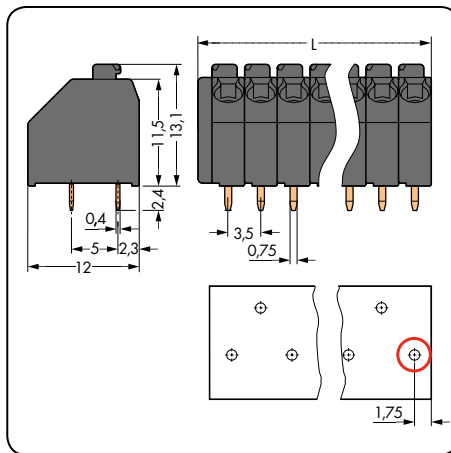
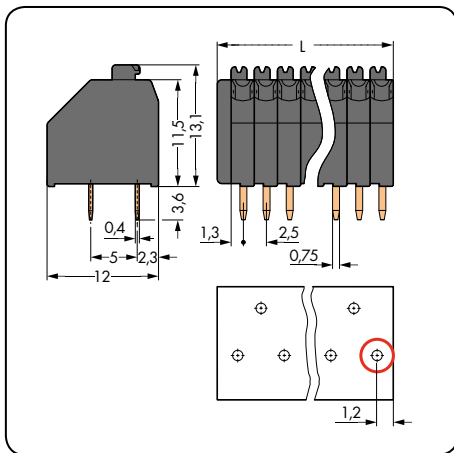
250 Series accessories:

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PCB Terminal Strips with Push-Buttons 0.5 mm² and 1.5 mm², THR

Pin spacing 2.5 mm / 0.098 in 0.2 – 0.5 mm ² AWG 24 – 20 160 V/2.5 kV/2 4 A 300 V/5 A		Pin spacing 3.5 mm / 0.138 in 0.2 – 1.5 mm ² AWG 24 – 16 320 V/4 kV/2 8 A 300 V/5 A		Terminal strips in tape-and-reel packaging, 3.5 mm pin spacing
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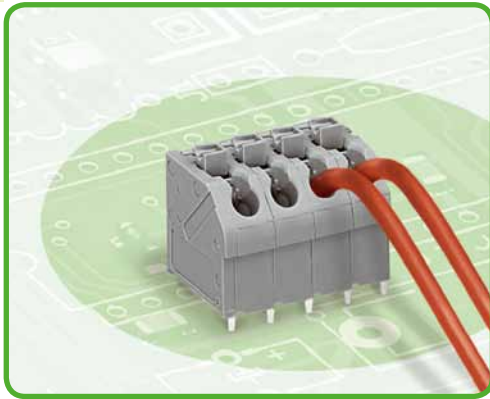


L = (pole no. x pin spacing) + 1.5 mm
 ⊙ first solder pin, right front side

W = Tape width
 R = Feed direction

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Terminal strip with push-buttons, 1 staggered solder pin/pole, black			Terminal strip with push-buttons, 1 staggered solder pin/pole, black			Terminal strips with additional suction pads, in tape-and-reel packaging acc. to IEC 60286-3, 3.5 mm pin spacing		
								(mm)
2	250-402/350-604	720 (4 x 180)	2	250-202/353-604	560 (4 x 140)	2	250-202/353-604/997-404	24
3	250-403/350-604	520 (4 x 130)	3	250-203/353-604	400 (4 x 100)	3	250-203/353-604/997-404	24
4	250-404/350-604	400 (4 x 100)	4	250-204/353-604	300 (4 x 75)	4	250-204/353-604/997-405	32
5	250-405/350-604	340 (4 x 85)	5	250-205/353-604	240 (4 x 60)	5	250-205/353-604/997-405	32
6	250-406/350-604	280 (4 x 70)	6	250-206/353-604	200 (4 x 50)	6	250-206/353-604/997-406	44
7	250-407/350-604	240 (4 x 60)	7	250-207/353-604	180 (4 x 45)	7	250-207/353-604/997-406	44
8	250-408/350-604	220 (4 x 55)	8	250-208/353-604	160 (4 x 40)	8	250-208/353-604/997-406	44
						Reel diameter: 330 mm, 160 pieces per reel		

PCB Terminal Strips with Push-Buttons 1.5 mm² Pin Spacing 5 mm, 7.5 mm 250 Series



- Compact terminal strips with push-buttons
- Push-in termination of solid and ferruled, fine-stranded conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring

Technical data:

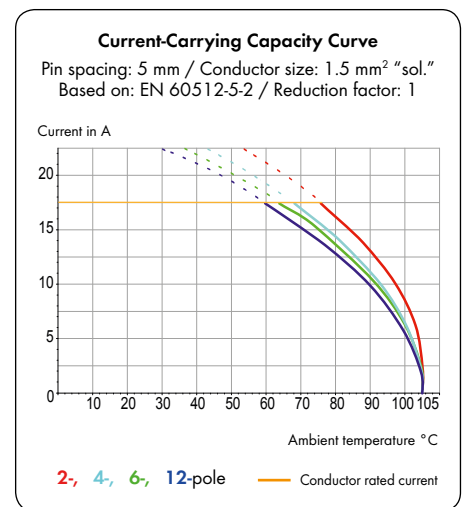
Pin Spacing	5 mm 0.197 in			7.5 mm 0.295 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	500 V	630 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV
Nominal current	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	2 A	-	2 A	2 A	-	2 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.5 - 1.5 mm ²
Conductor size: fine-stranded	0.5 mm ² (I max. 2 A)
Conductor size: fine-stranded	0.75 - 1.5 mm ² (I max. 4 A)
Conductor size: fine-stranded	0.5 - 1 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.5 - 1 mm ² (with uninsulated ferrule)
AWG	20 - 16 (20 - 14 "sol.")
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.5 x 0.75 mm
Solder pin: drilled hole diameter	1.2 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

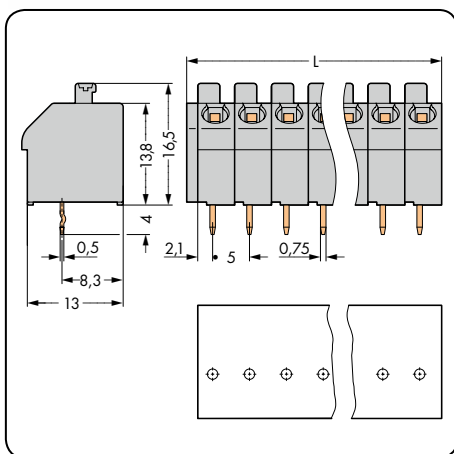


250 Series accessories:

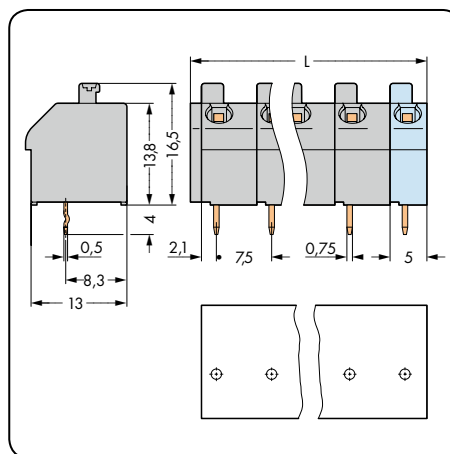
Page:

Marking accessories	540 - 543
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Test pin	538

Pin spacing 5 mm / 0.197 in		Pin spacing 7.5 mm / 0.295 in	
0.5 - 1.5 mm ²	AWG 20 - 16	0.5 - 1.5 mm ²	AWG 20 - 16
320 V/4 kV/2 17.5 A	300 V/2 A	630 V/6 kV/2 17.5 A	300 V/2 A



$$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$$



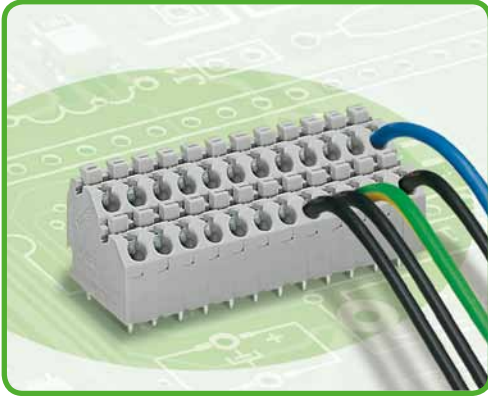
$$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons, 1 in-line solder pin/pole, gray			Terminal strip with push-buttons, 1 in-line solder pin/pole, gray		
2	250-502	400 (4 x 100)	2	250-602	340 (4 x 85)
3	250-503	280 (4 x 70)	3	250-603	200 (4 x 50)
4	250-504	220 (4 x 55)	4	250-604	160 (4 x 40)
5	250-505	180 (4 x 45)	5	250-605	120 (4 x 30)
6	250-506	140 (4 x 35)	6	250-606	100 (4 x 25)
7	250-507	120 (4 x 30)	7	250-607	80 (4 x 20)
8	250-508	100 (4 x 25)	8	250-608	80 (4 x 20)
9	250-509	100 (4 x 25)	9	250-609	60 (4 x 15)
10	250-510	80 (4 x 20)	10	250-610	60 (4 x 15)
11	250-511	80 (4 x 20)	11	250-611	40 (4 x 10)
12	250-512	60 (4 x 15)	12	250-612	40 (4 x 10)
13	250-513	60 (4 x 15)			
14	250-514	60 (4 x 15)			
15	250-515	60 (4 x 15)			
16	250-516	40 (4 x 10)			

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● yellow	... /000-002	Ordering example: Terminal strip, 5 mm pin spacing 8-pole, orange: 250-508/000-012
● red	... /000-005	
● blue	... /000-006	
○ light gray	... /000-009	
● orange	... /000-012	
● brown	... /000-014	
● light green	... /000-017	
○ white	... /000-050	

Double-Deck PCB Terminal Strips with Push-Buttons 1.5 mm² Pin Spacing 5 mm 250 Series



- Space-saving, double-deck terminal strips with push-buttons
- Push-in termination of solid and ferruled, fine-stranded conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring

Technical data:

Pin Spacing	5 mm 0.197 in				
Rating per	IEC/EN 60664-1				
Overvoltage category	III	III	II		
Pollution degree	3	2	2		
Rated voltage	320 V	320 V	630 V		
Rated surge voltage	4 kV	4 kV	4 kV		
Nominal current	10 A	10 A	10 A		
Approvals per	UL/CSA				
Use group UL 1059	B	C	D		
Rated voltage	300 A	-	300 A		
Nominal current UL	10 V	-	10 V		
Nominal current CSA	10 V	-	10 V		

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.5 - 1.5 mm ²
Conductor size: fine-stranded	0.5 mm ² (I max. 2 A)
Conductor size: fine-stranded	0.75 - 1.5 mm ² (I max. 4 A)
Conductor size: fine-stranded	0.5 - 1 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.5 - 1 mm ² (with uninsulated ferrule)
AWG	20 - 16 (20 - 14 "sol.")
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.5 x 0.75 mm
Solder pin: drilled hole diameter	1.2 ^{-0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

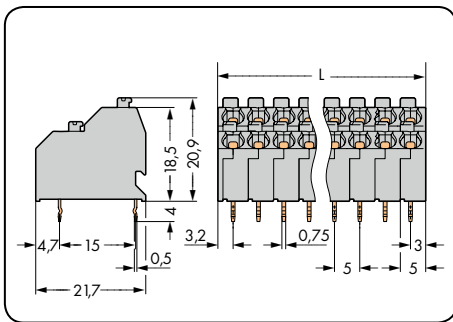
250 Series accessories:

Page:

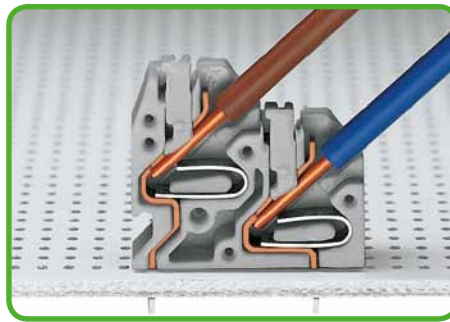
Marking accessories	540 - 543
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Test plug	538

Pin spacing 5 mm / 0.197 in

0.5 - 1.5 mm ²	AWG 20 - 16
320 V/4 kV/2 10 A	300 V/10 A

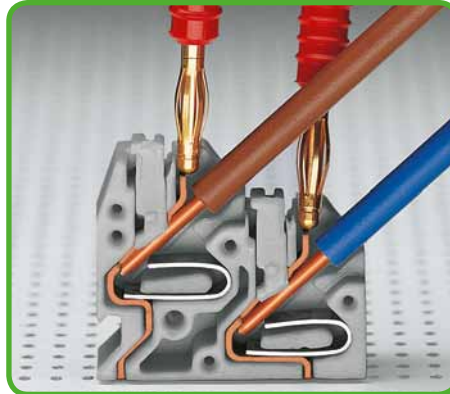


$L = (\text{pole no.} \times \text{pin spacing}) + 1.2 \text{ mm}$



Space-saving wiring
Inserting solid conductors via push-in termination.

Pole No.	Item No.	Pack. Unit
Double-deck terminal strip with push-buttons, 2 in-line solder pin/pole, gray		
2 x 2	250-702	264 (4 x 66)
3 x 2	250-703	180 (4 x 45)
4 x 2	250-704	132 (4 x 33)
6 x 2	250-706	84 (4 x 21)
8 x 2	250-708	72 (4 x 18)
10 x 2	250-710	48 (4 x 12)
12 x 2	250-712	48 (4 x 12)
16 x 2	250-716	36 (4 x 9)
24 x 2	250-724	24 (4 x 6)

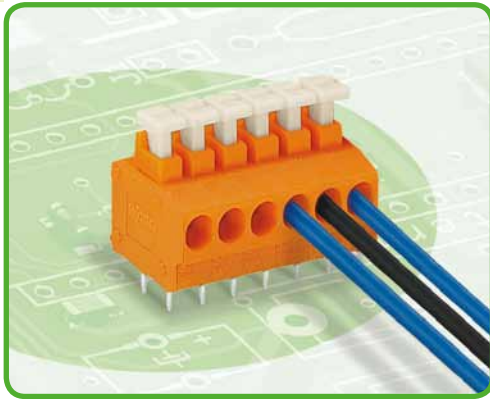


Testing with Ø 2 mm test plug, touch contact with current bar.

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● blue /000-006	Ordering example: Double-deck terminal strip with push-buttons and test slots for test plugs, 5 mm pin spacing 8 x 2-pole, orange: 250-708/000-012
● orange /000-012	

Modular PCB Terminal Blocks and Strips with Push-Buttons 1.5 mm² Pin Spacing 3.81 mm 235 Series



- Terminal strips with push-buttons
- Push-in termination of solid and ferruled, fine-stranded conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- For 235 Series without push-buttons, see page 151

Technical data:

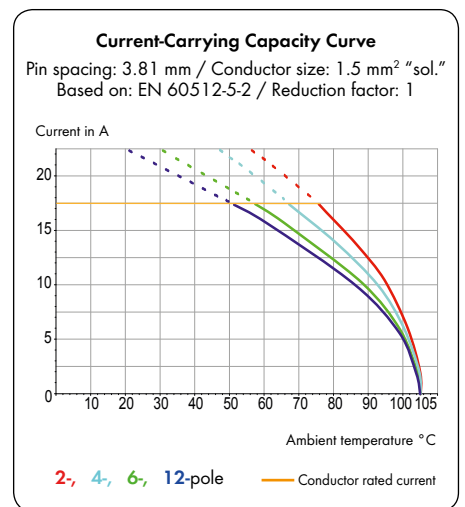
Pin Spacing	3.81 mm 0.15 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	200 V	320 V	500 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	17.5 A	17.5 A	17.5 A
Approvals per	UL/CSA		
Use group UL1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.5 - 1.5 mm ²
Conductor size: fine-stranded	0.75 - 1.5 mm ² (I max. 4 A)
Conductor size: fine-stranded	0.25 - 1 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1 mm ² (with uninsulated ferrule)
AWG	20 - 16
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.8 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated



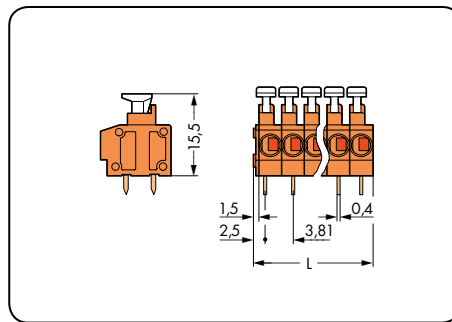
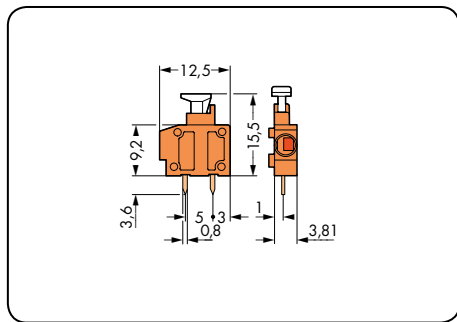
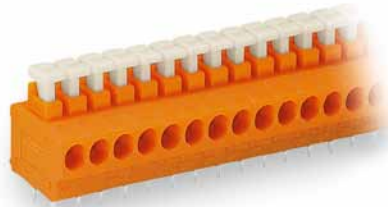
235 Series accessories:

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Modular PCB Terminal Blocks and Strips with Push-Buttons 1.5 mm²


Modular terminal blocks Pin spacing 3.81 mm / 0.15 in		Terminal strips Pin spacing 3.81 mm / 0.15 in	
0.5 - 1.5 mm ²	AWG 20 - 16	0.5 - 1.5 mm ²	AWG 20 - 16
320 V/4 kV/2 17.5 A	300 V/10 A	320 V/4 kV/2 17.5 A	300 V/10 A



L = (pole no. x pin spacing) + 1.5 mm

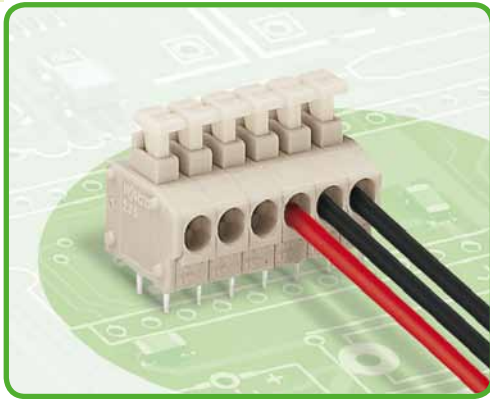
Color	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Modular terminal block with push-button, 2 solder pins/pole			Terminal strip with push-buttons, 2 solder pins/pole, orange			Item no. suffixes for colored terminal strips:		
orange	235-101	800 (8 x 100)	2	235-102	520 (4 x 130)	yellow	..... /000-002	
red	235-770	800 (8 x 100)	3	235-103	360 (4 x 90)	black	..... /000-004	
gray	235-771	800 (8 x 100)	4	235-104	280 (4 x 70)	red	..... /000-005	
dark gray	235-772	800 (8 x 100)	5	235-105	220 (4 x 55)	blue	..... /000-006	
blue	235-774	800 (8 x 100)	6	235-106	180 (4 x 45)	gray	..... /000-007	
white	235-775	800 (8 x 100)	7	235-107	160 (4 x 40)	dark gray	..... /000-008	
yellow	235-776	800 (8 x 100)	8	235-108	140 (4 x 35)	light green	..... /000-017	
light green	235-777	800 (8 x 100)	9	235-109	120 (4 x 30)	white	..... /000-050	
black	235-778	800 (8 x 100)	10	235-110	120 (4 x 30)			
			12	235-112	100 (4 x 25)	Ordering example:		
			16	235-116	60 (4 x 15)	Terminal strip, 3.81 mm pin spacing		
			24	235-124	40 (4 x 10)	8-pole, gray: 235-108/000-007		
			36	235-136	20 (4 x 5)	(Production and prices depend on quantity required)		
			48	235-148	20 (4 x 5)			

Accessories	Item No.	Pack. Unit
Spacer for doubling the pin spacing, orange		
	235-316	100

End plates for modular terminal blocks, 235 Series, snap-on type, 1 mm/0.039 in thick	Color	Item No.	Pack. Unit
	orange	235-600	100
	red	235-800	100
	gray	235-100	100
	dark gray	235-200	100
	blue	235-400	100
	white	235-850	100
	yellow	235-550	100
	light green	235-700	100
	black	235-500	100

Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

Modular PCB Terminal Blocks and Strips with Push-Buttons 1.5 mm² Pin Spacing 3.96/4 mm 235 Series



- Terminal strips with push-buttons
- Push-in termination of solid and ferruled, fine-stranded conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart

Technical data:

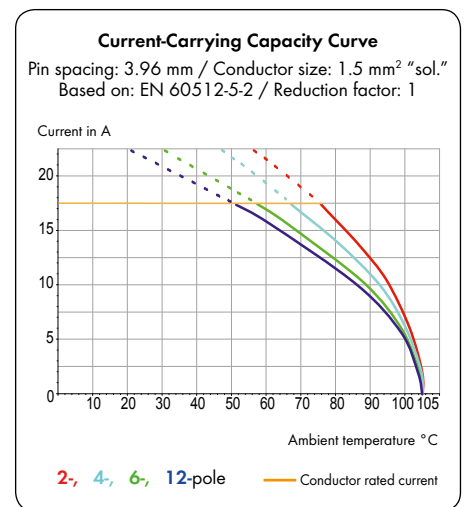
Pin Spacing	3.96/4 mm 0.156 in				
Rating per	IEC/EN 60664-1				
Overtoltage category	III	III	II		
Pollution degree	3	2	2		
Rated voltage	200 V	320 V	500 V		
Rated surge voltage	4 kV	4 kV	4 kV		
Nominal current	17.5 A	17.5 A	17.5 A		
Approvals per	UL/CSA				
Use group UL1059	B	C	D		
Rated voltage	300 V	-	300 V		
Nominal current UL	10 A	-	10 A		
Nominal current CSA	10 A	-	-		

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.5 - 1.5 mm ²
Conductor size: fine-stranded	0.75 - 1.5 mm ² (I max. 4 A)
Conductor size: fine-stranded	0.25 - 1 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1 mm ² (with uninsulated ferrule)
AWG	20 - 16
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.8 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated



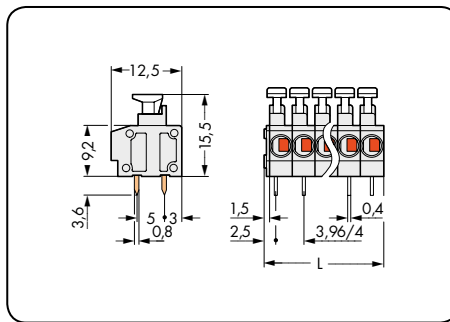
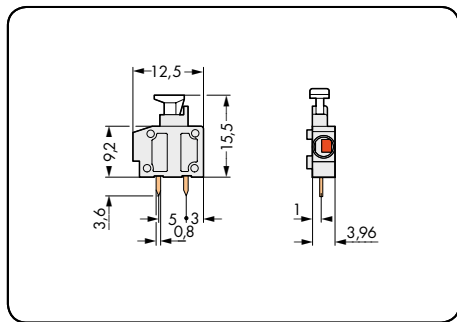
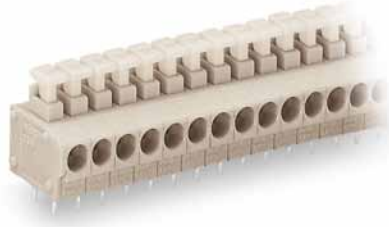
235 Series accessories:

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Modular PCB Terminal Blocks and Strips with Push-Buttons 1.5 mm²

Pin spacing 3.96/4 mm / 0.156 in		Pin spacing 3.96/4 mm / 0.156 in	
0.5 - 1.5 mm ² 320 V/4 kV/2 17.5 A	AWG 20 - 16 300 V/10 A	0.5 - 1.5 mm ² 320 V/4 kV/2 17.5 A	AWG 20 - 16 300 V/10 A



L = (pole no. x pin spacing) + 1.5 mm

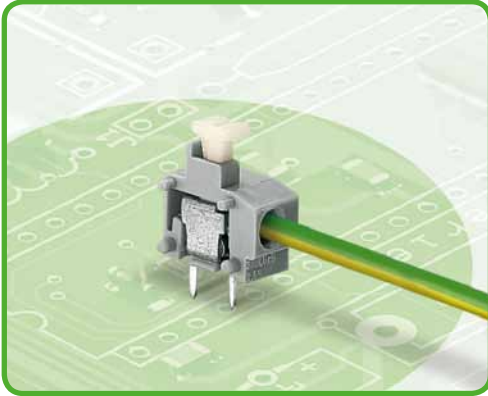
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Modular terminal block with push-button, 2 solder pins/pole			Terminal strip with push-buttons, 2 solder pins/pole, light gray		
○ light gray	235-201	800 (8 x 100)	2	235-202	500 (4 x 125)
● red	235-780	800 (8 x 100)	3	235-203	360 (4 x 90)
○ gray	235-781	800 (8 x 100)	4	235-204	280 (4 x 70)
● dark gray	235-782	800 (8 x 100)	5	235-205	220 (4 x 55)
● black	235-788	800 (8 x 100)	6	235-206	180 (4 x 45)
			7	235-207	160 (4 x 40)
			8	235-208	140 (4 x 35)
			9	235-209	120 (4 x 30)
			10	235-210	100 (4 x 25)
			12	235-212	80 (4 x 20)
			16	235-216	60 (4 x 15)
			24	235-224	40 (4 x 10)
			36	235-236	20 (4 x 5)
			48	235-248	20 (4 x 5)

End plates for modular terminal blocks with push-buttons, 235 Series, snap-on type, 1 mm/0.039 in thick		Color	Item No.	Pack. Unit
		○ gray	235-100	100
		● dark gray	235-200	100
		○ light gray	235-300	100
		● black	235-500	100
		● red	235-800	100

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● black	.../000-004	Ordering example: Terminal strip, 3.96 mm pin spacing 8-pole, gray: 235-208/000-007
● red	.../000-005	
○ gray	.../000-007	
● dark gray	.../000-008	

1 Modular PCB Terminal Blocks with Push-Buttons 1.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series



- Modular terminal blocks with push-buttons for custom terminal strip assemblies
- Push-in termination of solid and ferruled, fine-stranded conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Versions with test slot can be found at www.wago.com
- For 235 Series without push-buttons, see page 153

Technical data:

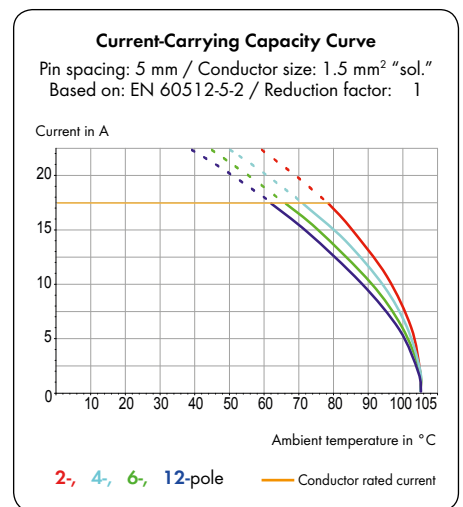
Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	15 A	-	-	15 A	-	-	15 A	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.25 - 0.5 mm ² (I max. 2 A)
Conductor size: fine-stranded	0.75 - 1.5 mm ² (I max. 6 A)
Conductor size: fine-stranded	0.25 - 0.75 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 0.75 mm ² (with uninsulated ferrule)
AWG	20 - 14
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.8 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

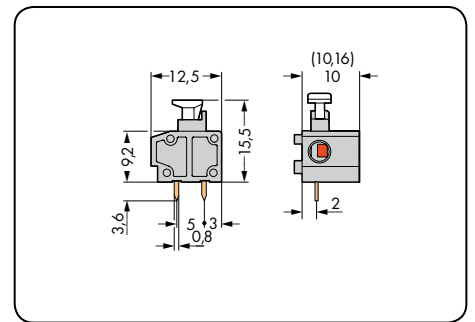
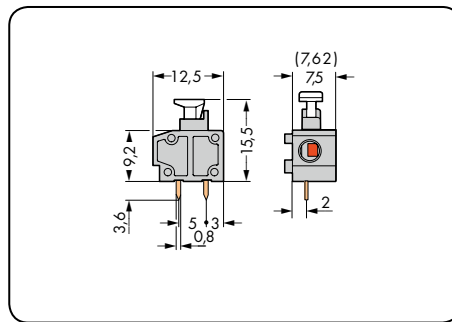
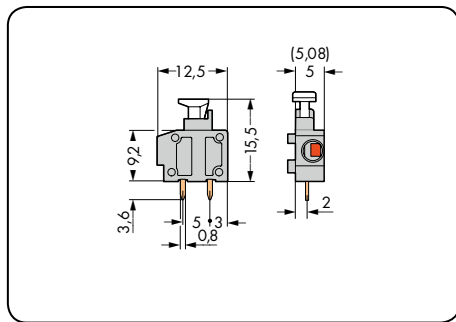


235 Series accessories:


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Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.5 - 1.5 mm ²	AWG 20 - 14	0.5 - 1.5 mm ²	AWG 20 - 14	0.5 - 1.5 mm ²	AWG 20 - 14
320 V/4 kV/2 17.5 A	300 V/10 A	630 V/6 kV/2 17.5 A	300 V/10 A	1000 V/8 kV/2 17.5 A	300 V/10 A



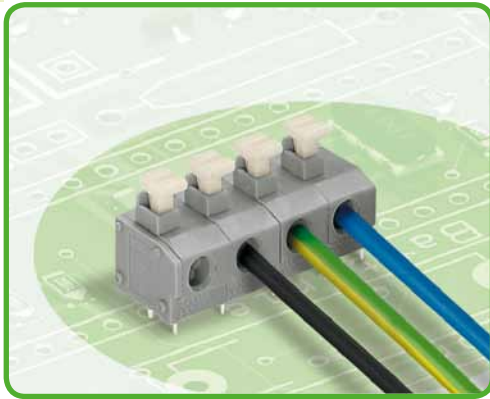
Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Modular terminal block with push-button, 2 solder pins/pole			Modular terminal block with push-button, 2 solder pins/pole			Modular terminal block with push-button, 2 solder pins/pole		
gray	235-401/331-000	800 (8 x 100)	gray	235-501/331-000	600 (6 x 100)	gray	235-801/331-000	400 (4 x 100)
red	235-740/331-000	800 (8 x 100)	dark gray	235-752/331-000	600 (6 x 100)	dark gray	235-762/331-000	400 (4 x 100)
yellow	235-741/331-000	800 (8 x 100)	light gray	235-753/331-000	600 (6 x 100)	light gray	235-763/331-000	400 (4 x 100)
dark gray	235-742/331-000	800 (8 x 100)	blue	235-754/331-000	600 (6 x 100)	blue	235-764/331-000	400 (4 x 100)
light gray	235-743/331-000	800 (8 x 100)	white	235-755/331-000	600 (6 x 100)	white	235-765/331-000	400 (4 x 100)
blue	235-744/331-000	800 (8 x 100)	orange	235-756/331-000	600 (6 x 100)	orange	235-766/331-000	400 (4 x 100)
white	235-745/331-000	800 (8 x 100)	light green	235-757/331-000	600 (6 x 100)	light green	235-767/331-000	400 (4 x 100)
orange	235-746/331-000	800 (8 x 100)	black	235-758/331-000	600 (6 x 100)	black	235-768/331-000	400 (4 x 100)
light green	235-747/331-000	800 (8 x 100)						
black	235-748/331-000	800 (8 x 100)						
violet	235-749/331-000	800 (8 x 100)						
			① Suitable for Ex i applications			① Suitable for Ex i applications		

Accessories	Item No.	Pack. Unit
Spacer for modular terminal blocks for doubling the pin spacing, gray		
	235-701	100

End plates for modular terminal blocks, 235 Series, snap-on type, 1 mm/0.039 in thick		
Color	Item No.	Pack. Unit
gray	235-100	100
dark gray	235-200	100
light gray	235-300	100
blue	235-400	100
black	235-500	100
yellow	235-550	100
orange	235-600	100
violet	235-650	100
light green	235-700	100
red	235-800	100
white	235-850	100

For other colors, please contact factory.

PCB Terminal Strips with Push-Buttons 1.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series



- Terminal strips with push-buttons
- Push-in termination of solid and ferruled, fine-stranded conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Versions with test slots can be found at www.wago.com
- For 235 Series without push-buttons, see page 155

Technical data:

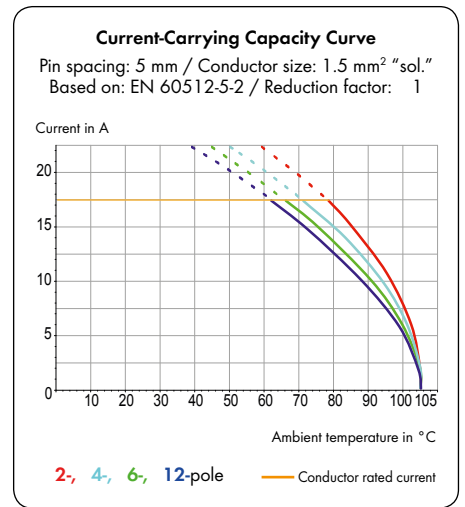
Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	15 A	-	-	15 A	-	-	15 A	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.25 - 0.5 mm ² (I max. 2 A)
Conductor size: fine-stranded	0.75 - 1.5 mm ² (I max. 6 A)
Conductor size: fine-stranded	0.25 - 0.75 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 0.75 mm ² (with uninsulated ferrule)
AWG	20 - 14
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.8 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated



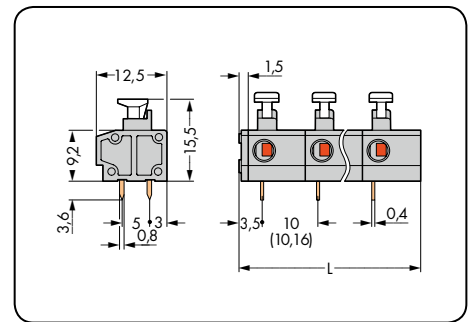
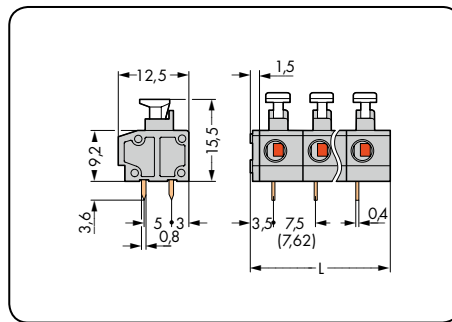
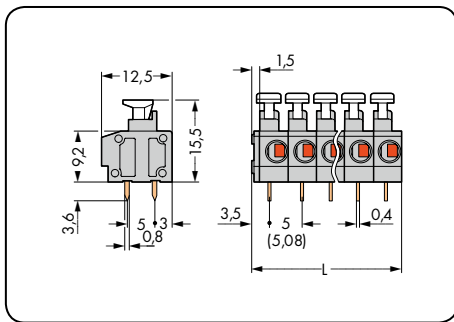
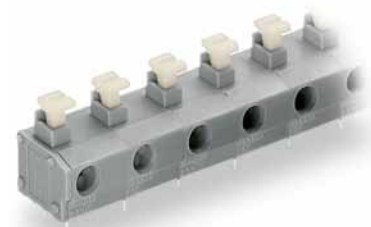
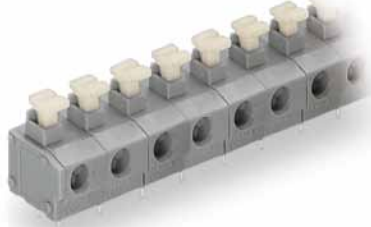
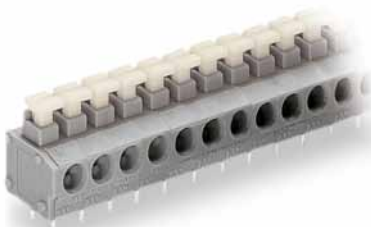
235 Series accessories:

Page:

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PCB Terminal Strips with Push-Buttons 1.5 mm²

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.5 - 1.5 mm ²	AWG 20 - 14	0.5 - 1.5 mm ²	AWG 20 - 14	0.5 - 1.5 mm ²	AWG 20 - 14
320 V/4 kV/2 17.5 A	300 V/10 A	630 V/6 kV/2 17.5 A	300 V/10 A	1000 V/8 kV/2 17.5 A	300 V/10 A



L = (pole no. x pin spacing) + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons, 2 solder pins/pole, gray			Terminal strip with push-buttons, 2 solder pins/pole, gray			Terminal strip with push-buttons, 2 solder pins/pole, gray		
2	235-402/331-000	420 (4 x 105)	2	235-502/331-000	280 (4 x 70)	2	235-802/331-000	220 (4 x 55)
3	235-403/331-000	280 (4 x 70)	3	235-503/331-000	200 (4 x 50)	3	235-803/331-000	140 (4 x 35)
4	235-404/331-000	220 (4 x 55)	4	235-504/331-000	140 (4 x 35)	4	235-804/331-000	120 (4 x 30)
5	235-405/331-000	180 (4 x 45)	5	235-505/331-000	120 (4 x 30)	5	235-805/331-000	80 (4 x 20)
6	235-406/331-000	140 (4 x 35)	6	235-506/331-000	100 (4 x 25)	6	235-806/331-000	80 (4 x 20)
7	235-407/331-000	120 (4 x 30)	7	235-507/331-000	80 (4 x 20)	7	235-807/331-000	60 (4 x 15)
8	235-408/331-000	100 (4 x 25)	8	235-508/331-000	60 (4 x 15)	8	235-808/331-000	40 (4 x 10)
9	235-409/331-000	100 (4 x 25)	9	235-509/331-000	60 (4 x 15)	9	235-809/331-000	40 (4 x 10)
10	235-410/331-000	80 (4 x 20)	10	235-510/331-000	60 (4 x 15)	10	235-810/331-000	40 (4 x 10)
12	235-412/331-000	60 (4 x 15)	12	235-512/331-000	40 (4 x 10)	12	235-812/331-000	40 (4 x 10)
16	235-416/331-000	60 (4 x 15)	16	235-516/331-000	40 (4 x 10)	16	235-816/331-000	20 (4 x 5)
24	235-424/331-000	40 (4 x 10)	24	235-524/331-000	20 (4 x 5)	24	235-824/331-000	20 (4 x 5)
36	235-436/331-000	20 (4 x 5)						
48	235-448/331-000	20 (4 x 5)						

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● yellow	.../331-002	Ordering example: Terminal strip with push-buttons, 5/5.08 mm pin spacing 12-pole, orange: 235-412/331-012
● black	.../331-004	
● red	.../331-005	
● blue	.../331-006	
● dark gray	.../331-008	
● light gray	.../331-009	
● orange	.../331-012	
● light green	.../331-017	
● violet	.../331-024	
● white	.../331-050	
ⓘ	Suitable for Ex i applications (only for 7.5/7.62 mm and 10/10.16 mm pin spacing)	

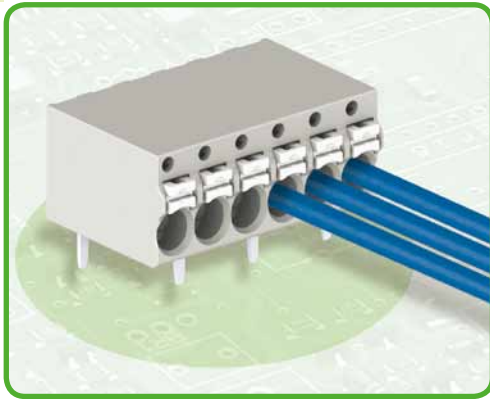


1 PCB Terminal Strips with Push-Buttons

Pin Spacing 3.5 mm

2081 Series

140



- Compact terminal strips with push-buttons
- Simple, push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Versions available with staggered solder pins for higher voltages
- Straight and angled versions for convenient wiring in both vertical and horizontal directions

Technical data:

Pin Spacing	Solder pins in line 3.5 mm / 0.138 in			Solder pins staggered 3.5 mm / 0.138 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	250 V	320 V	630 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	4 kV	4 kV	4 kV
Nominal current	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A
Approvals per	UL/CSA*			UL/CSA*		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300	-	300	300	-	300
Nominal current UL	10	-	10	10	-	10
Nominal current CSA						

Conductor and solder pin data:

Connection technology	CAGE CLAMP [®] S
Conductor size: solid	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.75 mm ² (with insulated ferrule)
Conductor size: fine-stranded	1.0 mm ² (with uninsulated ferrule)
AWG	24 - 16
Strip length	8 - 9 mm
Conductor entry angle	90° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.75 mm
Solder pin: drilled hole diameter	1.0 ^{+0.1} mm

Material data:

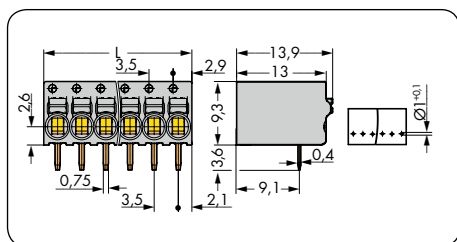
Material group	I
Insulating material	Glass fiber-reinforced polyamide 6.6 (PA 6.6 GF)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

2081 Series accessories:

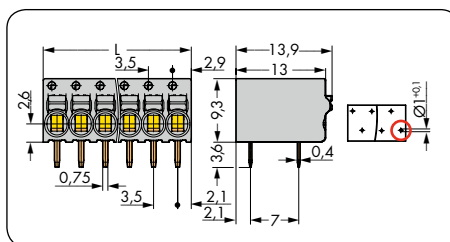
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Operating tools	526 - 528
Test pin	538

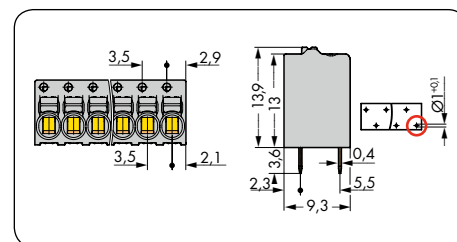
With angled, in-line solder pins Pin spacing 3.5 mm / 0.138 in		With angled, staggered solder pins Pin spacing 3.5 mm / 0.138 in		With straight, staggered solder pins Pin spacing 3.5 mm / 0.138 in	
0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16
160 V/2.5 kV/2 17.5 A	300 V/10 A	320 V/4 kV/2 17.5 A	300 V/10 A	320 V/4 kV/2 17.5 A	300 V/10 A



$L = (\text{pole no.} \times \text{pin spacing}) + 0.7 \text{ mm}$



○ first solder pin, right front side



○ first solder pin, right front side

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons, with angled, in-line solder pins, gray			Terminal strip with push-buttons, with angled, staggered solder pins, gray			Terminal strip with push-buttons, with straight, staggered solder pins, gray		
2	2081-1202		2	2081-1222		2	2081-1122	
3	2081-1203		3	2081-1223		3	2081-1123	
4	2081-1204		4	2081-1224		4	2081-1124	
5	2081-1205		5	2081-1225		5	2081-1125	
6	2081-1206		6	2081-1226		6	2081-1126	
8	2081-1208		8	2081-1228		8	2081-1128	
12	2081-1212		12	2081-1232		12	2081-1132	



Testing with \varnothing 1 mm test pin.

PCB Terminal Strips with Push-Buttons, THR (Through-Hole Reflow*)

Pin Spacing 3.5 mm

2081 Series



- Integration of high-temperature resistant THR terminal strips into SMT reflow soldering processes
- Tape-and-reel packaging for automated assembly available upon request
- Simple, push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Versions available with staggered solder pins for higher voltages

Technical data:

Pin Spacing	Solder pins in line 3.5 mm / 0.138 in			Solder pins staggered 3.5 mm / 0.138 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	250 V	320 V	630 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	4 kV	4 kV	4 kV
Nominal current	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A
Approvals per	UL/CSA**			UL/CSA**		
Use group UL 1059	B	C	D	B	C	D
Rated voltage						
Nominal current UL						
Nominal current CSA						

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.75 mm ² (with insulated ferrule)
Conductor size: fine-stranded	1.0 mm ² (with uninsulated ferrule)
AWG	24 - 16
Strip length	8 - 9 mm
Conductor entry angle	90° to PCB
Solder pin: length/width	2.4 mm / 0.4 x 0.75 mm
Solder pin: drilled hole diameter	1.0 ^{+0.1} mm

Material data:

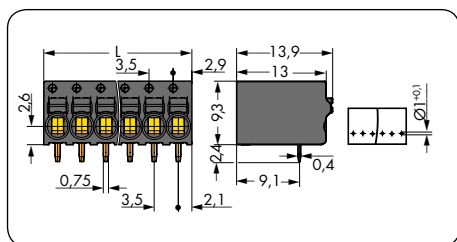
Material group	I
Insulating material	Glass fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

2081 Series accessories:

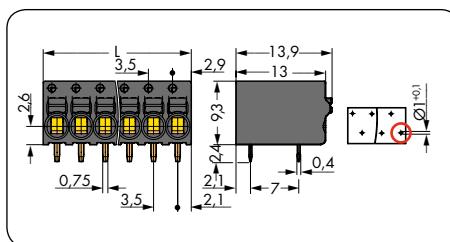
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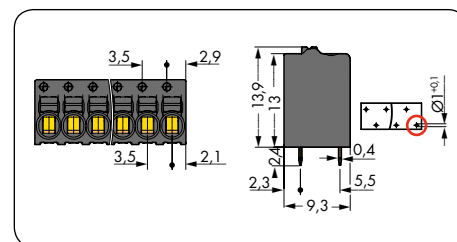
With angled, in-line solder pins Pin spacing 3.5 mm / 0.138 in		With angled, staggered solder pins Pin spacing 3.5 mm / 0.138 in		With straight, staggered solder pins Pin spacing 3.5 mm / 0.138 in	
0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16
160 V/2.5 kV/2	17.5 A	320 V/4 kV/2	17.5 A	320 V/4 kV/2	17.5 A



$L = (\text{pole no.} \times \text{pin spacing}) + 0.7 \text{ mm}$



○ first solder pin, right front side



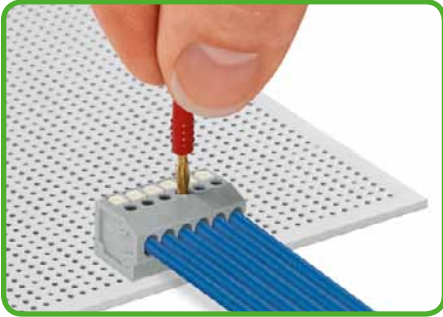
○ first solder pin, right front side

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons, with angled, in-line solder pins, black			Terminal strip with push-buttons, with angled, staggered solder pins, black			Terminal strip with push-buttons, with straight, staggered solder pins, black		
2	2081-1202/200-604		2	2081-1222/200-604		2	2081-1122/200-604	
3	2081-1203/200-604		3	2081-1223/200-604		3	2081-1123/200-604	
4	2081-1204/200-604		4	2081-1224/200-604		4	2081-1124/200-604	
5	2081-1205/200-604		5	2081-1225/200-604		5	2081-1125/200-604	
6	2081-1206/200-604		6	2081-1226/200-604		6	2081-1126/200-604	
8	2081-1208/200-604		8	2081-1228/200-604		8	2081-1128/200-604	
12	2081-1212/200-604		12	2081-1232/200-604		12	2081-1132/200-604	



Testing with Ø 1 mm test pin.

Description and Handling 804 and 805 Series



Testing with \varnothing 2 mm test plug, tip contact with current bar.



Inserting solid conductors by simply pushing them in. Inserting and removing fine-stranded conductors via push-buttons.



Mixed-color terminal strips available upon request.



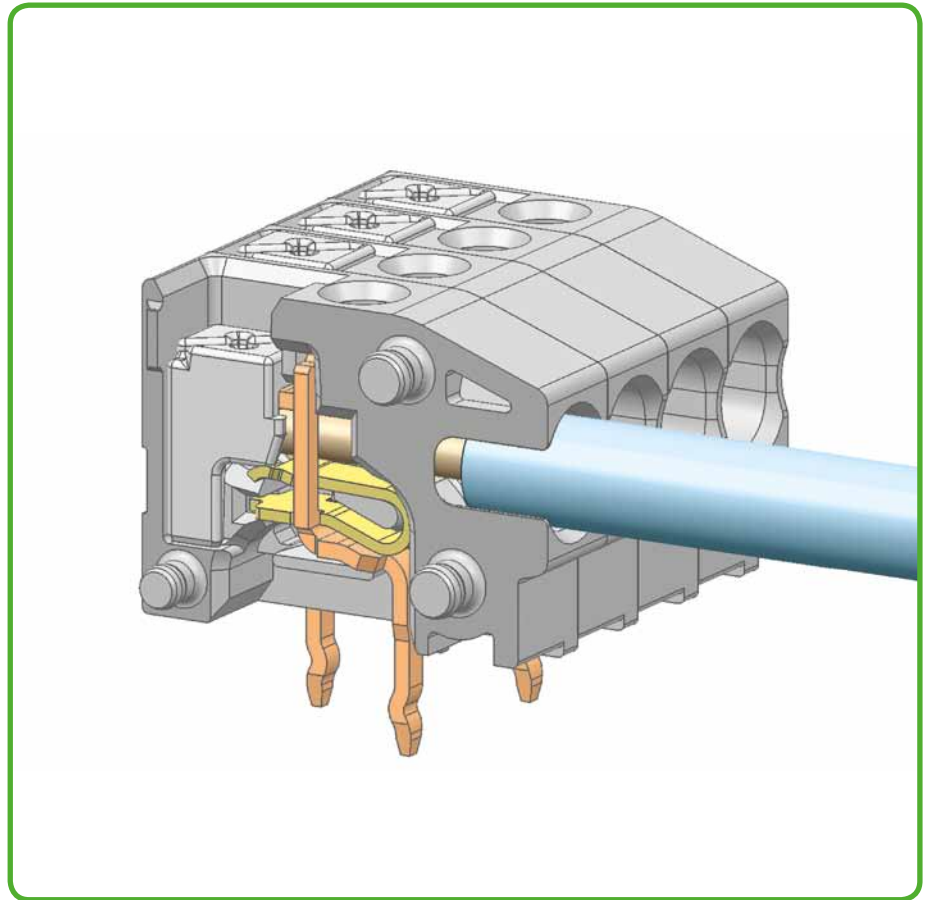
Terminal strips with spacers and enlarged conductor entry (5 mm pin spacing) upon request.

Internal commoning



The 805 Series terminal strips provide "internal commoning" to meet requirements for not routing the ground (earth) conductor over the board. This enables custom terminal strips to be commoned and marked at the factory upon request.

805 Series



CAGE CLAMP®S clamps the following copper conductors:*

solid

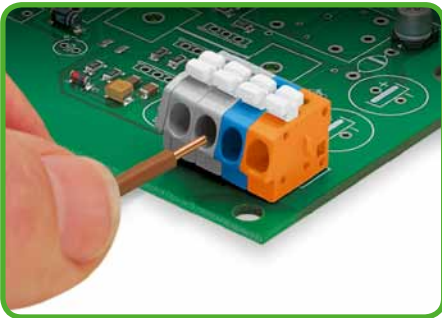


stranded

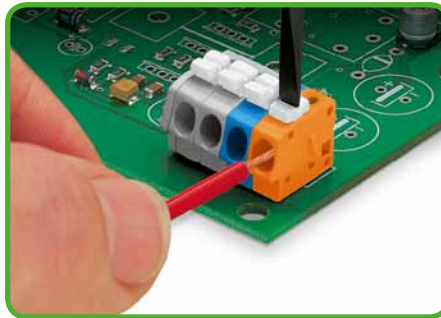


fine-stranded, also with tinned single strands

* For aluminum conductors, see notes in Section 11.

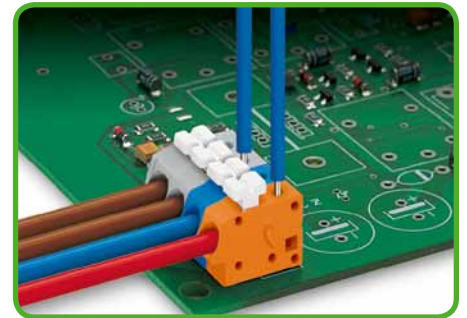


Inserting solid conductor: Simply push in conductor until it hits backstop.



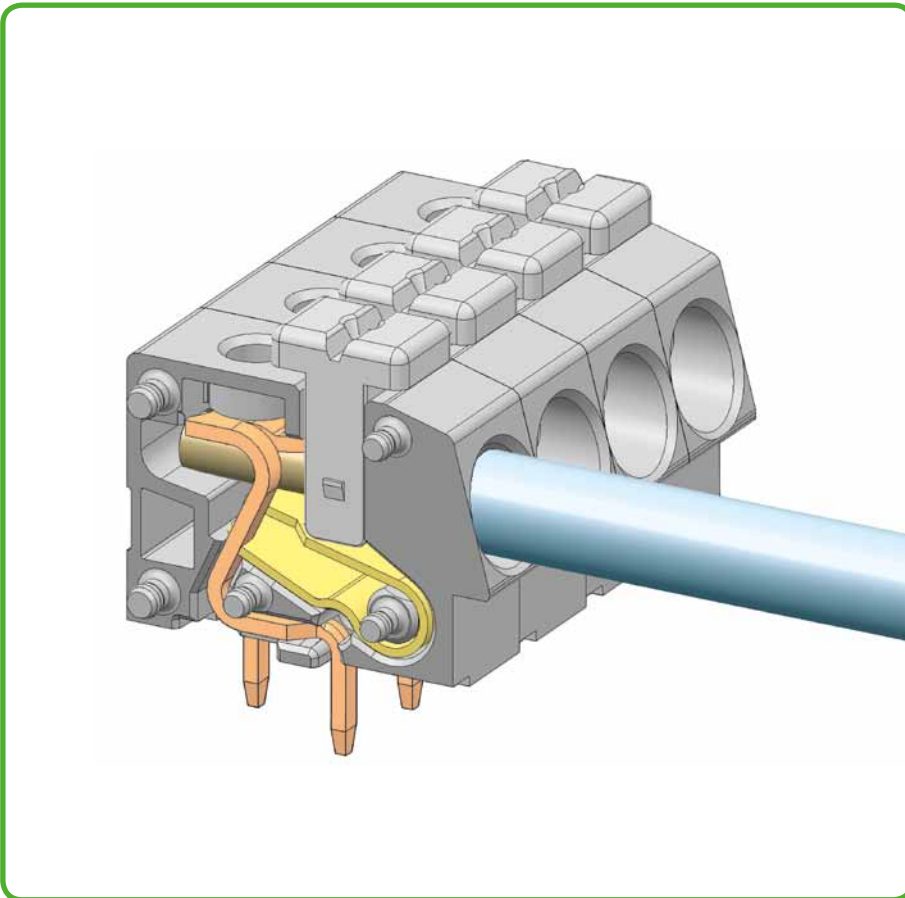
Inserting/removing fine-stranded conductor: Open clamping unit via push-button and insert stripped conductor until it hits backstop.

Testing



Testing with Ø 1 mm test pin, tip contact with current bar.

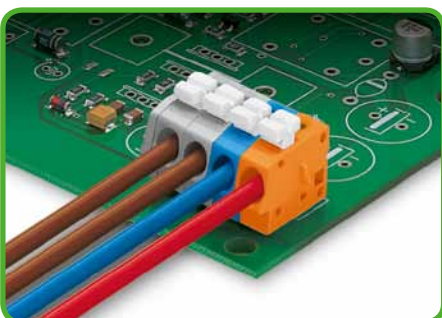
804 Series



The 804 Series terminal strips provide "internal comming" to meet requirements for not routing the ground (earth) conductor over the board. This enables custom terminal strips to be commoned and marked at the factory upon request.

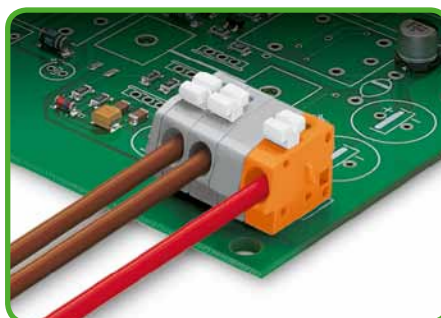


Colors



Mixed-color terminal strips available upon request.

Spacers



Terminal strips with spacers upon request.

Marking



Marking via self-adhesive marker trips or factory direct printing.



fine-stranded, tip-bonded



fine-stranded with crimped ferrules (gas-tight)



fine-stranded with crimped pin terminal (gas-tight)

PCB Terminal Strips with Push-Buttons 1.5 mm² Pin Spacing 3.5 mm 805 Series



- Terminal strips with push-button actuated CAGE CLAMP®S
- Push-in termination of solid and ferruled, fine-stranded conductors
- Push-buttons that close flush with minimal force for convenient termination/removal of fine-stranded conductors
- Convenient, tool-free operation
- Versions with/without test slots and spacers
- Versions available with custom internal commoning (factory assembly), e.g., commoning ground conductor

Technical data:

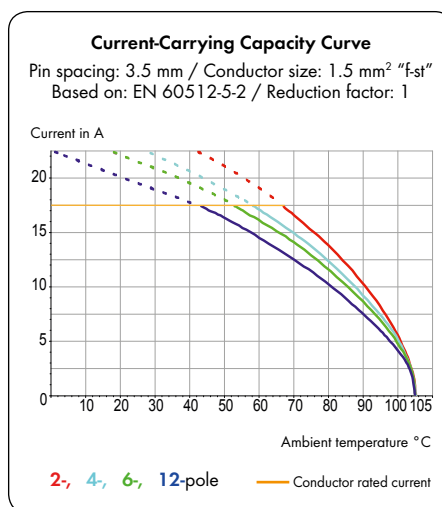
Pin Spacing	3.5 mm 0.138 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	17.5 A	17.5 A	17.5 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	150 V	300 V
Nominal current UL	10 A	10 A	10 A
Nominal current CSA	-	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.2 - 1.5 mm ²
Conductor size: fine-stranded	0.25 - 1 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1 mm ² (with uninsulated ferrule)
AWG	24 - 16
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.2 mm / 0.5 x 0.75 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

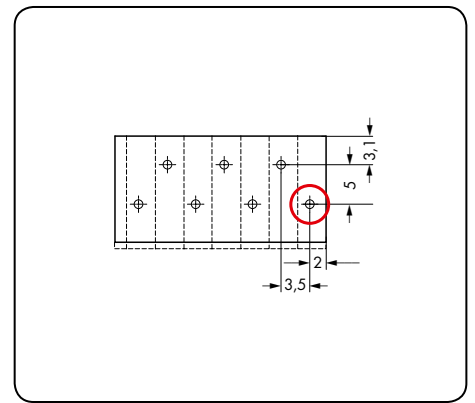
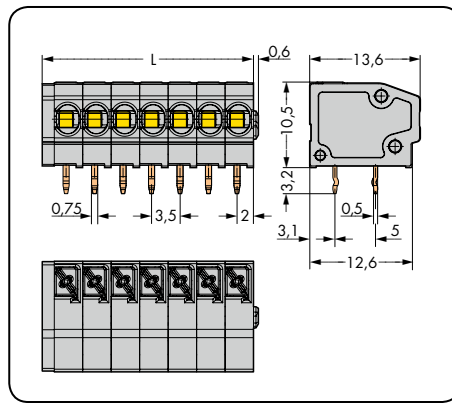
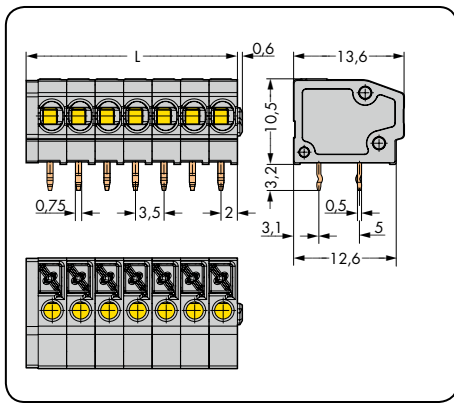


805 Series accessories:

Page:

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Operating tools	526 - 528
Test plugs	538

With test slots Pin spacing 3.5 mm / 0.138 in		Pin spacing 3.5 mm / 0.138 in	
0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16
320 V/4 kV/2 17.5 A	300 V/10 A	320 V/4 kV/2 17.5 A	300 V/10 A



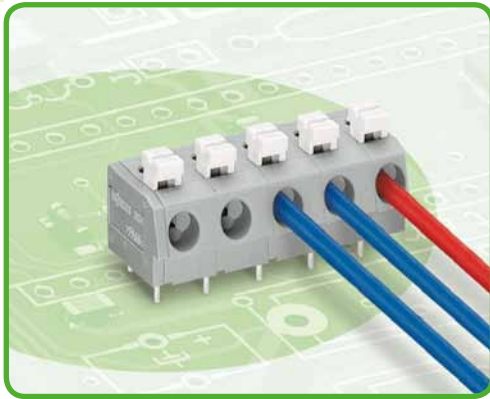
L = (pole no. x pin spacing) + 1.5 mm
 ○ first solder pin, right front side

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons and test slots for Ø 2 mm test plug, gray			Terminal strip with push-buttons, gray		
2	805-102	600 (4 x 150)	2	805-302	600 (4 x 150)
3	805-103	420 (4 x 105)	3	805-303	420 (4 x 105)
4	805-104	320 (4 x 80)	4	805-304	300 (4 x 75)
5	805-105	260 (4 x 65)	5	805-305	260 (4 x 65)
6	805-106	220 (4 x 55)	6	805-306	220 (4 x 55)
7	805-107	180 (4 x 45)	7	805-307	180 (4 x 45)
8	805-108	160 (4 x 40)	8	805-308	160 (4 x 40)
9	805-109	140 (4 x 35)	9	805-309	140 (4 x 35)
10	805-110	120 (4 x 30)	10	805-310	120 (4 x 30)
11	805-111	100 (4 x 25)	11	805-311	100 (4 x 25)
12	805-112	100 (4 x 25)	12	805-312	100 (4 x 25)
13	805-113	100 (4 x 25)	13	805-313	100 (4 x 25)
14	805-114	100 (4 x 25)	14	805-314	100 (4 x 25)
15	805-115	80 (4 x 20)	15	805-315	80 (4 x 20)
16	805-116	80 (4 x 20)	16	805-316	80 (4 x 20)
17	805-117	80 (4 x 20)	17	805-317	80 (4 x 20)
18	805-118	60 (4 x 15)	18	805-318	60 (4 x 15)
19	805-119	60 (4 x 15)	19	805-319	60 (4 x 15)
20	805-120	60 (4 x 15)	20	805-320	60 (4 x 15)
21	805-121	60 (4 x 15)	21	805-321	60 (4 x 15)
22	805-122	60 (4 x 15)	22	805-322	60 (4 x 15)
23	805-123	60 (4 x 15)	23	805-323	60 (4 x 15)
24	805-124	40 (4 x 10)	24	805-324	40 (4 x 10)

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● blue	.../000-006	Ordering example:
● orange	.../000-012	Terminal strip, 3.5 mm pin spacing, 6-pole, blue: 805-106/000-006

PCB Terminal Strips with Push-Buttons 2.5 mm² Pin Spacing 5 mm, 7.5 mm 804 Series



- Terminal strips with push-button actuated CAGE CLAMP®S
- Push-in termination of solid and ferruled, fine-stranded conductors
- A large conductor entry accommodates conductors with a cross section up to AWG 12 with an insulation diameter up to 4.2 mm
- Terminal strips with spacers to increase pin spacing
- Versions available with custom internal commoning (factory assembly), e.g., commoning ground conductor

Technical data:

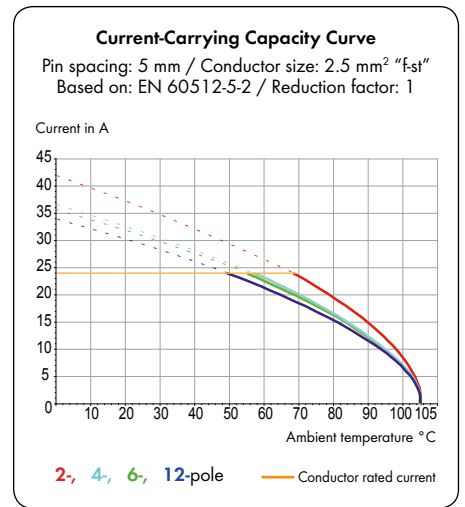
Pin Spacing	5 mm 0.197 in			7.5 mm 0.295 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.25 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	22 - 12
Strip length	10 - 11 mm / 0.39 - 0.43 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.8 x 0.6 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

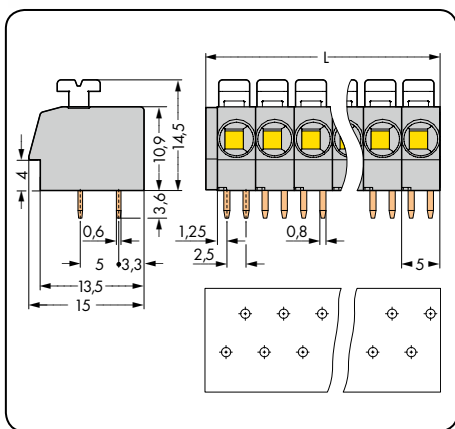
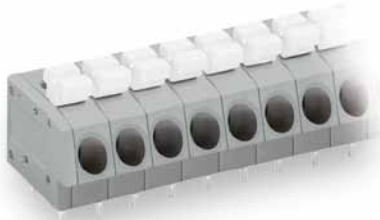


804 Series accessories:

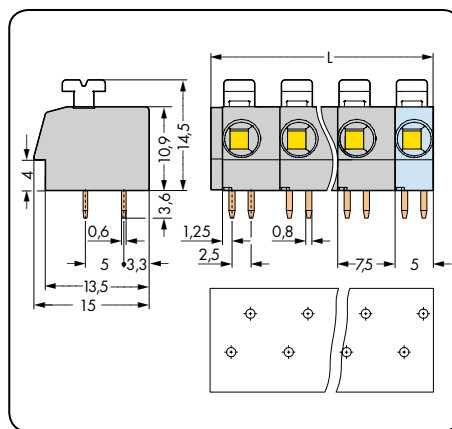
Page:

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Pin spacing 5 mm / 0.197 in		Pin spacing 7.5 mm / 0.295 in	
0.25 - 2.5 mm ²	AWG 22 - 12	0.25 - 2.5 mm ²	AWG 22 - 12
320 V/4 kV/2 24 A	300 V/10 A	320 V/4 kV/2 24 A	300 V/10 A



$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$



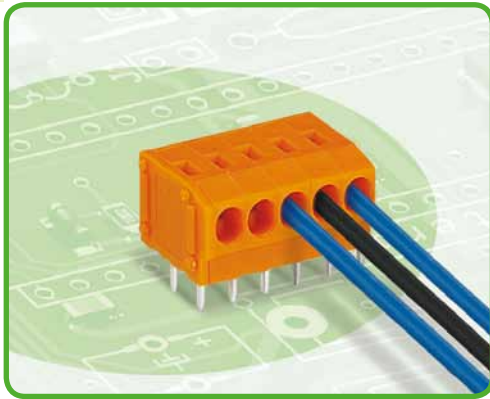
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip with push-buttons			Terminal strip with push-buttons		
2 solder pins/pole, staggered, gray			2 solder pins/pole, staggered, gray		
2	804-102	420 (4 x 105)	2	804-302	340 (4 x 85)
3	804-103	300 (4 x 75)	3	804-303	220 (4 x 55)
4	804-104	220 (4 x 55)	4	804-304	160 (4 x 40)
5	804-105	180 (4 x 45)	5	804-305	120 (4 x 30)
6	804-106	140 (4 x 35)	6	804-306	100 (4 x 25)
7	804-107	120 (4 x 30)	7	804-307	80 (4 x 20)
8	804-108	100 (4 x 25)	8	804-308	80 (4 x 20)
9	804-109	100 (4 x 25)	9	804-309	60 (4 x 15)
10	804-110	80 (4 x 20)	10	804-310	60 (4 x 15)
11	804-111	80 (4 x 20)	11	804-311	60 (4 x 15)
12	804-112	80 (4 x 20)	12	804-312	40 (4 x 10)
13	804-113	60 (4 x 15)			
14	804-114	60 (4 x 15)			
15	804-115	60 (4 x 15)			
16	804-116	60 (4 x 15)			

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● red/000-005	Ordering example: Terminal strip, 5 mm pin spacing 8-pole, orange: 804-108/000-012
● blue	...../000-006
● orange	...../000-012
● light green	...../000-017
● pink	...../000-051
●	Suitable for Ex i applications	

Modular PCB Terminal Blocks and Strips 1.5 mm² Pin Spacing 3.81 mm 235 Series



- Low-profile terminal strips with screwdriver-actuated PUSH WIRE® termination
- Push-in termination of solid conductors
- Double solder pins for high mechanical stability
- Conductor removal via screwdriver (2.5 mm x 0.4 mm)
- For 235 Series with push-buttons, see page 133

Technical data:

Pin Spacing	3.81 mm 0.15 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	200 V	320 V	500 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	17.5 A	17.5 A	17.5 A
Approvals per	UL/CSA		
Use group UL1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	-

Conductor and solder pin data:

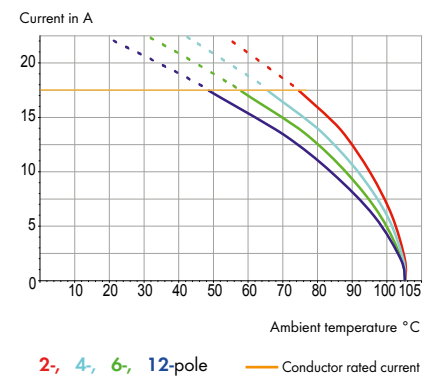
Connection technology	PUSH WIRE®
Conductor size: solid	0.5 - 1.5 mm ²
Conductor size: fine-stranded	0.25 - 0.75 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 0.75 mm ² (with uninsulated ferrule)
AWG	20 - 16 "sol."
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.8 x 0.4 mm
Solder pin: drilled hole diameter	1.0 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Current-Carrying Capacity Curve

Pin spacing: 3.81 mm / Conductor size: 1.5 mm² "sol."
Based on: EN 60512-5-2 / Reduction factor: 1

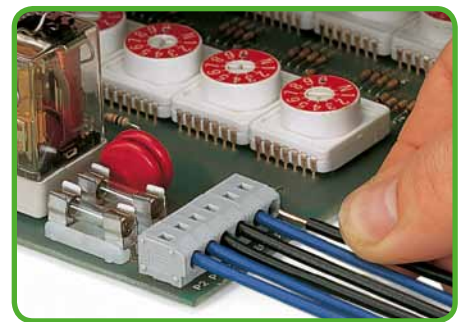
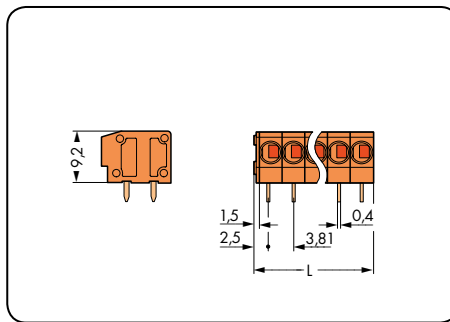
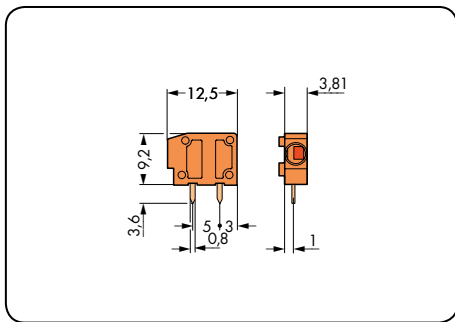


235 Series accessories:

Page:

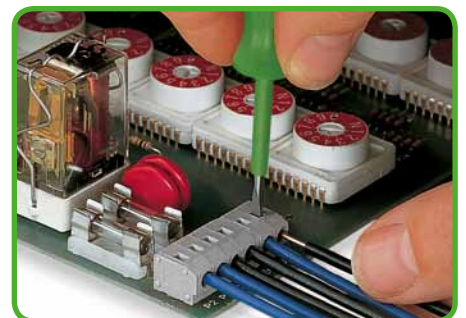
Marking accessories	540 - 543
Operating tools	526 - 528

Pin spacing 3.81 mm / 0.15 in		Pin spacing 3.81 mm / 0.15 in		Handling
0.5 – 1.5 mm ² "sol."	AWG 20 – 16 "sol."	0.5 – 1.5 mm ² "sol."	AWG 20 – 16 "sol."	
320 V/4 kV/2 17.5 A	300 V/10 A	320 V/4 kV/2 17.5 A	300 V/10 A	





Push-in termination of solid conductors.

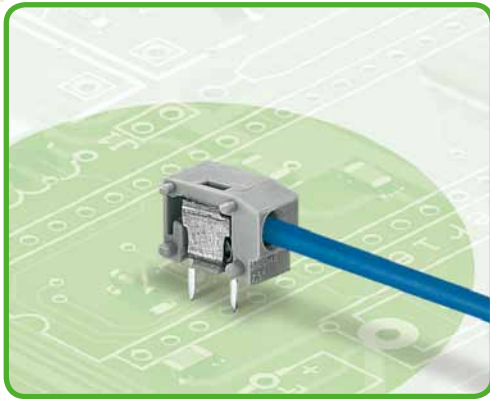
Color	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Modular terminal block, 2 solder pins/pole, orange			Terminal strip, 2 solder pins/pole, orange		
orange	235-101/330-000	800 (8 x 100)	2	235-102/330-000	520 (4 x 130)
			3	235-103/330-000	360 (4 x 90)
			4	235-104/330-000	280 (4 x 70)
			5	235-105/330-000	220 (4 x 55)
			6	235-106/330-000	180 (4 x 45)
			7	235-107/330-000	160 (4 x 40)
			8	235-108/330-000	140 (4 x 35)
			9	235-109/330-000	120 (4 x 30)
			10	235-110/330-000	120 (4 x 30)
			12	235-112/330-000	100 (4 x 25)
			16	235-116/330-000	60 (4 x 15)
			24	235-124/330-000	40 (4 x 10)
			36	235-136/330-000	20 (4 x 5)
			48	235-148/330-000	20 (4 x 5)



Conductor removal via 2.5 mm x 0.4 mm screwdriver.

Product Accessories	Item No.	Pack. Unit
Spacer for doubling the pin spacing, orange		
	235-316	100
End plate , snap-on type, 1 mm thick, orange		
	235-600	100

Modular PCB Terminal Blocks 2.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series



- Low-profile modular terminal blocks with screwdriver-actuated PUSH WIRE® termination for custom terminal strip assemblies
- Push-in termination of solid conductors
- Double solder pins for high mechanical stability
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Versions with test slots can be found at www.wago.com
- For 235 Series with push-buttons, see page 137

Technical data:

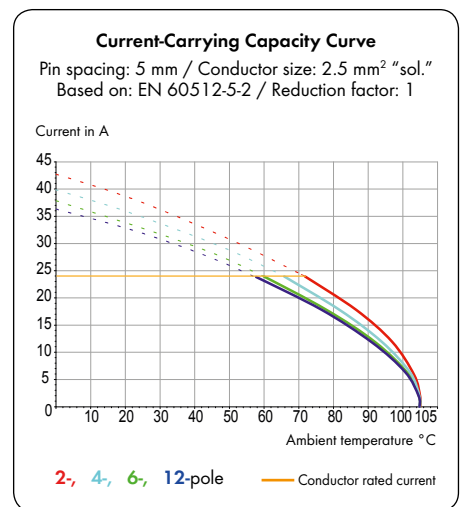
Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	15 A	-	-	15 A	-	-	15 A	-	-

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	0.5 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	20 - 14 "sol."
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.8 x 0.4 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated



235 Series accessories:

Page:

Marking accessories	540 - 543
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Modular PCB Terminal Blocks 2.5 mm²

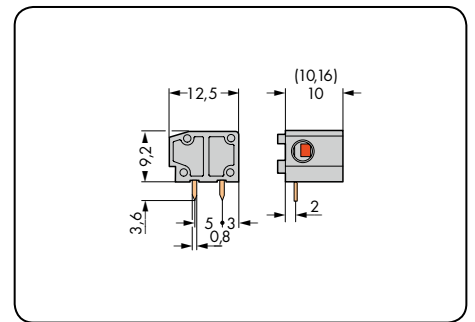
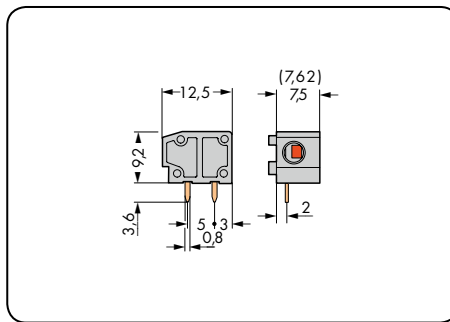
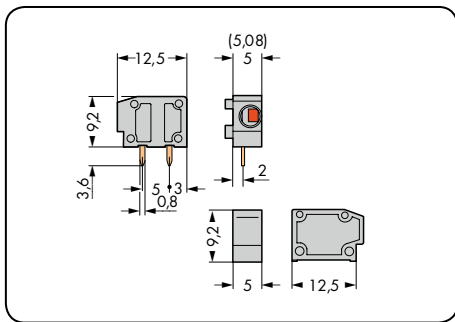
PUSH WIRE®

1


153


1

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.5 – 2.5 mm ² "sol."	AWG 20 – 14 "sol."	0.5 – 2.5 mm ² "sol."	AWG 20 – 14 "sol."	0.5 – 2.5 mm ² "sol."	AWG 20 – 14 "sol."
320 V/4 kV/2 24 A	300 V/10 A	630 V/6 kV/2 24 A	300 V/10 A	1000 V/8 kV/2 24 A	300 V/10 A



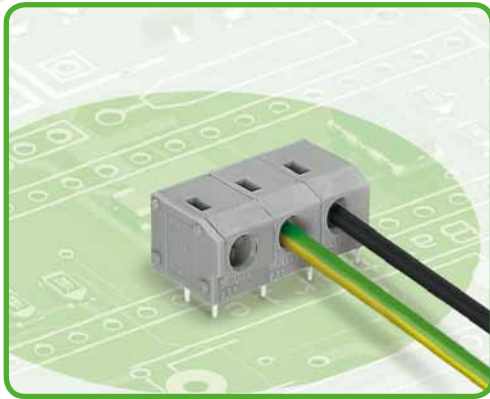
Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Modular terminal block, 2 solder pins/pole			Modular terminal block, 2 solder pins/pole			Modular terminal block, 2 solder pins/pole		
gray	235-401	800 (8 x 100)	gray	235-501	600 (6 x 100)	gray	235-801	400 (4 x 100)
dark gray	235-742	800 (8 x 100)	dark gray	235-752	600 (6 x 100)	dark gray	235-762	400 (4 x 100)
light gray	235-743	800 (8 x 100)	light gray	235-753	600 (6 x 100)	light gray	235-763	400 (4 x 100)
blue	235-744	800 (8 x 100)	blue	235-754	600 (6 x 100)	blue	235-764	400 (4 x 100)
orange	235-746	800 (8 x 100)	orange	235-756	600 (6 x 100)	orange	235-766	400 (4 x 100)
light green	235-747	800 (8 x 100)	light green	235-757	600 (6 x 100)	light green	235-767	400 (4 x 100)
			① Suitable for Ex i applications			① Suitable for Ex i applications		

Product Accessories	Item No.	Pack. Unit
Spacer for modular terminal blocks for doubling the pin spacing, gray		
	235-701	100

End plates for modular terminal blocks, 235 Series, snap-on type, 1 mm/0.039 in thick	Color	Item No.	Pack. Unit
	gray	235-100	100
	dark gray	235-200	100
	light gray	235-300	100
	blue	235-400	100
	black	235-500	100
	yellow	235-550	100
	orange	235-600	100
	violet	235-650	100
	light green	235-700	100
	red	235-800	100
	white	235-850	100

For other colors, please contact factory.

PCB Terminal Strips 2.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series



- Low-profile terminal strips with screwdriver-actuated PUSH WIRE® termination
- Push-in termination of solid conductors
- Double solder pins for high mechanical stability
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Versions with test slots can be found at www.wago.com
- For 235 Series with push-buttons, see page 139

Technical data:

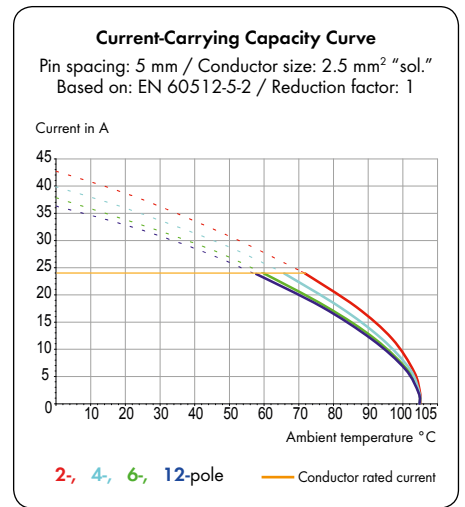
Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	15 A	-	-	15 A	-	-	15 A	-	-

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	0.5 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	20 - 14 "sol."
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.8 x 0.4 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

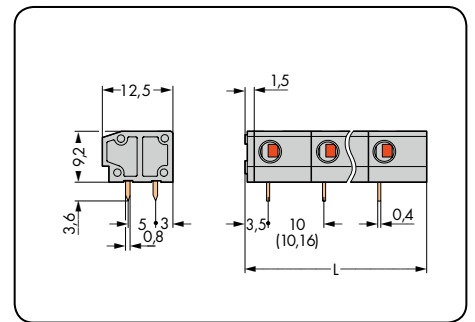
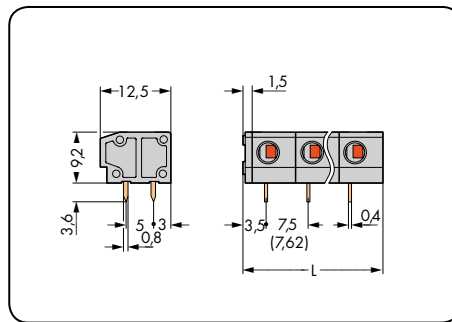
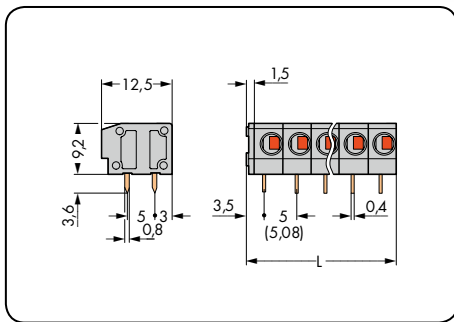
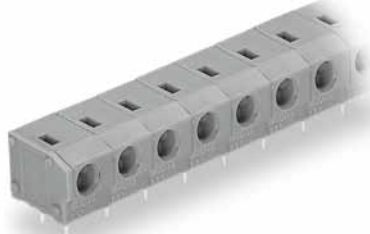
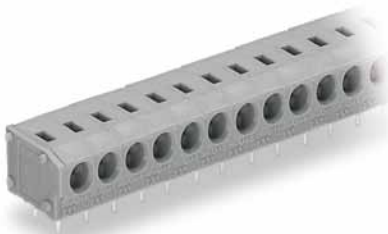


235 Series accessories:

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Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.5 – 2.5 mm ² "sol."	AWG 20 – 14 "sol."	0.5 – 2.5 mm ² "sol."	AWG 20 – 14 "sol."	0.5 – 2.5 mm ² "sol."	AWG 20 – 14 "sol."
320 V/4 kV/2 24 A	300 V/10 A	630 V/6 kV/2 24 A	300 V/10 A	1000 V/8 kV/2 24 A	300 V/10 A



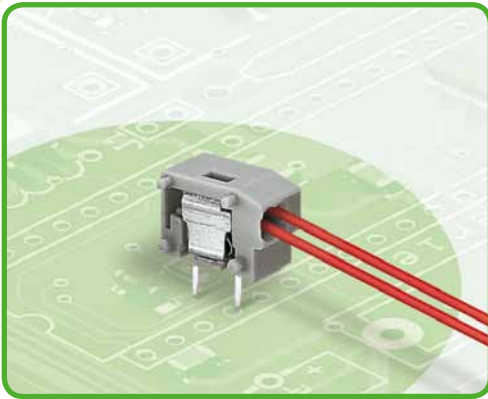
L = (pole no. x pin spacing) + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 2 solder pins/pole, gray			Terminal strip, 2 solder pins/pole, gray			Terminal strip, 2 solder pins/pole, gray		
2	235-402	420 (4 x 105)	2	235-502	280 (4 x 70)	2	235-802	220 (4 x 55)
3	235-403	280 (4 x 70)	3	235-503	200 (4 x 50)	3	235-803	140 (4 x 35)
4	235-404	220 (4 x 55)	4	235-504	140 (4 x 35)	4	235-804	120 (4 x 30)
5	235-405	180 (4 x 45)	5	235-505	120 (4 x 30)	5	235-805	80 (4 x 20)
6	235-406	140 (4 x 35)	6	235-506	100 (4 x 25)	6	235-806	80 (4 x 20)
7	235-407	120 (4 x 30)	7	235-507	80 (4 x 20)	7	235-807	60 (4 x 15)
8	235-408	100 (4 x 25)	8	235-508	60 (4 x 15)	8	235-808	40 (4 x 10)
9	235-409	100 (4 x 25)	9	235-509	60 (4 x 15)	9	235-809	40 (4 x 10)
10	235-410	80 (4 x 20)	10	235-510	60 (4 x 15)	10	235-810	40 (4 x 10)
12	235-412	60 (4 x 15)	12	235-512	40 (4 x 10)	12	235-812	40 (4 x 10)
16	235-416	60 (4 x 15)	16	235-516	40 (4 x 10)	16	235-816	20 (4 x 5)
24	235-424	40 (4 x 10)	24	235-524	20 (4 x 5)	24	235-824	20 (4 x 5)
36	235-436	20 (4 x 5)						
48	235-448	20 (4 x 5)						

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

① blue	... /000-006	Ordering example: Terminal strip, 7.5/7.62 mm pin spacing 16-pole, blue: 235-516/000-006
● dark gray	... /000-008	
○ light gray	... /000-009	
● orange	... /000-012	
● light green	... /000-017	
① Suitable for Ex i applications (only for 7.5/7.62 mm and 10/10.16 mm pin spacing)		

2-Conductor Modular PCB Terminal Blocks 0.75 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series



- Low-profile modular terminal blocks with screwdriver-actuated PUSH WIRE® termination for custom terminal strip assemblies
- Double-conductor connection for supply and signal distribution – ideal for solid, standard signal lines – suitable for push-in termination
- Double solder pins for high mechanical stability
- Combines with all 235 Series modular terminal blocks
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- For 235 Series with push-buttons, see page 179

Technical data:

Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	-	10 A	-	-	10 A	-	-

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	2 x 0.25 - 0.75 mm ²
Conductor size: fine-stranded	2 x 0.25 - 0.34 mm ² (with uninsulated ferrule)
AWG	24 - 18 "sol."
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.8 x 0.4 mm
Solder pin: drilled hole diameter	1 ^{±0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

235 Series accessories:

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2-Conductor Modular PCB Terminal Blocks 0.75 mm²

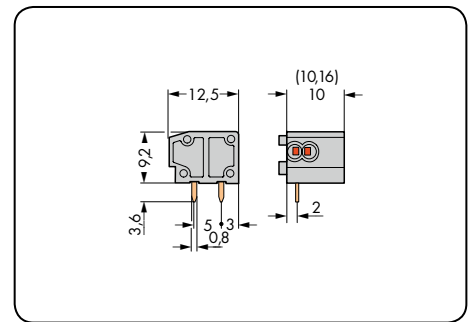
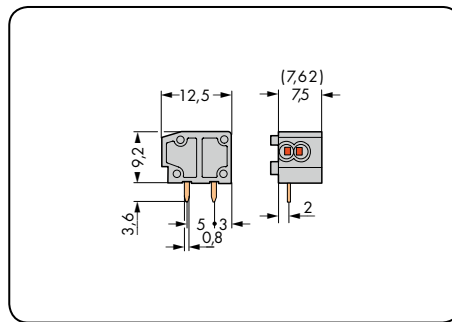
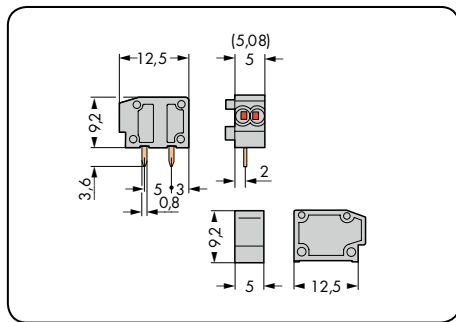
PUSH WIRE®

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Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
2 x 0.25 - 0.75 mm ² "sol."	2 x AWG 24 - 18 "sol."	2 x 0.25 - 0.75 mm ² "sol."	2 x AWG 24 - 18 "sol."	2 x 0.25 - 0.75 mm ² "sol."	2 x AWG 24 - 18 "sol."
320 V/4 kV/2 10 A	300 V/10 A	630 V/6 kV/2 10 A	300 V/10 A	1000 V/8 kV/2 10 A	300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
2-conductor modular terminal block, 2 solder pins/pole			2-conductor modular terminal block, 2 solder pins/pole			2-conductor modular terminal block, 2 solder pins/pole		
gray	235-711	800 (8 x 100)	gray	235-551	600 (6 x 100)	gray	235-851	400 (4 x 100)
dark gray	235-712	800 (8 x 100)	dark gray	235-722	600 (6 x 100)	dark gray	235-732	400 (4 x 100)
light gray	235-713	800 (8 x 100)	light gray	235-723	600 (6 x 100)	light gray	235-733	400 (4 x 100)
blue	235-714	800 (8 x 100)	blue	235-724	600 (6 x 100)	blue	235-734	400 (4 x 100)
orange	235-716	800 (8 x 100)	orange	235-726	600 (6 x 100)	orange	235-736	400 (4 x 100)
light green	235-717	800 (8 x 100)	light green	235-727	600 (6 x 100)	light green	235-737	400 (4 x 100)
			① Suitable for Ex i applications			① Suitable for Ex i applications		

Product Accessories	Item No.	Pack. Unit
Spacer for doubling the pin spacing, gray		
	235-701	100

End plates for 235 Series, snap-on type, 1 mm/0.039 in thick	Color	Item No.	Pack. Unit
	gray	235-100	100
	dark gray	235-200	100
	light gray	235-300	100
	blue	235-400	100
	orange	235-600	100
	light green	235-700	100

For other colors, please contact factory.

WAGO®

2-Conductor PCB Terminal Strips 0.75 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series



- Low-profile terminal strips with screwdriver-actuated PUSH WIRE® termination
- Double-conductor connection for supply and signal distribution – ideal for solid, standard signal lines – suitable for push-in termination
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Versions with test slots can be found at www.wago.com
- For 235 Series with push-buttons, see page 181

Technical data:

Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overvoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	-	10 A	-	-	10 A	-	-

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	2 x 0.25 - 0.75 mm ²
Conductor size: fine-stranded	2 x 0.25 - 0.34 mm ² (with uninsulated ferrule)
AWG	24 - 18 "sol."
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.8 x 0.4 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

235 Series accessories:

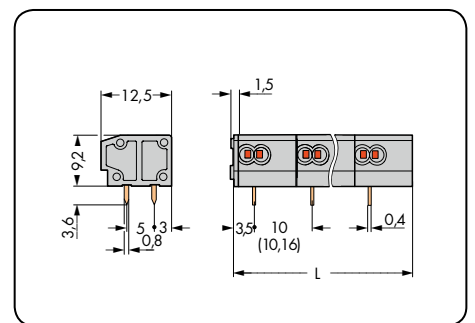
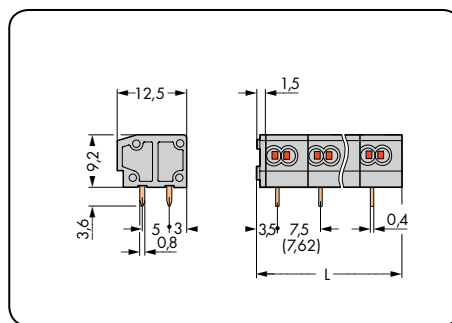
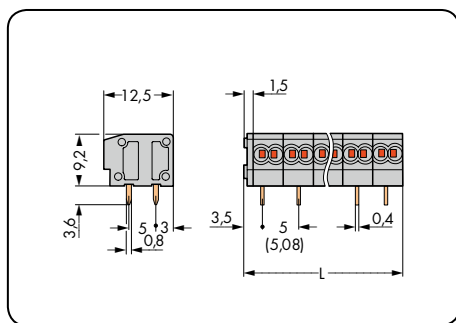
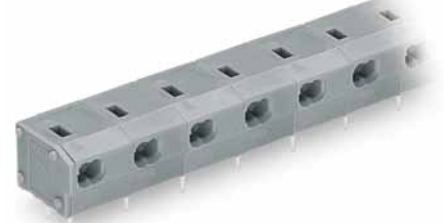
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Marking accessories	540 - 543
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2-Conductor PCB Terminal Strips 0.75 mm²

PUSH WIRE®

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
2 x 0.25 - 0.75 mm ² "sol."	2 x AWG 24 - 18 "sol."	2 x 0.25 - 0.75 mm ² "sol."	2 x AWG 24 - 18 "sol."	2 x 0.25 - 0.75 mm ² "sol."	2 x AWG 24 - 18 "sol."
320 V/4 kV/2 10 A	300 V/10 A	630 V/6 kV/2 10 A	300 V/10 A	1000 V/8 kV/2 10 A	300 V/10 A



L = (pole no. x pin spacing) + 1.5 mm

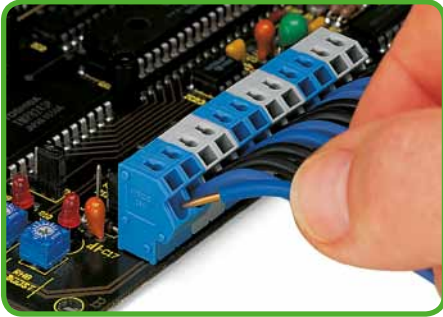
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor terminal strip, 2 solder pins/pole, gray			2-conductor terminal strip, 2 solder pins/pole, gray			2-conductor terminal strip, 2 solder pins/pole, gray		
2	235-452	420 (4 x 105)	2	235-552	280 (4 x 70)	2	235-852	220 (4 x 55)
3	235-453	280 (4 x 70)	3	235-553	200 (4 x 50)	3	235-853	140 (4 x 35)
4	235-454	220 (4 x 55)	4	235-554	140 (4 x 35)	4	235-854	120 (4 x 30)
5	235-455	180 (4 x 45)	5	235-555	120 (4 x 30)	5	235-855	80 (4 x 20)
6	235-456	140 (4 x 35)	6	235-556	100 (4 x 25)	6	235-856	80 (4 x 20)
7	235-457	120 (4 x 30)	7	235-557	80 (4 x 20)	7	235-857	60 (4 x 15)
8	235-458	100 (4 x 25)	8	235-558	60 (4 x 15)	8	235-858	40 (4 x 10)
9	235-459	100 (4 x 25)	9	235-559	60 (4 x 15)	9	235-859	40 (4 x 10)
10	235-460	80 (4 x 20)	10	235-560	60 (4 x 15)	10	235-860	40 (4 x 10)
12	235-462	60 (4 x 15)	12	235-562	40 (4 x 10)	12	235-862	40 (4 x 10)
16	235-466	60 (4 x 15)	16	235-566	40 (4 x 10)	16	235-866	20 (4 x 5)
24	235-474	40 (4 x 10)	24	235-574	20 (4 x 5)	24	235-874	20 (4 x 5)
36	235-486	20 (4 x 5)						
48	235-498	20 (4 x 5)						

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

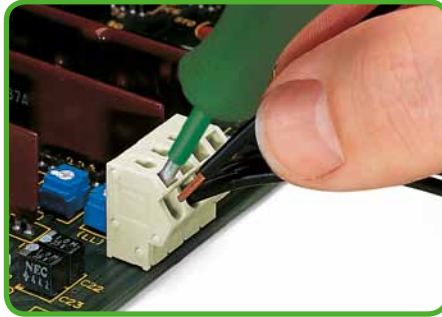
① blue	... /000-006	Ordering example: 2-conductor terminal strip, 7.5/7.62 mm pin spacing 16-pole, blue: 235-566/000-006
● dark gray	... /000-008	
○ light gray	... /000-009	
● orange	... /000-012	
● light green	... /000-017	
① Suitable for Ex i applications (only for 7.5/7.62 mm and 10/10.16 mm pin spacing)		

Description and Handling 254 Series

PUSH WIRE® connection

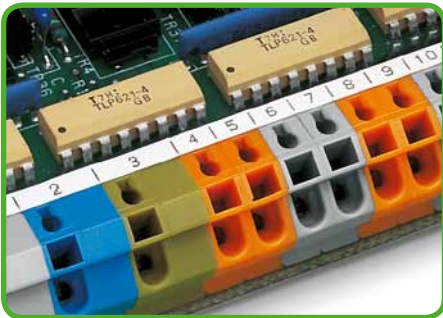


Inserting solid conductor via push-in termination.



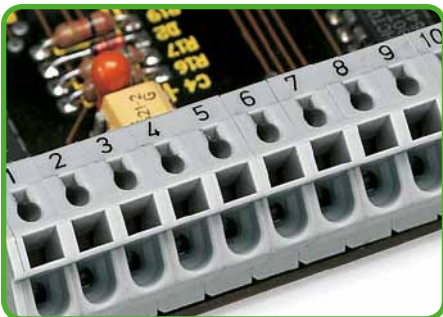
Inserting tip-bonded conductor via screwdriver.

Marking

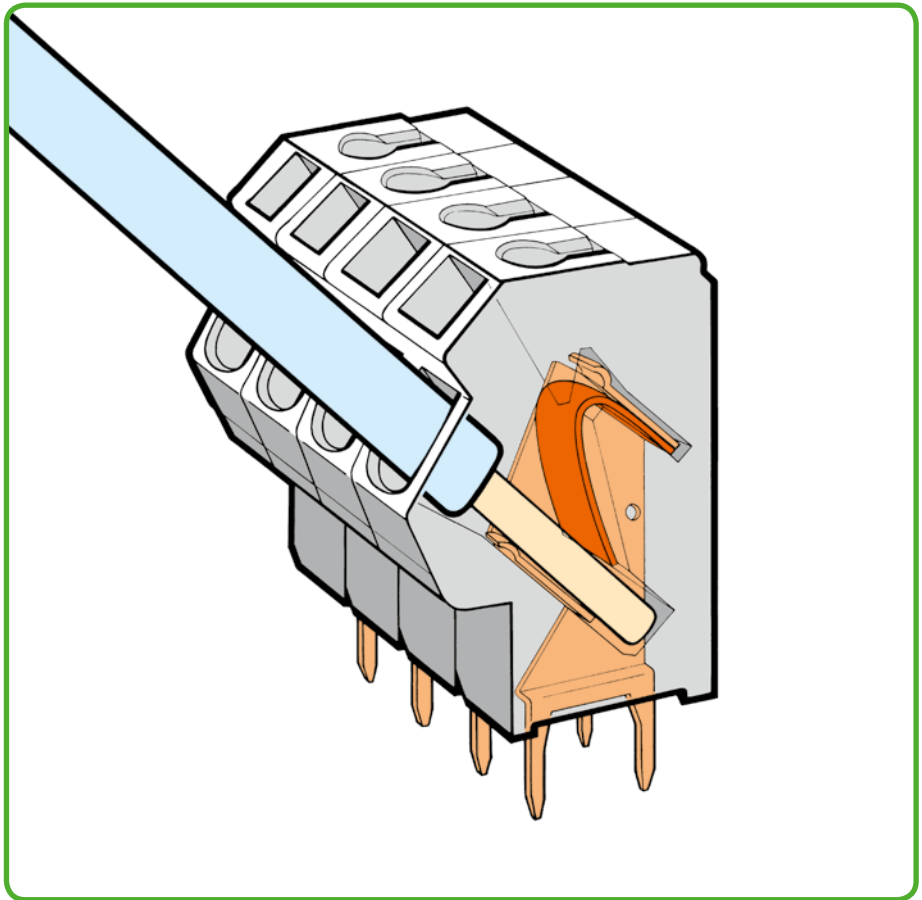


Marking via self-adhesive strips ...

Marking



... or factory direct printing.

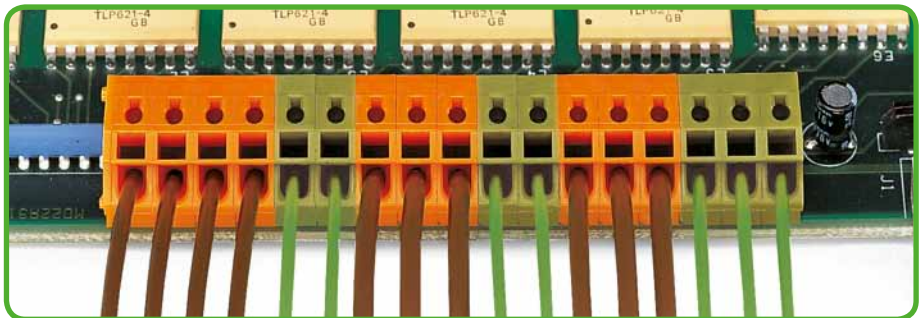


Application



Application example: Terminal strip for field connections.

Formation of mixed terminal strips



Formation of terminal strips with mixed-color housings.

PUSH WIRE® clamps the following copper conductors:*



solid



fine-stranded,
8 mm tip-bonded

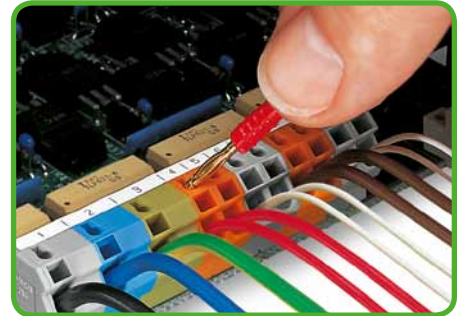
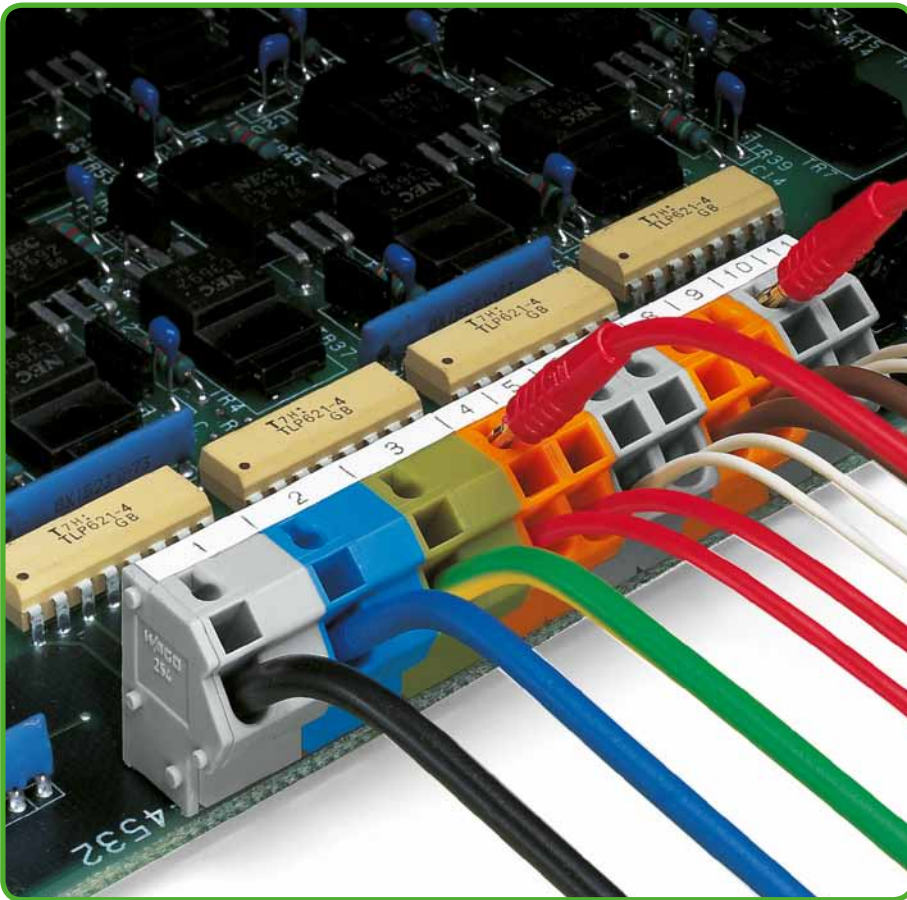
* For aluminum conductors, see notes in Section 11.



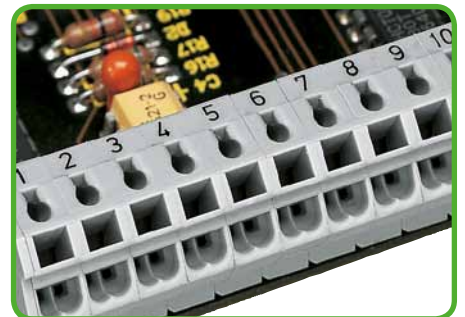
Removing conductor.



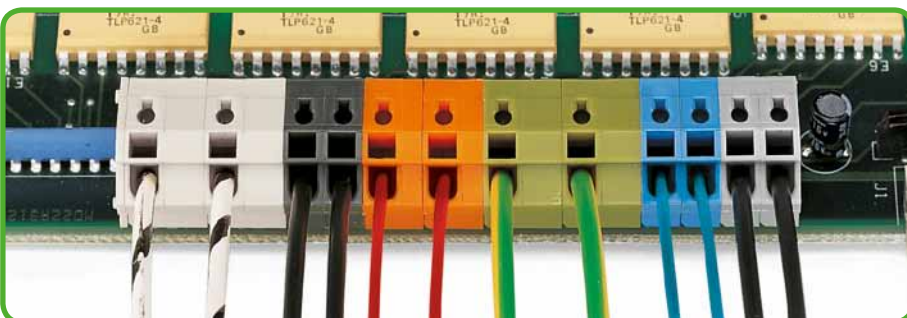
Inserting/removing ferruled conductor.



Testing with Ø 2 mm test plug.



Also available in 2-conductor versions - go to www.wago.com.



Formation of terminal strips with mixed-color housings and different pin spacings.



fine-stranded with crimped ferrule (gas-tight)



fine-stranded with crimped pin terminal (gas-tight)

Modular PCB Terminal Blocks 2.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 254 Series



- Modular terminal blocks with screwdriver-actuated PUSH WIRE® for custom terminal strip assemblies
- Push-in termination of solid and ferruled, fine-stranded conductors
- Test socket for Ø 2 mm test plug
- Saves space on the PCB, just 8.9 mm deep
- For 2-conductor versions, go to www.wago.com

Technical data:

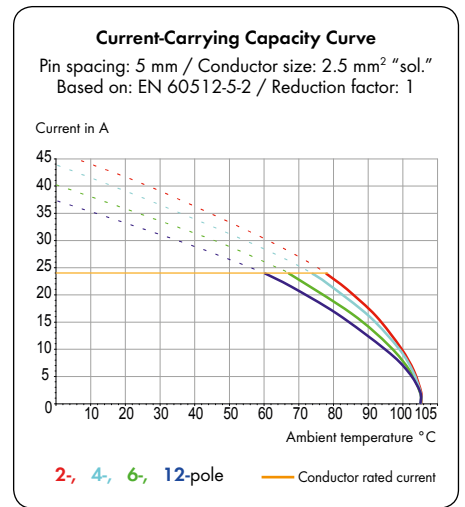
Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per									
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	500 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	0.5 - 2.5 mm ²
Conductor size: fine-stranded	0.5 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.5 - 1.5 mm ² (with uninsulated ferrule)
AWG	20 - 12 "sol." (12: THHN, THWN)
Strip length	10 - 12 mm / 0.39 - 0.47 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.5 x 0.75 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



254 Series accessories:

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Operating tools	526 - 528
Test plug	538

Modular PCB Terminal Blocks 2.5 mm²

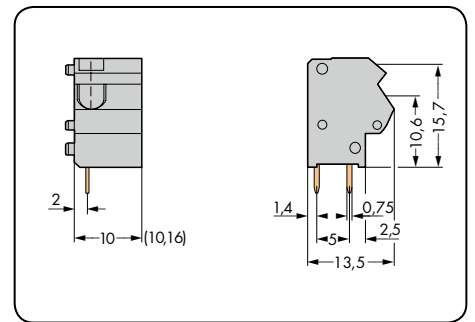
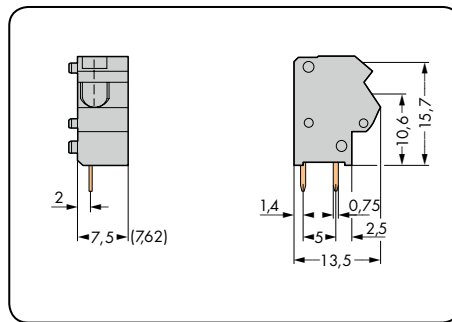
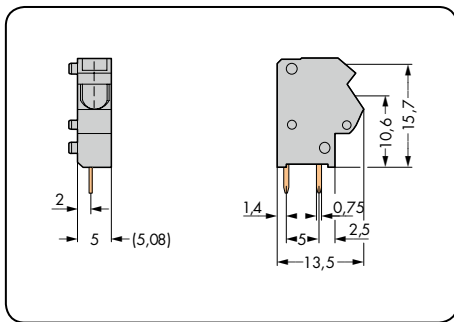
PUSH WIRE®

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Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.5 – 2.5 mm ² "sol."	AWG 20 – 12 "sol."	0.5 – 2.5 mm ² "sol."	AWG 20 – 12 "sol."	0.5 – 2.5 mm ² "sol."	AWG 20 – 12 "sol."
320 V/4 kV/2 24 A	300 V/10 A	630 V/6 kV/2 24 A	300 V/10 A	1000 V/8 kV/2 24 A	300 V/10 A



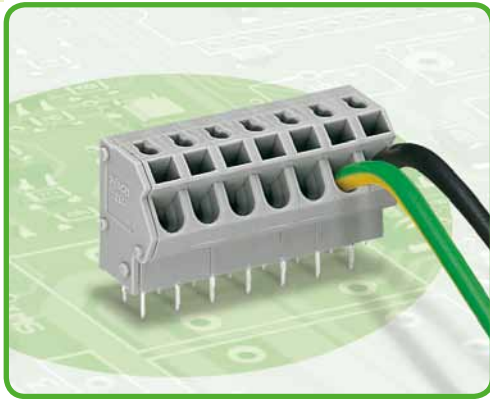
Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Modular terminal block, 2 solder pins/pole			Modular terminal block, 2 solder pins/pole			Modular terminal block, 2 solder pins/pole		
gray	254-451	500 (5 x 100)	gray	254-551	400 (4 x 100)	gray	254-651	300 (3 x 100)
dark gray	254-842	500 (5 x 100)	dark gray	254-852	400 (4 x 100)	dark gray	254-862	300 (3 x 100)
light gray	254-843	500 (5 x 100)	light gray	254-853	400 (4 x 100)	light gray	254-863	300 (3 x 100)
blue	254-844	500 (5 x 100)	blue	254-854	400 (4 x 100)	blue	254-864	300 (3 x 100)
orange	254-846	500 (5 x 100)	orange	254-856	400 (4 x 100)	orange	254-866	300 (3 x 100)
light green	254-847	500 (5 x 100)	light green	254-857	400 (4 x 100)	light green	254-867	300 (3 x 100)
			① Suitable for Ex i applications			① Suitable for Ex i applications		

End plates for 254 Series, snap-on type, 1 mm/0.039 in thick		Color	Item No.	Pack. Unit
		gray	254-100	100
		dark gray	254-200	100
		light gray	254-300	100
		blue	254-400	100
		orange	254-600	100
		light green	254-700	100

For other colors, please contact factory.

WAGO®

PCB Terminal Strips 2.5 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 254 Series



- Terminal strips with screwdriver-actuated PUSH WIRE® termination
- Push-in termination of solid and ferruled, fine-stranded conductors
- Test socket for Ø 2 mm test plug
- Saves space on the PCB, just 8.9 mm deep
- For 2-conductor versions, go to www.wago.com

Technical data:

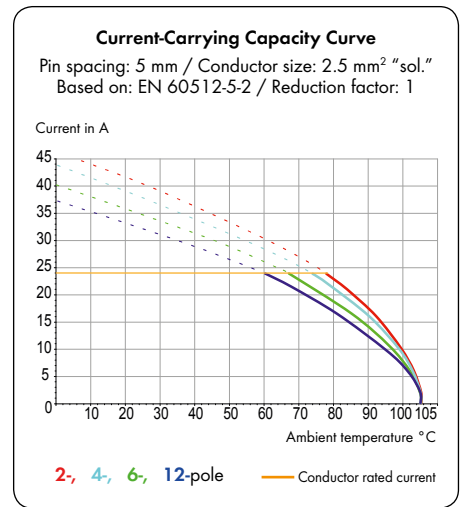
Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per									
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	500 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	0.5 - 2.5 mm ²
Conductor size: fine-stranded	0.5 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.5 - 1.5 mm ² (with uninsulated ferrule)
AWG	20 - 12 "sol." (12: THHN, THWN)
Strip length	10 - 12 mm / 0.39 - 0.47 in
Conductor entry angle	45° to PCB
Solder pin: length/width	4 mm / 0.5 x 0.75 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

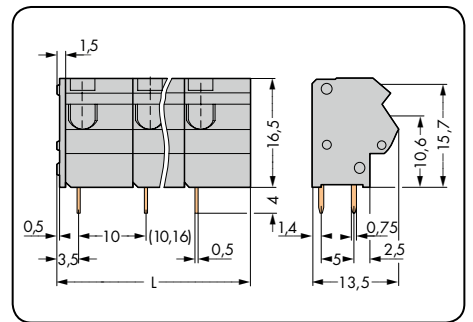
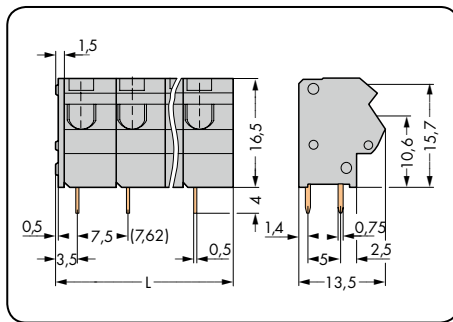
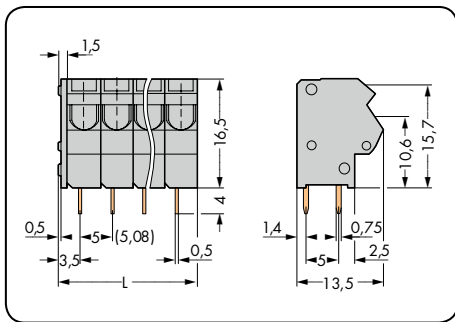
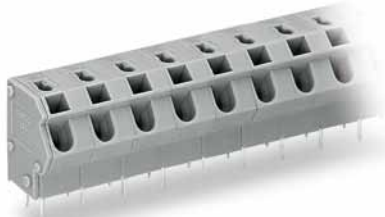


254 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Test plug	538

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
0.5 – 2.5 mm ² "sol."	AWG 20 – 12 "sol."	0.5 – 2.5 mm ² "sol."	AWG 20 – 12 "sol."	0.5 – 2.5 mm ² "sol."	AWG 20 – 12 "sol."
320 V/4 kV/2 24 A	300 V/10 A	630 V/6 kV/2 24 A	300 V/10 A	1000 V/8 kV/2 24 A	300 V/10 A



L = (pole no. x pin spacing) + 1.5 mm

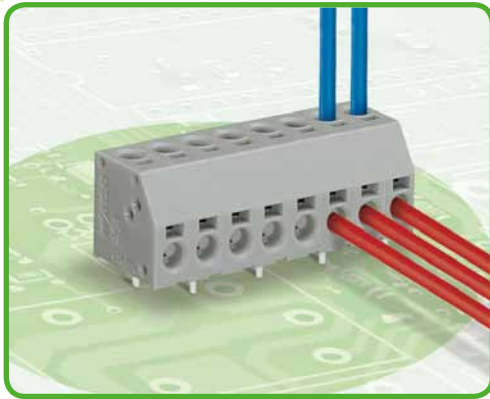
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Terminal strip, 2 solder pins/pole, gray			Terminal strip, 2 solder pins/pole, gray			Terminal strip, 2 solder pins/pole, gray		
2	254-452	420 (4 x 105)	2	254-552	280 (4 x 70)	2	254-652	200 (4 x 50)
3	254-453	280 (4 x 70)	3	254-553	200 (4 x 50)	3	254-653	160 (4 x 40)
4	254-454	220 (4 x 55)	4	254-554	140 (4 x 35)	4	254-654	100 (4 x 25)
5	254-455	180 (4 x 45)	5	254-555	120 (4 x 30)	5	254-655	80 (4 x 20)
6	254-456	140 (4 x 35)	6	254-556	100 (4 x 25)	6	254-656	80 (4 x 20)
7	254-457	120 (4 x 30)	7	254-557	80 (4 x 20)	7	254-657	60 (4 x 15)
8	254-458	100 (4 x 25)	8	254-558	80 (4 x 20)	8	254-658	60 (4 x 15)
9	254-459	100 (4 x 25)	9	254-559	60 (4 x 15)	9	254-659	40 (4 x 10)
10	254-460	80 (4 x 20)	10	254-560	60 (4 x 15)	10	254-660	40 (4 x 10)
12	254-462	80 (4 x 20)	12	254-562	40 (4 x 10)	12	254-662	40 (4 x 10)
16	254-466	60 (4 x 15)	16	254-566	40 (4 x 10)	16	254-666	20 (4 x 5)
24	254-474	40 (4 x 10)	24	254-574	20 (4 x 5)	24	254-674	20 (4 x 5)
36	254-486	20 (4 x 5)						
48	254-498	20 (4 x 5)						

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

● red/000-005	Ordering example: Terminal strip, 5/5.08 mm pin spacing 8-pole, orange: 256-458/000-012
● blue	...../000-006
● dark gray	...../000-008
● light gray	...../000-009
● orange	...../000-012
● light green	...../000-017
① Suitable for Ex i applications (only for 7.5/7.62 mm and 10/10.16 mm pin spacing)		



2-Conductor PCB Terminal Strips 1.5 mm² Pin Spacing 5 mm 253 Series



- Terminal strips with screwdriver-actuated PUSH WIRE® termination
- Double-conductor connection provides top-entry (vertical) and/or side-entry (horizontal) wiring
- Push-in termination of solid conductors
- Double-conductor connection for supply and potential distribution

Technical data:

Pin Spacing	5 mm 0.197 in				
Rating per	IEC/EN 60664-1				
Overtoltage category	III	III	II		
Pollution degree	3	2	2		
Rated voltage	320 V	320 V	630 V		
Rated surge voltage	4 kV	4 kV	4 kV		
Nominal current	17.5 A	17.5 A	17.5 A		
Approvals per	UL/CSA				
Use group UL1059	B	C	D		
Rated voltage	300 V	-	300 V		
Nominal current UL	8 A	-	8 A		
Nominal current CSA	8A	-	8 A		

Conductor and solder pin data:

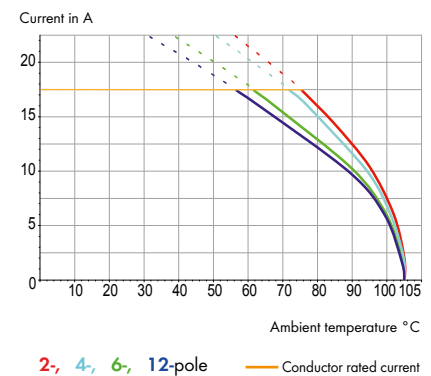
Connection technology	PUSH WIRE®
Conductor size: solid	0.5 - 1.5 mm ²
AWG	20 - 16 "sol."
Strip length	8.5 - 9.5 mm / 0.32 - 0.36 in (for single-side wiring)
Strip length	7 - 8 mm / 0.28 - 0.31 in (for wiring on both sides)
Conductor entry angle	0° and 90° to PCB
Solder pin: length/width	3,6 mm / 0.5 x 0.8 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Current-Carrying Capacity Curve: Conductor - Solder Pin

Pin spacing: 5 mm / Conductor size: 1.5 mm² "sol."
Based on: EN 60512-5-2 / Reduction factor: 1



253 Series accessories:

Page:

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2-Conductor PCB Terminal Strips 1.5 mm²

PUSH WIRE®

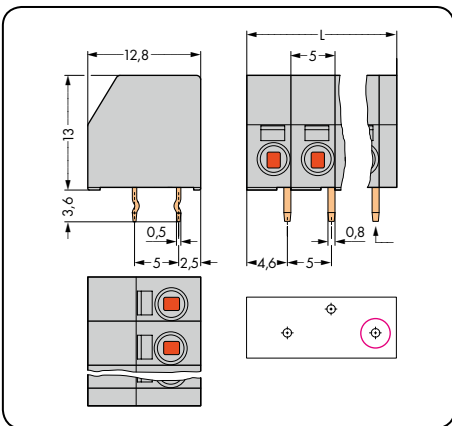
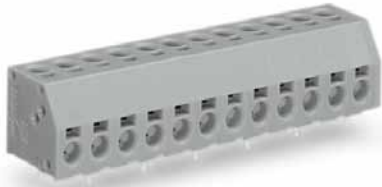
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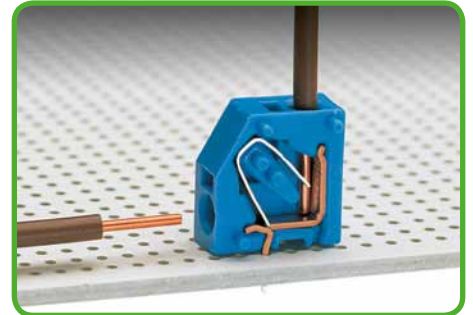
1

Pin spacing 5 mm / 0.197 in

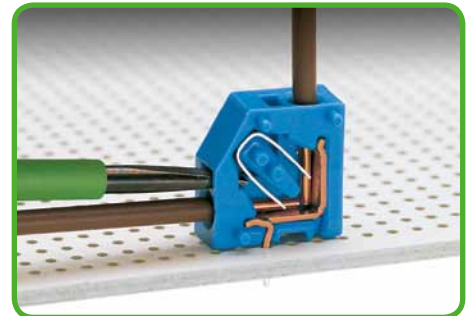
0.5 – 1.5 mm² "sol." | AWG 20 – 16 "sol."
320 V/4 kV/2 17.5 A | 300 V/8 A



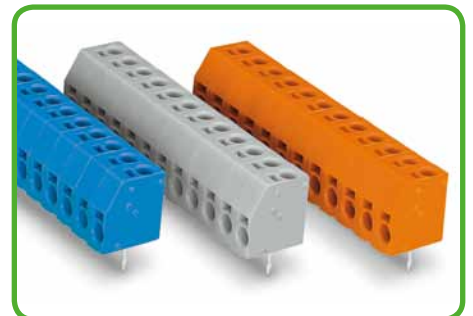
L = (pole no. x pin spacing) + 2 mm
 first solder pin, right front side



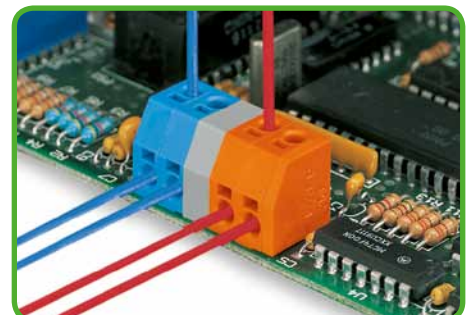
Simply push solid conductor in until it hits backstop.



Remove conductor via 2.5 mm screwdriver.



Insulating housings available in different colors.



Terminal strip insulating housings with or without spacer mixed in different colors upon request.

Pole No.	Item No.	Pack. Unit
2-conductor terminal strip, 1 solder pin/pole, staggered, gray		
2	253-102	400 (4 x 100)
3	253-103	280 (4 x 70)
4	253-104	220 (4 x 55)
5	253-105	160 (4 x 40)
6	253-106	140 (4 x 35)
7	253-107	120 (4 x 30)
8	253-108	100 (4 x 25)
9	253-109	100 (4 x 25)
10	253-110	80 (4 x 20)
11	253-111	80 (4 x 20)
12	253-112	60 (4 x 15)
13	253-113	60 (4 x 15)
14	253-114	60 (4 x 15)
15	253-115	60 (4 x 15)
16	253-116	40 (4 x 10)

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

yellow	... /000-002	Ordering example: Terminal strip, 5 mm pin spacing, 8-pole, orange, 1 solder pin staggered: 253-108/000-012
black	... /000-004	
red	... /000-005	
blue	... /000-006	
light gray	... /000-009	
orange	... /000-012	
light green	... /000-017	
violet	... /000-024	
white	... /000-050	

Please contact factory for other lengths, colors, mixed-color terminal strips, or direct marking.

WAGO®

PCB Terminal Blocks 1.5 mm² Pin Spacing 3.5 mm 744 Series



- Terminal blocks with PUSH WIRE® connection
- Push-in termination of solid conductors – low insertion forces
- Just 6.4 mm high
- Conductor removal via disconnection tool or by twist & pull

Technical data:

Pin Spacing	3.5 mm 0.138 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	2 A	2 A	2 A
Approvals per	UL/CSA		
Use group UL1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	2 A	-	2 A
Nominal current CSA	-	-	-

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	0.5 - 1.5 mm ²
AWG	20 - 16 "sol."
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.5 mm / 0.35 x 0.9 mm
Solder pin: drilled hole diameter	1.1 ^{±0.1} mm

Material data:

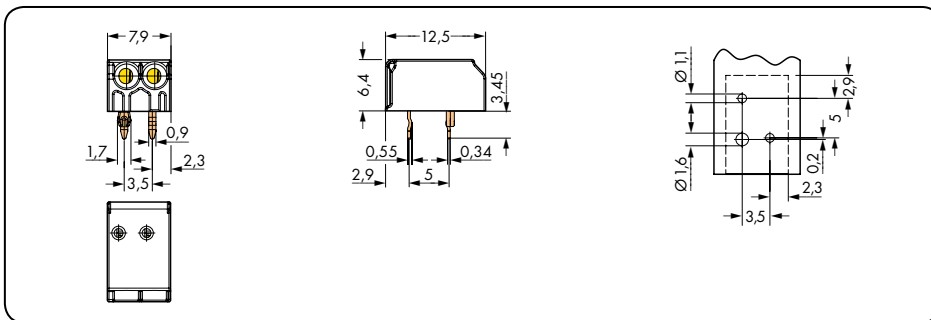
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi), copper-plated
Contact plating	tin-plated

744 Series accessories:

Page:

Disconnection tool	529

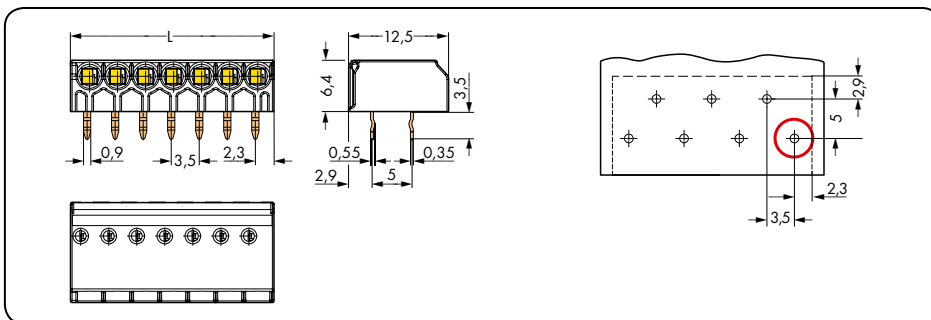
Pin spacing 3.5 mm / 0.138 in	
0.5 – 1.5 mm ² "sol."	AWG 20 – 16 "sol."
320 V/4 kV/2 2 A	300 V/2 A



2-pole, with additional anti-rotatin pin



Inserting solid conductor via push-in termination.



For 3 poles and more, L = (pole no. x pin spacing) + 0.9 mm
 ○ first solder pin, right front side



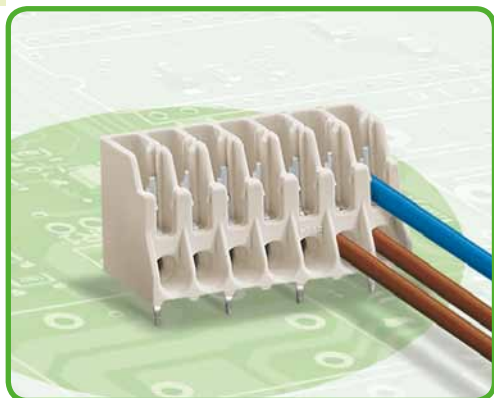
Removing conductor via Ø 1.0 mm disconnection tool.

Pole No.	Item No.	Pack. Unit	Item no. suffixes for colored terminal blocks:
Terminal block with disconnecting slots, white			(Production and prices depend on quantity required)
2	744-292	1000	● gray ...-.../000-007
3	744-203	1000	● orange ...-.../000-012
4	744-204	800	
6	744-206	500	Ordering example:
7	744-207	300	Terminal block, 3.5 mm pin spacing
8	744-208	300	10-pole, orange: 744-210/000-012
10	744-210	200	

Combi PCB Terminal Blocks with PUSH WIRE® and FIT CLAMP® Connections

Pin Spacing 3.5 mm

251 Series



- Compact Combi PCB terminal blocks are ideal for automated wiring in the lighting industry
- Low conductor insertion forces
- PUSH WIRE® and FIT CLAMP® connections suitable for automated wiring systems

Technical data:

"251 high" version:

"251 mini" version:

Pin Spacing	3.5 mm/0.138 in 0.5 – 1.5 mm ² "sol."			3.5 mm/0.138 in 0.5 – 1 mm ² "sol."		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	2 A	2 A	2 A	6 A	6 A	6 A
Approvals per	UL/CSA			UL/CSA		
Use group UL1059	B	C	D	B	C	D
Rated voltage	-	-	-	300 V	-	300 V
Nominal current UL	-	-	-	4 A	-	4 A
Nominal current CSA	-	-	-	-	-	-

Conductor and solder pin data for "251 high" version:

Connection technology	PUSH WIRE®
Conductor size: solid	0.5 – 1.5 mm ²
AWG	20 – 16 "sol."
Strip length	7.5 – 8.5 mm / 0.29 – 0.32 in
Conductor entry angle	0° to PCB
Connection technology	FIT CLAMP® (IDC connection)
Conductor size: solid	0.5 mm ² (PVC insulation, simple)
Conductor size: fine-stranded	0.75 mm ² (PVC insulation, simple)
Solder pin: length/width	3.6 mm / 0.75 x 0.5 mm
Solder pin: drilled hole diameter	1.2 ^{0.1} mm

Conductor and solder pin data for "251 mini" version:

Connection technology	PUSH WIRE®
Conductor size: solid	0.5 – 1 mm ² Max. 2.5 mm insulation diameter for 1 mm ² "sol." conductors
AWG	20 – 18 "sol."
Strip length	8 – 9 mm / 0.31 – 0.35 in
Conductor entry angle	0° to PCB
Connection technology	FIT CLAMP® (IDC connection)
Conductor size: solid	0.5 mm ² (PVC insulation, simple)
Conductor size: fine-stranded	0.75 mm ² (PVC insulation, simple)
Solder pin: length/width	3.2 mm / 0.75 x 0.5 mm
Solder pin: drilled hole diameter	1.1 ^{0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi) (for "251 mini" only)
Contact material	Copper alloy
Contact plating	tin-plated

251 Series accessories:

Page:

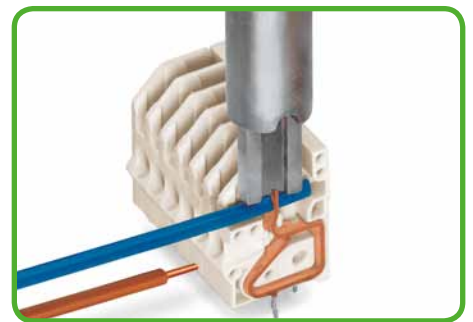
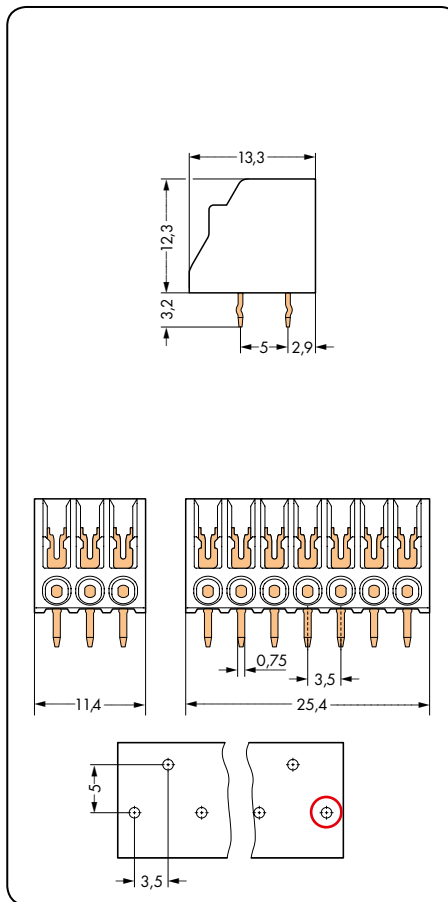
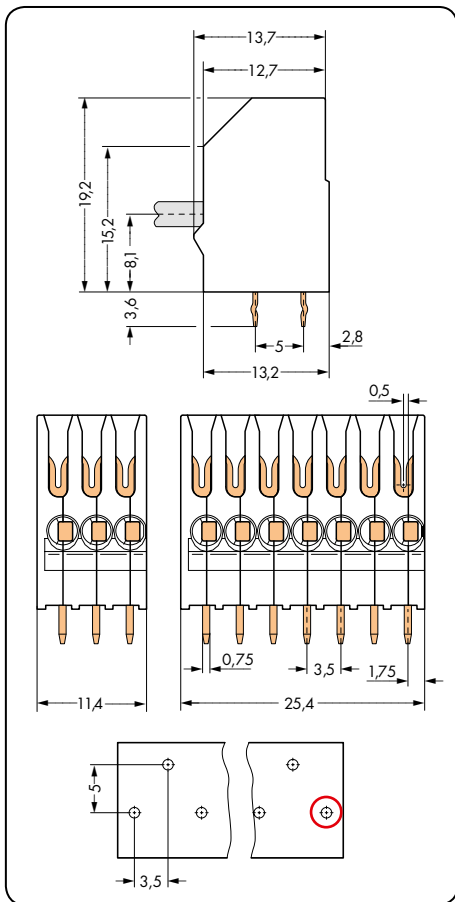
Operating tool	527
Disconnect tool	529

Combi PCB Terminal Blocks with PUSH WIRE® and FIT CLAMP® Connections

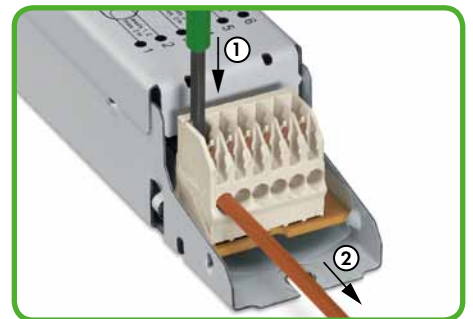
FIT CLAMP®
PUSH WIRE®

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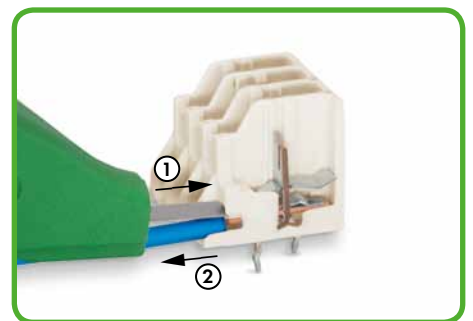
"251 high" version Pin spacing 3.5 mm / 0.138 in		"251 mini" version Pin spacing 3.5 mm / 0.138 in		Handling
0.5 - 1.5 mm ² "sol."	AWG 20 - 16 "sol."	0.5 - 1 mm ² "sol."	AWG 20 - 18 "sol."	
320 V/4 kV/2 2 A		320 V/4 kV/2 6 A	300 V/4 A	



Conductor termination - "251 high" and "251 mini"
PUSH WIRE® = Simply push in conductor.
FIT CLAMP® (IDC) = Insert conductor via 206-831 operating tool.



Conductor removal - "251 high"
PUSH WIRE®: Open spring via 2.5 x 0.4 mm screwdriver (1) and pull out conductor (2).
FIT CLAMP® (IDC): Pull up vertically on conductor to remove it (10 x reconnection possible when used properly. Before re-using, cut off old contact point from conductor)



Conductor removal - "251 mini"
PUSH WIRE®: Twist conductor and pull out, or fully insert 206-830 disconnection tool over the conductor (1) and pull it out (2).
FIT CLAMP® (IDC): Pull up vertically on conductor to remove it (10 x reconnection possible when used properly. Before re-using, cut off old contact point from conductor)

L = [pole no. x pin spacing] + 0.9 mm

⊕ Starting point (first solder pin), right front side

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Combi PCB terminal block, "251 high" version, with PUSH WIRE® and FIT CLAMP® connections, white			Combi PCB terminal block, "251 mini" version, with PUSH WIRE® and FIT CLAMP® connections, white		
2	251-102	600 (4 x 150)	3	251-303	420 (4 x 105)
3	251-103	420 (4 x 105)	4	251-304	320 (4 x 80)
4	251-104	320 (4 x 80)	6	251-306	200 (4 x 50)
5	251-105	260 (4 x 65)	7	251-307	180 (4 x 45)
6	251-106	220 (4 x 55)	8	251-308	160 (4 x 40)
7	251-107	180 (4 x 45)	10	251-310	120 (4 x 30)

For other lengths and direct marking, please contact factory.

WAGO®

2-Conductor PCB Terminal Strips with Push-Buttons Pin Spacing 2.5 mm 2080 Series



- Compact terminal strips with PUSH WIRE® connection for solid conductors
- Each termination unit features an integrated push-button
- Double-conductor connection for commoning signals

Technical data:

Pin Spacing	2.5 mm 0.098 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	2 A	2 A	2 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	-	-	-
Nominal current UL	-	-	*
Nominal current CSA	-	-	-

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	0.2 - 0.5 mm ²
AWG	24 - 20 "sol."
Strip length	6 - 7 mm / 0.24 - 0.28 in
Conductor entry angle	90° to PCB
Solder pin: length/width	3.4 mm / 0.5 x 0.8 mm
Solder pin: drilled hole diameter	1.1 ^{-0.1} mm

Material data:

Material group	I
Insulating material	Glass fiber-reinforced polyamide 6.6 (PA 6.6-GF)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

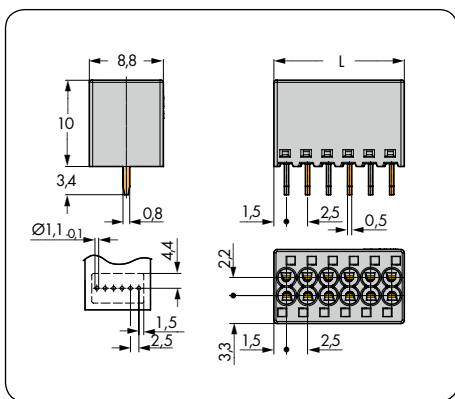
2080 Series accessories:

Page:

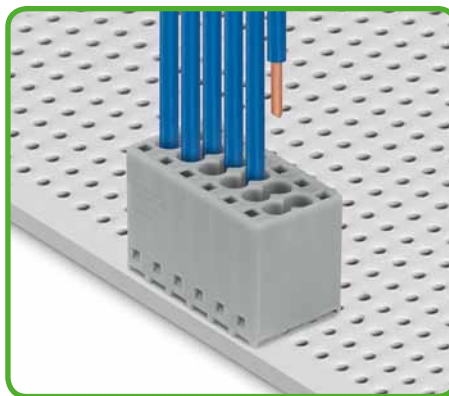
Operating tool (206-880)	528

Pin spacing 2.5 mm / 0.098 in

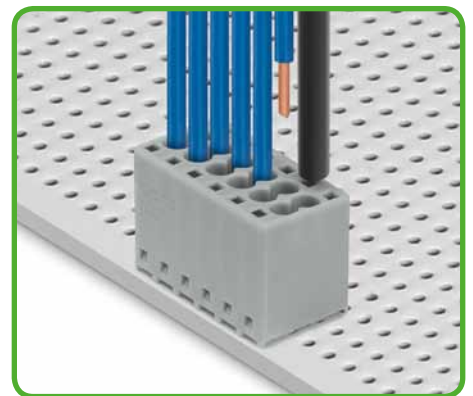
0.2 - 0.5 mm² "sol." | AWG 24 - 20 "sol."
 160 V/2.5 kV/2 2 A



$L = (\text{pole no.} \times \text{pin spacing}) + 0.4 \text{ mm}$



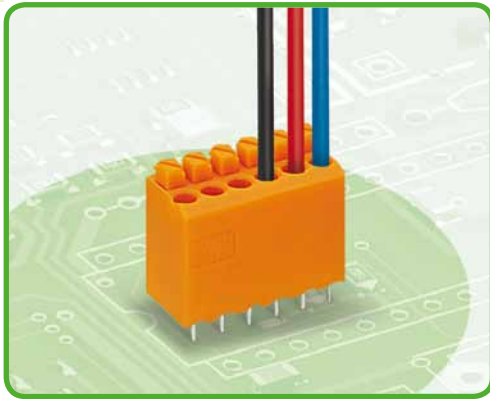
Inserting solid conductor via push-in termination.



Removing conductor via push-button and 1 mm Ø operating tool (206-880).

Pole No.	Item No.	Pack. Unit
2-conductor terminal strip with push-buttons, gray		
4	2080-504	
6	2080-506	

Compact PCB Terminal Blocks with Push-Buttons 1.5 mm² Pin Spacing 3.81 mm 735 Series



- Compact terminal blocks with push-buttons and PUSH WIRE® connection
- Top-of-unit, push-button actuation and conductor termination save space on the PCB
- Push-in termination of solid conductors
- Pin center spacing can be maintained in a terminal block assembly

Technical data*:

Pin Spacing	3.81 mm 0.15 in				
Rating per	IEC/EN 60664-1				
Overvoltage category	III	III	II		
Pollution degree	3	2	2		
Rated voltage	250 V	320 V	630 V		
Rated surge voltage	4 kV	4 kV	4 kV		
Nominal current	10 A	10 A	10 A		
Approvals per	UL/CSA				
Use group UL1059	B	C	D		
Rated voltage	300 V	-	300 V		
Nominal current UL	10 A	-	10 A		
Nominal current CSA	10 A	-	10 A		

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	0.5 - 1.5 mm ²
AWG	20 - 16 "sol."
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	90° to PCB
Solder pin: length/width	3.5 mm / 0.4 x 0.9 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

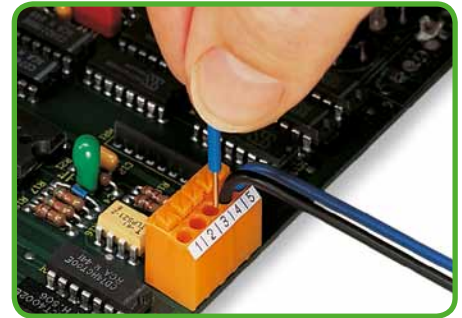
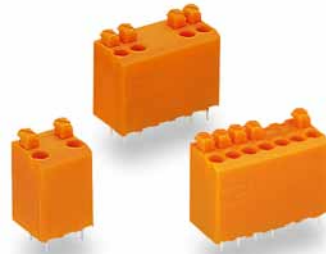
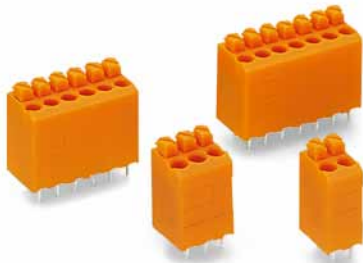
735 Series accessories:

Page:

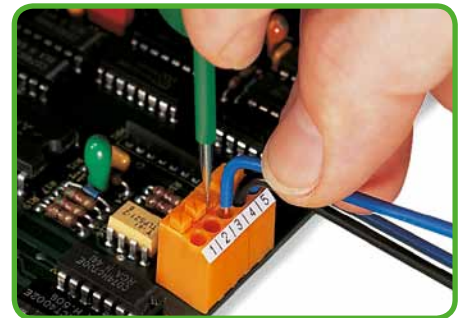
Marking accessories	540 - 543
Operating tools	526 - 528
Test pin	538

*For versions with staggered solder pins allowing increased clearances and creepage distances, please contact factory.

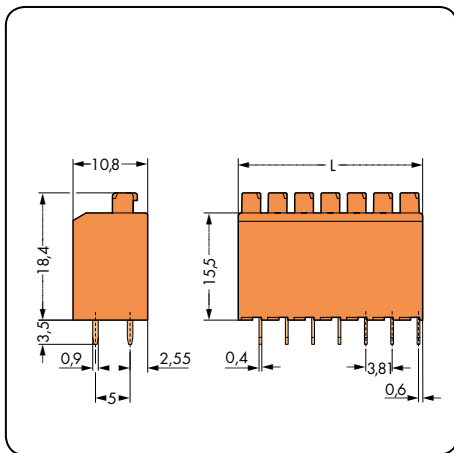
Pin spacing 3.81 mm / 0.15 in		With spacers, 1 x and 2 x pin spacing Pin spacing 3.81 mm / 0.15 in	
0.5 - 1.5 mm ² "sol."	AWG 20 - 16 "sol."	0.5 - 1.5 mm ² "sol."	AWG 20 - 16 "sol."
320 V/4 kV/2 10 A	300 V/10 A	320 V/4 kV/2 10 A	300 V/10 A



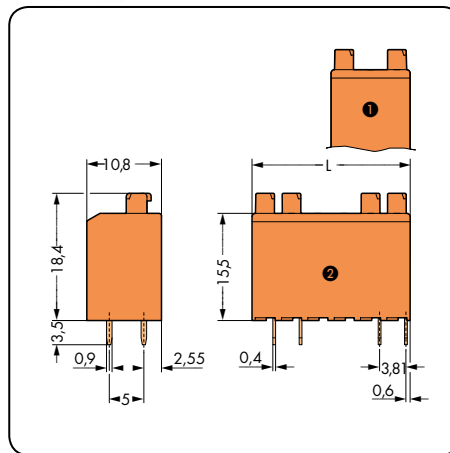
Wiring is simplified by pushing conductors into unit.



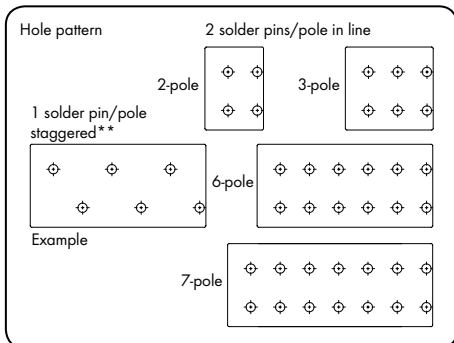
Removing conductor via push-button.



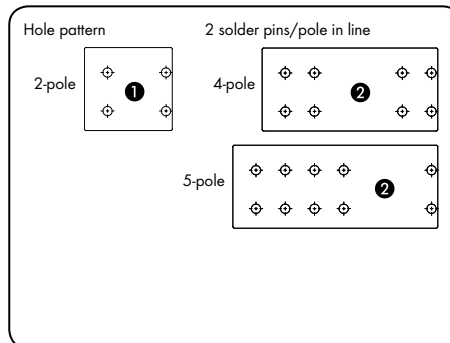
L for 2-pole 7.62 mm, L for 3-pole 11.43 mm
L for 6-pole 22.86 mm, L for 7-pole 26.67 mm



L for 2-pole 11.43 mm, L for 4-pole 22.86 mm
L for 5-pole 26.67 mm



** For versions with staggered solder pins that increase clearances and creepage distances, please contact factory.



1 Spacer of same width as 1 x pin spacing
2 Spacer of same width as 2 x pin spacing



Pin center spacing can be maintained in an assembly.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Compact terminal block with push-buttons, 2 solder pins/pole in line, orange			Compact terminal block with push-buttons and spacer, 2 solder pins/pole in line, orange		
- high version -			- high version -		
2	735-122	660 (4 x 165)	2	735-123/001-000	440 (4 x 110)
3	735-123	440 (4 x 110)	4	735-126/001-000	220 (4 x 55)
6	735-126	220 (4 x 55)	5	735-127/001-000	180 (4 x 45)
7	735-127	180 (4 x 45)			



Testing with Ø 1 mm test pin.

Compact PCB Terminal Blocks with Push-Buttons 1.5 mm² Pin Spacing 5 mm 735 Series



- Compact terminal blocks with push-buttons and PUSH WIRE® connection
- Top-of-unit, push-button actuation and conductor termination save space on the PCB
- Push-in termination of solid conductors
- Pin center spacing can be maintained in a terminal block assembly

Technical data:

Pin Spacing	5 mm 0.197 in				
Rating per	IEC/EN 60664-1				
Overvoltage category	III	III	II		
Pollution degree	3	2	2		
Rated voltage	320 V	320 V	630 V		
Rated surge voltage	4 kV	4 kV	4 kV		
Nominal current	10 A	10 A	10 A		
Approvals per	UL/CSA				
Use group UL1059	B	C	D		
Rated voltage	300 V	-	300 V		
Nominal current UL	10 A	-	10 A		
Nominal current CSA	10 A	-	10 A		

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	0.5 - 1.5 mm ²
AWG	20 - 16 "sol."
Strip length	8 - 9 mm / 0.31 - 0.35 in
Conductor entry angle	90° to PCB
Solder pin: length/width	3.5 mm / 0.4 x 0.9 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

735 Series accessories:

Page:

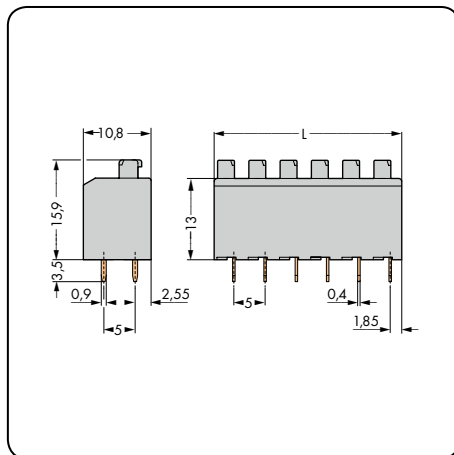
Marking accessories	540 - 543
Operating tools	526 - 528
Test pin	538

Compact PCB Terminal Blocks with Push-Buttons 1.5 mm²

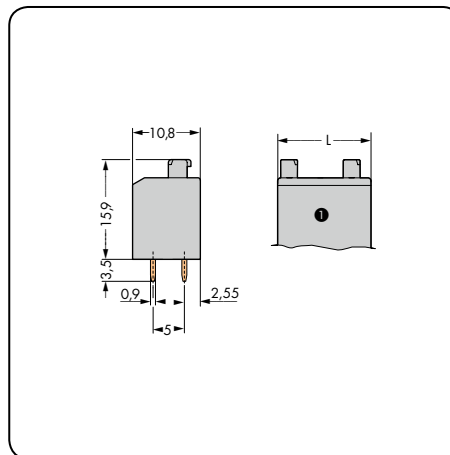
PUSH WIRE®

1
177

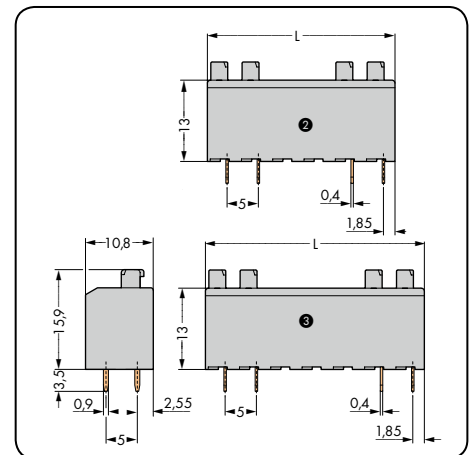
Pin spacing 5 mm / 0.197 in		With spacer, 1 x pin spacing Pin spacing 5 mm / 0.197 in		With spacer, 2 and 3 x pin spacing Pin spacing 5 mm / 0.197 in	
0.5 - 1.5 mm ² "sol."	AWG 20 - 16 "sol."	0.5 - 1.5 mm ² "sol."	AWG 20 - 16 "sol."	0.5 - 1.5 mm ² "sol."	AWG 20 - 16 "sol."
320 V/4 kV/2 10 A	300 V/10 A	320 V/4 kV/2 10 A	300 V/10 A	320 V/4 kV/2 10 A	300 V/10 A



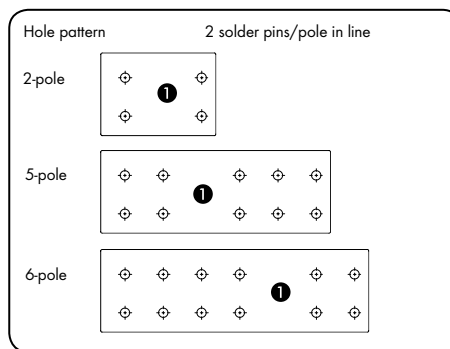
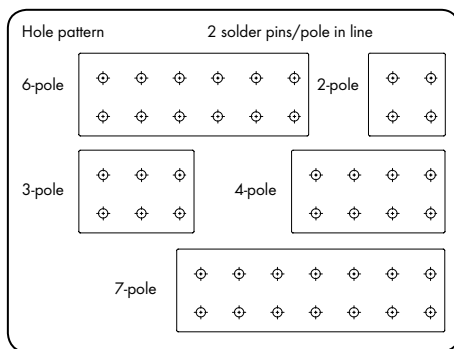
L for 2-pole 10 mm, L for 3-pole 15 mm
L for 4-pole 20 mm, L for 6-pole 30 mm
L for 7-pole 35 mm



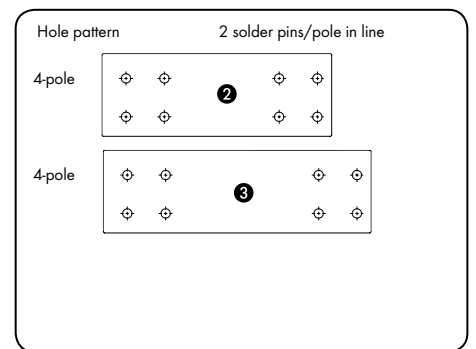
L for 2-pole/① x pin spacing 15 mm
L for 5-pole/① x pin spacing 30 mm
L for 6-pole/① x pin spacing 35 mm



L for 4-pole/② x pin spacing 30 mm
L with 4-pole/③ x pin spacing 35 mm



① Spacer of same width as 1 x pin spacing



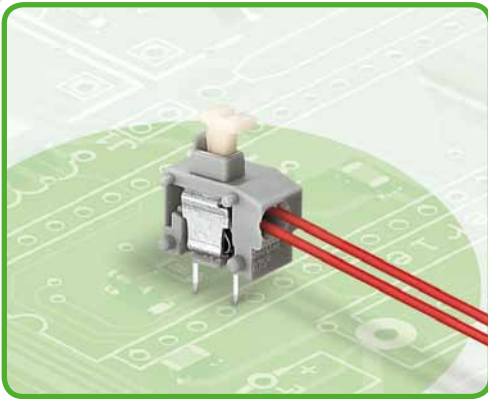
② Spacer of same width as 2 x pin spacing
③ Spacer of same width as 3 x pin spacing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Compact terminal block with push-buttons, 2 solder pins/pole in line, low version, gray			Compact terminal block with push-buttons and spacer for 1 x pin spacing, 2 solder pins/pole in line, low version, gray			Compact terminal block with push-buttons and spacer for 2 x pin spacing, 2 solder pins/pole in line, low version, gray		
2	735-302	500 (4 x 125)	2	735-303/001-000	320 (4 x 80)	4	735-306/001-000	160 (4 x 40)
3	735-303	320 (4 x 80)						
4	735-304	240 (4 x 60)						
6	735-306	160 (4 x 40)	5	735-306/003-000	160 (4 x 40)	Compact terminal block with push-buttons and spacer for 3 x pin spacing, 2 solder pins/pole in line, low version, gray		
7	735-307	140 (4 x 35)	6	735-307/001-000	140 (4 x 35)	4	735-307/002-000	140 (4 x 35)

For direct marking, please contact factory.

WAGO®

2-Conductor, Modular PCB Terminal Blocks with Push-Buttons 0.75 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series



- Modular terminal blocks with push-buttons and PUSH WIRE® connection, for custom terminal strip assemblies
- Double-conductor connection for commoning signals
- Push-in termination of solid conductors
- Easy conductor removal via push-button
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Versions with test slot can be found at www.wago.com
- For 235 Series without push-buttons, see page 157

Technical data:

Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	-	10 A	-	-	10 A	-	-

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	2 x 0.2 - 0.75 mm ²
AWG	2 x 24 - 18 "sol."
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.8 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

235 Series accessories:

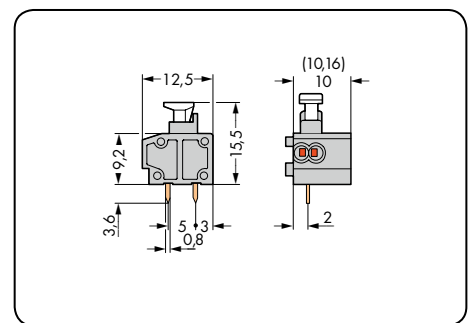
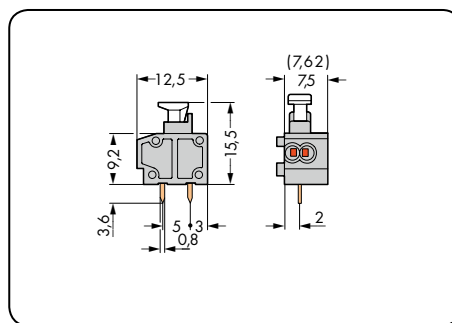
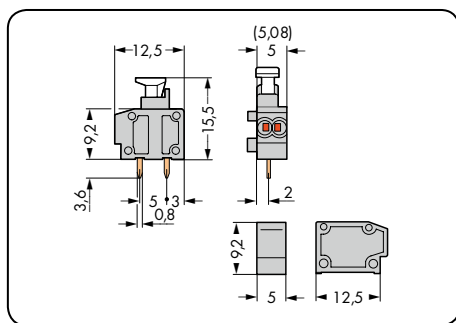
Page:

Marking accessories	540 - 543
Operating tools	526 - 528


2-Conductor, Modular PCB Terminal Blocks with Push-Buttons 0.75 mm²


PUSH WIRE®

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
2 x 0.25 – 0.75 mm ² "sol."	2 x AWG 24 – 18 "sol."	2 x 0.25 – 0.75 mm ² "sol."	2 x AWG 24 – 18 "sol."	2 x 0.25 – 0.75 mm ² "sol."	2 x AWG 24 – 18 "sol."
320 V/4 kV/2 10 A	300 V/10 A	630 V/6 kV/2 10 A	300 V/10 A	1000 V/8 kV/2 10 A	300 V/10 A

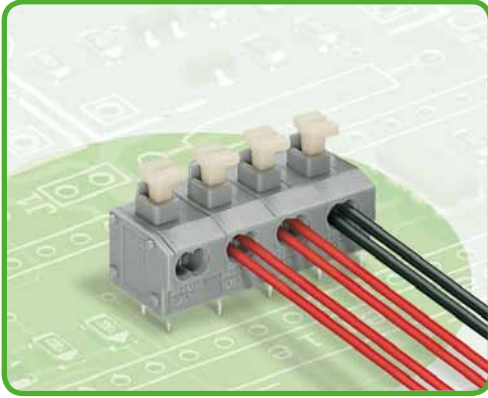


Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
2-conductor modular terminal block with push-button, 2 solder pins/pole			2-conductor modular terminal block with push-button, 2 solder pins/pole			2-conductor modular terminal block with push-button, 2 solder pins/pole		
gray	235-711/331-000	800 (8 x 100)	gray	235-551/331-000	600 (6 x 100)	gray	235-851/331-000	400 (4 x 100)
dark gray	235-712/331-000	800 (8 x 100)	dark gray	235-722/331-000	600 (6 x 100)	dark gray	235-732/331-000	400 (4 x 100)
light gray	235-713/331-000	800 (8 x 100)	light gray	235-723/331-000	600 (6 x 100)	light gray	235-733/331-000	400 (4 x 100)
blue	235-714/331-000	800 (8 x 100)	blue	235-724/331-000	600 (6 x 100)	blue	235-734/331-000	400 (4 x 100)
orange	235-716/331-000	800 (8 x 100)	orange	235-726/331-000	600 (6 x 100)	orange	235-736/331-000	400 (4 x 100)
light green	235-717/331-000	800 (8 x 100)	light green	235-727/331-000	600 (6 x 100)	light green	235-737/331-000	400 (4 x 100)
			① Suitable for Ex i applications			① Suitable for Ex i applications		

Accessories	Item No.	Pack. Unit
Spacer for modular terminal blocks for doubling the pin spacing, gray		
	235-701	100

End plates for 235 Series, snap-on type, 1 mm/0.039 in thick	Color	Item No.	Pack. Unit
	gray	235-100	100
	dark gray	235-200	100
	light gray	235-300	100
	blue	235-400	100
	orange	235-600	100
	light green	235-700	100

2-Conductor PCB Terminal Strips with Push-Buttons 0.75 mm² Pin Spacing 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series



- Terminal strips with push-buttons and PUSH WIRE® connection
- Double-conductor connection for commoning signals
- Push-in termination of solid conductors
- Easy conductor removal via push-button
- Set to metric or inch pin spacing by compressing terminal strips together or pulling them apart
- Versions with test slots can be found at www.wago.com
- For 235 Series without push-buttons, see page 159

Technical data:

Pin Spacing	5/5.08 mm 0.2 in			7.5/7.62 mm 0.3 in			10/10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	-	10 A	-	-	10 A	-	-

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	2 x 0.2 - 0.75 mm ²
AWG	2 x 24 - 18 "sol."
Strip length	9 - 10 mm / 0.35 - 0.39 in
Conductor entry angle	0° to PCB
Solder pin: length/width	3.6 mm / 0.4 x 0.8 mm
Solder pin: drilled hole diameter	1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

235 Series accessories:

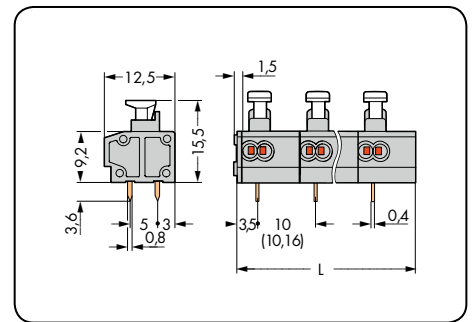
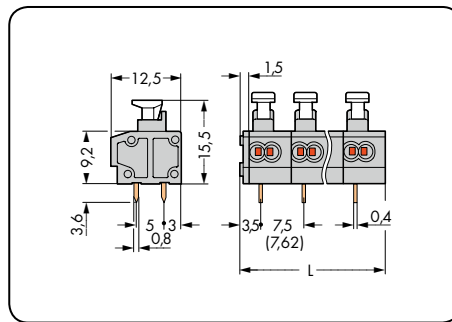
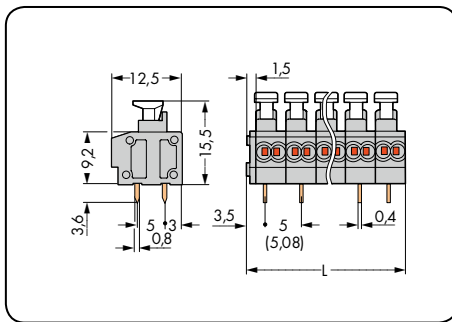
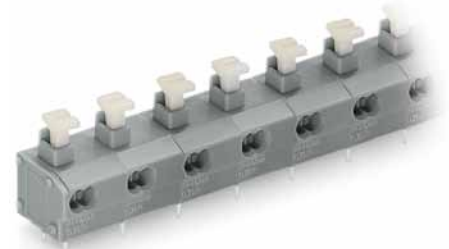
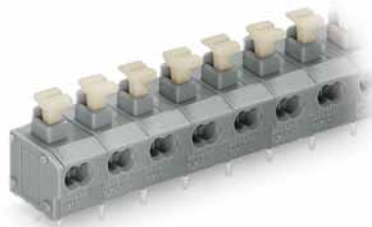
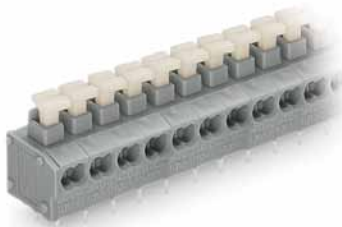
Page:

Marking accessories	540 - 543
Operating tools	526 - 528

2-Conductor PCB Terminal Strips with Push-Buttons 0.75 mm²

PUSH WIRE®

Pin spacing 5/5.08 mm / 0.2 in		Pin spacing 7.5/7.62 mm / 0.3 in		Pin spacing 10/10.16 mm / 0.4 in	
2 x 0.25 – 0.75 mm ² "sol."	2 x AWG 24 – 18 "sol."	2 x 0.25 – 0.75 mm ² "sol."	2 x AWG 24 – 18 "sol."	2 x 0.25 – 0.75 mm ² "sol."	2 x AWG 24 – 18 "sol."
320 V/4 kV/2 10 A	300 V/10 A	630 V/6 kV/2 10 A	300 V/10 A	1000 V/8 kV/2 10 A	300 V/10 A



Adjust pin spacing by pulling on the end blocks so that they expand to satisfy the hole centers required.
L = (pole no. x pin spacing) + 1.5 mm

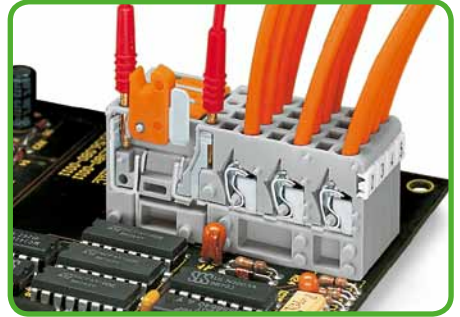
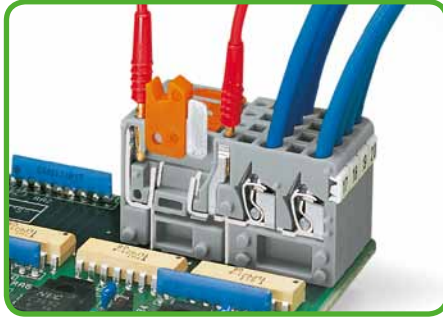
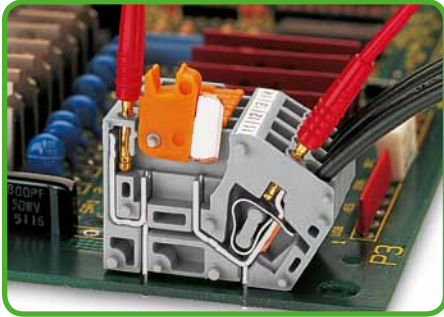
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor terminal strip with push-buttons, 2 solder pins/pole, gray			2-conductor terminal strip with push-buttons, 2 solder pins/pole, gray			2-conductor terminal strip with push-buttons, 2 solder pins/pole, gray		
2	235-452/331-000	420 (4 x 105)	2	235-552/331-000	280 (4 x 70)	2	235-852/331-000	220 (4 x 55)
3	235-453/331-000	280 (4 x 70)	3	235-553/331-000	200 (4 x 50)	3	235-853/331-000	140 (4 x 35)
4	235-454/331-000	220 (4 x 55)	4	235-554/331-000	140 (4 x 35)	4	235-854/331-000	120 (4 x 30)
5	235-455/331-000	180 (4 x 45)	5	235-555/331-000	120 (4 x 30)	5	235-855/331-000	80 (4 x 20)
6	235-456/331-000	140 (4 x 35)	6	235-556/331-000	100 (4 x 25)	6	235-856/331-000	80 (4 x 20)
7	235-457/331-000	120 (4 x 30)	7	235-557/331-000	80 (4 x 20)	7	235-857/331-000	60 (4 x 15)
8	235-458/331-000	100 (4 x 25)	8	235-558/331-000	80 (4 x 20)	8	235-858/331-000	40 (4 x 10)
9	235-459/331-000	100 (4 x 25)	9	235-559/331-000	60 (4 x 15)	9	235-859/331-000	40 (4 x 10)
10	235-460/331-000	80 (4 x 20)	10	235-560/331-000	60 (4 x 15)	10	235-860/331-000	40 (4 x 10)
12	235-462/331-000	80 (4 x 20)	12	235-562/331-000	40 (4 x 10)	12	235-862/331-000	40 (4 x 10)
16	235-466/331-000	60 (4 x 15)	16	235-566/331-000	40 (4 x 10)	16	235-866/331-000	20 (4 x 5)
24	235-474/331-000	40 (4 x 10)	24	235-574/331-000	20 (4 x 5)	24	235-874/331-000	20 (4 x 5)
36	235-486/331-000	20 (4 x 5)						
48	235-498/331-000	20 (4 x 5)						

Item no. suffixes for colored terminal strips: (Production and prices depend on quantity required)

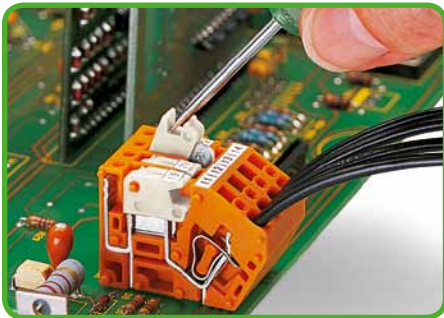
① blue	.../.../331-006	Ordering example: 2-conductor terminal strip, 7.5/7.62 mm pin spacing 16-pole, blue: 235-566/331-006
● dark gray	.../.../331-008	
○ light gray	.../.../331-009	
● orange	.../.../331-012	
● light green	.../.../331-017	
① Suitable for Ex i applications (only for 7.5/7.62 mm and 10/10.16 mm pin spacing)		



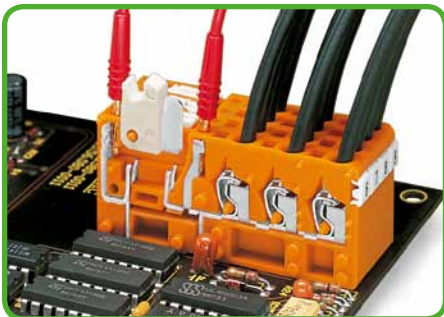
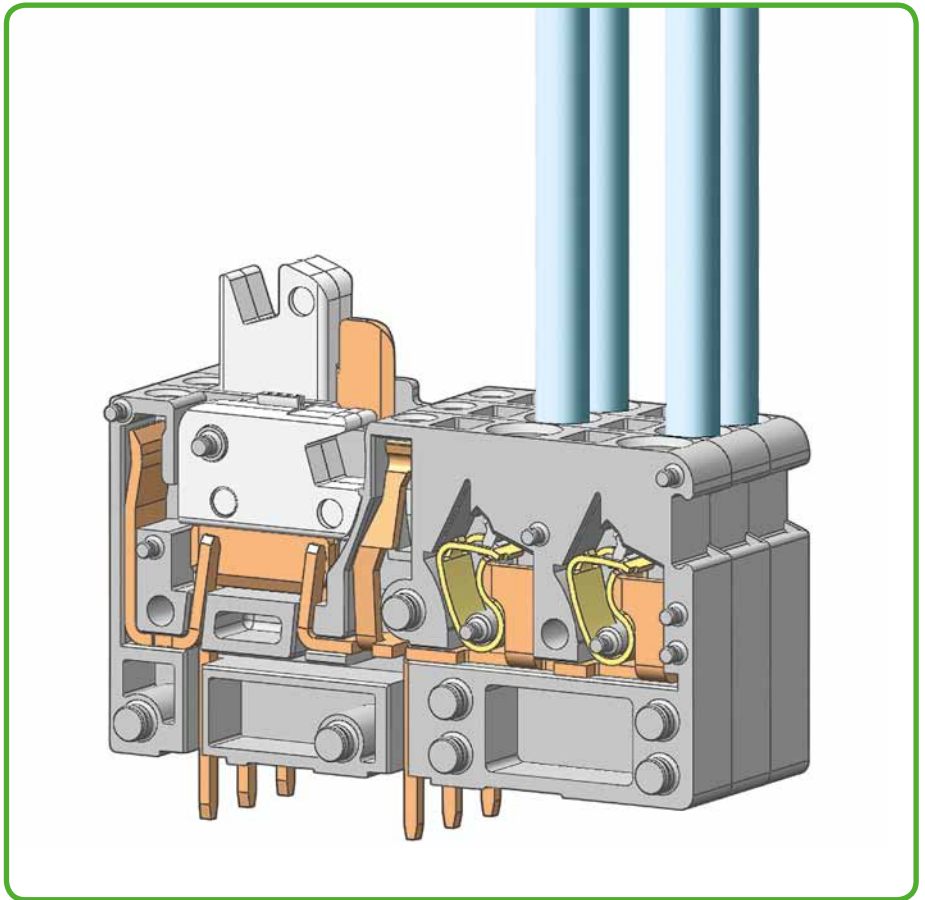
Description and Handling 742 Series



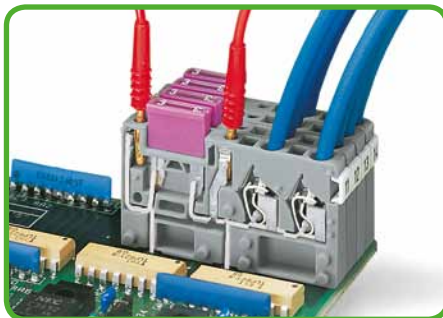
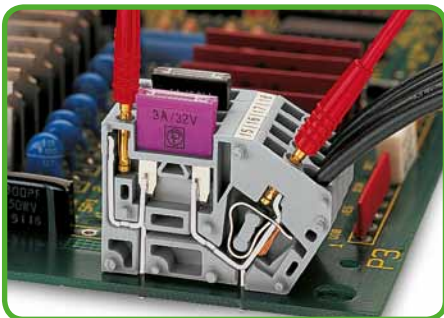
Testing and measurement of all disconnect terminal block types via Ø 2 mm or Ø 2.3 mm test plugs.



Opening knife disconnect.



Distributing potentials via 3-conductor terminal blocks.



Testing all fuse terminal block types via Ø 2 mm or Ø 2.3 mm test plugs.



CAGE CLAMP® clamps the following copper conductors:*

solid

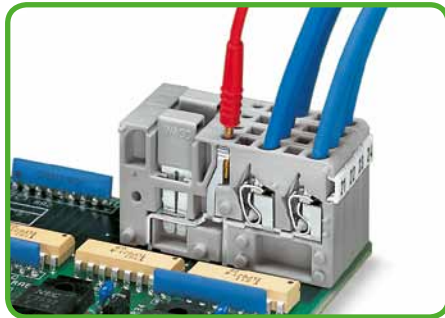


stranded

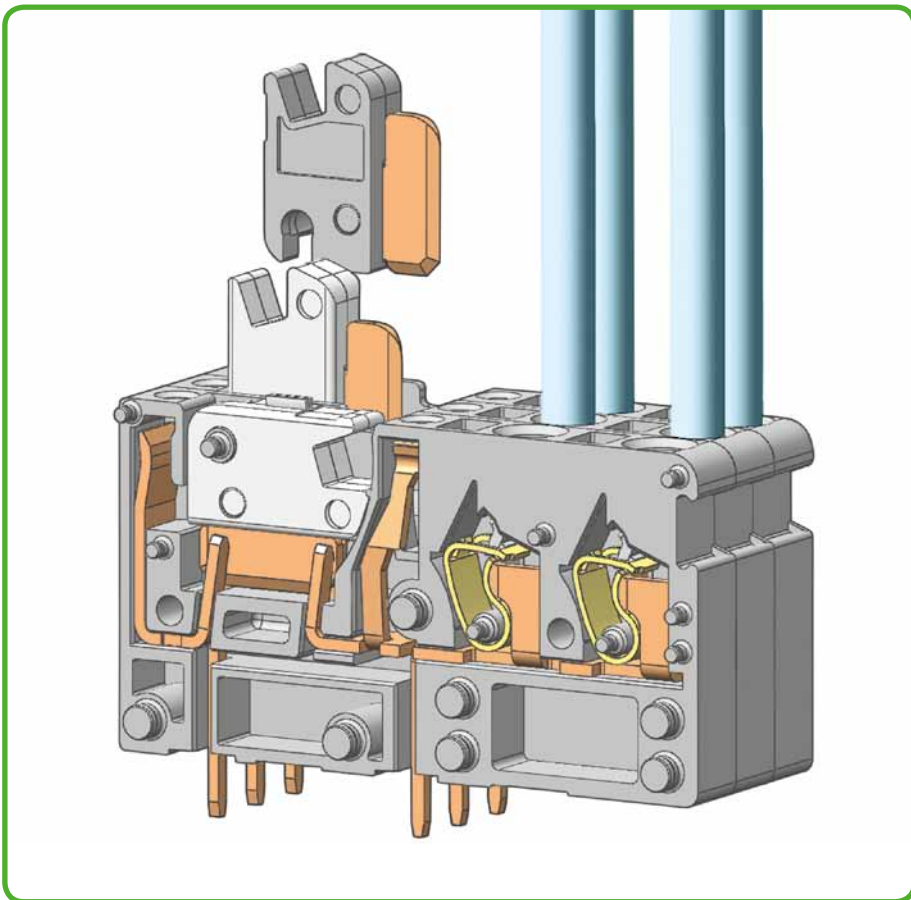


fine-stranded, also with tinned single strands

* For aluminum conductors, see notes in Section 11.



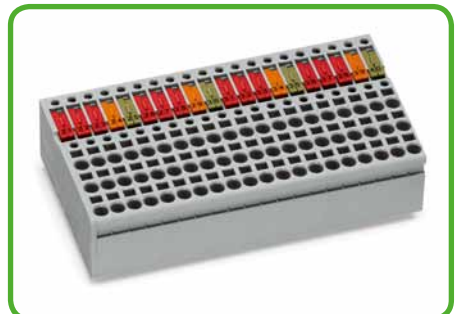
Testing all terminal block types via Ø 2 mm or Ø 2.3 mm test plugs.



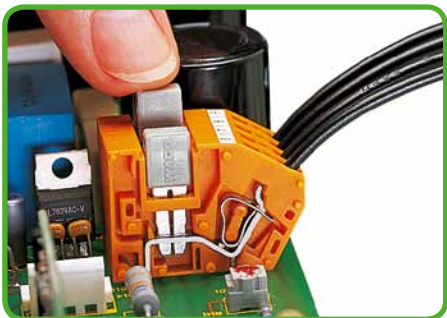
For disconnect terminal blocks with removable knife disconnect, please contact factory.



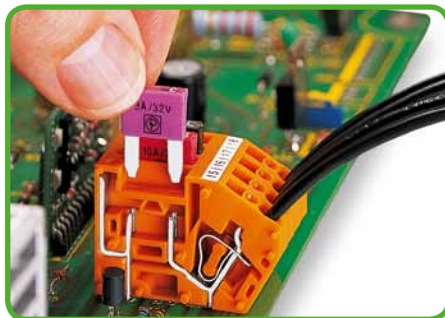
Mixed-color terminal strips available upon request.



Mixed-color knife disconnect/test terminal strips available upon request.



Commoning with adjacent jumpers. Push jumper down until fully inserted!



Inserting fuse.



For custom terminal strips, please contact factory.



fine-stranded, tip-bonded



fine-stranded with crimped ferrules (gas-tight)



fine-stranded with crimped pin terminal (gas-tight)

Modular PCB Disconnect Terminal Blocks for Test and Measurement 2.5 mm² Pin Spacing 5 mm 742 Series



- Modular terminal blocks with screwdriver-actuated CAGE CLAMP®
- Power circuit disconnection via knife disconnect, e.g., for regular testing and measuring
- Test sockets on both sides of knife disconnect for 2.0 mm or Ø 2.3 mm test plugs
- 2- and 3-conductor terminal blocks for distributing potentials independently of PCB
- Versions with removable knife disconnects available upon request

Technical data:

Pin Spacing	1-conductor 5 mm / 0.197 in			2-conductor 5 mm / 0.197 in			3-conductor 5 mm / 0.197 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	8 - 9 mm / 0.31 - 0.35 in (for 1-conductor terminal blocks)
Strip length	6 - 7 mm / 0.24 - 0.28 in (for 2- and 3-conductor terminal blocks)
Conductor entry angle	60° to PCB (with 1-conductor terminal blocks)
Conductor entry angle	90° to PCB (with 2- and 3-conductor terminal blocks)
Solder pin: length/width	4 mm / 1 x 0.8 mm
Solder pin: drilled hole diameter	1.4 ^{+0.05} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

742 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Test plugs	538

Modular PCB Disconnect Terminal Blocks for Test and Measurement 2.5 mm²

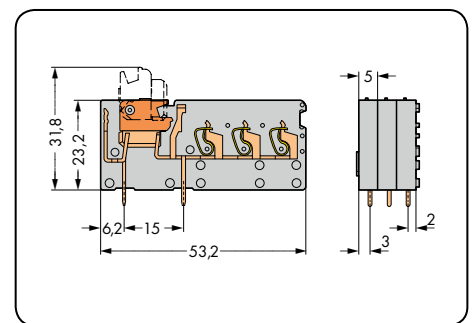
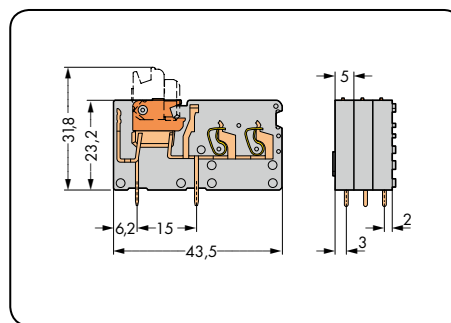
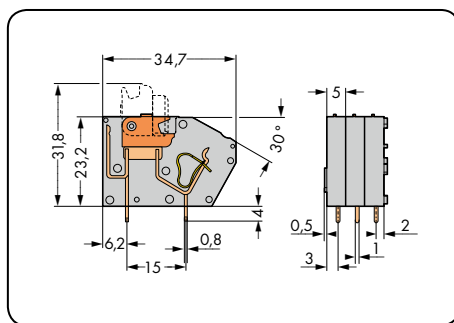
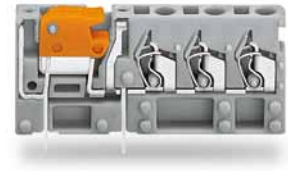
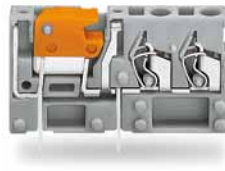
CAGE CLAMP®




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1-conductor Pin spacing 5 mm / 0.197 in		2-conductor Pin spacing 5 mm / 0.197 in		3-conductor Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
1-conductor, modular disconnect terminal block for test and measurement, 2 solder pins/pole, knife disconnect, orange			2-conductor, modular disconnect terminal block for test and measurement, 2 solder pins/pole, knife disconnect, orange			3-conductor, modular disconnect terminal block for test and measurement, 2 solder pins/pole, knife disconnect, orange		
● gray	742-101	384 (4 x 96)	● gray	742-151	200 (4 x 50)	● gray	742-153	100 (2 x 50)
Accessories			Accessories			Accessories		
End plate, snap-on type, 1.5 mm thick, gray			End plate, snap-on type, 1.5 mm thick, gray			End plate, snap-on type, 1.5 mm thick, gray		
	742-100	300 (3 x 100)		742-150	300 (3 x 100)		742-152	300 (3 x 100)

Modular PCB Disconnect Terminal Blocks for Test and Measurement 2.5 mm² Pin Spacing 5.08 mm

742 Series



- Modular terminal blocks with screwdriver-actuated CAGE CLAMP®
- Power circuit disconnection via knife disconnect, e.g., for regular testing and measuring
- Test sockets on both sides of knife disconnect for 2.0 mm or Ø 2.3 mm test plugs
- 2- and 3-conductor terminal blocks for distributing potentials independently of PCB
- Versions with removable knife disconnects available on request

Technical data:

Pin Spacing	1-conductor 5.08 mm / 0.2 in			2-conductor 5.08 mm / 0.2 in			3-conductor 5.08 mm / 0.2 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	8 - 9 mm / 0.31 - 0.35 in (for 1-conductor terminal blocks)
Strip length	6 - 7 mm / 0.24 - 0.28 in (for 2- and 3-conductor terminal blocks)
Conductor entry angle	60° to PCB (with 1-conductor terminal blocks)
Conductor entry angle	90° to PCB (with 2- and 3-conductor terminal blocks)
Solder pin: length/width	4 mm / 1 x 0.8 mm
Solder pin: drilled hole diameter	1.4 ^{+0.05} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

742 Series accessories:

Page:

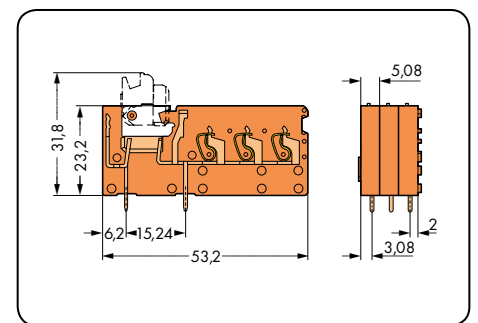
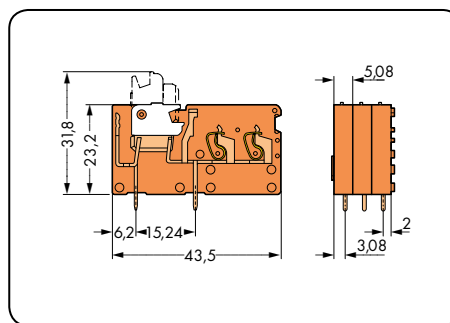
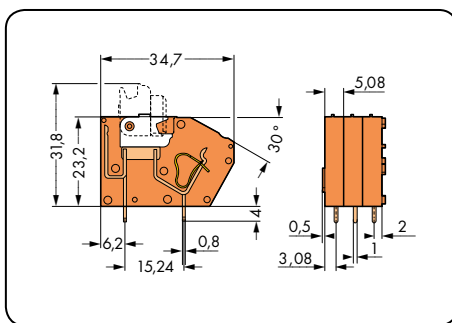
Marking accessories	540 - 543
Operating tools	526 - 528
Test plugs	538

Modular PCB Disconnect Terminal Blocks for Test and Measurement 2.5 mm²

CAGE CLAMP®

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1-conductor Pin spacing 5.08 mm / 0.2 in		2-conductor Pin spacing 5.08 mm / 0.2 in		3-conductor Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
1-conductor, modular disconnect terminal block for test and measurement, 2 solder pins/pole, knife disconnect, white			2-conductor, modular disconnect terminal block for test and measurement, 2 solder pins/pole, knife disconnect, white			3-conductor, modular disconnect terminal block for test and measurement, 2 solder pins/pole, knife disconnect, white		
orange	742-106	384 (4 x 96)	orange	742-156	200 (4 x 50)	orange	742-158	100 (2 x 50)
Accessories			Accessories			Accessories		
End plate, snap-on type, 1.5 mm thick, orange			End plate, snap-on type, 1.5 mm thick, orange			End plate, snap-on type, 1.5 mm thick, orange		
	742-600	300 (3 x 100)		742-650	300 (3 x 100)		742-651	300 (3 x 100)

Modular PCB Terminal Blocks with Potential Commoning 2.5 mm² Pin Spacing 5 mm 742 Series



- Modular terminal blocks with screwdriver-actuated CAGE CLAMP®
- Adjacent jumpers for multiplying and distributing potentials
- Disconnect and fuse terminal blocks can be combined to form complex function assemblies
- Test socket for Ø 2.0 mm and Ø 2.3 mm test plugs

Technical data:

Pin Spacing	1-conductor 5 mm / 0.197 in			2-conductor 5 mm / 0.197 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	8 - 9 mm / 0.31 - 0.35 in (for 1-conductor terminal blocks)
Strip length	6 - 7 mm / 0.24 - 0.28 in (for 2-conductor terminal blocks)
Conductor entry angle	60° to PCB (for 1-conductor terminal blocks)
Conductor entry angle	90° to PCB (for 2-conductor terminal blocks)
Solder pin: length/width	4 mm / 1 x 0.8 mm
Solder pin: drilled hole diameter	1.4 ^{+0.05} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

742 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Test plugs	538

Modular PCB Terminal Blocks with Potential Commoning 2.5 mm²

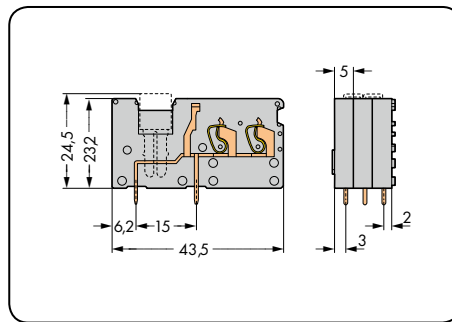
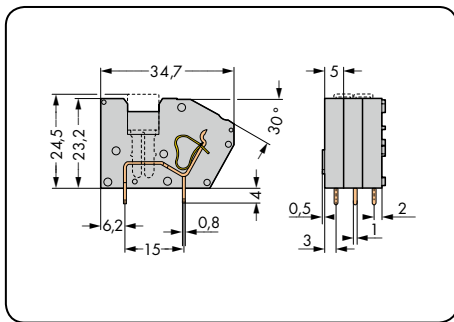
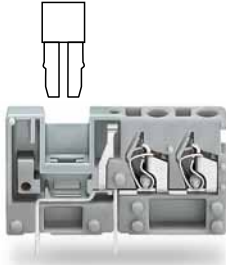
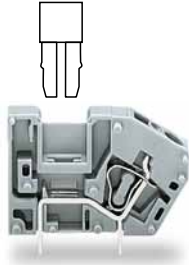
CAGE CLAMP®

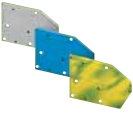
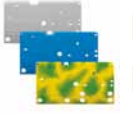

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1-conductor Pin spacing 5 mm / 0.197 in		2-conductor Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 16 A	300 V/10 A	320 V/4 kV/2 16 A	300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
1-conductor, modular terminal block with potential commoning, 2 solder pins/pole			2-conductor, modular terminal block with potential commoning, 2 solder pins/pole		
gray	742-121	300	gray	742-171	200
blue	742-124	300	blue	742-174	200
green-yellow	742-128	300	green-yellow	742-178	200
Accessories	Item No.	Pack. Unit	Accessories	Item No.	Pack. Unit
End plate, snap-on type, 1.5 mm thick			End plate, snap-on type, 1.5 mm thick		
	gray 742-100	300 (3 x 100)		gray 742-150	300 (3 x 100)
	blue 742-400	300 (3 x 100)		blue 742-450	300 (3 x 100)
	green-yellow 742-800	300 (3 x 100)		green-yellow 742-850	300 (3 x 100)
Adjacent jumper, insulated, I_N 24 A					
	gray 280-402	200 (8 x 25)			

Modular PCB Terminal Blocks with Potential Commoning 2.5 mm² Pin Spacing 5.08 mm 742 Series



- Modular terminal blocks with screwdriver-actuated CAGE CLAMP®
- Adjacent jumpers for multiplying and distributing potentials
- Disconnect and fuse terminal blocks can be combined to form complex function assemblies
- Test socket for Ø 2.0 mm and Ø 2.3 mm test plugs

Technical data:

Pin Spacing	1-conductor 5.08 mm / 0.2 in			2-conductor 5.08 mm / 0.2 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	8 - 9 mm / 0.31 - 0.35 in (for 1-conductor terminal blocks)
Strip length	6 - 7 mm / 0.24 - 0.28 in (for 2-conductor terminal blocks)
Conductor entry angle	60° to PCB (for 1-conductor terminal blocks)
Conductor entry angle	90° to PCB (for 2-conductor terminal blocks)
Solder pin: length/width	4 mm / 1 x 0.8 mm
Solder pin: drilled hole diameter	1.4 ^{+0.05} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

742 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Test plugs	538

Modular PCB Terminal Blocks with Potential Commoning 2.5 mm²

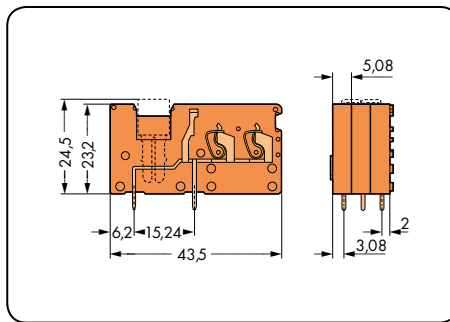
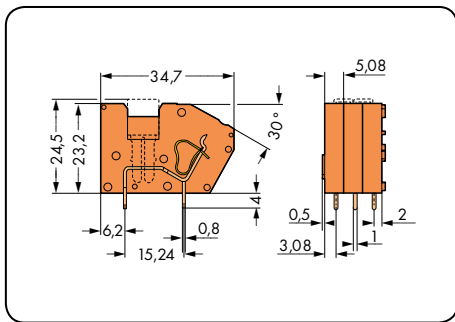
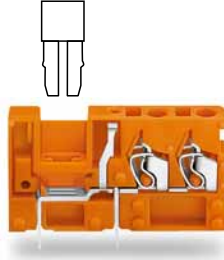
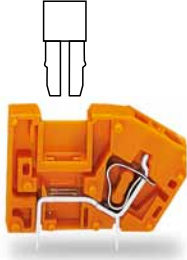
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1-conductor Pin spacing 5.08 mm / 0.2 in		2-conductor Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 16 A	300 V/10 A	320 V/4 kV/2 16 A	300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
1-conductor, modular terminal block with potential commoning, 2 solder pins/pole			2-conductor, modular terminal block with potential commoning, 2 solder pins/pole		
orange	742-126	300	orange	742-176	200
Accessories			Accessories		
End plate, snap-on type, 1.5 mm thick, orange			End plate, snap-on type, 1.5 mm thick, orange		
	742-600	300 (3 x 100)		742-650	300 (3 x 100)
Adjacent jumper, insulated, I _N 24 A, gray					
	280-402	200 (8 x 25)			

Modular PCB Fuse Terminal Blocks 2.5 mm² Pin Spacing 5 mm 742 Series



- Modular terminal blocks with screwdriver-actuated CAGE CLAMP®
- Quick, easy replacement of mini-automotive blade-style fuses in the event of a fault
- Test sockets on both sides of knife disconnect for
Ø 2.0 mm or Ø 2.3 mm test plugs
- Protection against direct contact is required for voltages above 42 V
- 2- and 3-conductor terminal blocks for distributing potentials independent of PCB

Technical data:

Pin Spacing	1-conductor 5 mm / 0.197 in			2-conductor 5 mm / 0.197 in			3-conductor 5 mm / 0.197 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current in indiv. arrangement	15 A	15 A	15 A	15 A	15 A	15 A	15 A	15 A	15 A
Nominal current in block arrangement	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	8 - 9 mm / 0.31 - 0.35 in (for 1-conductor terminal blocks)
Strip length	6 - 7 mm / 0.24 - 0.28 in (for 2- and 3-conductor terminal blocks)
Conductor entry angle	60° to PCB (for 1-conductor terminal blocks)
Conductor entry angle	90° to PCB (for 2- and 3-conductor terminal blocks)
Solder pin: length/width	4 mm / 1 x 0.8 mm
Solder pin: drilled hole diameter	1.4 ^{+0.05} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

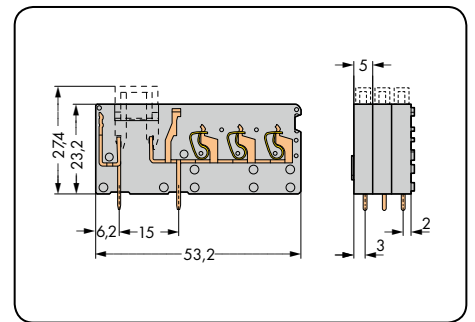
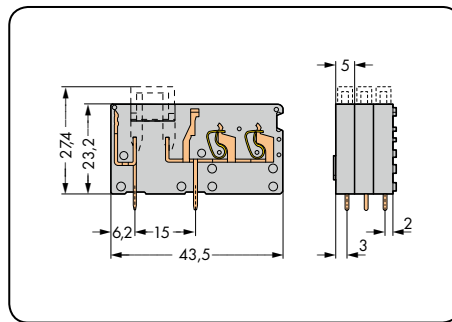
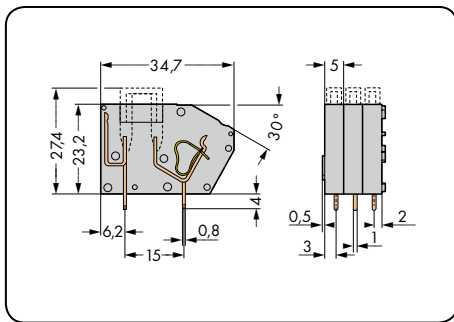
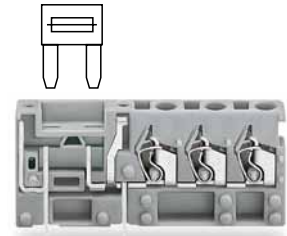
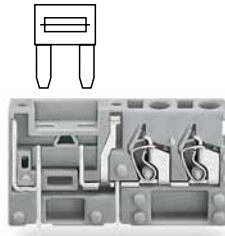
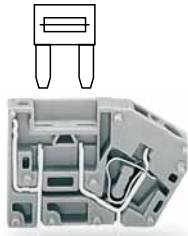
742 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Test plugs	538
Automotive blade-style fuses based on DIN 72581-3f	
Example supplier: www.littelfuse.de	

Nominal current ratings for fuse cartridges are defined differently in international standards. This is why the recommended continuous current-carrying capacity of the fuses is max. 80% of their nominal current according to DIN 72581 part 3 (with an ambient temperature of 23 °C). Selecting the correct fuse cartridge is important for the product safety of the devices and the service life/reliability of the fuses. Fuse cartridges will only operate perfectly as protection components (rated break point) if they are properly selected and used as intended (i.e., according to the state of the technology and valid specifications, as well as data sheet characteristics), according to basic safety requirements (i.e., persons, animals and property must be protected against hazards). Depending on the application requirements (product safety), the fuse in the device to be protected must generally be tested both under normal and faulty operating conditions.

1-conductor Pin spacing 5 mm / 0.197 in		2-conductor Pin spacing 5 mm / 0.197 in		3-conductor Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 15 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 15 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 15 A	AWG 28 - 12 300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
1-conductor modular fuse terminal block, 2 solder pins/pole			2-conductor modular fuse terminal block, 2 solder pins/pole			3-conductor modular fuse terminal block, 2 solder pins/pole		
● gray	742-111	300	● gray	742-161	200	● gray	742-163	100
Accessories			Accessories			Accessories		
End plate, snap-on type, 1.5 mm thick, gray			End plate, snap-on type, 1.5 mm thick, gray			End plate, snap-on type, 1.5 mm thick, gray		
	742-100	300 (3 x 100)		742-150	300 (3 x 100)		742-152	300 (3 x 100)

Modular PCB Fuse Terminal Blocks 2.5 mm² Pin Spacing 5.08 mm 742 Series



- Modular terminal blocks with screwdriver-actuated CAGE CLAMP®
- Quick, easy replacement of mini-automotive blade-style fuses in the event of a fault
- Test sockets on both sides of knife disconnect for Ø 2.0 mm or Ø 2.3 mm test plugs
- Protection against direct contact is required for voltages above 42 V
- 2 and 3-conductor terminal blocks for potential distribution independent of PCB

Technical data:

Pin Spacing	1-conductor 5.08 mm / 0.2 in			2-conductor 5.08 mm / 0.2 in			3-conductor 5.08 mm / 0.2 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current in indiv. arrangement	15 A	15 A	15 A	15 A	15 A	15 A	15 A	15 A	15 A
Nominal current in block arrangement	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	8 - 9 mm / 0.31 - 0.35 in (for 1-conductor terminal blocks)
Strip length	6 - 7 mm / 0.24 - 0.28 in (for 2- and 3-conductor terminal blocks)
Conductor entry angle	60° to PCB (for 1-conductor terminal blocks)
Conductor entry angle	90° to PCB (for 2- and 3-conductor terminal blocks)
Solder pin: length/width	4 mm / 1 x 0.8 mm
Solder pin: drilled hole diameter	1.4 ^{+0.05} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

742 Series accessories:

Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Test plugs	538
Blade-type fuse cartridges based on DIN 72581-3f	
Example supplier: www.littelfuse.de	

Nominal current ratings for fuse cartridges are defined differently in international standards. This is why the recommended continuous current-carrying capacity of the fuses is max. 80% of their nominal current according to DIN 72581 part 3 (with an ambient temperature of 23 °C). Selecting the correct fuse cartridge is important for the product safety of the devices and the service life/reliability of the fuses. Fuse cartridges will only operate perfectly as protection components (rated break point) if they are properly selected and used as intended (i.e., according to the state of the technology and valid specifications, as well as data sheet characteristics), according to basic safety requirements (i.e., persons, animals and property must be protected against hazards). Depending on the application requirements (product safety), the fuse in the device to be protected must generally be tested both under normal and faulty operating conditions.

Modular PCB Fuse Terminal Blocks 2.5 mm²

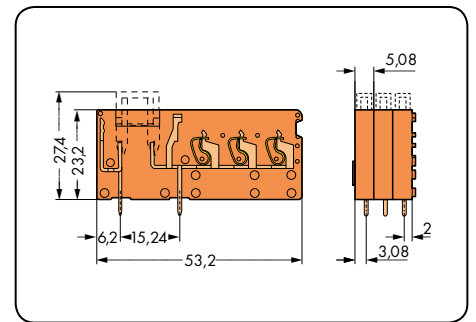
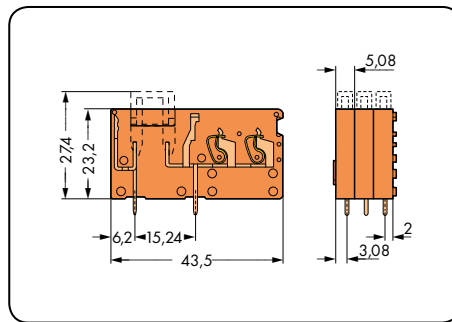
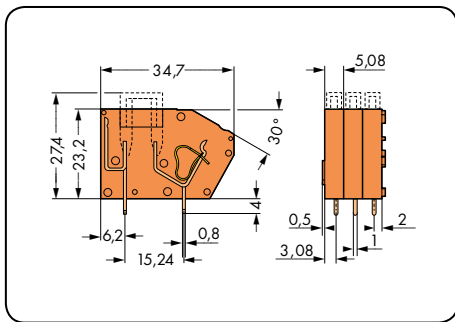
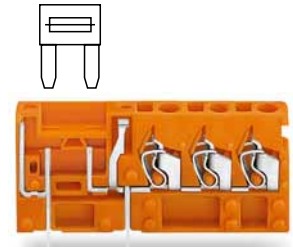
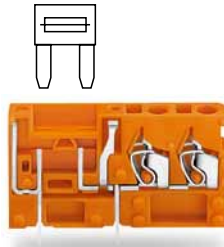
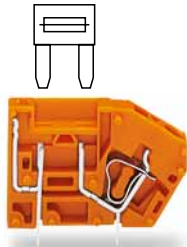
CAGE CLAMP®

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195

1

1-conductor Pin spacing 5.08 mm / 0.2 in		2-conductor Pin spacing 5.08 mm / 0.2 in		3-conductor Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 15 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 15 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 320 V/4 kV/2 15 A	AWG 28 - 12 300 V/10 A



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
1-conductor modular fuse terminal block, 2 solder pins/pole			2-conductor modular fuse terminal block, 2 solder pins/pole			3-conductor modular fuse terminal block, 2 solder pins/pole		
orange	742-116	300	orange	742-166	200	orange	742-168	100
Accessories			Accessories			Accessories		
End plate, snap-on type, 1.5 mm thick, orange			End plate, snap-on type, 1.5 mm thick, orange			End plate, snap-on type, 1.5 mm thick, orange		
	742-600	300 (3 x 100)		742-650	300 (3 x 100)		742-651	300 (3 x 100)

Modular Test Plug Adapters for 255, 256 and 257 Series PCB Terminal Blocks

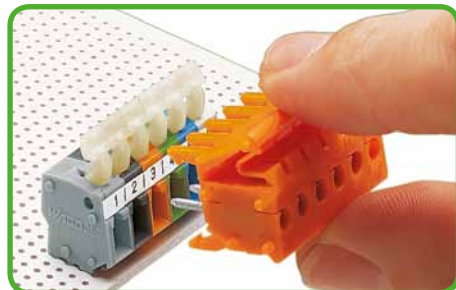
Pin spacing		Pin spacing	
5 mm / 0.197 in	320 V/2.5 kV/2 (II) 6 A	5.08 mm / 0.2 in	320 V/2.5 kV/2 (II) 6 A
7.5 mm / 0.295 in	630 V/ 4 kV/2 (II) 6 A	7.62 mm / 0.3 in	630 V/ 4 kV/2 (II) 6 A
10 mm / 0.394 in	1000 V/ 6 kV/2 (II) 6 A	10.16 mm / 0.4 in	1000 V/ 6 kV/2 (II) 6 A



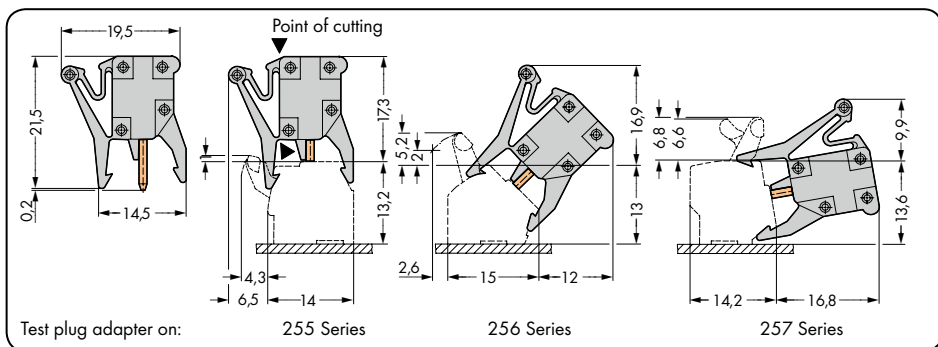
Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Test plug adapter, 1-pole, modular, socket for Ø 2 mm and Ø 2.3 mm test plugs			Test plug adapter, 1-pole, modular, socket for Ø 2 mm and Ø 2.3 mm test plugs		
Pin spacing 5 mm / 0.197 in			Pin spacing 5.08 mm / 0.2 in		
● gray	249-110	100 (4 x 25)	● orange	249-111	100 (4 x 25)
Pin spacing 7.5 mm / 0.295 in			Pin spacing 7.62 mm / 0.3 in		
● gray	249-112	100 (4 x 25)	● orange	249-113	100 (4 x 25)
Pin spacing 10 mm / 0.394 in			Pin spacing 10.16 mm / 0.4 in		
● gray	249-114	100 (4 x 25)	● orange	249-115	100 (4 x 25)
Accessories			Item No.	Page:	
Test plug, with 500 mm cable, Ø 2.3 mm, yellow			210-137	502	
Test plug, with 500 mm cable, Ø 2 mm, red			210-136	502	



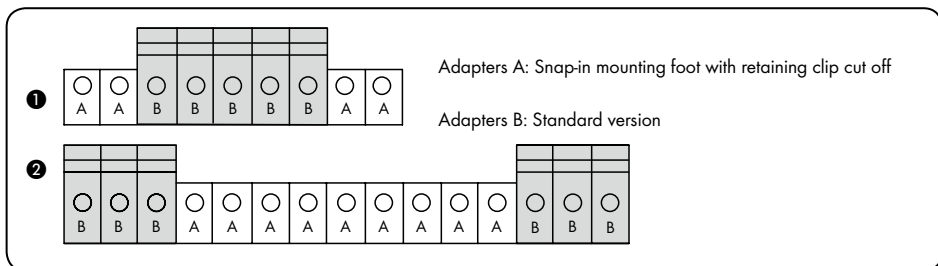
Assembling a multipole test plug adapter.



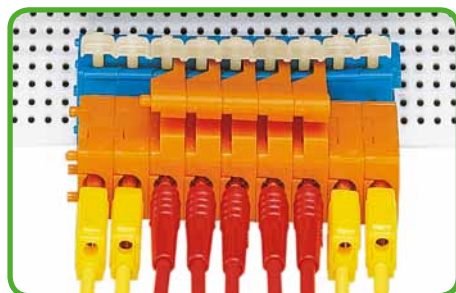
Inserting a test plug adapter into a terminal strip.



Testing terminal blocks with terminated conductors.



For lengths longer than 7 poles, the feet and retaining clip should be cut off!
 ① Adapters with mounting foot cut off assembled on both ends (7 to 9 poles)
 ② Adapters with mounting foot cut off in center position (10 to 15 poles)



9-pole test plug adapter, - external mounting feet with retaining clip cut off.

Comb-Style Jumper Bars for 745, 2706 and 2716 Series PCB Terminal Blocks

Comb-style jumper bar for 745 Series – 4 mm²

Comb-style jumper bar for 745 Series – 6 mm² and 2706 Series

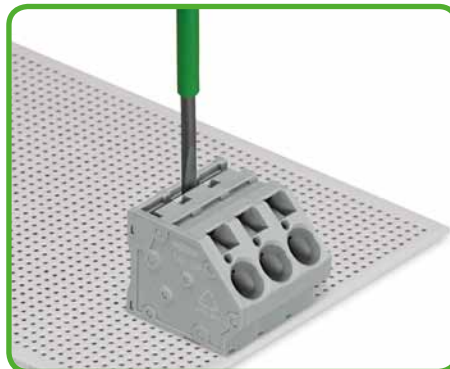
Comb-style jumper bar for 745 Series – 16 mm² and 2716 Series



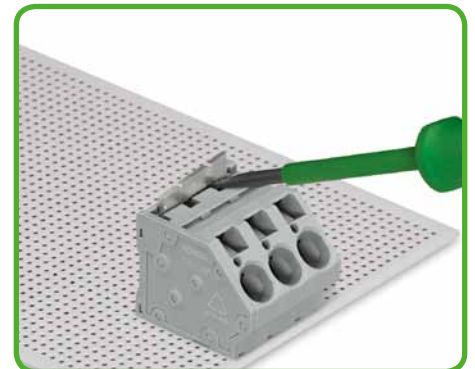
Jumper Type	Item No.	Pack. Unit	Jumper Type	Item No.	Pack. Unit	Jumper Type	Item No.	Pack. Unit
Pin spacing 5 mm for 745 Series – 4 mm ²			Pin spacing 7.5 mm for 745 Series – 6 mm ² and 2706 Series			Pin spacing 10 mm for 745 Series – 16 mm ² and 2716 Series		
1 to 3	745-181	250 (5 x 50)	1 to 3	745-381	250 (5 x 50)	1 to 3	745-682	400 (8 x 50)
2-way	745-182	250 (5 x 50)	2-way	745-382	250 (5 x 50)	2-way	745-582	400 (8 x 50)
3-way	745-183	250 (5 x 50)	3-way	745-383	250 (5 x 50)	3-way	745-583	300 (6 x 50)
4-way	745-184	200 (4 x 50)	4-way	745-384	200 (4 x 50)	4-way	745-584	200 (4 x 50)
5-way	745-185	200 (4 x 50)	5-way	745-385	200 (4 x 50)	5-way	745-585	200 (4 x 50)
10-way	745-180	200 (4 x 50)	10-way	745-380	200 (4 x 50)			
Pin spacing 7.5 mm for 745 Series – 4 mm ²			Pin spacing 10 mm for 745 Series – 6 mm ² and 2706 Series			Pin spacing 15 mm for 745 Series – 16 mm ² and 2716 Series		
1 to 3	745-191	250 (5 x 50)	1 to 3	745-391	250 (5 x 50)	1 to 3	745-631	200 (4 x 50)
2-way	745-192	250 (5 x 50)	2-way	745-392	250 (5 x 50)	2-way	745-632	200 (4 x 50)
3-way	745-193	250 (5 x 50)	3-way	745-393	250 (5 x 50)	3-way	745-633	200 (4 x 50)
4-way	745-194	200 (4 x 50)	4-way	745-394	200 (4 x 50)	4-way	745-634	200 (4 x 50)
5-way	745-195	200 (4 x 50)	5-way	745-395	200 (4 x 50)	5-way	745-635	200 (4 x 50)
10-way	745-190	200 (4 x 50)	10-way	745-390	200 (4 x 50)			
Pin spacing 10 mm for 745 Series – 4 mm ²						Pin spacing 20 mm for 745 Series – 16 mm ² and 2716 Series		
1 to 3	745-281	250 (5 x 50)				1 to 3	745-681	300 (6 x 50)
2-way	745-282	250 (5 x 50)				2-way	745-682	400 (8 x 50)
3-way	745-283	250 (5 x 50)				3-way	745-683	200 (4 x 50)
4-way	745-284	200 (4 x 50)				4-way	745-684	200 (4 x 50)
5-way	745-285	200 (4 x 50)				5-way	745-685	200 (4 x 50)
10-way	745-280	150 (8 x 50)						



Insert the comb-style jumper bar ...





... and push it down firmly using a screwdriver until it hits the backstop – 745 Series.



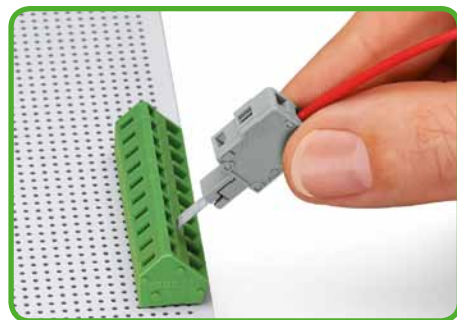
To remove the comb-style jumper bar, lift it up using a screwdriver – 745 Series.

Test Plug Modules, A-Type Contact, for 236, 736, 737 and 738 Series PCB Terminal Blocks (testing without terminated conductors)

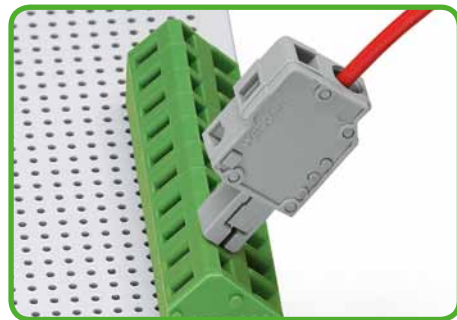
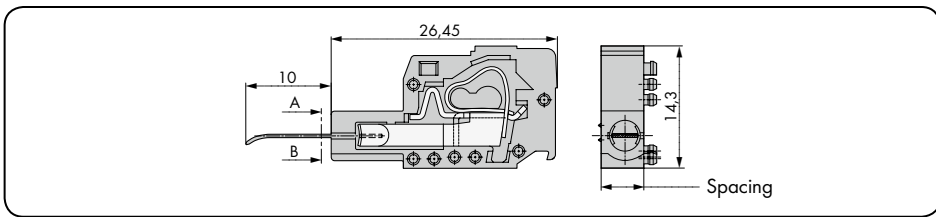
Pin spacing 5 mm / 0.197 in Pin spacing 7.5 mm / 0.295 in 0.08 – 2.5 mm ² AWG 28 – 12 250 V / 2.5 kV / 2 (II)* 0.5 A  12 – 13 mm / 0.47 – 0.51 in	Pin spacing 5.08 mm / 0.2 in Pin spacing 7.62 mm / 0.3 in 0.08 – 2.5 mm ² AWG 28 – 12 250 V / 2.5 kV / 2 (II)* 0.5 A  12 – 13 mm / 0.47 – 0.51 in
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Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Test plug module with 10 mm contact lug, can be snapped together, for 236 Series			Test plug module with 10 mm contact lug, can be snapped together, for 236 Series		
Pin spacing 5 mm / 0.197 in			Pin spacing 5.08 mm / 0.2 in		
● gray	231-127	100	● orange	231-128	100
Pin spacing 7.5 mm / 0.295 in			Pin spacing 7.62 mm / 0.3 in		
● gray	231-161	100	● orange	231-125	100

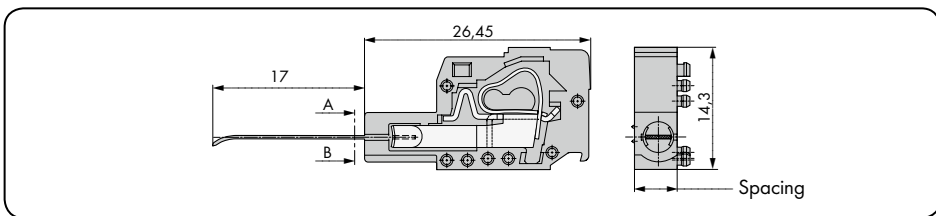


Inserting a test plug module into the operating slot.





Test plug module inserted, conductors not terminated.

Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Test plug module with 17 mm contact lug, can be snapped together, for 280, 736, 737, 738 and 780 Series			Test plug module with 17 mm contact lug, can be snapped together, for 736, 737 and 738 Series		
Pin spacing 5 mm / 0.197 in			Pin spacing 5.08 mm / 0.2 in		
● gray	231-126	100	● orange	231-426	100



Contact type A
Testing only in unwired condition.

Accessories	Item No.	Pack. Unit	Accessories	Item No.	Pack. Unit
End plate, gray			End plate, orange		
	231-100	200 (2 x 100)		231-300	200 (2 x 100)

* Observe protection against direct contact for voltages of 42 V and higher!

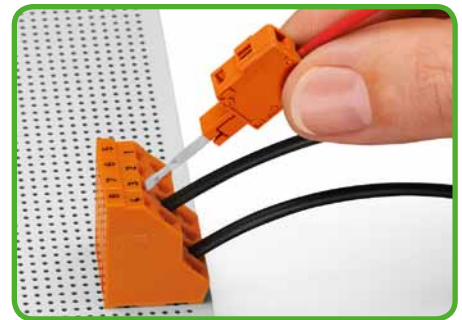
Test Plug Modules, B-Type Contact, for 736, 737 and 738 Series PCB Terminal Blocks

(Testing with terminated 0.75 mm² - 1.5 mm² "f-st" or 0.5 mm² "sol." conductors)

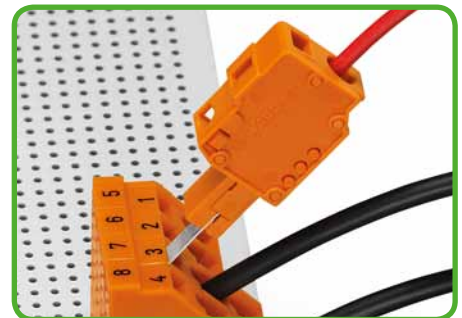
<p>Pin spacing 5 mm / 0.197 in Pin spacing 7.5 mm / 0.295 in</p> <p>0.08 - 2.5 mm² AWG 28 - 12 250 V / 2.5 kV / 2 (II)* 0.5 A</p> <p>12 - 13 mm / 0.47 - 0.51 in</p>	<p>Pin spacing 5.08 mm / 0.2 in</p> <p>0.08 - 2.5 mm² AWG 28 - 12 250 V / 2.5 kV / 2 (II)* 0.5 A</p> <p>12 - 13 mm / 0.47 - 0.51 in</p>	
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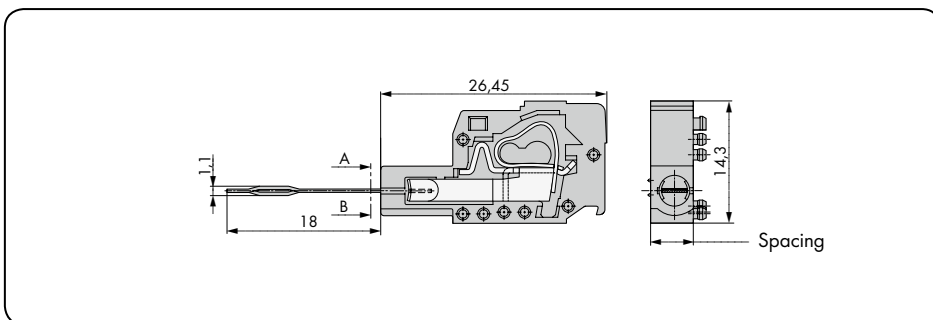
Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Test plug module with 18 mm contact lug, can be snapped together, for 280, 736, 737, 738 and 780 Series			Test plug module with 18 mm contact lug, can be snapped together, for 736, 737 and 738 Series		
Pin spacing 5 mm / 0.197 in			Pin spacing 5.08 mm / 0.2 in		
● gray	231-155	100	● orange	231-455	100
Test plug module with 18 mm contact lug, can be snapped together, for 736 and 737 Series					
Pin spacing 7.5 mm / 0.295 in					
● gray	231-456	100			
Accessories	Item No.	Pack. Unit	Accessories	Item No.	Pack. Unit
End plate, gray	231-100	200 (2 x 100)	End plate, orange	231-300	200 (2 x 100)



Inserting a test plug module into the operating slot.



Test plug module inserted, with terminated conductors.



Contact type B
 Testing only with terminated 0.75 mm² - 1.5 mm² "f-st" or 0.5 mm² "sol." conductors.

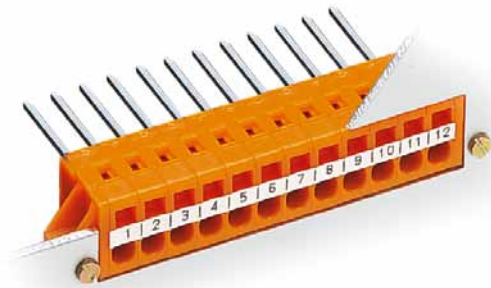
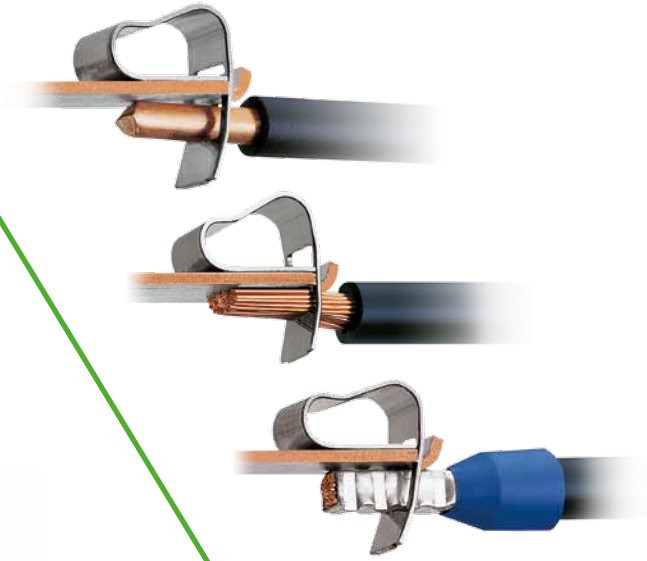
* Observe protection against direct contact for voltages of 42 V and higher!

Connection Technology for Feedthrough Terminal Blocks and Strips

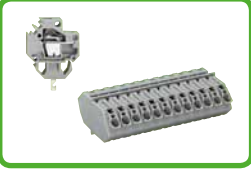

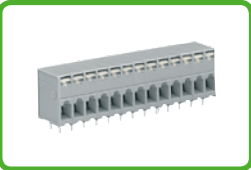
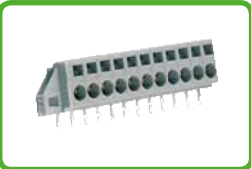

CAGE CLAMP®

The universal connection for solid, stranded and fine-stranded conductors.

Open clamping unit, insert the conductor, release clamp - done!



Product overview sorted by pin spacing, see pages 5 – 6

	Nominal Cross Section	Series	Pages
	4 mm ² /AWG 12	826	204 – 205
	4 mm ² /AWG 12	226	206 – 207
	16 mm ² /AWG 6	828	208 – 209
	2.5 mm ² /AWG 12	741	210 – 217
	2.5 mm ² /AWG 14	231	218 – 221
	2.5 mm ² /AWG 14	731	218 – 221
			524 – 546

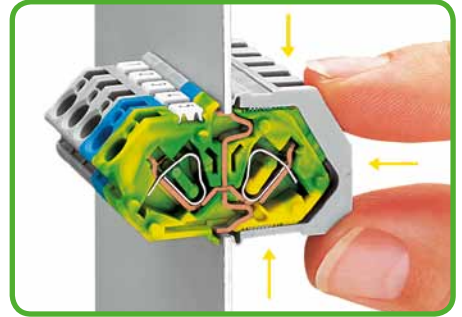
Description and Handling 826, 231, 731 and 226 Series



Insert the terminal strip into the cut-out until the stop hits the enclosure wall.

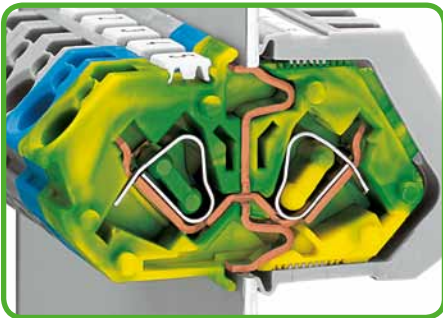


Secure the terminal strip to the inner side of the cut-out retaining clips ...

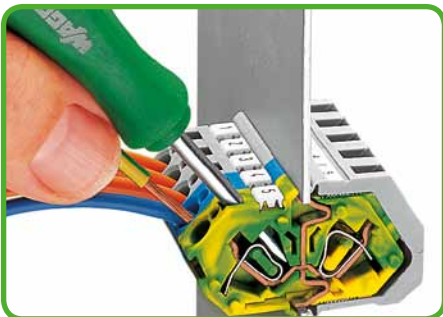


... push retaining clips until stop and press together in the direction of the terminal center.

Ground contact

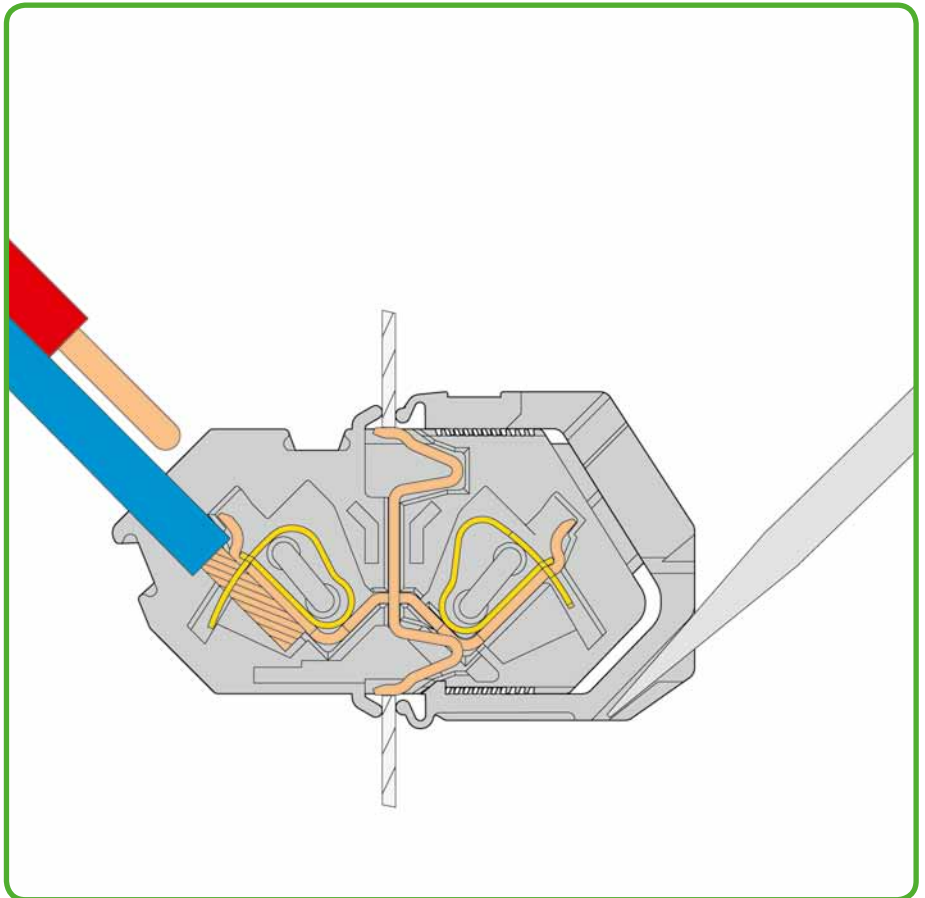


Automatic, double contact of the ground contact to the enclosure wall.



Inserting a conductor via screwdriver.

826 Series

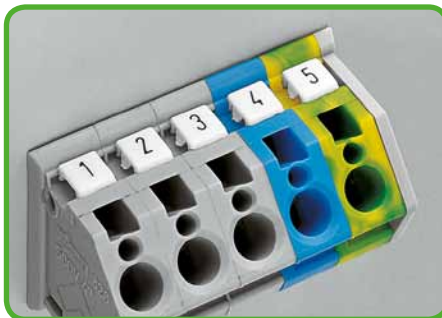


Testing



Testing with test plug, Ø 2 mm or Ø 2.3 mm.

Marking



Marking via miniature WSB marking system, directly on the terminals.



Self-adhesive marking strips adhere directly on the retaining clips.



CAGE CLAMP® clamps the following copper conductors:*

solid



stranded

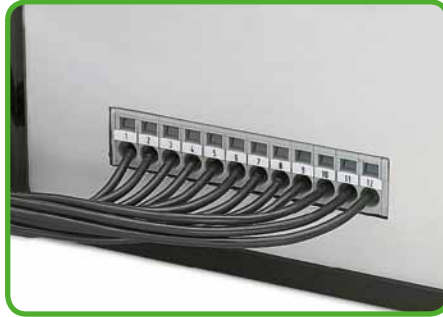


fine-stranded, also with tinned single strands

* For aluminum conductors, see notes in Section 11.



PCB feedthrough terminal strips.
Front-entry termination of conductors.

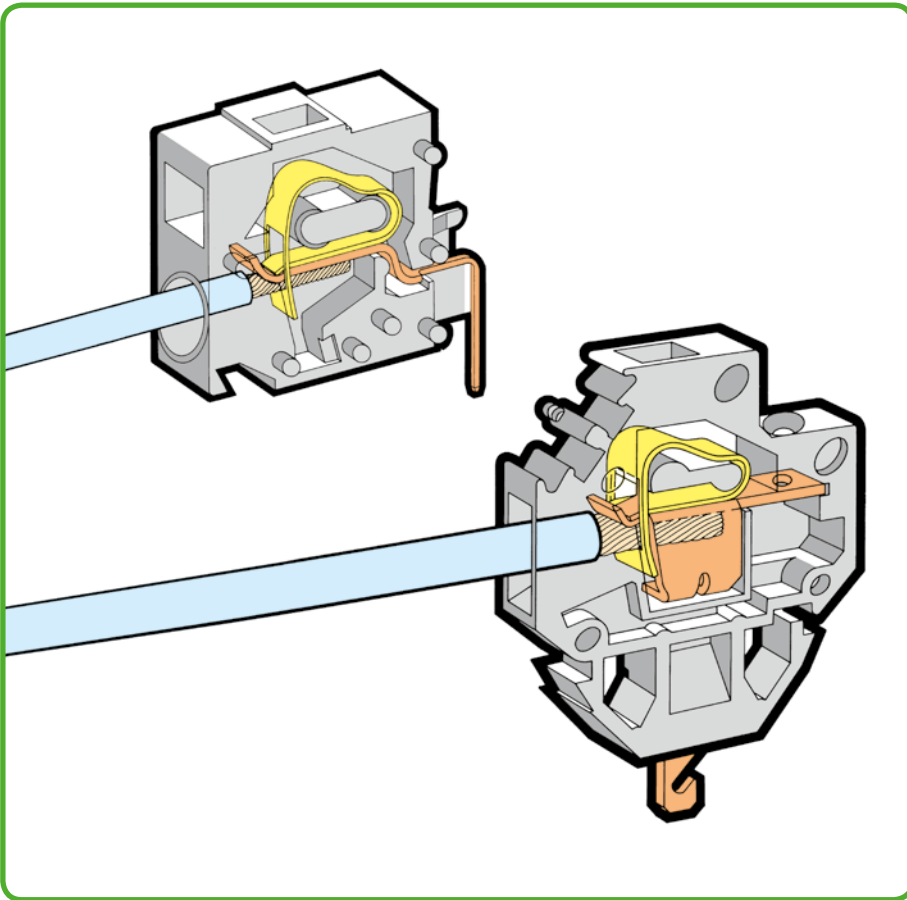


PCB feedthrough terminal strips can be used as front panel feedthrough for external conductor termination ...



... or with fixing flanges for mounting on the PCB or at the front panel. May be flush with enclosure or protrude.

231, 731 and 226 Series



Mounting

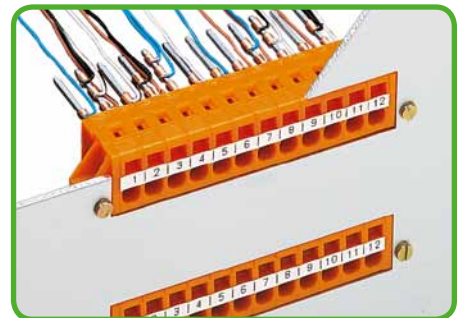


Snapping a 226 Series terminal block into the cut-out.

Testing



Testing with Ø 2 mm test plug, touch contact with current bar.



Feedthrough terminal strips with fixing flanges.



fine-stranded,
tip-bonded



fine-stranded,
with crimped ferrule
(gas-tight)



fine-stranded,
with crimped pin
terminal (gas-tight)

Panel Feedthrough Terminal Blocks 4 mm² Pin spacing 7 mm 826 Series



- Panel feedthrough terminal blocks with screwdriver-actuated CAGE CLAMP®
- Easy, tool-free installation
- Makes direct ground contact with enclosure/panel
- Test ports available on both sides

Technical data:

Pin Spacing	7 mm 0.276 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V*	320 V*	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	32 A	32 A	32 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	150 V	300 V
Nominal current UL	20 A	20 A	10 A
Nominal current CSA	20 A	20 A	10 A

Conductor data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 4 mm ²
Conductor size: fine-stranded	0.08 - 4 mm ²
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12
Strip length	9 - 10 mm / 0.35 - 0.39 in

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

826 Series accessories:

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Test plugs	538

* Suitable for neutral-grounded, three-phase, 4-wire systems rated at 400V (line-to-line) according to IEC/EN 60664-1.

Panel Feedthrough Terminal Blocks 4 mm²

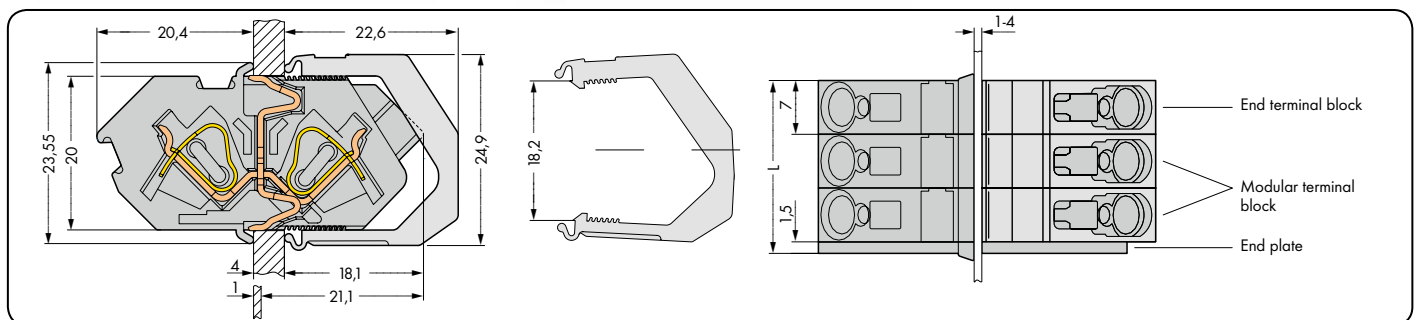
CAGE CLAMP®

2

205

2

End and center terminal blocks Pin spacing 7 mm / 0.276 in		Modular terminal blocks Pin spacing 7 mm / 0.276 in		Compact terminal blocks Pin spacing 7 mm / 0.276 in	
0.08 – 4 mm ²	AWG 28 – 12	0.08 – 4 mm ²	AWG 28 – 12	0.08 – 4 mm ²	AWG 28 – 12
320 V*/4 kV/2 32 A	300 V/10 A	320 V*/4 kV/2 32 A	300 V/10 A	320 V*/4 kV/2 32 A	300 V/10 A



Cut-out dimensions: H = 20.1^{+0.1} mm; L = (pole no. x 7 mm) + 1.6^{+0.1} mm

Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Modular, panel feedthrough end terminal block			Modular, panel feedthrough terminal block, including end plate and retaining clips			Compact panel feedthrough terminal block, including end plate and retaining clips, gray		
gray	826-159	50	gray	826-161	50	2	826-162	50
						3	826-163	50
						4	826-164	50
						5	826-165	50
						6	826-166	50
Modular, panel feedthrough center terminal block						7	826-167	25
gray	826-160	50				8	826-168	25
						9	826-169	25
						10	826-170	25
						11	826-171	10
						12	826-172	10

End plates for 826 Series, snap-on type, 1.5 mm/0.059 in thick	Color	Item No.	Pack. Unit
	gray	826-158	100 (4 x 25)
	blue	826-158/000-006	100 (4 x 25)
	green-yellow	826-158/000-016	100 (4 x 25)

Retaining clips for 826 Series, gray	Color	Item No.	Pack. Unit
	1-pole	826-155	50 (2 x 25)
	2-pole	826-156	50 (2 x 25)
	3-pole	826-157	50 (2 x 25)

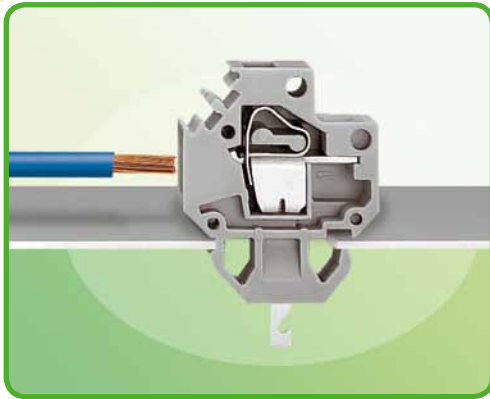
Item no. suffixes for colored panel feedthrough and compact terminal blocks:

blue/000-006	Ordering example: Compact terminal block, 7 mm pin spacing, 8-pole, blue: 826-168/000-016
green-yellow/000-016	

For other lengths and direct marking, please contact factory.

WAGO®

Modular Panel Feedthrough Terminal Blocks 4 mm² 226 Series



- Feedthrough terminal blocks with screwdriver-actuated CAGE CLAMP®
- Tool-free assembly via simple latching of terminal blocks to cut-out's inner side
- Conductor entry parallel to enclosure wall saves space

Technical data:

**Quick connect/
solder contact:**

Wire-wrap pin:

Pin:

	Quick connect/ solder contact:			Wire-wrap pin:			Pin:		
	2.8 mm 0.110 in	4.8 mm 0.189 in		1 x 1 mm 0.039 in x 0.039 in			0.8 x 1.6 mm 0.031 in x 0.063 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current (quick connect contact)	6 A	6 A	6 A	4 A	4 A	4 A	4 A	4 A	4 A
Nominal current (solder contact)	20 A	20 A	20 A	4 A	4 A	4 A	4 A	4 A	4 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	300 V	600 A	300 V	300 V	600 V	300 V	300 V	600 V
Nominal current UL (quick connect contact)	6 A	6 A	5 A	4 A	4 A	4 A	4 A	4 A	4 A
Nominal current UL (solder contact)	20 A	20 A	5 A	4 A	4 A	4 A	4 A	4 A	4 A
Nominal current CSA (quick connect contact)	6 A	6 A	5 A	4 A	4 A	4 A	4 A	4 A	4 A
Nominal current CSA (solder contact)	20 A	20 A	5 A	4 A	4 A	4 A	4 A	4 A	4 A

Conductor data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 4 mm ²
Conductor size: fine-stranded	0.08 - 4 mm ²
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12
Strip length	9 - 10 mm / 0.35 - 0.39 in

Material data:

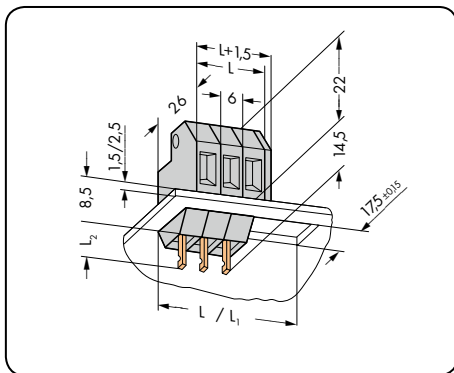
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

226 Series accessories:

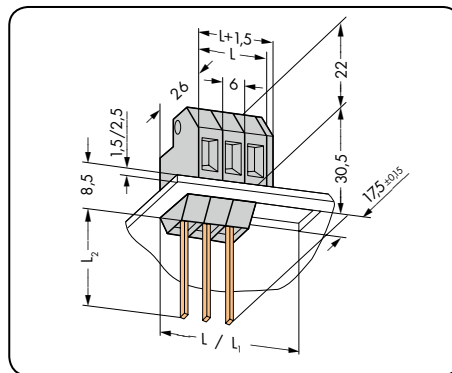
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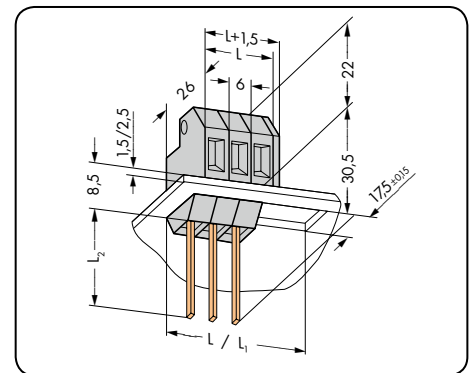
With quick connect/solder contact		With wire-wrap pin 1 x 1 mm		With pin 0.8 x 1.6 mm	
0.08 - 4 mm ²	AWG 28 - 12	0.08 - 4 mm ²	AWG 28 - 12	0.08 - 4 mm ²	AWG 28 - 12
320 V/4 kV/2 6/20 A	300 V 6/20 A	320 V/4 kV/2 4 A	300 V/4 A	320 V/4 kV/2 4 A	300 V/4 A



L = pole no. x 6 mm; L₁ = L + 1.5 mm
Feedthrough terminal block L₂ = 6 mm
Ground cond. feedthrough terminal block L₂ = 10.7 mm



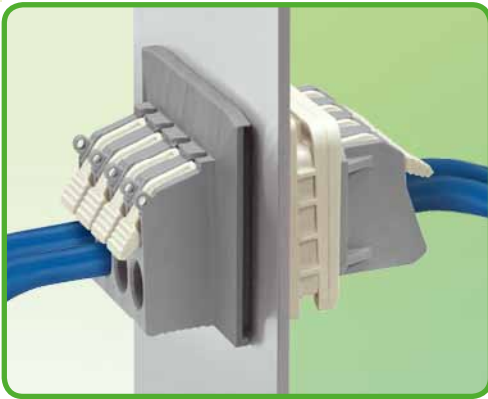
L = pole no. x 6 mm
L₁ = L + 1.5 mm
Feedthrough terminal block L₂ = 22 mm



L = pole no. x 6 mm
L₁ = L + 1.5 mm
Feedthrough terminal block L₂ = 22 mm

Contact Dimensions	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit		
Modular panel feedthrough terminal block, thickness of mounting plate 1.5 mm quick connect/solder contact, gray			Modular panel feedthrough terminal block, thickness of mounting plate 1.5 mm wire-wrap pin 1 x 1 mm, gray			Modular panel feedthrough terminal block, thickness of mounting plate 1.5 mm pin 0.8 x 1.6 mm, gray		
2.8 x 0.8	226-101	200	226-102	150	226-103	150		
4.8 x 0.8	226-104	200						
Modular panel feedthrough terminal block, thickness of mounting plate 2.5 mm quick connect/solder contact, gray			Modular panel feedthrough terminal block, thickness of mounting plate 2.5 mm wire-wrap pin 1 x 1 mm, gray			Modular panel feedthrough terminal block, thickness of mounting plate 2.5 mm pin 0.8 x 1.6 mm, gray		
2.8 x 0.8	226-111	200	226-112	150	226-113	150		
4.8 x 0.8	226-114	200						
Ground cond. panel feedthrough terminal block, thickness of mounting plate 1.5 mm quick connect/solder contact, green-yellow								
4.8 x 0.8	226-107	200						
Ground cond. panel feedthrough terminal block, thickness of mounting plate 1.5 mm without quick connect/solder contact, with direct contact to metal enclosure, green-yellow								
	226-108	200						
Accessories			Item No.	Pack. Unit				
Spacer, 6 mm wide for 1.5 mm plate thickness, gray			226-109	25				
Spacer, 6 mm wide for 2.5 mm plate thickness, gray			226-119	25				
End plate, long: 1.5 mm wide for cut-out L ₁ , gray			226-110	25				
End plate, short: 1.5 mm wide for cut-out L, gray			226-120	25				

Panel Feedthrough Terminal Blocks with Operating Levers 16 mm² Pin spacing 11.5 mm 828 Series



- Panel feedthrough terminal blocks with CAGE CLAMP® on both sides
- Easy, tool-free installation
- Tool-free opening and closing – fingers open/close levers
- Several clamping units can be held open simultaneously – convenient for terminating multi-core cables
- 600 V UL

Technical data:

Pin Spacing	11.5 mm 0.45 in		
	IEC/EN 60664-1		
Rating per	III	III	II
Overvoltage category	3	2	2
Pollution degree	1000 V	1000 V	1000 V
Rated voltage	8 kV	8 kV	8 kV
Rated surge voltage	41 A	41 A	41 A
Nominal current	UL/CSA		
Approvals per	B	C	D
Use group UL 1059	600 V DC	600 V DC	-
Rated voltage	30 A	30 A	-
Nominal current UL	30 A	30 A	-
Nominal current CSA			

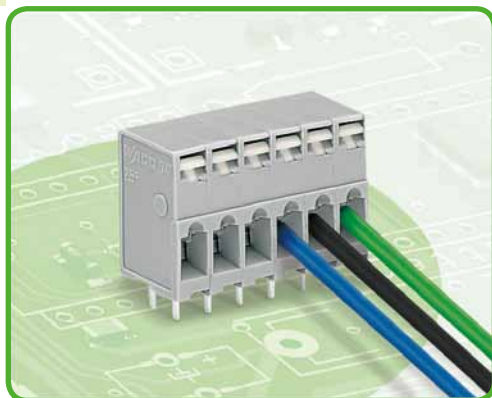
Conductor data:

Connection technology	CAGE CLAMP®
Conductor size: solid	1.5 - 16 mm ²
Conductor size: fine-stranded	1.5 - 16 mm ²
Conductor size: fine-stranded	1.5 - 10 mm ² (with insulated ferrule)
Conductor size: fine-stranded	1.5 - 10 mm ² (with uninsulated ferrule)
AWG	16 - 6
Strip length	12 - 13 mm / 0.47 - 0.51 in

Material data:

Material group	I
Insulating material	Polyamide 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

PCB Feedthrough Terminal Strips with Push-Buttons 2.5 mm² Pin Spacing 5 mm, 7.5 mm, 10 mm 741 Series



- Feedthrough terminal strips with push-button actuated CAGE CLAMP®
- Simple, push-button wiring
- Test slot integrated into upper-portion of conductor entry for test pins

Technical data:

Pin Spacing	5 mm 0.197 in			7.5 mm 0.295 in			10 mm 0.394 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	16 A	-	10 A	16 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	0° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

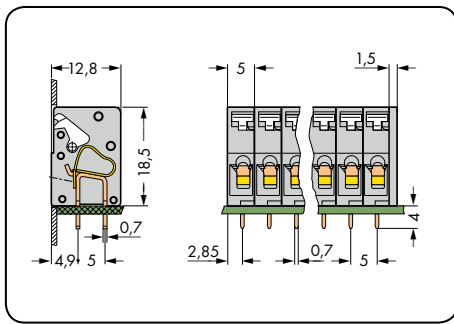
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

741 Series accessories:

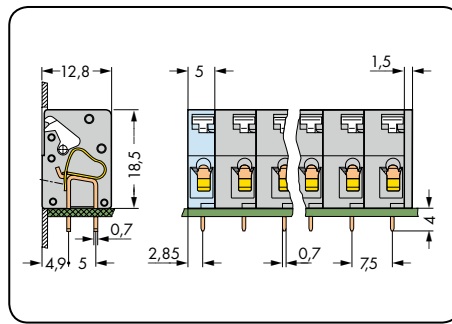
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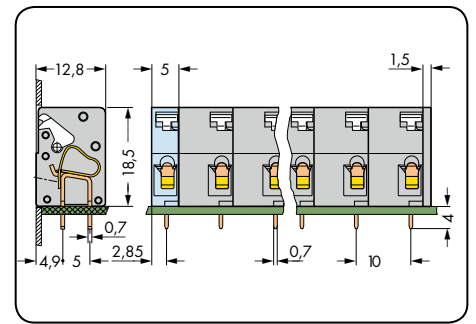
Pin spacing 5 mm / 0.197 in		Pin spacing 7.5 mm / 0.295 in		Pin spacing 10 mm / 0.394 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 1000 V/8 kV/2 16 A	AWG 28 - 12 300 V/10 A



Total length = pole no. x pin spacing + 1.5 mm



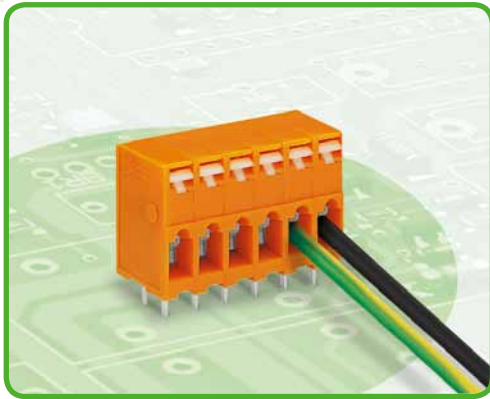
Total length = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



Total length = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Feedthrough terminal strip with push-buttons, 2 solder pins/pole, gray			Feedthrough terminal strip with push-buttons, 2 solder pins/pole, gray			Feedthrough terminal strip with push-buttons, 2 solder pins/pole, gray		
2	741-102	400 (4 x 100)	2	741-302	340 (4 x 85)	2	741-502	280 (4 x 70)
3	741-103	280 (4 x 70)	3	741-303	220 (4 x 55)	3	741-503	160 (4 x 40)
4	741-104	220 (4 x 55)	4	741-304	160 (4 x 40)	4	741-504	120 (4 x 30)
5	741-105	180 (4 x 45)	5	741-305	120 (4 x 30)	5	741-505	100 (4 x 25)
6	741-106	140 (4 x 35)	6	741-306	100 (4 x 25)	6	741-506	80 (4 x 20)
7	741-107	120 (4 x 30)	7	741-307	80 (4 x 20)	7	741-507	60 (4 x 15)
8	741-108	100 (4 x 25)	8	741-308	80 (4 x 20)	8	741-508	60 (4 x 15)
9	741-109	100 (4 x 25)	9	741-309	60 (4 x 15)			
10	741-110	80 (4 x 20)	10	741-310	60 (4 x 15)			
12	741-112	60 (4 x 15)						
16	741-116	40 (4 x 10)						
With terminal strips having more than 16 poles, use the cut-out of the enclosure for stabilizing the strip.			With terminal strips having more than 10 poles, use the cut-out of the enclosure for stabilizing the strip.			With terminal strips having more than 8 poles, use the cut-out of the enclosure for stabilizing the strip.		

PCB Feedthrough Terminal Strips with Push-Buttons 2.5 mm² Pin Spacing 5.08 mm, 7.62 mm, 10.16 mm 741 Series



- Feedthrough terminal strips with push-button actuated CAGE CLAMP®
- Simple, push-button wiring
- Test slot integrated into upper-portion of conductor entry for test pins

Technical data:

Pin Spacing	5.08 mm 0.2 in			7.62 mm 0.3 in			10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	16 A	-	10 A	16 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	0° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

741 Series accessories:

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PCB Feedthrough Terminal Strips with Push-Buttons 2.5 mm²

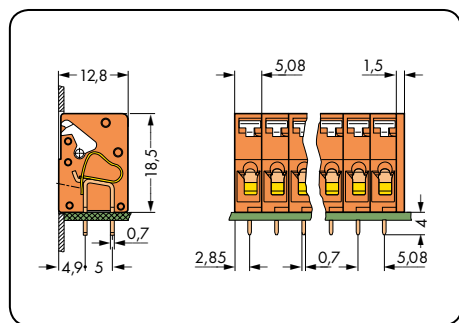
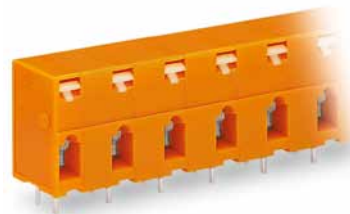
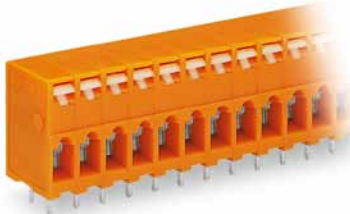
CAGE CLAMP®

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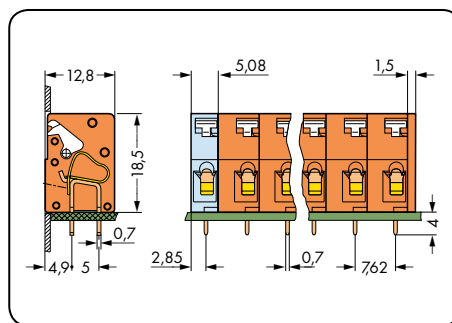
213

2

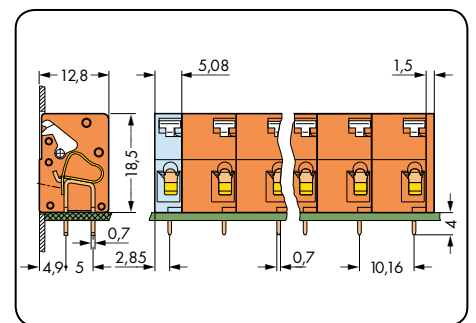
Pin spacing 5.08 mm / 0.2 in		Pin spacing 7.62 mm / 0.3 in		Pin spacing 10.16 mm / 0.4 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 1000 V/8 kV/2 16 A	AWG 28 - 12 300 V/10 A



Total length = (pole no. x pin spacing) + 1.5 mm



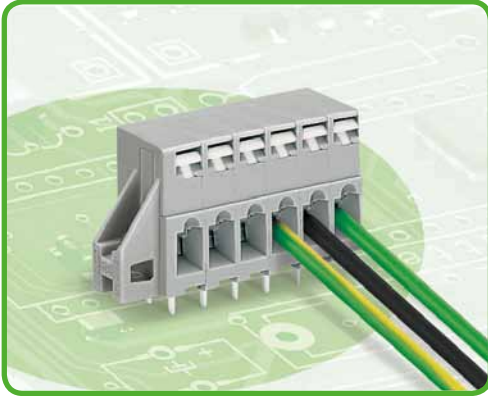
Total length = (pole no. - 1) x pin spacing + 5.08 mm + 1.5 mm



Total length = (pole no. - 1) x pin spacing + 5.08 mm + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Feedthrough terminal strip with push-buttons, 2 solder pins/pole, orange			Feedthrough terminal strip with push-buttons, 2 solder pins/pole, orange			Feedthrough terminal strip with push-buttons, 2 solder pins/pole, orange		
2	741-202	400 (4 x 100)	2	741-402	320 (4 x 80)	2	741-602	280 (4 x 70)
3	741-203	280 (4 x 70)	3	741-403	220 (4 x 55)	3	741-603	160 (4 x 40)
4	741-204	220 (4 x 55)	4	741-404	160 (4 x 40)	4	741-604	120 (4 x 30)
5	741-205	180 (4 x 45)	5	741-405	120 (4 x 30)	5	741-605	100 (4 x 25)
6	741-206	140 (4 x 35)	6	741-406	100 (4 x 25)	6	741-606	80 (4 x 20)
7	741-207	120 (4 x 30)	7	741-407	80 (4 x 20)	7	741-607	60 (4 x 15)
8	741-208	100 (4 x 25)	8	741-408	80 (4 x 20)	8	741-608	60 (4 x 15)
9	741-209	100 (4 x 25)	9	741-409	60 (4 x 15)			
10	741-210	80 (4 x 20)	10	741-410	60 (4 x 15)			
12	741-212	60 (4 x 15)						
16	741-216	40 (4 x 10)						
With terminal strips having more than 16 poles, use the cut-out of the enclosure for stabilizing the strip.			With terminal strips having more than 10 poles, use the cut-out of the enclosure for stabilizing the strip.			With terminal strips having more than 8 poles, use the cut-out of the enclosure for stabilizing the strip.		

PCB Feedthrough Terminal Strips with Fixing Flanges and Push-Buttons 2.5 mm² Pin Spacing 5 mm, 7.5 mm, 10 mm 741 Series



- Feedthrough terminal strips with push-button actuated CAGE CLAMP®
- Simple, push-button wiring
- Test slot integrated into upper-portion of conductor entry for test pins
- Fixing flanges for additional mechanical stability

Technical data:

Pin Spacing	5 mm 0.197 in			7.5 mm 0.295 in			10 mm 0.394 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	16 A	-	10 A	16 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	0° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

741 Series accessories:

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PCB Feedthrough Terminal Strips with Fixing Flanges and Push-Buttons 2.5 mm²

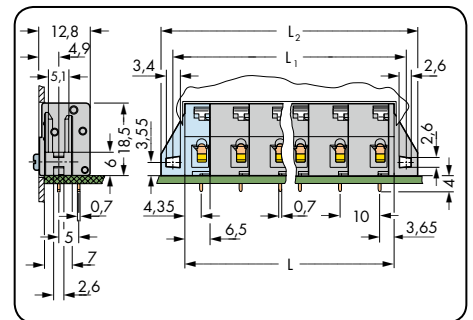
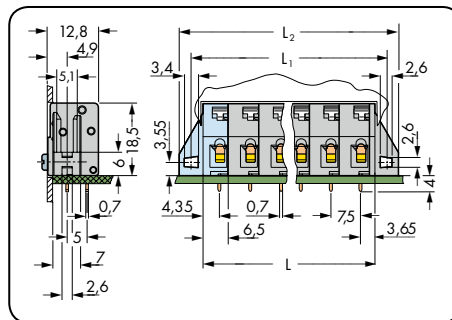
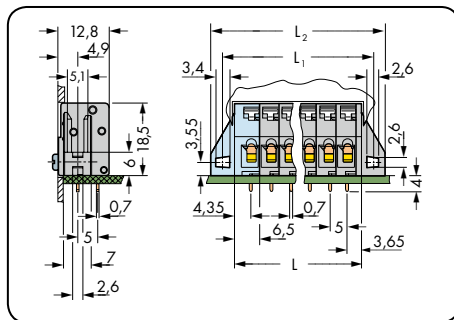
CAGE CLAMP®

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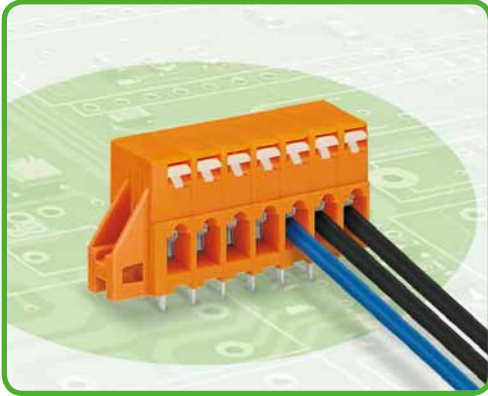
Pin spacing 5 mm / 0.197 in		Pin spacing 7.5 mm / 0.295 in		Pin spacing 10 mm / 0.394 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 1000 V/8 kV/2 16 A	AWG 28 - 12 300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 6.5 \text{ mm} + 1.5 \text{ mm}$
 $L_1 = L + 5.8 \text{ mm}$
 $L_2 = L_1 + 6.4 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Feedthrough terminal strip with fixing flanges and push-buttons, 2 solder pins/pole, gray			Feedthrough terminal strip with fixing flanges and push-buttons, 2 solder pins/pole, gray			Feedthrough terminal strip with fixing flanges and push-buttons, 2 solder pins/pole, gray		
2	741-132	180 (4 x 45)	2	741-322	160 (4 x 40)	2	741-522	160 (4 x 40)
3	741-133	160 (4 x 40)	3	741-323	140 (4 x 35)	3	741-523	120 (4 x 30)
4	741-134	140 (4 x 35)	4	741-324	100 (4 x 25)	4	741-524	80 (4 x 20)
5	741-135	120 (4 x 30)	5	741-325	80 (4 x 20)	5	741-525	80 (4 x 20)
6	741-136	100 (4 x 25)	6	741-326	80 (4 x 20)	6	741-526	60 (4 x 15)
7	741-137	80 (4 x 20)	7	741-327	60 (4 x 15)	7	741-527	60 (4 x 15)
8	741-138	80 (4 x 20)	8	741-328	60 (4 x 15)	8	741-528	40 (4 x 10)
9	741-139	80 (4 x 20)	9	741-329	60 (4 x 15)			
10	741-140	60 (4 x 15)	10	741-330	40 (4 x 10)			
12	741-142	60 (4 x 15)						
16	741-146	40 (4 x 10)						

PCB Feedthrough Terminal Strips with Fixing Flanges and Push-Buttons 2,5 mm² Pin Spacing 5.08 mm, 7.62 mm, 10.16 mm 741 Series



- Feedthrough terminal strips with push-button actuated CAGE CLAMP®
- Simple, push-button wiring
- Test slot integrated into upper-portion of conductor entry for test pins
- Fixing flanges for additional mechanical stability

Technical data:

Pin Spacing	5.08 mm 0.2 in			7.62 mm 0.3 in			10.16 mm 0.4 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	16 A	-	10 A	16 A	-	10 A	16 A	-	10 A

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 (12: THHN, THWN)
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	0° to PCB
Solder pin: length/width	4 mm / 0.7 x 0.7 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

741 Series accessories:

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PCB Feedthrough Terminal Strips with Fixing Flanges and Push-Buttons 2.5 mm²

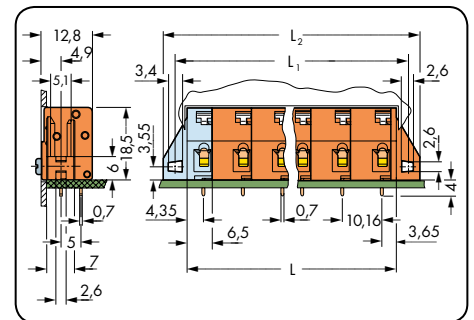
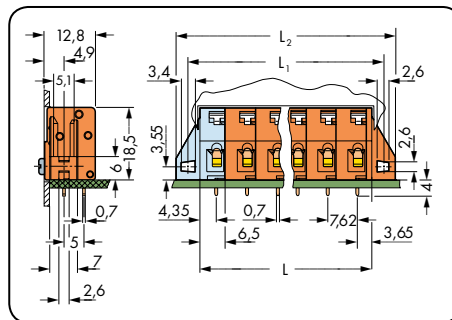
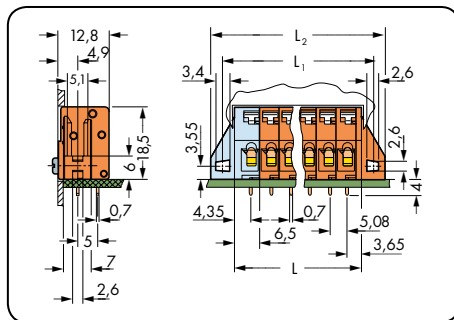
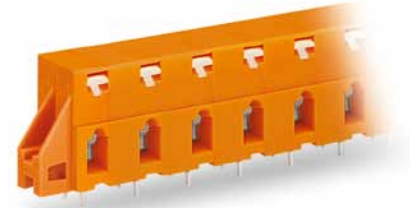
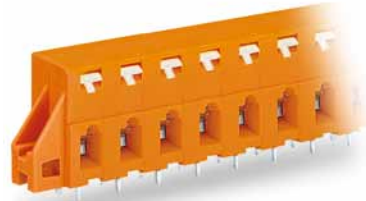
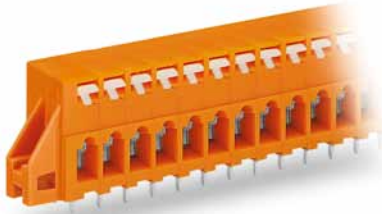
CAGE CLAMP®

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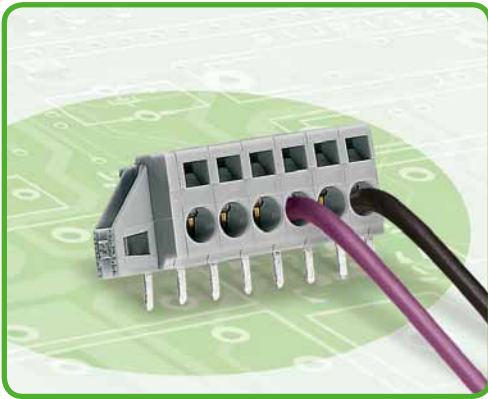
Pin spacing 5.08 mm / 0.2 in		Pin spacing 7.62 mm / 0.3 in		Pin spacing 10.16 mm / 0.4 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/10 A	0.08 - 2.5 mm ² 1000 V/8 kV/2 16 A	AWG 28 - 12 300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 6.5 \text{ mm} + 1.5 \text{ mm}$
 $L_1 = L + 5.8 \text{ mm}$
 $L_2 = L_1 + 6.4 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Feedthrough terminal strip with fixing flanges and push-buttons, 2 solder pins/pole, orange			Feedthrough terminal strip with fixing flanges and push-buttons, 2 solder pins/pole, orange			Feedthrough terminal strip with fixing flanges and push-buttons, 2 solder pins/pole, orange		
2	741-232	180 (4 x 45)	2	741-422	160 (4 x 40)	2	741-622	160 (4 x 40)
3	741-233	160 (4 x 40)	3	741-423	140 (4 x 35)	3	741-623	120 (4 x 30)
4	741-234	140 (4 x 35)	4	741-424	100 (4 x 20)	4	741-624	80 (4 x 20)
5	741-235	120 (4 x 30)	5	741-425	80 (4 x 20)	5	741-625	80 (4 x 20)
6	741-236	100 (4 x 25)	6	741-426	80 (4 x 20)	6	741-626	60 (4 x 15)
7	741-237	80 (4 x 20)	7	741-427	60 (4 x 15)	7	741-627	40 (4 x 10)
8	741-238	80 (4 x 20)	8	741-428	60 (4 x 15)	8	741-628	40 (4 x 10)
9	741-239	80 (4 x 20)	9	741-429	40 (4 x 10)			
10	741-240	60 (4 x 15)	10	741-430	40 (4 x 10)			
12	741-242	60 (4 x 15)						
16	741-246	40 (4 x 10)						

PCB Feedthrough Terminal Strips with Fixing Flanges 2.5 mm² Pin Spacing 5 mm 231, 731 Series



- Feedthrough terminal strips with screwdriver-actuated CAGE CLAMP®
- Fixing flanges for mounting on the PCB or at the front panel – either flush with enclosure or protruding
- Versions without fixing flange available upon request

Technical data:

Pin Spacing 5 mm / 0.197 in	Solder pin 1 x 1.2 mm			Solder pin 1 x 1.2 mm flush mounting			Angled pin 1 x 1 mm flush mounting		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A	5 A	5 A	5 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	150 V	300 V	300 V	150 V	300 V	300 V	150 V	300 V
Nominal current UL	15 A	15 A	10 A	15 A	15 A	10 A	5 A	5 A	5 A
Nominal current CSA	15 A	15 A	10 A	15 A	15 A	10 A	5 A	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 14
Strip length	8 - 9 mm / 0.31 - 0.35 in
Solder pin: length/width	4.7 mm / 1 x 1.2 mm
Solder pin: drilled hole diameter	1.8 ^{+0.1} mm

Material data:

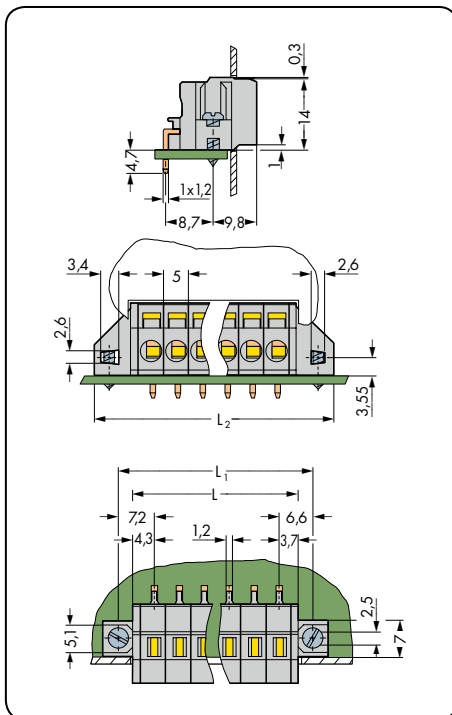
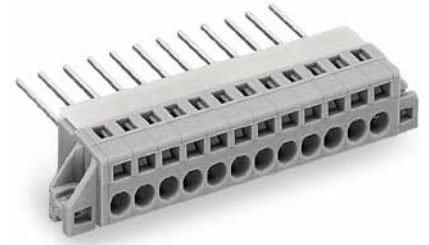
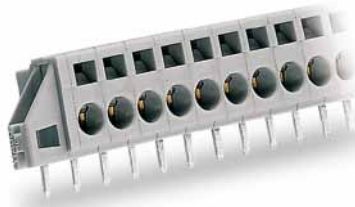
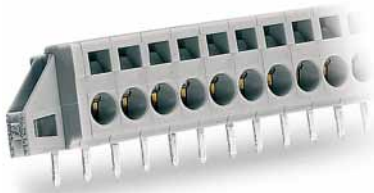
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

231, 731 Series accessories:

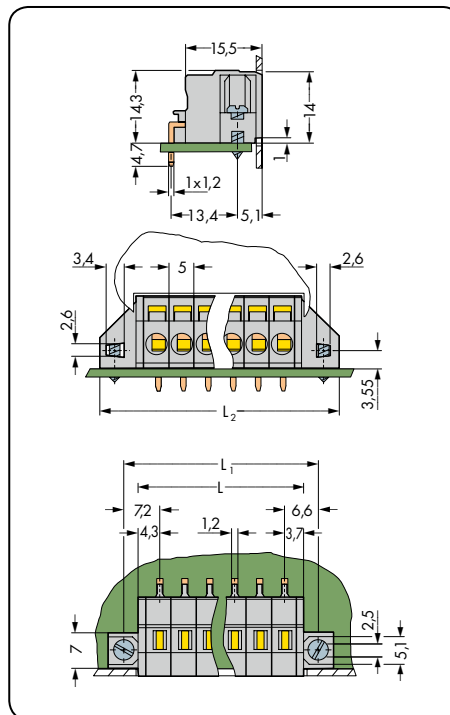
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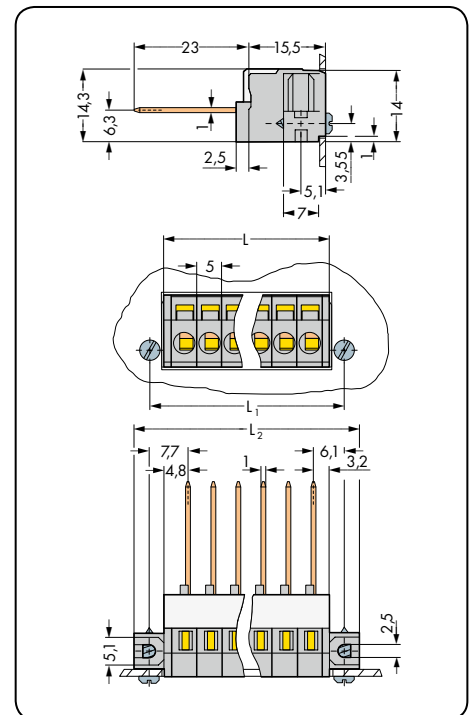
With solder pins 1 x 1.2 mm Pin spacing 5 mm / 0.197 in		For flush mounting, with solder pins 1 x 1.2 mm Pin spacing 5 mm / 0.197 in		For flush mounting, with long wire-wrap pins 1 x 1 mm Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 14	0.08 - 2.5 mm ²	AWG 28 - 14	0.08 - 2.5 mm ²	AWG 28 - 14
320 V/4 kV/2 16 A	300 V/10 A	320 V/4 kV/2 16 A	300 V/10 A	320 V/4 kV/2 5 A	300 V/5 A



L = (pole no. x pin spacing) + 3 mm
 $L_1 = L + 5.8$ mm
 $L_2 = L_1 + 6.4$ mm



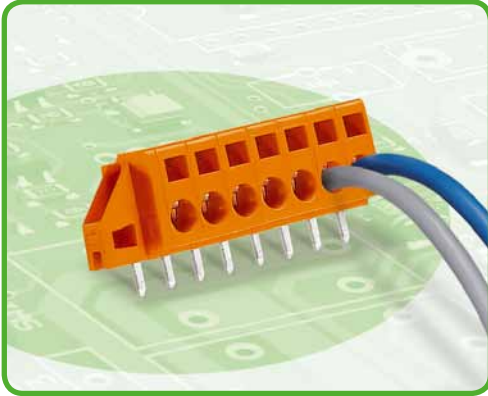
L = (pole no. x pin spacing) + 3 mm
 $L_1 = L + 5.8$ mm
 $L_2 = L_1 + 6.4$ mm
 for mounting plate thickness up to 1.5 mm



L = (pole no. x pin spacing) + 3 mm
 $L_1 = L + 5.8$ mm
 $L_2 = L_1 + 6.4$ mm
 for mounting plate thickness up to 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Feedthrough terminal strip with fixing flanges, gray			Feedthrough terminal strip with fixing flanges for flush mounting, gray			Feedthrough terminal strip with fixing flanges for flush mounting, gray		
2	231-602/017-000	100	2	231-602/023-000	100	2	731-132	50
3	231-603/017-000	50	3	231-603/023-000	50	3	731-133	50
4	231-604/017-000	50	4	231-604/023-000	50	4	731-134	25
5	231-605/017-000	50	5	231-605/023-000	50	5	731-135	25
6	231-606/017-000	50	6	231-606/023-000	50	6	731-136/048-000	25
7	231-607/017-000	50	7	231-607/023-000	50	7	731-137/048-000	25
8	231-608/017-000	50	8	231-608/023-000	50	8	731-138/048-000	25
9	231-609/017-000	25	9	231-609/023-000	25	9	731-139/048-000	10
10	231-610/017-000	25	10	231-610/023-000	25	10	731-140/048-000	10
11	231-611/017-000	25	11	231-611/023-000	25	11	731-141/048-000	10
12	231-612/017-000	25	12	231-612/023-000	25	12	731-142/048-000	10
						from 6 poles on with reinforcing profile		

PCB Feedthrough Terminal Strips with Fixing Flanges 2.5 mm² Pin Spacing 5.08 mm 231, 731 Series



- Feedthrough terminal strips with screwdriver-actuated CAGE CLAMP®
- Fixing flanges for mounting on the PCB or at the front panel – either flush with enclosure or protruding
- Versions without fixing flange available upon request

Technical data:

Pin Spacing 5.08 mm / 0.2 in	Solder pin 1 x 1.2 mm			Solder pin 1 x 1.2 mm flush mounting			Angled pin 1 x 1 mm flush mounting		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A	5 A	5 A	5 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	150 V	300 V	300 V	150 V	300 V	300 V	150 V	300 V
Nominal current UL	15 A	15 A	10 A	15 A	15 A	10 A	5 A	5 A	5 A
Nominal current CSA	15 A	15 A	10 A	15 A	15 A	10 A	5 A	-	-

Conductor and solder pin data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 14
Strip length	8 - 9 mm / 0.31 - 0.35 in
Solder pin: length/width	4.7 mm / 1 x 1.2 mm
Solder pin: drilled hole diameter	1.8 ^{+0.1} mm

Material data:

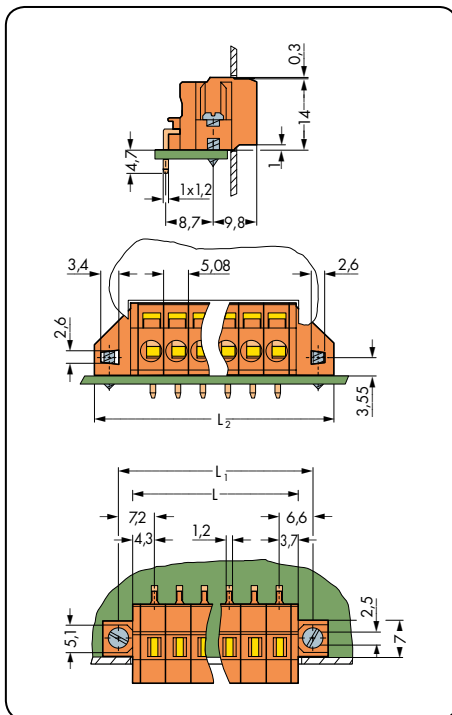
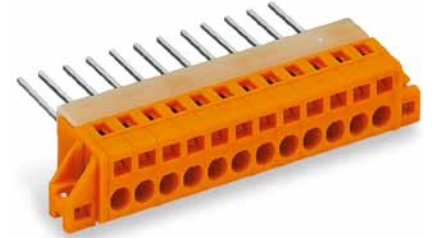
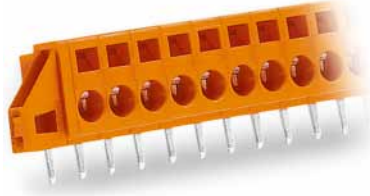
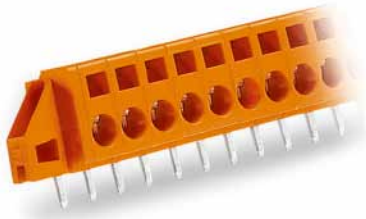
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

231, 731 Series accessories:

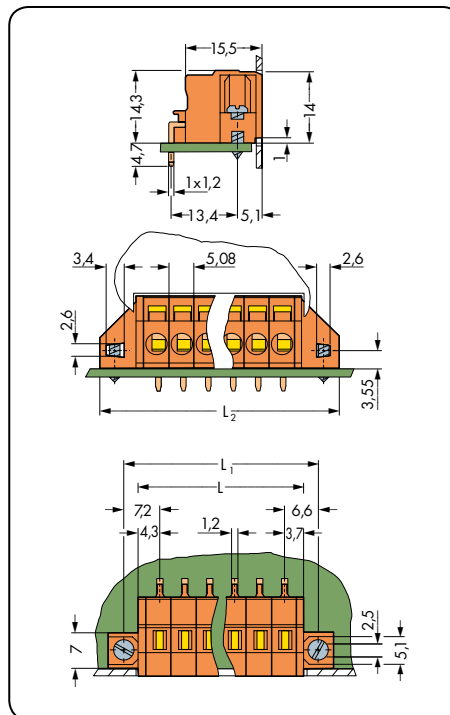
Page:

Marking accessories	540 - 543
Operating tools	526 - 528
Screws	546

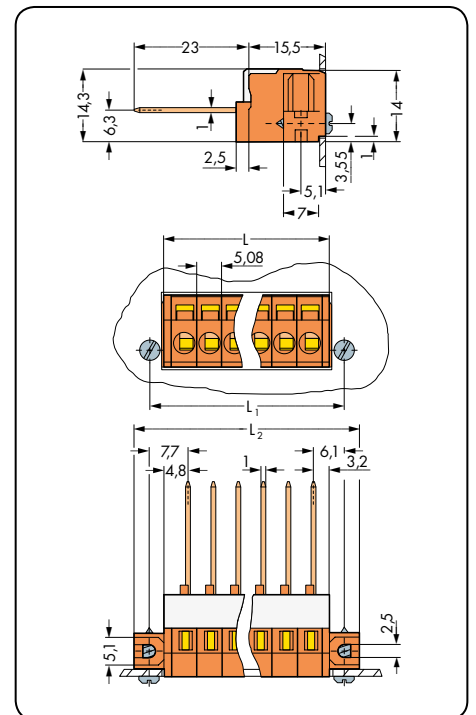
With solder pins 1 x 1.2 mm Pin spacing 5.08 mm / 0.2 in		For flush mounting with solder pins 1 x 1.2 mm Pin spacing 5.08 mm / 0.2 in.		For flush mounting, with long wire-wrap pins 1 x 1 mm Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 14	0.08 - 2.5 mm ²	AWG 28 - 14	0.08 - 2.5 mm ²	AWG 28 - 14
320 V/4 kV/2 16 A	300 V/10 A	320 V/4 kV/2 16 A	300 V/10 A	320 V/4 kV/2 5 A	300 V/5 A



L = (pole no. x pin spacing) + 3 mm
 $L_1 = L + 5.8$ mm
 $L_2 = L_1 + 6.4$ mm



L = (pole no. x pin spacing) + 3 mm
 $L_1 = L + 5.8$ mm
 $L_2 = L_1 + 6.4$ mm
 for mounting plate thickness up to 1.5 mm



L = (pole no. x pin spacing) + 3 mm
 $L_1 = L + 5.8$ mm
 $L_2 = L_1 + 6.4$ mm
 for mounting plate thickness up to 1.5 mm

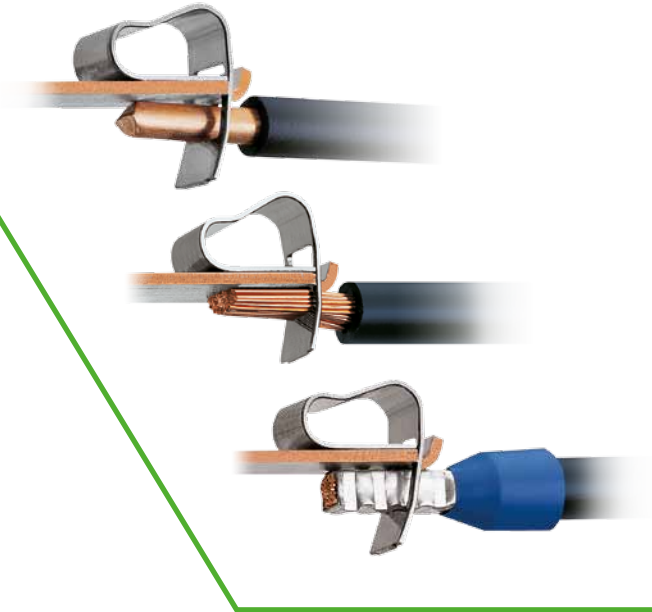
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Feedthrough terminal strip with fixing flanges, orange			Feedthrough terminal strip with fixing flanges for flush mounting, orange			Feedthrough terminal strip with fixing flanges for flush mounting, orange		
2	231-632/017-000	100	2	231-632/023-000	100	2	731-162	50
3	231-633/017-000	50	3	231-633/023-000	50	3	731-163	50
4	231-634/017-000	50	4	231-634/023-000	50	4	731-164	25
5	231-635/017-000	50	5	231-635/023-000	50	5	731-165	25
6	231-636/017-000	50	6	231-636/023-000	50	6	731-166/048-000	25
7	231-637/017-000	50	7	231-637/023-000	50	7	731-167/048-000	25
8	231-638/017-000	50	8	231-638/023-000	50	8	731-168/048-000	25
9	231-639/017-000	25	9	231-639/023-000	25	9	731-169/048-000	10
10	231-640/017-000	25	10	231-640/023-000	25	10	731-170/048-000	10
11	231-641/017-000	25	11	231-641/023-000	25	11	731-171/048-000	10
12	231-642/017-000	25	12	231-642/023-000	25	12	731-172/048-000	10
						models with 6 pins or more feature reinforcing profile		

Connection Technology for MCS – MULTI CONNECTION SYSTEM MICRO 0.5 mm²

CAGE CLAMP®

The universal connection for solid, stranded and fine-stranded conductors.

Open clamping unit, insert the conductor, release clamp – done!









PCB Connectors and Headers

MCS - MULTI CONNECTION SYSTEM MICRO

Pin spacing 2.5 mm / Nominal cross section 0.5 mm²

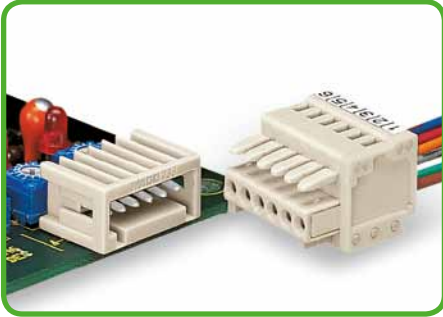
3

Pages

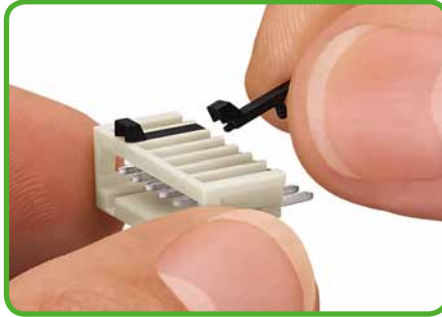
	Female Connectors, CAGE CLAMP® Termination	226 - 227
	Male Headers with Solder Pins	228 - 229
	Male Headers with Press-In Pins	228 - 229
	Male Headers with Solder Pins, "Through-Hole Reflow" Soldering	230 - 232
	Male Connectors, CAGE CLAMP® Termination	234 - 235
	MCS-MICRO Accessories	236 - 239
	Accessories, General - Section 10	524 - 546

Description and Handling

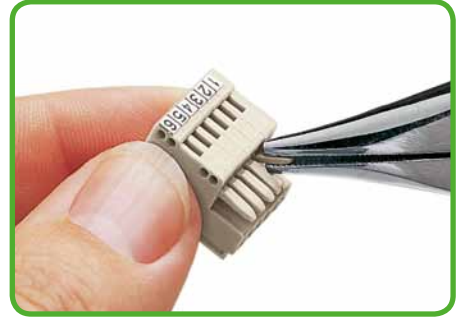
MCS - MULTI CONNECTION SYSTEM MICRO



Male header and female connector - 100% protected against mismatching. Only mating halves with the same pole number can be connected together.



Coding a male header - fitting coding key(s).



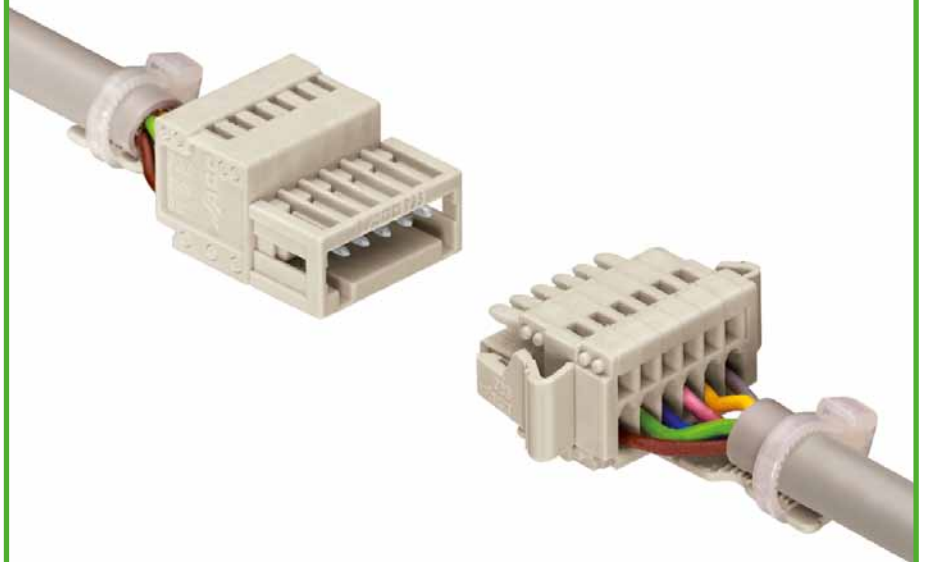
Coding a female connector - removing coding finger(s).

733 Series



"Wire-to-wire" connection of single conductors.

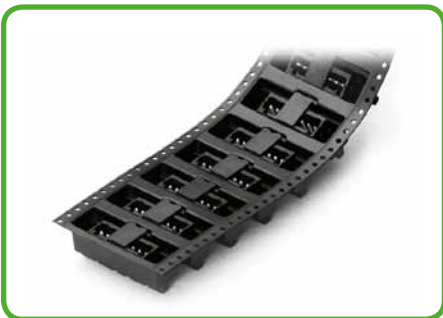
100% protected against mismatching



"Wire-to-wire" connection of multi-core cables
Plug-in connection using strain relief plates and locking levers



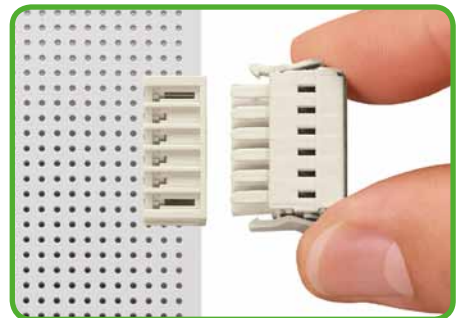
THR male headers for reflow soldering in SMT production.



Tape-and-reel packaging for THR male headers.



Locking levers prevent accidental disconnection.



CAGE CLAMP® clamps the following copper conductors:*

solid

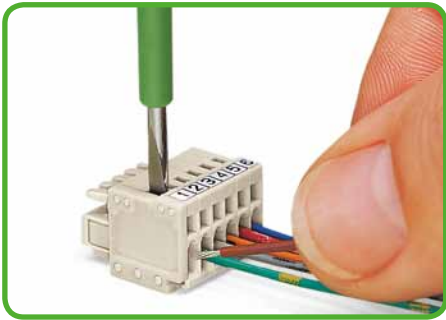


stranded



fine-stranded, also with tinned single strands

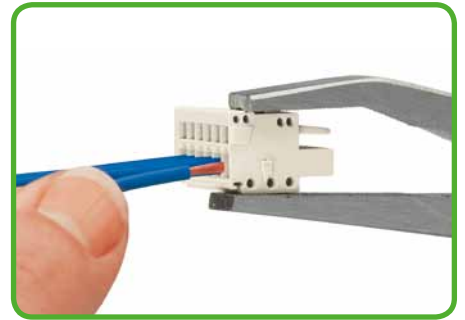
* For aluminum conductors, see notes in Section 11.



Inserting conductor via (2.5 x 0.4) mm screwdriver. Actuation perpendicular to conductor termination.



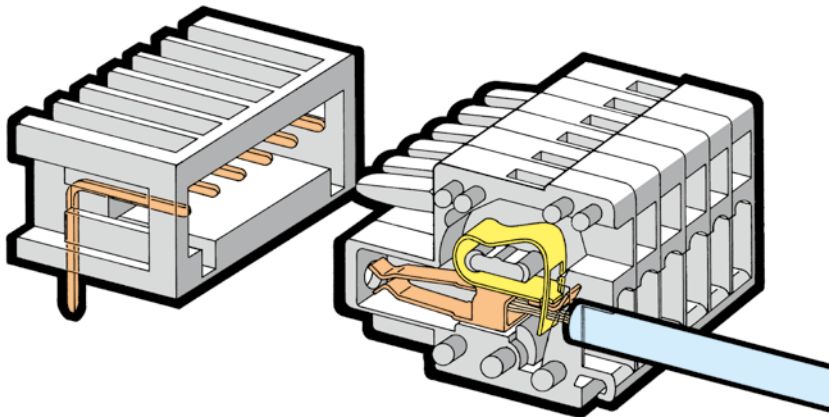
Inserting conductor via 233-331 operating tool. Operation parallel to conductor termination.



Inserting conductor via 210-251 operating tool.

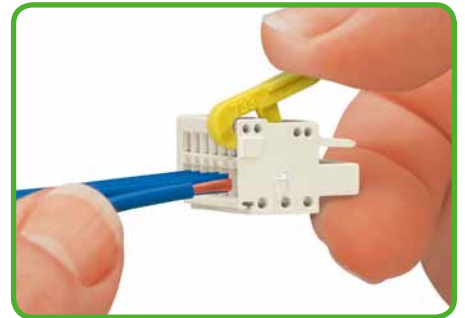
733 Series

100% protected against mismatching



MCS-MICRO

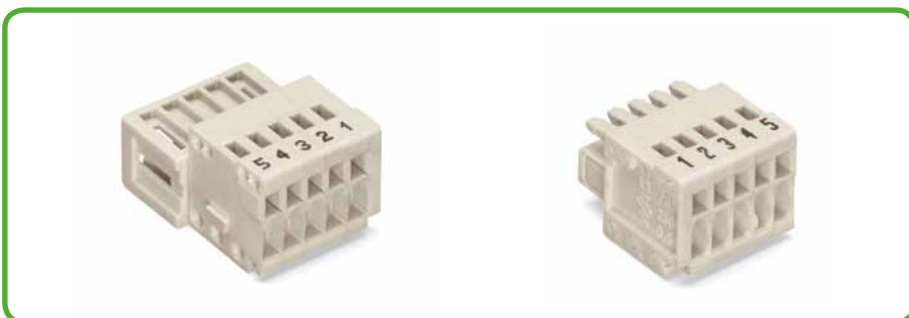
Pin spacing 2.5 mm/0.098 in



Inserting conductor via 733-191 operating lever.



Testing with Ø 1 mm test pin (735-500), touch contact with current bar.



Marking options via self-adhesive marker strips or factory direct printing.



Strain relief plates for factory or in-the-field assembly.



fine-stranded, tip-bonded

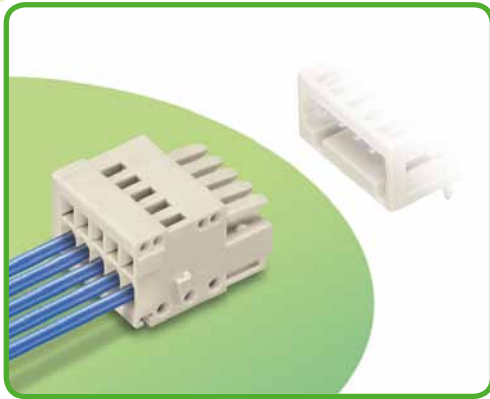


fine-stranded with crimped ferrules (gas-tight)



fine-stranded with crimped pin ends (gas-tight)

Female Connectors Pin Spacing 2.5 mm MCS-MICRO



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- Strain relief plates for field or factory assembly
- 100% protected against mismatching
- With coding fingers

Technical data:

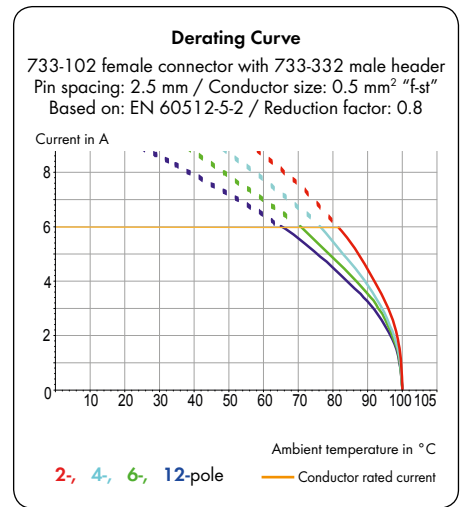
Pin Spacing	2.5 mm 0.098 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	100 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	6 A	6 A	6 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	150 V	-	-
Nominal current UL	4 A	-	-
Nominal current CSA	4 A	-	-

Conductor data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 0.5 mm ²
Conductor size: fine-stranded	0.08 - 0.5 mm ²
Conductor size: fine-stranded	0.25 - 0.34 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 0.34 mm ² (with uninsulated ferrule)
AWG	28 - 20
Strip length	5 - 6 mm / 0.20 - 0.24 in

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix .../010-000" is added to the "basic item no."	



MCS-MICRO accessories:

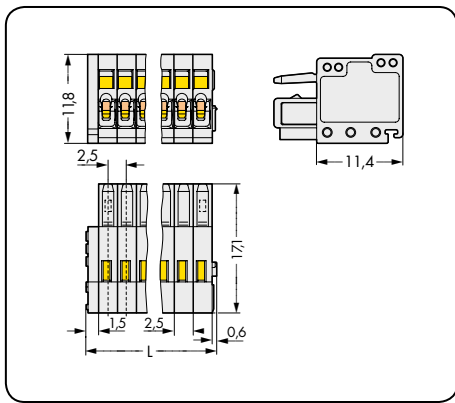
Page:

Marking accessories	540 - 543
Operating tools	236 - 237
Direct marking	239
Test pin	538
Strain relief plates	238

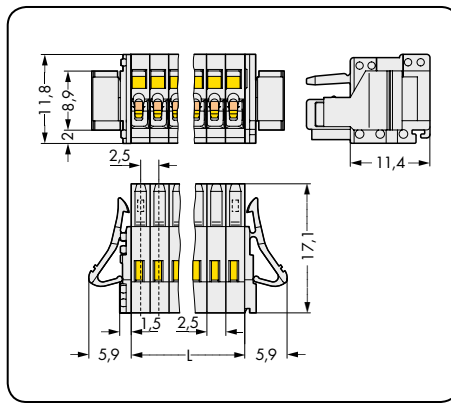
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design ensure that header pins, which can be touched, are not live in unmated condition.

Female Connectors MCS-MICRO

Pin spacing 2.5 mm / 0.098 in		With locking levers Pin spacing 2.5 mm / 0.098 in	
0.08 – 0.5 mm ²	AWG 28 – 20	0.08 – 0.5 mm ²	AWG 28 – 20
160 V/2.5 kV/2 6 A	150 V/4 A	160 V/2.5 kV/2 6 A	150 V/4 A



L = (pole no. x pin spacing) + 2.1 mm



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, light gray			Female connector with locking levers, light gray		
2	733-102	200	2	733-102/037-000	100
3	733-103	200	3	733-103/037-000	100
4	733-104	200	4	733-104/037-000	100
5	733-105	100	5	733-105/037-000	100
6	733-106	100	6	733-106/037-000	100
7	733-107	100	7	733-107/037-000	50
8	733-108	100	8	733-108/037-000	50
9	733-109	100	9	733-109/037-000	50
10	733-110	100	10	733-110/037-000	50
12	733-112	50	12	733-112/037-000	50



Male Headers with Solder Pins and Press-In Pins

Pin Spacing 2.5 mm

MCS-MICRO



- Horizontal or vertical PCB mounting via straight or angled solder pins
- Also available with press-in pins for solder-free connection to the PCB
- 100% protected against mismatching; only mating halves with the same pole number can be connected together
- With coding keys

Technical data:

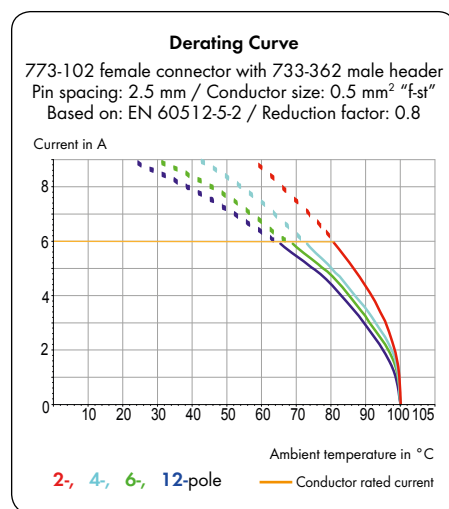
Pin Spacing	2.5 mm / 0.098 in			Press-In Technology 2.5 mm / 0.098 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	80 V	160 V	320 V	80 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	6 A	6 A	6 A	4 A	4 A	4 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	150 V	-	-	150 V	-	-
Nominal current UL	4 A	-	-	4 A	-	-
Nominal current CSA	4 A	-	-	4 A	-	-

Solder and press-in pin data:

Solder pin: length/width	4.6 mm / 0.8 x 0.8 mm (straight)
Solder pin: length/width	3.7 mm / 0.8 x 0.8 mm (angled)
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm
Press-in pin: length/width	3.2 mm / 0.6 x 1.2 mm
Press-in pin: drilled hole diameter	1.15 ^{+0.025} mm
Press-in pin: metal-plated hole	1.0 mm (HAL Sn)
Press-in pin: metal-plated hole	1.0 mm (Chem. Sn)

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C / Press-in pin: -40 °C / +85 °C
Contact material	Electrolytic copper (E _{Cu}) / Press-in pin: copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MICRO accessories:

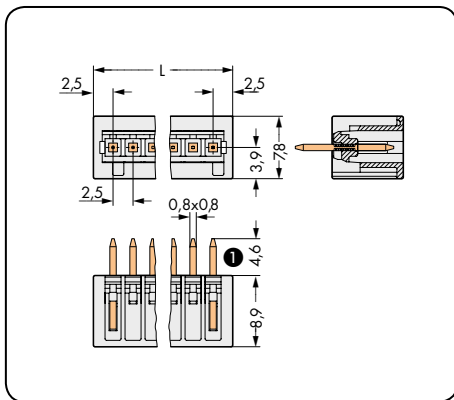
Page:

Coding keys	237

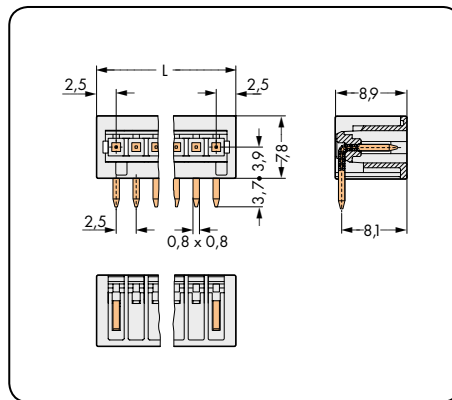
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Headers with Solder Pins and Press-In Pins MCS-MICRO

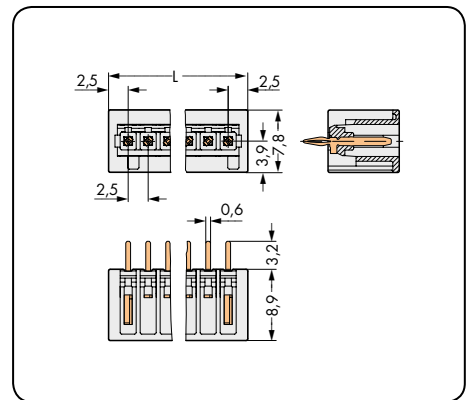
With straight solder pins Pin spacing 2.5 mm / 0.098 in		With angled solder pins Pin spacing 2.5 mm / 0.098 in		With press-in pins* Pin spacing 2.5 mm / 0.098 in	
160 V/2.5 kV/2 6 A	150 V/4 A	160 V/2.5 kV/2 6 A	150 V/4 A	160 V/2.5 kV/2 4 A	150 V/4 A



L = (pole no. + 1) x pin spacing



L = (pole no. + 1) x pin spacing



L = (pole no. + 1) x pin spacing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins, light gray			Male header with angled solder pins, light gray			Male header for press-in technology*, with straight press-in pins, light gray		
2	733-332	200	2	733-362	200	2	733-332/100-000	200
3	733-333	200	3	733-363	200	3	733-333/100-000	200
4	733-334	200	4	733-364	200	4	733-334/100-000	200
5	733-335	200	5	733-365	200	5	733-335/100-000	200
6	733-336	200	6	733-366	200	6	733-336/100-000	200
7	733-337	200	7	733-367	200	7	733-337/100-000	200
8	733-338	200	8	733-368	200	8	733-338/100-000	200
9	733-339	200	9	733-369	200	9	733-339/100-000	200
10	733-340	200	10	733-370	200	10	733-340/100-000	200
12	733-342	100	12	733-372	100	12	733-342/100-000	100
						For information on press-in tool design, please contact factory.		

❶ MCS-MICRO male headers with straight solder pins are also available with 3.8 mm pin projection. Add item no. suffix .../046-000.

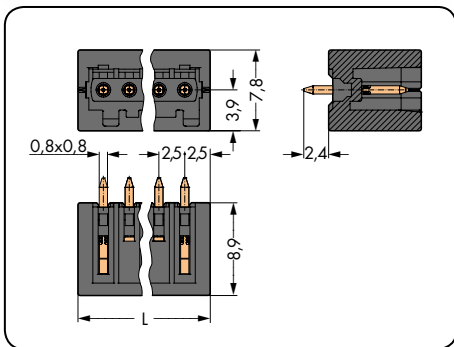
*** Unique features of WAGO press-in technology:**

- Press-in pin features spring-loaded style expanding contact zone to provide greater retention and stability
- Suitable for all printed circuit boards with the correct tin plating for press-in connectors
- Metal-plated hole with optimum diameters
 - 1.0 or 1.45^{+0.02}_{-0.02} mm (HAL Sn)
 - 1.0 or 1.45^{+0.02}_{-0.02} mm (Chem. Sn)
- Press-in pin for PCB thickness from 1.4 to 3 mm
- Press-in length of approx. 3.2 mm - no unnecessary projection on underside of PCB
- Low press-in force required - reduces wear and tear on PCB and components
- High retention force within the PCB - doubles the values required by DIN EN 60352-5
- Robust bonded connection
- Excellent elastic spring behavior
- No deformation of the metal-plated end hole
- Length of contact area ≥ 1.3 mm
- No deformation of multilayer PCBs
- Minimal tin removal in the contact hole - reduces wear and tear on PCB and contact points

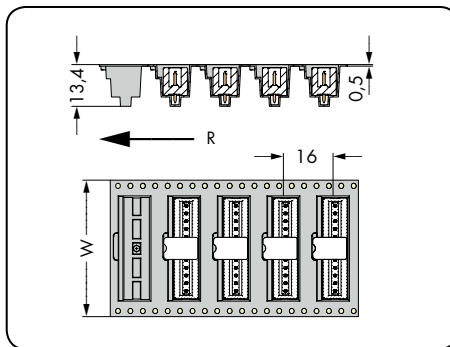
For other lengths, please contact factory.

Male Headers with Solder Pins, THR MCS-MICRO

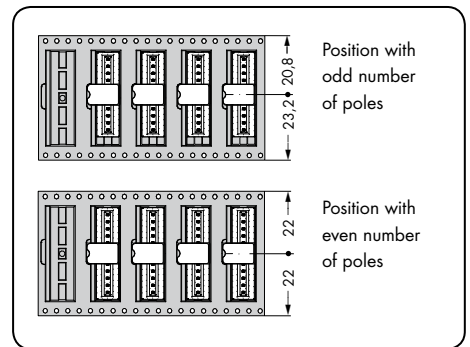
<p>With straight solder pins Pin spacing 2.5 mm / 0.098 in</p> <p>160 V/2.5 kV/2 6 A</p>	<p>Male headers in tape-and-reel packaging Pin spacing 2.5 mm / 0.098 in</p> <p>160 V/2.5 kV/2 6 A</p>
---	---



L = (pole no. + 1) x pin spacing



W = Tape width
R = Feed direction



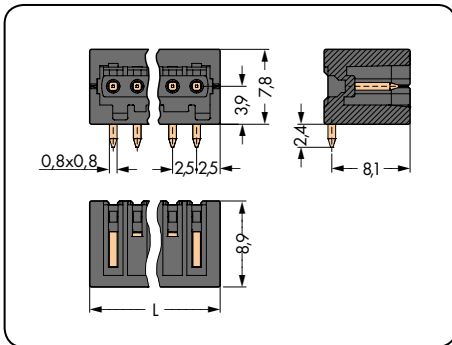
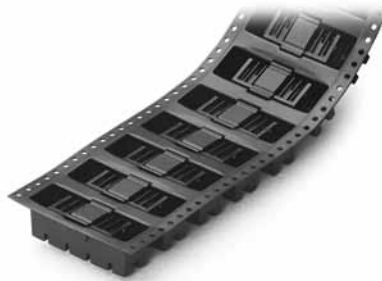
Position with
odd number
of poles

Position with
even number
of poles

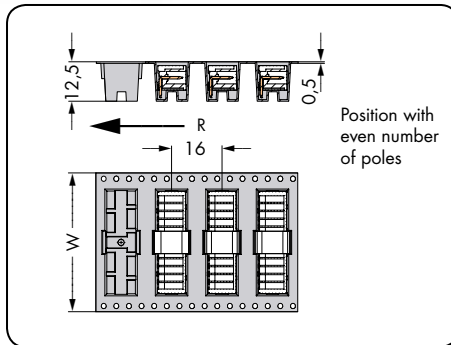
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with straight solder pins, black			Male header with straight solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
(mm)					
2	733-332/105-604	200	2	733-332/105-604/997-446	44
3	733-333/105-604	200	3	733-333/105-604/997-446	44
4	733-334/105-604	200	4	733-334/105-604/997-446	44
5	733-335/105-604	200	5	733-335/105-604/997-446	44
6	733-336/105-604	200	6	733-336/105-604/997-446	44
7	733-337/105-604	200	7	733-337/105-604/997-446	44
8	733-338/105-604	200	8	733-338/105-604/997-446	44
9	733-339/105-604	200	9	733-339/105-604/997-446	44
10	733-340/105-604	200	10	733-340/105-604/997-446	44
12	733-342/105-604	100	12	733-342/105-604/997-446	44
Reel diameter: 330 mm, 290 pieces per reel					

Male Headers with Solder Pins, THR MCS-MICRO

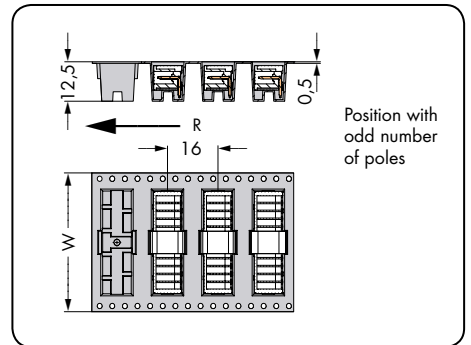
<p>With angled solder pins Pin spacing 2.5 mm / 0.098 in</p> <p>160 V/2.5 kV/2 6 A</p>	<p>Male headers in tape-and-reel packaging Pin spacing 2.5 mm / 0.098 in</p> <p>160 V/2.5 kV/2 6 A</p>
---	---



L = (pole no. + 1) x pin spacing



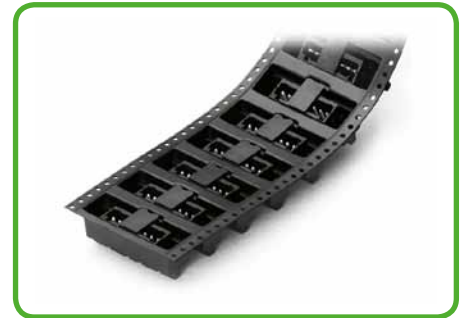
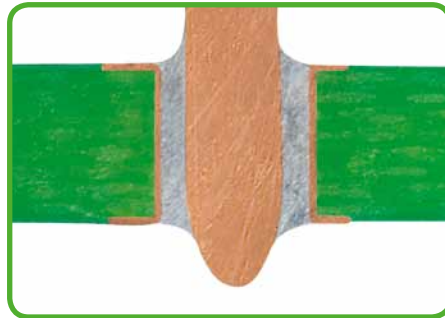
W = Tape width
R = Feed direction



W = Tape width
R = Feed direction

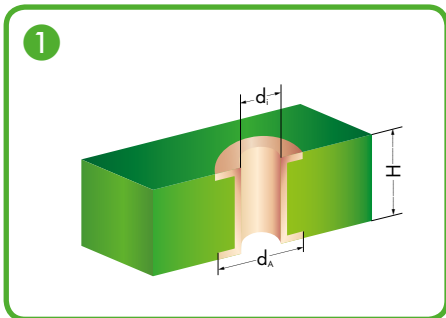
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with angled solder pins, black			Male header with angled solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
(mm)					
2	733-362/105-604	200	2	733-362/105-604/997-406	44
3	733-363/105-604	200	3	733-363/105-604/997-406	44
4	733-364/105-604	200	4	733-364/105-604/997-406	44
5	733-365/105-604	200	5	733-365/105-604/997-406	44
6	733-366/105-604	200	6	733-366/105-604/997-406	44
7	733-367/105-604	200	7	733-366/105-604/997-406	44
8	733-368/105-604	200	8	733-368/105-604/997-406	44
9	733-369/105-604	200	9	733-368/105-604/997-406	44
10	733-370/105-604	200	10	733-370/105-604/997-406	44
12	733-372/105-604	100	12	733-372/105-604/997-406	44
Reel diameter: 330 mm, 300 pieces per reel					

THR (Through-Hole Reflow) Soldering Process

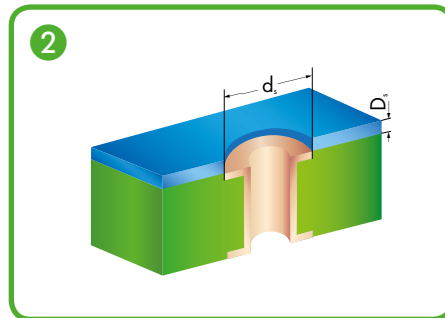


By using high-temperature resistant plastic and a streamlined pin design, the WAGO Through-Hole Reflow headers and PCB terminal blocks meet requirements for SMT process capability while maintaining necessary stability. The THR headers and THR PCB terminal blocks are simply pushed into the solder paste-filled PCB holes and then soldered along with the SMT components using the reflow soldering technique. The previous wave soldering process is no longer necessary. The result is a perfect connection – both mechanically and electrically.

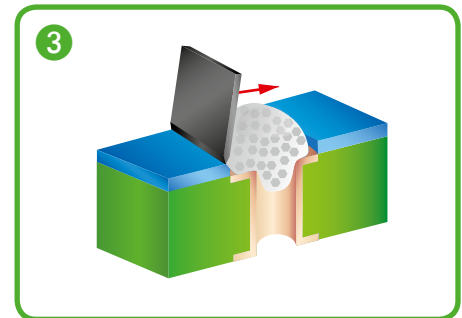
Male headers with additional suction pad in tape-and-reel packaging acc. to IEC 60286-3



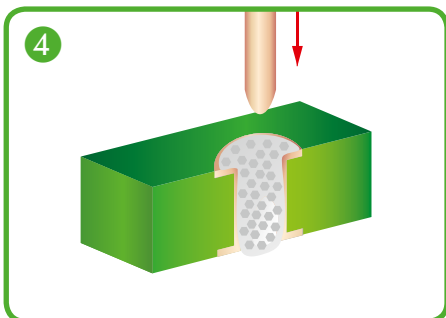
Metal-plated PCB bore hole



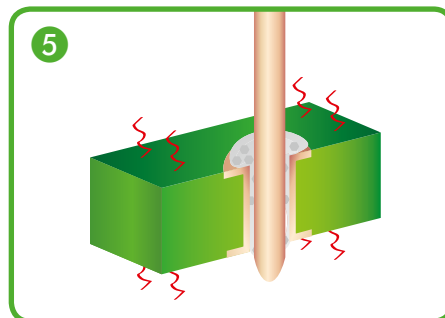
SMD positioning pattern



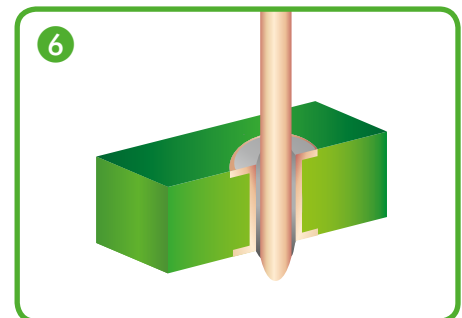
Application of solder paste



Component assembly automatic/by hand



Reflow soldering process



THR soldering joint

Series	d _i (mm)	d _A (mm)	H(mm)	d _s (mm)	D _s (μm)	d(mm)	L(mm)
231 (1 x 1 mm)	1,4 ^{+0,1}	2,5	< 2	2,4	150	1,2	2,4
231 (1,2 x 1,2 mm)	1,7 ^{+0,1}	2,8	< 2	2,7	150	1,5	2,4
713	1,2 ^{+0,1}	1,9	< 2	1,8	150	1,0	2,4
733	1,2 ^{+0,1}	1,9	< 2	1,8	150	1,0	2,4
734	1,4 ^{+0,1}	2,5	< 2	2,4	150	1,2	2,4

WAGO recommends both a temperature profile that adheres to EN 61760-1 and the use of forced convection ovens for processing THR components.

- d: Inner diameter of metal-plated PCB bore hole
- d_A: Outer diameter of metal-plated PCB bore hole*
- H: PCB thickness
- d_s: Pattern hole diameter
- D_s: Pattern thickness
- d: Pin diagonal
- L: Pin length

* When laying out the metal-plated bore holes, the clearance and creepage distance requirements – as specified in the equipment standards – must be considered.

3 Male Connectors Pin Spacing 2.5 mm MCS-MICRO



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- For “wire-to-wire” connections
- 100% protected against mismatching
- With coding keys

Technical data:

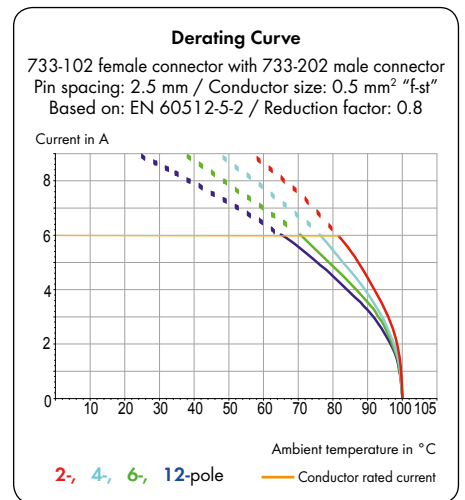
Pin Spacing	2.5 mm 0.098 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	100 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	6 A	6 A	6 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	150 V	-	-
Nominal current UL	4 A	-	-
Nominal current CSA	4 A	-	-

Conductor data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 0.5 mm ²
Conductor size: fine-stranded	0.08 - 0.5 mm ²
Conductor size: fine-stranded	0.25 - 0.34 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 0.34 mm ² (with uninsulated ferrule)
AWG	28 - 20
Strip length	5 - 6 mm / 0.20 - 0.24 in

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix . . . /010-000” is added to the “basic item no.”	



MCS-MICRO accessories:

Page:

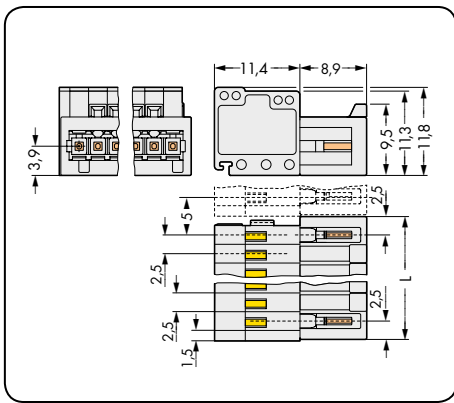
Marking accessories	540 - 543
Operating tools	236 - 237
Direct marking	239
Coding keys	237
Test pin	538
Strain relief plates	238

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Connectors MCS-MICRO

Pin spacing 2.5 mm / 0.098 in

0.08 - 0.5 mm ²	AWG 28 - 20
160 V/2.5 kV/2 6 A	150 V/4 A



L = (pole no. + 1) x pin spacing

Pole No.	Item No.	Pack. Unit
Male connector, light gray		
2	733-202	200
3	733-203	200
4	733-204	200
5	733-205	100
6	733-206	100
7	733-207	100
8	733-208	100
9	733-209	100
10	733-210	100
12	733-212	50

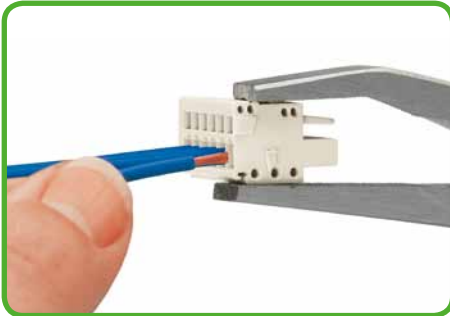


Accessories Operating Tools MCS-MICRO

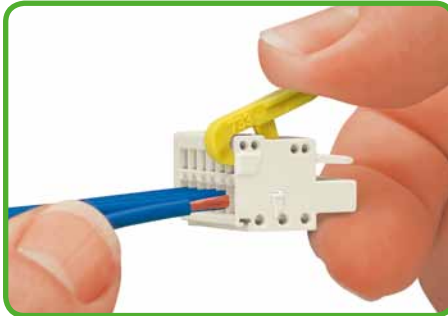
Operating tool	Operating levers	Operating tools
for male and female connectors with CAGE CLAMP® connection	for male and female connectors with CAGE CLAMP® connection	for male and female connectors with CAGE CLAMP® connection



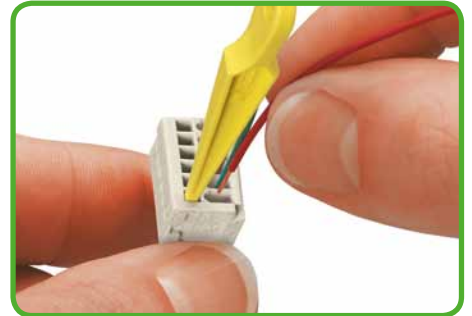
Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Operating tool, 2.5 mm, 3.5 mm and 3.81 mm pin spacing			Operating lever, 2.5 mm pin spacing			Operating tool, 2.5 mm pin spacing		
yellow	210-251	1	natural	733-130	100 (4 x 25)	natural	233-332	25
			yellow	733-191	100 (4 x 25)	yellow	233-331	25



Inserting conductor via operating tool.



Inserting conductor via operating lever.



Inserting conductor via 233-331 operating tool. Operation parallel to conductor entry.

Accessories

Operating Tools and Coding Keys

MCS-MICRO

Operating tool with partially insulated shaft Type 1	Operating tool with partially insulated shaft for male and female connectors with CAGE CLAMP® connection	Coding keys for male headers
---	--	--



Item No.	Pack. Unit	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Operating tool with partially insulated shaft, type 1, (2.5 x 0.4) mm blade		Operating tool with partially insulated shaft		Coding key		
210-719	1	233-335	1	white	733-330	100
				black (suitable for THR soldering)	733-331	100



Inserting conductor via (2.5 x 0.4) mm screwdriver. Actuation perpendicular to conductor entry.



Inserting conductor via 233-335 operating tool. Operation parallel to conductor entry.



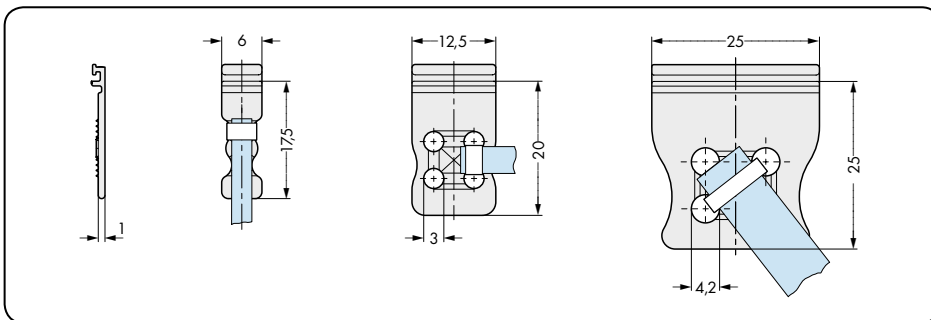
Coding via snap-on coding keys for male headers.

3 Accessories Strain Relief Plates MCS-MICRO

<p>Strain relief plates for in-the-field assembly</p> <p>for male and female connectors with CAGE CLAMP® connection</p>	<p>Strain relief plates, factory-assembled</p> <p>for male and female connectors with CAGE CLAMP® connection</p>
--	---

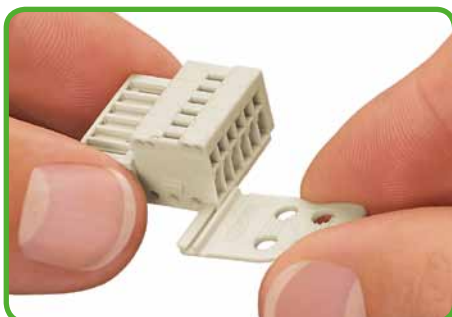


Width	Pole No.	Item No.	Pack. Unit	Width	Pole No.	Item No. Suffix	Pack. Unit
Strain relief plate				Strain relief plate, pre-assembled			
6 mm	2 - 4	734-127	100 (4 x 25)	6 mm	2 - 4	.../032-000	
12.5 mm	5 - 9	734-128	100 (4 x 25)	12.5 mm	5 - 9	.../033-000	
25 mm	10 - 12	734-129	100 (4 x 25)	25 mm	10 - 12	.../034-000	
<p>Ordering example: Female connector with strain relief plate, 2.5 mm pin spacing, 2-pole, light gray: 733-102/032-000</p> <p>An "item no. suffix", referring to the width of the strain relief plate, is added to the "basic item no." and determines the type of male or female connector.</p>							



The arrangement of the attachments for cable ties allows single conductors or multi-core cables to be secured in different ways. The width of the cable ties must correspond to the hole dimensions of the strain relief plates shown above.

WAGO does not offer the recommended cable ties and cable binding tools; those are available from suppliers such as Hellaermann.



734-128 734-128 strain relief plate, for in-the-field assembly.



Pre-assembled strain relief plate, female connector, 2.5 mm pin spacing, light gray, 2-pole, with **733-102/032-000** strain relief plate.



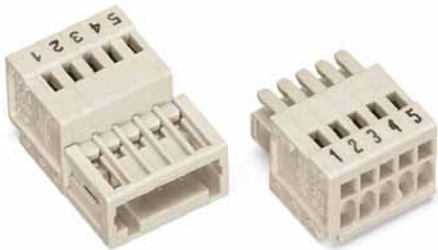
Pre-assembled strain relief plate, female connector, 2.5 mm pin spacing, light gray, 12-pole, with **733-112/034-000** strain relief plate.

Accessories

Direct Marking

MCS-MICRO

<p>Direct marking</p> <p>of male and female connectors for conductor termination</p>	<p>Direct marking 1 - pole no.</p> <p>of female connectors for conductor termination</p>	<p>Direct marking Pole no. - 1</p> <p>of male connectors for conductor termination</p>
---	--	--



MCS-MICRO direct marking:

Male and female connectors for conductor termination can be marked with "1 - pole no." via factory direct printing.

Two standard marking axes are available:

1. Marking perpendicular to conductor entry
2. Marking parallel to conductor entry

Other customized marking options are available upon request.

Direct marking is not suitable for MCS male headers with solder pins. WAGO recommends PCB pole marking for these headers.

Marking Perpendicular to Conductor Entry Item No. Suffix: /... - 047	Marking Perpendicular to Conductor Entry Item No. Suffix: /... - 044
Ordering examples:	Ordering examples:
Female connector, 2.5 mm pin spacing, 5-pole, light gray 733-105/000-047	Male connector, 2.5 mm pin spacing, 5-pole, light gray 733-205/000-044
Female connector with locking levers, 2.5 mm pin spacing, 5-pole, light gray 733-105/037-047	Male connector with strain relief plate, 2.5 mm pin spacing, 5-pole, light gray 733-205/033-044
Female connector with strain relief plate, 2.5 mm pin spacing, 5-pole, light gray 733-105/033-047	
Female connector with locking levers and strain relief plate, 2.5 mm pin spacing, 5-pole, light gray 733-105/037-047/033-000	



Marking Parallel to Conductor Entry Item No. Suffix: /... - 9037	Marking Parallel to Conductor Entry Item No. Suffix: /... - 9034
Ordering examples:	Ordering examples:
Female connector, 2.5 mm pin spacing, 5-pole, light gray 733-105/000-9037	Male connector, 2.5 mm pin spacing, 5-pole, light gray 733-205/000-9034
Female connector with locking levers, 2.5 mm pin spacing, 5-pole, light gray 733-105/037-9037	Male connector with strain relief plate, 2.5 mm pin spacing, 5-pole, light gray 733-205/033-9034
Female connector with strain relief plate, 2.5 mm pin spacing, 5-pole, light gray 733-105/033-9037	
Female connector with locking levers and strain relief plate, 2.5 mm pin spacing, 5-pole, light gray 733-105/037-9037/033-000	



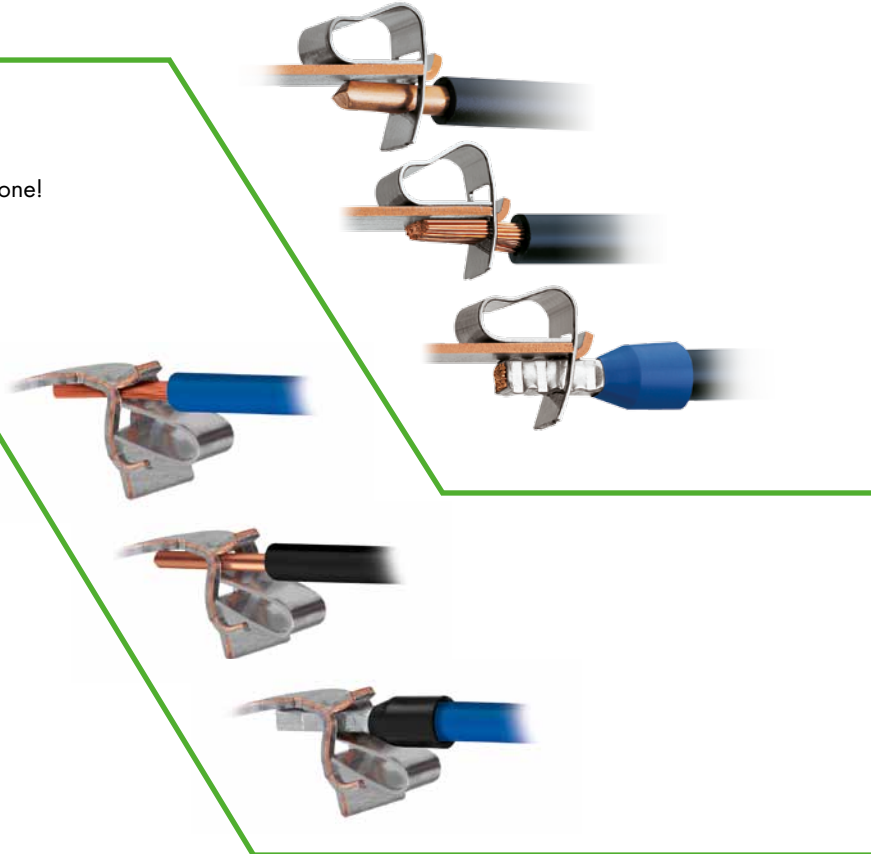
Connection Technologies for MCS – MULTI CONNECTION SYSTEM MINI / MINI HD/ 1.5 mm²

CAGE CLAMP®

The universal connection for solid, stranded and fine-stranded conductors.
Open clamping unit, insert the conductor, release clamp – done!

CAGE CLAMP® S

The universal connection with "SPECIAL"
Open clamping unit, insert the conductor, release clamp – done!
Terminate both solid and ferruled conductors by simply pushing them in – no operating tool needed.



PCB Connectors and Headers

MCS - MULTI CONNECTION SYSTEM MINI / MINI HD

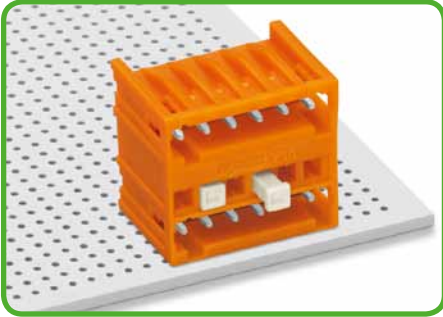
Pin spacing 3.5 and 3.81mm / Nominal cross section 1.5 mm²

4

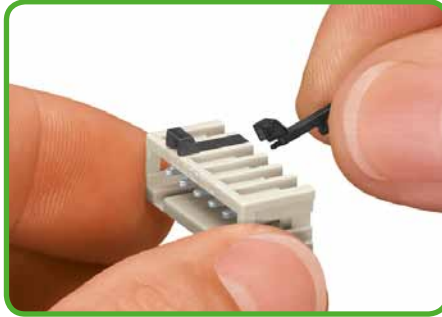
	Pin Spacing	Pages
 Female Connectors, CAGE CLAMP® Termination	3.5 mm/0.138 in 3.81 mm/0.15 in	244 - 246 246 - 247
 Female Connectors with Push-Buttons, CAGE CLAMP®S Termination	3.5 mm/0.138 in 3.81 mm/0.15 in	248 - 250 250 - 251
 Male Headers with Solder Pins	3.5 mm/0.138 in 3.81 mm/0.15 in	252 - 254 257 - 259
 Male Headers with Press-In Pins	3.5 mm/0.138 in 3.81 mm/0.15 in	255 258
 Male Headers with Solder Pins, "Through-Hole Reflow" Soldering	3.5 mm/0.138 in 3.81 mm/0.15 in	260 - 263 262 - 263
 Male Connectors, CAGE CLAMP® Termination	3.5 mm/0.138 in 3.81 mm/0.15 in	264 - 266 266 - 267
 2-Conductor Combi Strips, CAGE CLAMP® Termination	3.5 mm/0.138 in	268 - 269
 Female Headers with Solder Pins	3.5 mm/0.138 in 3.81 mm/0.15 in	270 - 272 272 - 273
 MCS-MINI HD Female Connectors with Push-Buttons, CAGE CLAMP®S Termination	3.5 mm/0.138 in	284 - 285
 MCS-MINI HD Male Headers with Solder Pins	3.5 mm/0.138 in	286 - 289
 Male Headers with Solder Pins, "Through-Hole Reflow" Soldering	3.5 mm/0.138 in	290 - 296
 MCS-MINI Accessories		274 - 279
 MCS-MINI HD Accessories		298 - 299
 Accessories, General - Section 10		524 - 546

Description and Handling

MCS - MULTI CONNECTION SYSTEM MINI



Coding a double-deck male header with solder pins - lower level.

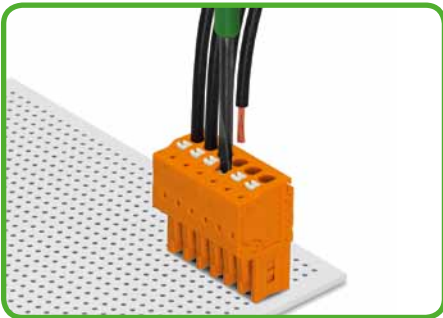


Coding a male header - fitting of coding key(s).

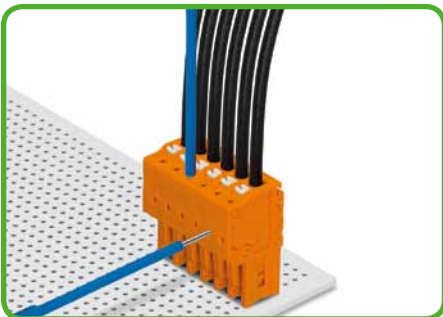


Coding a female connector - removal of coding finger(s).

2734 Series Female Connectors with Push-Buttons and CAGE CLAMP®S



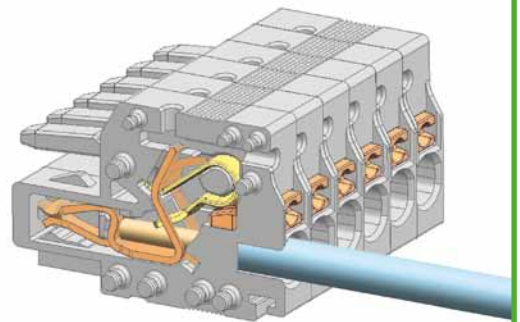
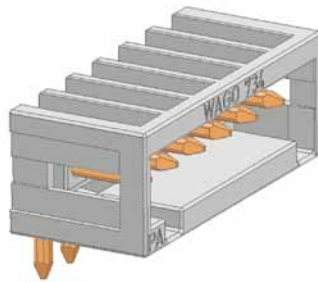
Inserting fine-stranded conductor into CAGE CLAMP®S unit via push-button; solid conductors can be simply pushed in.



Testing with 735-500 test plug, Ø 1 mm - CAGE CLAMP®S connection - insertion parallel to conductor entry.

100% protected against mismatching

CAGE CLAMP®S

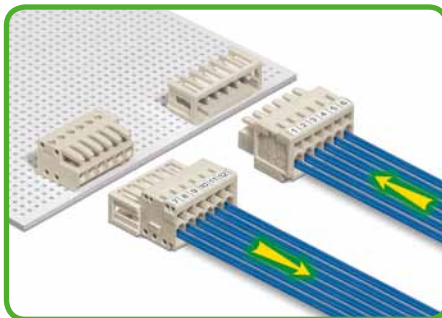


MCS-MINI

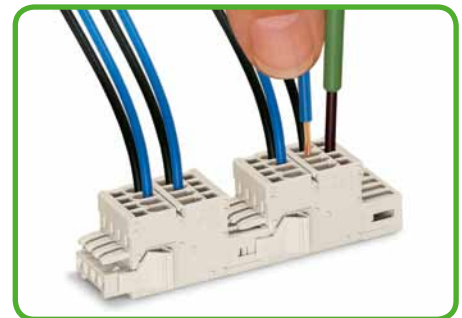
Pin spacing: 3.5 mm and 3.81 mm



THR male headers in tape-and-reel packaging for SMT applications.



Easy-to-identify PCB inputs and outputs.



2-conductor Combi strips with locking levers for multiplying potentials.



CAGE CLAMP®S and CAGE CLAMP® clamp the following copper conductors:* solid

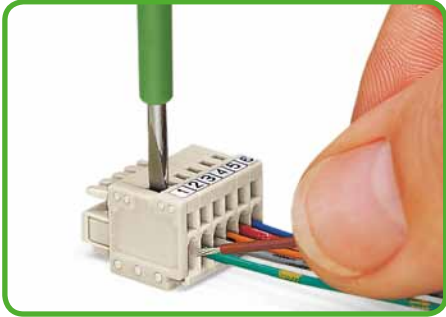
* For aluminum conductors, see notes in Section 11.



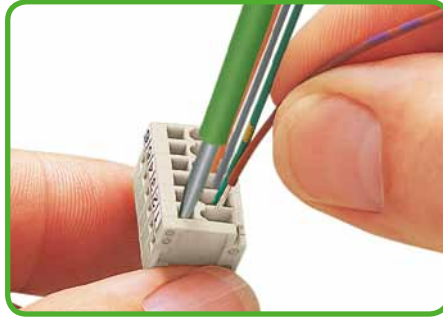
stranded



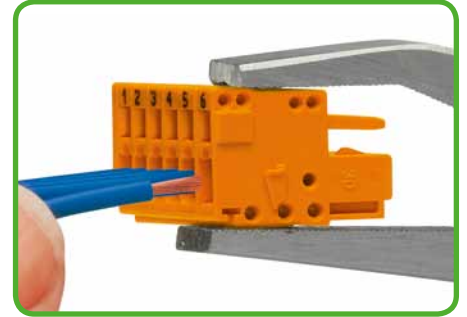
fine-stranded, also with tinned single strands



Inserting conductor via (2.5 x 0.4) mm screwdriver – CAGE CLAMP® actuation perpendicular to conductor entry.



Inserting conductor via (2.5 x 0.4) mm screwdriver – CAGE CLAMP® actuation parallel to conductor entry.

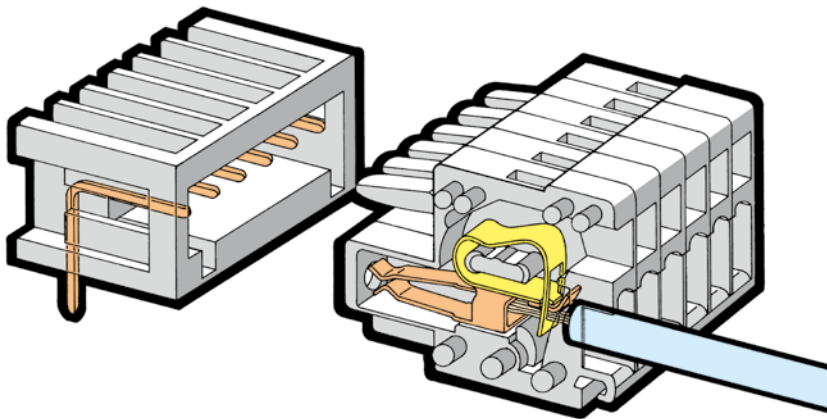


Inserting conductor into CAGE CLAMP® unit via 210-251 or 210-250 operating tool.

734 Series Female Connectors with CAGE CLAMP®

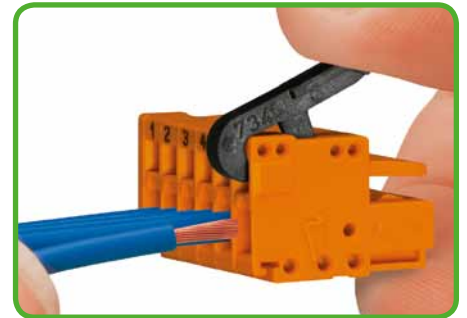
100% protected against mismatching

CAGE CLAMP®

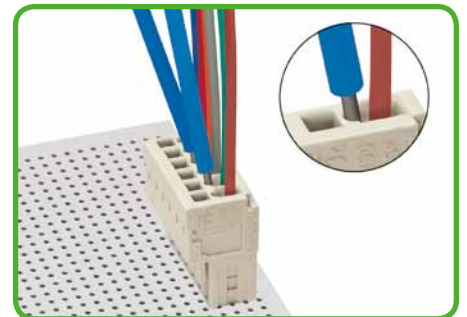


MCS-MINI

Pin spacing: 3.5 mm and 3.81 mm



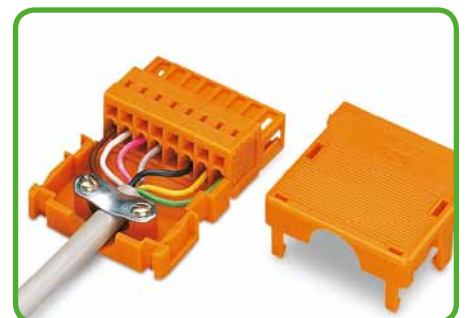
Inserting conductor into CAGE CLAMP® unit via 734-191 operating lever.



Testing with 735-500 test pin, Ø 1 mm – CAGE CLAMP® connection – touch contact with current bar.



Marking via self-adhesive marker strips or factory direct printing.



Strain relief housing for 734 Series male and female connectors with CAGE CLAMP®; strain relief plates for 734 and 2734 Series.



fine-stranded, tip-bonded

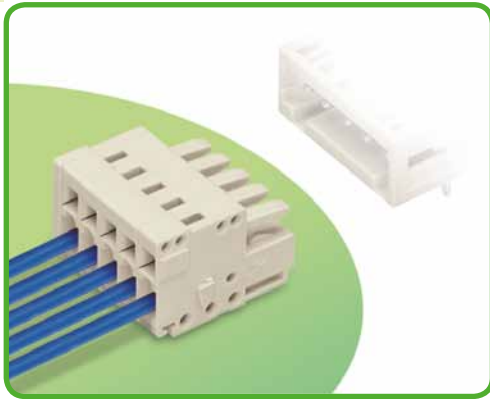


fine-stranded with crimped ferrules (gas-tight)



fine-stranded with crimped pin terminals (gas-tight)

4 Female Connectors Pin Spacing 3.5 mm, 3.81 mm MCS-MINI



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- Strain relief plates and housings for in-the-field assembly
- 100% protected against mismatching
- With coding fingers

Technical data:

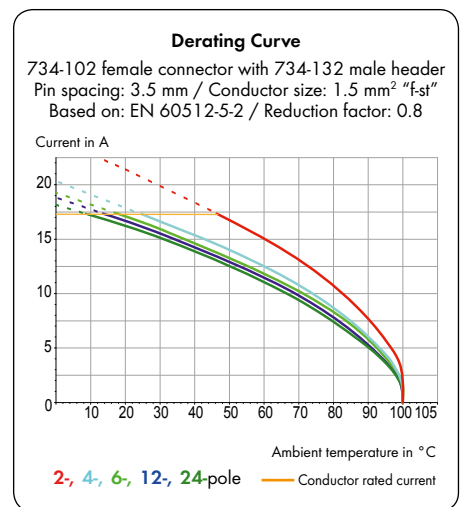
Pin Spacing	3.5 mm 0.138 in			3.81 mm 0.15 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 1.5 mm ²	
Conductor size: fine-stranded	0.08 - 1.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)*	
AWG	28 - 14	14: THHN, THWN
Strip length	6 - 7 mm / 0.24 - 0.28 in	
* Only every other clamping unit can be terminated using 1.5 mm ² connectors with insulated ferrules.		

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix . . . /010-000" is added to the "basic item no."	



MCS-MINI accessories:

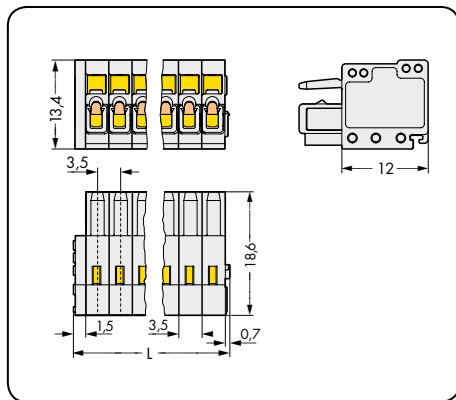
Page:

Marking accessories	540 - 543
Operating tools	274
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Mounting adapter	475
Test pin	538
Strain relief housing	276
Strain relief plates	277

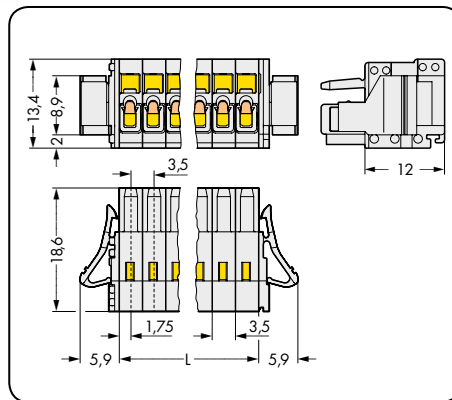
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors MCS-MINI

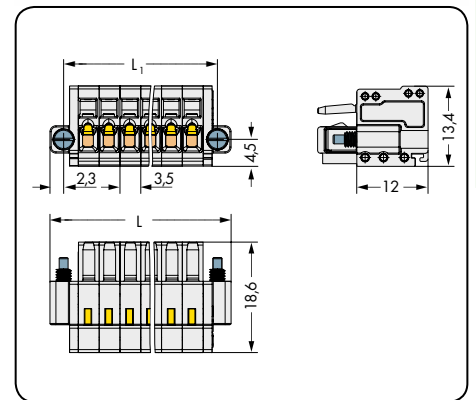
Pin spacing 3.5 mm / 0.138 in		With locking levers Pin spacing 3.5 mm / 0.138 in		With screw flanges Pin spacing 3.5 mm / 0.138 in	
0.08 - 1.5 mm ²	AWG 28 - 14	0.08 - 1.5 mm ²	AWG 28 - 14	0.08 - 1.5 mm ²	AWG 28 - 14
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



L = (pole no. x pin spacing) + 2.2 mm



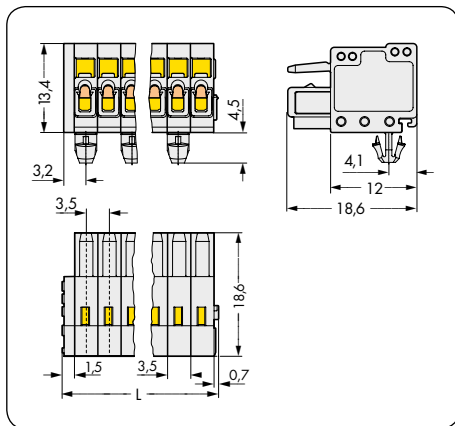
L = pole no. x pin spacing



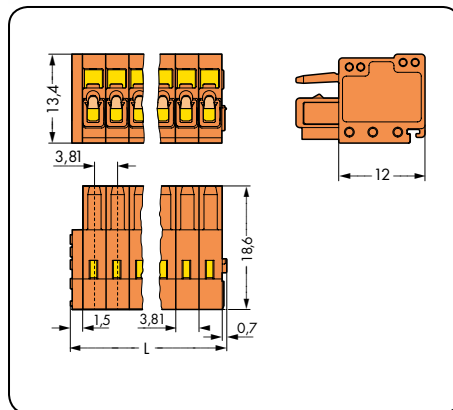
L = (pole no. x pin spacing) + 9.5 mm
L₁ = (pole no. x pin spacing) + 4.9 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, light gray			Female connector with locking levers, light gray			Female connector with screw flanges, light gray		
2	734-102	200	2	734-102/037-000	100	2	734-102/107-000	100
3	734-103	200	3	734-103/037-000	100	3	734-103/107-000	100
4	734-104	100	4	734-104/037-000	100	4	734-104/107-000	100
5	734-105	100	5	734-105/037-000	50	5	734-105/107-000	50
6	734-106	100	6	734-106/037-000	50	6	734-106/107-000	50
7	734-107	100	7	734-107/037-000	50	7	734-107/107-000	50
8	734-108	50	8	734-108/037-000	50	8	734-108/107-000	50
9	734-109	50	9	734-109/037-000	50	9	734-109/107-000	50
10	734-110	50	10	734-110/037-000	50	10	734-110/107-000	50
11	734-111	50	11	734-111/037-000	50	11	734-111/107-000	50
12	734-112	50	12	734-112/037-000	50	12	734-112/107-000	50
13	734-113	50	13	734-113/037-000	25	13	734-113/107-000	25
14	734-114	50	14	734-114/037-000	25	14	734-114/107-000	25
16	734-116	25	16	734-116/037-000	25	16	734-116/107-000	25
18	734-118	25	18	734-118/037-000	25	18	734-118/107-000	25
20	734-120	25	20	734-120/037-000	25	20	734-120/107-000	25
24	734-124	25	24	734-124/037-000	10	24	734-124/107-000	10

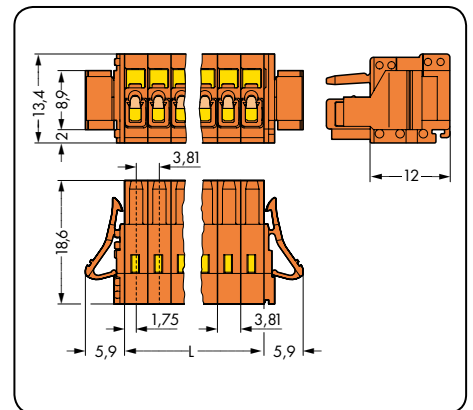
with Snap-in mounting feet Pin spacing 3.5 mm / 0.138 in		Pin spacing 3.81 mm / 0.15 in		With locking levers Pin spacing 3.81 mm / 0.15 in	
0.08 - 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 28 - 14 300 V/10 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 28 - 14 300 V/10 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 28 - 14 300 V/10 A



$L = (\text{pole no.} \times \text{pin spacing}) + 2.2 \text{ mm}$



$L = (\text{pole no.} \times \text{pin spacing}) + 2.2 \text{ mm}$



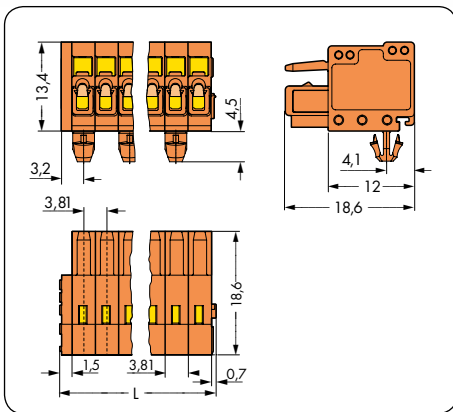
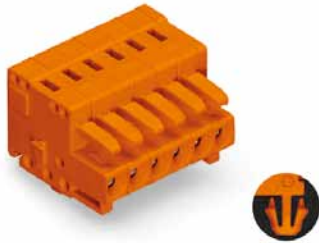
$L = \text{pole no.} \times \text{pin spacing}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, light gray			Female connector, orange			Female connector with locking levers, orange		
2	734-102/008-000	200	2	734-202	200	2	734-202/037-000	100
3	734-103/008-000	200	3	734-203	200	3	734-203/037-000	100
4	734-104/008-000	100	4	734-204	100	4	734-204/037-000	100
5	734-105/008-000	100	5	734-205	100	5	734-205/037-000	50
6	734-106/008-000	100	6	734-206	100	6	734-206/037-000	50
7	734-107/008-000	100	8	734-208	50	8	734-208/037-000	50
8	734-108/008-000	50	9	734-209	50	9	734-209/037-000	50
9	734-109/008-000	50	10	734-210	50	10	734-210/037-000	50
10	734-110/008-000	50	12	734-212	25	12	734-212/037-000	25
11	734-111/008-000	50	14	734-214	25	14	734-214/037-000	25
12	734-112/008-000	50	16	734-216	25	16	734-216/037-000	25
13	734-113/008-000	50	18	734-218	25	18	734-218/037-000	25
14	734-114/008-000	50	19	734-219	25	19	734-219/037-000	25
16	734-116/008-000	25	20	734-220	25	20	734-220/037-000	25
18	734-118/008-000	25						
20	734-120/008-000	25						
24	734-124/008-000	25						
Three or more pole female connectors have a snap-in mounting foot at every other pole (2-pole female connectors/2 snap-in mounting feet)								

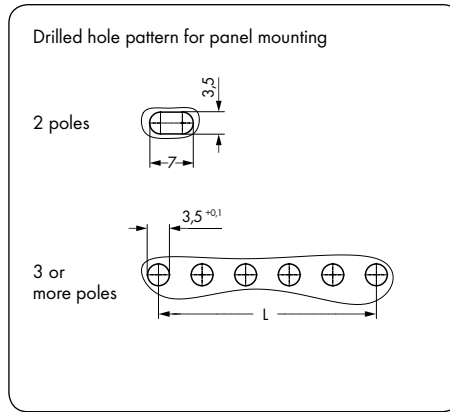
Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Female Connectors MCS-MINI

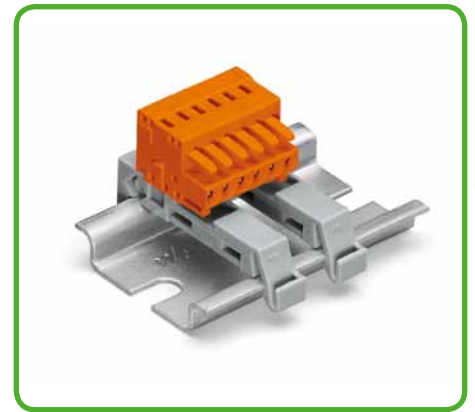
With Snap-in mounting feet Pin spacing 3.81 mm / 0.15 in	With Snap-in mounting feet Drilled hole pattern for panel mounting	
0.08 - 1.5 mm ² | AWG 28 - 14 160 V/2.5 kV/2 10 A | 300 V/10 A		



L = pole no. x pin spacing



Even pole number: $L = (\text{pole no.} - 2) \times \text{pin spacing}$
 Odd pole number: $L = (\text{pole no.} - 1) \times \text{pin spacing}$



Using two DIN 35-rail mounting adapters (209-137) for 3 or more poles. Distance between two mounting adapters: maximum 7 poles.

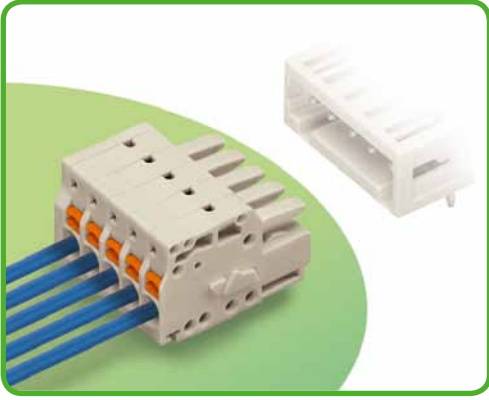
Polzahl	Bestellnr.	VPE
Female connector with snap-in mounting feet,		
for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, orange		
2	734-202/008-000	100
3	734-203/008-000	100
4	734-204/008-000	100
5	734-205/008-000	50
6	734-206/008-000	50
8	734-208/008-000	50
9	734-209/008-000	50
10	734-210/008-000	50
12	734-212/008-000	50
14	734-214/008-000	25
16	734-216/008-000	25
18	734-218/008-000	25
19	734-219/008-000	25
20	734-220/008-000	25
Three or more pole female connectors have a snap-in mounting foot at every other pole (2-pole female connectors/2 snap-in mounting feet)		
Product Accessories		Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)		475

4 Female Connectors with Push-Buttons

Pin spacing 3.5 mm, 3.81 mm

MCS-MINI

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- Universal connection for all conductor types
- Easy-to-use design does not require specialty tools
- Ability to wire mated halves
- Push-in termination of both solid and ferruled, fine-stranded conductors
- Integrated test ports for testing parallel to conductor entry
- 100% protected against mismatching
- With coding fingers

Technical data:

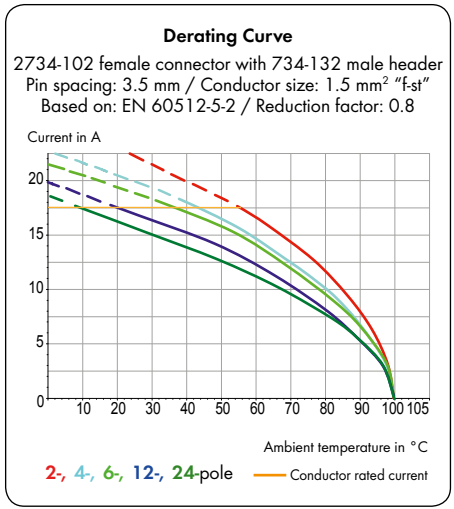
Pin Spacing	3.5 mm 0.138 in			3.81 mm 0.15 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A

Conductor data:

Connection technology	CAGE CLAMP®S	
Conductor size: solid	0.2 - 1.5 mm ²	
Conductor size: fine-stranded	0.2 - 1.5 mm ²	
Conductor size: fine-stranded	0.25 - 0.75 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)	
AWG	28 - 16	14: THHN, THWN
Strip length	8 - 9 mm / 0.31 - 0.35 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix .../010-000" is added to the "basic item no."	

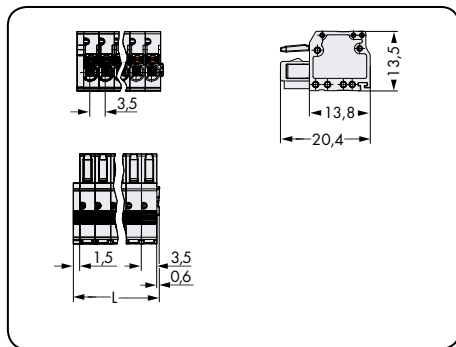


MCS-MINI accessories:	Page:
Marking accessories	540 - 543
Operating tools	274
Direct marking	278 - 279
Test pin	538
Screws	546
Strain relief plates	277

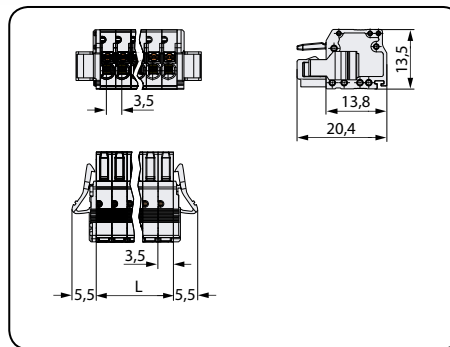
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors with Push-Buttons MCS-MINI

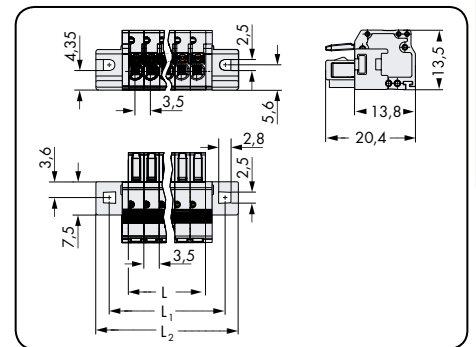
Pin spacing 3.5 mm / 0.138 in		With locking levers Pin spacing 3.5 mm / 0.138 in		With fixing flanges Pin spacing 3.5 mm / 0.138 in	
0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



L = (pole no. x pin spacing) + 2.1 mm



L = pole no. x pin spacing



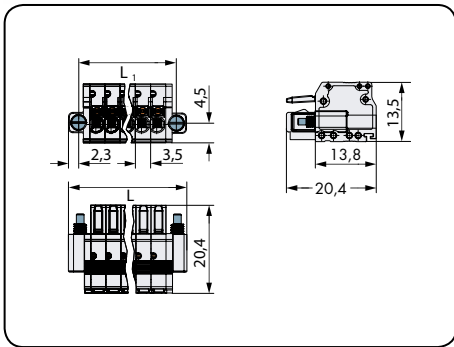
L = pole no. x pin spacing
L₁ = (pole no. x pin spacing) + 8.8 mm
L₂ = (pole no. x pin spacing) + 14.8 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons, light gray			Female connector with push-buttons and locking levers, light gray			Female connector with push-buttons and fixing flanges, light gray		
2	2734-102	200	2	2734-102/037-000	100	2	2734-102/031-000	100
3	2734-103	200	3	2734-103/037-000	100	3	2734-103/031-000	100
4	2734-104	100	4	2734-104/037-000	100	4	2734-104/031-000	50
5	2734-105	100	5	2734-105/037-000	50	5	2734-105/031-000	50
6	2734-106	100	6	2734-106/037-000	50	6	2734-106/031-000	50
7	2734-107	100	7	2734-107/037-000	50	7	2734-107/031-000	50
8	2734-108	50	8	2734-108/037-000	50	8	2734-108/031-000	50
9	2734-109	50	9	2734-109/037-000	50	9	2734-109/031-000	50
10	2734-110	50	10	2734-110/037-000	50	10	2734-110/031-000	50
11	2734-111	50	11	2734-111/037-000	50	11	2734-111/031-000	25
12	2734-112	50	12	2734-112/037-000	50	12	2734-112/031-000	25
13	2734-113	50	13	2734-113/037-000	25	13	2734-113/031-000	25
14	2734-114	50	14	2734-114/037-000	25	14	2734-114/031-000	25
16	2734-116	25	16	2734-116/037-000	25	16	2734-116/031-000	25
18	2734-118	25	18	2734-118/037-000	25	18	2734-118/031-000	25
20	2734-120	25	20	2734-120/037-000	25	20	2734-120/031-000	25
24	2734-124	25	24	2734-124/037-000	10	24	2734-124/031-000	10
For cutout dimensions, see page 280, table 2.								

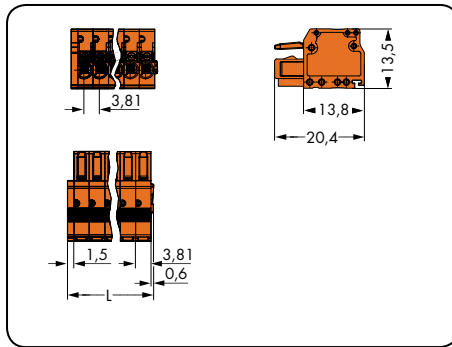
4 Female Connectors with Push-Buttons MCS-MINI

250

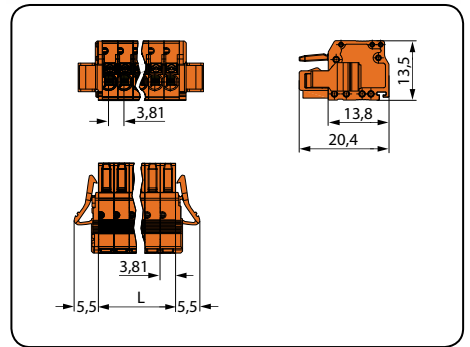
With screw flanges Pin spacing 3.5 mm / 0.138 in		Pin spacing 3.81 mm / 0.15 in		With locking levers Pin spacing 3.81 mm / 0.15 in	
0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16	0.2 - 1.5 mm ²	AWG 24 - 16
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



L = (pole no. x pin spacing) + 9.5 mm
L₁ = (pole no. x pin spacing) + 4.9 mm



L = (pole no. x pin spacing) + 2.1 mm



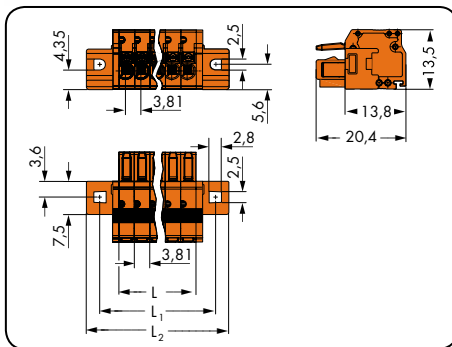
L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons and screw flanges, light gray			Female connector with push-buttons, orange			Female connector with push-buttons and locking levers, orange		
2	2734-102/107-000	100	2	2734-202	200	2	2734-202/037-000	100
3	2734-103/107-000	100	3	2734-203	200	3	2734-203/037-000	100
4	2734-104/107-000	100	4	2734-204	100	4	2734-204/037-000	100
5	2734-105/107-000	50	5	2734-205	100	5	2734-205/037-000	50
6	2734-106/107-000	50	6	2734-206	100	6	2734-206/037-000	50
7	2734-107/107-000	50						
8	2734-108/107-000	50	8	2734-208	50	8	2734-208/037-000	50
9	2734-109/107-000	50	9	2734-209	50	9	2734-209/037-000	50
10	2734-110/107-000	50	10	2734-210	50	10	2734-210/037-000	50
11	2734-111/107-000	50						
12	2734-112/107-000	50	12	2734-212	25	12	2734-212/037-000	25
13	2734-113/107-000	25						
14	2734-114/107-000	25	14	2734-214	25	14	2734-214/037-000	25
16	2734-116/107-000	25	16	2734-216	25	16	2734-216/037-000	25
18	2734-118/107-000	25	18	2734-218	25	18	2734-218/037-000	25
20	2734-120/107-000	25	19	2734-219	25	19	2734-219/037-000	25
24	2734-124/107-000	10	20	2734-220	25	20	2734-220/037-000	25

For other lengths, please contact factory.

Female Connectors with Push-Buttons MCS-MINI

<p>With fixing flanges Pin spacing 3.81 mm / 0.15 in</p>		
0.2 - 1.5 mm ²	AWG 24 - 16	
160 V/2.5 kV/2 10 A	300 V/10 A	



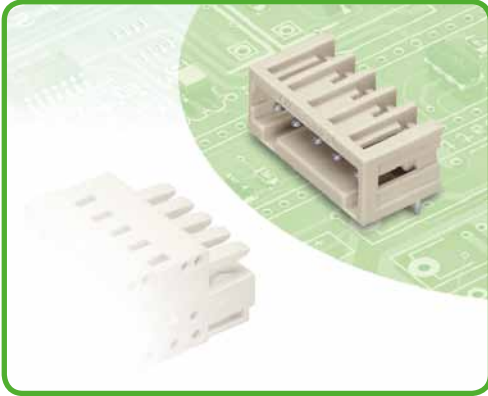
L = pole no. x pin spacing
 $L_1 = (\text{pole no.} \times \text{pin spacing}) + 8.8 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit
Female connector with push-buttons and fixing flanges, orange		
2	2734-202/031-000	100
3	2734-203/031-000	100
4	2734-204/031-000	50
5	2734-205/031-000	50
6	2734-206/031-000	50
8	2734-208/031-000	50
9	2734-209/031-000	50
10	2734-210/031-000	50
12	2734-212/031-000	25
14	2734-214/031-000	25
16	2734-216/031-000	25
18	2734-218/031-000	25
19	2734-219/031-000	25
20	2734-220/031-000	25
For cutout dimensions, see page 280, table 2.		

4 Male Headers with Solder Pins and Press-In Pins

Pin Spacing 3.5 mm, 3.81 mm

MCS-MINI



- Male headers may be mounted horizontally or vertically via straight or angled solder pins
- 1 x 1 mm pin cross section allows nominal current up to 10 A
- Double-deck male headers save space on the PCB, providing a large number of “wire-to-board” connections
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	3.5/3.81 mm 0.138 in			3.5/3.81 mm 0.138 in			3.5/3.81 mm 0.138 in		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2	3	2	2
Pollution degree	160 V	160 V	320 V	160 V	160 V	320 V	160 V	160 V	320 V
Rated voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Rated surge voltage	10 A	10 A	10 A	8 A	8 A	8 A	10 A	10 A	10 A
Nominal current	Approvals per			Approvals per			Approvals per		
Use group UL 1059	UL/CSA			UL/CSA			UL/CSA		
Rated voltage	B	C	D	B	C	D	B	C	D
Nominal current UL	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current CSA	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A
	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Press-in technology:

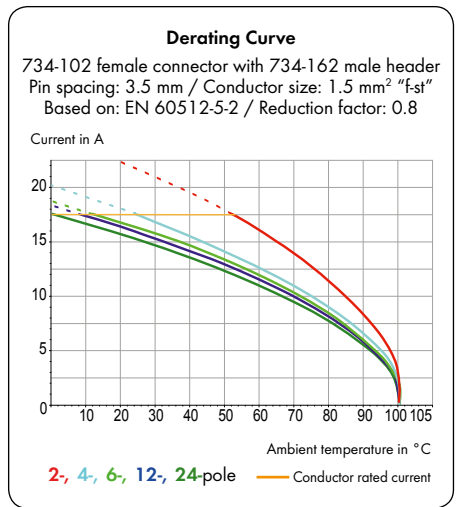
Double-deck version:

Solder and press-in pin data:

Solder pin: length/width	4.5 mm / 1 x 1 mm (straight)
Solder pin: length/width	3.8 mm / 1 x 1 mm (angled)
Solder pin: length/width	3.6 mm / 1 x 1 mm (double-deck male headers)
Solder pin: drilled hole diameter	1.4 ^{+0.1} mm
Press-in pin: length/width	2.9 mm / 0.6 x 1.2 mm
Press-in pin: drilled hole diameter	1.15 ^{±0.025}
Press-in pin: metal-plated hole diameter	1.0 mm (HAL Sn)
Press-in pin: metal-plated hole diameter	1.0 mm (Chem. Sn)
For other pin lengths, please contact factory	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C / Press-in pin: -40 °C / +85 °C
Contact material	Electrolytic copper (E _{cu}) / Press-in pin: copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix .../010-000” is added to the “basic item no.”	



MCS-MINI accessories:

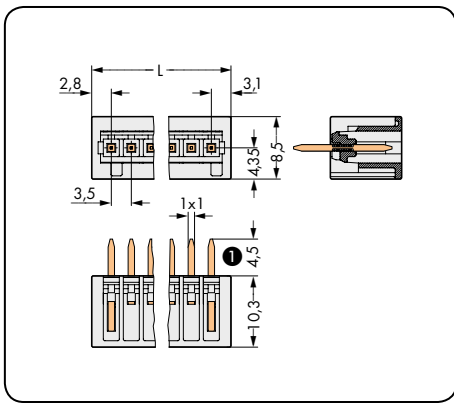
Page:

Coding keys	275

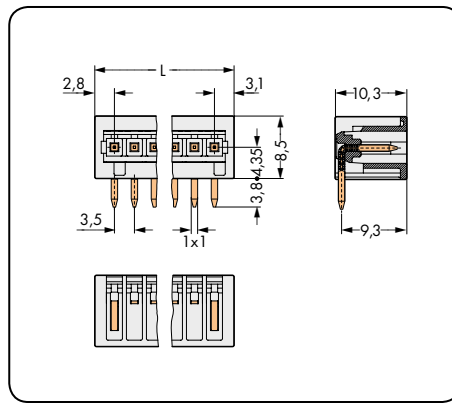
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Headers with Solder Pins MCS-MINI

With straight solder pins Pin spacing 3.5 mm / 0.138 in		With angled solder pins Pin spacing 3.5 mm / 0.138 in	
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



L = (pole no. - 1) x pin spacing + 5.9 mm



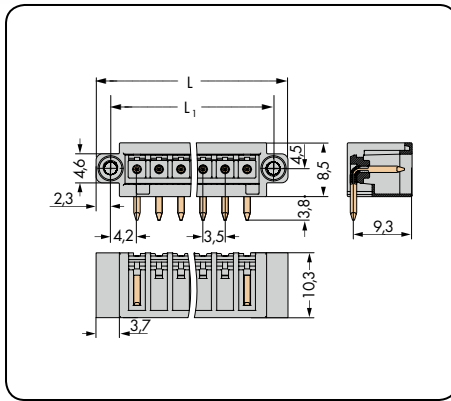
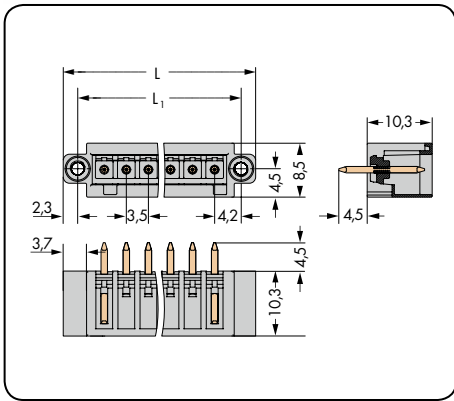
L = (pole no. - 1) x pin spacing + 5.9 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins, light gray			Male header with angled solder pins, light gray		
2	734-132	200	2	734-162	200
3	734-133	200	3	734-163	200
4	734-134	200	4	734-164	200
5	734-135	200	5	734-165	200
6	734-136	100	6	734-166	100
7	734-137	100	7	734-167	100
8	734-138	100	8	734-168	100
9	734-139	100	9	734-169	100
10	734-140	100	10	734-170	100
11	734-141	100	11	734-171	100
12	734-142	100	12	734-172	100
13	734-143	100	13	734-173	100
14	734-144	100	14	734-174	100
16	734-146	50	16	734-176	50
18	734-148	50	18	734-178	50
20	734-150	50	20	734-180	50
24	734-154	50	24	734-184	50

1 MCS-MINI male headers with straight solder pins are also available with 3.8 mm pin projection. Add item no. suffix .../046-000.

Male Headers with Solder Pins and Threaded Flanges MCS-MINI

With straight solder pins Pin spacing 3.5 mm / 0.138 in		With angled solder pins Pin spacing 3.5 mm / 0.138 in	
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A

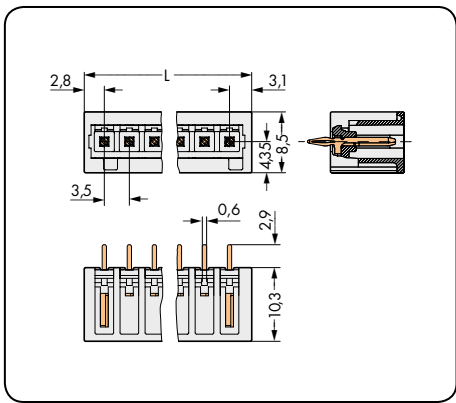
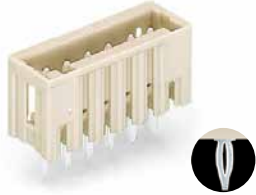


$L = (\text{pole no.} \times \text{pin spacing}) + 9.5 \text{ mm}$
 $L_1 = (\text{pole no.} \times \text{pin spacing}) + 4.9 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins and threaded flanges, light gray			Male header with angled solder pins and threaded flanges, light gray		
2	734-132/108-000	200	2	734-162/108-000	200
3	734-133/108-000	200	3	734-163/108-000	200
4	734-134/108-000	200	4	734-164/108-000	200
5	734-135/108-000	100	5	734-165/108-000	100
6	734-136/108-000	100	6	734-166/108-000	100
7	734-137/108-000	100	7	734-167/108-000	100
8	734-138/108-000	100	8	734-168/108-000	100
9	734-139/108-000	100	9	734-169/108-000	100
10	734-140/108-000	100	10	734-170/108-000	100
11	734-141/108-000	100	11	734-171/108-000	100
12	734-142/108-000	100	12	734-172/108-000	100
13	734-143/108-000	50	13	734-173/108-000	50
14	734-144/108-000	50	14	734-174/108-000	50
16	734-146/108-000	50	16	734-176/108-000	50
18	734-148/108-000	50	18	734-178/108-000	50
20	734-150/108-000	50	20	734-180/108-000	50
24	734-154/108-000	50	24	734-184/108-000	50

Male Headers for Press-In Technology MCS-MINI

<p>With straight press-in pins Pin spacing 3.5 mm / 0.138 in</p>		<p>Press-in technology</p>
<p>160 V/2.5 kV/2 8 A</p>	<p>300 V/10 A</p>	



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm}$

Pole No.	Item No.	Pack. Unit
Male header for press-in technology,		
0.6 x 1.2 mm press-in pin, light gray		
2	734-132/100-000	200
3	734-133/100-000	200
4	734-134/100-000	200
5	734-135/100-000	200
6	734-136/100-000	100
7	734-137/100-000	100
8	734-138/100-000	100
9	734-139/100-000	100
10	734-140/100-000	100
11	734-141/100-000	100
12	734-142/100-000	100

For information on press-in tool design, please contact factory.

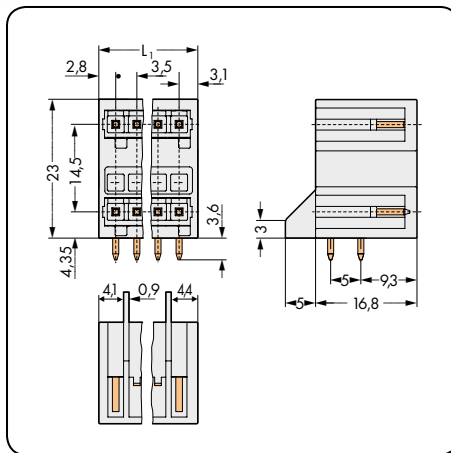
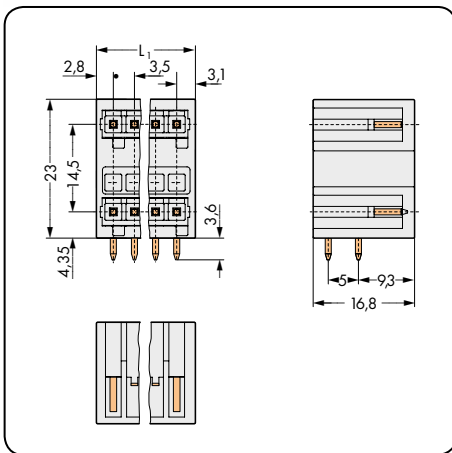
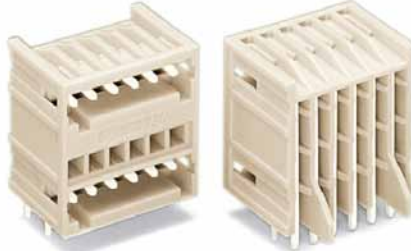
Unique features of WAGO press-in technology:

- Press-in pin features spring-loaded style expanding contact zone to provide greater retention and stability.
- Suitable for all printed circuit boards with the correct tin plating for press-in connectors
- Metal-plated hole with optimum diameter
 - 1.0 or 1.45^{+0.02}_{-0.02} mm (HAL Sn)
 - 1.0 or 1.45^{+0.02}_{-0.02} mm (Chem. Sn)
- Press-in pin for PCB thickness from 1.4 to 3 mm
- Press-in length of approx 3.2 mm
 - no unnecessary projection on underside of PCB
- Low press-in force required
 - reduces wear and tear on PCB and components
- High retention force within the PCB - doubles the values required by DIN EN 603 52-5
- Robust bonded connection
- Excellent elastic spring behavior
- No deformation of the metal-plated end hole
- Length of contact area ≥ 1.3 mm
- No deformation of multilayer PCBs
- Minimal tin removal in the contact hole
 - reduces wear and tear on PCB and contact points



Double-Deck Male Headers with Solder Pins MCS-MINI

With angled solder pins Pin spacing 3.5 mm / 0.138 in		With angled solder pins and support Pin spacing 3.5 mm / 0.138 in	
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A

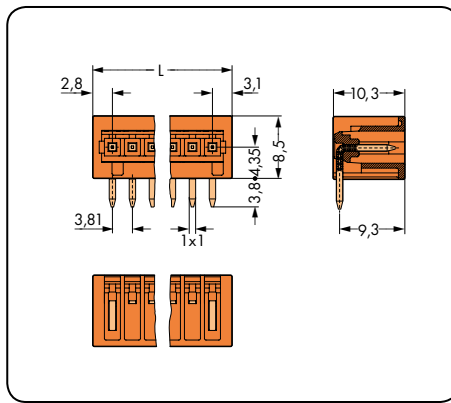
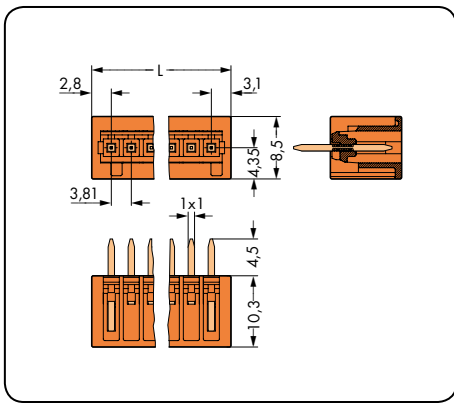


$L_1 = (\text{pole no.}/2 - 1) \times \text{pin spacing} + 5.9 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-deck male header with angled solder pins light gray			Double-deck male header with angled solder pins and support, light gray		
4 (2 x 2)	734-402	100	4 (2 x 2)	734-402/001-000	100
6 (3 x 2)	734-403	100	6 (3 x 2)	734-403/001-000	100
8 (4 x 2)	734-404	100	8 (4 x 2)	734-404/001-000	100
10 (5 x 2)	734-405	100	10 (5 x 2)	734-405/001-000	100
12 (6 x 2)	734-406	100	12 (6 x 2)	734-406/001-000	50
14 (7 x 2)	734-407	50	14 (7 x 2)	734-407/001-000	50
16 (8 x 2)	734-408	50	16 (8 x 2)	734-408/001-000	50
18 (9 x 2)	734-409	50	18 (9 x 2)	734-409/001-000	50
20 (10 x 2)	734-410	50	20 (10 x 2)	734-410/001-000	50
24 (12 x 2)	734-412	50	24 (12 x 2)	734-412/001-000	50

Male Headers with Solder Pins MCS-MINI

With straight solder pins Pin spacing 3.81 mm / 0.15 in		With angled solder pins Pin spacing 3.81 mm / 0.15 in	
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



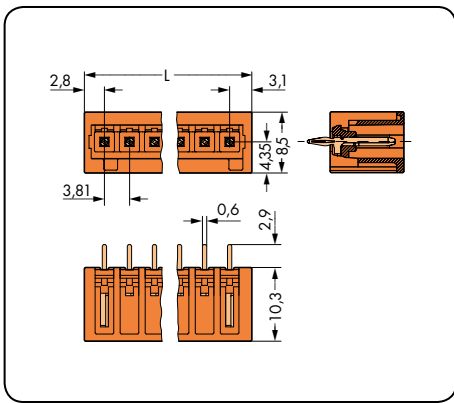
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins, orange			Male header with angled solder pins, orange		
2	734-232	200	2	734-262	200
3	734-233	200	3	734-263	200
4	734-234	200	4	734-264	200
5	734-235	200	5	734-265	200
6	734-236	100	6	734-266	100
8	734-238	100	8	734-268	100
9	734-239	100	9	734-269	100
10	734-240	100	10	734-270	100
12	734-242	100	12	734-272	100
14	734-244	100	14	734-274	100
16	734-246	50	16	734-276	50
18	734-248	50	18	734-278	50
19	734-249	50	19	734-279	50
20	734-250	50	20	734-280	50

4 Male Headers for Press-In Technology MCS-MINI

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<p>With straight press-in pins Pin spacing 3.81 mm / 0.15 in</p>		<p>Press-in technology</p>
<p>160 V/2.5 kV/2 8 A</p>	<p>300 V/10 A</p>	



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm}$

Pole No.	Item No.	Pack. Unit
Male header for press-in technology,		
0.6 x 1.2 mm press-in pin, orange		
2	734-232/100-000	200
3	734-233/100-000	200
4	734-234/100-000	200
5	734-235/100-000	200
6	734-236/100-000	100
8	734-238/100-000	100
9	734-239/100-000	100
10	734-240/100-000	100
12	734-242/100-000	100

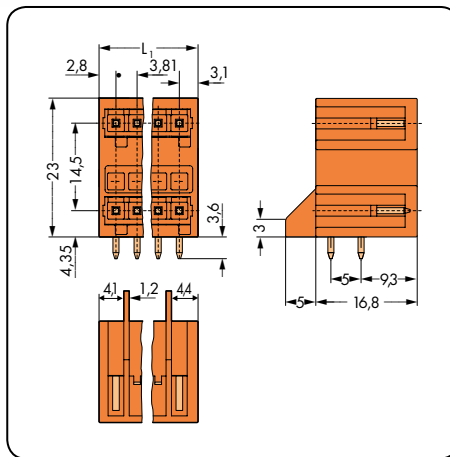
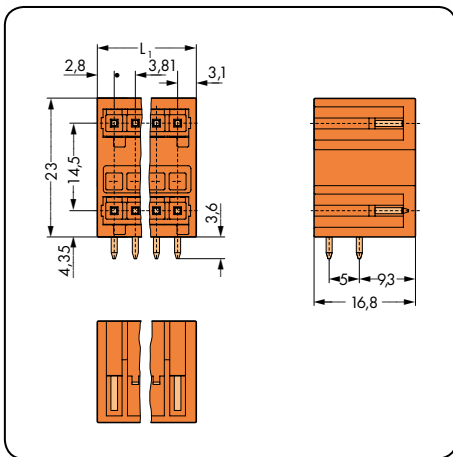
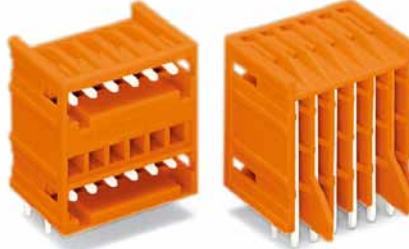
For information on press-in tool design, please contact factory.

Unique features of WAGO press-in technology:

- Press-in pin features spring-loaded style expanding contact zone to provide greater retention and stability.
- Suitable for all printed circuit boards with the correct tin plating for press-in connectors
- Metal-plated hole with optimum diameter
 - 1.0 or 1.45^{+0.09}_{-0.00} mm (HAL Sn)
 - 1.0 or 1.45^{+0.09}_{-0.00} mm (Chem. Sn)
- Press-in pin for PCB thickness from 1.4 to 3 mm
- Press-in length of approx 3.2 mm
 - no unnecessary projection on underside of PCB
- Low press-in force required
 - reduces wear and tear on both PCB and components
- High retention force within the PCB - double the values required by DIN EN 60352-5
- Robust bonded connection
- Excellent elastic spring behavior
- No deformation of the metal-plated end hole
- Length of contact area ≥ 1.3 mm
- No deformation of multilayer PCBs
- Minimal tin removal in the contact hole
 - reduces wear and tear on both PCB and contact points

Double-Deck Male Headers with Solder Pins MCS-MINI

With angled solder pins Pin spacing 3.81 mm / 0.15 in		With angled solder pins and support Pin spacing 3.81 mm / 0.15 in	
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A

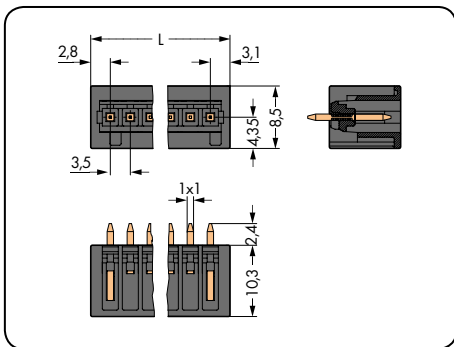


$L_1 = (\text{pole no.}/2 - 1) \times \text{pin spacing} + 5.9 \text{ mm}$

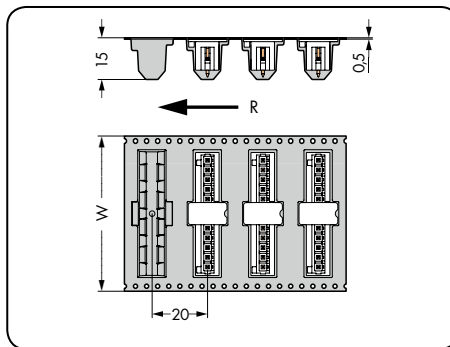
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-deck male header with angled solder pins, orange			Double-deck male header with angled solder pins and support, orange		
4 (2 x 2)	734-432	100	4 (2 x 2)	734-432/001-000	100
6 (3 x 2)	734-433	100	6 (3 x 2)	734-433/001-000	100
8 (4 x 2)	734-434	100	8 (4 x 2)	734-434/001-000	100
10 (5 x 2)	734-435	100	10 (5 x 2)	734-435/001-000	100
12 (6 x 2)	734-436	100	12 (6 x 2)	734-436/001-000	50
14 (7 x 2)	734-437	50	14 (7 x 2)	734-437/001-000	50
16 (8 x 2)	734-438	50	16 (8 x 2)	734-438/001-000	50
18 (9 x 2)	734-439	50	18 (9 x 2)	734-439/001-000	50
20 (10 x 2)	734-440	50	20 (10 x 2)	734-440/001-000	50
24 (12 x 2)	734-442	50	24 (12 x 2)	734-442/001-000	50

Male Headers with Solder Pins, THR MCS-MINI

With straight solder pins Pin spacing 3.5 mm / 0.138 in		With straight solder pins, in tape-and-reel packaging Pin spacing 3.5 mm / 0.138 in	
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



L = (pole no. - 1) x pin spacing + 5.9 mm

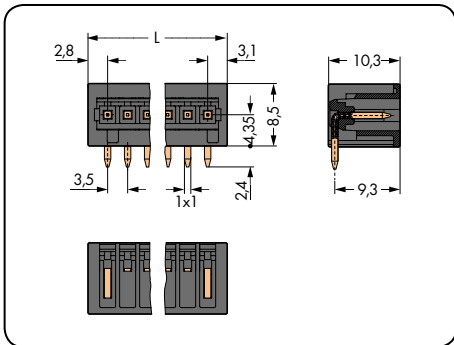
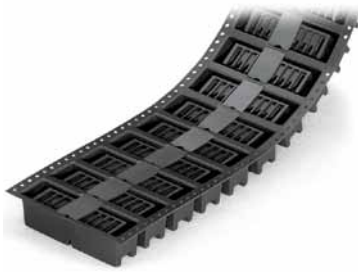


W = Tape width
R = Feed direction

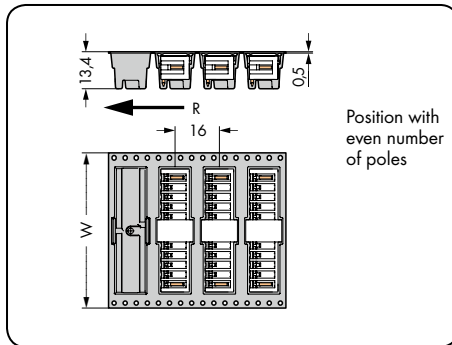
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with straight solder pins, black			Male headers with straight solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
			(mm)		
2	734-132/105-604	200	2	734-132/105-604/997-405	32
3	734-133/105-604	200	3	734-133/105-604/997-405	32
4	734-134/105-604	200	4	734-134/105-604/997-405	32
5	734-135/105-604	200	5	734-135/105-604/997-405	32
6	734-136/105-604	100	6	734-136/105-604/997-407	56
7	734-137/105-604	100	7	734-137/105-604/997-407	56
8	734-138/105-604	100	8	734-138/105-604/997-407	56
9	734-139/105-604	100	9	734-139/105-604/997-407	56
10	734-140/105-604	100	10	734-140/105-604/997-407	56
11	734-141/105-604	100	11	734-141/105-604/997-407	56
12	734-142/105-604	100	12	734-142/105-604/997-407	56
14	734-144/105-604	100	14	734-144/105-604/997-408	72
16	734-146/105-604	50	16	734-146/105-604/997-408	72
Reel diameter: 330 mm, 200 pieces per reel					

Male Headers with Solder Pins, THR MCS-MINI

With straight solder pins Pin spacing 3.5 mm / 0.138 in		With angled solder pins, in tape-and-reel packaging Pin spacing 3.5 mm / 0.138 in		With straight solder pins Pin spacing 3.81 mm / 0.15 in	
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	

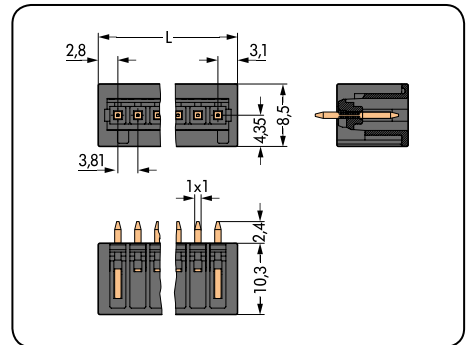


$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm}$



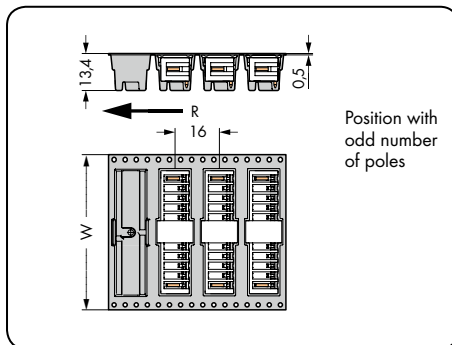
W= Tape width R = Feed direction

Position with even number of poles



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W	Pole No.	Item No.	Pack. Unit
Male header with angled solder pins, black			Male headers with angled solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black			Male header with straight solder pins, black		
					(mm)			
2	734-162/105-604	200	2	734-162/105-604/997-405	32	2	734-232/105-604	200
3	734-163/105-604	200	3	734-163/105-604/997-405	32	3	734-233/105-604	200
4	734-164/105-604	200	4	734-164/105-604/997-405	32	4	734-234/105-604	200
5	734-165/105-604	200	5	734-165/105-604/997-405	32	5	734-235/105-604	200
6	734-166/105-604	100	6	734-166/105-604/997-407	56	6	734-236/105-604	100
7	734-167/105-604	100	7	734-167/105-604/997-407	56	8	734-238/105-604	100
8	734-168/105-604	100	8	734-168/105-604/997-407	56	10	734-240/105-604	100
9	734-169/105-604	100	9	734-169/105-604/997-407	56	12	734-242/105-604	100
10	734-170/105-604	100	10	734-170/105-604/997-407	56			
11	734-171/105-604	100	11	734-171/105-604/997-407	56			
12	734-172/105-604	100	12	734-172/105-604/997-407	56			
14	734-174/105-604	100	14	734-174/105-604/997-408	72			
16	734-176/105-604	50	16	734-176/105-604/997-408	72			
			Reel diameter: 330 mm, 280 pieces per reel					

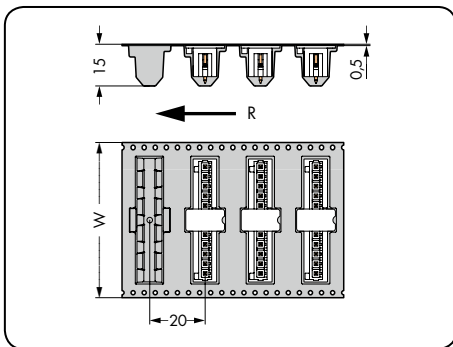


W= Tape width R = Feed direction

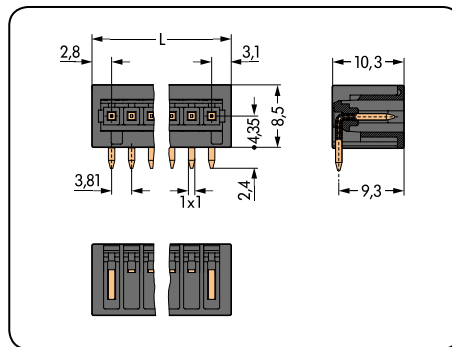
Position with odd number of poles

Male Headers with Solder Pins, THR MCS-MINI

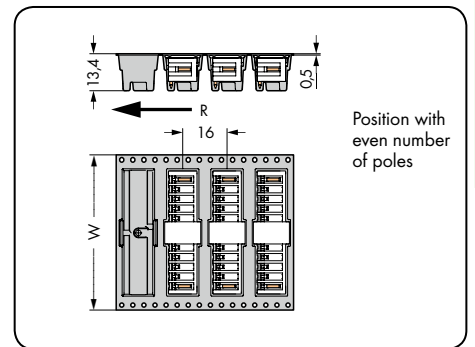
<p>With straight solder pins, in tape-and-reel packaging Pin spacing 3.81 mm / 0.15 in</p> <p>160 V/2.5 kV/2 10 A</p>	<p>With angled solder pins Pin spacing 3.81 mm / 0.15 in</p> <p>160 V/2.5 kV/2 10 A</p>	<p>With angled solder pins, in tape-and-reel packaging Pin spacing 3.81 mm / 0.15 in</p> <p>160 V/2.5 kV/2 10 A</p>
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W= Tape width
R = Feed direction



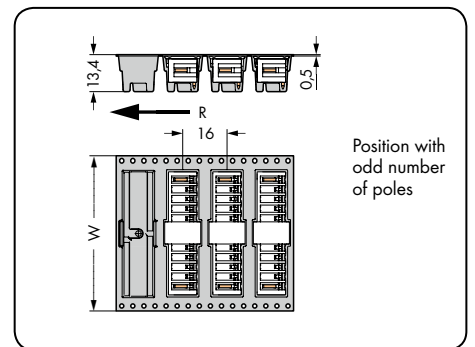
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm}$



Position with
even number
of poles

W= Tape width
R = Feed direction

Pole No.	Item No.	W	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male headers with straight solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black			Male header with angled solder pins, black			Male headers with angled solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
		(mm)						(mm)
2	734-232/105-604/997-405	32	2	734-262/105-604	200	2	734-262/105-604/997-405	32
3	734-233/105-604/997-405	32	3	734-263/105-604	200	3	734-263/105-604/997-405	32
4	734-234/105-604/997-405	32	4	734-264/105-604	200	4	734-264/105-604/997-405	32
5	734-235/105-604/997-407	56	5	734-265/105-604	200	5	734-265/105-604/997-407	56
6	734-236/105-604/997-407	56	6	734-266/105-604	100	6	734-266/105-604/997-407	56
8	734-238/105-604/997-407	56	8	734-268/105-604	100	8	734-268/105-604/997-407	56
10	734-240/105-604/997-407	56	10	734-270/105-604	100	10	734-270/105-604/997-407	56
12	734-242/105-604/997-408	72	12	734-272/105-604	100	12	734-272/105-604/997-408	72
Reel diameter: 330 mm, 200 pieces per reel						Reel diameter: 330 mm, 280 pieces per reel		



Position with
odd number
of poles

W= Tape width
R = Feed direction

4 Male Connectors Pin Spacing 3.5 mm, 3.81 mm MCS-MINI



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- For “wire-to-wire” and “board-to-wire” connections
- Strain relief plates and housings for factory and in-the-field assembly
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	3.5 mm 0.138 in			3.81 mm 0.15 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A

Conductor data:

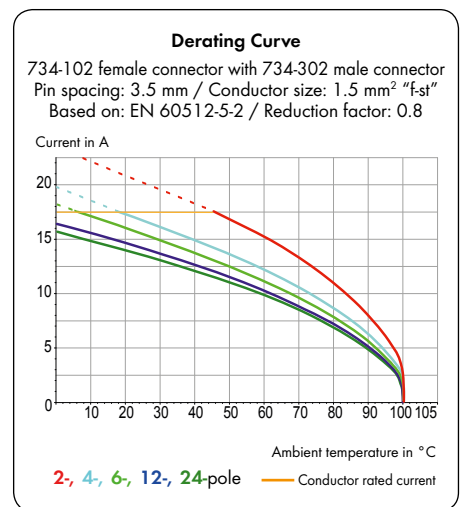
Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 1.5 mm ²	
Conductor size: fine-stranded	0.08 - 1.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)*	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)	
AWG	28 - 14	14: THHN, THWN
Strip length	6 - 7 mm / 0.24 - 0.28 in	

* Only every other clamping unit can be terminated using 1.5 mm² connectors with insulated ferrules.

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix ... /010-000” is added to the “basic item no.”	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

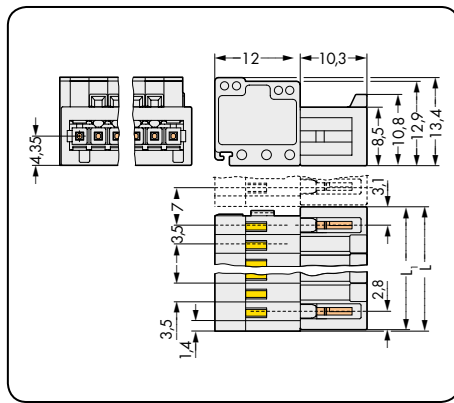
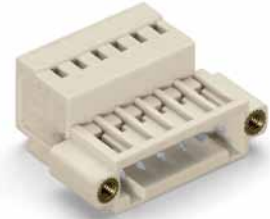


MCS-MINI accessories:

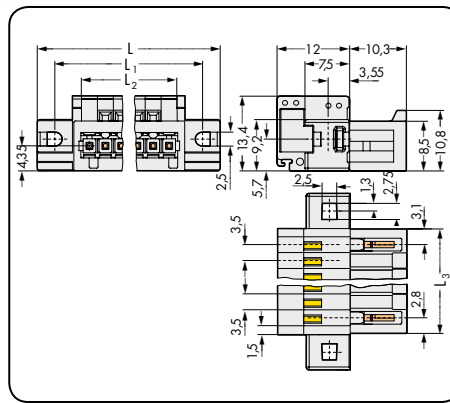
Page:

Marking accessories	540 - 543
Operating tools	274
Direct marking	278 - 279
Coding keys	275
Mounting adapter	475
Screws	546
Strain relief housing	276
Stress relief plates	277

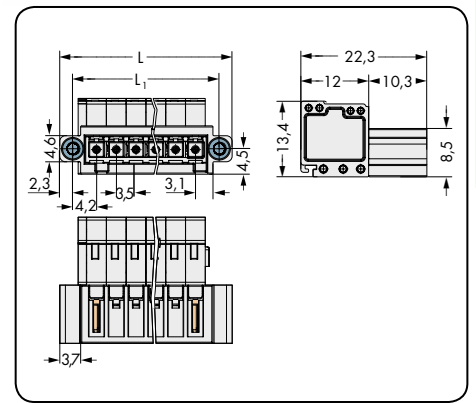
Pin spacing 3.5 mm / 0.138 in		With fixing flanges Pin spacing 3.5 mm / 0.138 in		With threaded flanges Pin spacing 3.5 mm / 0.138 in	
0.08 - 1.5 mm ²	AWG 28 - 14	0.08 - 1.5 mm ²	AWG 28 - 14	0.08 - 1.5 mm ²	AWG 28 - 14
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm} + 0.45 \text{ mm}$
 $L_1 = L - 0.45 \text{ mm}$



$L = \text{pole no.} \times \text{pin spacing} + 14.8 \text{ mm}$
 $L_1 = \text{pole no.} \times \text{pin spacing} + 8.8 \text{ mm}$
 $L_2 = \text{pole no.} \times \text{pin spacing}$
 $L_3 = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm}$

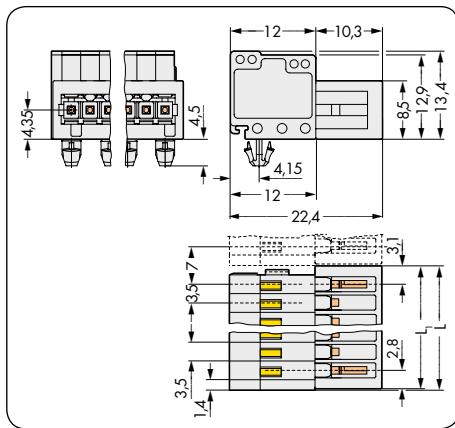
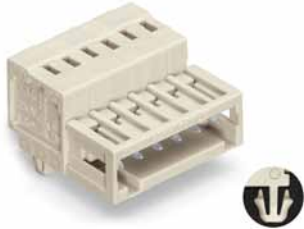


$L = (\text{pole no.} \times \text{pin spacing}) + 9.5 \text{ mm}$
 $L_1 = (\text{pole no.} \times \text{pin spacing}) + 4.9 \text{ mm}$

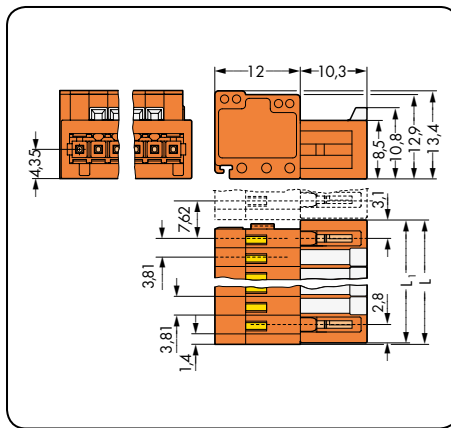
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector, light gray			Male connector with fixing flanges, light gray			Male connector with threaded flanges, light gray		
2	734-302	200	2	734-302/019-000	100	2	734-302/109-000	100
3	734-303	200	3	734-303/019-000	100	3	734-303/109-000	100
4	734-304	100	4	734-304/019-000	50	4	734-304/109-000	100
5	734-305	100	5	734-305/019-000	50	5	734-305/109-000	50
6	734-306	100	6	734-306/019-000	50	6	734-306/109-000	50
7	734-307	100	7	734-307/019-000	50	7	734-307/109-000	50
8	734-308	50	8	734-308/019-000	50	8	734-308/109-000	50
9	734-309	50	9	734-309/019-000	50	9	734-309/109-000	50
10	734-310	50	10	734-310/019-000	50	10	734-310/109-000	50
11	734-311	50	11	734-311/019-000	25	11	734-311/109-000	50
12	734-312	50	12	734-312/019-000	25	12	734-312/109-000	50
13	734-313	50	13	734-313/019-000	25	13	734-313/109-000	25
14	734-314	50	14	734-314/019-000	25	14	734-314/109-000	25
16	734-316	25	16	734-316/019-000	25	16	734-316/109-000	25
18	734-318	25	18	734-318/019-000	25	18	734-318/109-000	25
20	734-320	25	20	734-320/019-000	25	20	734-320/109-000	25
24	734-324	25	24	734-324/019-000	10	24	734-324/109-000	10
For cutout dimensions, see page 280, table 1.								

Male Connectors MCS-MINI

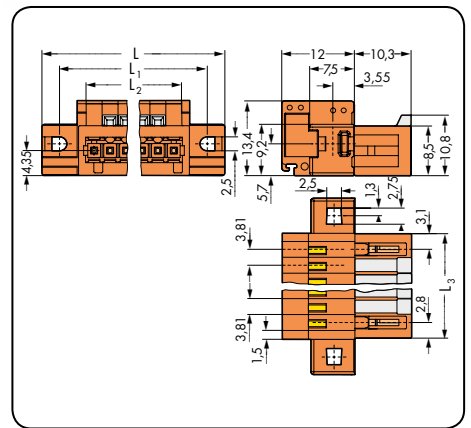
With Snap-in mounting feet Pin spacing 3.5 mm / 0.138 in		Pin spacing 3.81 mm / 0.15 in		With fixing flanges Pin spacing 3.81 mm / 0.15 in	
0.08 - 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 28 - 14 300 V/10 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 28 - 14 300 V/10 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 28 - 14 300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm} + 0.45 \text{ mm}$
 $L_1 = L - 0.45 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm} + 0.45 \text{ mm}$
 $L_1 = L - 0.45 \text{ mm}$



$L = \text{pole no.} \times \text{pin spacing} + 14.8 \text{ mm}$
 $L_1 = \text{pole no.} \times \text{pin spacing} + 8.8 \text{ mm}$
 $L_2 = \text{pole no.} \times \text{pin spacing}$
 $L_3 = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm}$

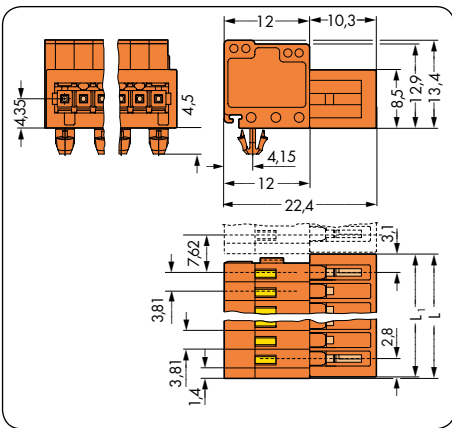
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, light gray			Male connector, orange			Male connector with fixing flanges, orange		
2	734-302/018-000	200	2	734-332	200	2	734-332/019-000	100
3	734-303/018-000	200	3	734-333	200	3	734-333/019-000	100
4	734-304/018-000	100	4	734-334	100	4	734-334/019-000	50
5	734-305/018-000	100	5	734-335	100	5	734-335/019-000	50
6	734-306/018-000	100	6	734-336	100	6	734-336/019-000	50
7	734-307/018-000	100	8	734-338	50	8	734-338/019-000	50
8	734-308/018-000	50	9	734-339	50	9	734-339/019-000	50
9	734-309/018-000	50	10	734-340	50	10	734-340/019-000	50
10	734-310/018-000	50	12	734-342	25	12	734-342/019-000	25
11	734-311/018-000	50	14	734-344	25	14	734-344/019-000	25
12	734-312/018-000	50	16	734-346	25	16	734-346/019-000	25
13	734-313/018-000	50	18	734-348	25	18	734-348/019-000	25
14	734-314/018-000	50	19	734-349	25	19	734-349/019-000	25
16	734-316/018-000	25	20	734-350	25	20	734-350/019-000	25
18	734-318/018-000	25						
20	734-320/018-000	25						
24	734-324/018-000	25						
Three or more pole male connectors have a snap-in mounting foot at every other pole (2-pole male connectors/2 snap-in mounting feet)						For cutout dimensions, see page 280, table 1.		

Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

For other pole numbers, please contact factory.

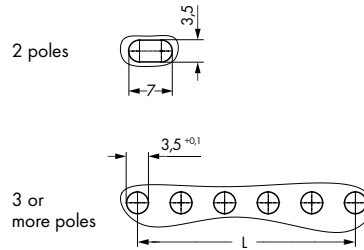
Male Connectors MCS-MINI

<p>With Snap-in mounting feet Pin spacing 3.81 mm / 0.15 in</p> <p>0.08 - 1.5 mm² | AWG 28 - 14 160 V/2.5 kV/2 10 A | 300 V/10 A</p>	<p>With Snap-in mounting feet</p> <p>Drilled hole pattern for panel mounting</p>	
--	--	--

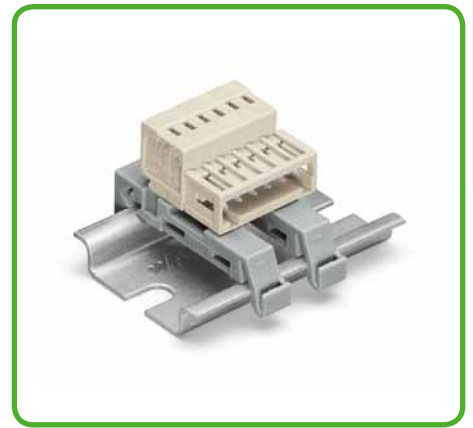


$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.9 \text{ mm} + 0.45 \text{ mm}$
 $L_1 = L - 0.45 \text{ mm}$

Drilled hole pattern for panel mounting

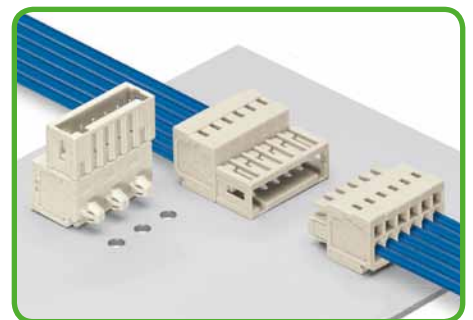


Even pole number: $L = (\text{pole no.} - 2) \times \text{pin spacing}$
 Odd pole number: $L = (\text{pole no.} - 1) \times \text{pin spacing}$

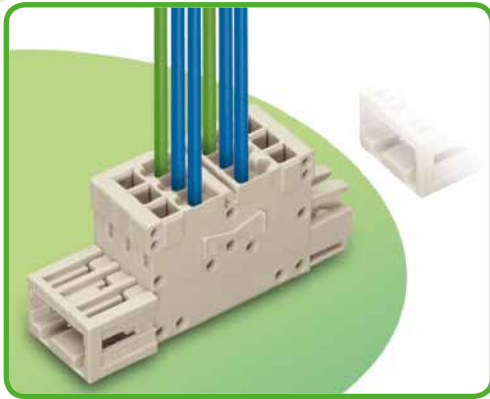


Using two DIN 35-rail mounting adapters (209-137) for 3 or more poles. Distance between two mounting adapters: maximum 7 poles.

Pole No.	Item No.	Pack. Unit
Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, orange		
2	734-332/018-000	100
3	734-333/018-000	100
4	734-334/018-000	100
5	734-335/018-000	50
6	734-336/018-000	50
8	734-338/018-000	50
9	734-339/018-000	50
10	734-340/018-000	50
12	734-342/018-000	50
14	734-344/018-000	25
16	734-346/018-000	25
18	734-348/018-000	25
19	734-349/018-000	25
20	734-350/018-000	25
Three or more pole male connectors have a snap-in mounting foot at every other pole (2-pole male connectors/2 snap-in mounting feet)		
Product Accessories		Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)		475



2-Conductor Combi Strips Pin Spacing 3.5 mm MCS-MINI



- Universal connection for all conductor types
- 2-conductor strip combines pin and socket connections
- For multiplying potentials
- Strain relief plates for factory and in-the-field assembly
- Supply via pin-contact side
- Combi strips may be connected to multiple outputs
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	3.5 mm 0.138 in		
	Rating per	IEC/EN 60664-1	
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	10 A

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 1.5 mm ²	
Conductor size: fine-stranded	0.08 - 1.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)*	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with uninsulated ferrule)	
AWG	28 - 14	14: THHN, THWN
Strip length	6 - 7 mm / 0.24 - 0.28 in	
* Only every other clamping unit can be terminated using 1.5 mm ² connectors with insulated ferrules.		

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix . . . /010-000" is added to the "basic item no."	

MCS-MINI accessories:

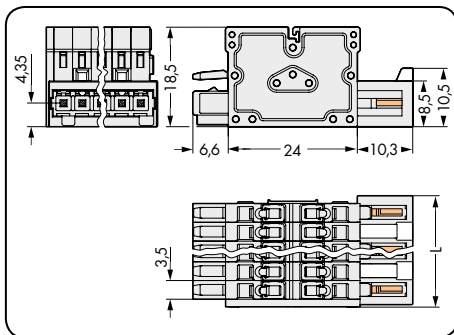
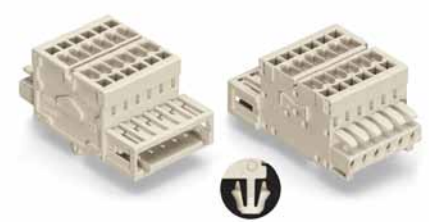
Page:

Marking accessories	540 - 543
Operating tools	274
Direct marking	278 - 279
Coding keys	275
Mounting adapter	475
Test pin	538
Stress relief plates	277

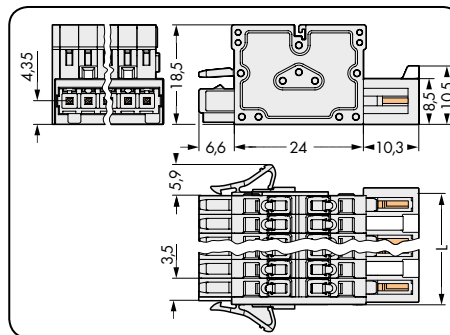
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

2-Conductor Combi Strips MCS-MINI

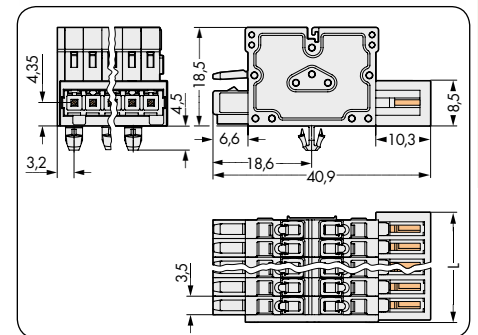
Pin spacing 3.5 mm / 0.138 in		With locking levers Pin spacing 3.5 mm / 0.138 in		With Snap-in mounting feet Pin spacing 3.5 mm / 0.138 in	
0.08 - 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 28 - 14 300 V/10 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 28 - 14 300 V/10 A	0.08 - 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 28 - 14 300 V/10 A



L = (pole no. - 1) x pin spacing + 5.9 mm + 0.45 mm



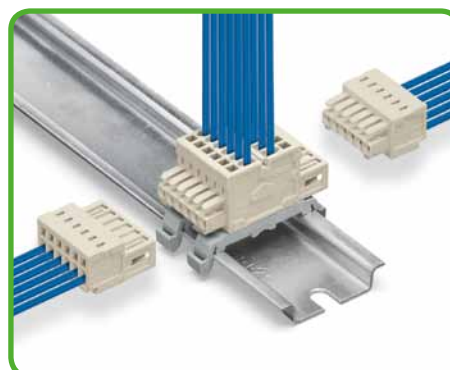
See drawing at left for other dimensions.



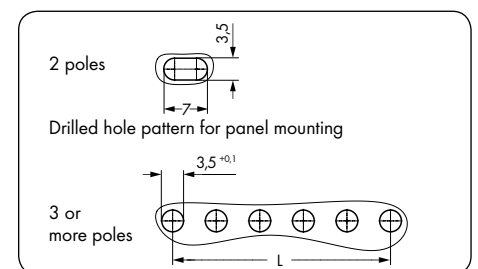
L = (pole no. - 1) x pin spacing + 5.9 mm + 0.45 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Combi strip, light gray			Combi strip with locking levers, light gray			Combi strip with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, light gray		
2	734-362	100	2	734-362/037-000	100	2	734-362/008-000	100
3	734-363	50	3	734-363/037-000	50	3	734-363/008-000	50
4	734-364	50	4	734-364/037-000	50	4	734-364/008-000	50
5	734-365	50	5	734-365/037-000	50	5	734-365/008-000	50
6	734-366	50	6	734-366/037-000	50	6	734-366/008-000	50
7	734-367	50	7	734-367/037-000	50	7	734-367/008-000	25
8	734-368	50	8	734-368/037-000	25	8	734-368/008-000	25
9	734-369	25	9	734-369/037-000	25	9	734-369/008-000	25
10	734-370	25	10	734-370/037-000	25	10	734-370/008-000	25
11	734-371	25	11	734-371/037-000	25	11	734-371/008-000	25
12	734-372	25	12	734-372/037-000	25	12	734-372/008-000	25
						Three or more pole male connectors have a snap-in mounting foot at every other pole (2-pole male connectors/2 snap-in mounting feet)		

Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475



Using two DIN 35-rail mounting adapters (209-137) for 3 or more poles. Distance between two mounting adapters: maximum 7 poles.



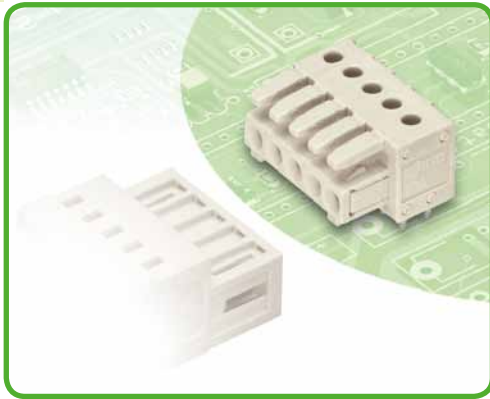
Even pole number: L = (pole no. - 2) x pin spacing
Odd pole number: L = (pole no. - 1) x pin spacing

For other lengths, please contact factory.

4 Female Headers with Solder Pins

Pin Spacing 3.5 mm, 3.81 mm

MCS-MINI



- Female headers may be mounted horizontally or vertically via straight or angled solder pins
- Integrated test ports for Ø 2 mm test plugs
- For “board-to-board” and “board-to-wire” connections
- Touch-proof PCB outputs
- Easy-to-identify inputs and outputs
- 100% protected against mismatching
- With coding fingers

Technical data:

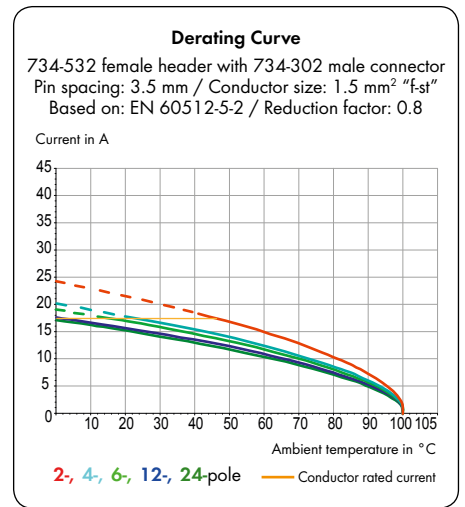
Pin Spacing	3.5 mm 0.138 in			3.81 mm 0.15 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2
Pollution degree	160 V	160 V	320 V	160 V	160 V	320 V
Rated voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Rated surge voltage	10 A	10 A	10 A	10 A	10 A	10 A
Nominal current	UL	CSA	UL/CSA	UL	CSA	UL/CSA
Approvals per	B	C	D	B	C	D
Use group UL 1059	300 V	-	300 V	300 V	-	300 V
Rated voltage	10 A	-	10 A	10 A	-	10 A
Nominal current UL	-	-	-	-	-	-
Nominal current CSA						

Conductor and solder pin data:

Solder pin: length/width	3.8 mm / 0.9 x 0.9 mm
Solder pin: drilled hole diameter	1.4 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix . . . /010-000” is added to the “basic item no.”	



MCS-MINI accessories:

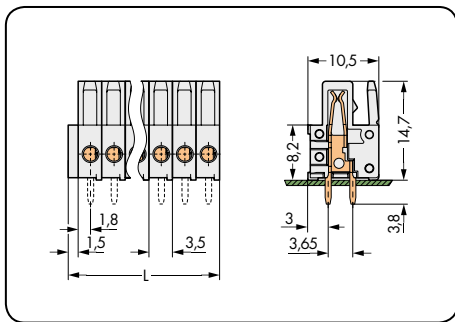
Page:

Marking accessories	540 - 543
Test plug, Ø 2 mm	538

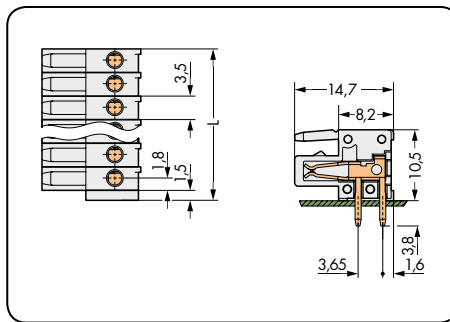
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Headers with Solder Pins MCS-MINI

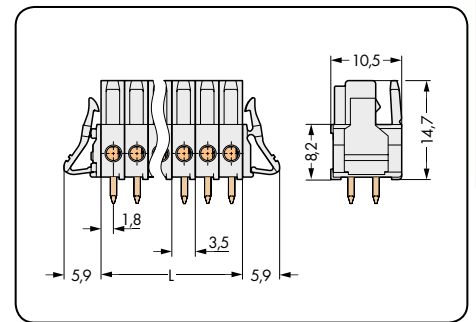
With straight solder pins Pin spacing 3.5 mm / 0.138 in		With straight solder pins Pin spacing 3.5 mm / 0.138 in		With straight solder pins and locking levers Pin spacing 3.5 mm / 0.138 in	
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



L = (pole no. x pin spacing) + 1.5 mm



L = (pole no. x pin spacing) + 1.5 mm



L = pole no. x pin spacing

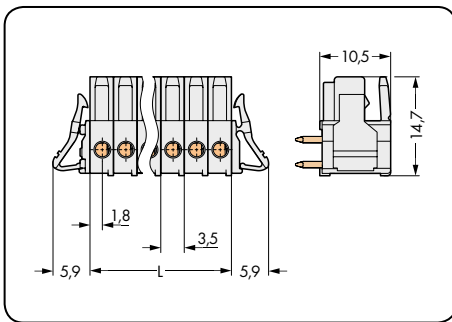


Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, light gray			Female header with angled solder pins, light gray			Female header with straight solder pins and locking levers, light gray		
2	734-462	200	2	734-532	200	2	734-462/037-000	100
3	734-463	200	3	734-533	200	3	734-463/037-000	100
4	734-464	100	4	734-534	100	4	734-464/037-000	100
5	734-465	100	5	734-535	100	5	734-465/037-000	50
6	734-466	100	6	734-536	100	6	734-466/037-000	50
7	734-467	100	7	734-537	100	7	734-467/037-000	50
8	734-468	50	8	734-538	50	8	734-468/037-000	50
9	734-469	50	9	734-539	50	9	734-469/037-000	50
10	734-470	50	10	734-540	50	10	734-470/037-000	50
11	734-471	50	11	734-541	50	11	734-471/037-000	50
12	734-472	50	12	734-542	50	12	734-472/037-000	50
13	734-473	50	13	734-543	50	13	734-473/037-000	25
14	734-474	50	14	734-544	50	14	734-474/037-000	25
16	734-476	25	16	734-546	25	16	734-476/037-000	25
18	734-478	25	18	734-548	25	18	734-478/037-000	25
20	734-480	25	20	734-550	25	20	734-480/037-000	25
24	734-484	25	24	734-554	25	24	734-484/037-000	10

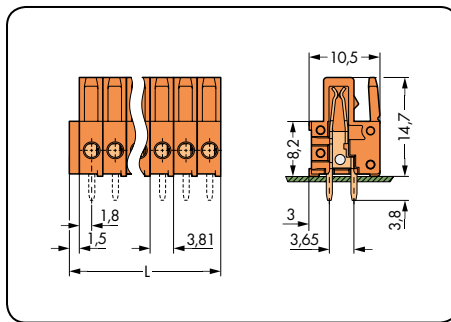
4 Female Headers with Solder Pins MCS-MINI

272

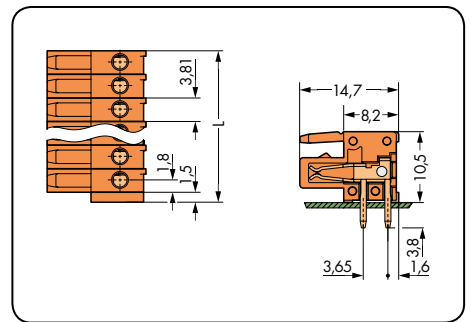
With angled solder pins and locking levers Pin spacing 3.5 mm / 0.138 in		With straight solder pins Pin spacing 3.81 mm / 0.15 in		With angled solder pins Pin spacing 3.81 mm / 0.15 in	
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



L = pole no. x pin spacing



L = (pole no. x pin spacing) + 1.5 mm

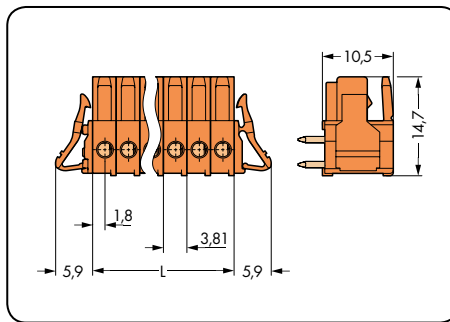
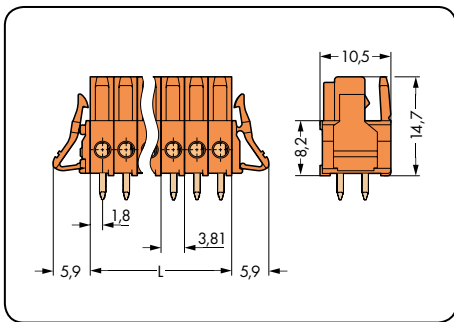


L = (pole no. x pin spacing) + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with angled solder pins and locking levers, light gray			Female header with straight solder pins, orange			Female header with angled solder pins, orange		
2	734-532/037-000	100	2	734-502	200	2	734-562	200
3	734-533/037-000	100	3	734-503	200	3	734-563	200
4	734-534/037-000	100	4	734-504	100	4	734-564	100
5	734-535/037-000	50	5	734-505	100	5	734-565	100
6	734-536/037-000	50	6	734-506	100	6	734-566	100
7	734-537/037-000	50						
8	734-538/037-000	50	8	734-508	50	8	734-568	50
9	734-539/037-000	50	9	734-509	50	9	734-569	50
10	734-540/037-000	50	10	734-510	50	10	734-570	50
11	734-541/037-000	50						
12	734-542/037-000	50	12	734-512	25	12	734-572	25
13	734-543/037-000	25						
14	734-544/037-000	25	14	734-514	25	14	734-574	25
16	734-546/037-000	25	16	734-516	25	16	734-576	25
18	734-548/037-000	25						
20	734-550/037-000	25	20	734-520	25	20	734-580	25
24	734-554/037-000	10						

Female Headers with Solder Pins MCS-MINI

With straight solder pins and locking levers Pin spacing 3.81 mm / 0.15 in 160 V/2.5 kV/2 10 A 300 V/10 A		With angled solder pins and locking levers Pin spacing 3.81 mm / 0.15 in 160 V/2.5 kV/2 10 A 300 V/10 A	
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L = pole no. x pin spacing

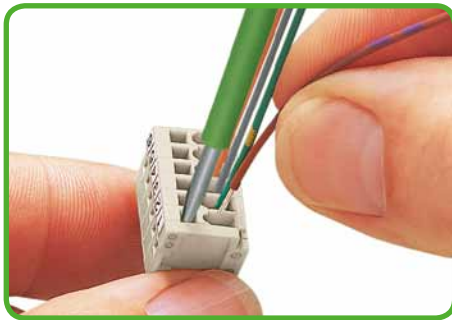
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins and locking levers, orange			Female header with angled solder pins and locking levers, orange		
2	734-502/037-000	100	2	734-562/037-000	100
3	734-503/037-000	100	3	734-563/037-000	100
4	734-504/037-000	100	4	734-564/037-000	100
5	734-505/037-000	50	5	734-565/037-000	50
6	734-506/037-000	50	6	734-566/037-000	50
8	734-508/037-000	50	8	734-568/037-000	50
9	734-509/037-000	50	9	734-569/037-000	50
10	734-510/037-000	50	10	734-570/037-000	50
12	734-512/037-000	25	12	734-572/037-000	25
14	734-514/037-000	25	14	734-574/037-000	25
16	734-516/037-000	25	16	734-576/037-000	25
20	734-520/037-000	25	20	734-580/037-000	25

Accessories Operating Tools MCS-MINI

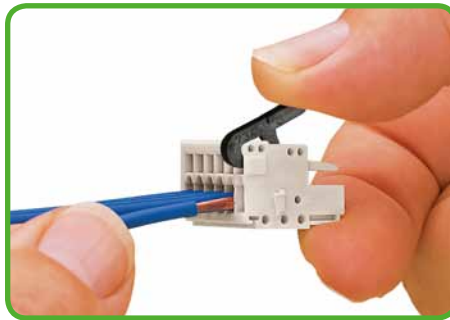
Operating tool with partially insulated shaft Type 1	Operating levers for male and female connectors with CAGE CLAMP®	Operating tools for male and female connectors with CAGE CLAMP®
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Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Operating tool with partially insulated shaft, type 1, (2.5 x 0.4) mm blade			Operating lever, 3.5/3.81 mm pin spacing			Operating tool, 3.5/3.81 mm pin spacing		
	210-719	1	white	734-230	100 (4 x 25)	white	734-190	100 (4 x 25)
			black	734-191	100 (4 x 25)	black	734-231	100 (4 x 25)



Conductor termination parallel to screwdriver actuation



Conductor termination via operating lever

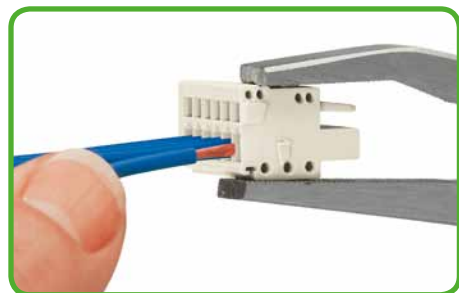


Conductor termination parallel to CAGE CLAMP® actuation

Color	Item No.	Pack. Unit
Operating tool for MCS-MINI		
red	210-250	1
yellow	210-251	1



Conductor termination perpendicular to CAGE CLAMP® actuation



Note: Terminating MCS-MINI male and female connectors with CAGE CLAMP® can be performed via 210-250 and 210-251 operating tools.

Accessories

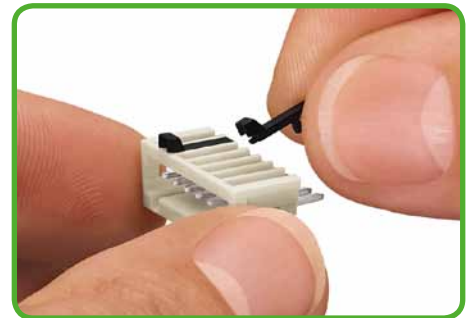
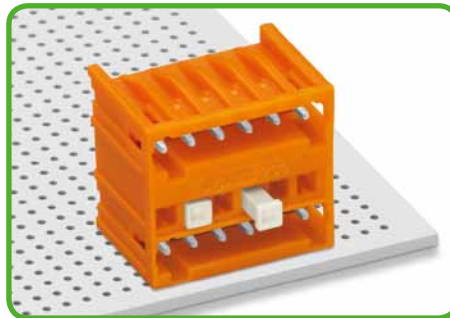
Insulation Stop and Coding Accessories

MCS-MINI

Insulation stop for male and female connectors with CAGE CLAMP®	Coding keys for double-deck male headers to be snapped in bottom level	Coding keys for male headers
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Conductor Size	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Insulation stop, 8 pcs per strand, 3.5 mm pin spacing			Coding key for double-deck male headers, to be snapped in bottom level, 3.5/3.81 mm pin spacing			Coding key for male headers, 3.5/3.81 mm pin spacing		
0.08 - 0.2 mm ² "sol." (0.14 mm ² "fst")			light gray	734-400	100	white	734-130	100
white	734-671	200 (8 x 25)				black	734-159 (suitable for THR soldering)	100



Small and very small fine-stranded conductors are highly flexible, and deform when pushed against the conductor stop in terminal blocks. As a result, the conductor insulation – not the copper conductor – may be clamped, causing intermittent contact or no contact at all. Insulation stops for 734 Series male and female connectors equipped with CAGE CLAMP® reliably ensure proper termination.

Coding a double-deck male header – lower level.

Coding a male header via snap-on coding keys.

Accessories

Strain Relief Housings



MCS-MINI

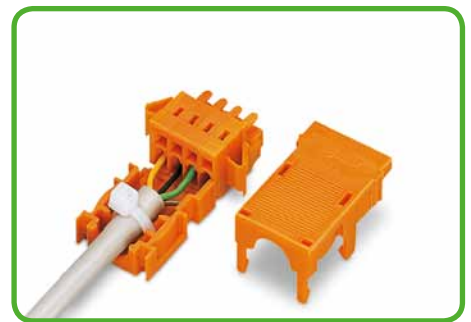
<p>Snap-on type strain relief housings Pin spacing 3.5 mm / 0.138 in</p> <p>for male and female connectors with CAGE CLAMP® connection</p>	<p>Snap-on type strain relief housings Pin spacing 3.81 mm / 0.15 in</p> <p>for male and female connectors with CAGE CLAMP® connection</p>
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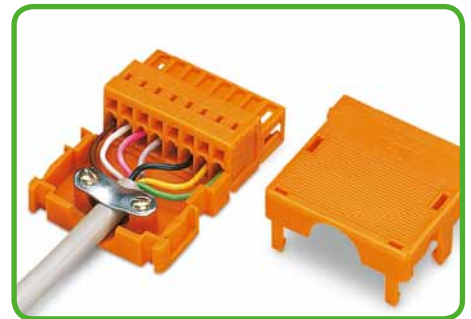
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
<p>Snap-on type strain relief housing, suitable for 3.5 mm pin spacing, light gray consisting of strain relief support and housing</p>			<p>Snap-on type strain relief housing, suitable for 3.81 mm pin spacing, orange consisting of strain relief support and housing</p>		
2	734-602	50	2	734-632	50
3	734-603	25	3	734-633	25
4	734-604	25	4	734-634	25
5	734-605	25	5	734-635	25
6	734-606	25	6	734-636	25
7	734-607	25			
8	734-608	25	8	734-638	25
9	734-609	25	9	734-639	25
10	734-610	25	10	734-640	25
11	734-611	25			
12	734-612	25	12	734-642	25

2 to 5-pole, only suitable for cable ties, 1 cable outlet (rear side), max. cable tie width 3.6 mm
 6 to 9-pole, suitable for cable clamp, 1 cable outlet (rear side)
 10 to 12-pole, suitable for cable clamp, 1 cable outlets (rear side) and 2 cable outlets (side),
 removable built-in lockout cap

Product Accessories	Item No.	Pack. Unit
Cable clamp , for strain relief, 6 - 12 poles		
	209-177	25
Fixing screws , for cable clamp, 6 - 12 poles		
	209-172	50

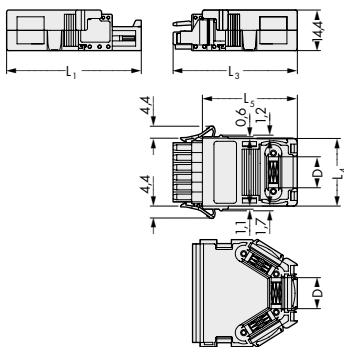


4-pole female connector with locking levers and strain relief housing (2- to 5-pole strain relief housing suitable only for cable ties)



8-pole male connector with strain relief housing (6- to 12-pole strain relief housing suitable for cable clamps)

Strain Relief Housing Dimensions							
Pole No.	L ₄ Pin Spacing		L ₃	L ₁	L ₅	D	D
	3.5	3.81					
2	10.0	10.6	43.1	46.8	32.7	5.0	
3	13.5	14.4	43.1	46.8	32.7	8.5	
4	17.0	18.2	43.1	46.8	32.7	8.5	
5	20.5	22.0	43.1	46.8	32.7	8.5	
6	24.0	25.9	44.1	47.8	33.7	11.5	
7	27.5	-	44.1	47.8	33.7	11.5	
8	31.0	33.5	44.1	47.8	33.7	11.5	
9	34.5	37.3	44.1	47.8	33.7	11.5	
10	38.0	41.1	53.1	56.8	42.7	11.5	
11	41.5	-	53.1	56.8	42.7	11.5	
12	45.0	48.7	53.1	56.8	42.7	11.5	



Accessories

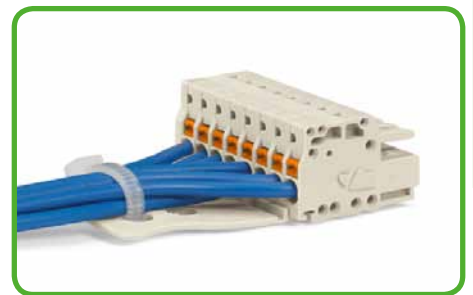
Strain Relief Plates

MCS-MINI

<p>Stress relief plates for in-the-field assembly</p> <p>for male and female connectors with CAGE CLAMP® and CAGE CLAMP®S</p>	<p>Strain relief plates, factory-assembled</p> <p>for male and female connectors with CAGE CLAMP® and CAGE CLAMP®S</p>
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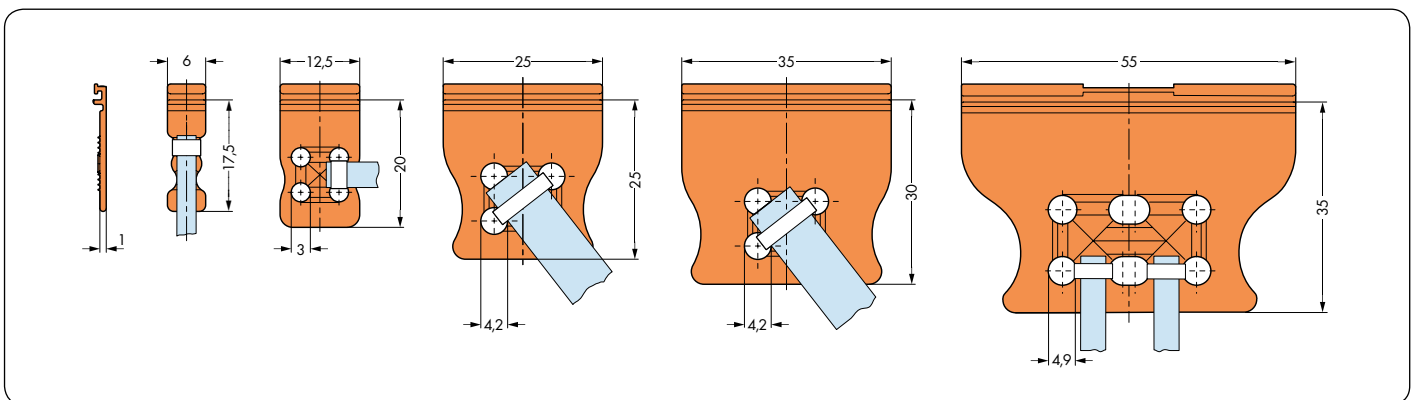
Width	Pole No.	Item No.	Pack. Unit	Width	Pole No.	Item No. Suffix
<p>Strain relief plate, 3.5 mm pin spacing, light gray</p>				<p>Strain relief plate, pre-assembled, 3.5/3.81 mm pin spacing</p>		
6 mm	2- 3	734-127	100 (4 x 25)	6 mm	2- 3	.../032-000
12.5 mm	4- 8	734-128	100 (4 x 25)	12.5 mm	4- 8	.../033-000
25 mm	9-12	734-129	100 (4 x 25)	25 mm	9-12	.../034-000
35 mm	13-16	734-126	100 (4 x 25)	35 mm	13-16	.../035-000
55 mm	17- max.	734-426	50 (2 x 25)	55 mm	17- max.	.../036-000
Width	Pole No.	Item No.	Pack. Unit			
<p>Strain relief plate, 3.81 mm pin spacing, orange</p>				<p>Ordering example: Female connector, 3.81 mm pin spacing, 8-pole, orange, with strain relief plate: 734-208/033-000</p>		
6 mm	2- 3	734-227	100 (4 x 25)			
12.5 mm	4- 8	734-228	100 (4 x 25)			
25 mm	9-12	734-229	100 (4 x 25)			
35 mm	13-16	734-226	100 (4 x 25)			
55 mm	17- max.	734-428	50 (2 x 25)			
				<p>An "item no. suffix", referring to the width of the strain relief plate, is added to the "basic item no." and determines the type of male or female connector.</p>		



Ordering example:
Female connector, 3.5 mm pin spacing, 8-pole, light gray, with strain relief plate: **2734-108/033-000**



734-128 strain relief plate, for in-the-field assembly.



The arrangement of the attachments for cable ties allows single conductors or multi-core cables to be secured in different ways. The width of the cable ties must correspond to the hole dimensions of the strain relief plates shown above.

WAGO does not offer the recommended cable ties and cable binding tools; those are available from suppliers such as Hellermann.

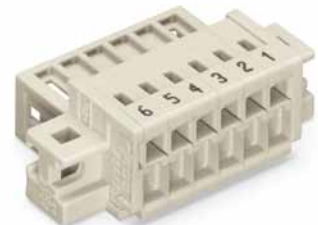
4 Accessories


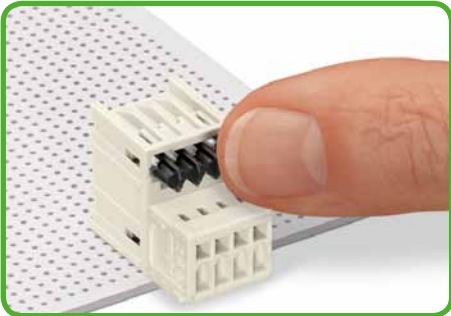

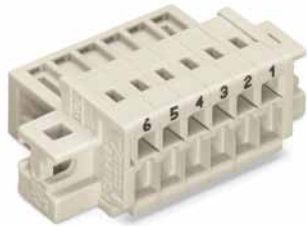
Finger Guard and Direct Marking

MCS-MINI

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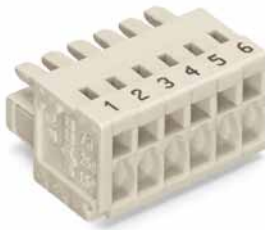
Finger guard for male headers IP20	Direct marking of male and female connectors for conductor termination	Direct marking Pole no. - 1 of male connectors for conductor termination
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Pole No.	Item No.	Pack. Unit	Marking MCS-MINI	Marking Perpendicular to Conductor Entry Item No. Suffix: /... - 044
Finger guard for male headers, black Pin spacing: 3.5/3.81 mm			Male and female connectors for conductor termination can be marked with "1 - pole no." via factory direct printing. Two standard marking orientations are available: 1. Marking perpendicular to conductor entry 2. Marking parallel to conductor entry Other custom marking options are available upon request. Direct marking is not suitable for MCS male headers with solder pins. WAGO recommends pole marking on the PCB for these headers. Female headers with solder pins are exposed to aggressive flux agents during wave soldering. Special direct marking procedures are available upon request for these items. The marking type is always defined by the second 4-digit block of the item no. suffix for items with standard colors and materials. Example: 734-106/... - xxxx xxxx = Item no. suffix for marking	Ordering examples: Male connector, 3.5 mm pin spacing, 6-pole, light gray 734-306/000-044
4-way	734-420	100 (4 x 25)		Male connector with fixing flanges, 3.5 mm pin spacing, 6-pole, light gray 734-306/019-044 Male connector with fixing flanges and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 734-306/019-044/033-000
 <p>Finger guards provide touch-proof protection (IP20).</p>			 <p>Insert the finger guard into the male header to be protected.</p>	Marking Parallel to Conductor Entry Item No. Suffix: /... - 9034 Ordering examples: Male connector, 3.5 mm pin spacing, 6-pole, light gray 734-306/000-9034 Male connector with fixing flanges, 3.5 mm pin spacing, 6-pole, light gray 734-306/019-9034 Male connector with fixing flanges and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 734-306/019-9034/033-000
 <p>Cut fingers guard to the required number of poles. Do not use single-pole covers!</p>				

Accessories Direct Marking MCS-MINI

<p>Direct marking 1 – pole no.</p> <p>of female connectors for conductor termination</p>	<p>Direct marking 1 – pole no.</p> <p>of female connectors with push-buttons for conductor termination</p>	<p>Direct marking 1 – pole no.</p> <p>of 2-conductor combi strips for conductor termination</p>
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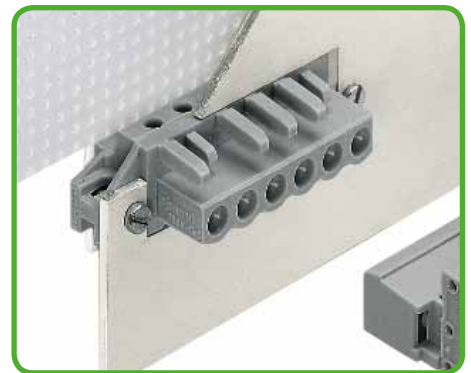
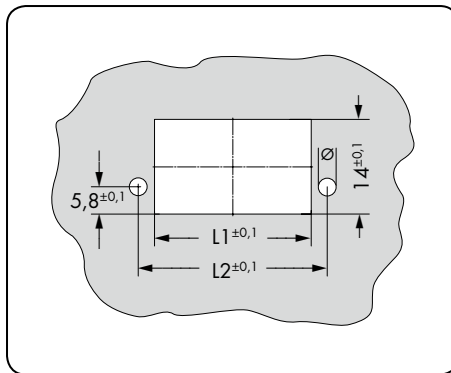
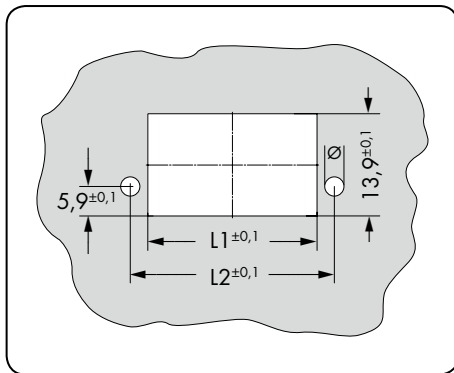


Marking Perpendicular to Conductor Entry Item No. Suffix: /...-047	Marking Perpendicular to Conductor Entry Item No. Suffix: /...-047	Marking Perpendicular to Conductor Entry Item No. Suffix: /...-047
<p>Ordering examples:</p> <p>Female connector, 3.5 mm pin spacing, 6-pole, light gray 734-106/000-047</p>	<p>Ordering examples:</p> <p>Female connector with push-buttons, 3.5 mm pin spacing, 6-pole, light gray 2734-106/000-047</p>	<p>Ordering examples:</p> <p>2-conductor combi strip, 3.5 mm pin spacing, 6-pole, light gray 734-366/000-047</p>
<p>Female connector with locking levers, 3.5 mm pin spacing, 6-pole, light gray 734-106/037-047</p>	<p>Female connector with push-buttons and locking levers, 3.5 mm pin spacing, 6-pole, light gray 2734-106/037-047</p>	<p>2-conductor combi strip with locking levers, 3.5 mm pin spacing, 6-pole, light gray 734-366/037-047</p>
<p>Female connector with strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 734-106/033-047</p>	<p>Female connector with push-buttons and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 2734-106/033-047</p>	<p>2-conductor combi strip with locking levers and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 734-366/037-047/033-000</p>
<p>Female connector with locking levers and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 734-106/037-047/033-000</p>	<p>Female connector with push-buttons, locking levers and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 2734-106/037-047/033-000</p>	



Marking Parallel to Conductor Entry Item No. Suffix: /...-9037	Marking Parallel to Conductor Entry Item No. Suffix: /...-9037	Marking Parallel to Conductor Entry Item No. Suffix: /...-9037
<p>Ordering examples:</p> <p>Female connector, 3.5 mm pin spacing, 6-pole, light gray 734-106/000-9037</p>	<p>Ordering examples:</p> <p>Female connector with push-buttons, 3.5 mm pin spacing, 6-pole, light gray 2734-106/000-9037</p>	<p>Ordering examples:</p> <p>2-conductor combi strip, 3.5 mm pin spacing, 6-pole, light gray 734-366/000-9037</p>
<p>Female connector with locking levers, 3.5 mm pin spacing, 6-pole, light gray 734-106/037-9037</p>	<p>Female connector with push-buttons and locking levers, 3.5 mm pin spacing, 6-pole, light gray 2734-106/037-9037</p>	<p>2-conductor combi strip with locking levers, 3.5 mm pin spacing, 6-pole, light gray 734-366/037-9037</p>
<p>Female connector with strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 734-106/033-9037</p>	<p>Female connector with push-buttons and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 2734-106/033-9037</p>	<p>2-conductor combi strip with locking levers and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 734-366/037-9037/033-000</p>
<p>Female connector with locking levers and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 734-106/037-9037/033-000</p>	<p>Female connector with push-buttons, locking levers and strain relief plate, Pin spacing 3.5 mm, 6-pole, light gray 2734-106/037-9037/033-000</p>	

<p>Cutout</p> <p>for 734 Series male connectors with fixing flanges</p>	<p>Cutout</p> <p>for 2734 Series female connectors with fixing flanges</p>	<p>Screws</p>
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Drilled hole Ø: Depends on the type of screw used (see screws on the left).

M 2.5 x 10 screws with nuts (e.g., fixing flanges)

Table 1

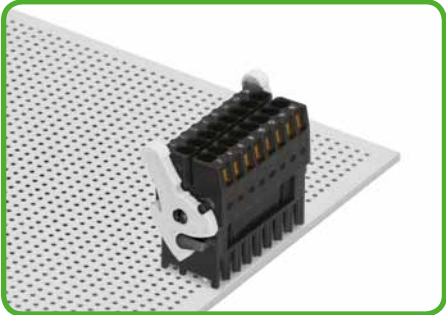
Table 2

Pole No.	Pin Spacing 3.5		Pin Spacing 3.81		Pole No.	Pin Spacing 3.5		Pin Spacing 3.81		Dimensions	Item No.	Pack. Unit
	L1	L2	L1	L2		L1	L2	L1	L2			
2	9.8	15.5	10.1	16.1	2	10.4	15.5	11.0	16.1	Self-tapping screws Mounting hole Ø 1.8 ±0.1 mm		
3	13.3	19.0	13.9	19.9	3	13.9	19.0	14.8	19.9			
4	16.8	22.5	17.7	23.7	4	17.4	22.5	18.6	23.7			
5	20.3	26.0	21.5	27.6	5	20.9	26.0	22.5	27.6			
6	24.0	29.4	25.6	31.3	6	24.6	29.4	26.5	31.3			
7	27.5	32.9	29.4	35.1	7	28.1	32.9	30.3	35.1	B 2.2 x 9.5 mm	209-147	200 (2 x 100)
8	31.0	36.4	33.2	38.9	8	31.6	36.4	34.1	38.9	B 2.2 x 13 mm	231-194	200 (2 x 100)
9	34.5	39.9	37.0	42.7	9	35.1	39.9	37.9	42.7	Screws with nuts Mounting hole Ø 2.5 ±0.1 mm		
10	38.0	43.4	40.8	46.5	10	38.6	43.4	41.7	46.5			
11	41.5	46.9	44.6	50.3	11	42.1	46.9	45.5	50.3			
12	45.0	50.4	48.4	54.1	12	45.6	50.4	49.3	54.1			
13	48.8	53.8	52.5	57.8	13	49.4	53.8	53.4	57.8			
14	52.3	57.3	56.3	61.6	14	52.9	57.3	57.2	61.6	M 2 x 12 mm	231-195	200 (2 x 100)
15	55.8	60.8	60.1	65.5	15	56.4	60.8	61.1	65.5	Screws with nuts Mounting hole Ø 3.0 ±0.1 mm		
16	59.3	64.3	64.0	69.3	16	59.9	64.3	64.9	69.3			
17	62.8	67.8	67.8	73.1	17	63.4	67.8	68.7	73.1			
18	66.3	71.3	71.6	76.9	18	66.9	71.3	72.5	76.9			
19	69.9	74.7	75.5	80.6	19	70.5	74.7	76.4	80.6			
20	73.4	78.2	79.3	84.4	20	74.0	78.2	80.2	84.4	M 2.5 x 10 mm	231-295	200 (2 x 100)
21	76.9	81.7	83.1	88.2	21	77.5	81.7	84.0	88.2			
22	80.4	85.2	86.9	92.0	22	81.0	85.2	87.8	92.0			
23	83.9	88.7	90.7	95.8	23	84.5	88.7	91.6	95.8			
24	87.4	92.2	94.5	99.6	24	88.0	92.2	95.4	99.6			

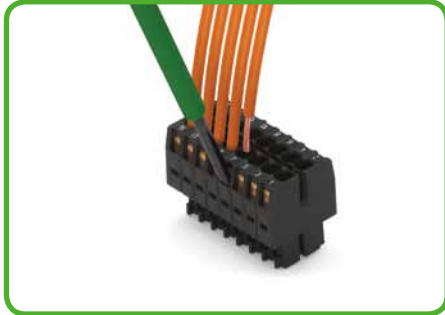


Description and Handling

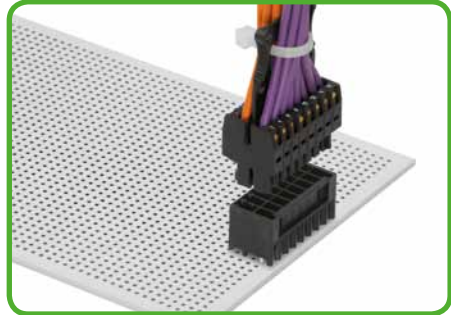
MCS - MULTI CONNECTION SYSTEM MINI HD



Locking lever - when closed, female connector is locked.

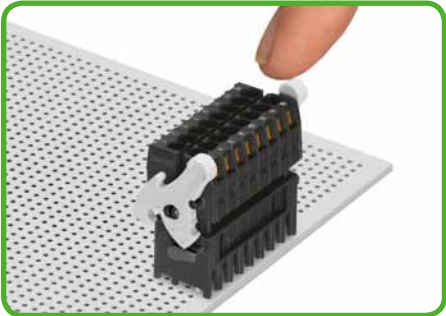


Inserting conductor via (2.5 x 0.4) mm screwdriver.



Centered strain relief plate anchors conductors for easy disconnection.

713 Series

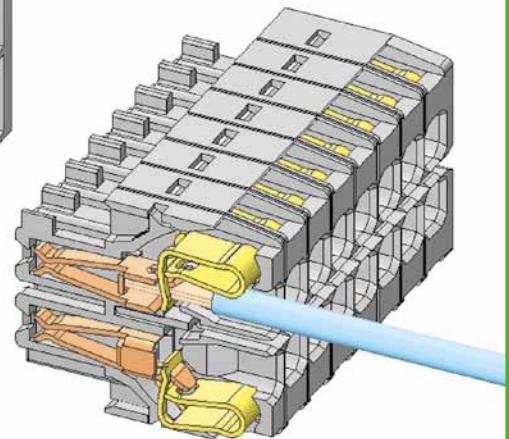
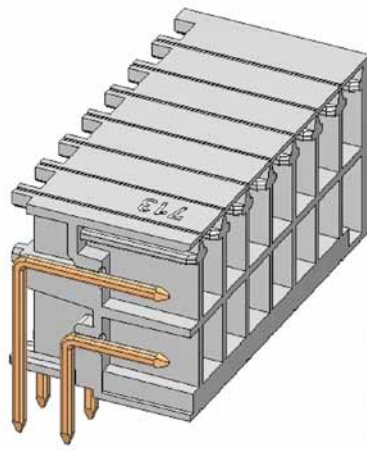


Lever as a disconnection aid - when opened, female connector is disconnected. Rotating the lever lifts the female connector out of the male header.



Screw interlock can only be disconnected using a tool.

100% protected against mismatching

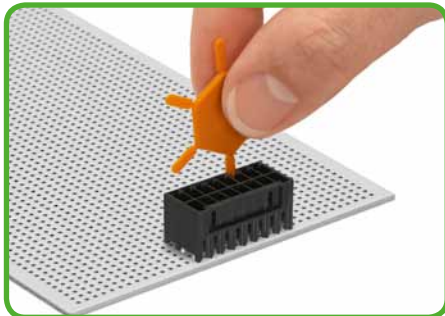


MCS-MIDI HD

Pin spacing: 3.5 mm



Coding a female connector by removing coding fingers.



Coding a male header by inserting a coding pin.



Pole marking via self-adhesive marker strips or factory direct printing.



CAGE CLAMP® clamps the following copper conductors:*

solid

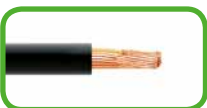
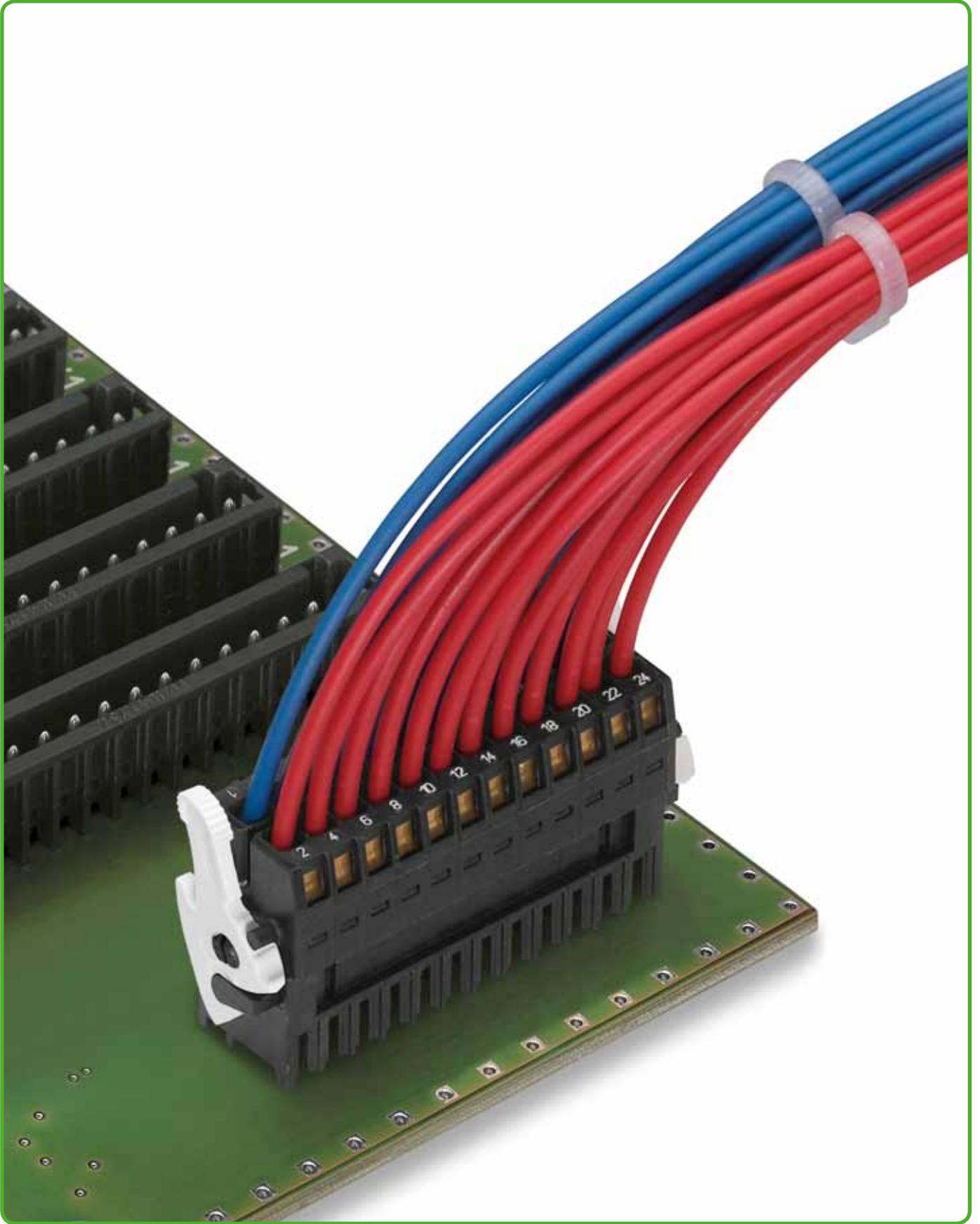


stranded



fine-stranded, also with tinned single strands

* For aluminum conductors, see notes in Section 11.



fine-stranded,
tip-bonded

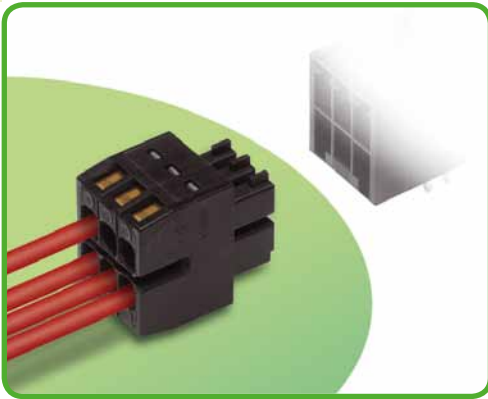


fine-stranded with
crimped ferrules
(gas-tight)



fine-stranded with
crimped pin terminal
(gas-tight)

Female Connector, Double-Row Pin Spacing 3.5 mm MCS-MINI HD



- Universal connection for all conductor types
- Unique, compact, double-row connector system for conductor cross sections up to 1.5 mm²
- High-density, "wire-to-board" connectors for use in very confined spaces
- Centered strain relief plate anchors conductors, while acting as convenient connection and disconnection handle. It also provides easy access to operating slots – even when wired
- Optional dual-purpose lever doubles as a lock and disconnection aid, while preventing accidental disconnection in closed position
- 100% protected against mismatching, available with coding fingers

Technical data:

Pin Spacing	3.5 mm 0.138 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	80 V	160 V	250 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	150 V	-	-
Nominal current UL	10 A	-	-
Nominal current CSA	10 A	-	-

Conductor data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 1.5 mm ²
Conductor size: fine-stranded	0.08 - 1.5 mm ²
Conductor size: fine-stranded	0.25 - 1.0 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 1.0 mm ² (with uninsulated ferrule)
AWG	28 - 16
Strip length	6 - 7 mm / 0.24 - 0.28 in

Material data:

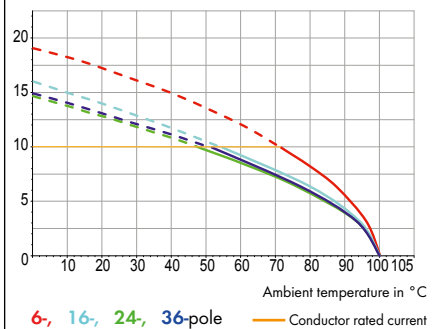
Material group	II
Insulating material	Glass fiber-reinforced nylon 6.6 (PA 6.6 - GF)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Derating Curve

713-1103 female connector with 713-1403 male header
Pin spacing: 3.5 mm / Conductor size: 1.5 mm² "st"
Based on: EN 60512-5-2 / Reduction factor: 0.8

Current in A



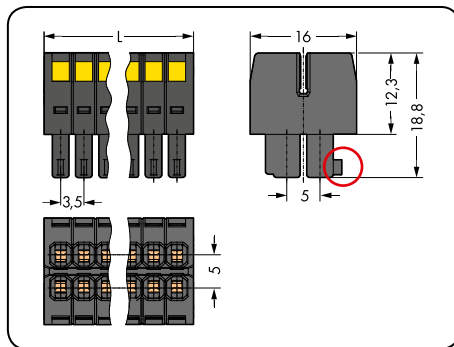
MCS-MINI HD accessories:

Page:

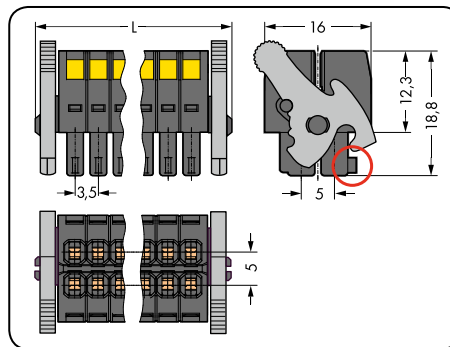
Marking accessories	540 - 543
Operating tools	298
Direct marking	299
Strain relief plates	298

Female Connectors, Double-Row MCS-MINI HD

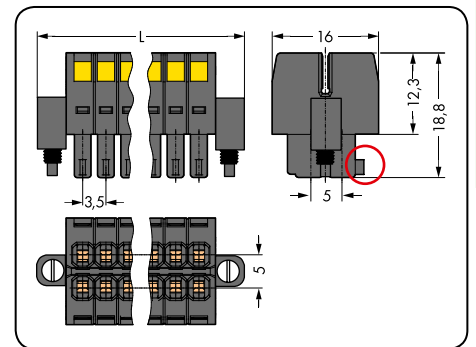
Pin spacing 3.5 mm / 0.138 in		With levers Pin spacing 3.5 mm / 0.138 in		With screw flanges Pin spacing 3.5 mm / 0.138 in	
0.08 - 1.5 mm ²	AWG 28 - 16	0.08 - 1.5 mm ²	AWG 28 - 16	0.08 - 1.5 mm ²	AWG 28 - 16
160 V/2.5 kV/2 10 A	150 V/10 A	160 V/2.5 kV/2 10 A	150 V/10 A	160 V/2.5 kV/2 10 A	150 V/10 A



L = [(pole no./2) - 1] x pin spacing + 5.2 mm
 ○ Coding finger



L = [(pole no./2) - 1] x pin spacing + 12.2 mm

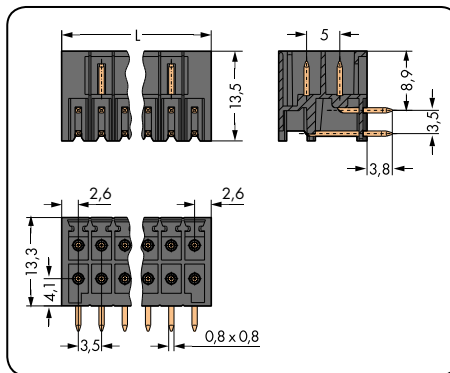
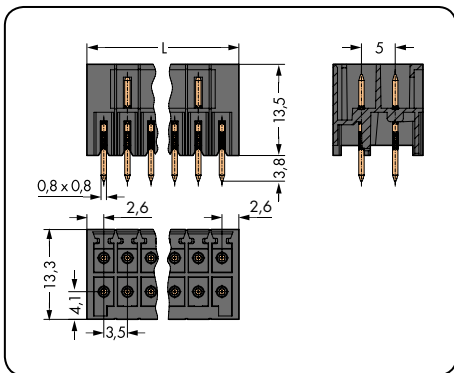


L = [(pole no./2) - 1] x pin spacing + 13.6 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, double-row, black			Female connector with levers, double-row, black			Female connector with screw flanges, double-row, black		
6 (3x2)	713-1103	100	6 (3x2)	713-1103/037-000	50	6 (3x2)	713-1103/107-000	50
8 (4x2)	713-1104	50	8 (4x2)	713-1104/037-000	50	8 (4x2)	713-1104/107-000	50
10 (5x2)	713-1105	50	10 (5x2)	713-1105/037-000	50	10 (5x2)	713-1105/107-000	25
12 (6x2)	713-1106	50	12 (6x2)	713-1106/037-000	25	12 (6x2)	713-1106/107-000	25
14 (7x2)	713-1107	50	14 (7x2)	713-1107/037-000	25	14 (7x2)	713-1107/107-000	25
16 (8x2)	713-1108	25	16 (8x2)	713-1108/037-000	25	16 (8x2)	713-1108/107-000	25
18 (9x2)	713-1109	25	18 (9x2)	713-1109/037-000	25	18 (9x2)	713-1109/107-000	25
20 (10x2)	713-1110	25	20 (10x2)	713-1110/037-000	20	20 (10x2)	713-1110/107-000	20
22 (11x2)	713-1111	25	22 (11x2)	713-1111/037-000	20	22 (11x2)	713-1111/107-000	20
24 (12x2)	713-1112	25	24 (12x2)	713-1112/037-000	20	24 (12x2)	713-1112/107-000	20
26 (13x2)	713-1113	25	26 (13x2)	713-1113/037-000	20	26 (13x2)	713-1113/107-000	20
28 (14x2)	713-1114	20	28 (14x2)	713-1114/037-000	20	28 (14x2)	713-1114/107-000	20
30 (15x2)	713-1115	20	30 (15x2)	713-1115/037-000	20	30 (15x2)	713-1115/107-000	20
32 (16x2)	713-1116	20	32 (16x2)	713-1116/037-000	20	32 (16x2)	713-1116/107-000	10
34 (17x2)	713-1117	20	34 (17x2)	713-1117/037-000	10	34 (17x2)	713-1117/107-000	10
36 (18x2)	713-1118	20	36 (18x2)	713-1118/037-000	10	36 (18x2)	713-1118/107-000	10

Male Headers with Solder Pins, Double-Row MCS-MINI HD

With straight solder pins Pin spacing 3.5 mm / 0.138 in		With angled solder pins Pin spacing 3.5 mm / 0.138 in	
160 V/2.5 kV/2 10 A	150 V/10 A	160 V/2.5 kV/2 10 A	150 V/10 A

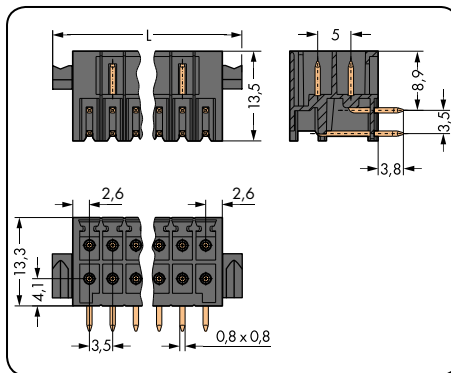
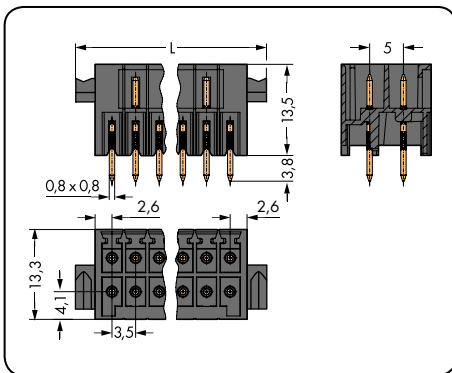


$L = [(\text{pole no.}/2) - 1] \times \text{pin spacing} + 5.2 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins, double-row, black			Male header with angled solder pins, double-row, black		
6 (3x2)	713-1403	100	6 (3x2)	713-1423	100
8 (4x2)	713-1404	50	8 (4x2)	713-1424	50
10 (5x2)	713-1405	50	10 (5x2)	713-1425	50
12 (6x2)	713-1406	50	12 (6x2)	713-1426	50
14 (7x2)	713-1407	50	14 (7x2)	713-1427	50
16 (8x2)	713-1408	25	16 (8x2)	713-1428	25
18 (9x2)	713-1409	25	18 (9x2)	713-1429	25
20 (10x2)	713-1410	25	20 (10x2)	713-1430	25
22 (11x2)	713-1411	25	22 (11x2)	713-1431	25
24 (12x2)	713-1412	25	24 (12x2)	713-1432	25
26 (13x2)	713-1413	25	26 (13x2)	713-1433	25
28 (14x2)	713-1414	20	28 (14x2)	713-1434	20
30 (15x2)	713-1415	20	30 (15x2)	713-1435	20
32 (16x2)	713-1416	20	32 (16x2)	713-1436	20
34 (17x2)	713-1417	20	34 (17x2)	713-1437	20
36 (18x2)	713-1418	20	36 (18x2)	713-1438	20

Male Headers with Solder Pins and Levers, Double-Row MCS-MINI HD

With straight solder pins and levers Pin spacing 3.5 mm / 0.138 in		With angled solder pins and levers Pin spacing 3.5 mm / 0.138 in	
160 V/2.5 kV/2 10 A	150 V/10 A	160 V/2.5 kV/2 10 A	150 V/10 A

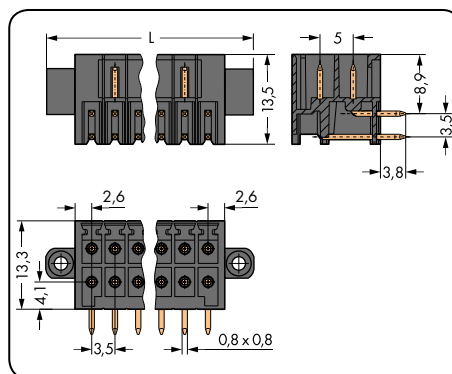
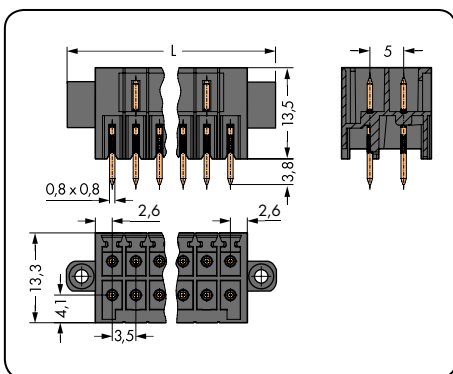


$L = [(\text{pole no.}/2) - 1] \times \text{pin spacing} + 10.6 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins and levers, double-row, black			Male header with angled solder pins and levers, double-row, black		
6 (3x2)	713-1403/037-000	50	6 (3x2)	713-1423/037-000	50
8 (4x2)	713-1404/037-000	50	8 (4x2)	713-1424/037-000	50
10 (5x2)	713-1405/037-000	50	10 (5x2)	713-1425/037-000	50
12 (6x2)	713-1406/037-000	25	12 (6x2)	713-1426/037-000	50
14 (7x2)	713-1407/037-000	25	14 (7x2)	713-1427/037-000	50
16 (8x2)	713-1408/037-000	25	16 (8x2)	713-1428/037-000	25
18 (9x2)	713-1409/037-000	25	18 (9x2)	713-1429/037-000	25
20 (10x2)	713-1410/037-000	20	20 (10x2)	713-1430/037-000	20
22 (11x2)	713-1411/037-000	20	22 (11x2)	713-1431/037-000	20
24 (12x2)	713-1412/037-000	20	24 (12x2)	713-1432/037-000	20
26 (13x2)	713-1413/037-000	20	26 (13x2)	713-1433/037-000	20
28 (14x2)	713-1414/037-000	20	28 (14x2)	713-1434/037-000	20
30 (15x2)	713-1415/037-000	20	30 (15x2)	713-1435/037-000	20
32 (16x2)	713-1416/037-000	20	32 (16x2)	713-1436/037-000	20
34 (17x2)	713-1417/037-000	10	34 (17x2)	713-1437/037-000	10
36 (18x2)	713-1418/037-000	10	36 (18x2)	713-1438/037-000	10

Male Headers with Solder Pins and Threaded Flanges, Double-Row MCS-MINI HD

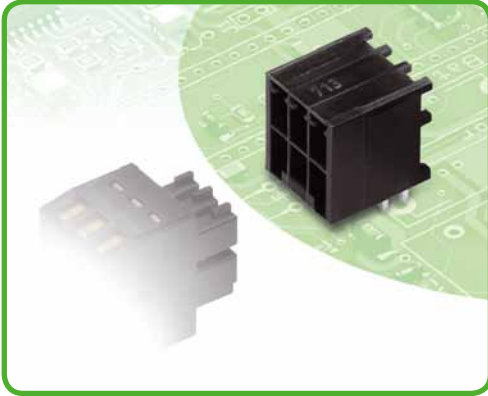
With straight solder pins and threaded flanges Pin spacing 3.5 mm / 0.138 in		With angled solder pins and threaded flanges Pin spacing 3.5 mm / 0.138 in	
160 V/2.5 kV/2 10 A	150 V/10 A	160 V/2.5 kV/2 10 A	150 V/10 A



$L = [(\text{pole no.}/2) - 1] \times \text{pin spacing} + 13.6 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins and threaded flanges, double-row, black			Male header with angled solder pins and threaded flanges, double-row, black		
6 (3x2)	713-1403/107-000	50	6 (3x2)	713-1423/107-000	50
8 (4x2)	713-1404/107-000	50	8 (4x2)	713-1424/107-000	50
10 (5x2)	713-1405/107-000	25	10 (5x2)	713-1425/107-000	25
12 (6x2)	713-1406/107-000	25	12 (6x2)	713-1426/107-000	25
14 (7x2)	713-1407/107-000	25	14 (7x2)	713-1427/107-000	25
16 (8x2)	713-1408/107-000	25	16 (8x2)	713-1428/107-000	25
18 (9x2)	713-1409/107-000	25	18 (9x2)	713-1429/107-000	25
20 (10x2)	713-1410/107-000	20	20 (10x2)	713-1430/107-000	20
22 (11x2)	713-1411/107-000	20	22 (11x2)	713-1431/107-000	20
24 (12x2)	713-1412/107-000	20	24 (12x2)	713-1432/107-000	20
26 (13x2)	713-1413/107-000	20	26 (13x2)	713-1433/107-000	20
28 (14x2)	713-1414/107-000	20	28 (14x2)	713-1434/107-000	20
30 (15x2)	713-1415/107-000	20	30 (15x2)	713-1435/107-000	20
32 (16x2)	713-1416/107-000	10	32 (16x2)	713-1436/107-000	10
34 (17x2)	713-1417/107-000	10	34 (17x2)	713-1437/107-000	10
36 (18x2)	713-1418/107-000	10	36 (18x2)	713-1438/107-000	10

Male Headers with Solder Pins, Double-Row, THR (Through-Hole Reflow*) Pin Spacing 3.5 mm MCS-MINI HD



- THR male headers for reflow soldering in SMT applications
- Available in tape-and-reel packaging for automated PCB assembly
- Separated pin slots prevent damage and make the headers touch-proof when unplugged
- 100% protected against mismatching
- Coding option available

Technical data:

Pin Spacing	3,5 mm 0.138 in		
	IEC/EN 60664-1		
Rating per	III	III	II
Overtoltage category	3	2	2
Pollution degree	3	2	2
Rated voltage	80 V	160 V	250 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA**		
Use group UL 1059	B	C	D
Rated voltage	-	-	-
Nominal current UL	-	-	*
Nominal current CSA	-	-	-

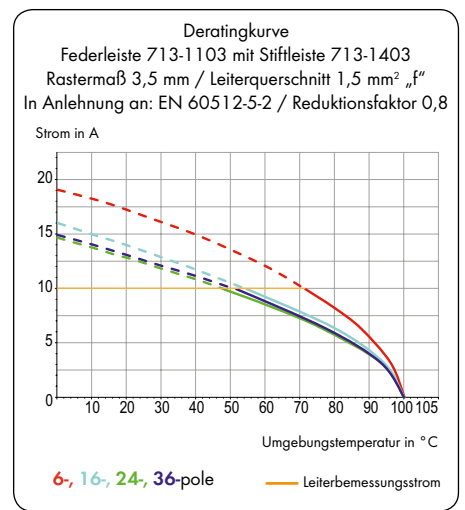
Solder pin data:

Solder pin: length/width	2.4 mm / 0.8 x 0.8 mm
Solder pin: metal-plated hole diameter	1.2 ^{+0.1} mm (6- to 20-pole)
Solder pin: metal-plated hole diameter	1.3 ^{+0.1} mm (22- to 36-pole)
For other pin lengths, please contact factory.	

Material data:

Material group	I
Insulating material	Glass fiber-reinforced polyphthalamide (PPA-GF)
Temperature stability	-60 °C to +100 °C
Flammability rating per UL 94	V0
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix . . . /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.



MCS-MINI HD accessories:

Page:

Coding pin carrier	275

*For THR soldering, see page 233

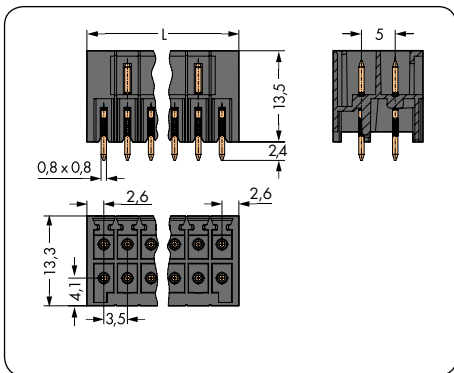
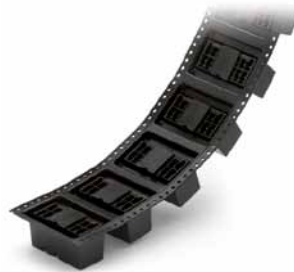
**UL/CSA approval pending

Approvals are available online at: www.wago.com

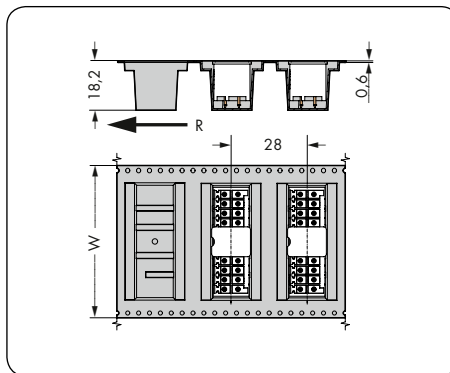
For more technical information, see Section 11

Male Headers, Double-Row, THR MCS-MINI HD

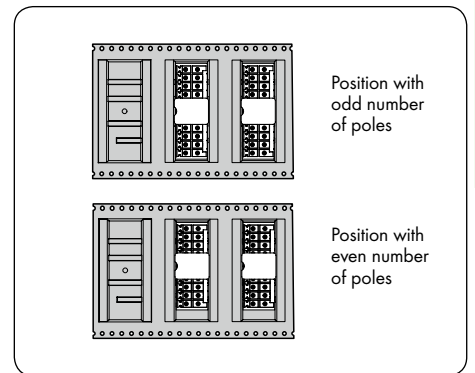
With straight solder pins Pin spacing 3.5 mm / 0.138 in 160 V/2.5 kV/2 10 A	With straight solder pins In tape-and-reel packaging Pin spacing 3.5 mm / 0.138 in 160 V/2.5 kV/2 10 A	
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$L = [(pole\ no./2) - 1] \times pin\ spacing + 5.2\ mm$



W = Tape width
R = Feed direction



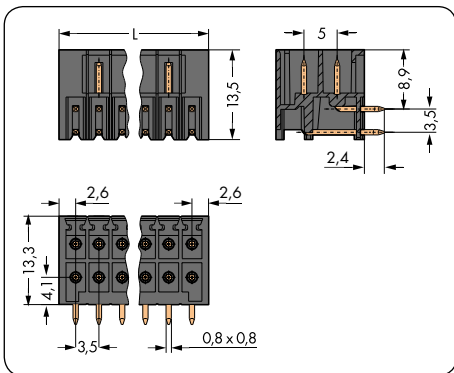
Male header position in tape-and-reel packaging

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with straight solder pins, double-row, black			Male header with straight solder pins, double-row, in tape-and-reel packaging acc. to IEC 60286-3, black		
					(mm)
6 (3 x 2)	713-1403/105-000	100	6 (3 x 2)	713-1403/105-000/997-405	32
8 (4 x 2)	713-1404/105-000	50	8 (4 x 2)	713-1404/105-000/997-405	32
10 (5 x 2)	713-1405/105-000	50	10 (5 x 2)	713-1405/105-000/997-405	32
12 (6 x 2)	713-1406/105-000	50	12 (6 x 2)	713-1406/105-000/997-406	44
14 (7 x 2)	713-1407/105-000	50	14 (7 x 2)	713-1407/105-000/997-406	44
16 (8 x 2)	713-1408/105-000	25	16 (8 x 2)	713-1408/105-000/997-406	44
18 (9 x 2)	713-1409/105-000	25	18 (9 x 2)	713-1409/105-000/997-407	56
20 (10 x 2)	713-1410/105-000	25	20 (10 x 2)	713-1410/105-000/997-407	56
22 (11 x 2)	713-1411/105-000	25	22 (11 x 2)	713-1411/105-000/997-407	56
24 (12 x 2)	713-1412/105-000	25	24 (12 x 2)	713-1412/105-000/997-408	72
26 (13 x 2)	713-1413/105-000	25	26 (13 x 2)	713-1413/105-000/997-408	72
28 (14 x 2)	713-1414/105-000	20	28 (14 x 2)	713-1414/105-000/997-408	72
30 (15 x 2)	713-1415/105-000	20	30 (15 x 2)	713-1415/105-000/997-408	72
32 (16 x 2)	713-1416/105-000	20	32 (16 x 2)	713-1416/105-000/997-408	72
34 (17 x 2)	713-1417/105-000	20	34 (17 x 2)	713-1417/105-000/997-409	88
36 (18 x 2)	713-1418/105-000	20	36 (18 x 2)	713-1418/105-000/997-409	88
Reel diameter: 330 mm, 120 pieces per reel					

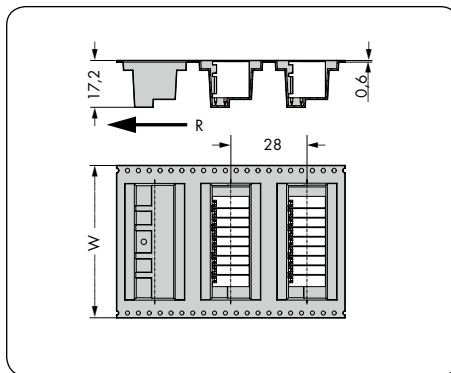
4 Male Headers, Double-Row, THR MCS-MINI HD

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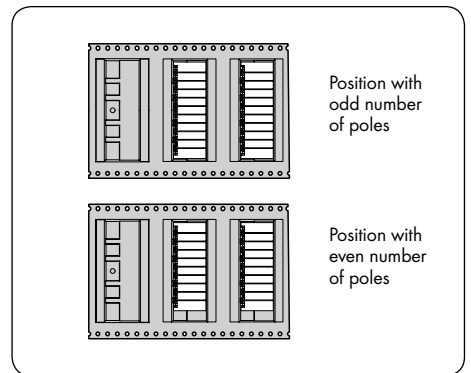
With angled solder pins Pin spacing 3.5 mm / 0.138 in 160 V/2.5 kV/2 10 A	With angled solder pins and levers In tape-and-reel packaging Pin spacing 3.5 mm / 0.138 in 160 V/2.5 kV/2 10 A	
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$$L = [(pole\ no./2) - 1] \times pin\ spacing + 10.6\ mm$$



W = Tape width
R = Feed direction

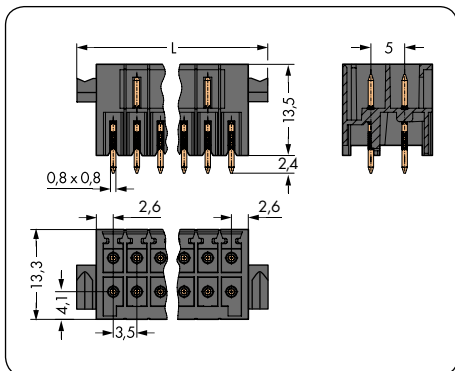


Male header position in tape-and-reel packaging

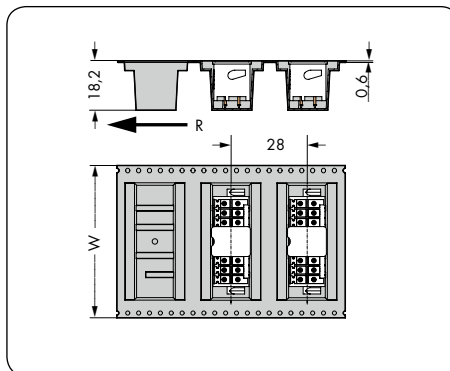
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with angled solder pins, double-row, black			Male header with angled solder pins, double-row, in tape-and-reel packaging acc. to IEC 60286-3, black		
					(mm)
6 (3 x 2)	713-1423/105-000	100	6 (3 x 2)	713-1423/105-000/997-405	32
8 (4 x 2)	713-1424/105-000	50	8 (4 x 2)	713-1424/105-000/997-405	32
10 (5 x 2)	713-1425/105-000	50	10 (5 x 2)	713-1425/105-000/997-405	32
12 (6 x 2)	713-1426/105-000	50	12 (6 x 2)	713-1426/105-000/997-406	44
14 (7 x 2)	713-1427/105-000	50	14 (7 x 2)	713-1427/105-000/997-406	44
16 (8 x 2)	713-1428/105-000	25	16 (8 x 2)	713-1428/105-000/997-406	44
18 (9 x 2)	713-1429/105-000	25	18 (9 x 2)	713-1429/105-000/997-407	56
20 (10 x 2)	713-1430/105-000	25	20 (10 x 2)	713-1430/105-000/997-407	56
22 (11 x 2)	713-1431/105-000	25	22 (11 x 2)	713-1431/105-000/997-407	56
24 (12 x 2)	713-1432/105-000	25	24 (12 x 2)	713-1432/105-000/997-408	72
26 (13 x 2)	713-1433/105-000	25	26 (13 x 2)	713-1433/105-000/997-408	72
28 (14 x 2)	713-1434/105-000	20	28 (14 x 2)	713-1434/105-000/997-408	72
30 (15 x 2)	713-1435/105-000	20	30 (15 x 2)	713-1435/105-000/997-408	72
32 (16 x 2)	713-1436/105-000	20	32 (16 x 2)	713-1436/105-000/997-408	72
34 (17 x 2)	713-1437/105-000	20	34 (17 x 2)	713-1437/105-000/997-409	88
36 (18 x 2)	713-1438/105-000	20	36 (18 x 2)	713-1438/105-000/997-409	88
Reel diameter: 330 mm, 120 pieces per reel					

Male Headers with Levers, Double-Row, THR MCS-MINI HD

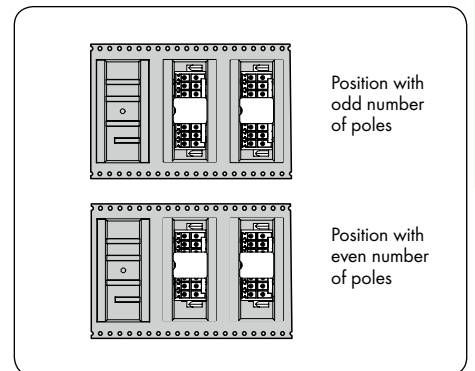
<p>With straight solder pins and levers Pin spacing 3.5 mm / 0.138 in</p> <p>160 V/2.5 kV/2 10 A</p>	<p>With straight solder pins In tape-and-reel packaging Pin spacing 3.5 mm / 0.138 in</p> <p>160 V/2.5 kV/2 10 A</p>	
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$$L = [(pole\ no./2) - 1] \times pin\ spacing + 13.6\ mm$$



W = Tape width
R = Feed direction

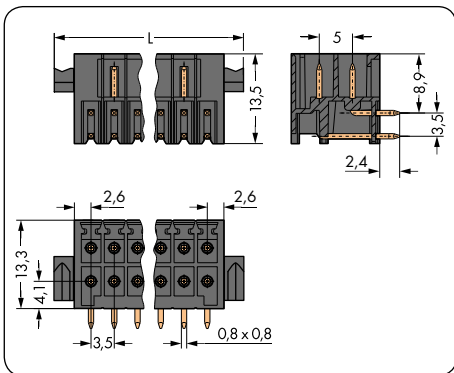


Male header position in tape-and-reel packaging

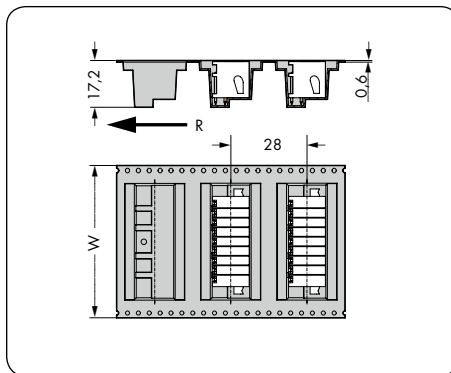
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with straight solder pins and levers, double-row, black			Male header with straight solder pins and levers, double-row, in tape-and-reel packaging acc. to IEC 60286-3, black		
6 (3 x 2)	713-1403/116-000	50	6 (3 x 2)	713-1403/116-000/997-405	32 (mm)
8 (4 x 2)	713-1404/116-000	50	8 (4 x 2)	713-1404/116-000/997-406	44
10 (5 x 2)	713-1405/116-000	50	10 (5 x 2)	713-1405/116-000/997-406	44
12 (6 x 2)	713-1406/116-000	25	12 (6 x 2)	713-1406/116-000/997-406	44
14 (7 x 2)	713-1407/116-000	25	14 (7 x 2)	713-1407/116-000/997-407	56
16 (8 x 2)	713-1408/116-000	25	16 (8 x 2)	713-1408/116-000/997-407	56
18 (9 x 2)	713-1409/116-000	25	18 (9 x 2)	713-1409/116-000/997-407	56
20 (10 x 2)	713-1410/116-000	25	20 (10 x 2)	713-1410/116-000/997-408	72
22 (11 x 2)	713-1411/116-000	20	22 (11 x 2)	713-1411/116-000/997-408	72
24 (12 x 2)	713-1412/116-000	20	24 (12 x 2)	713-1412/116-000/997-408	72
26 (13 x 2)	713-1413/116-000	20	26 (13 x 2)	713-1413/116-000/997-408	72
28 (14 x 2)	713-1414/116-000	20	28 (14 x 2)	713-1414/116-000/997-408	72
30 (15 x 2)	713-1415/116-000	20	30 (15 x 2)	713-1415/116-000/997-409	88
32 (16 x 2)	713-1416/116-000	20	32 (16 x 2)	713-1416/116-000/997-409	88
34 (17 x 2)	713-1417/116-000	10	34 (17 x 2)	713-1417/116-000/997-409	88
36 (18 x 2)	713-1418/116-000	10	36 (18 x 2)	713-1418/116-000/997-409	88
Reel diameter: 330 mm, 120 pieces per reel					

Male Headers with Levers, Double-Row, THR MCS-MINI HD

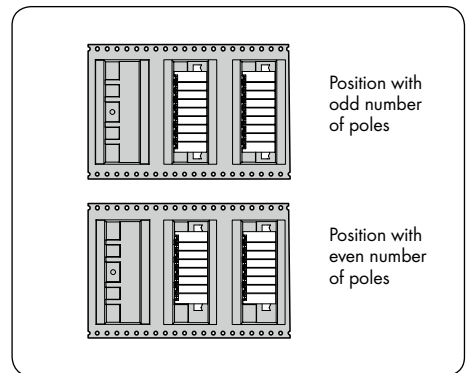
<p>With angled solder pins and levers Pin spacing 3.5 mm / 0.138 in</p> <p>160 V/2.5 kV/2 10 A</p>	<p>With angled solder pins and levers In tape-and-reel packaging Pin spacing 3.5 mm / 0.138 in</p> <p>160 V/2.5 kV/2 10 A</p>	
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$L = [(pole\ no./2) - 1] \times pin\ spacing + 10.6\ mm$



W= Tape width
R = Feed direction

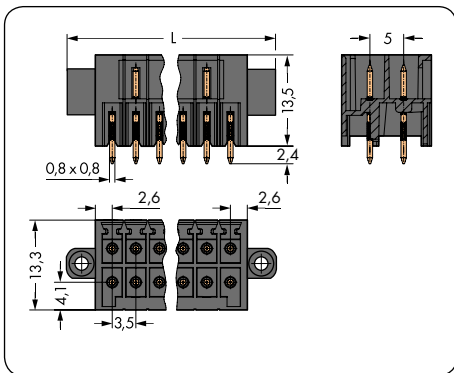


Male header position in tape-and-reel packaging

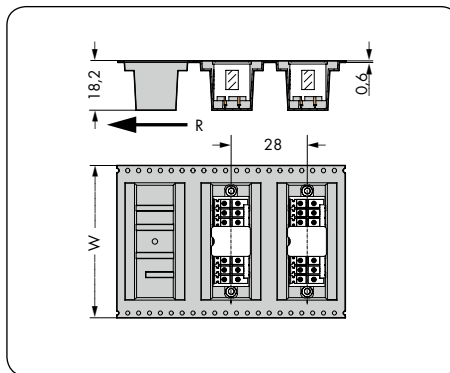
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with angled solder pins and levers, double-row, black			Male header with angled solder pins and levers, in tape-and-reel packaging acc. to IEC 60286-3, black		
					(mm)
6 (3 x 2)	713-1423/116-000	50	6 (3 x 2)	713-1423/116-000/997-405	32
8 (4 x 2)	713-1424/116-000	50	8 (4 x 2)	713-1424/116-000/997-406	44
10 (5 x 2)	713-1425/116-000	50	10 (5 x 2)	713-1425/116-000/997-406	44
12 (6 x 2)	713-1426/116-000	50	12 (6 x 2)	713-1426/116-000/997-406	44
14 (7 x 2)	713-1427/116-000	50	14 (7 x 2)	713-1427/116-000/997-407	56
16 (8 x 2)	713-1428/116-000	25	16 (8 x 2)	713-1428/116-000/997-407	56
18 (9 x 2)	713-1429/116-000	25	18 (9 x 2)	713-1429/116-000/997-407	56
20 (10 x 2)	713-1430/116-000	25	20 (10 x 2)	713-1430/116-000/997-408	72
22 (11 x 2)	713-1431/116-000	20	22 (11 x 2)	713-1431/116-000/997-408	72
24 (12 x 2)	713-1432/116-000	20	24 (12 x 2)	713-1432/116-000/997-408	72
26 (13 x 2)	713-1433/116-000	20	26 (13 x 2)	713-1433/116-000/997-408	72
28 (14 x 2)	713-1434/116-000	20	28 (14 x 2)	713-1434/116-000/997-408	72
30 (15 x 2)	713-1435/116-000	20	30 (15 x 2)	713-1435/116-000/997-409	88
32 (16 x 2)	713-1436/116-000	20	32 (16 x 2)	713-1436/116-000/997-409	88
34 (17 x 2)	713-1437/116-000	10	34 (17 x 2)	713-1437/116-000/997-409	88
36 (18 x 2)	713-1438/116-000	10	36 (18 x 2)	713-1438/116-000/997-409	88
Reel diameter: 330 mm, 120 pieces per reel					

Male Headers with Threaded Flanges, Double-Row, THR MCS-MINI HD

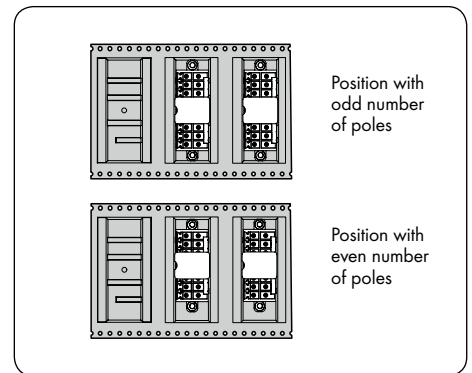
<p>With straight solder pins and threaded flanges Pin spacing 3.5 mm / 0.138 in</p> <p>160 V/2.5 kV/2 10 A</p>	<p>With straight solder pins and threaded flanges, in tape-and-reel packaging Pin spacing 3.5 mm / 0.138 in</p> <p>160 V/2.5 kV/2 10 A</p>	
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$$L = [(pole\ no./2) - 1] \times pin\ spacing + 13.6\ mm$$



W = Tape width
R = Feed direction

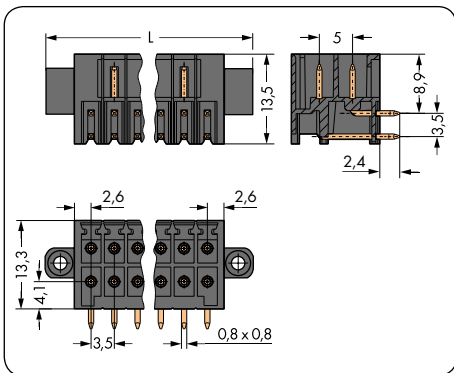


Male header position in tape-and-reel packaging

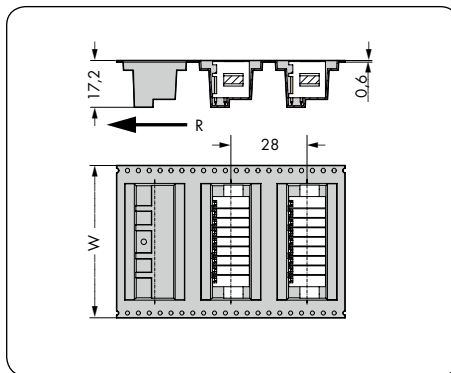
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with straight solder pins and threaded flanges, double-row, black			Male header with straight solder pins and threaded flanges, double-row, in tape-and-reel packaging acc. to IEC 60286-3, black		
					(mm)
6 (3 x 2)	713-1403/117-000	50	6 (3 x 2)	713-1403/117-000/997-405	32
8 (4 x 2)	713-1404/117-000	50	8 (4 x 2)	713-1404/117-000/997-406	44
10 (5 x 2)	713-1405/117-000	25	10 (5 x 2)	713-1405/117-000/997-406	44
12 (6 x 2)	713-1406/117-000	25	12 (6 x 2)	713-1406/117-000/997-406	44
14 (7 x 2)	713-1407/117-000	25	14 (7 x 2)	713-1407/117-000/997-407	56
16 (8 x 2)	713-1408/117-000	25	16 (8 x 2)	713-1408/117-000/997-407	56
18 (9 x 2)	713-1409/117-000	25	18 (9 x 2)	713-1409/117-000/997-407	56
20 (10 x 2)	713-1410/117-000	20	20 (10 x 2)	713-1410/117-000/997-408	72
22 (11 x 2)	713-1411/117-000	20	22 (11 x 2)	713-1411/117-000/997-408	72
24 (12 x 2)	713-1412/117-000	20	24 (12 x 2)	713-1412/117-000/997-408	72
26 (13 x 2)	713-1413/117-000	20	26 (13 x 2)	713-1413/117-000/997-408	72
28 (14 x 2)	713-1414/117-000	20	28 (14 x 2)	713-1414/117-000/997-408	72
30 (15 x 2)	713-1415/117-000	20	30 (15 x 2)	713-1415/117-000/997-409	88
32 (16 x 2)	713-1416/117-000	10	32 (16 x 2)	713-1416/117-000/997-409	88
34 (17 x 2)	713-1417/117-000	10	34 (17 x 2)	713-1417/117-000/997-409	88
36 (18 x 2)	713-1418/117-000	10	36 (18 x 2)	713-1418/117-000/997-409	88
Reel diameter: 330 mm, 120 pieces per reel					

Male Headers with Threaded Flanges, Double-Row, THR MCS-MINI HD

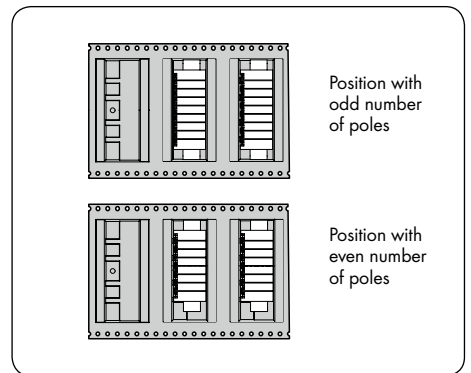
<p>With angled solder pins and threaded flanges Pin spacing 3.5 mm / 0.138 in</p> <p>160 V/2.5 kV/2 10 A</p>	<p>With angled solder pins and threaded flanges, in tape-and-reel packaging Pin spacing 3.5 mm / 0.138 in</p> <p>160 V/2.5 kV/2 10 A</p>
---	---



$L = [(pole\ no./2) - 1] \times pin\ spacing + 10.6\ mm$



W= Tape width
R = Feed direction



Male header position in tape-and-reel packaging

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with angled solder pins and threaded flanges, double-row, black			Male header with angled solder pins and threaded flanges, double-row, in tape-and-reel packaging acc. to IEC 60286-3, black		
6 (3 x 2)	713-1423/117-000	50	6 (3 x 2)	713-1423/117-000/997-405	32
8 (4 x 2)	713-1424/117-000	50	8 (4 x 2)	713-1424/117-000/997-406	44
10 (5 x 2)	713-1425/117-000	25	10 (5 x 2)	713-1425/117-000/997-406	44
12 (6 x 2)	713-1426/117-000	25	12 (6 x 2)	713-1426/117-000/997-406	44
14 (7 x 2)	713-1427/117-000	25	14 (7 x 2)	713-1427/117-000/997-407	56
16 (8 x 2)	713-1428/117-000	25	16 (8 x 2)	713-1428/117-000/997-407	56
18 (9 x 2)	713-1429/117-000	25	18 (9 x 2)	713-1429/117-000/997-407	56
20 (10 x 2)	713-1430/117-000	20	20 (10 x 2)	713-1430/117-000/997-408	72
22 (11 x 2)	713-1431/117-000	20	22 (11 x 2)	713-1431/117-000/997-408	72
24 (12 x 2)	713-1432/117-000	20	24 (12 x 2)	713-1432/117-000/997-408	72
26 (13 x 2)	713-1433/117-000	20	26 (13 x 2)	713-1433/117-000/997-408	72
28 (14 x 2)	713-1434/117-000	20	28 (14 x 2)	713-1434/117-000/997-408	72
30 (15 x 2)	713-1435/117-000	20	30 (15 x 2)	713-1435/117-000/997-409	88
32 (16 x 2)	713-1436/117-000	10	32 (16 x 2)	713-1436/117-000/997-409	88
34 (17 x 2)	713-1437/117-000	10	34 (17 x 2)	713-1437/117-000/997-409	88
36 (18 x 2)	713-1438/117-000	10	36 (18 x 2)	713-1438/117-000/997-409	88
Reel diameter: 330 mm, 120 pieces per reel					

4 Accessories

Strain Relief Plates and Operating Tool

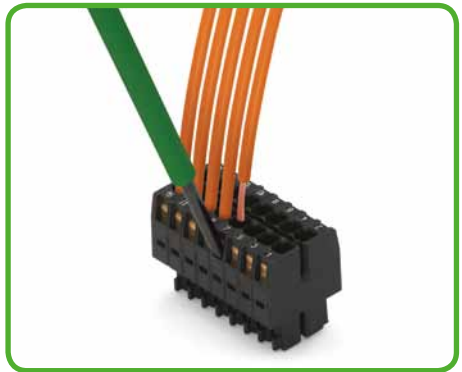
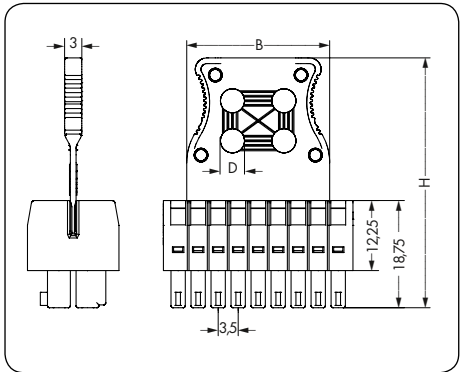
MCS-MINI HD

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<p>Strain relief plates for in-the-field assembly</p> <p>for female connectors with CAGE CLAMP® connection</p>	<p>Strain relief plates, factory-assembled</p> <p>for female connectors with CAGE CLAMP® connection</p>	<p>Operating tool</p> <p>with partially insulated shaft Type 1</p>
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Width	Item No.	Pack. Unit	Width	Pole No.	Item No. Suffix	Color	Item No.	Pack. Unit
Strain relief plate, black			Strain relief plate, pre-assembled			Operating tool with partially insulated shaft, type 1, (2.5 x 0.4) mm blade		
11 mm	713-126	100 (4 x 25)	11 mm	6 - 12	.../032-000		210-719	1
25 mm	713-127	100 (4 x 25)	25 mm	14 - 20	.../033-000			
39 mm	713-128	100 (4 x 25)	39 mm	22 - 28	.../034-000			
53 mm	713-129	100 (4 x 25)	53 mm	30 - 36	.../035-000			
			Ordering examples:					
			Female connector, 3.5 mm pin spacing, 20-pole, black, with strain relief plate: 713-1110/033-000					
			An "item no. suffix", referring to the width of the strain relief plate, is added to the "basic item no." and determines the type of female connector.					



The arrangement of the attachments for cable ties allows single conductors or multi-core cables to be secured in different ways.

The width of the cable tie must correspond to the hole dimensions in the drawing for the strain relief plates.

WAGO does not offer the recommended cable ties and cable binding tools; those are available from suppliers such as Hellermann.

Pole No.	B	H	D
6 - 12	11	38.7	3
14 - 20	25	43.7	4.2
22 - 28	39	48.7	4.2
30 - 36	53	54.2	4.9

Accessories

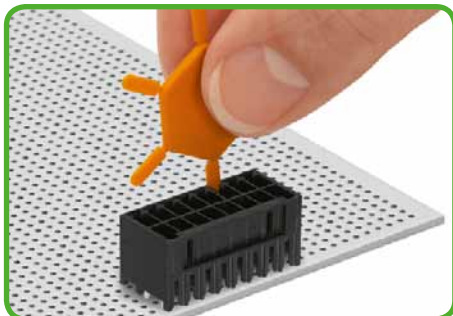
Coding Pin Carrier and Direct Marking

MCS-MINI HD

<p>Coding pin carrier</p> <p>for male headers</p>	<p>Direct marking MCS-MINI HD</p>	<p>Direct marking 1 – pole no.</p> <p>of female connectors for conductor termination</p>
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Item No.	Pack. Unit	Direct Marking MCS-MINI HD	Marking Perpendicular to Conductor Entry Item No. Suffix: /... - 047
Coding pin carrier with six coding pins			Ordering examples:
714-101	100 (4 x 25)	<p>713 Series female connectors can be marked with "1 – pole no." via factory direct printing.</p> <p>Two standard marking orientations are available:</p> <ol style="list-style-type: none"> 1. Marking perpendicular to conductor entry 2. Marking parallel to conductor entry <p>Other custom marking options are available upon request.</p> <p>WAGO recommends pole marking on the PCB for 713 Series males headers.</p> <p>The marking type is always defined by the second 4-digit block of the item no. suffix for items with standard colors and materials.</p> <p>Example: 713-1110/... - xxxx xxxx = Item no. suffix for direct pole marking</p>	<p>Female connector, double-row, 3.5 mm pin spacing, 16-pole, black: 713-1108/000-047</p> <p>Female connector with screw flanges, double-row 3.5 mm pin spacing, 16-pole, black: 713-1108/107-047</p> <p>Female connector with levers and strain relief plate, double-row, 3.5 mm pin spacing, 16-pole, black: 713-1108/037-047/033-000</p>



Coding a male header.



Coding a female connector.

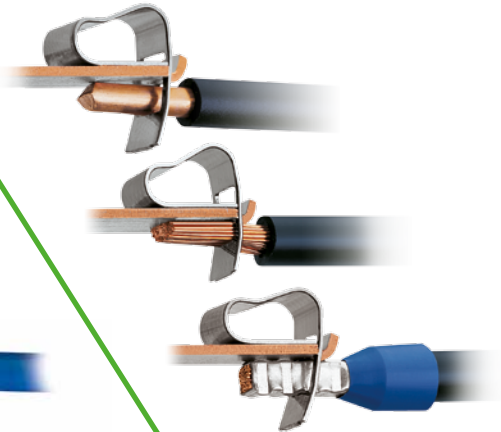
Marking Parallel to Conductor Entry Item No. Suffix: /... - 9037
Ordering examples:
<p>Female connector, double-row, 3.5 mm pin spacing, 16-pole, black: 713-1108/000-9037</p> <p>Female connector with levers, double-row, 3.5 mm pin spacing, 16-pole, black: 713-1108/037-9037</p> <p>Female connector with strain relief plate, double-row, 3.5 mm pin spacing, 16-pole, black: 713-1108/033-9037</p>



Connection Technology for MCS – MULTI CONNECTION SYSTEM MIDI 2.5 mm² 100% Protected Against Mismatching

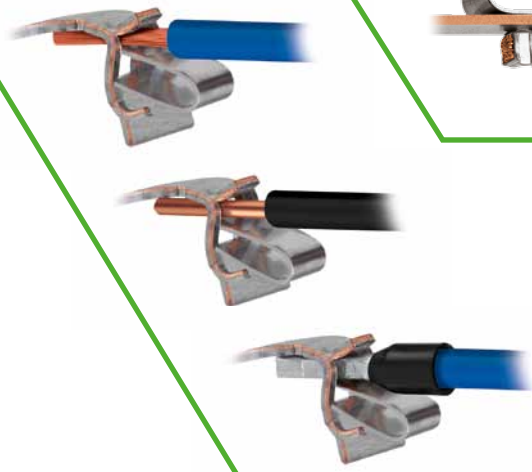
CAGE CLAMP®

The universal connection for solid, stranded and fine-stranded conductors.
Open clamping unit, insert the conductor, release clamp – done!



CAGE CLAMP® S

The universal connection with "SPECIAL"
Open clamping unit, insert the conductor, release clamp – done!
Terminate both solid and ferruled conductors by simply pushing them in – no operating tool needed.



Connectors and Headers

MCS - MULTI CONNECTION SYSTEM MIDI 100% Protected Against Mismatching

Pin spacing 5 and 7.5 mm / Nominal cross section 2.5 mm²

5



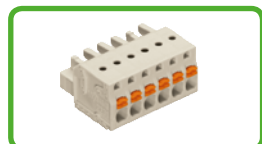
Female Connectors, Straight and Angled, CAGE CLAMP® Termination

Pin Spacing	Pages
5 mm/0.197 in	304 - 307
7.5 mm/0.295 in	334 - 336



Female Connectors for Panel Mounting, CAGE CLAMP® Termination

5 mm/0.197 in	308 - 309
7.5 mm/0.295 in	338 - 339



Female Connectors with Push-Buttons, CAGE CLAMP®S Termination

5 mm/0.197 in	310 - 312
7.5 mm/0.295 in	340 - 342



Female Connectors, 2-Conductor, CAGE CLAMP®S Termination

5 mm/0.197 in	314 - 315
7.5 mm/0.295 in	344 - 345



Male Headers with Solder Pins

5 mm/0.197 in	316 - 318
7.5 mm/0.295 in	346 - 348

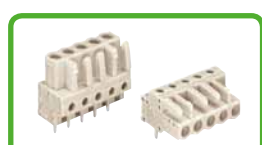
Male Headers with Press-In Pins

5 mm/0.197 in	316 - 317
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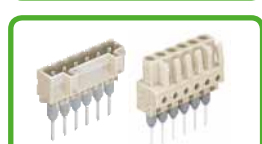
Male Connectors, CAGE CLAMP® Termination

5 mm/0.197 in	320 - 323
7.5 mm/0.295 in	350 - 353



Female Headers with Solder Pins

5 mm/0.197 in	324 - 327
7.5 mm/0.295 in	354 - 357



Male Connectors for Rail-Mounted Terminal Blocks

5 mm/0.197 in	328 - 329
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Female Connectors for Rail-Mounted Terminal Blocks

5 mm/0.197 in	330 - 332
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Accessories for MCS-MIDI

466 - 476

Direct Marking

358 - 360

Accessories, General - Section 10

524 - 546

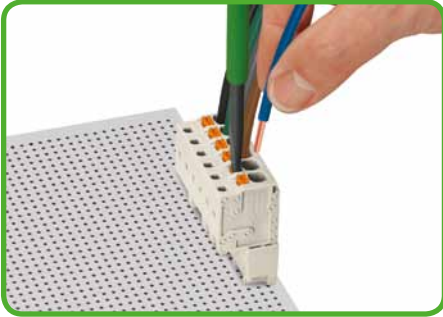


Application Examples

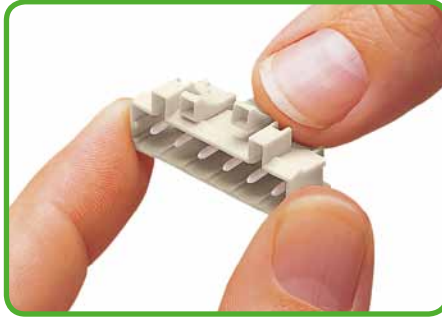
477 - 483

Description and Handling

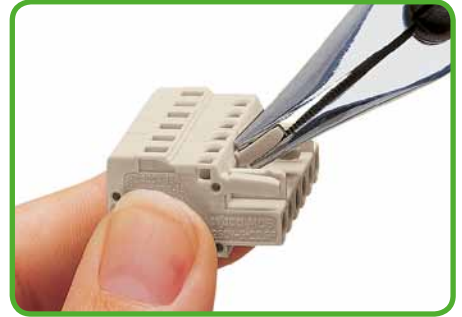
MCS - MULTI CONNECTION SYSTEM MIDI 100% Protected Against Mismatching



Inserting/removing conductor via 3.5 mm screwdriver - CAGE CLAMP[®]S actuation in mated condition.

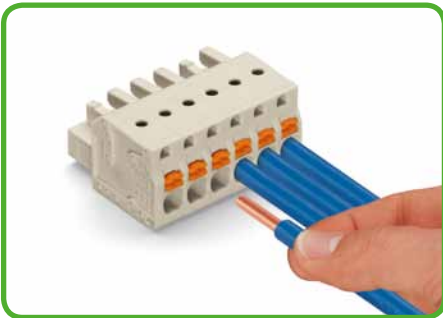


Coding a male header - fitting coding key(s).

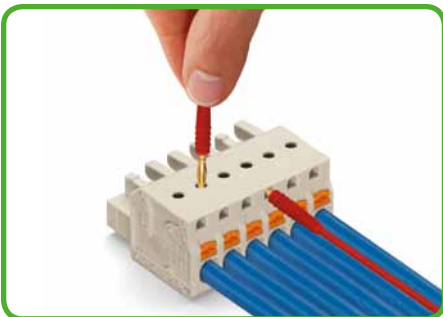


Coding a female connector - removing coding finger(s).

2721 Series Female Connector with Push-Buttons



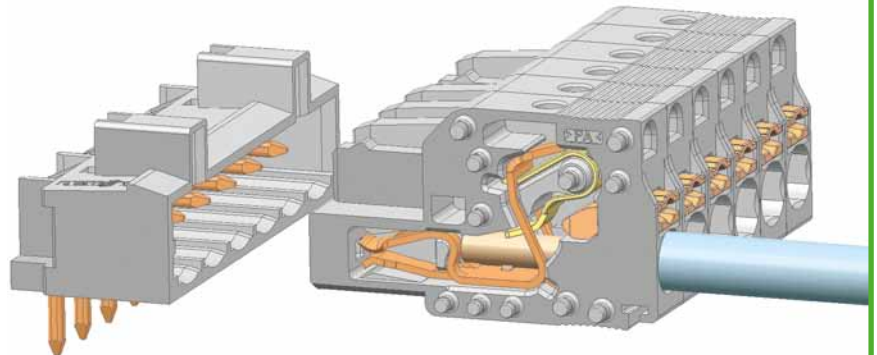
Inserting solid or ferruled conductors via CAGE CLAMP[®]S push-in terminations.



Testing parallel to conductor entry via integrated test ports - female connector with push-button actuated CAGE CLAMP[®]S. Tip contact with current bar from top of unit.

100% protected against mismatching

CAGE CLAMP[®]S

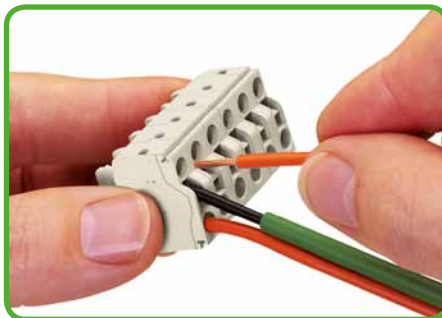


MCS-MIDI

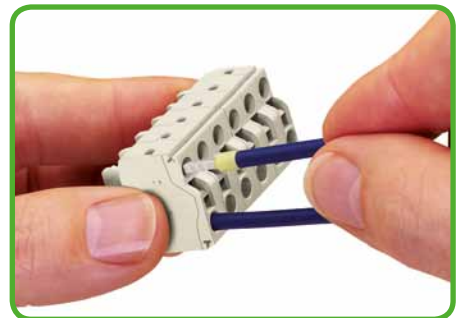
Pin spacing 5 mm and 7.5 mm



Marking via self-adhesive marker strips or factory direct printing.



Inserting conductor via 3.5 mm screwdriver into a 2-conductor female connector equipped with CAGE CLAMP[®]S.



Inserting ferruled, fine-stranded conductors via CAGE CLAMP[®]S push-in terminations.



CAGE CLAMP[®] and CAGE CLAMP[®]S clamp the following copper conductors:
solid

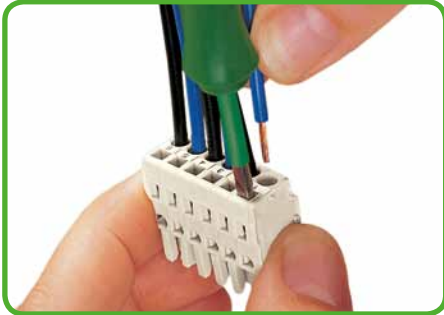


stranded

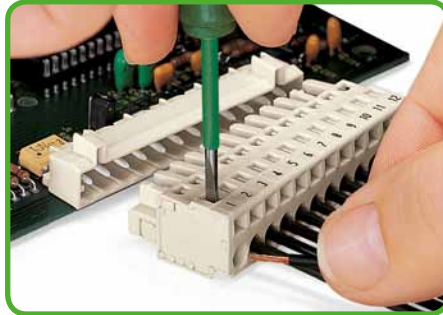


fine-stranded, also with tinned single strands

* For aluminum conductors, see notes in Section 11.



Inserting conductor via 3.5 mm screwdriver – horizontal CAGE CLAMP® actuation.



Inserting conductor via 3.5 mm screwdriver – vertical CAGE CLAMP® actuation.

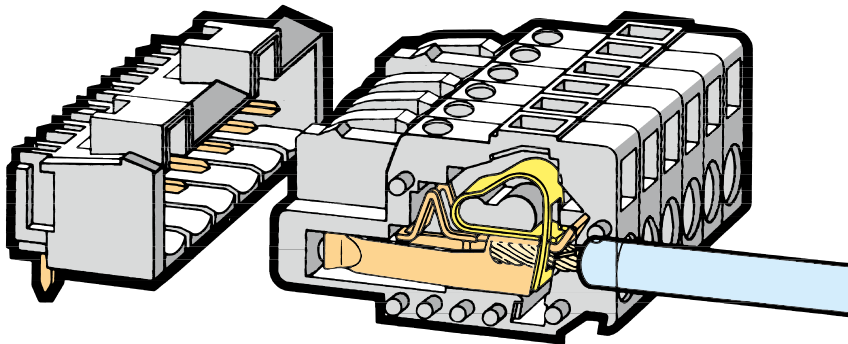


Inserting conductor – CAGE CLAMP® actuation via 231-291 push-buttons.

721, 722 and 723 Series

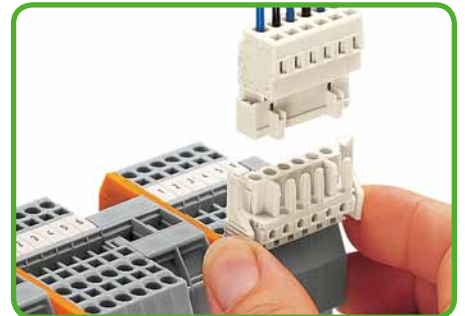
100% protected against mismatching

CAGE CLAMP®



MCS-MIDI

Pin spacing 5 mm and 7.5 mm



Connectors for 280 Series rail-mounted terminal blocks.



Angled female connector for panel mounting.



Male connector with strain relief plate.



Strain relief housing with a male connector equipped with CAGE CLAMP®.



Testing – female connector with CAGE CLAMP®. Vertical insertion of Ø 2 mm and Ø 2.3 mm test plugs.



fine-stranded, tip-bonded

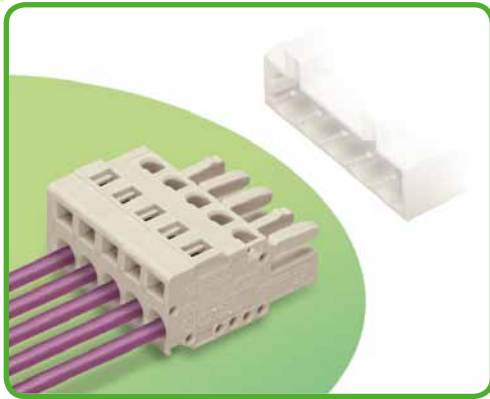


fine-stranded with crimped ferrules (gas-tight)



fine-stranded with crimped pin terminal (gas-tight)

Female Connectors Pin Spacing 5 mm MCS-MIDI



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- Integrated test ports
- 100% protected against mismatching
- With coding fingers

Technical data:

Pin Spacing	Straight 5 mm / 0.197 in			Angled 5 mm / 0.197 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	14 A	14 A	14 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A

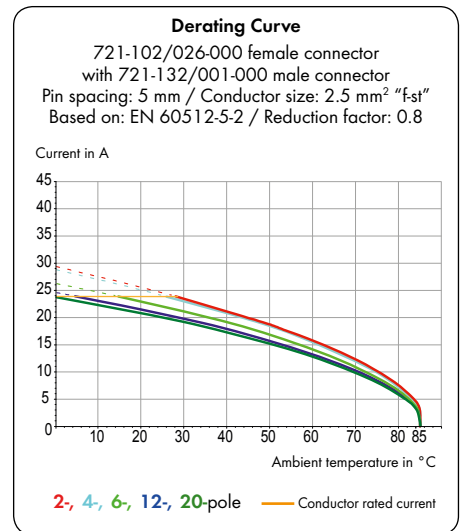
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ²	(with uninsulated ferrule)
AWG	28 - 12	12: THHN, THWN
Strip length	8 - 9 mm / 31 - 35 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

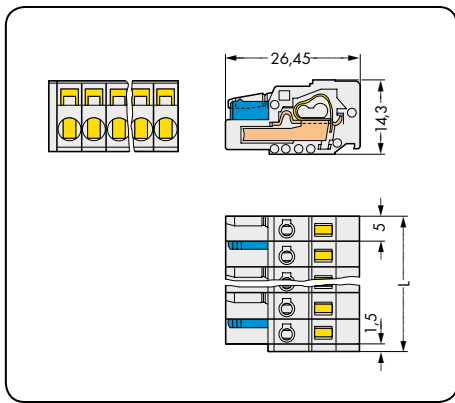
Page:

Marking accessories	540 - 543
Operating tool	466 - 467
Direct marking	358 - 360
Comb-style jumper bars	476
Insulation stop	469
Test plug adapter	474
Test plugs	538
Screws	546
Strain relief housings	472 - 473
Strain relief plates	470 - 471

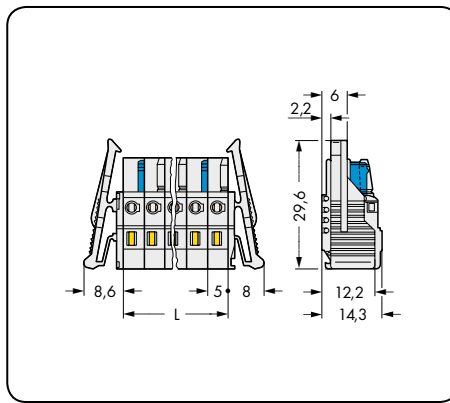
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors MCS-MIDI

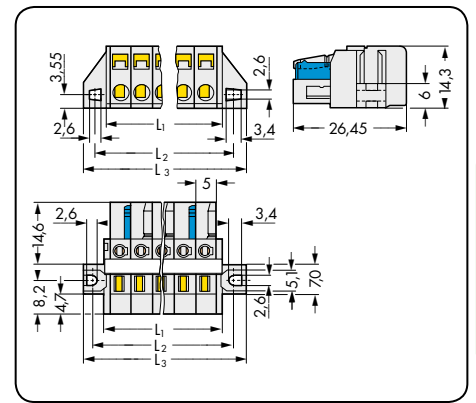
Pin spacing 5 mm / 0.197 in		With locking levers Pin spacing 5 mm / 0.197 in		With fixing flanges, for racks and through-panel mounting Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



L = (pole no. x pin spacing) + 1.5 mm



L = pole no. x pin spacing

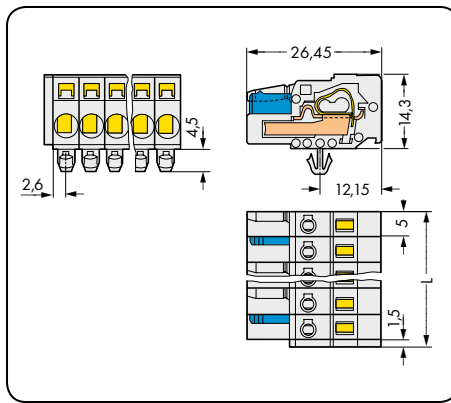
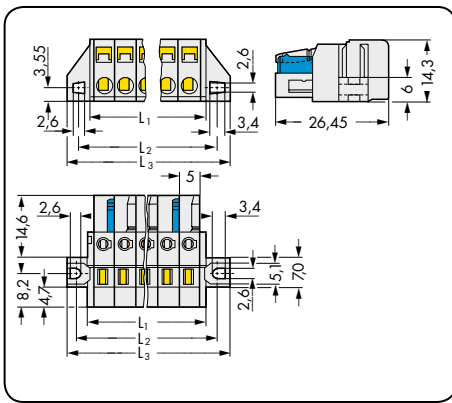


L₁ = (pole no. x pin spacing) + 3 mm
L₂ = (pole no. x pin spacing) + 8.8 mm
L₃ = (pole no. x pin spacing) + 14.8 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, light gray			Female connector with locking levers, light gray			Female connector with fixing flanges, for racks and through-panel mounting, with reinforcing strips, light gray		
2	721-102/026-000	100	2	721-102/037-000	100	2	721-102/031-000	100
3	721-103/026-000	100	3	721-103/037-000	50	3	721-103/031-000	50
4	721-104/026-000	100	4	721-104/037-000	50	4	721-104/031-000	50
5	721-105/026-000	100	5	721-105/037-000	50	5	721-105/031-000	50
6	721-106/026-000	50	6	721-106/037-000	50	6	721-106/027-000	50
7	721-107/026-000	50	7	721-107/037-000	50	7	721-107/027-000	50
8	721-108/026-000	50	8	721-108/037-000	25	8	721-108/027-000	50
9	721-109/026-000	50	9	721-109/037-000	25	9	721-109/027-000	25
10	721-110/026-000	50	10	721-110/037-000	25	10	721-110/027-000	25
11	721-111/026-000	25	11	721-111/037-000	25	11	721-111/027-000	25
12	721-112/026-000	25	12	721-112/037-000	25	12	721-112/027-000	25
13	721-113/026-000	25	13	721-113/037-000	25	13	721-113/027-000	25
14	721-114/026-000	25	14	721-114/037-000	25	14	721-114/027-000	25
15	721-115/026-000	25	15	721-115/037-000	25	15	721-115/027-000	25
16	721-116/026-000	25	16	721-116/037-000	10	16	721-116/027-000	10
20	721-120/026-000	10	20	721-120/037-000	10	20	721-120/027-000	10
2-pole female connectors - one latch only						Item no. for 2- to 5-pole female connectors identical to item no. for panel mounting without reinforcing strips.		
						For cutout dimensions, see page 485, table 1.		

Female Connectors MCS-MIDI

With fixing flanges for panel mounting Pin spacing 5 mm / 0.197 in		With snap-in mounting feet Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



$L_1 = (\text{pole no.} \times \text{pin spacing}) + 3 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 8.8 \text{ mm}$
 $L_3 = (\text{pole no.} \times \text{pin spacing}) + 14.8 \text{ mm}$

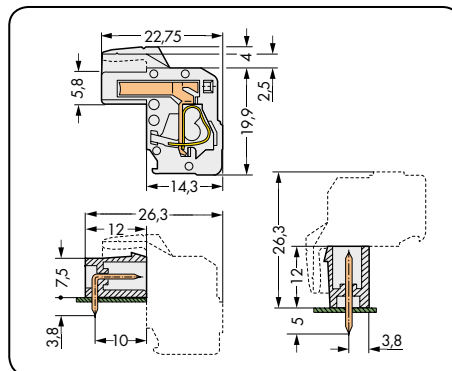
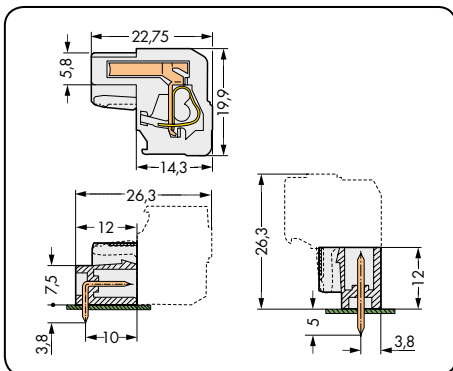
$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$

Pole No.	Item No.	Pack.	Unit	Pole No.	Item No.	Pack.	Unit
Female connector with fixing flanges, for panel mounting, light gray				Female connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm fixing holes, light gray			
2	721-102/031-000	100		2	721-102/008-000	100	
3	721-103/031-000	50		3	721-103/008-000	100	
4	721-104/031-000	50		4	721-104/008-000	100	
5	721-105/031-000	50		5	721-105/008-000	100	
6	721-106/031-000	50		6	721-106/008-000	50	
7	721-107/031-000	50		7	721-107/008-000	50	
8	721-108/031-000	50		8	721-108/008-000	50	
9	721-109/031-000	25		9	721-109/008-000	50	
10	721-110/031-000	25		10	721-110/008-000	50	
11	721-111/031-000	25		11	721-111/008-000	25	
12	721-112/031-000	25		12	721-112/008-000	25	
13	721-113/031-000	25		13	721-113/008-000	25	
14	721-114/031-000	25		14	721-114/008-000	25	
15	721-115/031-000	25		15	721-115/008-000	25	
16	721-116/031-000	10		16	721-116/008-000	25	
20	721-120/031-000	10		20	721-120/008-000	10	
For cutout dimensions, see page 484, table 1.							
2-pole female connectors - one latch only							

Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Female Connectors MCS-MIDI

Angled, conductor entry same direction as latches Pin spacing 5 mm / 0.197 in		Angled, conductor entry opposite of latches Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 14 A	300 V/15 A	320 V/4 kV/2 14 A	300 V/15 A



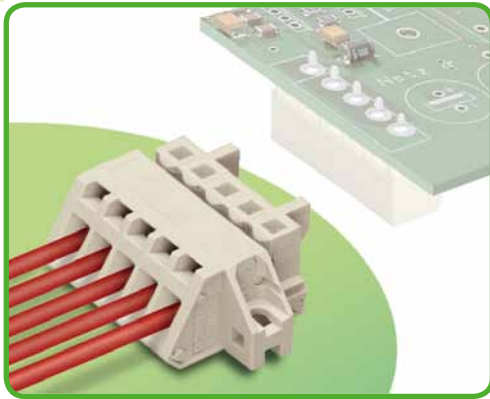
Total length = (pole no. x pin spacing) + 1.5 mm + 0.9 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Angled female connector, conductor entry same direction as latches, light gray			Angled female connector, conductor entry opposite of latches, light gray		
2	722-202/026-000	100	2	722-102/026-000	100
3	722-203/026-000	100	3	722-103/026-000	100
4	722-204/026-000	100	4	722-104/026-000	100
5	722-205/026-000	100	5	722-105/026-000	100
6	722-206/026-000	50	6	722-106/026-000	50
7	722-207/026-000	50	7	722-107/026-000	50
8	722-208/026-000	50	8	722-108/026-000	50
9	722-209/026-000	50	9	722-109/026-000	50
10	722-210/026-000	50	10	722-110/026-000	50
11	722-211/026-000	25	11	722-111/026-000	25
12	722-212/026-000	25	12	722-112/026-000	25
13	722-213/026-000	25			
14	722-214/026-000	25	14	722-114/026-000	25
15	722-215/026-000	25			
16	722-216/026-000	25	16	722-116/026-000	25
20	722-220/026-000	10	20	722-120/026-000	10
2-pole female connectors - one latch only					

Angled Female Connectors for Panel Mounting

Pin Spacing 5 mm

MCS-MIDI



- Universal connection for all conductor types
- Versions available with snap-in mounting feet or fixing flanges for panel or through-panel mounting
- Mounting adapter allows versions with snap-in mounting feet to be DIN-rail mounted
- Easy conductor termination, even when halves are mated
- 100% protected against mismating

Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300V	-	300V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	28 - 12	12: THHN, THWN
Strip length	7 - 8 mm / 0.28 - 0.31 in	

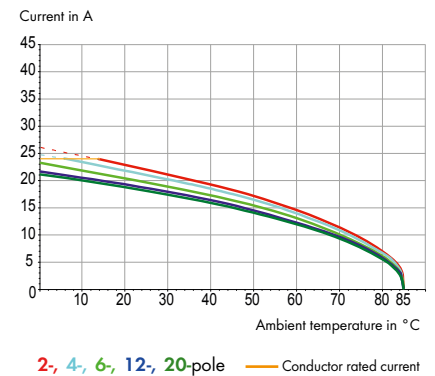
Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Derating Curve

721-302/031-000 female connector
with 721-162/001-000 male connector
Pin spacing: 5 mm / Conductor size: 2.5 mm² "F-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



MCS-MIDI accessories:

Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Test plug adapter	474
Screws	564

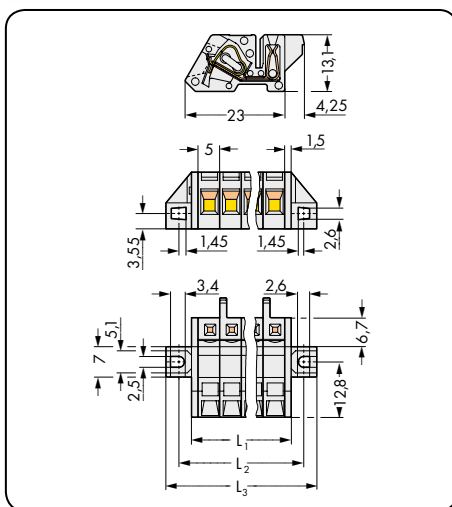
Angled Female Connectors for Panel Mounting MCS-MIDI

CAGE CLAMP®

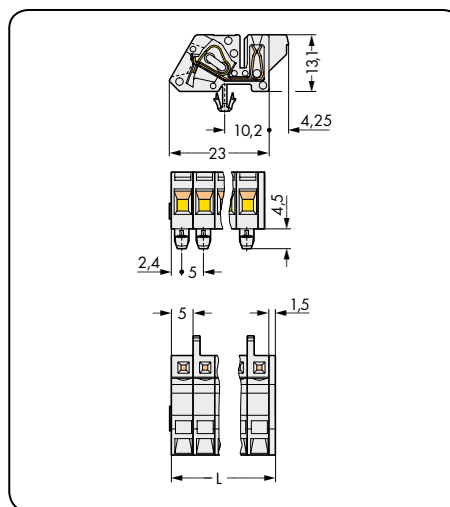
5

309

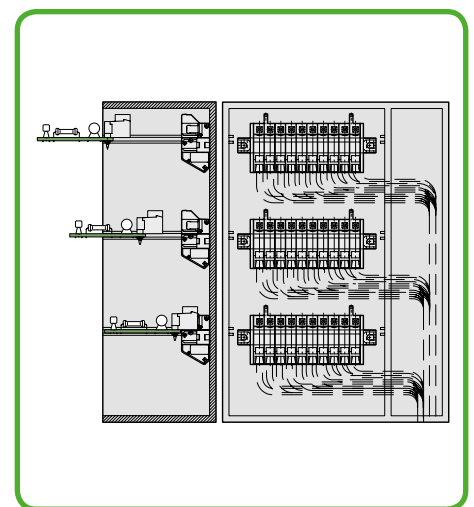
With fixing flanges Pin spacing 5 mm / 0.197 in		With snap-in mounting feet Pin spacing 5 mm / 0.197 in		Application examples
0.08 - 2.5 mm ² 320 V/4 kV/2 12 A	AWG 28 - 12 300 V/ 15 A	0.08 - 2.5 mm ² 320 V/4 kV/2 12 A	AWG 28 - 12 300 V/ 15 A	



$L_1 = (\text{pole no.} \times \text{pin spacing}) + 3 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 8.8 \text{ mm}$
 $L_3 = (\text{pole no.} \times \text{pin spacing}) + 14.8 \text{ mm}$



$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$



Multilevel arrangement in a distributed electronic housing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Angled female connector with fixing flanges, light gray			Angled female connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm fixing holes, light gray		
2	721-302/031-000	100	2	721-302/008-000	100
3	721-303/031-000	50	3	721-303/008-000	50
4	721-304/031-000	50	4	721-304/008-000	50
5	721-305/031-000	50	5	721-305/008-000	50
6	721-306/031-000	50	6	721-306/008-000	50
7	721-307/031-000	50	7	721-307/008-000	50
8	721-308/031-000	50	8	721-308/008-000	50
9	721-309/031-000	25	9	721-309/008-000	50
10	721-310/031-000	25	10	721-310/008-000	50
11	721-311/031-000	25	11	721-311/008-000	25
12	721-312/031-000	25	12	721-312/008-000	25
13	721-313/031-000	25	13	721-313/008-000	25
14	721-314/031-000	25	14	721-314/008-000	25
15	721-315/031-000	25	15	721-315/008-000	25
16	721-316/031-000	10	16	721-316/008-000	25
20	721-320/031-000	10	20	721-320/008-000	10



Panel-mount connectors. Male connector with CAGE CLAMP® connection and strain relief plate for outgoing circuit.

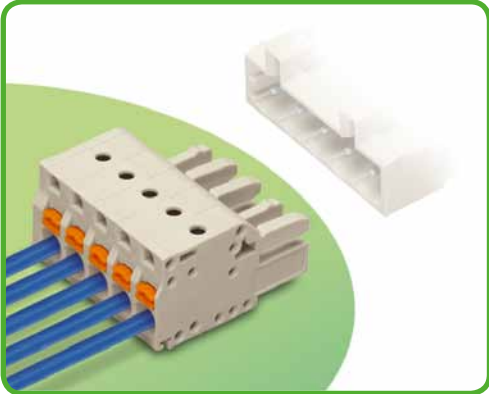


Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-120)	475

For other lengths, please contact factory.

5 Female Connectors with Push-Buttons Pin Spacing 5 mm MCS-MIDI

310



- Universal connection for all conductor types
- Easy-to-use design does not require specialty tools
- Ability to wire while mated
- Simple, push-in terminations of solid and ferruled conductors
- Integrated test ports for testing parallel to conductor entry
- 100% protected against mismatching
- With coding fingers

Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	150 V	300 V
Nominal current UL	15 A	15 A	10 A
Nominal current CSA	15 A	15 A	10 A

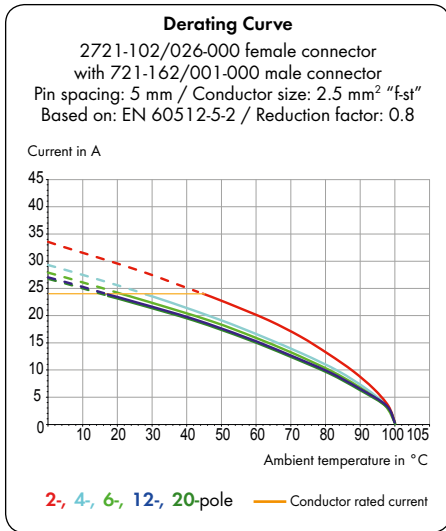
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®S	
Conductor size: solid	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	24 - 12	12: THHN, THWN
Strip length	10 - 11 mm / 0.39 - 0.43 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

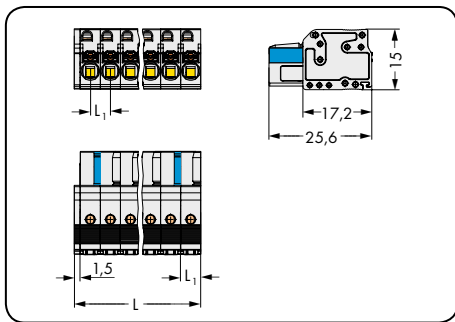
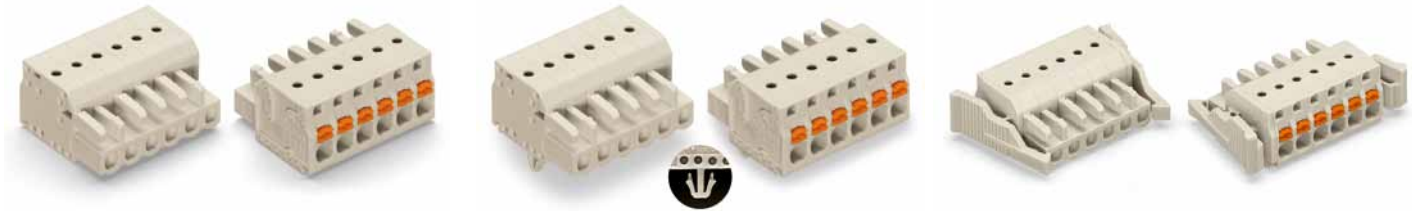


MCS-MIDI accessories:	Page:
Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	474
Test plug, Ø 2 mm	538
Screws	546
Strain relief plates	470 - 471

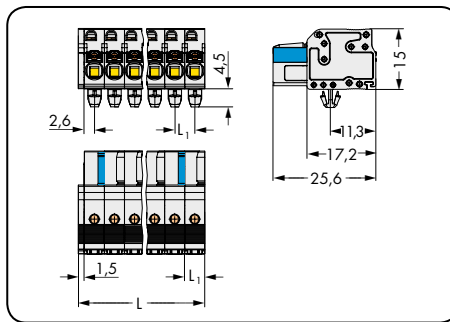
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors with Push-Buttons MCS-MIDI

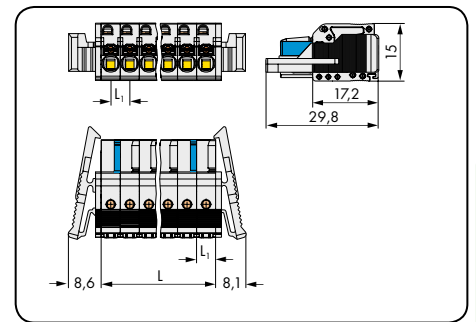
Pin spacing 5 mm / 0.197 in		With snap-in mounting feet Pin spacing 5 mm / 0.197 in		With locking levers Pin spacing 5 mm / 0.197 in	
0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



L = (pole no. x pin spacing) + 1.5 mm
L₁ = 5 mm



L = (pole no. x pin spacing) + 1.5 mm
L₁ = 5 mm



L = pole no. x pin spacing
L₁ = 5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons, light gray			Female connector with push-buttons and snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm fixing holes, light gray			Female connector with push-buttons and locking levers, light gray		
2	2721-102/026-000	100	2	2721-102/008-000	100	2	2721-102/037-000	100
3	2721-103/026-000	100	3	2721-103/008-000	100	3	2721-103/037-000	50
4	2721-104/026-000	100	4	2721-104/008-000	100	4	2721-104/037-000	50
5	2721-105/026-000	100	5	2721-105/008-000	100	5	2721-105/037-000	50
6	2721-106/026-000	50	6	2721-106/008-000	50	6	2721-106/037-000	50
7	2721-107/026-000	50	7	2721-107/008-000	50	7	2721-107/037-000	50
8	2721-108/026-000	50	8	2721-108/008-000	50	8	2721-108/037-000	25
9	2721-109/026-000	50	9	2721-109/008-000	50	9	2721-109/037-000	25
10	2721-110/026-000	50	10	2721-110/008-000	50	10	2721-110/037-000	25
11	2721-111/026-000	25	11	2721-111/008-000	25	11	2721-111/037-000	25
12	2721-112/026-000	25	12	2721-112/008-000	25	12	2721-112/037-000	25
14	2721-114/026-000	25	14	2721-114/008-000	25	14	2721-114/037-000	25
16	2721-116/026-000	25	16	2721-116/008-000	25	16	2721-116/037-000	10
20	2721-120/026-000	10	20	2721-120/008-000	10	20	2721-120/037-000	10

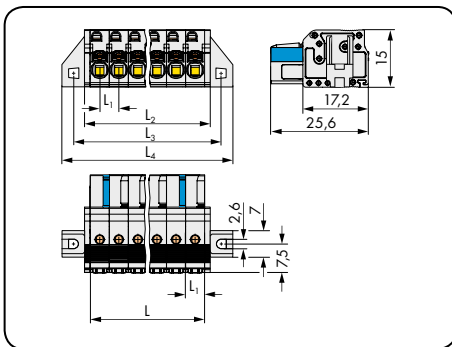
2-pole female connectors - one latch only

Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

5 Female Connectors with Push-Buttons MCS-MIDI

312

With fixing flanges Pin spacing 5 mm / 0.197 in		
0.2 – 2.5 mm ² 320 V/4 kV/2 16 A	AWG 24 – 12 300 V/15 A	



L = pole no. x pin spacing
 L₁ = 5 mm
 L₂ = L + 2.8 mm
 L₃ = L + 8.8 mm
 L₄ = L + 14.8 mm

Pole No.	Item No.	Pack. Unit
Female connector with push-buttons and fixing flanges, light gray		
2	2721-102/031-000	100
3	2721-103/031-000	50
4	2721-104/031-000	50
5	2721-105/031-000	50
6	2721-106/031-000	50
7	2721-107/031-000	50
8	2721-108/031-000	50
9	2721-109/031-000	25
10	2721-110/031-000	25
12	2721-112/031-000	25
14	2721-114/031-000	25
16	2721-116/031-000	10
20	2721-120/031-000	10
For cutout dimensions, see page 485, table 2.		
2-pole female connectors - one latch only		

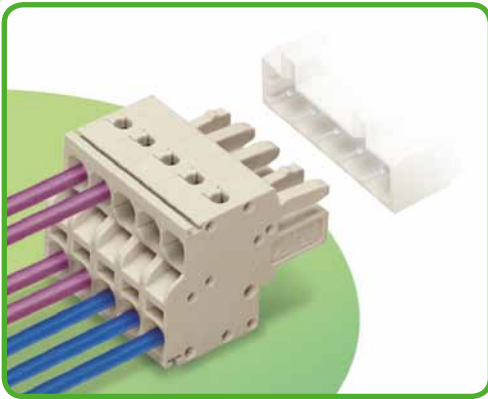


5 2-Conductor Female Connectors

Pin Spacing 5 mm

MCS-MIDI

314



- Universal connection for all conductor types
- Two conductor entries per pole
- For looping through power or data buses
- Bus connection is retained, even when unmated
- Push-in termination of solid and ferruled, fine-stranded conductors
- 100% protected against mismatching
- With coding fingers

Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	20 A	-	10 A
Nominal current CSA	15 A	-	10 A

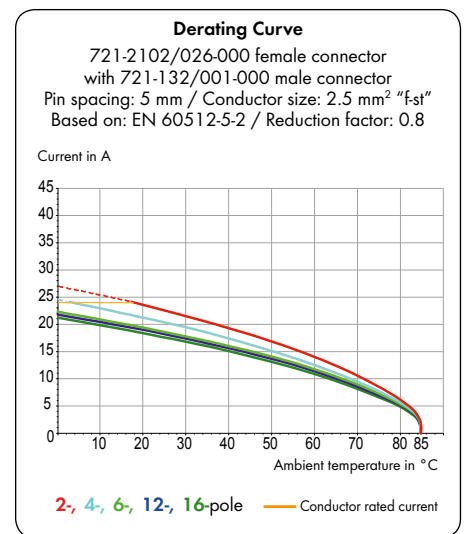
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®S	
Conductor size: solid	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	24 - 12	12: THHN, THWN
Strip length	9 - 10 mm / 0.35 - 0.39 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	474
Test pin	538
Strain relief plates	470 - 471

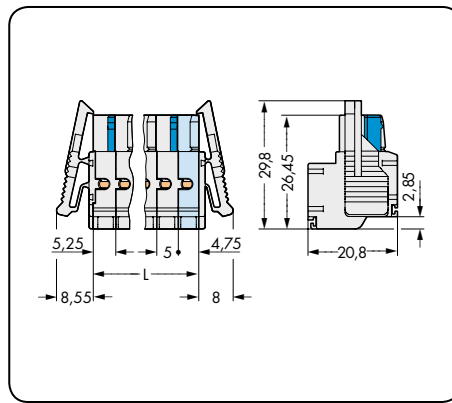
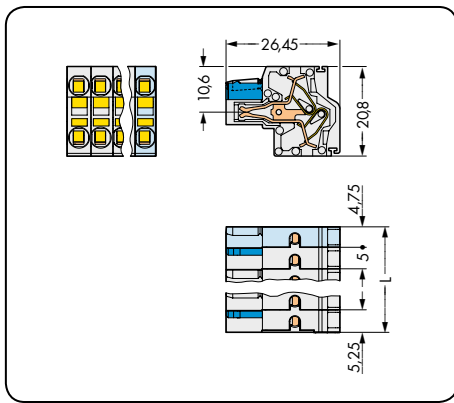
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

2-Conductor Female Connectors MCS-MIDI

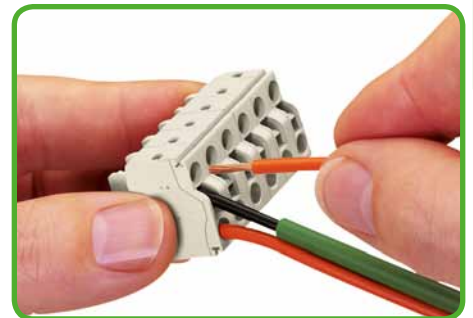
Pin spacing 5 mm / 0.197 in		With locking levers Pin spacing 5 mm / 0.197 in		Handling
0.2 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 24 - 12 300 V/20 A	0.2 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 24 - 12 300 V/20 A	



Female connectors equipped with two CAGE CLAMP®S connections per pole allow conductors to be looped from one connector to another without interruption. Therefore, disconnecting one connector will not affect the other connectors in the circuit. These female connectors can be mated with male headers or CAGE CLAMP®-equipped male connectors, which are 100% protected against mismatching.

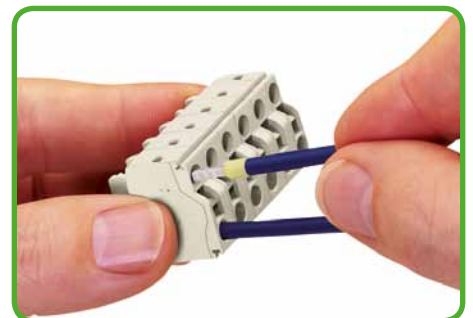


L = (pole no. - 2) x pin spacing + 10 mm



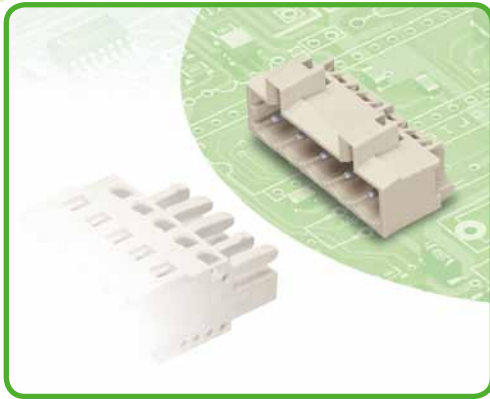
Operating CAGE CLAMP®S is easy, fast and identical to that of CAGE CLAMP®. The screwdriver is fully inserted into the operating slot, holding the CAGE CLAMP®S open. After the conductor has been inserted into the clamping unit and the screwdriver been withdrawn, the conductor is clamped safely. Solid and fine-stranded conductors < 0.5 mm² are terminated and removed using a screwdriver.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor female connector, light gray			2-conductor female connector with locking levers, light gray		
2	721-2102/026-000	100	2	721-2102/037-000	100
3	721-2103/026-000	100	3	721-2103/037-000	50
4	721-2104/026-000	100	4	721-2104/037-000	50
5	721-2105/026-000	50	5	721-2105/037-000	50
6	721-2106/026-000	50	6	721-2106/037-000	50
7	721-2107/026-000	50	7	721-2107/037-000	50
8	721-2108/026-000	50	8	721-2108/037-000	25
9	721-2109/026-000	50	9	721-2109/037-000	25
10	721-2110/026-000	50	10	721-2110/037-000	25
11	721-2111/026-000	25	11	721-2111/037-000	25
12	721-2112/026-000	25	12	721-2112/037-000	25
13	721-2113/026-000	25	13	721-2113/037-000	25
14	721-2114/026-000	25	14	721-2114/037-000	25
15	721-2115/026-000	25	15	721-2115/037-000	25
16	721-2116/026-000	25	16	721-2116/037-000	10
2-pole female connectors - one latch only					



Solid conductors ≥ 0.5 mm² and ferruled, fine-stranded conductors can be terminated by simply pushing them in. Integrated test ports allow tip contact with current bar for testing via test probes in both horizontal and vertical directions.

Male Headers with Solder Pins and Press-In Pins Pin Spacing 5 mm MCS-MIDI



- Horizontal or vertical PCB mounting via straight or angled solder pins
- 1.2 x 1.2 mm solder pins allow nominal current up to 16 A, enhancing stability of shorter headers
- Version with press-in pins provides solder-free connection to PCB
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	5 mm/0.197 in 1 x 1 mm Solder Pins			5 mm/0.197 in 1.2 x 1.2 mm Solder Pins			5 mm/0.197 in Press-In Technology		
	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II	III	III	II
Overtoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	250 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A	16 A	16 A	16 A	8 A	8 A	8 A
Approvals per	UL/CSA			UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	10 A	-	10 A	15 A	-	10 A	10 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder and press-in pin data:

Solder pin: length/width	5 mm / 1 x 1 mm (straight)
Solder pin: length/width	3.8 mm / 1 x 1 mm (angled)
Solder pin: drilled hole diameter	1.4 ^{+0.1} mm
Solder pin: length/width	5 mm / 1.2 x 1.2 mm (straight)
Solder pin: length/width	3.8 mm / 1.2 x 1.2 mm (angled)
Solder pin: drilled hole diameter	1.7 ^{+0.1} mm
Press-in pin: length/width	3.2 mm/0.8 x 1.6 mm
Press-in pin: drilled hole diameter	1.6 ^{+0.025} mm
Press-in pin: metal-plated hole diameter	1,45 ^{+0.09} _{-0.06} mm (HAL Sn)
Press-in pin: metal-plated hole diameter	1,45 ^{+0.09} _{-0.06} mm (Chem. Sn)

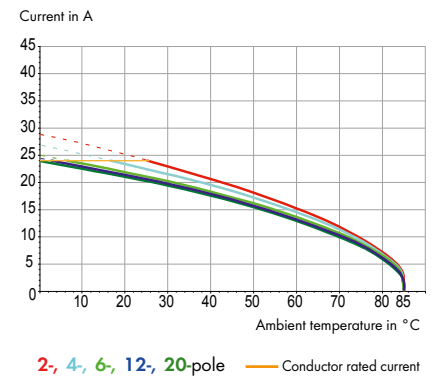
Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C / Press-in pin: -40 °C / +85 °C
Contact material	Electrolytic copper (E _{cu}) / Press-in pin: copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Derating Curve

721-102/026-000 female connector
with 721-432/001-000 male connector
Pin spacing: 5 mm / Conductor size: 2.5 mm² "F-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



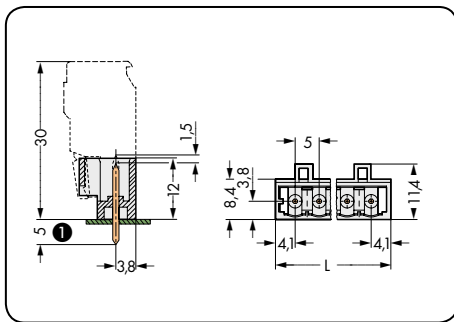
MCS-MIDI accessories:

Page:

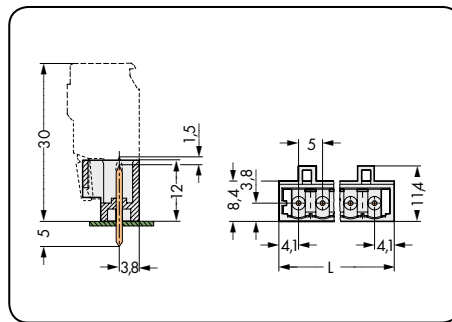
Fixing elements	469
Coding keys	468
Screws	546

Male Headers with Solder Pins and Press-In Pins MCS-MIDI

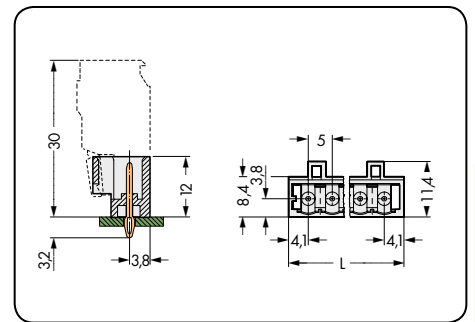
With 1 x 1 mm straight solder pins Pin spacing 5 mm / 0.197 in		With 1.2 x 1.2 mm straight solder pins Pin spacing 5 mm / 0.197 in		With press-in pins Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/10 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 8 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



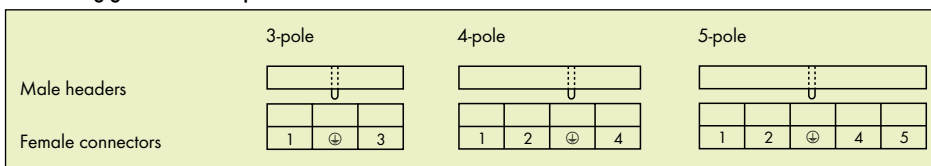
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$

Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	
Male header with 1 x 1 mm straight solder pins, light gray				Male header with 1.2 x 1.2 mm straight solder pins, light gray				Male header for press-in technology*, 0.8 x 1.6 mm press-in pin, light gray			
	without preceding ground contact	with preceding ground contact			without preceding ground contact	with preceding ground contact					
2	721-132/001-000		200	2	721-162/001-000		200	2	721-162/100-000	200	
3	721-133/001-000	721-133/001-040	200	3	721-163/001-000	721-163/001-040	200	3	721-163/100-000	200	
4	721-134/001-000	721-134/001-040	200	4	721-164/001-000	721-164/001-040	200	4	721-164/100-000	200	
5	721-135/001-000	721-135/001-040	200	5	721-165/001-000	721-165/001-040	200	5	721-165/100-000	200	
6	721-136/001-000		100	6	721-166/001-000		100	6	721-166/100-000	100	
7	721-137/001-000		100	7	721-167/001-000		100	7	721-167/100-000	100	
8	721-138/001-000		100	8	721-168/001-000		100	8	721-168/100-000	100	
9	721-139/001-000		100	9	721-169/001-000		100	9	721-169/100-000	100	
10	721-140/001-000		100	10	721-170/001-000		100	10	721-170/100-000	100	
11	721-141/001-000		100	11	721-171/001-000		100	11	721-171/100-000	100	
12	721-142/001-000		100	12	721-172/001-000		100	12	721-172/100-000	100	
13	721-143/001-000		50	13	721-173/001-000		50				
14	721-144/001-000		50	14	721-174/001-000		50				
15	721-145/001-000		50	15	721-175/001-000		50				
16	721-146/001-000		50	16	721-176/001-000		50				
20	721-150/001-000		50	20	721-180/001-000		50				
								For information on press-in tool design, please contact factory.			
								* For press-in technology, see page 300			

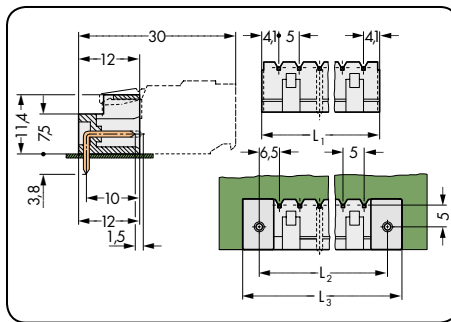
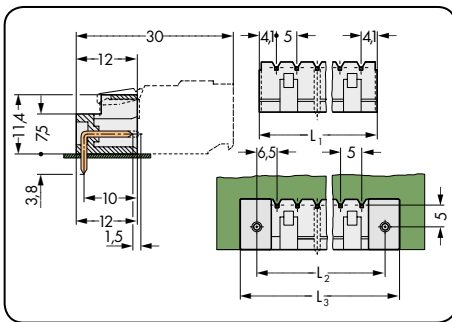
Preceding ground contact position:



1 MCS-MIDI male headers with straight solder pins are also available with 3.8 mm pin projection. Replace item no. suffix .../001-000 with .../046-000.

Male Headers with Solder Pins MCS-MIDI

With 1 x1 mm angled solder pins Pin spacing 5 mm / 0.197 in		With 1.2 x 1.2 mm angled solder pins Pin spacing 5 mm / 0.197 in		Press-in technology
320 V/4 kV/2 12 A	300 V/10 A	320 V/4 kV/2 16 A	300 V/15 A	



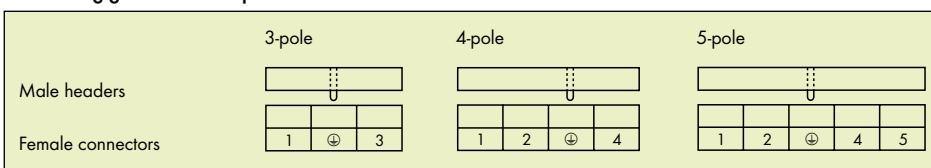
$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_2 = L_1 + 5 \text{ mm}$
 $L_3 = L_2 + 7.4 \text{ mm}$

Unique Special features of WAGO press-in technology:

- Press-in pin features spring-loaded style expanding contact zone to provide greater retention and stability
- Suitable for all printed circuit boards with the correct tin plating for press-in connectors
- Metal-plated hole with optimum diameter
 - 1.0 or 1.45^{+0.09}_{-0.06} mm (HAL Sn)
 - 1.0 or 1.45^{+0.09}_{-0.06} mm (Chem. Sn)
- Press-in pin for PCB thickness from 1.4 to 3 mm
- Press-in length of approx 3.2 mm
 - no unnecessary projection on underside of PCB
- Low press-in force required
 - reduces wear and tear on PCB and components
- High retention force within the PCB - doubles the values required by DIN EN 60352-5
- Robust bonded connection
- Excellent elastic spring behavior
- No deformation of the metal-plated end hole
- Length of contact area $\geq 1.3 \text{ mm}$
- No deformation of multilayer PCBs
- Minimal tin removal in the contact hole
 - reduces wear and tear on PCB and contact points

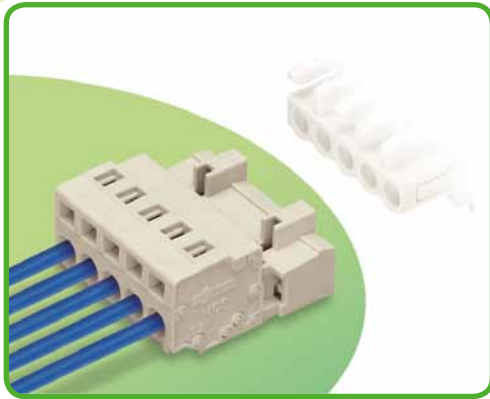
Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
Male header with 1 x 1 mm angled solder pins, light gray				Male header with 1.2 x 1.2 mm angled solder pins, light gray			
	without preceding ground contact	with preceding ground contact			without preceding ground contact	with preceding ground contact	
2	721-432/001-000		200	2	721-462/001-000		200
3	721-433/001-000	721-433/001-040	200	3	721-463/001-000	721-463/001-040	200
4	721-434/001-000	721-434/001-040	200	4	721-464/001-000	721-464/001-040	200
5	721-435/001-000	721-435/001-040	200	5	721-465/001-000	721-465/001-040	200
6	721-436/001-000		100	6	721-466/001-000		100
7	721-437/001-000		100	7	721-467/001-000		100
8	721-438/001-000		100	8	721-468/001-000		100
9	721-439/001-000		100	9	721-469/001-000		100
10	721-440/001-000		100	10	721-470/001-000		100
11	721-441/001-000		100	11	721-471/001-000		100
12	721-442/001-000		100	12	721-472/001-000		100
13	721-443/001-000		50	13	721-473/001-000		50
14	721-444/001-000		50	14	721-474/001-000		50
15	721-445/001-000		50	15	721-475/001-000		50
16	721-446/001-000		50	16	721-476/001-000		50
20	721-450/001-000		50	20	721-480/001-000		50

Preceding ground contact position:



For other lengths, please contact factory.

Male Connectors Pin Spacing 5 mm MCS-MIDI



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- For “wire-to-wire” and “board-to-wire” connections
- Versions available with snap-in mounting feet or fixing flanges for panel or through-panel mounting
- Optional, preceding ground contact available for 3- to 5-pole male connectors
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

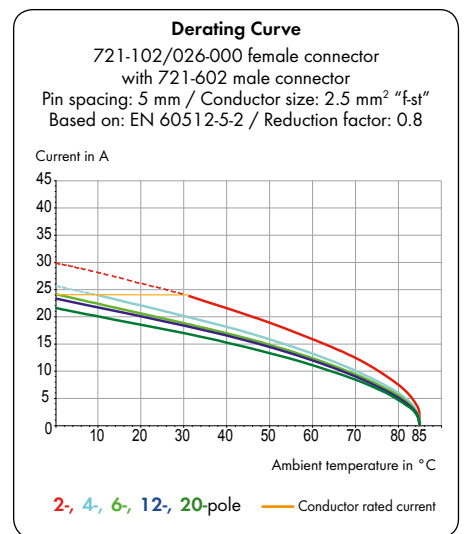
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	28 - 12	12: THHN, THWN
Strip length	8 - 9 mm / 0.31 - 0.35 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix ... /010-000” is added to the “basic item no.”	



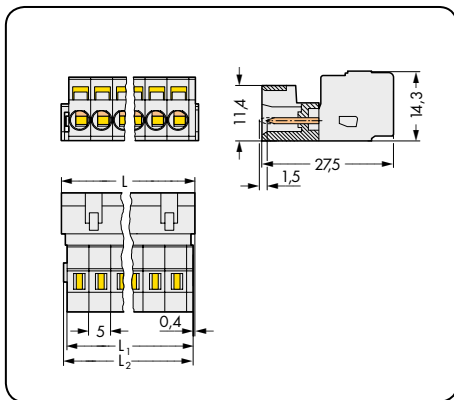
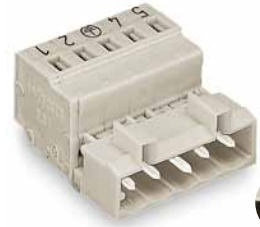
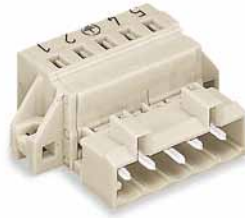
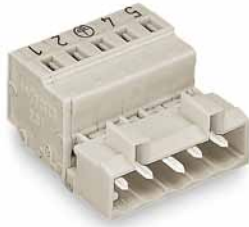
MCS-MIDI accessories:

Page:

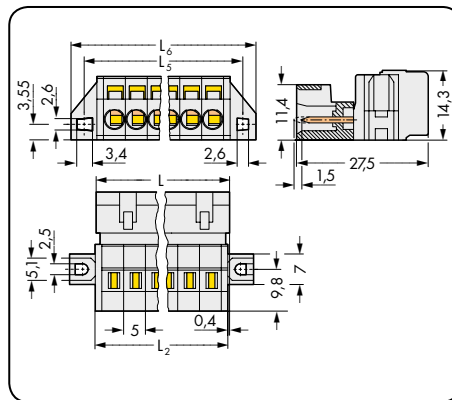
Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Comb-style jumper bars	476
Insulation stop	469
Coding keys	468
Screws	546
Strain relief housings	472 - 473
Strain relief plates	470 - 471

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

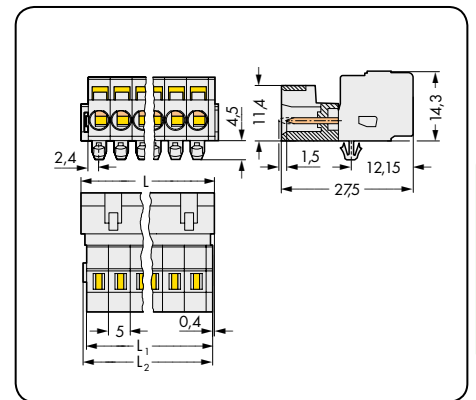
Pin spacing 5 mm / 0.197 in		With fixing flanges Pin spacing 5 mm / 0.197 in		With snap-in mounting feet Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_2 = L - 0.2 \text{ mm}$
 $L_3 = L_2 + 5.8 \text{ mm}$
 $L_6 = L_2 + 11.8 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$

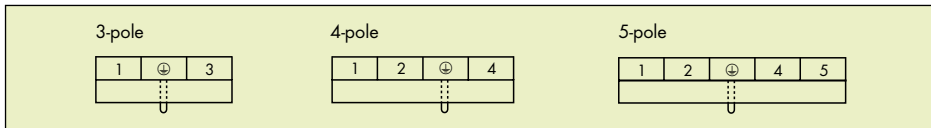
Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
Male connector, light gray				Male connector with fixing flanges, light gray				Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, light gray			
	without preceding ground contact	with preceding ground contact and printing			without preceding ground contact	with preceding ground contact and printing			without preceding ground contact	with preceding ground contact and printing	
2	721-602		100	2	721-602/019-000		100	2	721-602/018-000		100
3	721-603	721-603/000-042	100	3	721-603/019-000	721-603/019-042	50	3	721-603/018-000	721-603/018-042	100
4	721-604	721-604/000-042	100	4	721-604/019-000	721-604/019-042	50	4	721-604/018-000	721-604/018-042	100
5	721-605	721-605/000-042	50	5	721-605/019-000	721-605/019-042	50	5	721-605/018-000	721-605/018-042	50
6	721-606		50	6	721-606/019-000		50	6	721-606/018-000		50
7	721-607		50	7	721-607/019-000		50	7	721-607/018-000		50
8	721-608		50	8	721-608/019-000		50	8	721-608/018-000		50
9	721-609		50	9	721-609/019-000		25	9	721-609/018-000		50
10	721-610		50	10	721-610/019-000		25	10	721-610/018-000		50
11	721-611		25	11	721-611/019-000		25	11	721-611/018-000		25
12	721-612		25	12	721-612/019-000		25	12	721-612/018-000		25
13	721-613		25	13	721-613/019-000		25	13	721-613/018-000		25
14	721-614		25	14	721-614/019-000		25	14	721-614/018-000		25
15	721-615		25	15	721-615/019-000		25	15	721-615/018-000		25
16	721-616		25	16	721-616/019-000		10	16	721-616/018-000		25
20	721-620		10	20	721-620/019-000		10	20	721-620/018-000		10

For cutout dimensions, see page 484, table 1.

Product Accessories **Page**

Mounting adapter for DIN 35 rail, min. length 3 poles (209-137) 475

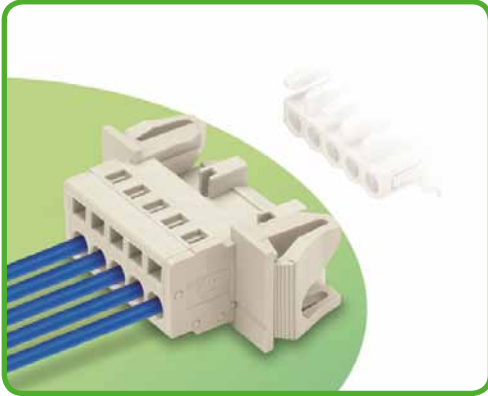
Preceding ground contact position and on-unit markings:



For other lengths, please contact factory.

5 Male Connectors with Snap-In Flanges Pin Spacing 5 mm MCS-MIDI

322



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- For “wire-to-wire” and “board-to-wire” connections
- Versions available with snap-in flanges for through-panel mounting
- Optional, preceding ground contact available for 3- to 5-pole male connectors
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

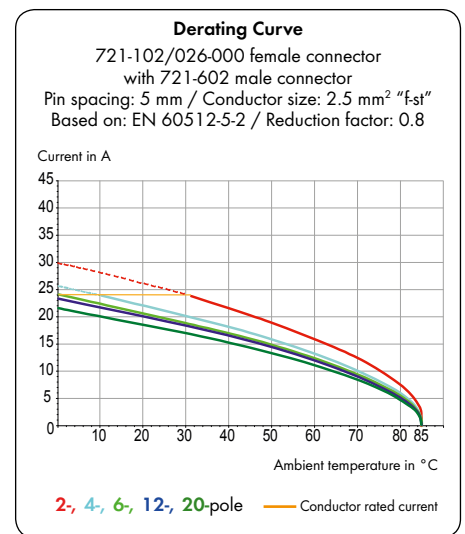
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ²	(with uninsulated ferrule)
AWG	28 - 12	12: THHN, THWN
Strip length	8 - 9 mm / 0.31 - 0.35 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix ... /010-000” is added to the “basic item no.”	



MCS-MIDI accessories:

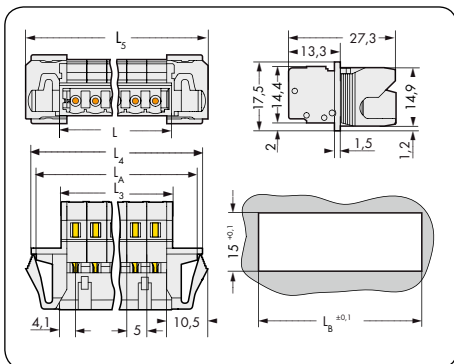
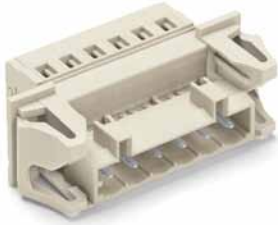
Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Coding keys	468
Strain relief housings	472 - 473
Strain relief plates	470 - 471

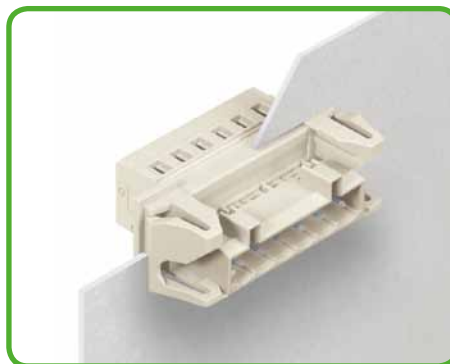
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Connectors with Snap-In Flanges MCS-MIDI

<p>With snap-in flanges Pin spacing 5 mm / 0.197 in</p>		
0.08 - 2.5 mm ²	AWG 28 - 12	
320 V/4 kV/2 12 A	300 V/15 A	



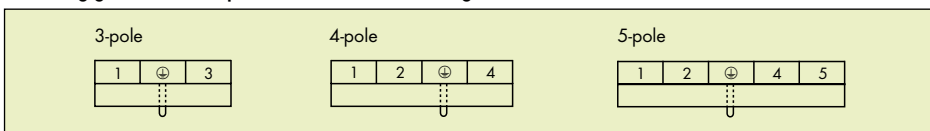
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 15.2 \text{ mm}$
 $L_5 = L_3 + 18 \text{ mm}$
 $L_A = L_3 + 12.6 \text{ mm}$
 $L_B = L_3 + 13.2 \text{ mm}$



Male connectors with snap-in flanges for feedthrough applications, for 0.5 - 2.5 mm plate thickness

Pole No.	Item No.	Item No.	Pack. Unit
Male connector with snap-in flanges, light gray			
	without preceding ground contact	with preceding ground contact and printing	
2	721-602/114-000		50
3	721-603/114-000	721-603/114-042	50
4	721-604/114-000	721-604/114-042	50
5	721-605/114-000	721-605/114-042	50
6	721-606/114-000		50
7	721-607/114-000		25
8	721-608/114-000		25
9	721-609/114-000		25
10	721-610/114-000		25
11	721-611/114-000		25
12	721-612/114-000		25
13	721-613/114-000		25
14	721-614/114-000		25
15	721-615/114-000		10
16	721-616/114-000		10
20	721-620/114-000		10

Preceding ground contact position and on-unit markings:

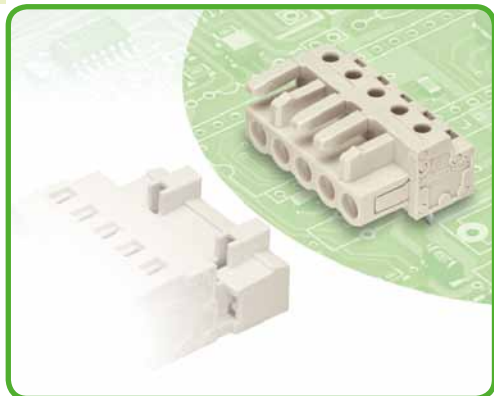


For other lengths, please contact factory.

Female Headers with Solder Pins

Pin Spacing 5 mm

MCS-MIDI



- Horizontal or vertical PCB mounting via straight or angled solder pins
- For “board-to-board” and “board-to-wire” connections
- PCB outputs are protected against accidental contact
- Easy-to-identify inputs and outputs
- 100% protected against mismatching
- With coding fingers

Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

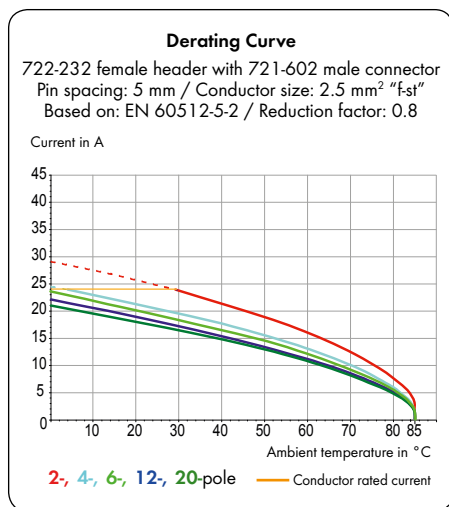
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder pin data:

Solder pin: length/width	5 mm / 0.6 x 1 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix . . . /010-000” is added to the “basic item no.”	



MCS-MIDI accessories:

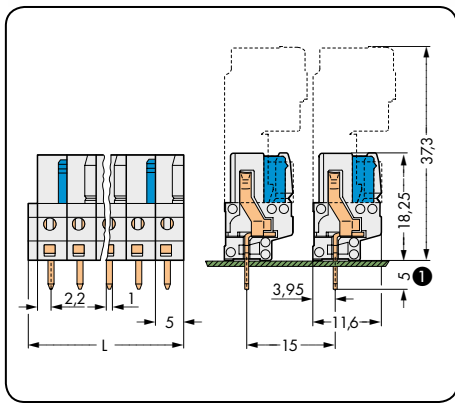
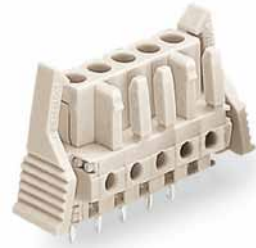
Page:

Marking accessories	540 – 543
Test plug adapter	474
Test plug	538

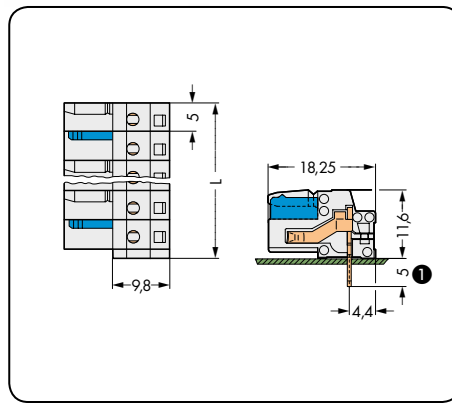
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Headers with Solder Pins MCS-MIDI

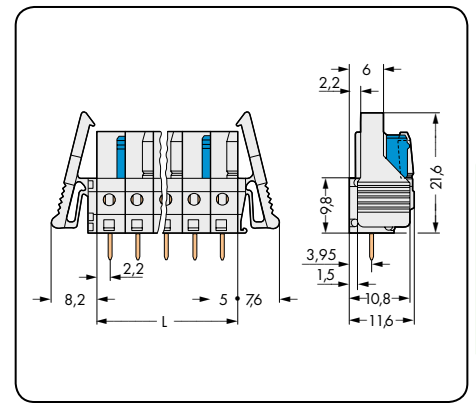
With straight solder pins Pin spacing 5 mm / 0.197 in		With angled solder pins Pin spacing 5 mm / 0.197 in		With straight solder pins and locking levers Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



L = (pole no. x pin spacing) + 1.5 mm



L = (pole no. x pin spacing) + 1.5 mm



L = pole no. x pin spacing

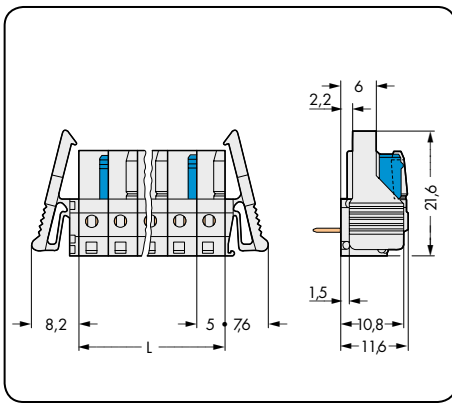
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, light gray			Female header with angled solder pins, light gray			Female header with straight solder pins and locking levers, light gray		
2	722-132	100	2	722-232	100	2	722-132/039-000	100
3	722-133	100	3	722-233	100	3	722-133/039-000	50
4	722-134	100	4	722-234	100	4	722-134/039-000	50
5	722-135	100	5	722-235	100	5	722-135/039-000	50
6	722-136	50	6	722-236	50	6	722-136/039-000	50
7	722-137	50	7	722-237	50	7	722-137/039-000	50
8	722-138	50	8	722-238	50	8	722-138/039-000	50
9	722-139	50	9	722-239	50	9	722-139/039-000	25
10	722-140	50	10	722-240	50	10	722-140/039-000	25
11	722-141	25	11	722-241	25	11	722-141/039-000	25
12	722-142	25	12	722-242	25	12	722-142/039-000	25
13	722-143	25	13	722-243	25	13	722-143/039-000	25
14	722-144	25	14	722-244	25	14	722-144/039-000	25
15	722-145	25	15	722-245	25	15	722-145/039-000	25
16	722-146	25	16	722-246	25	16	722-146/039-000	10
20	722-150	10	20	722-250	10	20	722-150/039-000	10
2-pole female headers - one latch only								

① MCS-MIDI female headers with solder pins are also available with 3.8 mm pin projection. Add or insert item no. suffix .../045-000.

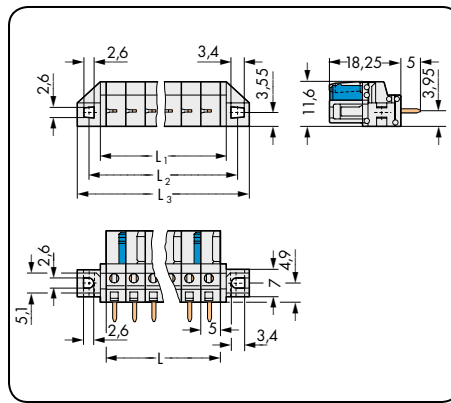
5 Female Headers with Solder Pins MCS-MIDI

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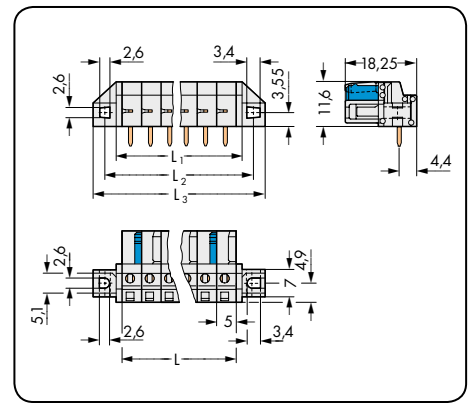
With angled solder pins and locking levers Pin spacing 5 mm / 0.197 in		With straight solder pins and fixing flanges Pin spacing 5 mm / 0.197 in		With angled solder pins and fixing flanges Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



L = pole no. x pin spacing



L = pole no. x pin spacing
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

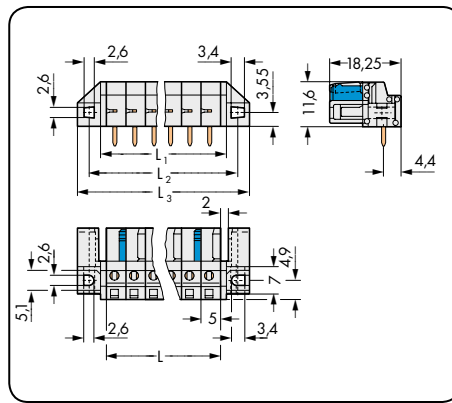
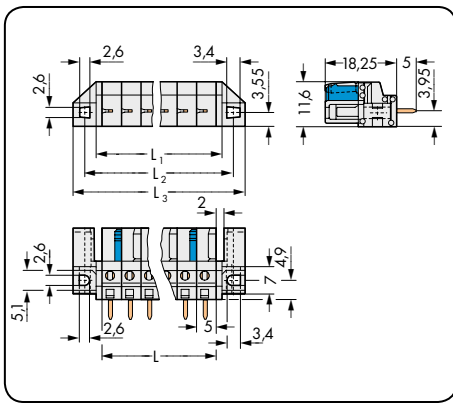
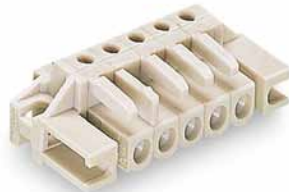
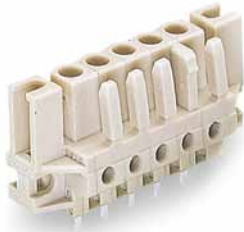


L = pole no. x pin spacing
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with angled solder pins and locking levers, light gray			Female header with straight solder pins and fixing flanges, for through-panel mounting, light gray			Female header with angled solder pins and fixing flanges, for through-panel mounting, light gray		
2	722-232/039-000	100	2	722-132/031-000	100	2	722-232/031-000	100
3	722-233/039-000	50	3	722-133/031-000	50	3	722-233/031-000	50
4	722-234/039-000	50	4	722-134/031-000	50	4	722-234/031-000	50
5	722-235/039-000	50	5	722-135/031-000	50	5	722-235/031-000	50
6	722-236/039-000	50	6	722-136/031-000	50	6	722-236/031-000	50
7	722-237/039-000	50	7	722-137/031-000	50	7	722-237/031-000	50
8	722-238/039-000	50	8	722-138/031-000	50	8	722-238/031-000	50
9	722-239/039-000	25	9	722-139/031-000	25	9	722-239/031-000	25
10	722-240/039-000	25	10	722-140/031-000	25	10	722-240/031-000	25
11	722-241/039-000	25	11	722-141/031-000	25	11	722-241/031-000	25
12	722-242/039-000	25	12	722-142/031-000	25	12	722-242/031-000	25
13	722-243/039-000	25	13	722-143/031-000	25	13	722-243/031-000	25
14	722-244/039-000	25	14	722-144/031-000	25	14	722-244/031-000	25
15	722-245/039-000	25	15	722-145/031-000	25	15	722-245/031-000	25
16	722-246/039-000	10	16	722-146/031-000	10	16	722-246/031-000	10
20	722-250/039-000	10	20	722-150/031-000	10	20	722-250/031-000	10
For cutout dimensions, see page 486, table 3.								
2-pole female headers - one latch only								

Female Headers with Solder Pins MCS-MIDI

With straight solder pins and spacers Pin spacing 5 mm / 0.197 in		With angled solder pins and spacers Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



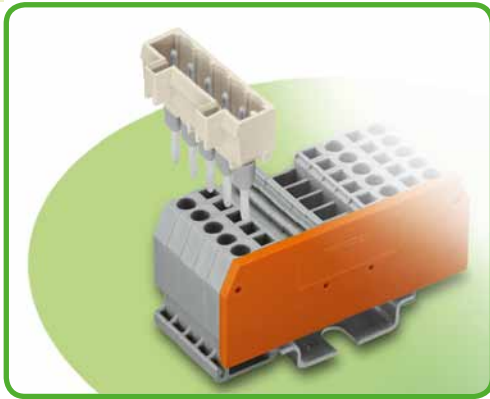
L = pole no. x pin spacing
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins and spacers, for flush panel mounting, light gray			Female header with angled solder pins and spacers, for flush panel mounting, light gray		
2	722-132/047-000	100	2	722-232/047-000	100
3	722-133/047-000	50	3	722-233/047-000	50
4	722-134/047-000	50	4	722-234/047-000	50
5	722-135/047-000	50	5	722-235/047-000	50
6	722-136/047-000	50	6	722-236/047-000	50
7	722-137/047-000	50	7	722-237/047-000	50
8	722-138/047-000	50	8	722-238/047-000	50
9	722-139/047-000	25	9	722-239/047-000	25
10	722-140/047-000	25	10	722-240/047-000	25
11	722-141/047-000	25	11	722-241/047-000	25
12	722-142/047-000	25	12	722-242/047-000	25
13	722-143/047-000	25	13	722-243/047-000	25
14	722-144/047-000	25	14	722-244/047-000	25
15	722-145/047-000	25	15	722-245/047-000	25
16	722-146/047-000	10	16	722-246/047-000	10
20	722-150/047-000	10	20	722-250/047-000	10
For cutout dimensions, see page 486, table 3.					
2-pole female headers - one latch only					

Male Connectors for Front-Entry, Rail-Mounted Terminal Blocks

Pin Spacing 5 mm

MCS-MIDI



- Connectors for rail-mounted terminal blocks with CAGE CLAMP® connection
- Male connectors with long contact pins connect to the termination ports of 280 Series rail-mounted terminal blocks
- Pins can be touched when the connector is unplugged, so power supply should be performed via terminal block (observe rated voltage!)
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	5 mm 0.197 in		
	IEC/EN 60664-1		
Rating per	III	III	II
Overtoltage category	3	2	2
Pollution degree	250 V	320 V	630 V
Rated voltage when power is supplied via male connector	50 V	50 V	50 V
Rated voltage when power is supplied via rail-mounted terminal block	4 kV	4 kV	4 kV
Rated surge voltage	16 A	16 A	16 A
Nominal current	UL/CSA		
Approvals per	B	C	D
Use group UL 1059	300 V	-	300 V
Rated voltage	15 A	-	10 A
Nominal current UL	15 A	-	10 A
Nominal current CSA	The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.		

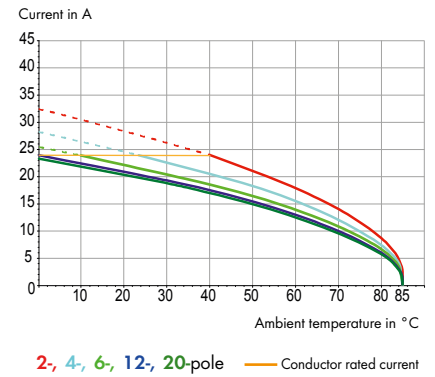
Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Derating Curve

721-102/026-000 female connector with 721-162/003-000 male connector
 Pin spacing: 5 mm / Conductor size: 2.5 mm² "F-st"
 Based on: EN 60512-5-2 / Reduction factor: 0.8



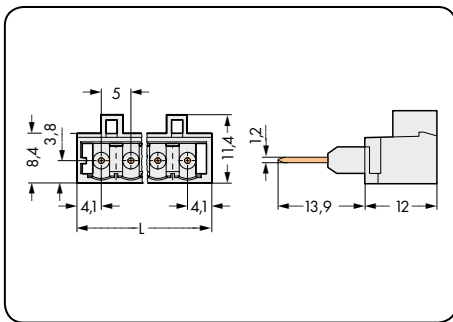
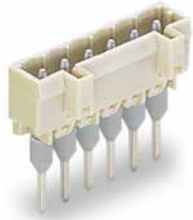
MCS-MIDI accessories:

Page:

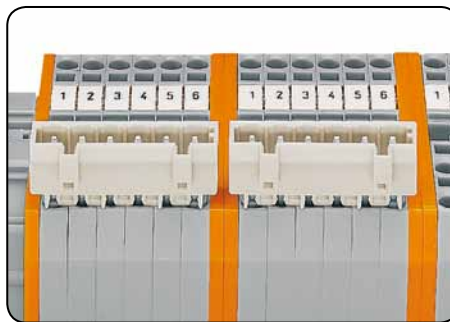
Operating tools	467
Coding keys	468

Male Connectors for Front-Entry, Rail-Mounted Terminal Blocks MCS-MIDI

<p>With 1.2 x 1.2 mm straight contact pins Pin spacing 5 mm / 0.197 in</p> <p>250 V/4 kV/3 16 A 300 V/15 A</p>	<p>Rail-mounted spacer blocks Pin spacing 5 mm / 0.197 in</p>	<p>Application example</p>
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$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



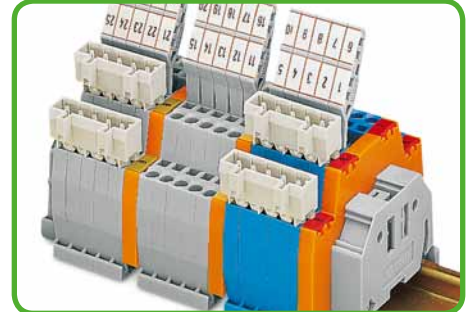
The extra width of the male connectors when used on front-entry, rail-mounted terminal blocks must be compensated for by either two intermediate plates or rail-mounted spacer block (block assembly).



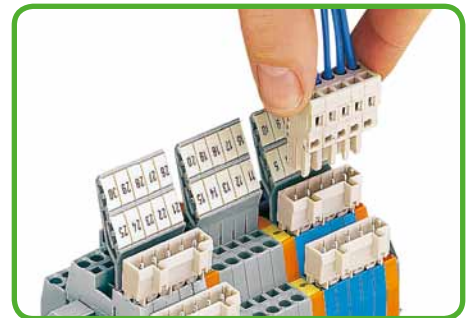
Inserting male connector via multipole operating tool.



Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector with straight, 1.2 x 1.2 mm long contact pins, light gray			Rail-mounted spacer block, same profile as through terminal blocks, orange		
			Horizontal type:		
2	721-162/003-000	200	2-conductor	280-902/056-000	100
3	721-163/003-000	200	3-conductor	280-650/056-000	100
4	721-164/003-000	200	4-conductor	280-835/056-000	100
5	721-165/003-000	200			
6	721-166/003-000	100			
7	721-167/003-000	100	Angled type:		
8	721-168/003-000	100	3/4-conductor	280-654/056-000	100
9	721-169/003-000	100			
10	721-170/003-000	100			
11	721-171/003-000	100			
12	721-172/003-000	100			
13	721-173/003-000	50			
14	721-174/003-000	50			
15	721-175/003-000	50			
16	721-176/003-000	50			
20	721-180/003-000	50			
12 to 20-pole male connectors are only suitable for factory assembly.			Spacer block can be bridged using alternate jumpers or staggered jumpers.		

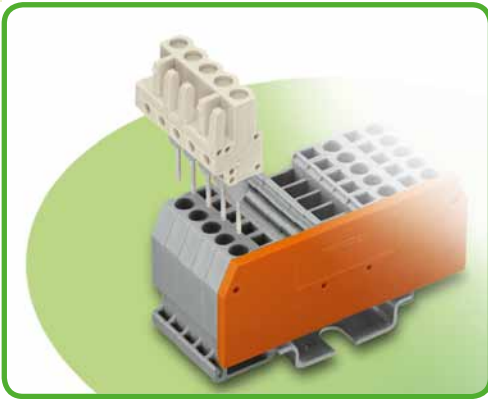


Male connectors fitted in 280 Series double-deck terminal blocks



Male connectors fitted in 280 Series double-deck terminal blocks

Female Connectors for Front-Entry, Rail-Mounted Terminal Blocks Pin Spacing 5 mm MCS-MIDI



- Connectors for rail-mounted terminal blocks with CAGE CLAMP® connection
- Female connectors with long contact pins connect to the termination ports of 280 Series rail-mounted terminal blocks
- Female connectors are touch-proof when unmated condition, providing a pluggable, live output
- 100 % protected against mismatching
- With coding fingers

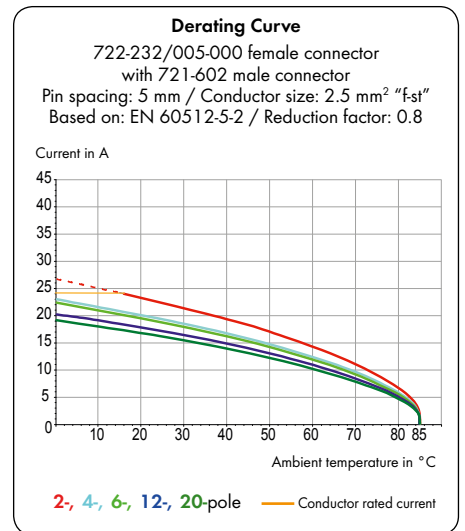
Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Contact material	Copper alloy
Contact plating	tin-plated



MCS-MIDI accessories:

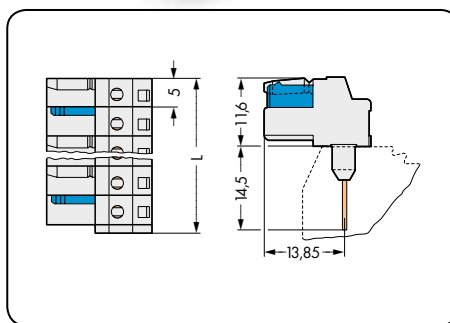
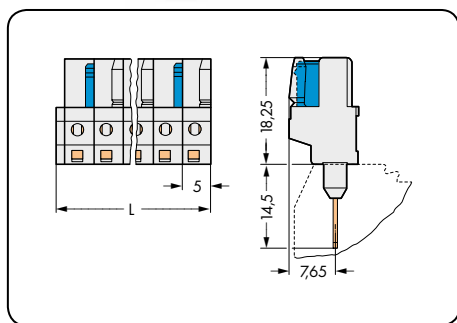
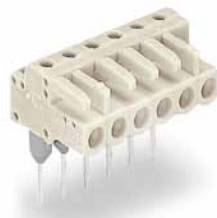
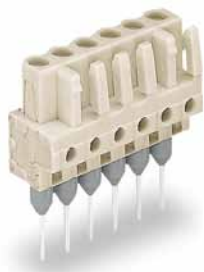
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Operating tools	467
Test plug adapter	474
Test plug	538

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors for Front-Entry, Rail-Mounted Terminal Blocks MCS-MIDI

With straight 0.6 x 1 mm contact pins Pin spacing 5 mm / 0.197 in 320 V/4 kV/3 12 A 300 V/15 A		With angled 0.6 x 1 mm contact pins Pin spacing 5 mm / 0.197 in 320 V/4 kV/3 12 A 300 V/15 A	
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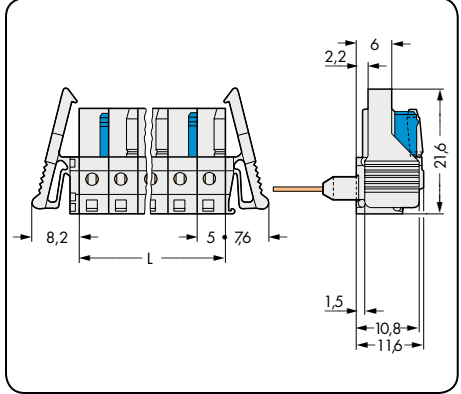
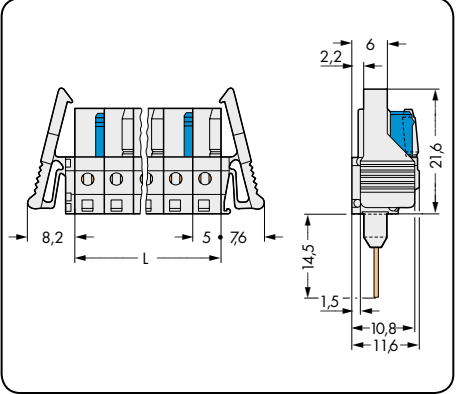
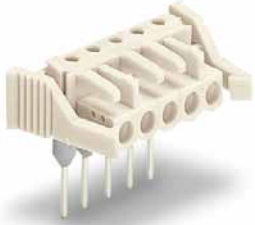
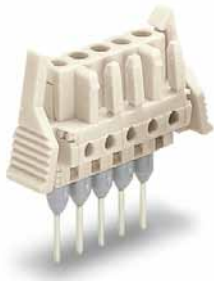
$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with straight contact pins, light gray			Female connector with angled contact pins, light gray		
2	722-132/005-000	100	2	722-232/005-000	100
3	722-133/005-000	100	3	722-233/005-000	100
4	722-134/005-000	100	4	722-234/005-000	100
5	722-135/005-000	100	5	722-235/005-000	100
6	722-136/005-000	50	6	722-236/005-000	50
7	722-137/005-000	50	7	722-237/005-000	50
8	722-138/005-000	50	8	722-238/005-000	50
9	722-139/005-000	50	9	722-239/005-000	50
10	722-140/005-000	50	10	722-240/005-000	50
11	722-141/005-000	25	11	722-241/005-000	25
12	722-142/005-000	25	12	722-242/005-000	25
13	722-143/005-000	25	12	722-243/005-000	25
14	722-144/005-000	25	14	722-244/005-000	25
15	722-145/005-000	25	15	722-245/005-000	25
16	722-146/005-000	25	16	722-246/005-000	25
20	722-150/005-000	10	20	722-250/005-000	10
2-pole female connectors - one latch only					
11 to 20-pole female connectors are only suitable for factory assembly.					

For other lengths, please contact factory.

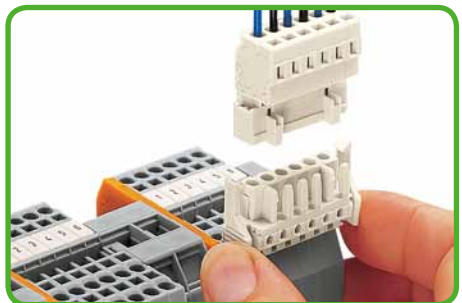
Female Connectors for Front-Entry, Rail-Mounted Terminal Blocks with Locking Levers MCS-MIDI

With straight 0.6 x 1 mm contact pins Pin spacing 5 mm / 0.197 in		With angled 0.6 x 1 mm contact pins Pin spacing 5 mm / 0.197 in	
320 V/4 kV/3 12 A	300 V/ 15 A	320 V/4 kV/3 12 A	300 V/ 15 A



L = (pole no. x pin spacing) + 1.5 mm

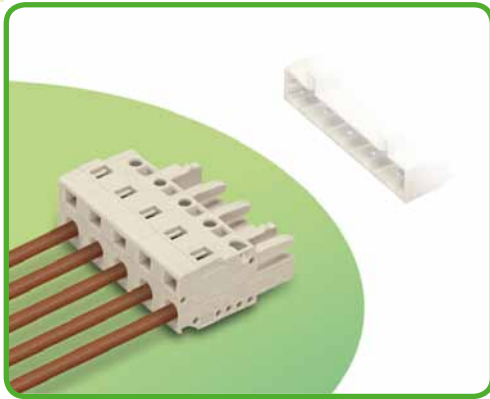
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with straight contact pins and locking levers, light gray			Female connector with angled contact pins and locking levers, light gray		
2	722-132/005-000/039-000	100	2	722-232/005-000/039-000	100
3	722-133/005-000/039-000	50	3	722-233/005-000/039-000	50
4	722-134/005-000/039-000	50	4	722-234/005-000/039-000	50
5	722-135/005-000/039-000	50	5	722-235/005-000/039-000	50
6	722-136/005-000/039-000	50	6	722-236/005-000/039-000	50
7	722-137/005-000/039-000	50	7	722-237/005-000/039-000	50
8	722-138/005-000/039-000	50	8	722-238/005-000/039-000	50
9	722-139/005-000/039-000	25	9	722-239/005-000/039-000	25
10	722-140/005-000/039-000	25	10	722-240/005-000/039-000	25
11	722-141/005-000/039-000	25	11	722-241/005-000/039-000	25
12	722-142/005-000/039-000	25	12	722-242/005-000/039-000	25
14	722-144/005-000/039-000	25	14	722-244/005-000/039-000	25
16	722-146/005-000/039-000	10	16	722-246/005-000/039-000	10
20	722-150/005-000/039-000	10	20	722-250/005-000/039-000	10
2-pole female connectors - one latch only					
11 to 20-pole female connectors are only suitable for factory assembly.					



Locking devices prevent side-mounted or top-mounted connectors from loosening when tensile forces are exerted on conductors.

To operate the locking levers, at least 20 mm space is required on either side of each connector. When fitting touch-proof female connectors on the distribution side of front-entry, rail-mounted terminal blocks, the nominal voltage shall not exceed 320 V/4 kV/3.

5 Female Connectors Pin Spacing 7.5 mm MCS-MIDI



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- Integrated test ports
- 100% protected against mismatching
- With coding fingers

Technical data:

Pin Spacing	7.5 mm 0.295 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

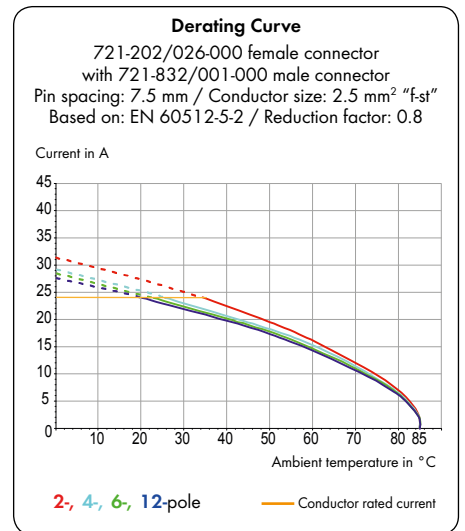
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ²	(with uninsulated ferrule)
AWG	28 - 12	12: THHN, THWN
Strip length	8 - 9 mm / 0.31 - 0.35 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix . . . /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

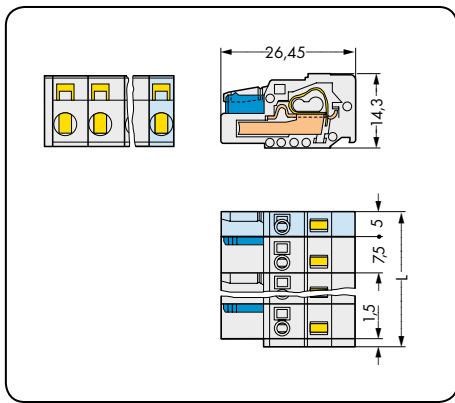
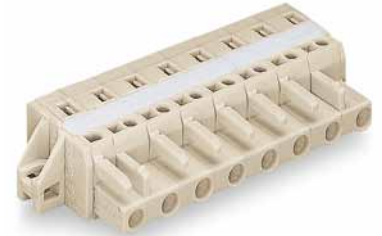
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Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	474
Test plugs	538
Screws	546
Strain relief housings	472 - 473
Strain relief plates	470 - 471

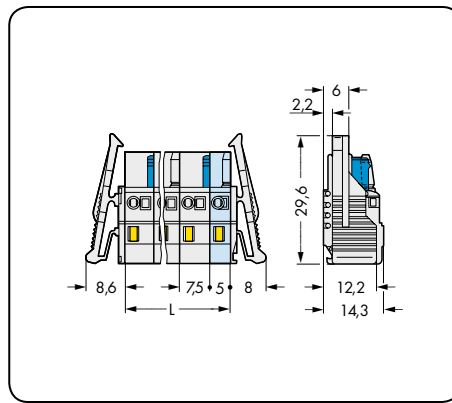
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors MCS-MIDI

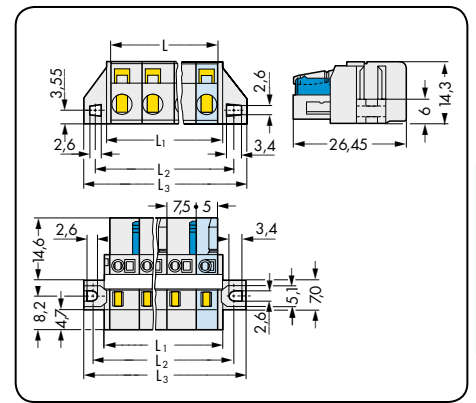
Pin spacing 7.5 mm / 0.295 in		With locking levers Pin spacing 7.5 mm / 0.295 in		With fixing flanges for racks and through-panel mounting Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/ 6kV/2 16 A	300 V/15 A	630 V/ 6kV/2 16 A	300 V/15 A	630 V/ 6kV/2 16 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$



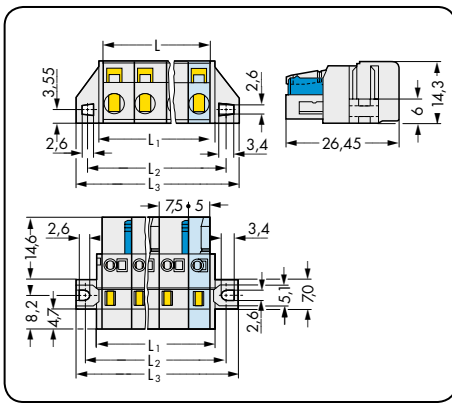
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$



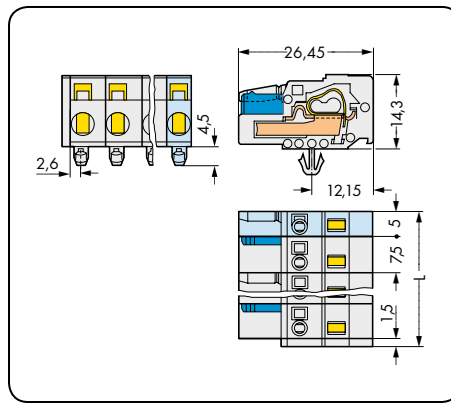
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, light gray			Female connector with locking levers, light gray			Female connector with fixing flanges, for racks and through-panel mounting, with reinforcing strips, light gray		
2	721-202/026-000	100	2	721-202/037-000	50	2	721-202/031-000	50
3	721-203/026-000	100	3	721-203/037-000	50	3	721-203/031-000	50
4	721-204/026-000	50	4	721-204/037-000	50	4	721-204/031-000	50
5	721-205/026-000	50	5	721-205/037-000	50	5	721-205/031-000	50
6	721-206/026-000	50	6	721-206/037-000	25	6	721-206/027-000	25
7	721-207/026-000	50	7	721-207/037-000	25	7	721-207/027-000	25
8	721-208/026-000	25	8	721-208/037-000	25	8	721-208/027-000	25
9	721-209/026-000	25	9	721-209/037-000	25	9	721-209/027-000	25
10	721-210/026-000	25	10	721-210/037-000	25	10	721-210/027-000	25
11	721-211/026-000	25	11	721-211/037-000	10	11	721-211/027-000	10
12	721-212/026-000	25	12	721-212/037-000	10	12	721-212/027-000	10
						Item nos. for 2- to 5-pole female connectors are identical to item nos. for panel-mounted female connectors.		
						For cutout dimensions, see page 484, table 1.		
2-pole female connectors - one latch only								

With fixing flanges for panel mounting Pin spacing 7.5 mm / 0.295 in		With snap-in mounting feet Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ² 630 V/ 6kV/2 16 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/ 6kV/2 16 A	AWG 28 - 12 300 V/15 A



L = (pole no. - 1) x pin spacing + 5 mm
 $L_1 = L + 3$ mm
 $L_2 = L + 8.8$ mm
 $L_3 = L + 14.8$ mm



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm

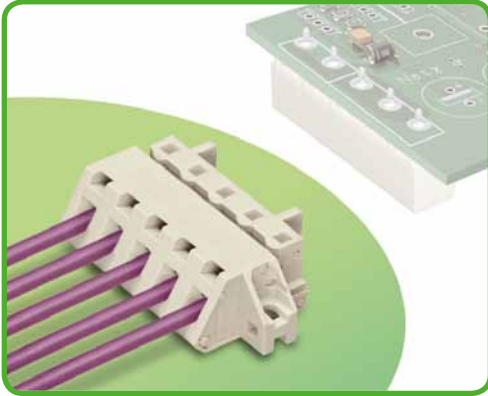
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with fixing flanges, for panel mounting, light gray			Female connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, light gray		
2	721-202/031-000	50	2	721-202/008-000	100
3	721-203/031-000	50	3	721-203/008-000	100
4	721-204/031-000	50	4	721-204/008-000	50
5	721-205/031-000	50	5	721-205/008-000	50
6	721-206/031-000	25	6	721-206/008-000	50
7	721-207/031-000	25	7	721-207/008-000	50
8	721-208/031-000	25	8	721-208/008-000	25
9	721-209/031-000	25	9	721-209/008-000	25
10	721-210/031-000	25	10	721-210/008-000	25
11	721-211/031-000	10	11	721-211/008-000	25
12	721-212/031-000	10	12	721-212/008-000	25
For cutout dimensions, see page 484, table 1.					
2-pole female connectors - one latch only					

Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Angled Female Connectors for Panel Mounting

Pin Spacing 7.5 mm

MCS-MIDI



- Universal connection for all conductor types
- Versions available with snap-in mounting feet or fixing flanges for panel or through-panel mounting
- Mounting adapter allows versions with snap-in mounting feet to be DIN-rail mounted
- Easy conductor termination, even when halves are mated
- 100% protected against mismating

Technical data:

Pin Spacing	7.5 mm 0.295 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

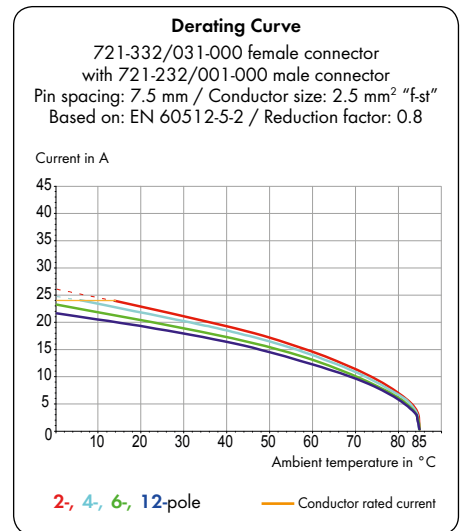
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	28 - 12	12: THHN, THWN
Strip length	7 - 8 mm / 0.28 - 0.31 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

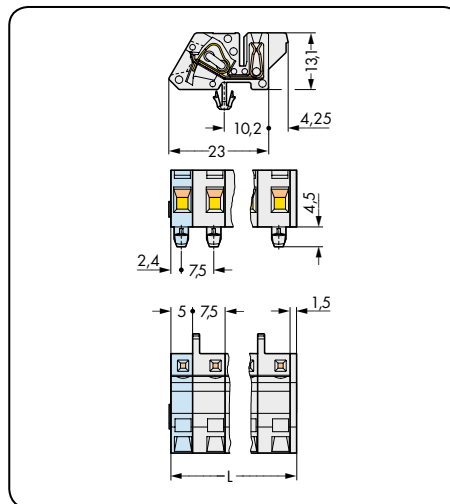
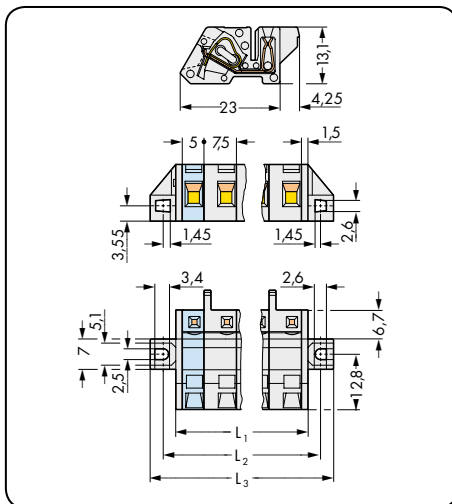
Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Test plug adapter	447
Screws	564

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Angled Female Connectors for Panel Mounting MCS-MIDI

With fixing flanges Pin spacing 7.5 mm / 0.295 in		With snap-in mounting feet Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/6 kV/2 12 A	300 V/ 15 A	630 V/6 kV/2 12 A	300 V/ 15 A



$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 3 \text{ mm}$
 $L_2 = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 8.8 \text{ mm}$
 $L_3 = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 14.8 \text{ mm}$

$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Angled female connector with fixing flanges, for panel mounting, light gray			Angled female connector with snap-in mounting feet, for panel mounting, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, light gray		
2	721-332/031-000	50	2	721-332/008-000	100
3	721-333/031-000	50	3	721-333/008-000	100
4	721-334/031-000	50	4	721-334/008-000	50
5	721-335/031-000	50	5	721-335/008-000	50
6	721-336/031-000	25	6	721-336/008-000	50
7	721-337/031-000	25	7	721-337/008-000	50
8	721-338/031-000	25	8	721-338/008-000	25
9	721-339/031-000	25	9	721-339/008-000	25
10	721-340/031-000	25	10	721-340/008-000	25
11	721-341/031-000	10	11	721-341/008-000	25
12	721-342/031-000	10	12	721-342/008-000	25
2-pole female connectors - one latch only					



Angled female connector and male header with straight solder pins used for horizontal PCB mounting in narrow housings.

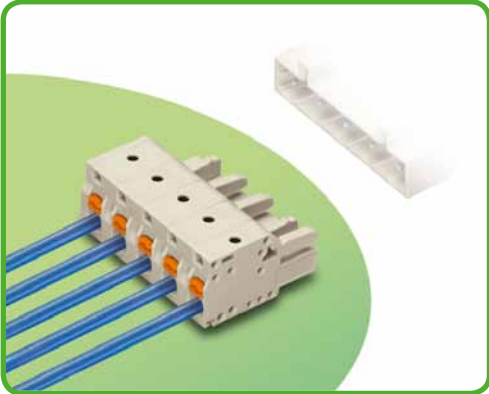
Product Accessories	Page
Mounting adapter for DIN 35 rail (209-120)	475

5 Female Connectors with Push-Buttons

Pin Spacing 7.5 mm

MCS-MIDI

340



- Universal connection for all conductor types
- Easy-to-use design does not require specialty tools
- Ability to wire while mated
- Simple, push-in terminations of solid and ferruled conductors
- Integrated test ports for testing parallel to conductor entry
- 100% protected against mismatching
- With coding fingers

Technical data:

Pin Spacing	7.5 mm 0.295 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	300 V	300 V
Nominal current UL	15 A	15 A	10 A
Nominal current CSA	15 A	15 A	10 A

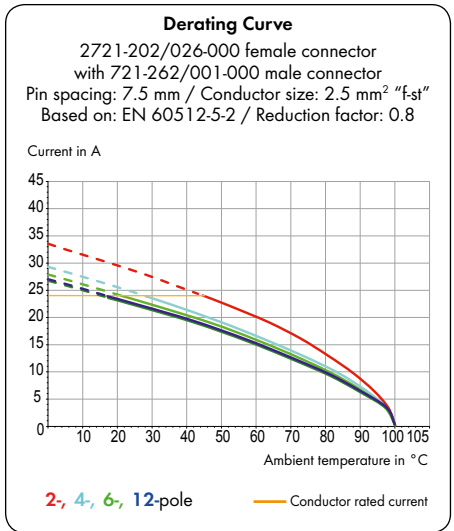
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®S	
Conductor size: solid	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	24 - 12	12: THHN, THWN
Strip length	10 - 11 mm / 0.39 - 0.43 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

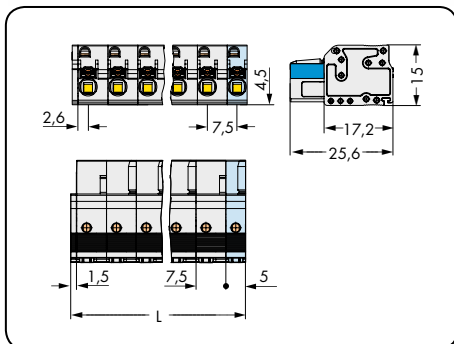
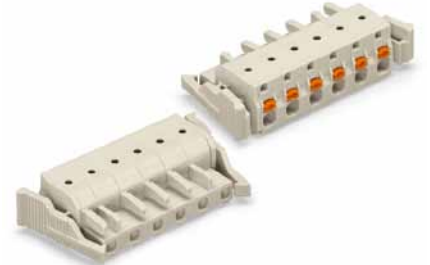
Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	447
Test plug, Ø 2 mm	538
Strain relief plates	470 - 471

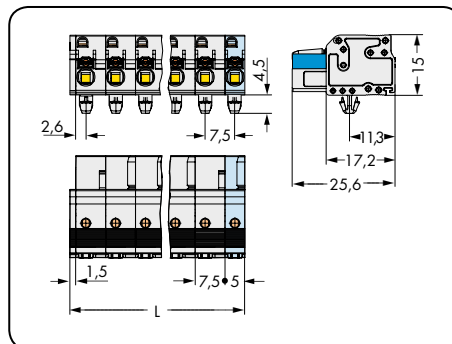
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors with Push-Buttons MCS-MIDI

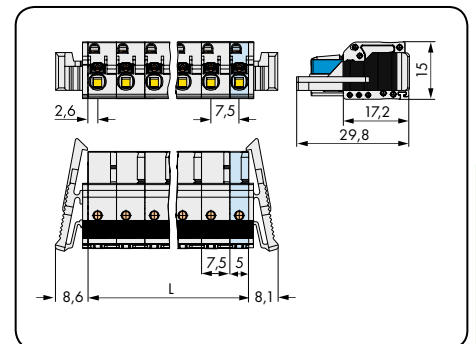
Pin spacing 7.5 mm / 0.295 in		With snap-in mounting feet Pin spacing 7.5 mm / 0.295 in		With locking levers Pin spacing 7.5 mm / 0.295 in	
0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12
630 V/ 6 kV/2 16 A	300 V/15 A	630 V/ 6 kV/2 16 A	300 V/15 A	630 V/ 6 kV/2 16 A	300 V/15 A



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



L = (pole no. - 1) x pin spacing + 5 mm

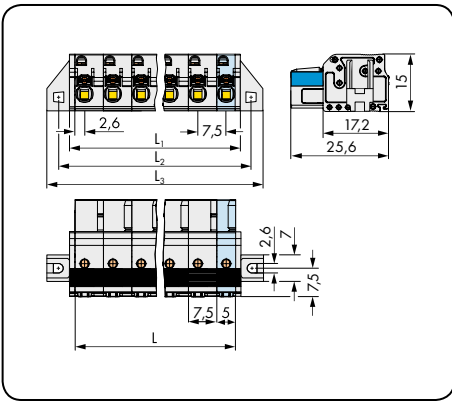
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons, light gray			Female connector with push-buttons and snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, light gray			Female connector with push-buttons and locking levers, light gray		
2	2721-202/026-000	100	2	2721-202/008-000	100	2	2721-202/037-000	50
3	2721-203/026-000	100	3	2721-203/008-000	100	3	2721-203/037-000	50
4	2721-204/026-000	50	4	2721-204/008-000	50	4	2721-204/037-000	50
5	2721-205/026-000	50	5	2721-205/008-000	50	5	2721-205/037-000	50
6	2721-206/026-000	50	6	2721-206/008-000	50	6	2721-206/037-000	25
7	2721-207/026-000	50	7	2721-207/008-000	50	7	2721-207/037-000	25
8	2721-208/026-000	25	8	2721-208/008-000	25	8	2721-208/037-000	25
9	2721-209/026-000	25	9	2721-209/008-000	25	9	2721-209/037-000	25
10	2721-210/026-000	25	10	2721-210/008-000	25	10	2721-210/037-000	25
11	2721-211/026-000	25	11	2721-211/008-000	25	11	2721-211/037-000	10
12	2721-212/026-000	25	12	2721-212/008-000	25	12	2721-212/037-000	10
2-pole female connectors - one latch only								

Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

5 Female Connectors with Push-Buttons MCS-MIDI

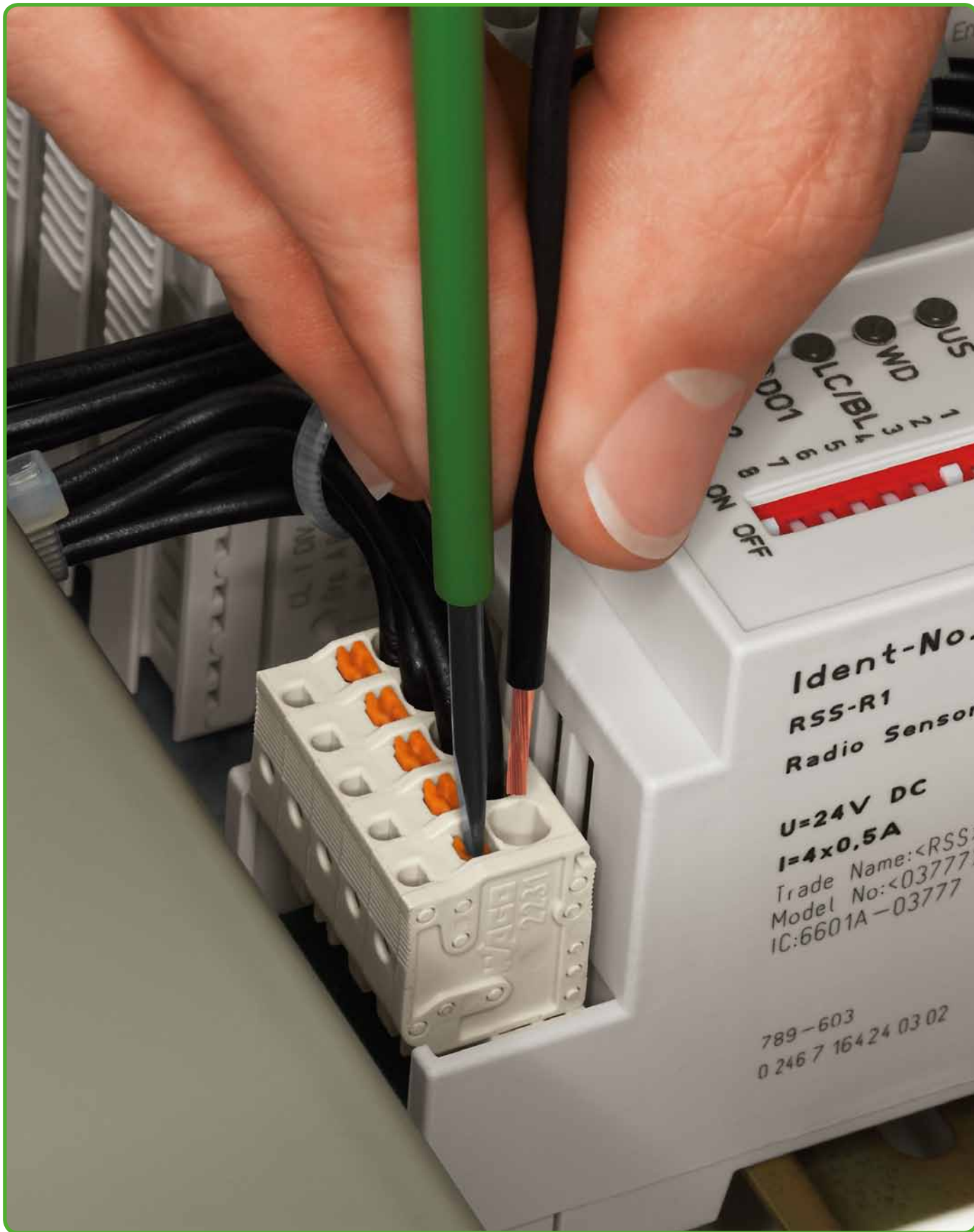
342

<p>With fixing flanges Pin spacing 7.5 mm / 0.295 in</p>		
0.2 - 2.5 mm ²	AWG 24 - 12	
630 V/6 kV/2 16 A	300 V/15 A	



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 2.8 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit
Female connector with push-buttons and fixing flanges, light gray		
2	2721-202/031-000	50
3	2721-203/031-000	50
4	2721-204/031-000	50
5	2721-205/031-000	50
6	2721-206/031-000	25
7	2721-207/031-000	25
8	2721-208/031-000	25
9	2721-209/031-000	25
10	2721-210/031-000	25
11	2721-211/031-000	10
12	2721-212/031-000	10
For cutout dimensions, see page 485, table 2.		
2-pole female connectors - one latch only		

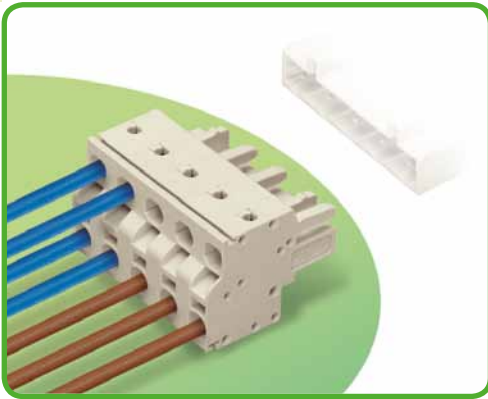


5 2-Conductor Female Connectors

Pin Spacing 7.5 mm

MCS-MIDI

344



- Universal connection for all conductor types
- Two conductor entries per pole
- For looping through power or data buses
- Bus connection is retained, even when unmated
- Simple, push-in terminations of solid and ferruled conductors
- 100% protected against mismatching
- With coding fingers

Technical data:

Pin Spacing	7.5 mm 0.295 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	20 A	-	10 A
Nominal current CSA	15 A	-	10 A

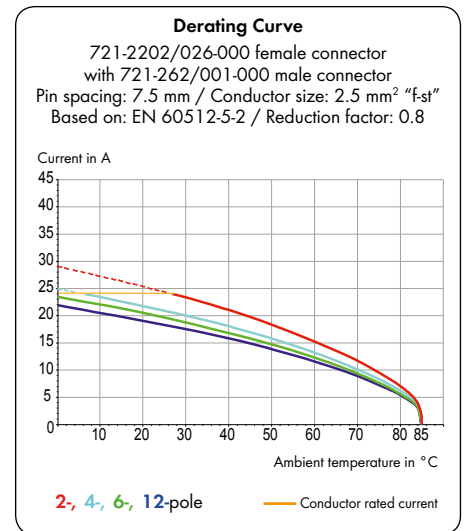
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®S	
Conductor size: solid	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	24 - 12	12: THHN, THWN
Strip length	9 - 10 mm / 0.35 - 39 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

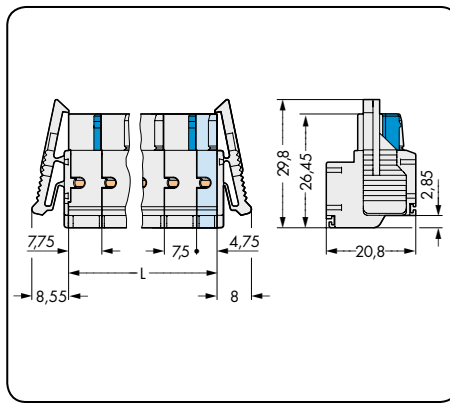
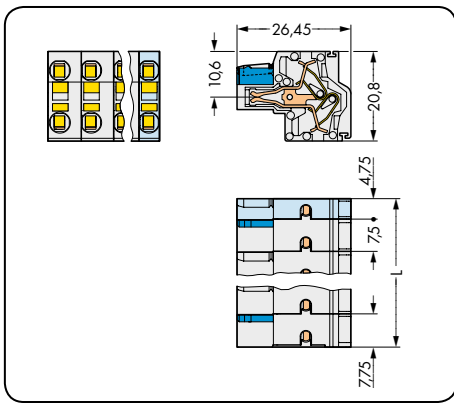
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Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	474
Test pin	538
Strain relief plates	470 - 471

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

2-Conductor Female Connectors MCS-MIDI

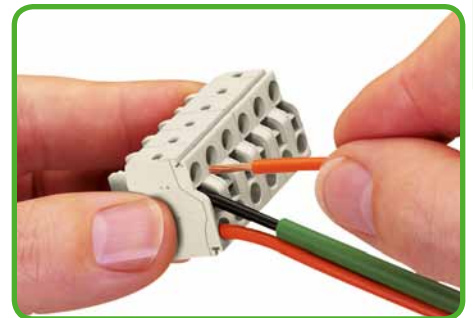
Pin spacing 7.5 mm / 0.295 in		With locking levers Pin spacing 7.5 mm / 0.295 in		Handling
0.2 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 - 12 300 V/20 A	0.2 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 - 12 300 V/20 A	



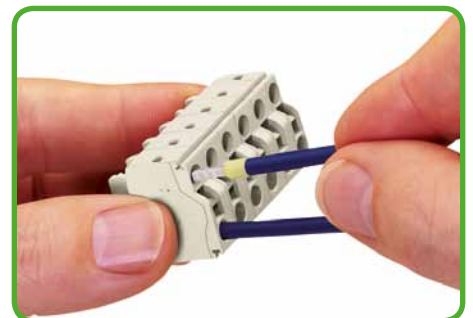
L = (pole no. - 2) x pin spacing + 12.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor female connector, light gray			2-conductor female connector with locking levers, light gray		
2	721-2202/026-000	100	2	721-2202/037-000	50
3	721-2203/026-000	100	3	721-2203/037-000	50
4	721-2204/026-000	50	4	721-2204/037-000	50
5	721-2205/026-000	50	5	721-2205/037-000	50
6	721-2206/026-000	50	6	721-2206/037-000	25
7	721-2207/026-000	50	7	721-2207/037-000	25
8	721-2208/026-000	25	8	721-2208/037-000	25
9	721-2209/026-000	25	9	721-2209/037-000	25
10	721-2210/026-000	25	10	721-2210/037-000	25
11	721-2211/026-000	25	11	721-2211/037-000	10
12	721-2212/026-000	25	12	721-2212/037-000	10
2-pole female connectors - one latch only					

Female connectors equipped with two CAGE CLAMP®S connections per pole allow conductors to be looped from one connector to another without interruption. Therefore, disconnecting one connector will not affect other connectors in the circuit. These female connectors can be mated with male headers or CAGE CLAMP®-equipped male connectors, which are 100% protected against mismatching.



Operating CAGE CLAMP®S is easy, fast and identical to that of CAGE CLAMP®. The screwdriver is fully inserted into the operating slot, holding the CAGE CLAMP®S open. After the conductor has been inserted into the clamping unit and the screwdriver been withdrawn, the conductor is clamped safely. Solid and fine-stranded conductors < 0.5 mm² are terminated and removed using a screwdriver.

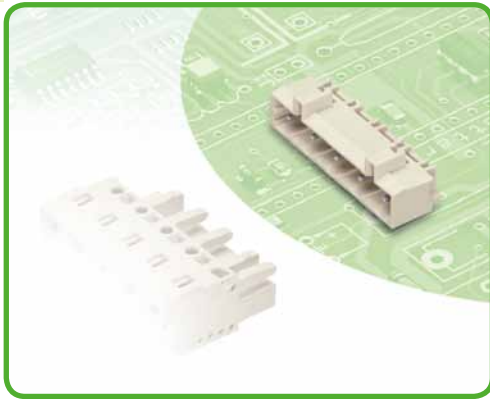


Solid conductors ≥ 0.5 mm² and ferruled, fine-stranded conductors can be terminated by simply pushing them in. Integrated test ports allow tip contact with current bar for testing via test probes in both horizontal and vertical directions.

Male Headers with Solder Pins

Pin Spacing 7.5 mm

MCS-MIDI



- Horizontal or vertical PCB mounting via straight and angled solder pins
- 1.2 x 1.2 mm solder pins allow nominal current up to 16 A, enhancing stability of shorter headers
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	7.5 mm/0.295 in Solder pins 1 x 1 mm			7.5 mm/0.295 in Solder pins 1.2 x 1.2 mm		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	15 A	-	10 A
Nominal current CSA	10 A	-	10 A	15 A	-	10 A

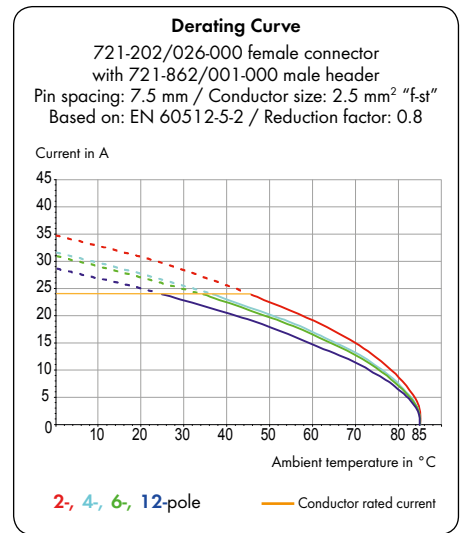
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder pin data:

Solder pin: length/width	5 mm / 1 x 1 mm (straight)
Solder pin: length/width	3.8 mm / 1 x 1 mm (angled)
Solder pin: drilled hole diameter	1.4 ^{+0.1} mm
Solder pin: length/width	5 mm / 1.2 x 1.2 mm (straight)
Solder pin: length/width	3.8 mm / 1.2 x 1.2 mm (angled)
Solder pin: drilled hole diameter	1.7 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix .../010-000" is added to the "basic item no."	



MCS-MIDI accessories:

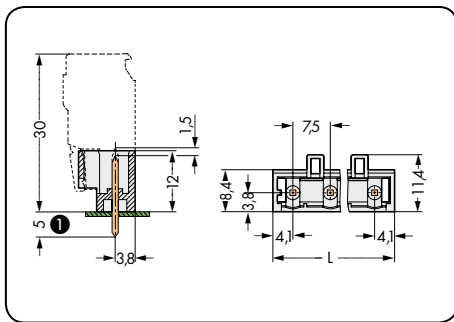
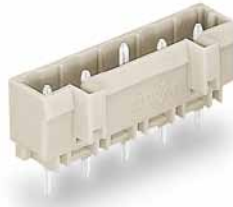
Page:

Fixing elements	469
Coding keys	468
Screws	546

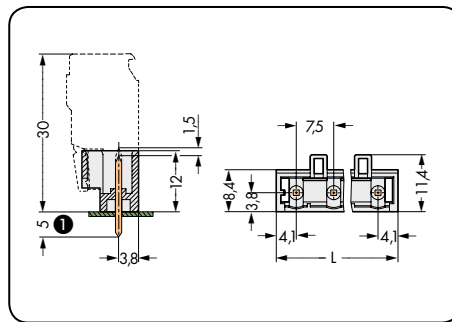
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Headers with Solder Pins MCS-MIDI

With 1 x 1 mm straight solder pins Pin spacing 7.5 mm / 0.295 in		With 1.2 x 1.2 mm straight solder pins Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/ 10 A	630 V/6 kV/2 16 A	300 V/ 15 A



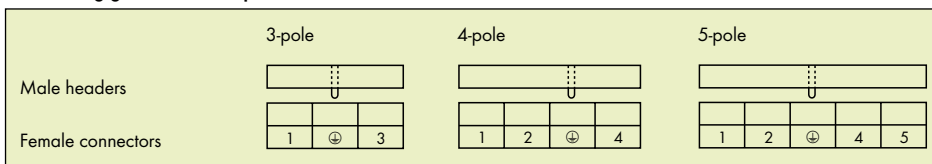
L = (pole no. - 1) x pin spacing + 8.2 mm



L = (pole no. - 1) x pin spacing + 8.2 mm

Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
Male header with 1 x 1 mm straight solder pins, light gray				Male header with 1.2 x 1.2 mm straight solder pins, light gray			
	without preceding ground contact	with preceding ground contact			without preceding ground contact	with preceding ground contact	
2	721-232/001-000		200	2	721-262/001-000		200
3	721-233/001-000	721-233/001-040	200	3	721-263/001-000	721-263/001-040	200
4	721-234/001-000	721-234/001-040	100	4	721-264/001-000	721-264/001-040	100
5	721-235/001-000	721-235/001-040	100	5	721-265/001-000	721-265/001-040	100
6	721-236/001-000		100	6	721-266/001-000		100
7	721-237/001-000		50	7	721-267/001-000		50
8	721-238/001-000		50	8	721-268/001-000		50
9	721-239/001-000		50	9	721-269/001-000		50
10	721-240/001-000		50	10	721-270/001-000		50
11	721-241/001-000		50	11	721-271/001-000		50
12	721-242/001-000		50	12	721-272/001-000		50

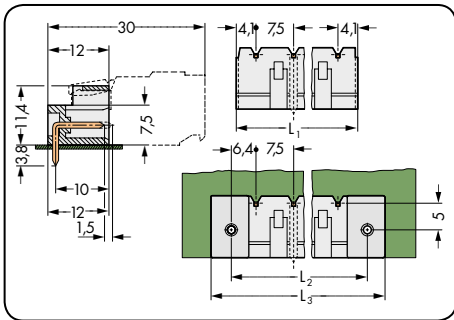
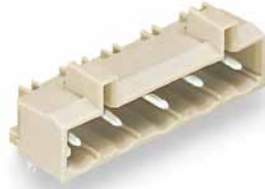
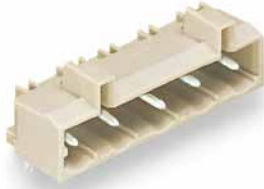
Preceding ground contact position:



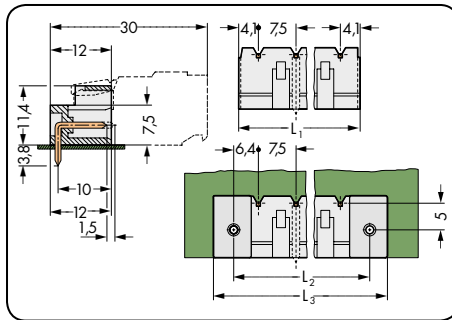
① MCS-MIDI male headers with straight solder pins are also available with 3.8 mm pin projection. Replace item no. suffix .../001-000 with .../046-000.

Male Headers with Solder Pins MCS-MIDI

With 1 x 1 mm angled solder pins Pin spacing 7.5 mm / 0.295 in		With 1.2 x 1.2 mm angled solder pins Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/ 10 A	630 V/6 kV/2 16 A	300 V/ 15 A



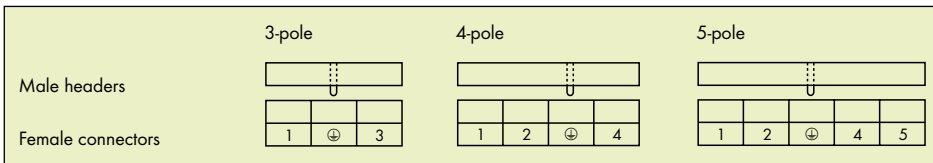
$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_2 = L_1 + 5 \text{ mm}$
 $L_3 = L_2 + 7.4 \text{ mm}$



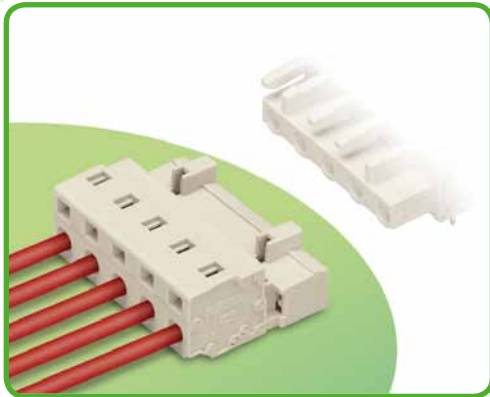
$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_2 = L_1 + 5 \text{ mm}$
 $L_3 = L_2 + 7.4 \text{ mm}$

Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
Male header with 1 x 1 mm angled solder pins, light gray				Male header with 1.2 x 1.2 mm angled solder pins, light gray			
	without preceding ground contact	with preceding ground contact			without preceding ground contact	with preceding ground contact	
2	721-832/001-000		200	2	721-862/001-000		200
3	721-833/001-000	721-833/001-040	200	3	721-863/001-000	721-863/001-040	200
4	721-834/001-000	721-834/001-040	100	4	721-864/001-000	721-864/001-040	100
5	721-835/001-000	721-835/001-040	100	5	721-865/001-000	721-865/001-040	100
6	721-836/001-000		100	6	721-866/001-000		100
7	721-837/001-000		50	7	721-867/001-000		50
8	721-838/001-000		50	8	721-868/001-000		50
9	721-839/001-000		50	9	721-869/001-000		50
10	721-840/001-000		50	10	721-870/001-000		50
11	721-841/001-000		50	11	721-871/001-000		50
12	721-842/001-000		50	12	721-872/001-000		50

Preceding ground contact position:



Male Connectors Pin Spacing 7.5 mm MCS-MIDI



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- For “wire-to-wire” and “board-to-wire” connections
- Versions available with snap-in mounting feet or fixing flanges for panel or through-panel mounting
- Optional, preceding ground contact available for 3- to 5-pole male connectors
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	7.5 mm 0.295 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

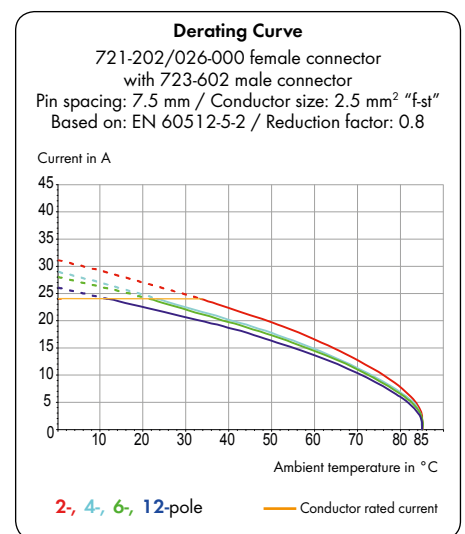
Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	28 - 12	12: THHN, THWN
Strip length	8 - 9 mm / 0.31 - 0.35 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix ... /010-000” is added to the “basic item no.”	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.



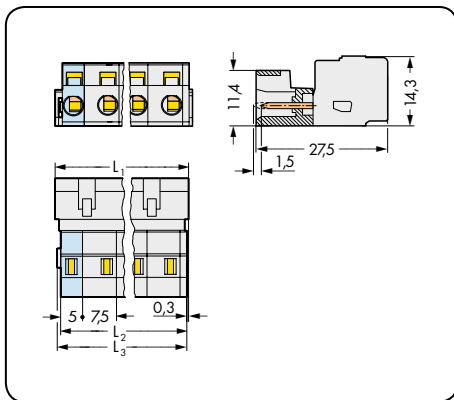
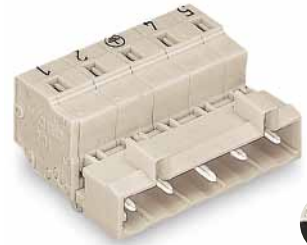
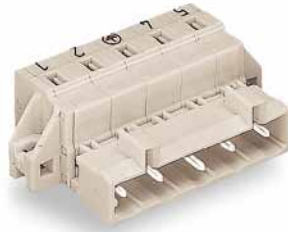
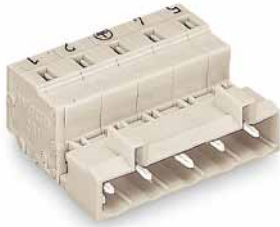
MCS-MIDI accessories:

Page:

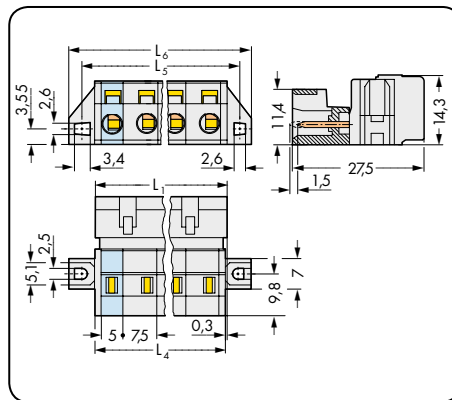
Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Coding keys	468
Screws	546
Strain relief housings	472 - 473
Strain relief plates	470 - 471

Male Connectors MCS-MIDI

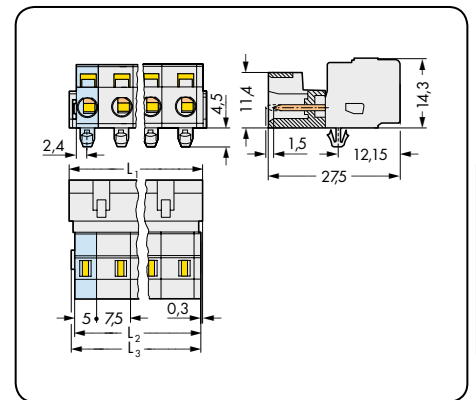
Pin spacing 7.5 mm / 0.295 in		With fixing flanges Pin spacing 7.5 mm / 0.295 in		With snap-in mounting feet Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/6 kV/2 12A	300 V/ 15 A	630 V/6 kV/2 12A	300 V/ 15 A	630 V/6 kV/2 12A	300 V/ 15 A



$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_2 = L_1 - 1.7 \text{ mm}$
 $L_3 = L_1 - 1.2 \text{ mm}$



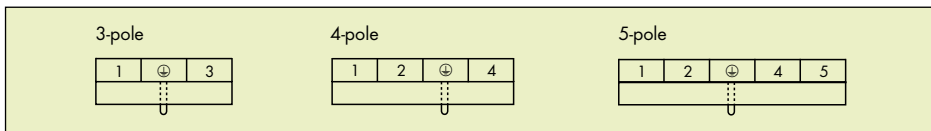
$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_4 = L_1 - 0.2 \text{ mm}$
 $L_5 = L_4 + 5.8 \text{ mm}$
 $L_6 = L_4 + 11.8 \text{ mm}$



$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_2 = L_1 - 1.7 \text{ mm}$
 $L_3 = L_1 - 1.2 \text{ mm}$

Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
Male connector, light gray				Male connector with fixing flanges, light gray				Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, light gray			
	without preceding ground contact	with preceding ground contact and printing			without preceding ground contact	with preceding ground contact and printing			without preceding ground contact	with preceding ground contact and printing	
2	723-602		100	2	723-602/019-000		50	2	723-602/018-000		100
3	723-603	723-603/000-042	100	3	723-603/019-000	723-603/019-042	50	3	723-603/018-000	723-603/018-042	100
4	723-604	723-604/000-042	50	4	723-604/019-000	723-604/019-042	50	4	723-604/018-000	723-604/018-042	50
5	723-605	723-605/000-042	50	5	723-605/019-000	723-605/019-042	50	5	723-605/018-000	723-605/018-042	50
6	723-606		50	6	723-606/019-000		25	6	723-606/018-000		50
7	723-607		50	7	723-607/019-000		25	7	723-607/018-000		50
8	723-608		25	8	723-608/019-000		25	8	723-608/018-000		25
9	723-609		25	9	723-609/019-000		25	9	723-609/018-000		25
10	723-610		25	10	723-610/019-000		25	10	723-610/018-000		25
11	723-611		25	11	723-611/019-000		10	11	723-611/018-000		25
12	723-612		25	12	723-612/019-000		10	12	723-612/018-000		25
For cutout dimensions, see page 484, table 1.											

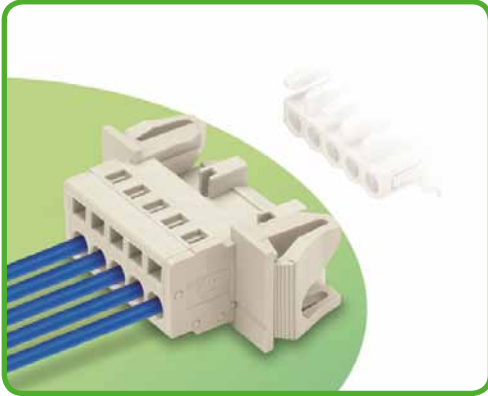
Preceding ground contact position and on-unit markings:



Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

5 Male Connectors with Snap-In Flanges Pin Spacing 7.5 mm MCS-MIDI

352



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- For “wire-to-wire” and “board-to-wire” connections
- Versions available with snap-in flanges for through-panel mounting
- Optional, preceding ground contact available for 3- to 5-pole male connectors
- 100% protected against mismatching
- With coding keys

Technical data:

Pin Spacing	7,5 mm 0.295 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

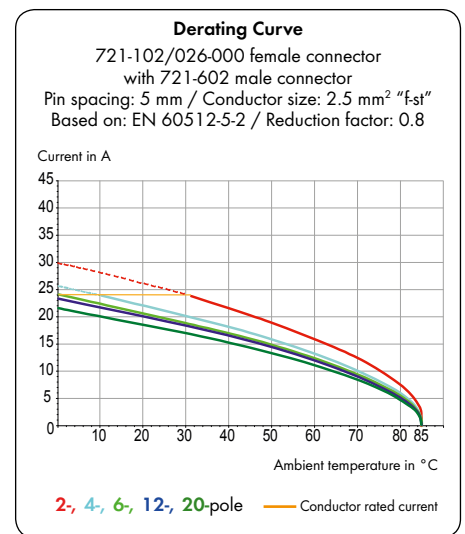
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	28 - 12	12: THHN, THWN
Strip length	8 - 9 mm / 0.31 - 0.35 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix . . . /010-000” is added to the “basic item no.”	



MCS-MIDI accessories:

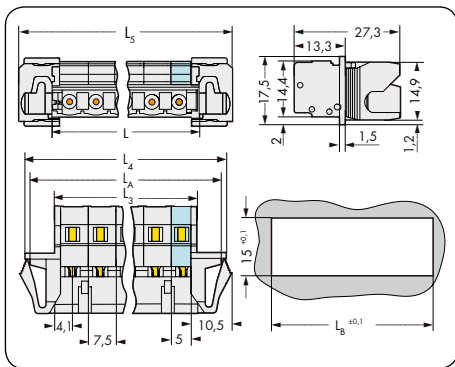
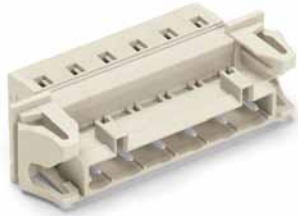
Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Coding keys	468
Strain relief housings	472 - 473
Strain relief plates	470 - 471

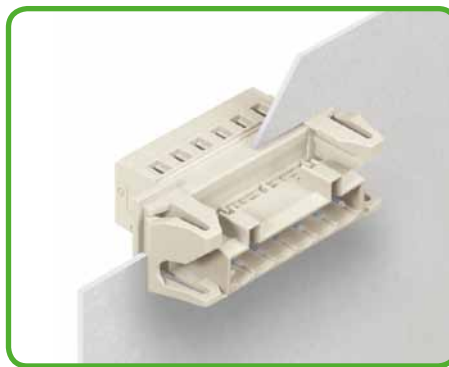
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Connectors with Snap-In Flanges MCS-MIDI

With snap-in flanges Pin spacing 7.5 mm / 0.295 in		
0.08 - 2.5 mm ² 630 V/6 kV/2 12A	AWG 28 - 12 300 V/ 15 A	



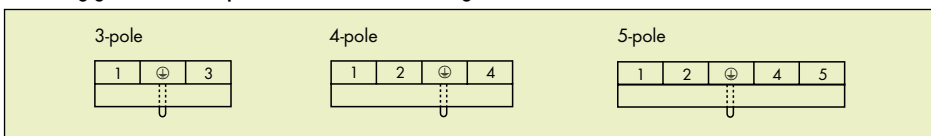
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 15.2 \text{ mm}$
 $L_5 = L_3 + 18 \text{ mm}$
 $L_A = L_3 + 12.6 \text{ mm}$
 $L_B = L_3 + 13.2 \text{ mm}$



Male connectors with snap-in flanges for feedthrough applications, for 0.5 - 2.5 mm plate thickness

Pole No.	Item No.	Item No.	Pack. Unit
Male connector with snap-in flanges, light gray			
	without preceding ground contact	with preceding ground contact and printing	
2	723-602/114-000		50
3	723-603/114-000	723-603/114-042	50
4	723-604/114-000	723-604/114-042	50
5	723-605/114-000	723-605/114-042	25
6	723-606/114-000		25
7	723-607/114-000		25
8	723-608/114-000		25
9	723-609/114-000		25
10	723-610/114-000		10
11	723-611/114-000		10
12	723-612/114-000		10

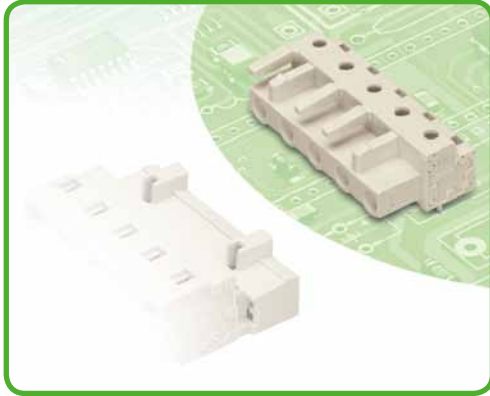
Preceding ground contact position and on-unit markings:



Female Headers with Solder Pins

Pin Spacing 7.5 mm

MCS-MIDI



- Horizontal or vertical PCB mounting via straight and angled solder pins
- For “board-to-board” and “board-to-wire” connections
- Touch-proof PCB outputs
- Easy-to-identify PCB inputs and outputs
- 100% protected against mismatching
- With coding fingers

Technical data:

Pin Spacing	7.5 mm 0.295 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

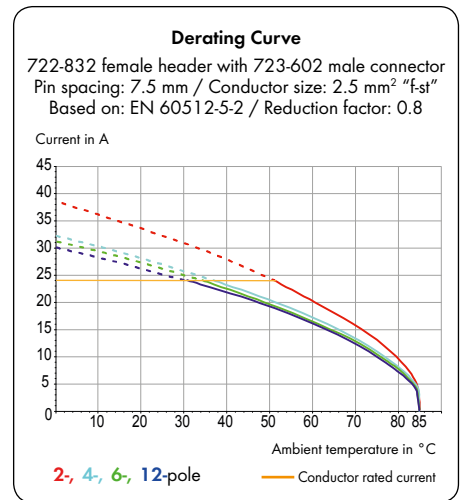
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder pin data:

Solder pin: length/width	5 mm / 0.6 x 1 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Contact material	Copper alloy
Contact plating	tin-plated



MCS-MIDI accessories:

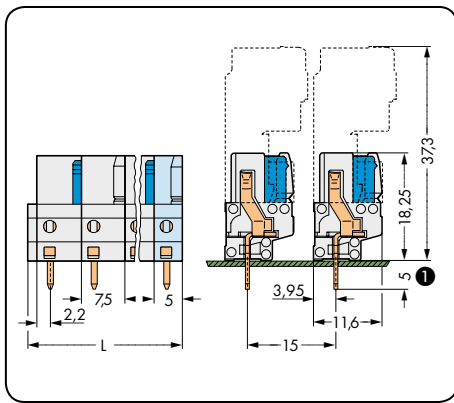
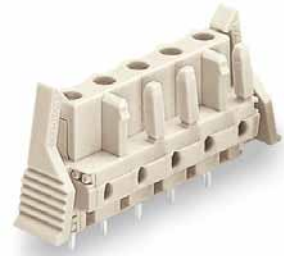
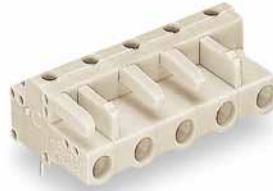
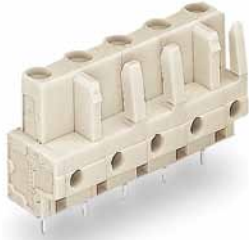
Page:

Marking accessories	540 - 543
Test plug adapter	474
Test plugs	538

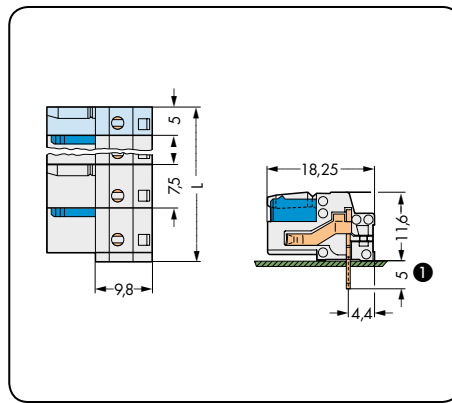
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Headers with Solder Pins MCS-MIDI

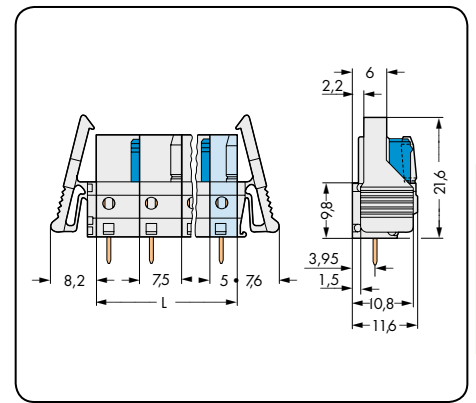
With straight solder pins Pin spacing 7.5 mm / 0.295 in		With angled solder pins Pin spacing 7.5 mm / 0.295 in		With straight solder pins and locking levers Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/ 15 A	630 V/6 kV/2 12 A	300 V/ 15 A	630 V/6 kV/2 12 A	300 V/ 15 A



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm



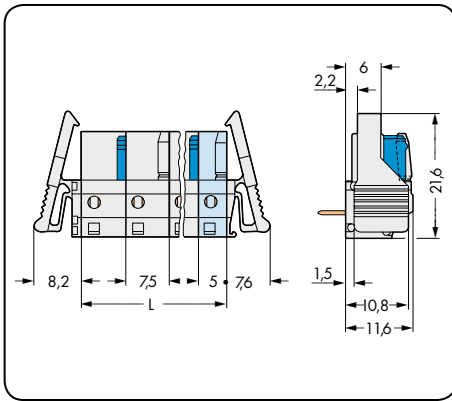
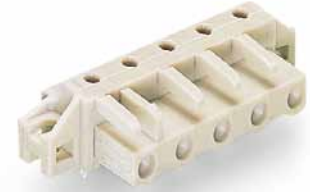
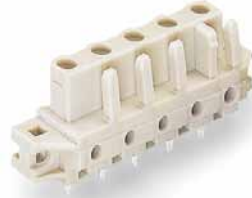
L = (pole no. - 1) x pin spacing + 5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, light gray			Female header with angled solder pins, light gray			Female header with straight solder pins and locking levers, light gray		
2	722-732	100	2	722-832	100	2	722-732/039-000	50
3	722-733	100	3	722-833	100	3	722-733/039-000	50
4	722-734	50	4	722-834	50	4	722-734/039-000	50
5	722-735	50	5	722-835	50	5	722-735/039-000	50
6	722-736	50	6	722-836	50	6	722-736/039-000	25
7	722-737	50	7	722-837	50	7	722-737/039-000	25
8	722-738	25	8	722-838	25	8	722-738/039-000	25
9	722-739	25	9	722-839	25	9	722-739/039-000	25
10	722-740	25	10	722-840	25	10	722-740/039-000	25
11	722-741	25	11	722-841	25	11	722-741/039-000	10
12	722-742	25	12	722-842	25	12	722-742/039-000	10
2-pole female headers - one latch only								

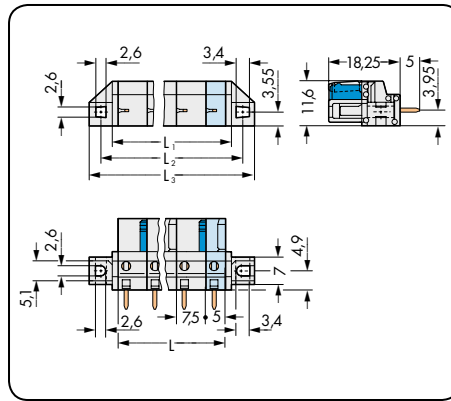
❶ MCS-MIDI female headers with solder pins are also available with 3.8 mm pin projection. Add or insert **item no. suffix** .../045-000.

Female Headers with Solder Pins MCS-MIDI

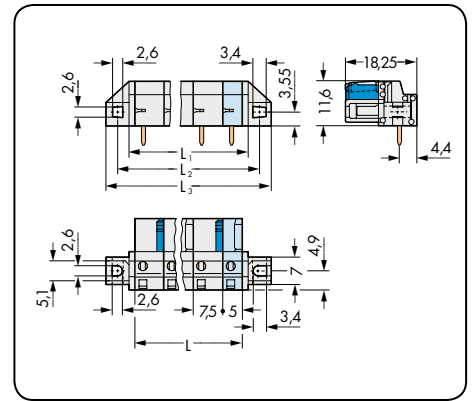
With angled solder pins and locking levers Pin spacing 7.5 mm / 0.295 in		With straight solder pins and fixing flanges Pin spacing 7.5 mm / 0.295 in		With angled solder pins and fixing flanges Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/ 15 A	630 V/6 kV/2 12 A	300 V/ 15 A	630 V/6 kV/2 12 A	300 V/ 15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

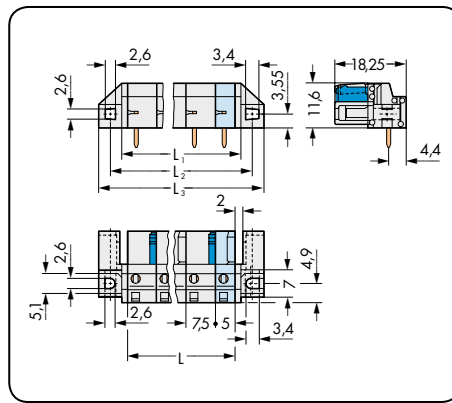
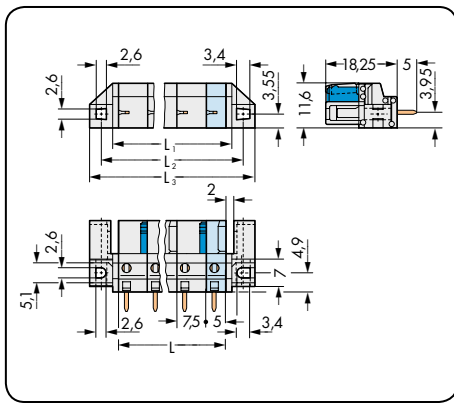
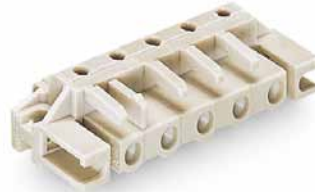
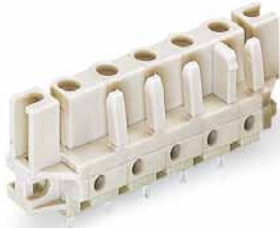


$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with angled solder pins and locking levers, light gray			Female header with straight solder pins and fixing flanges, for through-panel mounting, light gray			Female header with angled solder pins and fixing flanges, for through-panel mounting, light gray		
2	722-832/039-000	50	2	722-732/031-000	50	2	722-832/031-000	50
3	722-833/039-000	50	3	722-733/031-000	50	3	722-833/031-000	50
4	722-834/039-000	50	4	722-734/031-000	50	4	722-834/031-000	50
5	722-835/039-000	50	5	722-735/031-000	50	5	722-835/031-000	50
6	722-836/039-000	25	6	722-736/031-000	25	6	722-836/031-000	25
7	722-837/039-000	25	7	722-737/031-000	25	7	722-837/031-000	25
8	722-838/039-000	25	8	722-738/031-000	25	8	722-838/031-000	25
9	722-839/039-000	25	9	722-739/031-000	25	9	722-839/031-000	25
10	722-840/039-000	25	10	722-740/031-000	25	10	722-840/031-000	25
11	722-841/039-000	10	11	722-741/031-000	10	11	722-841/031-000	10
12	722-842/039-000	10	12	722-742/031-000	10	12	722-842/031-000	10
For cutout dimensions, see page 486, table 3.								
2-pole female headers - one latch only								

Female Headers with Solder Pins MCS-MIDI

With straight solder pins and spacers Pin spacing 7.5 mm / 0.295 in		With angled solder pins and spacers Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/ 15 A	630 V/6 kV/2 12 A	300 V/ 15 A



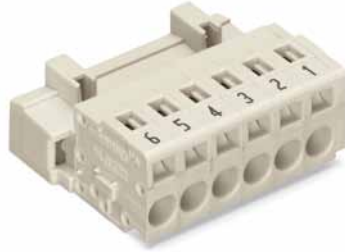
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins and spacers, for flush mounting, light gray			Female header with angled solder pins and spacers, for flush mounting, light gray		
2	722-732/047-000	50	2	722-832/047-000	50
3	722-733/047-000	50	3	722-833/047-000	50
4	722-734/047-000	50	4	722-834/047-000	50
5	722-735/047-000	50	5	722-835/047-000	50
6	722-736/047-000	25	6	722-836/047-000	25
7	722-737/047-000	25	7	722-837/047-000	25
8	722-738/047-000	25	8	722-838/047-000	25
9	722-739/047-000	25	9	722-839/047-000	25
10	722-740/047-000	25	10	722-840/047-000	25
11	722-741/047-000	10	11	722-841/047-000	10
12	722-742/047-000	10	12	722-842/047-000	10
For cutout dimensions, see page 486, table 3.					
2-pole female headers - one latch only					

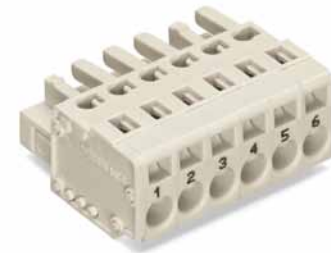
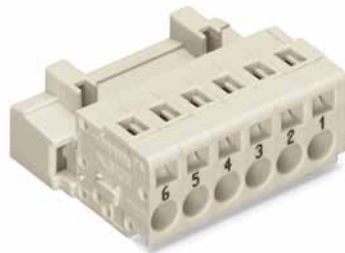
For other lengths, please contact factory.

Accessories Marking MCS-MIDI

<p>Direct marking</p> <p>of male and female connectors for conductor termination</p> <p>Pin spacing 5/5.08/7.5/7.62 mm</p>	<p>Direct marking Pole no. – 1</p> <p>of male connectors for conductor termination</p> <p>Pin spacing 5/5.08/7.5/7.62 mm</p>	<p>Direct marking 1 – pole no.</p> <p>of female connectors for conductor termination</p> <p>Pin spacing 5/5.08/7.5/7.62 mm</p>
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<p>Marking MCS-MIDI Classic and MCS-MIDI with Protection Against Mismatching</p>	<p>Marking Perpendicular to Conductor Entry Item No. Suffix: /...-044</p>	<p>Marking Perpendicular to Conductor Entry Item No. Suffix: /...-047</p>
<p>Male and female connectors for conductor termination can be marked with "1 – pole no." via factory direct printing.</p> <p>Two standard marking orientations are available:</p> <ol style="list-style-type: none"> 1. Marking perpendicular to conductor entry 2. Marking parallel to conductor entry <p>Other custom marking options are available upon request.</p> <p>Direct marking is not suitable for MCS male headers with solder pins. WAGO recommends PCB pole marking for these headers.</p> <p>Female headers with solder pins are exposed to aggressive flux agents during wave soldering. Select direct marking procedures are available upon request for these items.</p> <p>The marking type is always defined by the second 4-digit block of the item no. suffix for items with standard colors and materials. Example: 721-106/...-xxxx xxxx = Item no. suffix for factory direct marking</p>	<p style="text-align: center;">Ordering examples:</p> <p>Male connector, 5 mm pin spacing, 6-pole, light gray 721-606/000-044</p> <p>Male connector with fixing flanges, 5 mm pin spacing, 6-pole, light gray 721-606/019-044</p> <p>Male connector with fixing flanges and strain relief plate, 5 mm pin spacing, 6-pole, light gray 721-606/019-044/034-000</p>	<p style="text-align: center;">Ordering examples:</p> <p>Female connector, 5 mm pin spacing, 6-pole, light gray 721-106/026-047</p> <p>Female connector with locking levers, 5 mm pin spacing, 6-pole, light gray 721-106/037-047</p> <p>Female connector with strain relief plate, 5 mm pin spacing, 6-pole, light gray 721-106/026-047/034-000</p> <p>Female connector with locking levers and strain relief plate, 5 mm pin spacing, 6-pole, light gray 721-106/037-047/034-000</p>



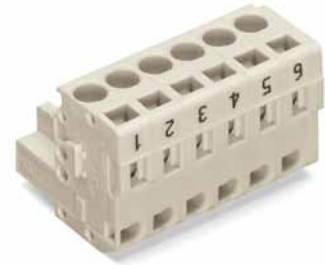
<p>Marking Parallel to Conductor Entry Item No. Suffix: /...-9034</p>	<p>Marking Parallel to Conductor Entry Item No. Suffix: /...-9037</p>
<p style="text-align: center;">Ordering examples:</p> <p>Male connector, 5 mm pin spacing, 6-pole, light gray 721-606/000-9034</p> <p>Male connector with fixing flanges, 5 mm pin spacing, 6-pole, light gray 721-606/019-9034</p> <p>Male connector with fixing flanges and strain relief plate, 5 mm pin spacing, 6-pole, light gray 721-606/019-9034/034-000</p>	<p style="text-align: center;">Ordering examples:</p> <p>Female connector, 5 mm pin spacing, 6-pole, light gray 721-106/026-9037</p> <p>Female connector with locking levers, 5 mm pin spacing, 6-pole, light gray 721-106/037-9037</p> <p>Female connector with strain relief plate, 5 mm pin spacing, 6-pole, light gray 721-106/026-9037/034-000</p> <p>Female connector with locking levers and strain relief plate, 3.5 mm pin spacing, 6-pole, light gray 721-106/037-9037/034-000</p>

Accessories

Marking

MCS-MIDI

<p>Direct marking 1 – pole no.</p> <p>of female connectors with push-buttons for conductor termination</p> <p>Pin spacing 5/5.08/7.5/7.62 mm</p>	<p>Direct marking 1 – pole no.</p> <p>of 2-conductor female connectors for conductor termination</p> <p>Pin spacing 5/5.08/7.5/7.62 mm</p>	<p>Direct marking 1 – pole no.</p> <p>of angled female connectors for conductor termination</p> <p>Pin spacing 5/5.08/7.5/7.62 mm</p>
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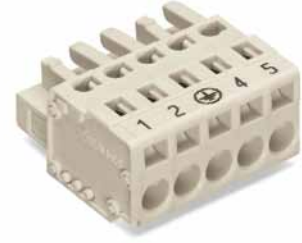
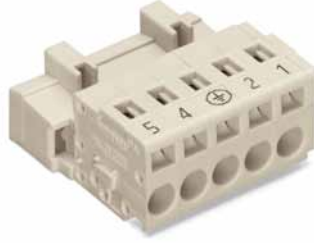
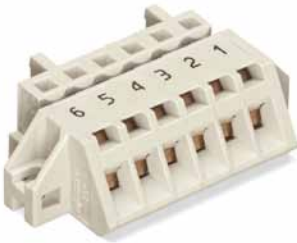
Marking Perpendicular to Conductor Entry Item No. Suffix: /... - 047	Marking Perpendicular to Conductor Entry Item No. Suffix: /... - 047	Marking Perpendicular to Conductor Entry Item No. Suffix: /... - 047
<p>Ordering examples:</p> <p>Female connector with push-buttons, 5 mm pin spacing, 6-pole, light gray 2721-106/026-047</p>	<p>Ordering examples:</p> <p>2-conductor female connector, 5 mm pin spacing, 6-pole, light gray 721-2106/026-047</p>	<p>Ordering examples:</p> <p>Angled female connector, 5 mm pin spacing, 6-pole, light gray 722-206/026-047</p>
<p>Female connector with push-buttons and locking levers, 5 mm pin spacing, 6-pole, light gray 2721-106/037-047</p>	<p>2-conductor female connector with locking levers, 5 mm pin spacing, 6-pole, light gray 721-2106/037-047</p>	<p>Angled female connector with strain relief plate, 5 mm pin spacing, 6-pole, light gray 722-206/026-047/034-000</p>
<p>Female connector with push-buttons and strain relief plate, 5 mm pin spacing, 6-pole, light gray 721-106/026-0047/0134-000</p>	<p>2-conductor female connector with strain relief plate, 5 mm pin spacing, 6-pole, light gray 721-2106/026-047/134-000</p>	
<p>Female connector with push-buttons, locking levers and strain relief plate, 5 mm pin spacing, 6-pole, light gray 2721-106/037-0047/0134-000</p>		



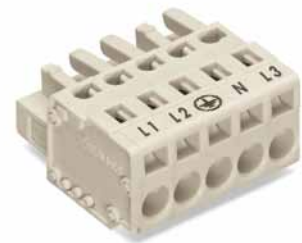
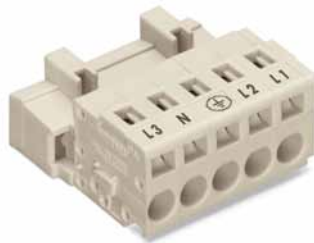
Marking Parallel to Conductor Entry Item No. Suffix: /... - 9037	Marking Parallel to Conductor Entry Item No. Suffix: /... - 9037	Marking Parallel to Conductor Entry Item No. Suffix: /... - 9037
<p>Ordering examples:</p> <p>Female connector with push-buttons, 5 mm pin spacing, 6-pole, light gray 2721-106/026-9037</p>	<p>Ordering examples:</p> <p>2-conductor female connector, 5 mm pin spacing, 6-pole, light gray 721-2106/026-9037</p>	<p>Ordering examples:</p> <p>Angled female connector, 5 mm pin spacing, 6-pole, light gray 722-206/026-9037</p>
<p>Female connector with push-buttons and locking levers, 5 mm pin spacing, 6-pole, light gray 2721-106/037-9037</p>	<p>2-conductor female connector with locking levers, 5 mm pin spacing, 6-pole, light gray 721-2106/037-9037</p>	<p>Angled female connector with strain relief plate, 5 mm pin spacing, 6-pole, light gray 722-206/026-9037/034-000</p>
<p>Female connector with push-buttons and strain relief plate, 5 mm pin spacing, 6-pole, light gray 2721-106/026-9037/134-000</p>	<p>2-conductor female connector with strain relief plate, 5 mm pin spacing, 6-pole, light gray 721-2106/026-9037/134-000</p>	
<p>Female connector with push-buttons, locking levers and strain relief plate, 5 mm pin spacing, 6-pole, light gray 2721-106/037-9037/134-000</p>		

Accessories Marking MCS-MIDI

<p>Direct marking 1 – pole no.</p> <p>of angled female connectors for panel mounting</p> <p>Pin spacing 5/7.5 mm</p>	<p>Direct marking Pole assignment</p> <p>of 3- to 5-pole male connectors for conductor termination with preceding ground contact</p> <p>100% protected against mismatching</p>	<p>Direct marking Pole assignment</p> <p>of 3- to 5-pole female connectors for conductor termination, suitable for male connectors with preceding ground contact</p> <p>100% protected against mismatching</p>
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<p>Marking Perpendicular to Conductor Entry Item No. Suffix: /... - 047</p>	<p>Marking Perpendicular to Conductor Entry</p>	<p>Marking Perpendicular to Conductor Entry</p>
<p>Ordering examples:</p> <p>Angled female connector with fixing flanges, for panel mounting, 5 mm pin spacing, 6-pole, light gray 721-306/031-047</p> <p>Angled female connector with snap-in mounting feet for panel mounting 5 mm pin spacing, 6-pole, gray 721-306/008-047</p>	<p>721 and 723 Series male connectors in 3- to 5-pole versions are available with the following markings:</p> <p>3-pole: 3 - ⊕ - 1 4-pole: 4 - ⊕ - 2 - 1 5-pole: 5 - 4 - ⊕ - 2 - 1</p> <p>Item no. suffix: ... / ... -042</p>	<p>721, 2721, 722 and 723 Series female connectors in 3- to 5-pole versions, suitable for male connectors with preceding ground contact, are available with the following markings:</p> <p>3-pole: 1 - ⊕ - 3 4-pole: 1 - 2 - ⊕ - 4 5-pole: 1 - 2 - ⊕ - 4 - 5</p> <p>Item no. suffix: ... / ... -045</p>
	<p>Ordering example:</p> <p>Male connector, 5 mm pin spacing, 5-pole, light gray 721-605/000-042</p>	<p>Ordering example:</p> <p>Female connector, 5 mm pin spacing, 5-pole, light gray 721-105/026-045</p>



<p>Marking Parallel to Conductor Entry Item No. Suffix: /... - 9037</p>	<p>Marking Perpendicular to Conductor Entry</p>	<p>Marking Perpendicular to Conductor Entry</p>
<p>Ordering examples:</p> <p>Angled female connector with fixing flanges for panel mounting 5 mm pin spacing, 6-pole, light gray 721-306/031-9037</p> <p>Angled female connector with snap-in mounting feet, for panel mounting 5 mm pin spacing, 6-pole, gray 721-306/008-9037</p>	<p>3-pole: N - ⊕ - L 1 4-pole: L 2 - ⊕ - N - L 1 5-pole: L 3 - N - ⊕ - L 2 - L 1</p> <p>Item no. suffix: ... / ... -041</p>	<p>3-pole: L 1 - ⊕ - N 4-pole: L 1 - N - ⊕ - L 2 5-pole: L 1 - L 2 - ⊕ - N - L 3</p> <p>Item no. suffix: ... / ... -046</p>
	<p>Ordering example:</p> <p>Male connector with snap-in mounting feet, 7.5 mm pin spacing, 5-pole, light gray 723-605/018-041</p>	<p>Ordering example:</p> <p>Female connector, 7.5 mm pin spacing, 5-pole, light gray 721-202/026-046</p>
	<p>“Pole no. – 1” marking with preceding ground contact Item no. suffix: ... / ... -043</p> <p>Without marking with preceding ground contact Item no. suffix: ... / ... -040</p>	<p>“1 – pole no.” marking Item no. suffix: ... / ... -047</p>

Connection Technologies for

MCS – MULTI CONNECTION SYSTEM MIDI Classic 2.5 mm²

CAGE CLAMP®

The universal connection for solid, stranded and fine-stranded conductors.

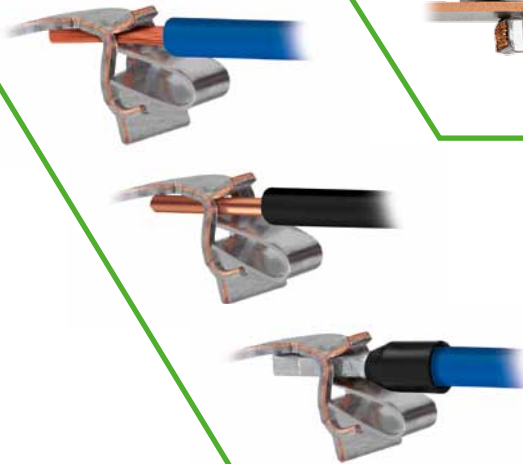
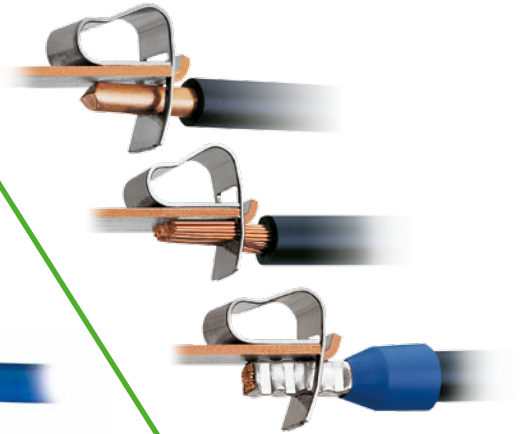
Open clamping unit, insert the conductor, release clamp – done!

CAGE CLAMP® S

The universal connection with "SPECIAL"

Open clamping unit, insert the conductor, release clamp – done!

Terminate both solid and ferruled conductors by simply pushing them in – no operating tool needed.





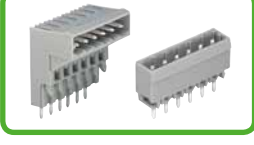



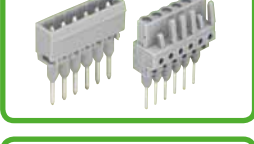








Connectors and Headers

MCS - MULTI CONNECTION SYSTEM MIDI Classic

Pin spacing 5/5.08 and 7.5/7.62 mm / Nominal cross section 2.5 mm²



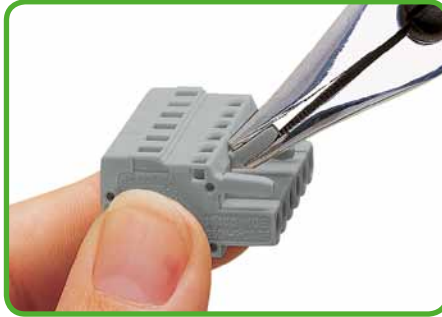
	Pin Spacing	Pages
 Female Connectors, Straight and Angled, CAGE CLAMP® Termination	5/5.08 mm / 0.197/0.2 in 7.5/7.62 mm / 0.295/0.3 in	366 - 373 424 - 428
 Female Connectors for Panel Mounting, CAGE CLAMP® Termination	5 mm / 0.197 in 7.5 mm / 0.295 in	374 - 375 430 - 431
 Female Connectors with Push-Buttons, CAGE CLAMP®S Termination	5/5.08 mm / 0.197/0.2 in 7.5/7.62 mm / 0.295/0.3 in	376 - 380 432 - 435
 Female Connectors, 2-Conductor, CAGE CLAMP®S Termination	5/5.08 mm / 0.197/0.2 in 7.5/7.62 mm / 0.295/0.3 in	382 - 384 436 - 438
 Male Headers with Solder Pins	5/5.08 mm / 0.197/0.2 in 7.5/7.62 mm / 0.295/0.3 in	386 - 395 440 - 445
 Male Headers with Solder Pins, "Through-Hole Reflow" Soldering	5 mm / 0.197 in 7.5 mm / 0.295 in	396 - 400 446 - 450
 Male Connectors, CAGE CLAMP® Termination	5/5.08 mm / 0.197/0.2 in 7.5/7.62 mm / 0.295/0.3 in	402 - 406 452 - 455
 Double-Pin Male Connectors	5/5.08 mm / 0.197/0.2 in 7.5/7.62 mm / 0.295/0.3 in	408 - 409 456 - 457
 Female Headers with Solder Pins	5/5.08 mm / 0.197/0.2 in 7.5/7.62 mm / 0.295/0.3 in	410 - 416 458 - 464
 Male Connectors for Rail-Mounted Terminal Blocks	5 mm / 0.197 in	418 - 419
 Female Connectors for Rail-Mounted Terminal Blocks	5 mm / 0.197 in	420 - 422
 Accessories for MCS-MIDI Classic		466 - 476
 Direct Marking		358 - 360
 Accessories, General - Section 10		524 - 546
 Application Examples		477 - 483

Description and Handling

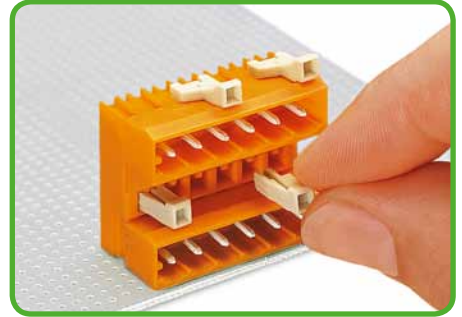
MCS - MULTISTECKERSYSTEM MIDI Classic



Coding a male header - fitting coding key(s).

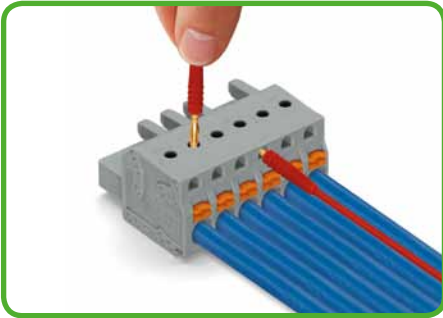


Coding a female connector - removing coding finger(s).

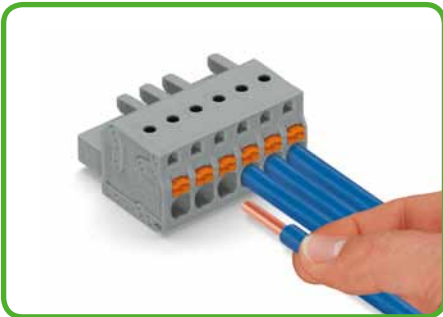


Coding a lower male header - inserting coding key(s).

2231 Series Female Connectors with Push-Buttons



Testing parallel to conductor entry via Ø 2 mm test plugs - female connector with CAGE CLAMP®S. Tip contact with current bar perpendicular to conductor entry.

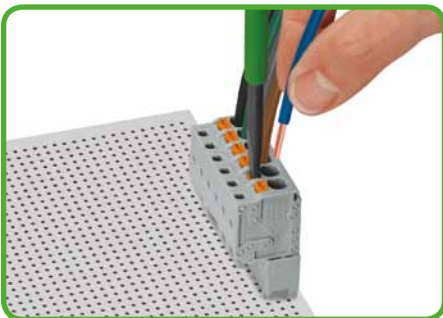


Inserting solid and ferruled, fine-stranded conductors via CAGE CLAMP®S push-in termination.

CAGE CLAMP®S

MCS-MIDI Classic

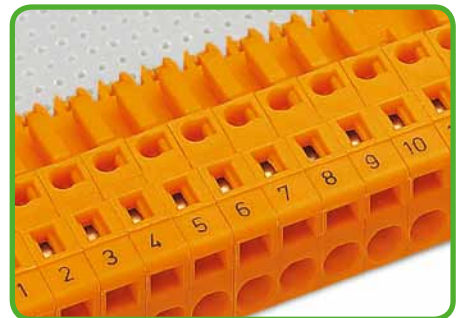
Pin spacing 5 mm and 7.5 mm
Pin spacing 5.08 mm and 7.62 mm



Inserting fine-stranded conductor into CAGE CLAMP®S unit via push-button.



THR male headers in tape-and-reel packaging for SMT applications.



Marking via self-adhesive marker strips or factory direct printing.



CAGE CLAMP® and CAGE CLAMP®S clamp the following copper conductors:*
solid

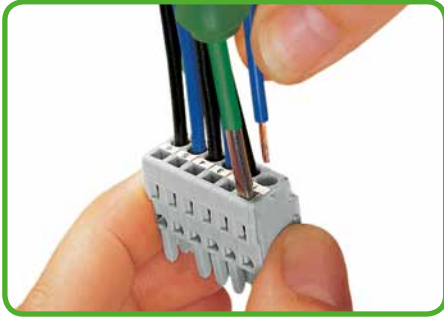


stranded

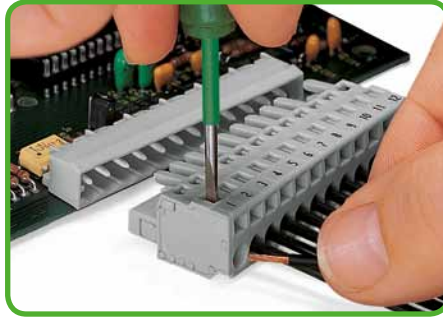


fine-stranded, also with tinned single strands

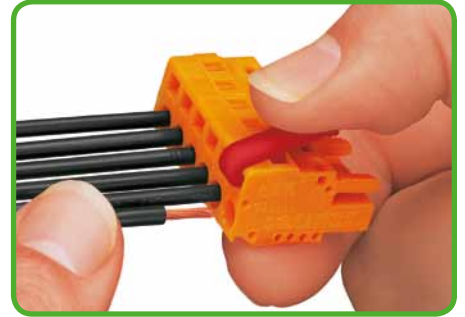
* For aluminum conductors, see notes in Section 11.



Inserting conductor via 3.5 mm screwdriver – CAGE CLAMP® actuation parallel to conductor entry.



Inserting conductor via 3.5 mm screwdriver – CAGE CLAMP® actuation perpendicular to conductor entry.



Inserting conductor into CAGE CLAMP® unit via 231-291 operating lever.

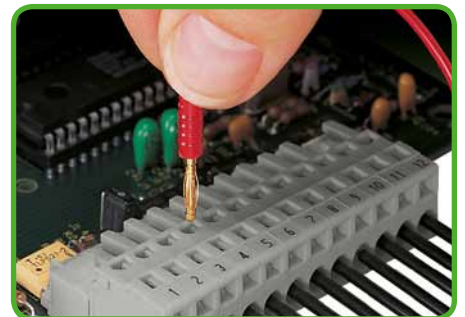
231, 232, 731 and 732 Series

MCS-MIDI Classic

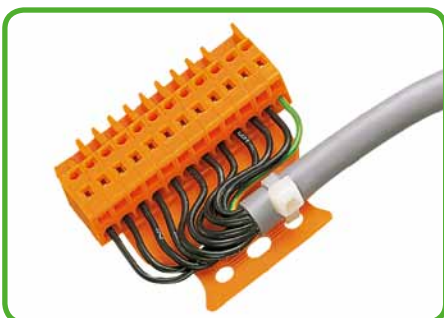
Pin spacing 5 mm and 7.5 mm
Pin spacing 5.08 mm and 7.62 mm



Inserting conductor into CAGE CLAMP® unit via 210-250 operating tool.



Testing perpendicular to conductor entry via Ø 2 mm or Ø 2.3 mm test plugs – female connector with CAGE CLAMP®.



Female connector with strain relief plate.



Strain relief housing for male and female connectors equipped with CAGE CLAMP®.



Insulation stop – prevents conductor insulation from being inserted into the clamping unit for CAGE CLAMP® and CAGE CLAMP®S.



fine-stranded, tip-bonded



fine-stranded with crimped ferrules (gas-tight)

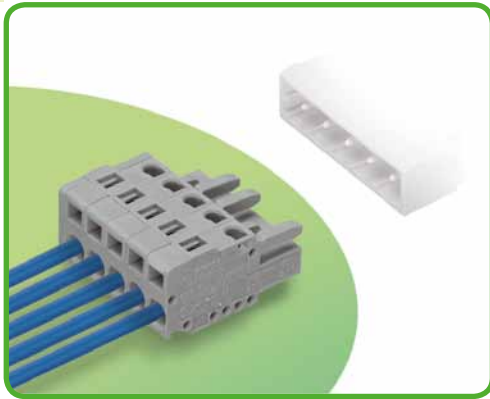


fine-stranded with crimped pin terminal (gas-tight)

Female Connectors

Pin Spacing 5 mm, 5.08 mm

MCS-MIDI Classic



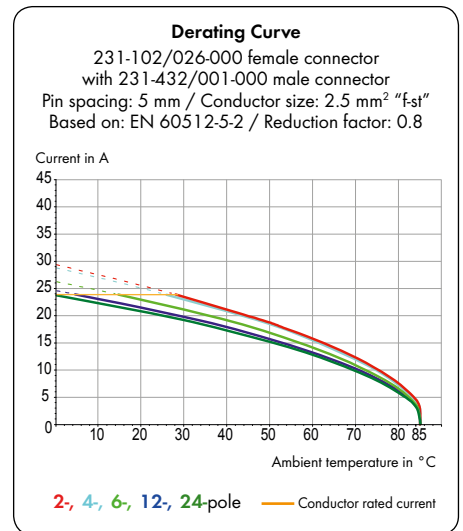
- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- With coding fingers
- Integrated test ports

Technical data:	Straight female connectors:			Angled female connectors:		
	5 mm/5.08 mm 0.197 in/0.2 in			5 mm/5.08 mm 0.197 in/0.2 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	14 A	14 A	14 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:	
Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 12: THHN, THWN
Strip length	8 - 9 mm / 0.31 - 0.35 in

Material data:	
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

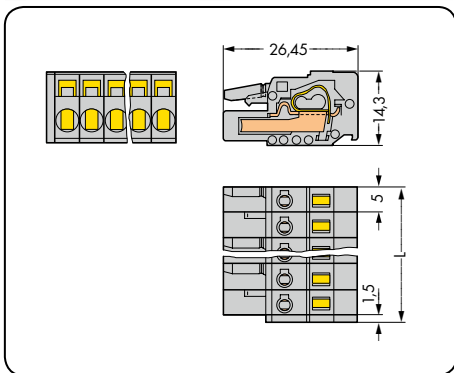
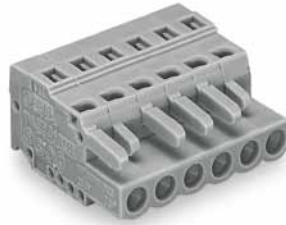
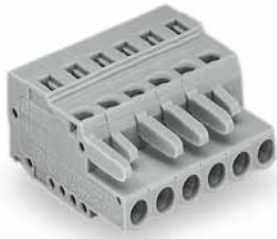


MCS-MIDI accessories:	Page:
Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Comb-style jumper bars	476
Insulation stop	469
Test plug adapter	474
Test plugs	538
Screws	546
Strain relief housings	472 - 473
Strain relief plates	470 - 471

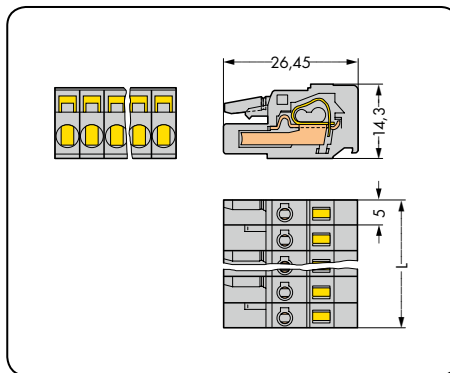
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors MCS-MIDI Classic

Pin spacing 5 mm / 0.197 in		With integrated end plate Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/15 A



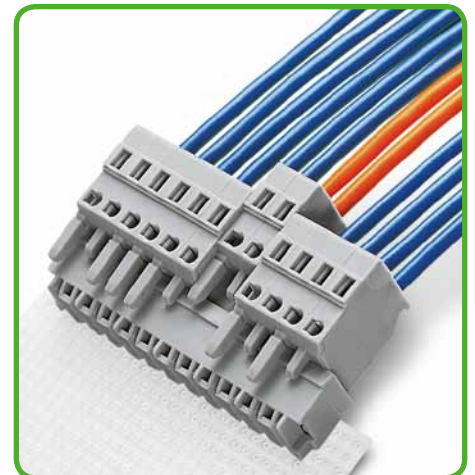
$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$



$L = \text{pole no.} \times \text{pin spacing}$

Group arrangement of female connectors in a single header without loss of pin spacing

Combining WAGO MCS multipole female connectors into a single, long male header is a common customer request. This is made possible by using modular female connectors with integrated end plate, offering the possibility of side-by-side stacking without needing an unused pole between connectors for spacing.



Total pole number for female connectors
= Pole number for male header

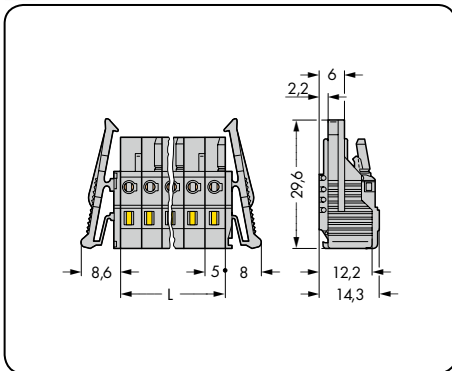


Female connectors with built-in end plate require no extra space, while maintaining the nominal cross-section. This means: Total length of female connectors is reduced to "pole no. x pin spacing"!

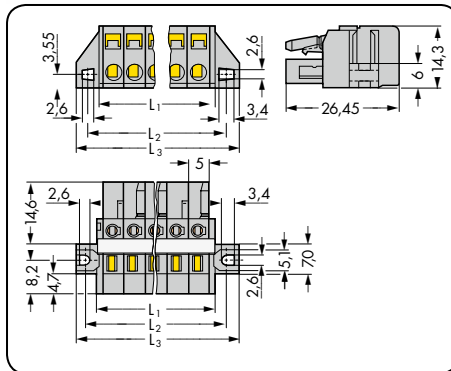
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, gray			Female connector with integrated end plate, gray		
2	231-102/026-000	100	2	231-102/102-000	100
3	231-103/026-000	100	3	231-103/102-000	100
4	231-104/026-000	100	4	231-104/102-000	100
5	231-105/026-000	100	5	231-105/102-000	100
6	231-106/026-000	50	6	231-106/102-000	50
7	231-107/026-000	50	7	231-107/102-000	50
8	231-108/026-000	50	8	231-108/102-000	50
9	231-109/026-000	50	9	231-109/102-000	50
10	231-110/026-000	50	10	231-110/102-000	50
11	231-111/026-000	25	11	231-111/102-000	25
12	231-112/026-000	25	12	231-112/102-000	25
13	231-113/026-000	25	13	231-113/102-000	25
14	231-114/026-000	25	14	231-114/102-000	25
15	231-115/026-000	25	15	231-115/102-000	25
16	231-116/026-000	25	16	231-116/102-000	25
17	231-117/026-000	25	17	231-117/102-000	25
18	231-118/026-000	25	18	231-118/102-000	25
19	231-119/026-000	10	19	231-119/102-000	10
20	231-120/026-000	10	20	231-120/102-000	10
21	231-121/026-000	10	21	231-121/102-000	10
22	231-122/026-000	10	22	231-122/102-000	10
23	231-123/026-000	10	23	231-123/102-000	10
24	231-124/026-000	10	24	231-124/102-000	10
2- to 3-pole female connectors - one latch only					

Female Connectors MCS-MIDI Classic

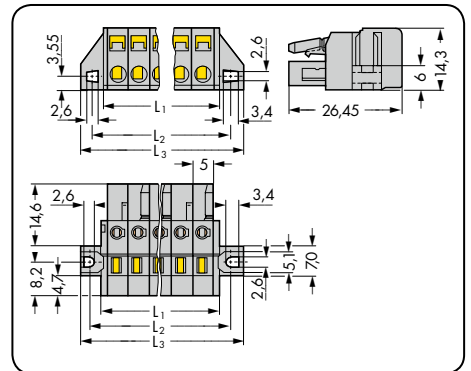
With locking levers Pin spacing 5 mm / 0.197 in		With fixing flanges for racks and through-panel mounting Pin spacing 5 mm / 0.197 in		With fixing flanges for panel mounting Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



L = pole no. x pin spacing



L₁ = (pole no. x pin spacing) + 3 mm
L₂ = (pole no. x pin spacing) + 8.8 mm
L₃ = (pole no. x pin spacing) + 14.8 mm



L₁ = (pole no. x pin spacing) + 3 mm
L₂ = (pole no. x pin spacing) + 8.8 mm
L₃ = (pole no. x pin spacing) + 14.8 mm

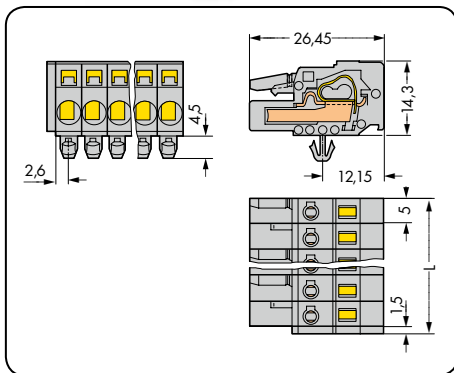
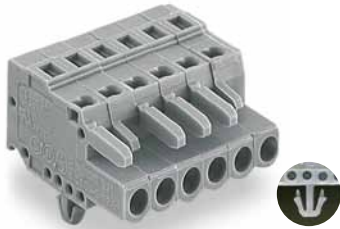
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with locking levers, gray			Female connector with fixing flanges, for racks and through-panel mounting, with reinforcing strips, gray			Female connector with fixing flanges, for panel mounting, gray		
2	231-102/037-000	100	2	231-102/031-000	100	2	231-102/031-000	100
3	231-103/037-000	50	3	231-103/031-000	50	3	231-103/031-000	50
4	231-104/037-000	50	4	231-104/031-000	50	4	231-104/031-000	50
5	231-105/037-000	50	5	231-105/031-000	50	5	231-105/031-000	50
6	231-106/037-000	50	6	231-106/027-000	50	6	231-106/031-000	50
7	231-107/037-000	50	7	231-107/027-000	50	7	231-107/031-000	50
8	231-108/037-000	25	8	231-108/027-000	50	8	231-108/031-000	50
9	231-109/037-000	25	9	231-109/027-000	25	9	231-109/031-000	25
10	231-110/037-000	25	10	231-110/027-000	25	10	231-110/031-000	25
11	231-111/037-000	25	11	231-111/027-000	25	11	231-111/031-000	25
12	231-112/037-000	25	12	231-112/027-000	25	12	231-112/031-000	25
13	231-113/037-000	25	13	231-113/027-000	25	13	231-113/031-000	25
14	231-114/037-000	25	14	231-114/027-000	25	14	231-114/031-000	25
15	231-115/037-000	25	15	231-115/027-000	25	15	231-115/031-000	25
16	231-116/037-000	10	16	231-116/027-000	10	16	231-116/031-000	10
17	231-117/037-000	10	17	231-117/027-000	10	17	231-117/031-000	10
18	231-118/037-000	10	18	231-118/027-000	10	18	231-118/031-000	10
19	231-119/037-000	10	19	231-119/027-000	10	19	231-119/031-000	10
20	231-120/037-000	10	20	231-120/027-000	10	20	231-120/031-000	10
21	231-121/037-000	10	21	231-121/027-000	10	21	231-121/031-000	10
22	231-122/037-000	10	22	231-122/027-000	10	22	231-122/031-000	10
23	231-123/037-000	10	23	231-123/027-000	10	23	231-123/031-000	10
24	231-124/037-000	10	24	231-124/027-000	10	24	231-124/031-000	10

Item nos. for 2- to 5-pole female connectors are identical to item nos. for panel-mount female connectors.
For cutout dimensions, see page 484, table 1.

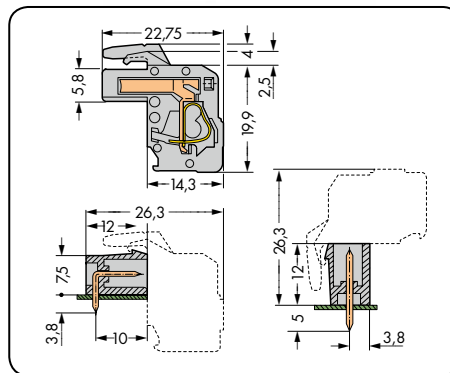
2- to 3-pole female connectors - one latch only

Female Connectors MCS-MIDI Classic

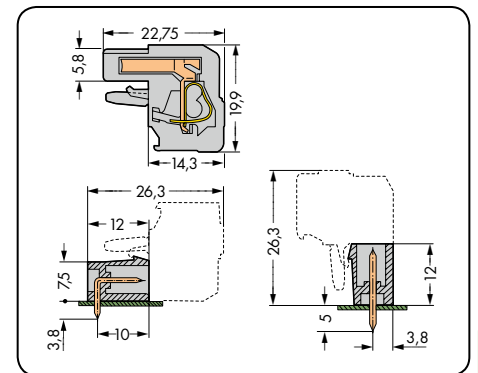
With snap-in mounting feet Pin spacing 5 mm / 0.197 in		Angled, conductor entry opposite of latches Pin spacing 5 mm / 0.197 in		Angled, conductor entry same direction as latches Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 320 V/4 kV/2 14 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 320 V/4 kV/2 14 A	AWG 28 - 12 300 V/15 A



L = (pole no. x pin spacing) + 1.5 mm



L = (pole no. x pin spacing) + 1.5 mm + 0.9 mm



L = (pole no. x pin spacing) + 1.5 mm + 0.9 mm

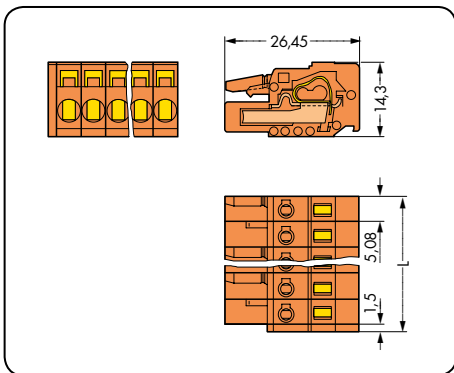
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, gray			Angled female connector, conductor entry opposite of latches, gray			Angled female connector, conductor entry same direction as latches, gray		
2	231-102/008-000	100	2	232-102/026-000	100	2	232-202/026-000	100
3	231-103/008-000	100	3	232-103/026-000	100	3	232-203/026-000	100
4	231-104/008-000	100	4	232-104/026-000	100	4	232-204/026-000	100
5	231-105/008-000	100	5	232-105/026-000	100	5	232-205/026-000	100
6	231-106/008-000	50	6	232-106/026-000	50	6	232-206/026-000	50
7	231-107/008-000	50	7	232-107/026-000	50	7	232-207/026-000	50
8	231-108/008-000	50	8	232-108/026-000	50	8	232-208/026-000	50
9	231-109/008-000	50	9	232-109/026-000	50	9	232-209/026-000	50
10	231-110/008-000	50	10	232-110/026-000	50	10	232-210/026-000	50
11	231-111/008-000	25	11	232-111/026-000	25	11	232-211/026-000	25
12	231-112/008-000	25	12	232-112/026-000	25	12	232-212/026-000	25
13	231-113/008-000	25	13	232-113/026-000	25	13	232-213/026-000	25
14	231-114/008-000	25	14	232-114/026-000	25	14	232-214/026-000	25
15	231-115/008-000	25	15	232-115/026-000	25	15	232-215/026-000	25
16	231-116/008-000	25	16	232-116/026-000	25	16	232-216/026-000	25
17	231-117/008-000	25	17	232-117/026-000	25	17	232-217/026-000	25
18	231-118/008-000	25	18	232-118/026-000	25	18	232-218/026-000	25
19	231-119/008-000	10	19	232-119/026-000	10	19	232-219/026-000	10
20	231-120/008-000	10	20	232-120/026-000	10	20	232-220/026-000	10
21	231-121/008-000	10	21	232-121/026-000	10	21	232-221/026-000	10
22	231-122/008-000	10	22	232-122/026-000	10	22	232-222/026-000	10
23	231-123/008-000	10	23	232-123/026-000	10	23	232-223/026-000	10
24	231-124/008-000	10	24	232-124/026-000	10	24	232-224/026-000	10

2- to 3-pole female connectors - one latch only

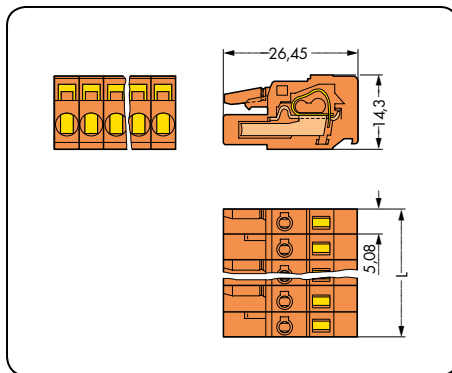
Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Female Connectors MCS-MIDI Classic

Pin spacing 5.08 mm / 0.2 in		With integrated end plate Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



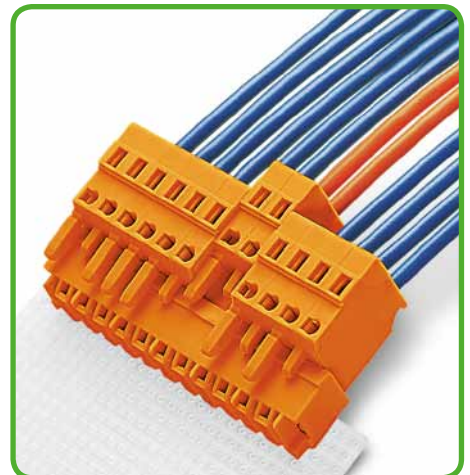
$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$



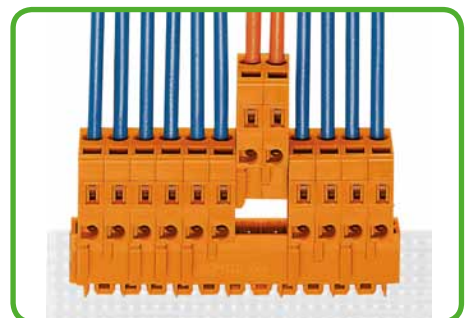
$L = \text{pole no.} \times \text{pin spacing}$

Group arrangement of female connectors in a single header without loss of pin spacing

Combining WAGO MCS multipole female connectors into a single, long male header is a common customer requirement. This is made possible by using modular female connectors with integrated end plate, offering the possibility of side-by-side stacking without needing for an unused pole between connectors for spacing.



Total pole number for female connectors
= Pole number for male header

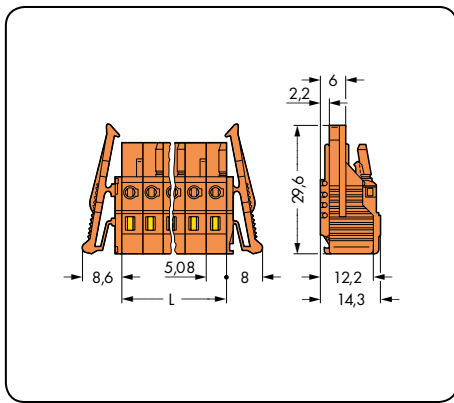


Female connectors with built-in end plate require no extra space, while maintaining the nominal cross-section. This means: Total length of female connectors is reduced to "pole no. x pin spacing"!

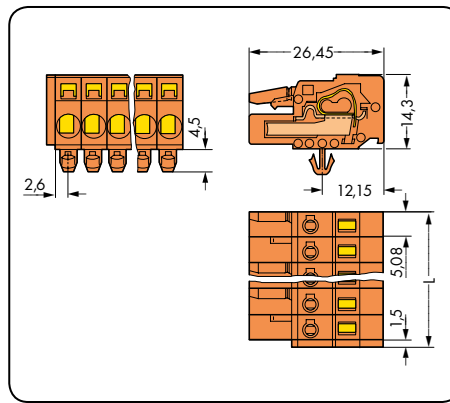
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, orange			Female connector with integrated end plate, orange		
2	231-302/026-000	100	2	231-302/102-000	100
3	231-303/026-000	100	3	231-303/102-000	100
4	231-304/026-000	100	4	231-304/102-000	100
5	231-305/026-000	100	5	231-305/102-000	100
6	231-306/026-000	50	6	231-306/102-000	50
7	231-307/026-000	50	7	231-307/102-000	50
8	231-308/026-000	50	8	231-308/102-000	50
9	231-309/026-000	50	9	231-309/102-000	50
10	231-310/026-000	50	10	231-310/102-000	50
11	231-311/026-000	25	11	231-311/102-000	25
12	231-312/026-000	25	12	231-312/102-000	25
13	231-313/026-000	25	13	231-313/102-000	25
14	231-314/026-000	25	14	231-314/102-000	25
15	231-315/026-000	25	15	231-315/102-000	25
16	231-316/026-000	25	16	231-316/102-000	25
17	231-317/026-000	25	17	231-317/102-000	25
18	231-318/026-000	10	18	231-318/102-000	10
19	231-319/026-000	10	19	231-319/102-000	10
20	231-320/026-000	10	20	231-320/102-000	10
21	231-321/026-000	10	21	231-321/102-000	10
22	231-322/026-000	10	22	231-322/102-000	10
23	231-323/026-000	10	23	231-323/102-000	10
24	231-324/026-000	10	24	231-324/102-000	10
2- to 3-pole female connectors - one latch only					

Female Connectors MCS-MIDI Classic

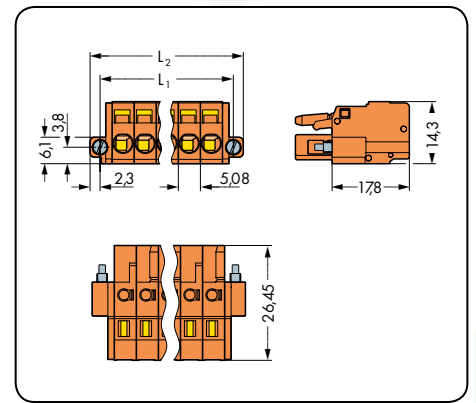
With locking levers Pin spacing 5.08 mm / 0.2 in		With snap-in mounting feet Pin spacing 5.08 mm / 0.2 in		With screw flanges Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 28 - 12 300 V/15 A



L = pole no. x pin spacing



L = (pole no. x pin spacing) + 1.5 mm



L₁ = (pole no. x pin spacing) + 5.4 mm
L₂ = (pole no. x pin spacing) + 10 mm

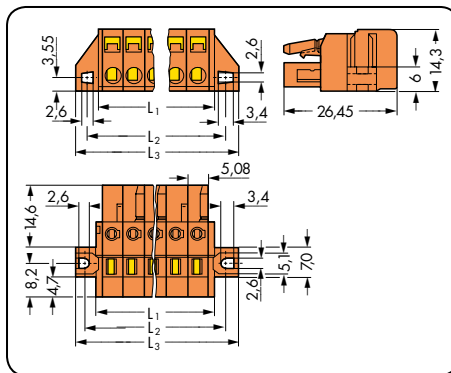
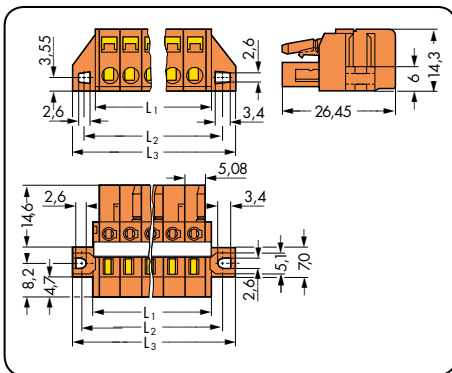
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with locking levers, orange			Female connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, orange			Female connector with screw flanges, orange		
2	231-302/037-000	100	2	231-302/008-000	100	2	231-302/107-000	100
3	231-303/037-000	50	3	231-303/008-000	100	3	231-303/107-000	100
4	231-304/037-000	50	4	231-304/008-000	100	4	231-304/107-000	50
5	231-305/037-000	50	5	231-305/008-000	100	5	231-305/107-000	50
6	231-306/037-000	50	6	231-306/008-000	50	6	231-306/107-000	50
7	231-307/037-000	50	7	231-307/008-000	50	7	231-307/107-000	50
8	231-308/037-000	25	8	231-308/008-000	50	8	231-308/107-000	50
9	231-309/037-000	25	9	231-309/008-000	50	9	231-309/107-000	25
10	231-310/037-000	25	10	231-310/008-000	50	10	231-310/107-000	25
11	231-311/037-000	25	11	231-311/008-000	25			
12	231-312/037-000	25	12	231-312/008-000	25	12	231-312/107-000	25
13	231-313/037-000	25	13	231-313/008-000	25			
14	231-314/037-000	25	14	231-314/008-000	25	14	231-314/107-000	25
15	231-315/037-000	25	15	231-315/008-000	25	15	231-315/107-000	25
16	231-316/037-000	10	16	231-316/008-000	25	16	231-316/107-000	10
17	231-317/037-000	10	17	231-317/008-000	25			
18	231-318/037-000	10	18	231-318/008-000	10			
19	231-319/037-000	10	19	231-319/008-000	10			
20	231-320/037-000	10	20	231-320/008-000	10			
21	231-321/037-000	10	21	231-321/008-000	10			
22	231-322/037-000	10	22	231-322/008-000	10			
23	231-323/037-000	10	23	231-323/008-000	10	For other lengths, please contact factory.		
24	231-324/037-000	10	24	231-324/008-000	10			

2- to 3-pole female connectors - one latch only

Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Female Connectors MCS-MIDI Classic

With fixing flanges for racks and through-panel mounting Pin spacing 5.08 mm / 0.2 in		With fixing flanges for panel mounting Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



$L_1 = (\text{pole no.} \times \text{pin spacing}) + 3 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 8.8 \text{ mm}$
 $L_3 = (\text{pole no.} \times \text{pin spacing}) + 14.8 \text{ mm}$



Female connector with fixing flanges used as PCB through-panel connector. Conductor termination parallel to CAGE CLAMP® actuation.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with fixing flanges, for racks and through-panel mounting, with reinforcing strips, orange			Female connector with fixing flanges, for panel mounting, orange		
2	231-302/031-000	100	2	231-302/031-000	100
3	231-303/031-000	50	3	231-303/031-000	50
4	231-304/031-000	50	4	231-304/031-000	50
5	231-305/031-000	50	5	231-305/031-000	50
6	231-306/027-000	50	6	231-306/031-000	50
7	231-307/027-000	50	7	231-307/031-000	50
8	231-308/027-000	50	8	231-308/031-000	50
9	231-309/027-000	25	9	231-309/031-000	25
10	231-310/027-000	25	10	231-310/031-000	25
11	231-311/027-000	25	11	231-311/031-000	25
12	231-312/027-000	25	12	231-312/031-000	25
13	231-313/027-000	25	13	231-313/031-000	25
14	231-314/027-000	25	14	231-314/031-000	25
15	231-315/027-000	25	15	231-315/031-000	25
16	231-316/027-000	10	16	231-316/031-000	10
17	231-317/027-000	10	17	231-317/031-000	10
18	231-318/027-000	10	18	231-318/031-000	10
19	231-319/027-000	10	19	231-319/031-000	10
20	231-320/027-000	10	20	231-320/031-000	10
21	231-321/027-000	10	21	231-321/031-000	10
22	231-322/027-000	10	22	231-322/031-000	10
23	231-323/027-000	10	23	231-323/031-000	10
24	231-324/027-000	10	24	231-324/031-000	10



PCB female connector with fixing flanges used as through-panel connector for external wiring.



16-pole female connector with fixing flanges in a 19" rack. Conductor termination parallel to CAGE CLAMP® actuation.

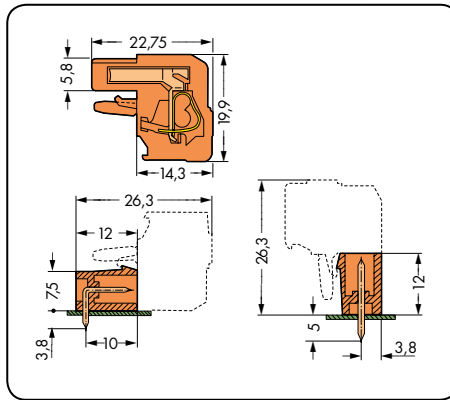
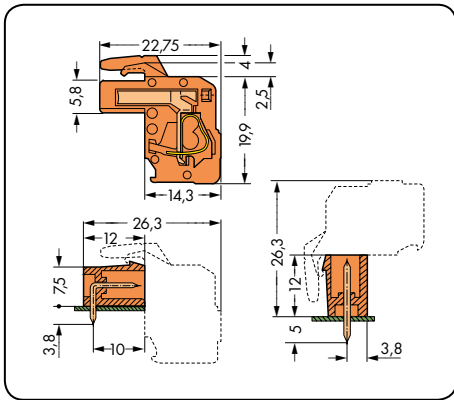
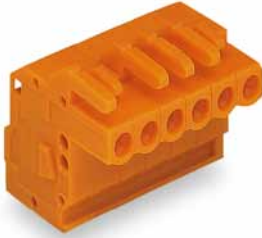
Item nos. for 2- to 5-pole female connectors are identical to item nos. for panel-mount female connectors.

For cutout dimensions, see page 484, table 1.

2- to 3-pole female connectors - one latch only

Female Connectors MCS-MIDI Classic

Angled, conductor entry opposite of latches Pin spacing 5.08 mm / 0.2 in		Angled, conductor entry same direction as latches Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 14 A	300 V/15 A	320 V/4 kV/2 14 A	300 V/15 A



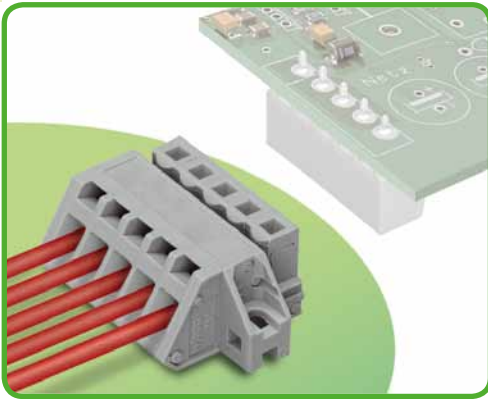
Total length = (pole no. x pin spacing) + 1.5 mm + 0.9 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Angled female connector, conductor entry opposite of latches, orange			Angled female connector, conductor entry same direction as latches, orange		
2	232-302/026-000	100	2	232-402/026-000	100
3	232-303/026-000	100	3	232-403/026-000	100
4	232-304/026-000	100	4	232-404/026-000	100
5	232-305/026-000	100	5	232-405/026-000	100
6	232-306/026-000	50	6	232-406/026-000	50
7	232-307/026-000	50	7	232-407/026-000	50
8	232-308/026-000	50	8	232-408/026-000	50
9	232-309/026-000	50	9	232-409/026-000	50
10	232-310/026-000	50	10	232-410/026-000	50
11	232-311/026-000	25	11	232-411/026-000	25
12	232-312/026-000	25	12	232-412/026-000	25
13	232-313/026-000	25	13	232-413/026-000	25
14	232-314/026-000	25	14	232-414/026-000	25
15	232-315/026-000	25	15	232-415/026-000	25
16	232-316/026-000	25	16	232-416/026-000	25
17	232-317/026-000	25	17	232-417/026-000	25
18	232-318/026-000	10	18	232-418/026-000	10
19	232-319/026-000	10	19	232-419/026-000	10
20	232-320/026-000	10	20	232-420/026-000	10
21	232-321/026-000	10	21	232-421/026-000	10
22	232-322/026-000	10	22	232-422/026-000	10
23	232-323/026-000	10	23	232-423/026-000	10
24	232-324/026-000	10	24	232-424/026-000	10
2- to 3-pole female connectors - one latch only					

Angled Female Connectors for Panel Mounting

Pin Spacing 5 mm

MCS-MIDI Classic



- Universal connection for all conductor types
- Versions available with snap-in mounting feet or fixing flanges for panel or through-panel mounting
- Mounting adapter allows versions with snap-in mounting feet to be DIN-rail mounted
- Easy conductor termination, even when halves are mated

Technical data:

Pin Spacing	5 mm 0.197 in		
Rating per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	28 - 12	12: THHN, THWN
Strip length	7 - 8 mm / 0.28 - 0.31 in	

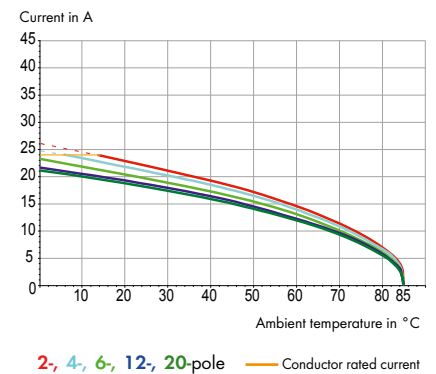
Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Derating Curve

731-502/031-000 female connector
with 231-132/001-000 male connector
Pin spacing: 5 mm / Conductor size: 2.5 mm² "fst"
Based on: EN 60512-5-2 / Reduction factor: 0.8



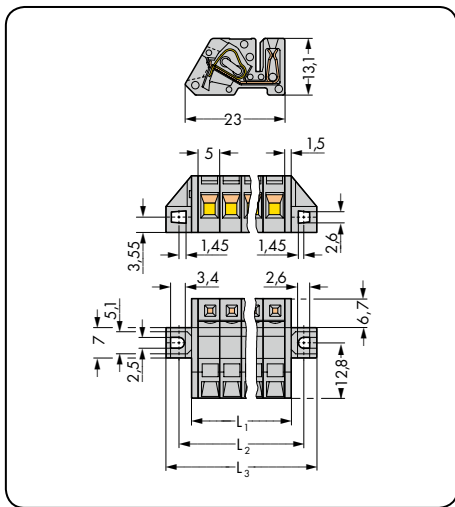
MCS-MIDI accessories:

Page:

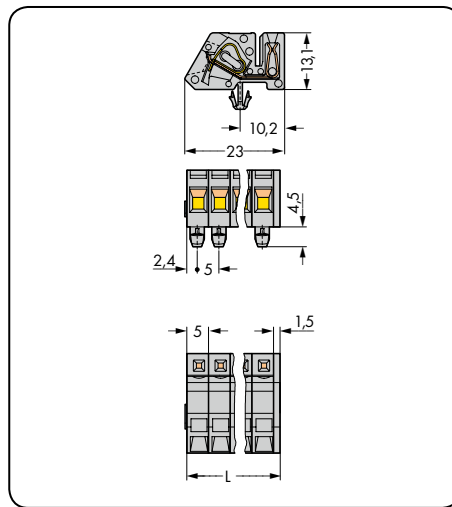
Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Test plug adapter	474
Screws	546

Angled Female Connectors for Panel Mounting MCS-MIDI Classic

With fixing flanges Pin spacing 5 mm / 0.197 in		With snap-in mounting feet Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ² 320 V/4 kV/2 12 A	AWG 28 - 12 300 V/ 15 A	0.08 - 2.5 mm ² 320 V/4 kV/2 12 A	AWG 28 - 12 300 V/ 15 A



$L_1 = (\text{pole no.} \times \text{pin spacing}) + 3 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 8.8 \text{ mm}$
 $L_3 = (\text{pole no.} \times \text{pin spacing}) + 14.8 \text{ mm}$



$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$



Angled female connector with 209-120 adapter for DIN-rail mounting.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Angled female connector with fixing flanges, for panel mounting, gray			Angled female connector with snap-in mounting feet, for panel mounting, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, gray		
2	731-502/031-000	100	2	731-502/008-000	100
3	731-503/031-000	50	3	731-503/008-000	50
4	731-504/031-000	50	4	731-504/008-000	50
5	731-505/031-000	50	5	731-505/008-000	50
6	731-506/031-000	50	6	731-506/008-000	50
7	731-507/031-000	50	7	731-507/008-000	50
8	731-508/031-000	50	8	731-508/008-000	50
9	731-509/031-000	25	9	731-509/008-000	50
10	731-510/031-000	25	10	731-510/008-000	50
11	731-511/031-000	25	11	731-511/008-000	25
12	731-512/031-000	25	12	731-512/008-000	25
13	731-513/031-000	25	13	731-513/008-000	25
14	731-514/031-000	25	14	731-514/008-000	25
15	731-515/031-000	25	15	731-515/008-000	25
16	731-516/031-000	10	16	731-516/008-000	25
17	731-517/031-000	10	17	731-517/008-000	25
18	731-518/031-000	10	18	731-518/008-000	25
19	731-519/031-000	10	19	731-519/008-000	10
20	731-520/031-000	10	20	731-520/008-000	10
Product Accessories					Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-120)					475



Angled female connector used as through-panel connector. Conductor entry and operation holes outside the housing. Panel thickness up to 2 mm/0.079 in.



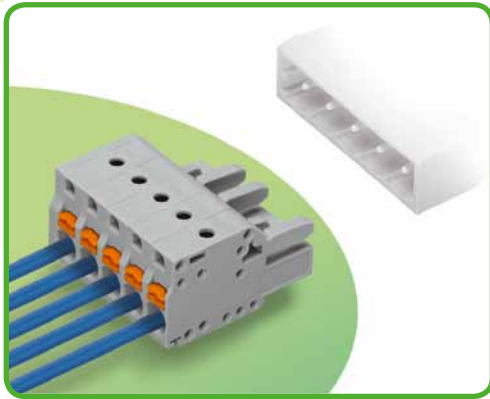
Angled female connector mounted within a housing. A male header with straight pins is used for horizontal PCB mounting in narrow housings.

For other lengths, please contact factory.

Female Connectors with Push-Buttons

Pin Spacing 5 mm, 5.08 mm

MCS-MIDI Classic



- Universal connection for all conductor types
- Easy-to-use design does not require specialty tools
- Ability to wire while mated
- Simple, push-in terminations of solid and ferruled conductors
- Integrated test ports for testing parallel to conductor entry
- With coding fingers

Technical data:

Pin Spacing	5 mm 0.197 in			5.08 mm 0.2 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	150 V	300 V	300 V	150 V	300 V
Nominal current UL	15 A	15 A	10 A	15 A	15 A	10 A
Nominal current CSA	15 A	15 A	10 A	15 A	15 A	10 A

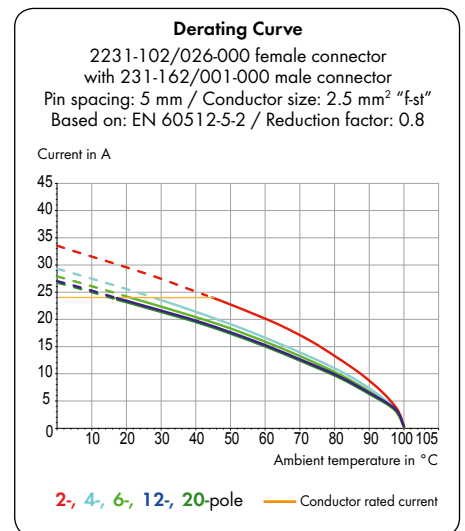
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.2 - 2.5 mm ²
Conductor size: fine-stranded	0.2 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	24 - 12 12: THHN, THWN
Strip length	10 - 11 mm / 0.39 - 0.43 in

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

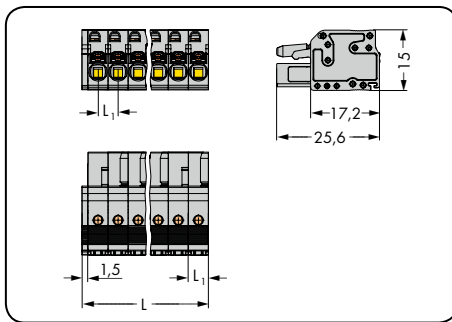
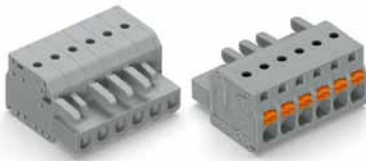
Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	474
Test plug, Ø 2 mm	538
Screws	546
Strain relief plates	470 - 471

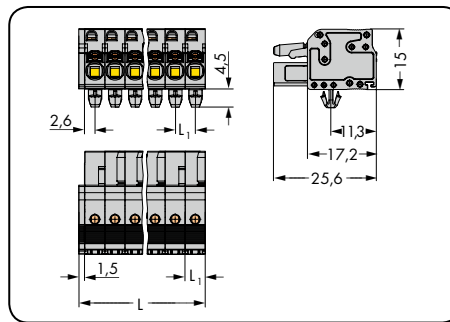
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors with Push-Buttons MCS-MIDI Classic

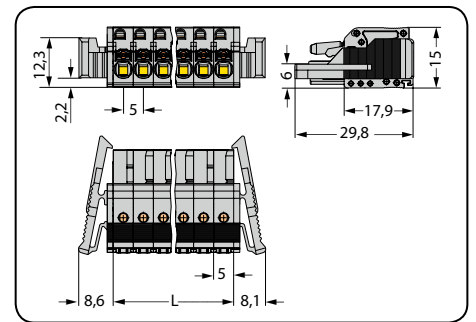
Pin spacing 5 mm / 0.197 in		With snap-in mounting feet Pin spacing 5 mm / 0.197 in		With locking levers Pin spacing 5 mm / 0.197 in	
0.2 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 24 - 12 300 V/15 A	0.2 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 24 - 12 300 V/15 A	0.2 - 2.5 mm ² 320 V/4 kV/2 16 A	AWG 24 - 12 300 V/15 A



L = (pole no. x pin spacing) + 1.5 mm
L₁ = 5 mm



L = (pole no. x pin spacing) + 1.5 mm
L₁ = 5 mm



L = pole no. x pin spacing

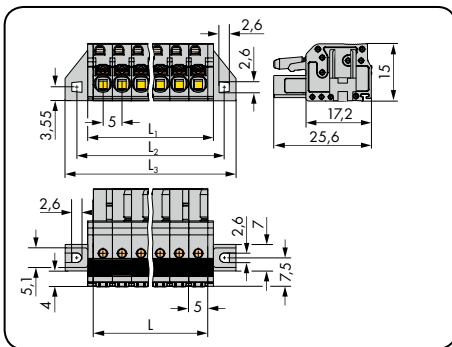
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons, gray			Female connector with push-buttons and snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, gray			Female connector with push-buttons and locking levers, gray		
2	2231-102/026-000	100	2	2231-102/008-000	100	2	2231-102/037-000	100
3	2231-103/026-000	100	3	2231-103/008-000	100	3	2231-103/037-000	50
4	2231-104/026-000	100	4	2231-104/008-000	100	4	2231-104/037-000	50
5	2231-105/026-000	100	5	2231-105/008-000	100	5	2231-105/037-000	50
6	2231-106/026-000	50	6	2231-106/008-000	50	6	2231-106/037-000	50
7	2231-107/026-000	50	7	2231-107/008-000	50	7	2231-107/037-000	50
8	2231-108/026-000	50	8	2231-108/008-000	50	8	2231-108/037-000	25
9	2231-109/026-000	50	9	2231-109/008-000	50	9	2231-109/037-000	25
10	2231-110/026-000	50	10	2231-110/008-000	50	10	2231-110/037-000	25
11	2231-111/026-000	25	11	2231-111/008-000	25	11	2231-111/037-000	25
12	2231-112/026-000	25	12	2231-112/008-000	25	12	2231-112/037-000	25
13	2231-113/026-000	25	13	2231-113/008-000	25	13	2231-113/037-000	25
14	2231-114/026-000	25	14	2231-114/008-000	25	14	2231-114/037-000	25
15	2231-115/026-000	25	15	2231-115/008-000	25	15	2231-115/037-000	25
16	2231-116/026-000	25	16	2231-116/008-000	25	16	2231-116/037-000	10
17	2231-117/026-000	25	17	2231-117/008-000	25	17	2231-117/037-000	10
18	2231-118/026-000	25	18	2231-118/008-000	25	18	2231-118/037-000	10
19	2231-119/026-000	10	19	2231-119/008-000	10	19	2231-119/037-000	10
20	2231-120/026-000	10	20	2231-120/008-000	10	20	2231-120/037-000	10
21	2231-121/026-000	10	21	2231-121/008-000	10	21	2231-121/037-000	10
22	2231-122/026-000	10	22	2231-122/008-000	10	22	2231-122/037-000	10
23	2231-123/026-000	10	23	2231-123/008-000	10	23	2231-123/037-000	10
24	2231-124/026-000	10	24	2231-124/008-000	10	24	2231-124/037-000	10

2- to 3-pole female connectors – one latch only

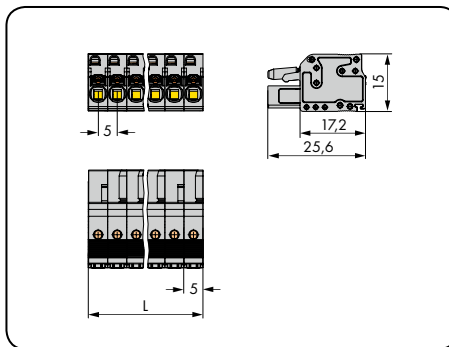
Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Female Connectors with Push-Buttons MCS-MIDI Classic

With fixing flanges Pin spacing 5 mm / 0.197 in		With integrated end plates Pin spacing 5 mm / 0.197 in	
0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



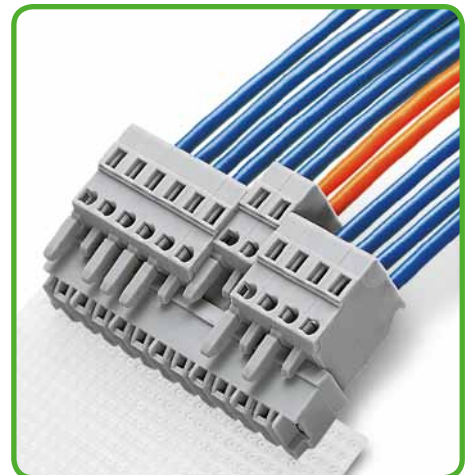
L = pole no. x pin spacing
 $L_1 = L + 2.8 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$



L = pole no. x pin spacing

Group arrangement of female connectors in a single header without loss of pin spacing

Combining WAGO MCS multipole female connectors into a single, long male header is a common customer request. This is made possible by using modular female connectors with integrated end plate, offering the possibility of side-by-side stacking without needing for an unused pole between connectors for spacing.



Total pole number for female connectors
= Pole number for male header



Female connectors with built-in end plate require no extra space, while maintaining the nominal cross-section. This means: Total length of female connectors is reduced to "pole no. x pin spacing"!

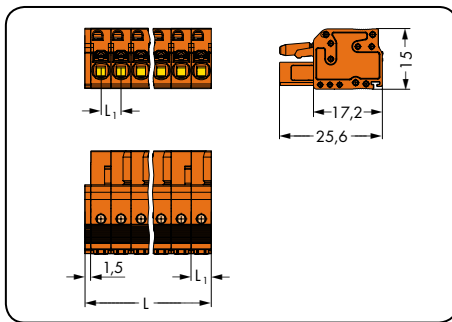
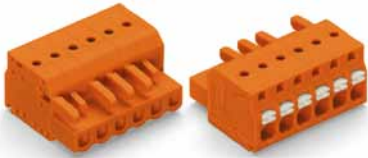
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons and fixing flanges, gray			Female connector with push-buttons and integrated end plate, gray		
2	2231-102/031-000	100	2	2231-102/102-000	100
3	2231-103/031-000	50	3	2231-103/102-000	100
4	2231-104/031-000	50	4	2231-104/102-000	100
5	2231-105/031-000	50	5	2231-105/102-000	100
6	2231-106/031-000	50	6	2231-106/102-000	50
7	2231-107/031-000	50	7	2231-107/102-000	50
8	2231-108/031-000	50	8	2231-108/102-000	50
9	2231-109/031-000	25	9	2231-109/102-000	50
10	2231-110/031-000	25	10	2231-110/102-000	50
11	2231-111/031-000	25	11	2231-111/102-000	25
12	2231-112/031-000	25	12	2231-112/102-000	25
13	2231-113/031-000	25	13	2231-113/102-000	25
14	2231-114/031-000	25	14	2231-114/102-000	25
15	2231-115/031-000	25	15	2231-115/102-000	25
16	2231-116/031-000	10	16	2231-116/102-000	25
17	2231-117/031-000	10	17	2231-117/102-000	25
18	2231-118/031-000	10	18	2231-118/102-000	25
19	2231-119/031-000	10	19	2231-119/102-000	10
20	2231-120/031-000	10	20	2231-120/102-000	10
21	2231-121/031-000	10	21	2231-121/102-000	10
22	2231-122/031-000	10	22	2231-122/102-000	10
23	2231-123/031-000	10	23	2231-123/102-000	10
24	2231-124/031-000	10	24	2231-124/102-000	10

For cutout dimensions, see page 485, table 2.

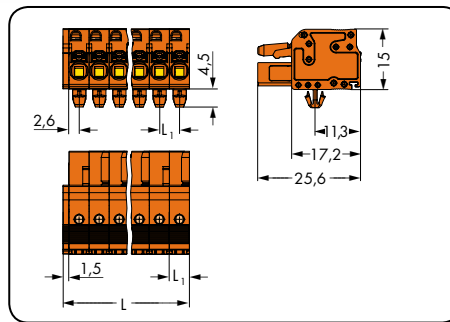
2- to 3-pole female connectors - one latch only

Female Connectors with Push-Buttons, MCS-MIDI Classic

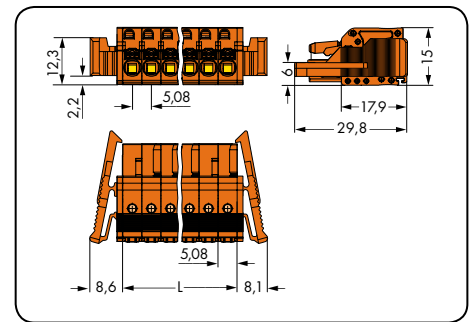
Pin spacing 5.08 mm / 0.2 in		With snap-on mounting feet Pin spacing 5.08 mm / 0.2 in		With locking levers Pin spacing 5.08 mm / 0.2 in	
0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



L = (pole no. x pin spacing) + 1.5 mm
L₁ = 5.08 mm



L = (pole no. x pin spacing) + 1.5 mm
L₁ = 5.08 mm



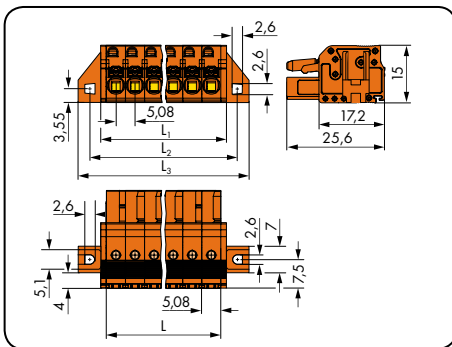
L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons, orange			Female connector with push-buttons and snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, orange			Female connector with push-buttons and locking levers, orange		
2	2231-302/026-000	100	2	2231-302/008-000	100	2	2231-302/037-000	100
3	2231-303/026-000	100	3	2231-303/008-000	100	3	2231-303/037-000	50
4	2231-304/026-000	100	4	2231-304/008-000	100	4	2231-304/037-000	50
5	2231-305/026-000	100	5	2231-305/008-000	100	5	2231-305/037-000	50
6	2231-306/026-000	50	6	2231-306/008-000	50	6	2231-306/037-000	50
7	2231-307/026-000	50	7	2231-307/008-000	50	7	2231-307/037-000	50
8	2231-308/026-000	50	8	2231-308/008-000	50	8	2231-308/037-000	25
9	2231-309/026-000	50	9	2231-309/008-000	50	9	2231-309/037-000	25
10	2231-310/026-000	50	10	2231-310/008-000	50	10	2231-310/037-000	25
11	2231-311/026-000	25	11	2231-311/008-000	25	11	2231-311/037-000	25
12	2231-312/026-000	25	12	2231-312/008-000	25	12	2231-312/037-000	25
13	2231-313/026-000	25	13	2231-313/008-000	25	13	2231-313/037-000	25
14	2231-314/026-000	25	14	2231-314/008-000	25	14	2231-314/037-000	25
15	2231-315/026-000	25	15	2231-315/008-000	25	15	2231-315/037-000	25
16	2231-316/026-000	25	16	2231-316/008-000	25	16	2231-316/037-000	10
17	2231-317/026-000	25	17	2231-317/008-000	25	17	2231-317/037-000	10
18	2231-318/026-000	10	18	2231-318/008-000	10	18	2231-318/037-000	10
19	2231-319/026-000	10	19	2231-319/008-000	10	19	2231-319/037-000	10
20	2231-320/026-000	10	20	2231-320/008-000	10	20	2231-320/037-000	10
21	2231-321/026-000	10	21	2231-321/008-000	10	21	2231-321/037-000	10
22	2231-322/026-000	10	22	2231-322/008-000	10	22	2231-322/037-000	10
23	2231-323/026-000	10	23	2231-323/008-000	10	23	2231-323/037-000	10
24	2231-324/026-000	10	24	2231-324/008-000	10	24	2231-324/037-000	10

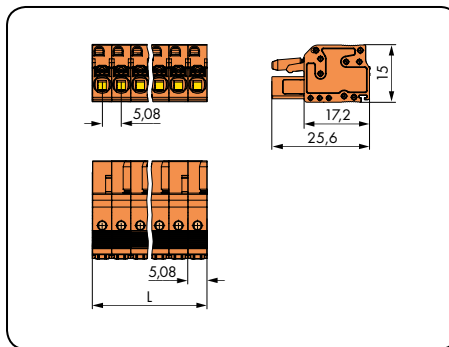
2- to 3-pole female connectors - one latch only

Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

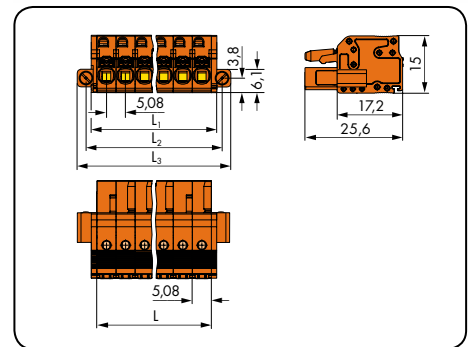
With fixing flanges Pin spacing 5.08 mm / 0.2 in		With integrated end plates Pin spacing 5.08 mm / 0.2 in		With screw flanges Pin spacing 5.08 mm / 0.2 in	
0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



L = pole no. x pin spacing
 $L_1 = L + 2.8 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

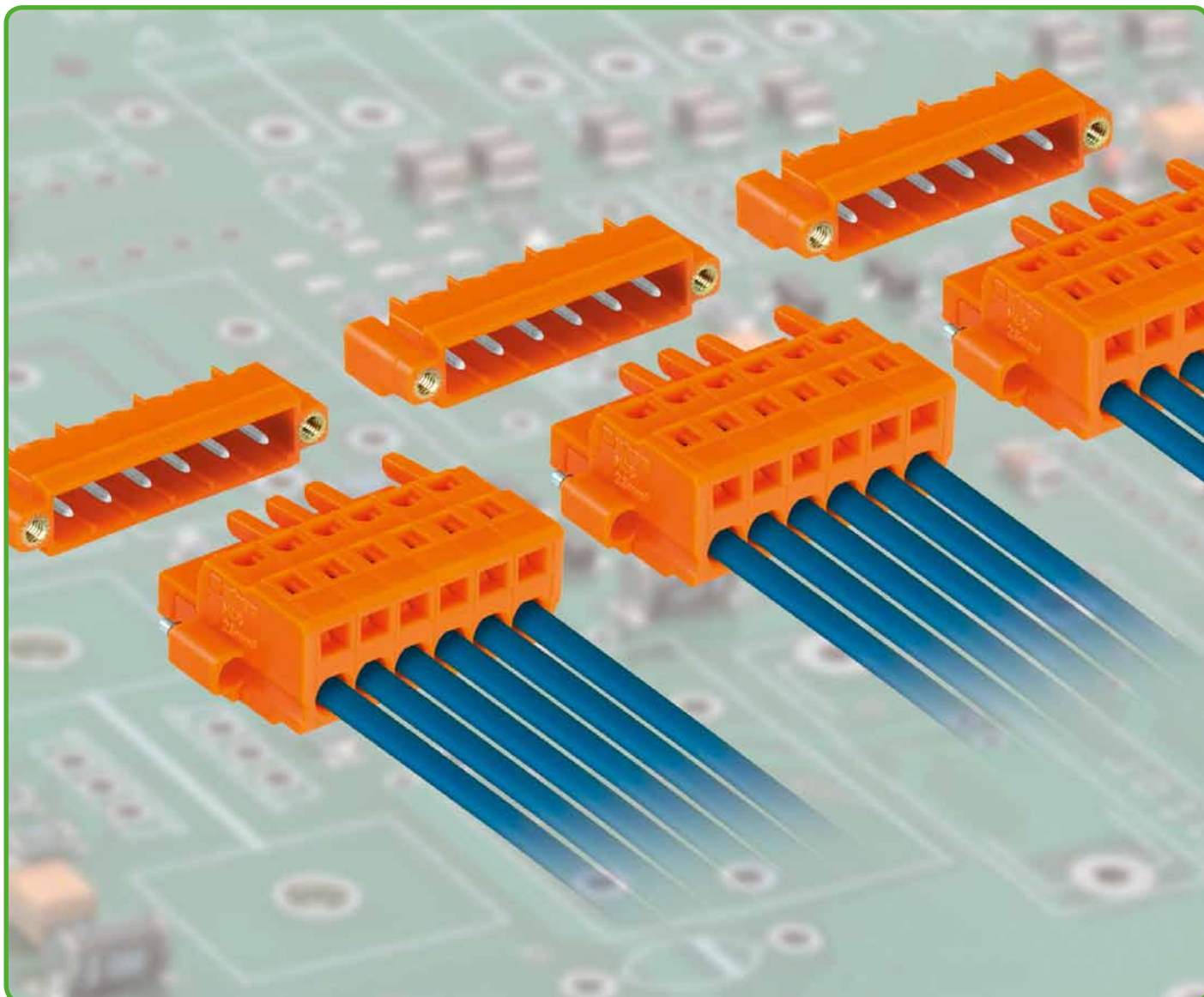


L = pole no. x pin spacing



L = pole no. x pin spacing
 $L_1 = L + 2.8 \text{ mm}$
 $L_2 = L + 5.4 \text{ mm}$
 $L_3 = L + 10 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons and fixing flanges, orange			Female connector with push-buttons and integrated end plate, orange			Female connector with push-buttons and screw flanges, orange		
2	2231-302/031-000	100	2	2231-302/102-000	100	2	2231-302/107-000	100
3	2231-303/031-000	50	3	2231-303/102-000	100	3	2231-303/107-000	100
4	2231-304/031-000	50	4	2231-304/102-000	100	4	2231-304/107-000	50
5	2231-305/031-000	50	5	2231-305/102-000	100	5	2231-305/107-000	50
6	2231-306/031-000	50	6	2231-306/102-000	50	6	2231-306/107-000	50
7	2231-307/031-000	50	7	2231-307/102-000	50	7	2231-307/107-000	50
8	2231-308/031-000	50	8	2231-308/102-000	50	8	2231-308/107-000	50
9	2231-309/031-000	25	9	2231-309/102-000	50	9	2231-309/107-000	25
10	2231-310/031-000	25	10	2231-310/102-000	50	10	2231-310/107-000	25
11	2231-311/031-000	25	11	2231-311/102-000	25			
12	2231-312/031-000	25	12	2231-312/102-000	25	12	2231-312/107-000	25
13	2231-313/031-000	25	13	2231-313/102-000	25			
14	2231-314/031-000	25	14	2231-314/102-000	25	14	2231-314/107-000	25
15	2231-315/031-000	25	15	2231-315/102-000	25	15	2231-315/107-000	25
16	2231-316/031-000	25	16	2231-316/102-000	25	16	2231-316/107-000	10
17	2231-317/031-000	10	17	2231-317/102-000	25			
18	2231-318/031-000	10	18	2231-318/102-000	10			
19	2231-319/031-000	10	19	2231-319/102-000	10			
20	2231-320/031-000	10	20	2231-320/102-000	10			
21	2231-321/031-000	10	21	2231-321/102-000	10			
22	2231-322/031-000	10	22	2231-322/102-000	10			
23	2231-323/031-000	10	23	2231-323/102-000	10			
24	2231-324/031-000	10	24	2231-324/102-000	10	For other lengths, please contact factory.		
For cutout dimensions, see page 485, table 2.								
2- to 3-pole female connectors – one latch only								



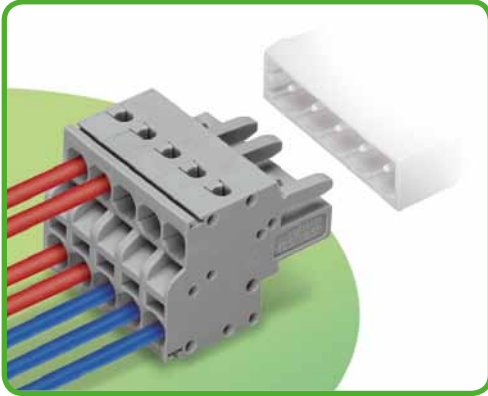
Male headers with solder pins and threaded flanges, female connectors with screw flanges.
Screw locking feature provides vibration-proof connection between male headers and female connectors.
Disconnection is only possible via operating tool or screwdriver.

6 2-Conductor Female Connectors

Pin Spacing 5 mm, 5.08 mm

MCS-MIDI Classic

382



- Universal connection for all conductor types
- Two conductor entries per pole
- For looping through power or data buses
- Bus connection is retained, even when unmated
- Simple push-in termination for solid or ferruled conductors
- With coding fingers

Technical data:

Pin Spacing	5 mm 0.197 in			5.08 mm 0.2 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per						
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	20 A	-	10 A	20 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A

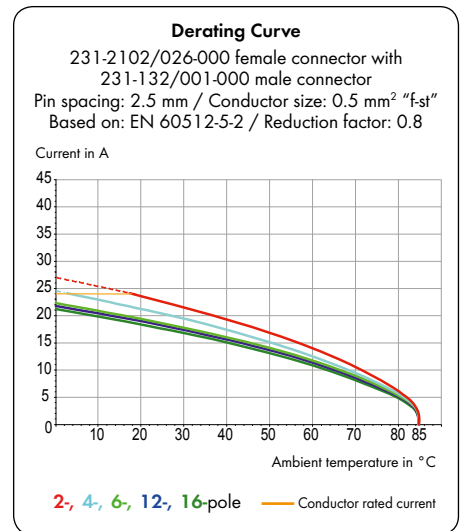
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®S	
Conductor size: solid	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	24 - 12	12: THHN, THWN
Strip length	9 - 10 mm / 0.35 - 0.39 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

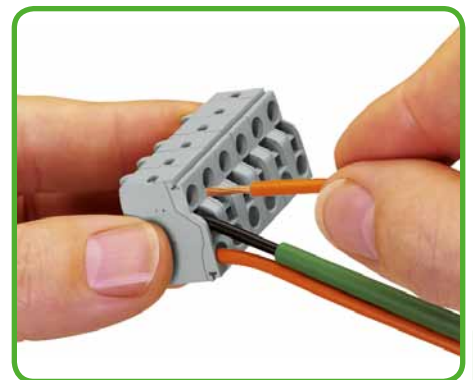
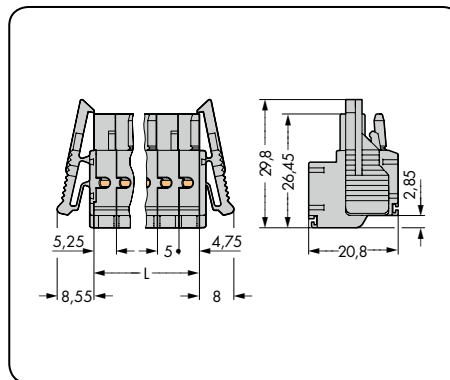
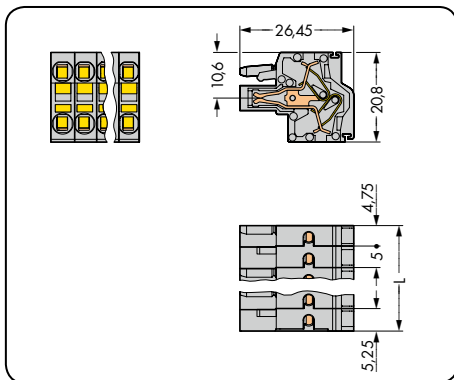
Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	474
Test pin	538
Strain relief plates	470 - 471

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

2-Conductor Female Connectors MCS-MIDI Classic

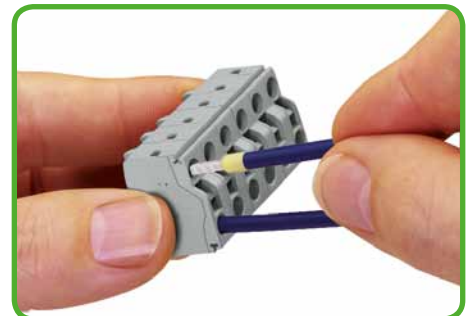
Pin spacing 5 mm / 0.197 in		With locking levers Pin spacing 5 mm / 0.197 in		Handling
0.2 – 2.5 mm ² 320 V/4 kV/2 16 A	AWG 24 – 12 300 V/20 A	0.2 – 2.5 mm ² 320 V/4 kV/2 16 A	AWG 24 – 12 300 V/20 A	



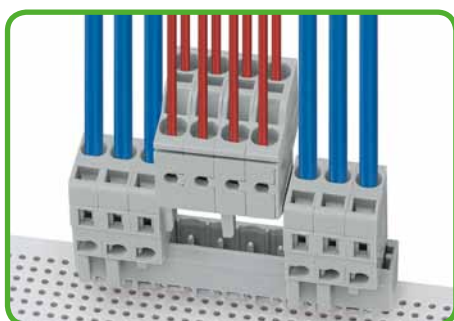
$L = (\text{pole no.} - 2) \times \text{pin spacing} + 10 \text{ mm}$

Operating CAGE CLAMP® S is easy, fast and identical to that of CAGE CLAMP®. The screwdriver is fully inserted into the operating slot, holding the CAGE CLAMP® S open. After the conductor has been inserted into the clamping unit and the screwdriver been withdrawn, the conductor is clamped safely. Solid and fine-stranded conductors < 0.5 mm² / AWG 20 are inserted and removed using a screwdriver.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor female connector, gray			2-conductor female connector with locking levers, gray		
2	231-2102/026-000	100	2	231-2102/037-000	100
3	231-2103/026-000	100	3	231-2103/037-000	50
4	231-2104/026-000	100	4	231-2104/037-000	50
5	231-2105/026-000	50	5	231-2105/037-000	50
6	231-2106/026-000	50	6	231-2106/037-000	50
7	231-2107/026-000	50	7	231-2107/037-000	50
8	231-2108/026-000	50	8	231-2108/037-000	25
9	231-2109/026-000	50	9	231-2109/037-000	25
10	231-2110/026-000	50	10	231-2110/037-000	25
11	231-2111/026-000	25	11	231-2111/037-000	25
12	231-2112/026-000	25	12	231-2112/037-000	25
13	231-2113/026-000	25	13	231-2113/037-000	25
14	231-2114/026-000	25	14	231-2114/037-000	25
15	231-2115/026-000	25	15	231-2115/037-000	25
16	231-2116/026-000	25	16	231-2116/037-000	10
2- to 3-pole female connectors – one latch only					

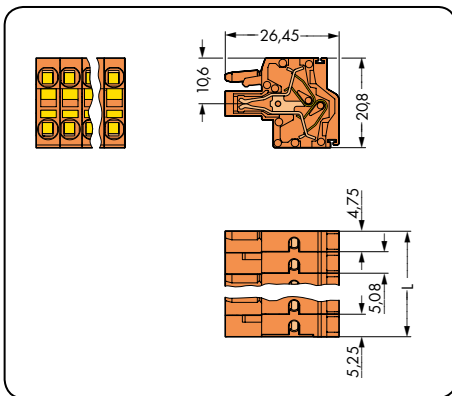
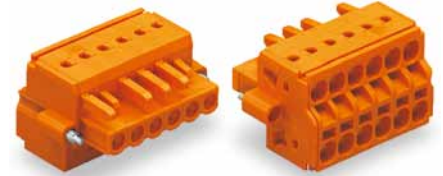
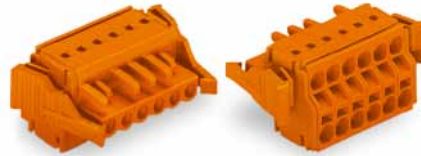
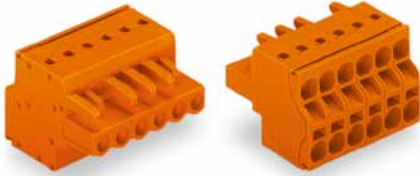


Solid conductors ≥ 0.5 mm² / AWG 20, as well as ferruled, fine-stranded conductors can be terminated by simply pushing them in. Integrated test ports allow tip contact with current bars via test probes in both horizontal and vertical directions.

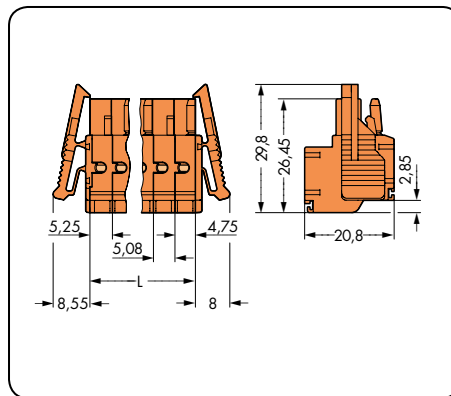


Group arrangement without loss of pin spacing
Combining WAGO MULTI CONNECTION SYSTEM multipole female connectors into a single, long male header is often a common customer request. This is made possible by using modular female connectors with integrated end plate, offering the possibility of side-by-side stacking without needing an unused pole between connectors for spacing. Female connectors with built-in end plate require no extra space, while maintaining the nominal cross-section. This means: Total length of female connectors is reduced to "pole no. x" pin spacing!

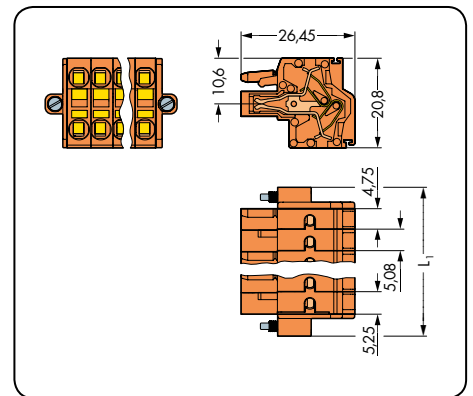
Pin spacing 5.08 mm / 0.2 in		With locking levers Pin spacing 5.08 mm / 0.2 in		With screw flanges Pin spacing 5.08 mm / 0.2 in	
0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12
320 V/4 kV/2 16 A	300 V/20 A	320 V/4 kV/2 16 A	300 V/20 A	320 V/4 kV/2 16 A	300 V/20 A



$L = (\text{pole no.} - 2) \times \text{pin spacing} + 10 \text{ mm}$



$L = (\text{pole no.} - 2) \times \text{pin spacing} + 10 \text{ mm}$



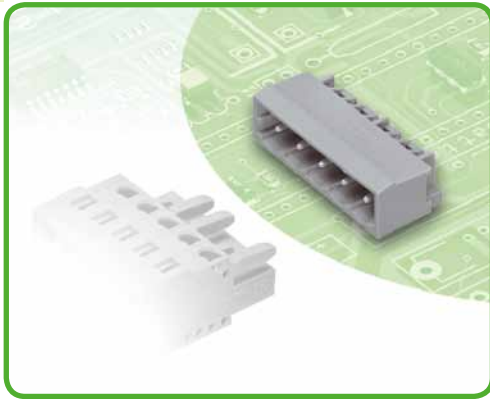
$L_1 = (\text{pole no.} - 2) \times \text{pin spacing} + 20 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor female connector, orange			2-conductor female connector with locking levers, orange			2-conductor female connector with screw flanges, orange		
2	231-2302/026-000	100	2	231-2302/037-000	100	2	231-2302/107-000	100
3	231-2303/026-000	100	3	231-2303/037-000	50	3	231-2303/107-000	100
4	231-2304/026-000	100	4	231-2304/037-000	50	4	231-2304/107-000	50
5	231-2305/026-000	50	5	231-2305/037-000	50	5	231-2305/107-000	50
6	231-2306/026-000	50	6	231-2306/037-000	50	6	231-2306/107-000	50
7	231-2307/026-000	50	7	231-2307/037-000	50	7	231-2307/107-000	50
8	231-2308/026-000	50	8	231-2308/037-000	25	8	231-2308/107-000	50
9	231-2309/026-000	50	9	231-2309/037-000	25	9	231-2309/107-000	25
10	231-2310/026-000	50	10	231-2310/037-000	25	10	231-2310/107-000	25
11	231-2311/026-000	25	11	231-2311/037-000	25			
12	231-2312/026-000	25	12	231-2312/037-000	25	12	231-2312/107-000	25
13	231-2313/026-000	25	13	231-2313/037-000	25			
14	231-2314/026-000	25	14	231-2314/037-000	25	14	231-2314/107-000	25
15	231-2315/026-000	25	15	231-2315/037-000	25	15	231-2315/107-000	25
16	231-2316/026-000	25	16	231-2316/037-000	10	16	231-2316/107-000	10
						For other lengths, please contact factory.		
2- to 3-pole female connectors - one latch only								

Male Headers with Solder Pins

Pin Spacing 5 mm, 5.08 mm

MCS-MIDI Classic



- Horizontal or vertical PCB mounting via straight or angled solder pins
- 1.2 x 1.2 mm solder pins allow nominal current up to 16 A, enhancing stability of shorter headers
- Enclosed on each side, the pin housing design prevents mismatching
- With coding keys

Technical data:

1 x 1 mm solder pin:

1.2 x 1.2 mm solder pin:

Pin Spacing	5 mm / 5.08 mm 0.197 in / 0.2 in			5 mm / 5.08 mm 0.197 in / 0.2 in		
	IEC/EN 60664-1					
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	15 A	-	10 A
Nominal current CSA	10 A	-	10 A	15 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

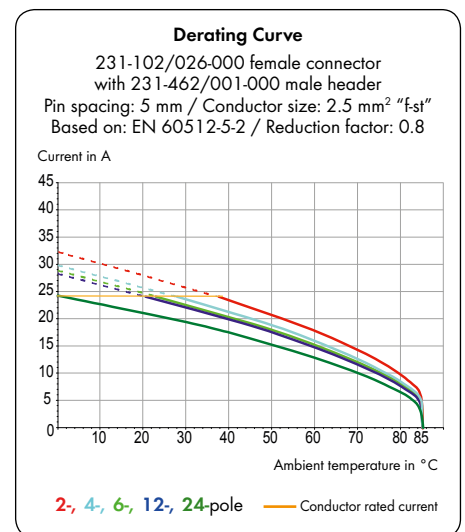
Solder pin data:

Solder pin: length/width	5 mm / 1 x 1 mm (straight)
Solder pin: length/width	3.8 mm / 1 x 1 mm (angled)
Solder pin: drilled hole diameter	1.4 ^{+0.1} mm
Solder pin: length/width	5 mm / 1.2 x 1.2 mm (straight)
Solder pin: length/width	3.8 mm / 1.2 x 1.2 mm (angled)
Solder pin: drilled hole diameter	1.7 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix .../010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.



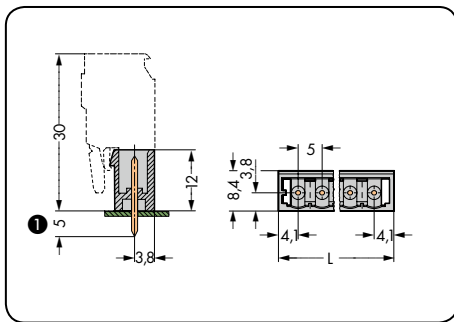
MCS-MIDI accessories:

Page:

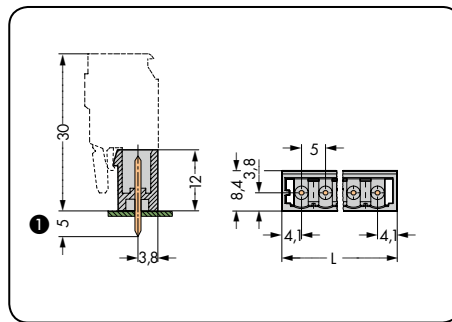
Fixing elements	469
Separators	468
Coding keys	468
Screws	546

Male Headers with Solder Pins MCS-MIDI Classic

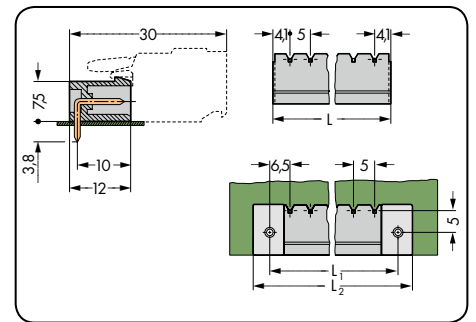
With 1 x 1 mm straight solder pins Pin spacing 5 mm / 0.197 in		With 1.2 x 1.2 mm straight solder pins Pin spacing 5 mm / 0.197 in		With 1 x 1 mm angled solder pins Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/10 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/10 A



L = (pole no. - 1) x pin spacing + 8.2 mm



L = (pole no. - 1) x pin spacing + 8.2 mm



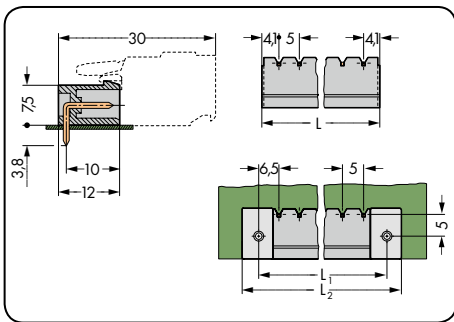
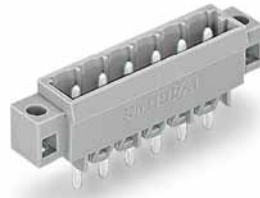
L = (pole no. - 1) x pin spacing + 8.2 mm
L₁ = L + 5 mm
L₂ = L₁ + 7.4 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with 1 x 1 mm straight solder pins, gray			Male header with 1.2 x 1.2 mm straight solder pins, gray			Male header with 1 x 1 mm angled solder pins, gray		
2	231-132/001-000	200	2	231-162/001-000	200	2	231-432/001-000	200
3	231-133/001-000	200	3	231-163/001-000	200	3	231-433/001-000	200
4	231-134/001-000	200	4	231-164/001-000	200	4	231-434/001-000	200
5	231-135/001-000	200	5	231-165/001-000	200	5	231-435/001-000	200
6	231-136/001-000	100	6	231-166/001-000	100	6	231-436/001-000	100
7	231-137/001-000	100	7	231-167/001-000	100	7	231-437/001-000	100
8	231-138/001-000	100	8	231-168/001-000	100	8	231-438/001-000	100
9	231-139/001-000	100	9	231-169/001-000	100	9	231-439/001-000	100
10	231-140/001-000	100	10	231-170/001-000	100	10	231-440/001-000	100
11	231-141/001-000	100	11	231-171/001-000	100	11	231-441/001-000	100
12	231-142/001-000	100	12	231-172/001-000	100	12	231-442/001-000	100
13	231-143/001-000	50	13	231-173/001-000	50	13	231-443/001-000	50
14	231-144/001-000	50	14	231-174/001-000	50	14	231-444/001-000	50
15	231-145/001-000	50	15	231-175/001-000	50	15	231-445/001-000	50
16	231-146/001-000	50	16	231-176/001-000	50	16	231-446/001-000	50
17	231-147/001-000	50	17	231-177/001-000	50	17	231-447/001-000	50
18	231-148/001-000	50	18	231-178/001-000	50	18	231-448/001-000	50
19	231-149/001-000	50	19	231-179/001-000	50	19	231-449/001-000	50
20	231-150/001-000	50	20	231-180/001-000	50	20	231-450/001-000	50
21	231-151/001-000	50	21	231-181/001-000	50	21	231-451/001-000	50
22	231-152/001-000	50	22	231-182/001-000	50	22	231-452/001-000	50
23	231-153/001-000	50	23	231-183/001-000	50	23	231-453/001-000	50
24	231-154/001-000	50	24	231-184/001-000	50	24	231-454/001-000	50

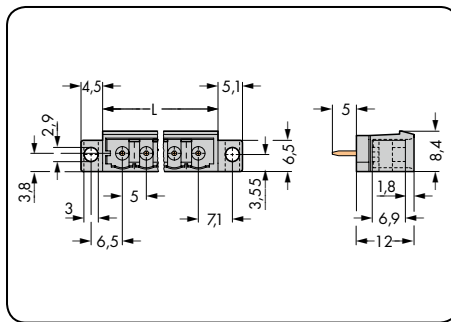
① MCS-MIDI male headers with straight solder pins are also available with 3.8 mm pin projection. Replace item no. suffix .../001-000 with .../046-000.

Male Headers with Solder Pins MCS-MIDI Classic

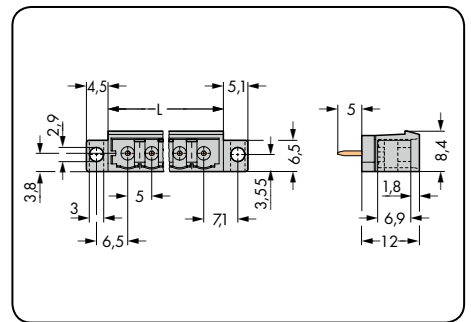
With 1.2 x 1.2 mm angled solder pins Pin spacing 5 mm / 0.197 in		With 1 x 1 mm straight solder pins and fixing flanges Pin spacing 5 mm / 0.197 in		With 1.2 x 1.2 mm straight solder pins and fixing flanges Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/10 A	320 V/4 kV/2 16 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L + 5 \text{ mm}$
 $L_2 = L_1 + 7.4 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$

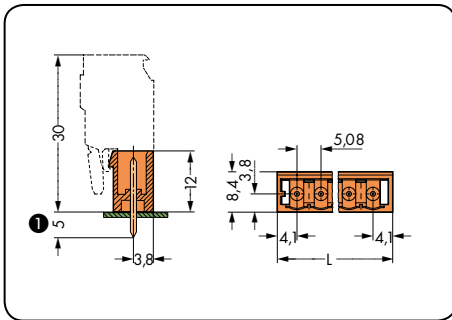


$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$

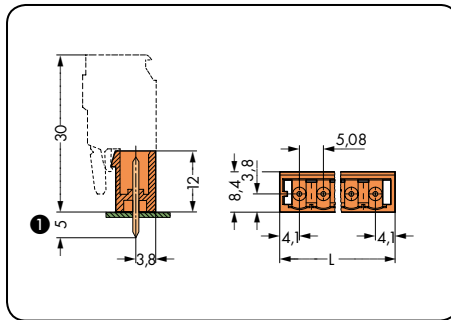
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with 1.2 x 1.2 mm angled solder pins, gray			Male header with 1 x 1 mm straight solder pins and fixing flanges, gray			Male header with 1.2 x 1.2 mm straight solder pins and fixing flanges, gray		
2	231-462/001-000	200	2	231-132/040-000	200	2	231-162/040-000	200
3	231-463/001-000	200	3	231-133/040-000	200	3	231-163/040-000	200
4	231-464/001-000	200						
5	231-465/001-000	200	5	231-135/040-000	100	5	231-165/040-000	100
6	231-466/001-000	100	6	231-136/040-000	100	6	231-166/040-000	100
7	231-467/001-000	100						
8	231-468/001-000	100						
9	231-469/001-000	100						
10	231-470/001-000	100						
11	231-471/001-000	100						
12	231-472/001-000	100						
13	231-473/001-000	50						
14	231-474/001-000	50	14	231-144/040-000	50	14	231-174/040-000	50
15	231-475/001-000	50						
16	231-476/001-000	50						
17	231-477/001-000	50						
18	231-478/001-000	50	For cutout dimensions, see page 487, table 4.			For cutout dimensions, see page 487, table 4.		
19	231-479/001-000	50						
20	231-480/001-000	50						
21	231-481/001-000	50						
22	231-482/001-000	50						
23	231-483/001-000	50	Female connectors with locking devices are not suitable for this type of application.					
24	231-484/001-000	50	For other lengths, please contact factory.					

Male Headers with Solder Pins MCS-MIDI Classic

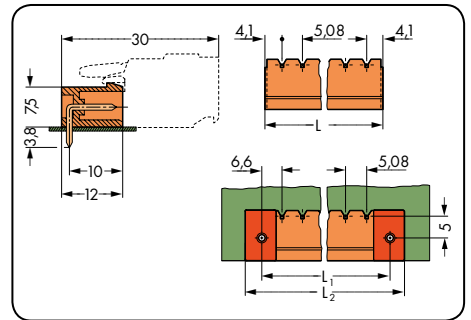
With 1 x 1 mm straight solder pins Pin spacing 5.08 mm / 0.197 in		With 1.2 x 1.2 mm straight solder pins Pin spacing 5.08 mm / 0.2 in		With 1 x 1 mm angled solder pins Pin spacing 5.08 mm / 0.2 in	
320 V/4 kV/2 12 A	300 V/10 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/10 A



L = (pole no. - 1) x pin spacing + 8.2 mm



L = (pole no. - 1) x pin spacing + 8.2 mm



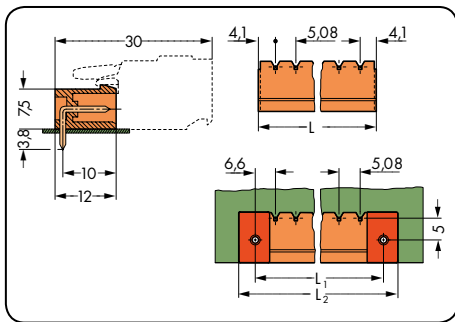
L = (pole no. - 1) x pin spacing + 8.2 mm
 L₁ = L + 5 mm
 L₂ = L₁ + 7.4 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with 1 x 1 mm straight solder pins, orange			Male header with 1.2 x 1.2 mm straight solder pins, orange			Male header with 1 x 1 mm angled solder pins, orange		
2	231-332/001-000	200	2	231-362/001-000	200	2	231-532/001-000	200
3	231-333/001-000	200	3	231-363/001-000	200	3	231-533/001-000	200
4	231-334/001-000	200	4	231-364/001-000	200	4	231-534/001-000	200
5	231-335/001-000	200	5	231-365/001-000	200	5	231-535/001-000	200
6	231-336/001-000	100	6	231-366/001-000	100	6	231-536/001-000	100
7	231-337/001-000	100	7	231-367/001-000	100	7	231-537/001-000	100
8	231-338/001-000	100	8	231-368/001-000	100	8	231-538/001-000	100
9	231-339/001-000	100	9	231-369/001-000	100	9	231-539/001-000	100
10	231-340/001-000	100	10	231-370/001-000	100	10	231-540/001-000	100
11	231-341/001-000	100	11	231-371/001-000	100	11	231-541/001-000	100
12	231-342/001-000	100	12	231-372/001-000	100	12	231-542/001-000	100
13	231-343/001-000	50	13	231-373/001-000	50	13	231-543/001-000	50
14	231-344/001-000	50	14	231-374/001-000	50	14	231-544/001-000	50
15	231-345/001-000	50	15	231-375/001-000	50	15	231-545/001-000	50
16	231-346/001-000	50	16	231-376/001-000	50	16	231-546/001-000	50
17	231-347/001-000	50	17	231-377/001-000	50	17	231-547/001-000	50
18	231-348/001-000	50	18	231-378/001-000	50	18	231-548/001-000	50
19	231-349/001-000	50	19	231-379/001-000	50	19	231-549/001-000	50
20	231-350/001-000	50	20	231-380/001-000	50	20	231-550/001-000	50
21	231-351/001-000	50	21	231-381/001-000	50	21	231-551/001-000	50
22	231-352/001-000	50	22	231-382/001-000	50	22	231-552/001-000	50
23	231-353/001-000	50	23	231-383/001-000	50	23	231-553/001-000	50
24	231-354/001-000	50	24	231-384/001-000	50	24	231-554/001-000	50

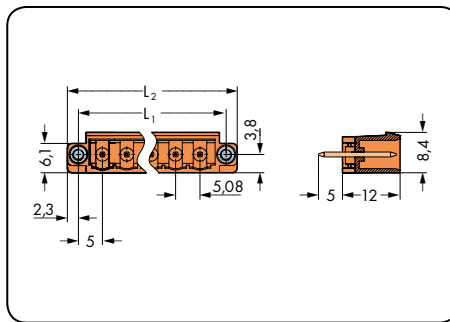
① MCS-MIDI male headers with straight solder pins are also available with 3.8 mm pin projection. Replace item no. suffix .../001-000 with .../046-000.

Male Headers with Solder Pins MCS-MIDI Classic

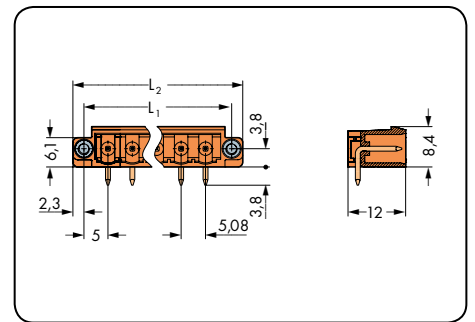
With 1.2 x 1.2 mm angled solder pins Pin spacing 5.08 mm / 0.2 in		With 1 x 1 mm straight solder pins and threaded flanges Pin spacing 5.08 mm / 0.2 in		With 1 x 1 mm angled solder pins and threaded flanges Pin spacing 5.08 mm / 0.2 in	
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/10 A	320 V/4 kV/2 12 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L + 5 \text{ mm}$
 $L_2 = L_1 + 7.4 \text{ mm}$



$L_1 = (\text{pole no.} \times \text{pin spacing}) + 5.4 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 10 \text{ mm}$

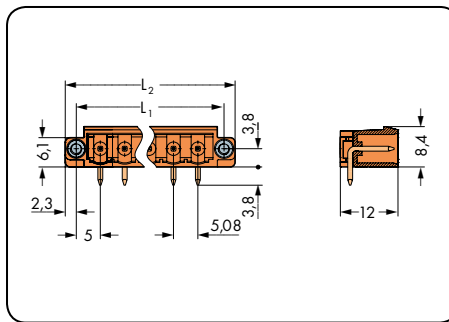
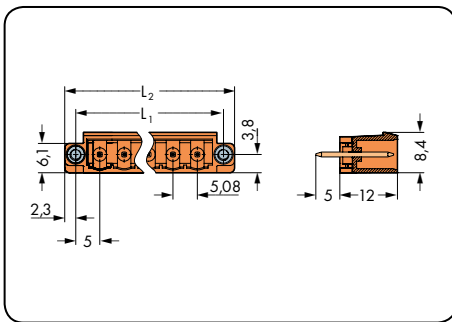
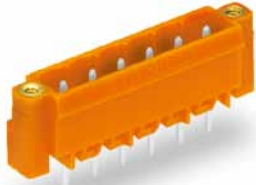


$L_1 = (\text{pole no.} \times \text{pin spacing}) + 5.4 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 10 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with angled solder pins 1.2 x 1.2 mm, orange			Male header with 1 x 1 mm straight solder pins and threaded flanges, orange			Male header with 1 x 1 mm angled solder pins and threaded flanges, orange		
2	231-562/001-000	200	2	231-332/108-000	200	2	231-532/108-000	200
3	231-563/001-000	200	3	231-333/108-000	200	3	231-533/108-000	200
4	231-564/001-000	200	4	231-334/108-000	100	4	231-534/108-000	100
5	231-565/001-000	200	5	231-335/108-000	100	5	231-535/108-000	100
6	231-566/001-000	100	6	231-336/108-000	100	6	231-536/108-000	100
7	231-567/001-000	100	7	231-337/108-000	100	7	231-537/108-000	100
8	231-568/001-000	100	8	231-338/108-000	100	8	231-538/108-000	100
9	231-569/001-000	100	9	231-339/108-000	100	9	231-539/108-000	100
10	231-570/001-000	100	10	231-340/108-000	100	10	231-540/108-000	100
11	231-571/001-000	100						
12	231-572/001-000	100	12	231-342/108-000	100	12	231-542/108-000	100
13	231-573/001-000	50						
14	231-574/001-000	50	14	231-344/108-000	50	14	231-544/108-000	50
15	231-575/001-000	50	15	231-345/108-000	50	15	231-545/108-000	50
16	231-576/001-000	50	16	231-346/108-000	50	16	231-546/108-000	50
17	231-577/001-000	50						
18	231-578/001-000	50						
19	231-579/001-000	50						
20	231-580/001-000	50						
21	231-581/001-000	50						
22	231-582/001-000	50						
23	231-583/001-000	50						
24	231-584/001-000	50	For other lengths, please contact factory.					

Male Headers with Solder Pins MCS-MIDI Classic

With 1.2 x 1.2 mm straight solder pins and threaded flanges Pin spacing 5.08 mm / 0.2 in		With 1.2 x 1.2 mm angled solder pins and threaded flanges Pin spacing 5.08 mm / 0.2 in	
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



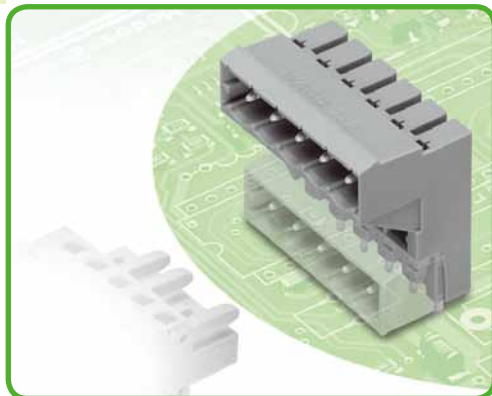
$L_1 = (\text{pole no.} \times \text{pin spacing}) + 5.4 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 10 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with 1.2 x 1.2 mm straight solder pins and threaded flanges, orange			Male header with 1.2 x 1.2 mm angled solder pins and threaded flanges, orange		
2	231-362/108-000	200	2	231-562/108-000	200
3	231-363/108-000	200	3	231-563/108-000	200
4	231-364/108-000	100	4	231-564/108-000	100
5	231-365/108-000	100	5	231-565/108-000	100
6	231-366/108-000	100	6	231-566/108-000	100
7	231-367/108-000	100	7	231-567/108-000	100
8	231-368/108-000	100	8	231-568/108-000	100
9	231-369/108-000	100	9	231-569/108-000	100
10	231-370/108-000	100	10	231-570/108-000	100
12	231-372/108-000	100	12	231-572/108-000	100
14	231-374/108-000	50	14	231-574/108-000	50
15	231-375/108-000	50	15	231-575/108-000	50
16	231-376/108-000	50	16	231-576/108-000	50
For other lengths, please contact factory.					

Male Headers for Double-Deck Assembly

Pin Spacing 5 mm, 5.08 mm

MCS-MIDI Classic



- Male headers for double-deck assembly provides high-density wiring for "wire-to-board" connections
- Horizontal PCB mounting
- Double-deck design allows male or female headers with angled solder pins to be placed on the lower deck
- With coding keys

Technical data:

Pin Spacing	5 mm 0.197 in			5.08 mm 0.2 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A	12 A	12 A	12 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	10 A	-	10 A
Nominal current CSA	10 A	-	10 A	10 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder pin data:

Solder pin: length/width	5 mm / 1 x 1 mm
Solder pin: drilled hole diameter	1.4 ^{+0.1} mm

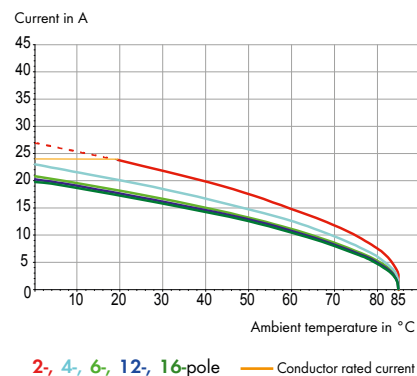
Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Derating Curve

231-102/026-000 female connector
with 232-332 male header
Pin spacing: 5 mm / Conductor size: 2.5 mm² "fst"
Based on: EN 60512-5-2 / Reduction factor: 0.8



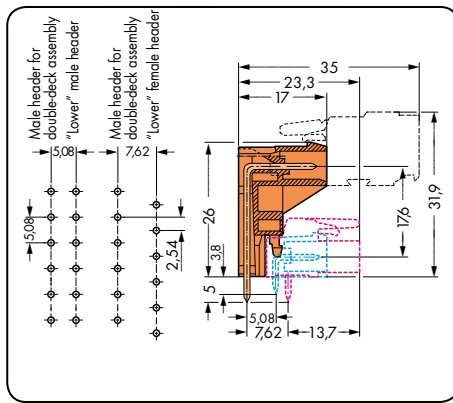
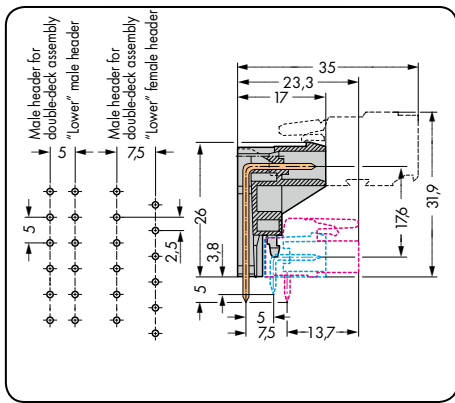
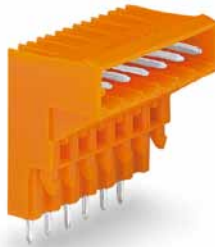
MCS-MIDI accessories:

Page:

Separators	468
Coding keys	468
Coding pins	468

Male Headers for Double-Deck Assembly MCS-MIDI Classic

With angled solder pins Pin spacing 5 mm / 0.197 in		With angled solder pins Pin spacing 5.08 mm / 0.2 in	
320 V/4 kV/2 12 A	300 V/10 A	320 V/4 kV/2 12 A	300 V/10 A



Length = (pole no. - 1) x pin spacing + 8.2 mm
 The solder pins of the "lower" male headers are in line.
 The solder pins of the "lower" female headers are staggered by half a pin spacing.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header for double-deck assembly with angled solder pins, gray			Male header for double-deck assembly with angled solder pins, orange		
2	232-332	100	2	232-362	100
3	232-333	100	3	232-363	100
4	232-334	100	4	232-364	100
5	232-335	100			
6	232-336	50	6	232-366	50
7	232-337	50			
8	232-338	50	8	232-368	50
10	232-340	50	10	232-370	50
12	232-342	50	12	232-372	50
16	232-346	25	16	232-376	25

Female connectors with locking devices are not suitable for this type of application.

Male Headers with 1 x 1 mm and 1.2 x 1.2 mm Solder Pins, THR (Through-Hole Reflow*) Pin Spacing 5 mm MCS-MIDI Classic



- THR male headers for reflow soldering in SMT applications
- Available in tape-and-reel packaging for automated pick-and-place assembly
- Also available in bulk packaging for manual placement
- Male headers may be mounted horizontally or vertically
- With coding keys

Technical data:

1 x 1 mm

1.2 x 1.2 mm

Pin Spacing	5 mm 0.197 in			5 mm 0.197 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A	16 A	16 A	16 A
Approvals per	UL/CSA**			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	-	-	-
Nominal current UL	10 A	-	10 A	-	-	-
Nominal current CSA	10 A	-	10 A	-	-	-

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder pin data:

Solder pin: length/width	2.4 mm / 1 x 1 mm
Solder pin: drilled hole diameter	1.4 ^{+0.1} mm
Solder pin: length/width	2.4 mm / 1.2 x 1.2 mm
Solder pin: drilled hole diameter	1.7 ^{+0.1} mm
For other pin lengths, please contact factory	

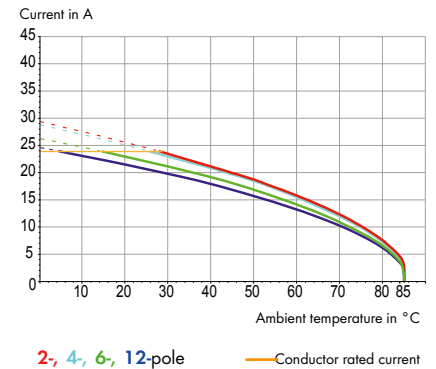
Material data:

Material group	I
Insulating material	Glass fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Contact material	Electrolytic copper (E _C)
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Derating Curve

231-102/026-000 female connector
with 231-432/001-000/105-604 male header
Pin spacing: 5 mm / Conductor size: 2.5 mm² "fst"
Based on: EN 60512-5-2 / Reduction factor: 0.8



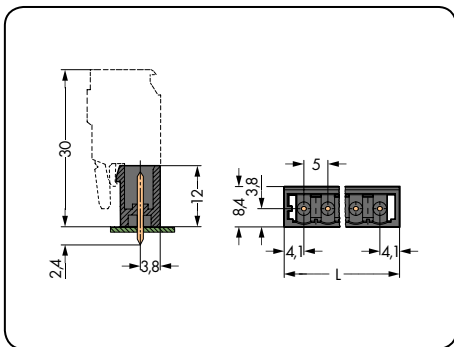
MCS-MIDI accessories:

Page:

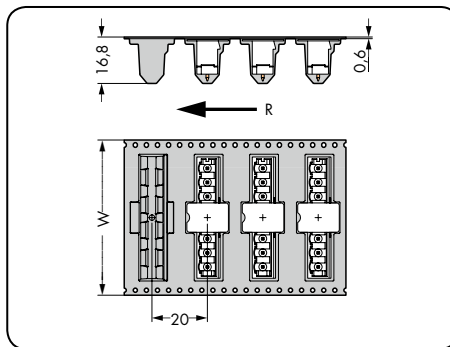
Fixing elements	468
Separators	468
Coding keys	468

Male Headers with 1 x 1 mm Solder Pins, THR MCS-MIDI Classic

With 1 x 1 mm straight solder pins Pin spacing 5 mm / 0.197 in		With 1 x 1 mm straight solder pins In tape-and-reel packaging Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/10 A	320 V/4 kV/2 12 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



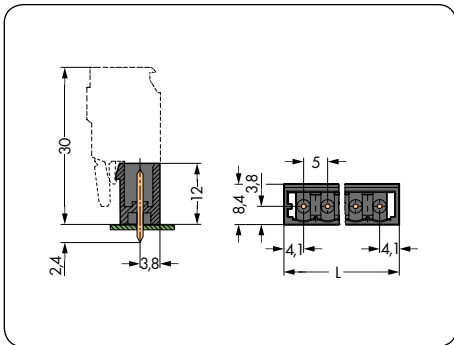
W= Tape width
R = Feed direction

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with 1 x 1 mm straight solder pins, black			Male header with 1 x 1 mm straight solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
			(mm)		
2	231-132/001-000/105-604	200	2	231-132/001-000/105-604/997-405	32
3	231-133/001-000/105-604	200	3	231-133/001-000/105-604/997-405	32
4	231-134/001-000/105-604	200	4	231-134/001-000/105-604/997-407	56
5	231-135/001-000/105-604	200	5	231-135/001-000/105-604/997-407	56
6	231-136/001-000/105-604	100	6	231-136/001-000/105-604/997-407	56
8	231-138/001-000/105-604	100	8	231-138/001-000/105-604/997-407	56
10	231-140/001-000/105-604	100	10	231-140/001-000/105-604/997-409	88
12	231-142/001-000/105-604	100	12	231-142/001-000/105-604/997-409	88
			Reel diameter: 330 mm, 170 pieces per reel		

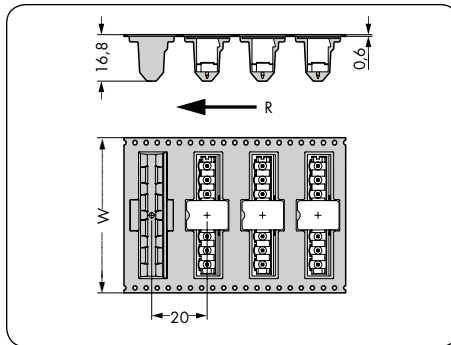


Male Headers with 1.2 x 1.2 mm Straight Solder Pins, THR MCS-MIDI Classic

<p>With 1.2 x 1.2 mm straight solder pins</p> <p>Pin spacing 5 mm / 0.197 in</p> <p>320 V/4 kV/2 16 A</p>	<p>With 1.2 x 1.2 mm straight solder pins</p> <p>In tape-and-reel packaging</p> <p>Pin spacing 5 mm / 0.197 in</p> <p>320 V/4 kV/2 16 A</p>	
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$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$

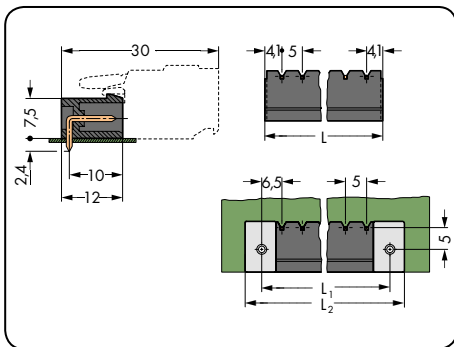


W= Tape width
R = Feed direction

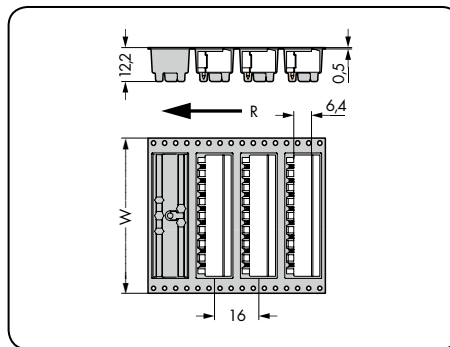
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with 1.2 x 1.2 mm straight solder pins, black			Male header with 1.2 x 1.2 mm straight solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
			(mm)		
2	231-162/001-000/105-604	200	2	231-162/001-000/105-604/997-405	32
3	231-163/001-000/105-604	200	3	231-163/001-000/105-604/997-405	32
4	231-164/001-000/105-604	200	4	231-164/001-000/105-604/997-407	56
5	231-165/001-000/105-604	200	5	231-165/001-000/105-604/997-407	56
6	231-166/001-000/105-604	100	6	231-166/001-000/105-604/997-407	56
7	231-167/001-000/105-604	100	7	231-167/001-000/105-604/997-407	56
8	231-168/001-000/105-604	100	8	231-168/001-000/105-604/997-407	56
9	231-169/001-000/105-604	100	9	231-169/001-000/105-604/997-409	88
10	231-170/001-000/105-604	100	10	231-170/001-000/105-604/997-409	88
11	231-171/001-000/105-604	100	11	231-171/001-000/105-604/997-409	88
12	231-172/001-000/105-604	100	12	231-172/001-000/105-604/997-409	88
Reel diameter: 330 mm, 170 pieces per reel					

Male Headers with 1 x 1 mm Angled Solder Pins, THR MCS-MIDI Classic

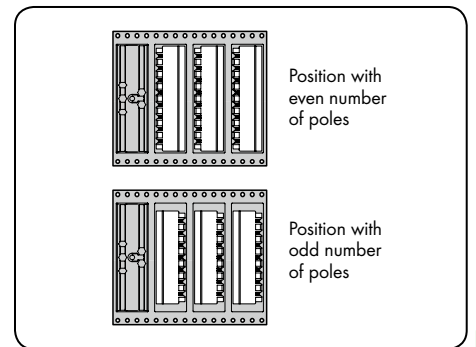
With 1 x 1 mm angled solder pins Pin spacing 5 mm / 0.197 in		With 1 x 1 mm angled solder, In tape-and-reel packaging Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/10 A	320 V/4 kV/2 12 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L + 4.8 \text{ mm}$
 $L_2 = L_1 + 7.2 \text{ mm}$



$W = \text{Tape width}$
 $R = \text{Feed direction}$

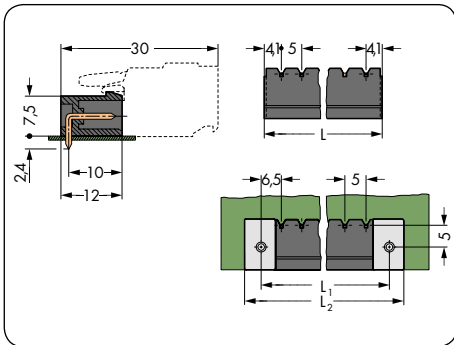


Pin position in tape-and-reel packaging

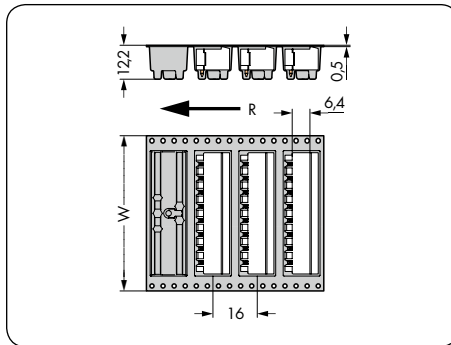
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with 1 x 1 mm angled solder pins, black			Male header with 1 x 1 mm angled solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
					(mm)
2	231-432/001-000/105-604	200	2	231-432/001-000/105-604/997-405	32
3	231-433/001-000/105-604	200	3	231-433/001-000/105-604/997-405	32
4	231-434/001-000/105-604	200	4	231-434/001-000/105-604/997-407	56
5	231-435/001-000/105-604	200	5	231-435/001-000/105-604/997-407	56
6	231-436/001-000/105-604	100	6	231-436/001-000/105-604/997-407	56
8	231-438/001-000/105-604	100	8	231-438/001-000/105-604/997-407	56
10	231-440/001-000/105-604	100	10	231-440/001-000/105-604/997-409	88
12	231-442/001-000/105-604	100	12	231-442/001-000/105-604/997-409	88
Reel diameter: 330 mm, 170 pieces per reel					

Male Headers with 1.2 x 1.2 mm Angled Solder Pins, THR MCS-MIDI Classic

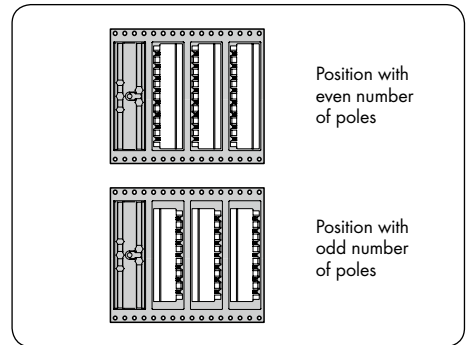
<p>With 1.2 x 1.2 mm angled solder pins</p> <p>Pin spacing 5 mm / 0.197 in</p> <p>320 V/4 kV/2 16 A</p>	<p>With 1.2 x 1.2 mm angled solder pins</p> <p>In tape-and-reel packaging</p> <p>Pin spacing 5 mm / 0.197 in</p> <p>320 V/4 kV/2 16 A</p>	
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$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L + 4.8 \text{ mm}$
 $L_2 = L_1 + 7.2 \text{ mm}$



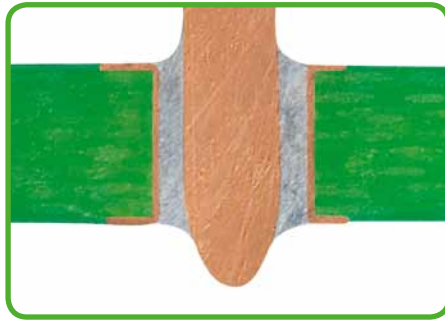
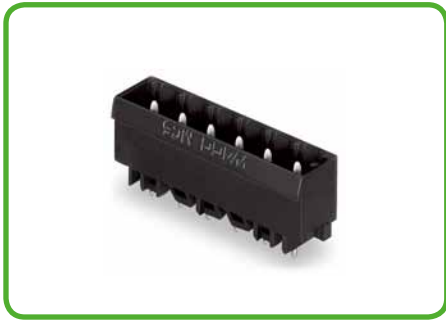
W = Tape width
 R = Feed direction



Male header position in tape-and-reel packaging

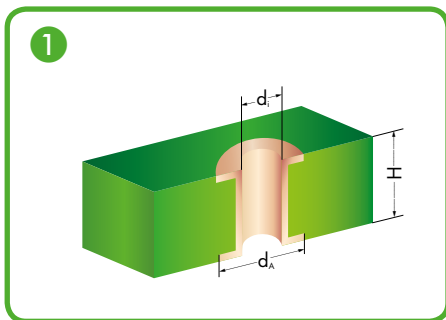
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with 1.2 x 1.2 mm angled solder pins, black			Male header with 1.2 x 1.2 mm angled solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
					(mm)
2	231-462/001-000/105-604	200	2	231-462/001-000/105-604/997-405	32
3	231-463/001-000/105-604	200	3	231-463/001-000/105-604/997-405	32
4	231-464/001-000/105-604	200	4	231-464/001-000/105-604/997-407	56
5	231-465/001-000/105-604	200	5	231-465/001-000/105-604/997-407	56
6	231-466/001-000/105-604	100	6	231-466/001-000/105-604/997-407	56
7	231-467/001-000/105-604	100	7	231-467/001-000/105-604/997-407	56
8	231-468/001-000/105-604	100	8	231-468/001-000/105-604/997-407	56
9	231-469/001-000/105-604	100	9	231-469/001-000/105-604/997-409	88
10	231-470/001-000/105-604	100	10	231-470/001-000/105-604/997-409	88
11	231-471/001-000/105-604	100	11	231-471/001-000/105-604/997-409	88
12	231-472/001-000/105-604	100	12	231-472/001-000/105-604/997-409	88
Reel diameter: 330 mm, 170 pieces per reel					

THR (Through-Hole Reflow) Soldering Process

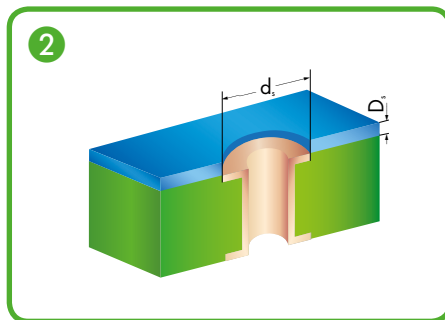


By using high-temperature resistant plastic and a streamlined pin design, the WAGO Through-Hole Reflow headers and PCB terminal blocks meet requirements for SMT process capability while maintaining necessary stability. Male headers and THR PCB terminal blocks are simply pushed into the solder paste-filled PCB holes and then soldered along with the SMT components via reflow soldering. The previous wave soldering process is no longer necessary. The result is a perfect connection – both mechanically and electrically.

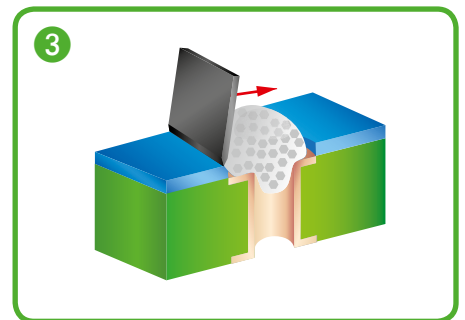
Terminal strips with additional suction pad in tape-and-reel packaging according to IEC 60286-3.



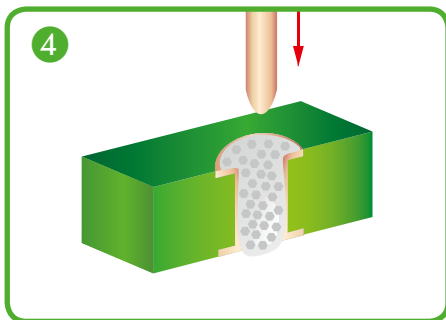
1 Metal-plated PCB bore hole



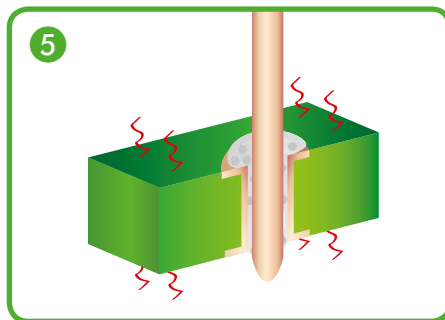
2 SMD positioning pattern



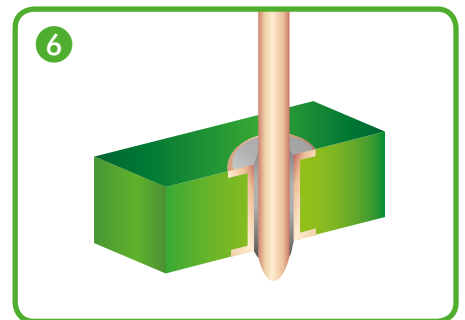
3 Application of solder paste



4 Component assembly, automatic/by hand

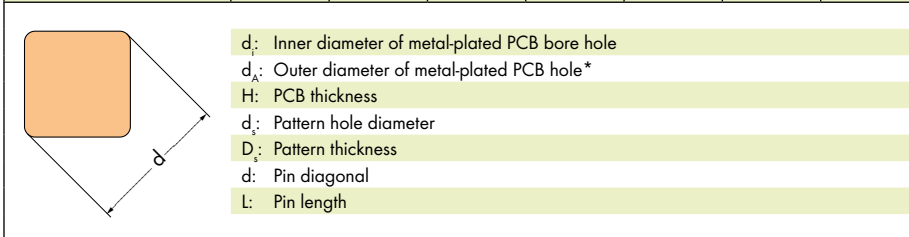


5 Reflow soldering process



6 THR soldering joint

Series	d_i (mm)	d_A (mm)	H(mm)	d_s (mm)	D_s (μ m)	d(mm)	L(mm)
231 (1 x 1 mm)	$1,4^{+0,1}$	2,5	< 2	2,4	150	1,2	2,4
231 (1,2 x 1,2 mm)	$1,7^{+0,1}$	2,8	< 2	2,7	150	1,5	2,4
713	$1,2^{+0,1}$	1,9	< 2	1,8	150	1,0	2,4
733	$1,2^{+0,1}$	1,9	< 2	1,8	150	1,0	2,4
734	$1,4^{+0,1}$	2,5	< 2	2,4	150	1,2	2,4



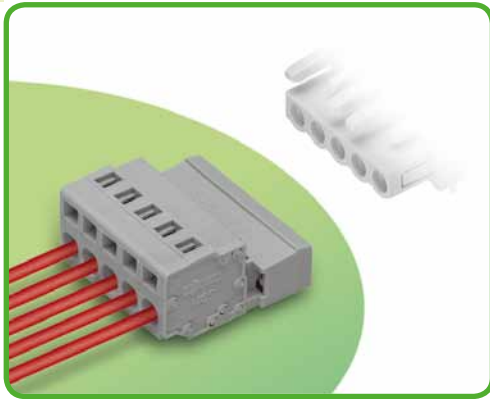
*When laying out the metal-plated bore holes, the clearance and creepage distance requirements – as specified in the equipment standards – must be considered.

WAGO recommends both a temperature profile that adheres to EN 61760-1 and the use of forced convection ovens for processing THR components.

Male Connectors

Pin spacing 5 mm, 5.08 mm

MCS-MIDI Classic



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- For “wire-to-wire” and “board-to-wire” connections
- Versions available with snap-in mounting feet or fixing flanges for panel or through-panel mounting
- With coding keys

Technical data:

Pin Spacing	5 mm 0.197 in			5.08 mm 0.2 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating based on	III III II			III III II		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A	12 A	12 A	12 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A

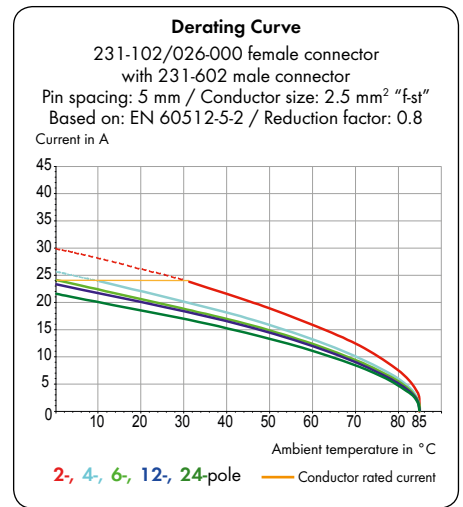
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®
Conductor cross section: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 12: THHN, THWN
Strip length	8 - 9 mm / 0.31 - 0.35 in

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix . . . /010-000” is added to the “basic item no.”	



MCS-MIDI accessories:

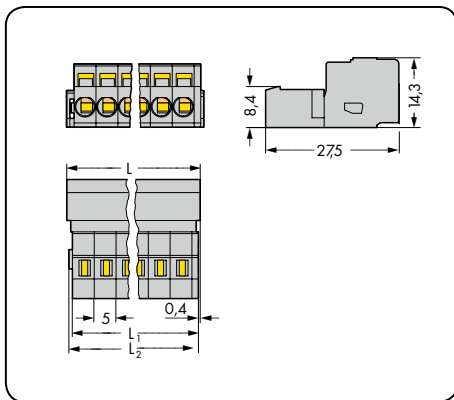
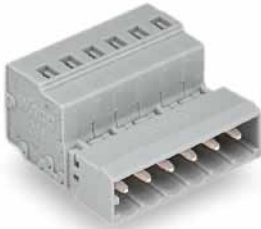
Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Separators	468
Comb-style jumper bars	476
Insulation stop	469
Coding keys	468
Screws	546
Strain relief housing	472 - 473
Strain relief plates	470 - 471

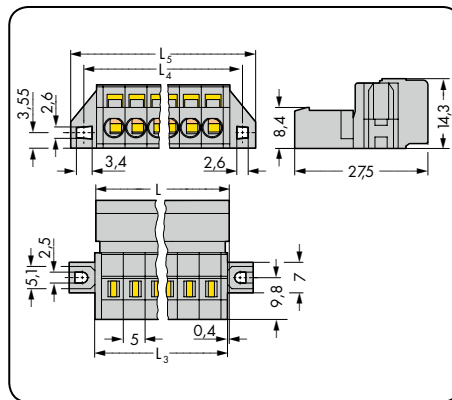
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Connectors MCS-MIDI Classic

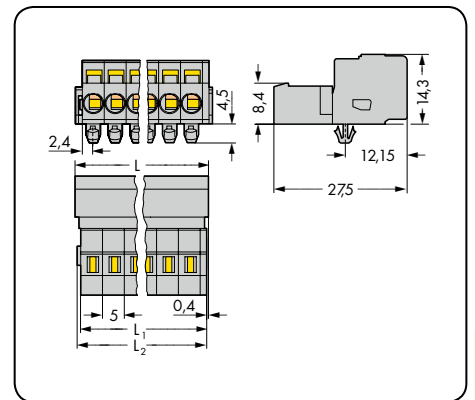
Pin spacing 5 mm / 0.197 in		With fixing flanges Pin spacing 5 mm / 0.197 in		With snap-in mounting feet Pin spacing 5 mm / 0.197 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 5.8 \text{ mm}$
 $L_5 = L_3 + 11.8 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$

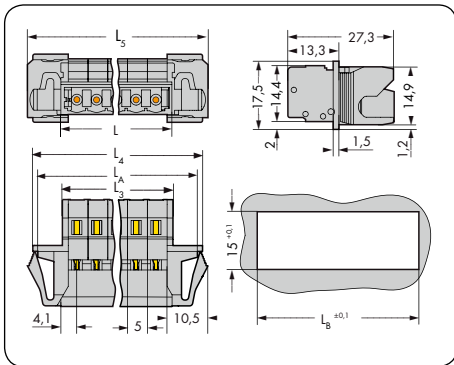
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector, gray			Male connector with fixing flanges, gray			Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, gray		
2	231-602	100	2	231-602/019-000	100	2	231-602/018-000	100
3	231-603	100	3	231-603/019-000	50	3	231-603/018-000	100
4	231-604	100	4	231-604/019-000	50	4	231-604/018-000	100
5	231-605	50	5	231-605/019-000	50	5	231-605/018-000	50
6	231-606	50	6	231-606/019-000	50	6	231-606/018-000	50
7	231-607	50	7	231-607/019-000	50	7	231-607/018-000	50
8	231-608	50	8	231-608/019-000	50	8	231-608/018-000	50
9	231-609	50	9	231-609/019-000	25	9	231-609/018-000	50
10	231-610	50	10	231-610/019-000	25	10	231-610/018-000	50
11	231-611	25	11	231-611/019-000	25	11	231-611/018-000	25
12	231-612	25	12	231-612/019-000	25	12	231-612/018-000	25
13	231-613	25	13	231-613/019-000	25	13	231-613/018-000	25
14	231-614	25	14	231-614/019-000	25	14	231-614/018-000	25
15	231-615	25	15	231-615/019-000	25	15	231-615/018-000	25
16	231-616	25	16	231-616/019-000	10	16	231-616/018-000	25
17	231-617	25	17	231-617/019-000	10	17	231-617/018-000	25
18	231-618	25	18	231-618/019-000	10	18	231-618/018-000	25
19	231-619	10	19	231-619/019-000	10	19	231-619/018-000	10
20	231-620	10	20	231-620/019-000	10	20	231-620/018-000	10
21	231-621	10	21	231-621/019-000	10	21	231-621/018-000	10
22	231-622	10	22	231-622/019-000	10	22	231-622/018-000	10
23	231-623	10	23	231-623/019-000	10	23	231-623/018-000	10
24	231-624	10	24	231-624/019-000	10	24	231-624/018-000	10

For cutout dimensions, see page 484, table 1.

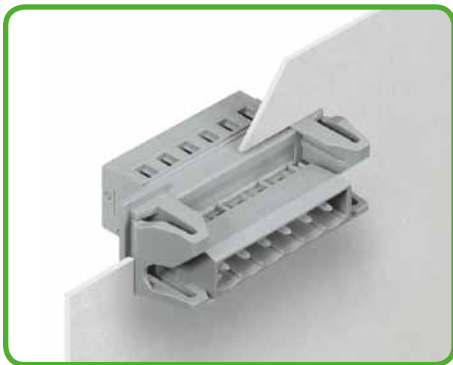
Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Male Connectors MCS-MIDI Classic

With snap-in flanges Pin spacing 5 mm / 0.197 in		
0.08 - 2.5 mm ²	AWG 28 - 12	
320 V/4 kV/2 12 A	300 V/15 A	



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 15.2 \text{ mm}$
 $L_5 = L_3 + 18 \text{ mm}$
 $L_A = L_3 + 12.6 \text{ mm}$
 $L_B = L_3 + 13.2 \text{ mm}$

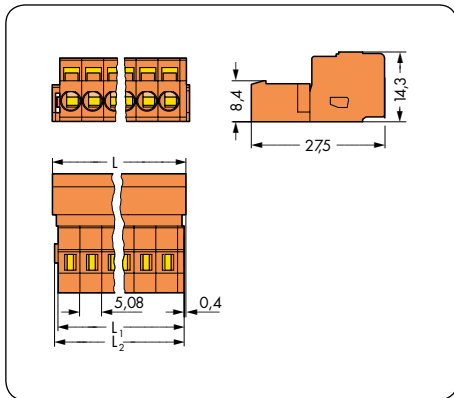
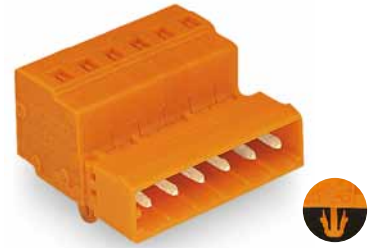
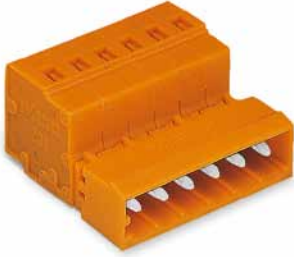


Male connectors with snap-in flanges for feedthrough applications, for 0.5 - 2.5 mm plate thickness

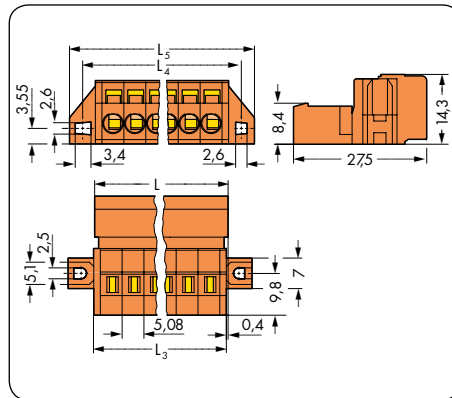
Pole No	Item No.	Pack. Unit
Male connector with snap-in flanges, gray		
2	231-602/114-000	50
3	231-603/114-000	50
4	231-604/114-000	50
5	231-605/114-000	50
6	231-606/114-000	50
7	231-607/114-000	25
8	231-608/114-000	25
9	231-609/114-000	25
10	231-610/114-000	25
11	231-611/114-000	25
12	231-612/114-000	25
13	231-613/114-000	25
14	231-614/114-000	25
15	231-615/114-000	10
16	231-616/114-000	10
17	231-617/114-000	10
18	231-618/114-000	10
19	231-619/114-000	10
20	231-620/114-000	10
21	231-621/114-000	10
22	231-622/114-000	10
23	231-623/114-000	10
24	231-624/114-000	10

Male Connectors MCS-MIDI Classic

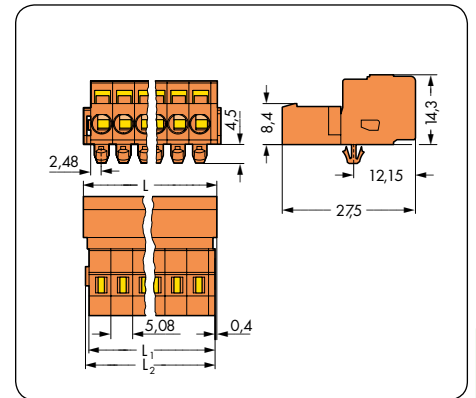
Pin spacing 5.08 mm / 0.2 in		With fixing flanges Pin spacing 5.08 mm / 0.2 in		With snap-in mounting feet Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 5.8 \text{ mm}$
 $L_5 = L_3 + 11.8 \text{ mm}$



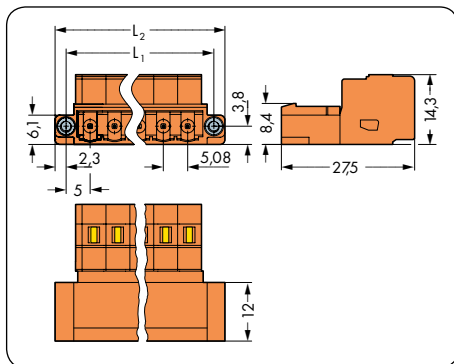
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector, orange			Male connector with fixing flanges, orange			Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, orange		
2	231-632	100	2	231-632/019-000	100	2	231-632/018-000	100
3	231-633	100	3	231-633/019-000	50	3	231-633/018-000	100
4	231-634	100	4	231-634/019-000	50	4	231-634/018-000	100
5	231-635	50	5	231-635/019-000	50	5	231-635/018-000	50
6	231-636	50	6	231-636/019-000	50	6	231-636/018-000	50
7	231-637	50	7	231-637/019-000	50	7	231-637/018-000	50
8	231-638	50	8	231-638/019-000	50	8	231-638/018-000	50
9	231-639	50	9	231-639/019-000	25	9	231-639/018-000	50
10	231-640	50	10	231-640/019-000	25	10	231-640/018-000	50
11	231-641	25	11	231-641/019-000	25	11	231-641/018-000	25
12	231-642	25	12	231-642/019-000	25	12	231-642/018-000	25
13	231-643	25	13	231-643/019-000	25	13	231-643/018-000	25
14	231-644	25	14	231-644/019-000	25	14	231-644/018-000	25
15	231-645	25	15	231-645/019-000	25	15	231-645/018-000	25
16	231-646	25	16	231-646/019-000	10	16	231-646/018-000	25
17	231-647	25	17	231-647/019-000	10	17	231-647/018-000	25
18	231-648	10	18	231-648/019-000	10	18	231-648/018-000	10
19	231-649	10	19	231-649/019-000	10	19	231-649/018-000	10
20	231-650	10	20	231-650/019-000	10	20	231-650/018-000	10
21	231-651	10	21	231-651/019-000	10	21	231-651/018-000	10
22	231-652	10	22	231-652/019-000	10	22	231-652/018-000	10
23	231-653	10	23	231-653/019-000	10	23	231-653/018-000	10
24	231-654	10	24	231-654/019-000	10	24	231-654/018-000	10

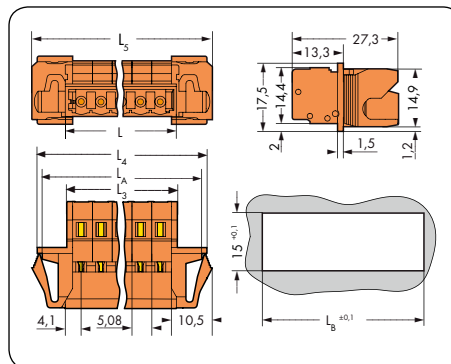
For cutout dimensions, see page 484, table 1.

Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

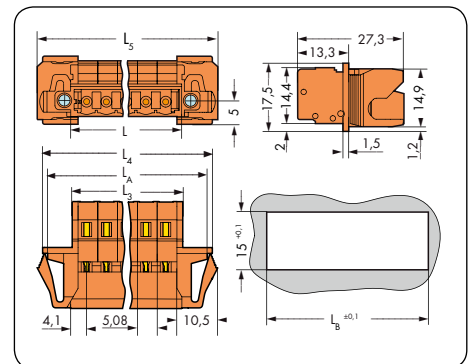
With threaded flanges Pin spacing 5.08 mm / 0.2 in		With snap-in flanges Pin spacing 5.08 mm / 0.2 in		With snap-in flanges and threaded flanges Pin spacing 5.08 mm / 0.2 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
320 V/4 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/ 15 A	630 V/6 kV/2 12 A	300 V/ 15 A



$L_1 = (\text{pole no.} \times \text{pin spacing}) + 5.4 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 10 \text{ mm}$

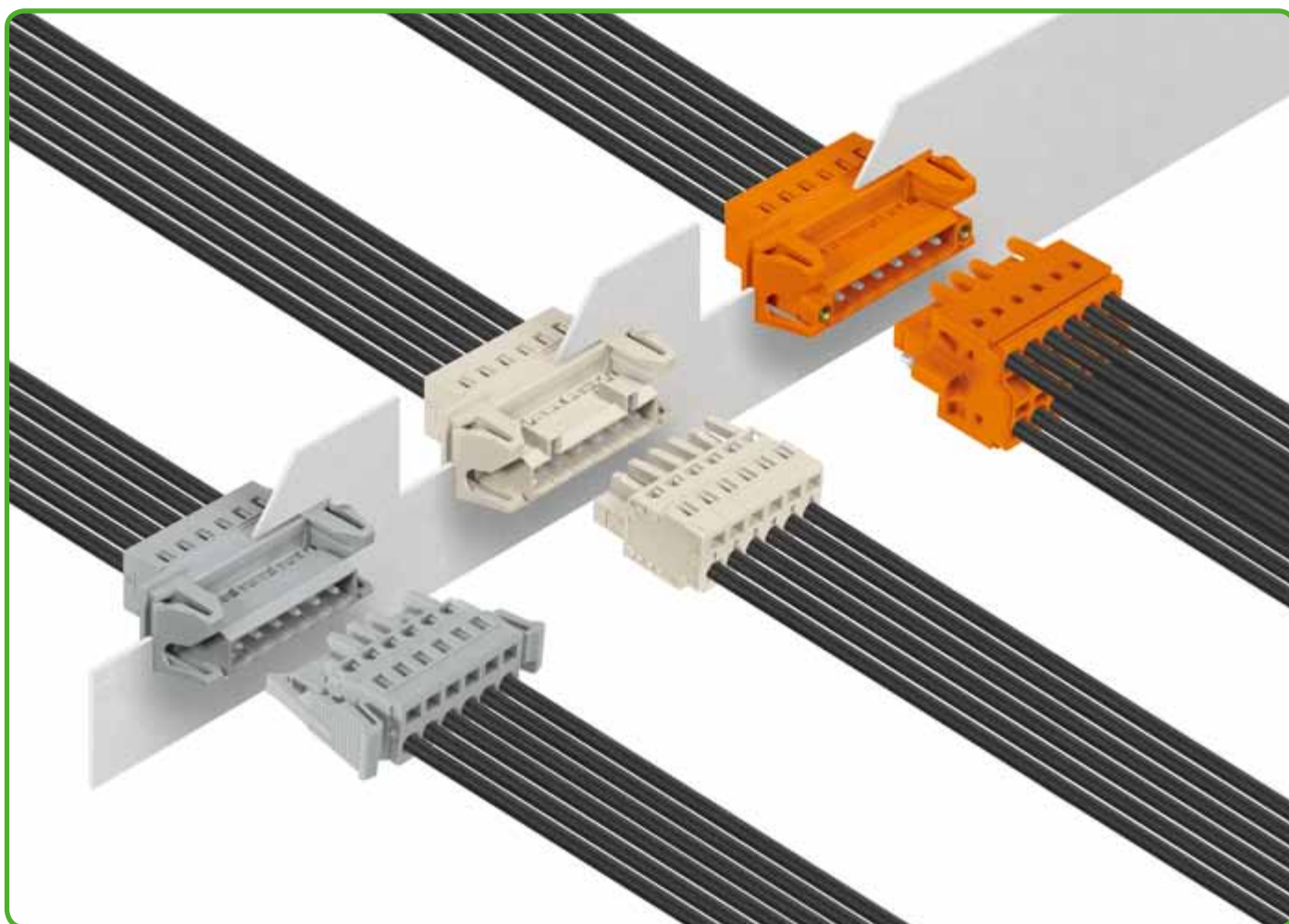


$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 15.2 \text{ mm}$
 $L_5 = L_3 + 18 \text{ mm}$
 $L_A = L_3 + 12.6 \text{ mm}$
 $L_B = L_3 + 13.2 \text{ mm}$



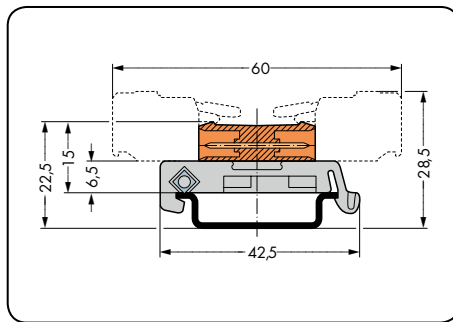
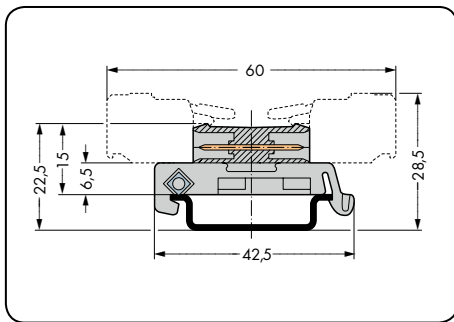
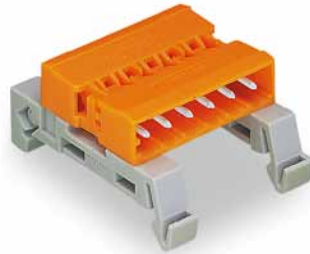
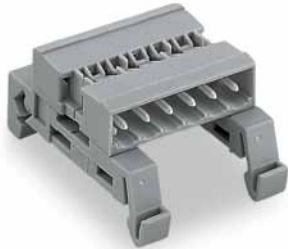
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 15.2 \text{ mm}$
 $L_5 = L_3 + 18 \text{ mm}$
 $L_A = L_3 + 12.6 \text{ mm}$
 $L_B = L_3 + 13.2 \text{ mm}$

Pole No	Item No.	Pack. Unit	Pole No	Item No.	Pack. Unit	Pole No	Item No.	Pack. Unit
Male connector with threaded flanges, orange			Male connector with snap-in flanges, orange			Male connector with snap-in flanges and threaded flanges, orange		
2	231-632/109-000	100	2	231-632/114-000	50	2	231-632/129-000	50
3	231-633/109-000	100	3	231-633/114-000	50	3	231-633/129-000	50
4	231-634/109-000	50	4	231-634/114-000	50	4	231-634/129-000	50
5	231-635/109-000	50	5	231-635/114-000	50	5	231-635/129-000	50
6	231-636/109-000	50	6	231-636/114-000	50	6	231-636/129-000	50
7	231-637/109-000	50	7	231-637/114-000	25	7	231-637/129-000	25
8	231-638/109-000	50	8	231-638/114-000	25	8	231-638/129-000	25
9	231-639/109-000	25	9	231-639/114-000	25	9	231-639/129-000	25
10	231-640/109-000	25	10	231-640/114-000	25	10	231-640/129-000	25
			11	231-641/114-000	25			
12	231-642/109-000	25	12	231-642/114-000	25	12	231-642/129-000	25
			13	231-643/114-000	25			
14	231-644/109-000	25	14	231-644/114-000	25	14	231-644/129-000	25
15	231-645/109-000	25	15	231-645/114-000	10	15	231-645/129-000	10
16	231-646/109-000	10	16	231-646/114-000	10	16	231-646/129-000	10
			17	231-647/114-000	10			
			18	231-648/114-000	10			
			19	231-649/114-000	10			
			20	231-650/114-000	10			
			21	231-651/114-000	10			
			22	231-652/114-000	10			
			23	231-653/114-000	10			
			24	231-654/114-000	10			



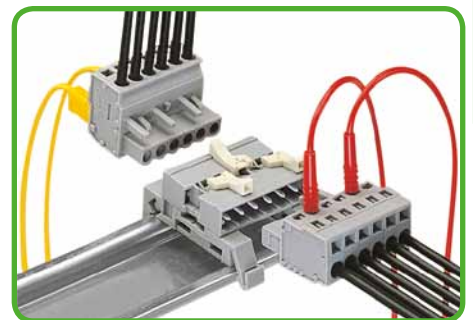
Double-Pin Male Connectors with Mounting Feet for DIN 35 Rail MCS-MIDI Classic

Pin spacing 5 mm / 0.197 in		Pin spacing 5.08 mm / 0.2 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A

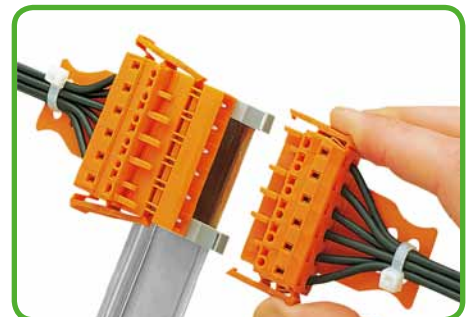


Length = (pole no. - 1) x pin spacing + 8.2 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-pin male connector with mounting feet for DIN 35 rail, gray			Double-pin male connector with mounting feet for DIN 35 rail, orange		
2	232-502/007-000	100	2	232-532/007-000	100
3	232-503/007-000	50	3	232-533/007-000	50
4	232-504/007-000	50	4	232-534/007-000	50
5	232-505/007-000	50	5	232-535/007-000	50
6	232-506/007-000	50	6	232-536/007-000	50
7	232-507/007-000	25	7	232-537/007-000	25
8	232-508/007-000	25	8	232-538/007-000	25
9	232-509/007-000	25	9	232-539/007-000	25
10	232-510/007-000	25	10	232-540/007-000	25
11	232-511/007-000	25	11	232-541/007-000	25
12	232-512/007-000	25	12	232-542/007-000	25
13	232-513/007-000	25	13	232-543/007-000	25
14	232-514/007-000	25	14	232-544/007-000	25
15	232-515/007-000	25	15	232-545/007-000	25
16	232-516/007-000	25	16	232-546/007-000	25
17	232-517/007-000	25	17	232-547/007-000	25
18	232-518/007-000	25	18	232-548/007-000	25
19	232-519/007-000	25	19	232-549/007-000	25
20	232-520/007-000	25	20	232-550/007-000	25
21	232-521/007-000	10	21	232-551/007-000	10
22	232-522/007-000	10	22	232-552/007-000	10
23	232-523/007-000	10	23	232-553/007-000	10
24	232-524/007-000	10	24	232-554/007-000	10



Angled female connector - straight female connector

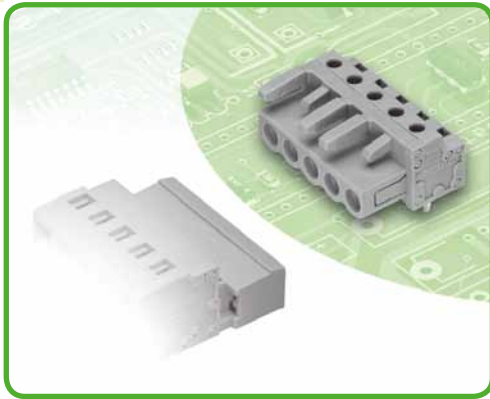


Female connectors with locking levers

Female Headers with Solder Pins

Pin Spacing 5 mm, 5.08 mm

MCS-MIDI Classic



- Horizontal or vertical PCB mounting via straight or angled solder pins
- For "board-to-board" and "board-to-wire" connections
- Touch-proof PCB outputs
- Easy-to-identify PCB inputs and outputs
- With coding fingers

Technical data:

Pin Spacing	5 mm 0.197 in			5.08 mm 0.2 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating based on	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Nominal current	12 A	12 A	12 A	12 A	12 A	12 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder pin data:

Solder pin: length/width	5 mm / 0.6 x 1 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

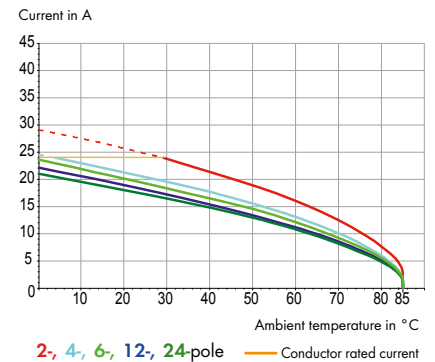
Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Derating Curve

232-232 female header with 231-602 male connector
Pin spacing: 5 mm / Conductor size: 2.5 mm² "Est"
Based on: EN 60512-5-2 / Reduction factor: 0.8



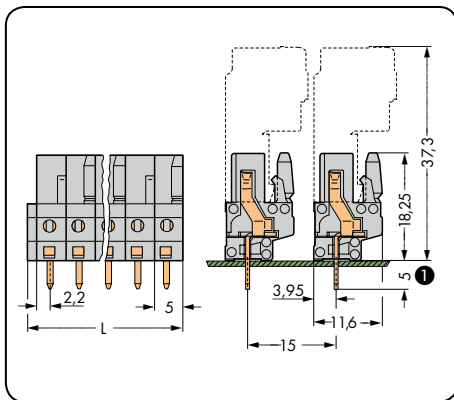
MCS-MIDI accessories:

Page:

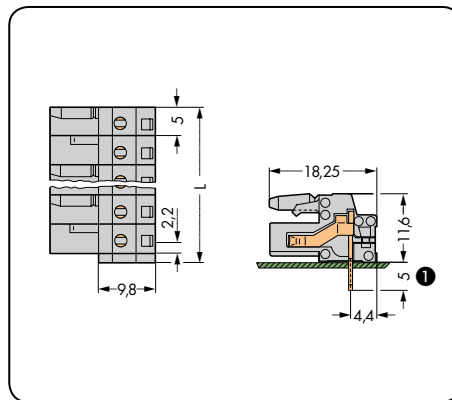
Marking accessories	540 - 543
Test plug adapter	474
Test plugs	538
Screws	546

Female Headers with Solder Pins MCS-MIDI Classic

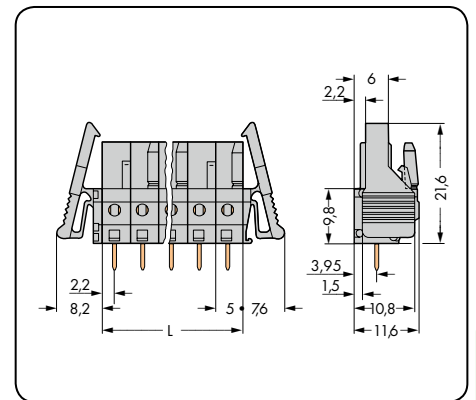
With straight solder pins Pin spacing 5 mm / 0.197 in		With angled solder pins Pin spacing 5 mm / 0.197 in		With straight solder pins and locking levers Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



L = (pole no. x pin spacing) + 1.5 mm



L = (pole no. x pin spacing) + 1.5 mm
Distance to first solder pin: 2.2 mm



L = pole no. x pin spacing

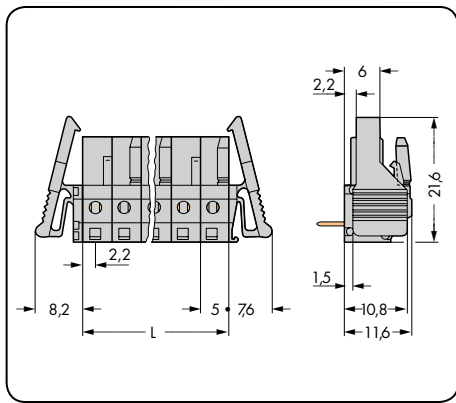
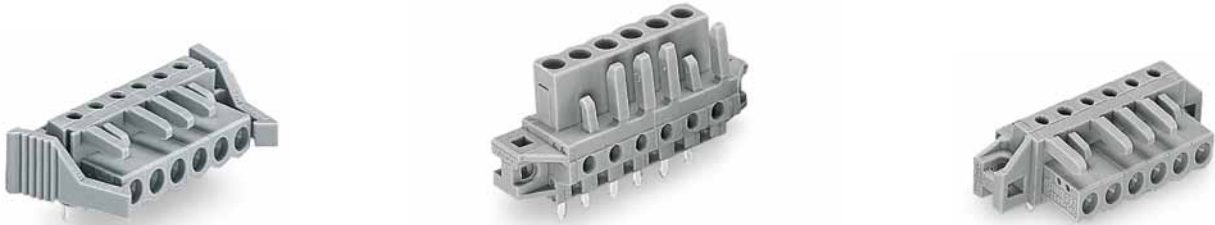
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, gray			Female header with angled solder pins, gray			Female header with straight solder pins and locking levers, gray		
2	232-132	100	2	232-232	100	2	232-132/039-000	100
3	232-133	100	3	232-233	100	3	232-133/039-000	50
4	232-134	100	4	232-234	100	4	232-134/039-000	50
5	232-135	100	5	232-235	100	5	232-135/039-000	50
6	232-136	50	6	232-236	50	6	232-136/039-000	50
7	232-137	50	7	232-237	50	7	232-137/039-000	50
8	232-138	50	8	232-238	50	8	232-138/039-000	50
9	232-139	50	9	232-238	50	9	232-139/039-000	25
10	232-140	50	10	232-240	50	10	232-140/039-000	25
11	232-141	25	11	232-241	25	11	232-141/039-000	25
12	232-142	25	12	232-242	25	12	232-142/039-000	25
13	233-143	25	13	232-243	25	13	232-143/039-000	25
14	232-144	25	14	232-244	25	14	232-144/039-000	25
15	232-145	25	15	232-245	25	15	232-145/039-000	25
16	232-146	25	16	232-246	25	16	232-146/039-000	10
17	232-147	25	17	232-247	25	17	232-147/039-000	10
18	232-148	25	18	232-248	25	18	232-148/039-000	10
19	232-149	10	19	232-249	10	19	232-149/039-000	10
20	232-150	10	20	232-250	10	20	232-150/039-000	10
21	232-151	10	21	232-251	10	21	232-151/039-000	10
22	232-152	10	22	232-252	10	22	232-152/039-000	10
23	232-153	10	23	232-253	10	23	232-153/039-000	10
24	232-154	10	24	232-254	10	24	232-154/039-000	10

2- to 3-pole female headers - one latch only

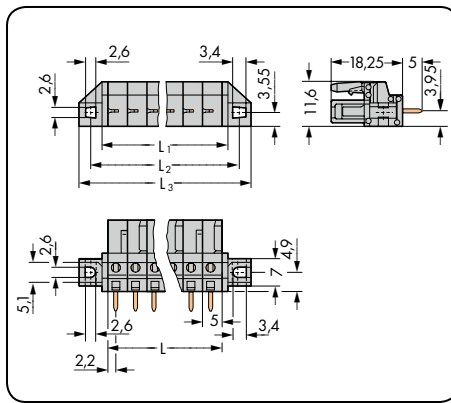
① MCS-MIDI female headers with solder pins are also available with 3.8 mm pin projection. Add or insert item no. suffix .../045-000.

Female Headers with Solder Pins MCS-MIDI Classic

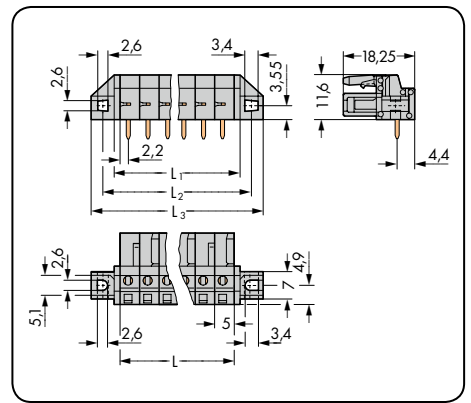
With angled solder pins and locking levers Pin spacing 5 mm / 0.197 in		With straight solder pins and fixing flanges Pin spacing 5 mm / 0.197 in		With angled solder pins and fixing flanges Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



L = pole no. x pin spacing
Distance to first solder pin: 2.2 mm



L = pole no. x pin spacing
L₁ = L + 3 mm
L₂ = L + 8.8 mm
L₃ = L + 14.8 mm



L = pole no. x pin spacing
L₁ = L + 3 mm
L₂ = L + 8.8 mm
L₃ = L + 14.8 mm

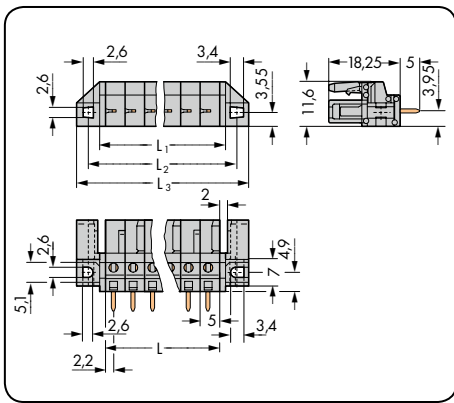
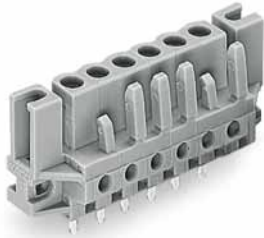
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with angled solder pins and locking levers, gray			Female header with straight solder pins and fixing flanges, for through-panel mounting, gray			Female header with angled solder pins and fixing flanges, for through-panel mounting, gray		
2	232-232/039-000	100	2	232-132/031-000	100	2	232-232/031-000	100
3	232-233/039-000	50	3	232-133/031-000	50	3	232-233/031-000	50
4	232-234/039-000	50	4	232-134/031-000	50	4	232-234/031-000	50
5	232-235/039-000	50	5	232-135/031-000	50	5	232-235/031-000	50
6	232-236/039-000	50	6	232-136/031-000	50	6	232-236/031-000	50
7	232-237/039-000	50	7	232-137/031-000	50	7	232-237/031-000	50
8	232-238/039-000	50	8	232-138/031-000	50	8	232-238/031-000	50
9	232-239/039-000	25	9	232-139/031-000	25	9	232-239/031-000	25
10	232-240/039-000	25	10	232-140/031-000	25	10	232-240/031-000	25
11	232-241/039-000	25	11	232-141/031-000	25	11	232-241/031-000	25
12	232-242/039-000	25	12	232-142/031-000	25	12	232-242/031-000	25
13	232-243/039-000	25	13	232-143/031-000	25	13	232-243/031-000	25
14	232-244/039-000	25	14	232-144/031-000	25	14	232-244/031-000	25
15	232-245/039-000	25	15	232-145/031-000	25	15	232-245/031-000	25
16	232-246/039-000	10	16	232-146/031-000	10	16	232-246/031-000	10
17	232-247/039-000	10	17	232-147/031-000	10	17	232-247/031-000	10
18	232-248/039-000	10	18	232-148/031-000	10	18	232-248/031-000	10
19	232-249/039-000	10	19	232-149/031-000	10	19	232-249/031-000	10
20	232-250/039-000	10	20	232-150/031-000	10	20	232-250/031-000	10
21	232-251/039-000	10	21	232-151/031-000	10	21	232-251/031-000	10
22	232-252/039-000	10	22	232-152/031-000	10	22	232-252/031-000	10
23	232-253/039-000	10	23	232-153/031-000	10	23	232-253/031-000	10
24	232-254/039-000	10	24	232-154/031-000	10	24	232-254/031-000	10

For cutout dimensions, see page 486, table 3.

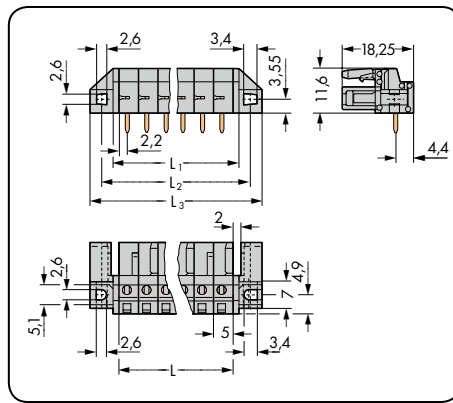
2- to 3-pole female headers - one latch only

Female Headers with Solder Pins MCS-MIDI Classic

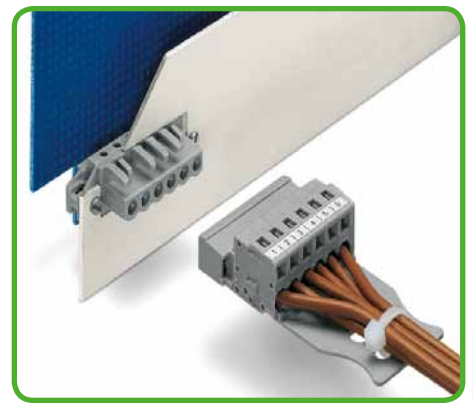
With straight solder pins and spacers Pin spacing 5 mm / 0.197 in		With angled solder pins and spacers Pin spacing 5 mm / 0.197 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



L = pole no. x pin spacing
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$



L = pole no. x pin spacing
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

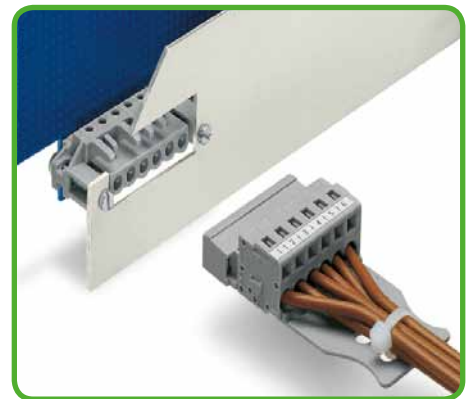


The innovative flange design provides standard panel mounting options or various through-panel mounting configurations. Depending on the application and type of flange, female headers are now suitable for through-panel mounting ...

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins and spacers, for flush mounting, gray			Female header with angled solder pins and spacers, for flush mounting, gray		
2	232-132/047-000	100	2	232-232/047-000	100
3	232-133/047-000	50	3	232-233/047-000	50
4	232-134/047-000	50	4	232-234/047-000	50
5	232-135/047-000	50	5	232-235/047-000	50
6	232-136/047-000	50	6	232-236/047-000	50
7	232-137/047-000	50	7	232-237/047-000	50
8	232-138/047-000	50	8	232-238/047-000	50
9	232-139/047-000	25	9	232-239/047-000	25
10	232-140/047-000	25	10	232-240/047-000	25
11	232-141/047-000	25	11	232-241/047-000	25
12	232-142/047-000	25	12	232-242/047-000	25
13	232-143/047-000	25	13	232-243/047-000	25
14	232-144/047-000	25	14	232-244/047-000	25
15	232-145/047-000	25	15	232-245/047-000	25
16	232-146/047-000	10	16	232-246/047-000	10
17	232-147/047-000	10	17	232-247/047-000	10
18	232-148/047-000	10	18	232-248/047-000	10
19	232-149/047-000	10	19	232-249/047-000	10
20	232-150/047-000	10	20	232-250/047-000	10
21	232-151/047-000	10	21	232-251/047-000	10
22	232-152/047-000	10	22	232-252/047-000	10
23	232-153/047-000	10	23	232-253/047-000	10
24	232-154/047-000	10	24	232-254/047-000	10

For cutout dimensions, see page 486, table 3.

2- to 3-pole female headers - one latch only

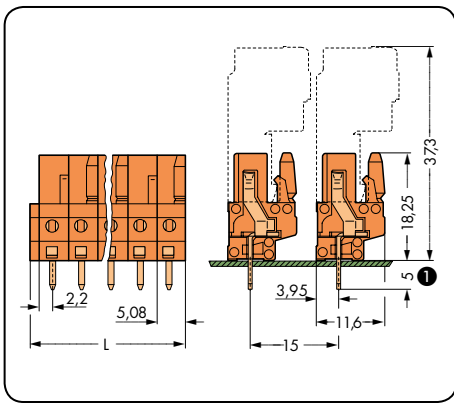
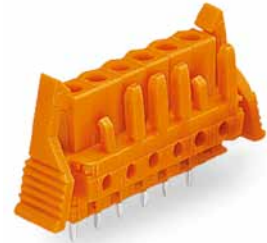


... or flush mounting.

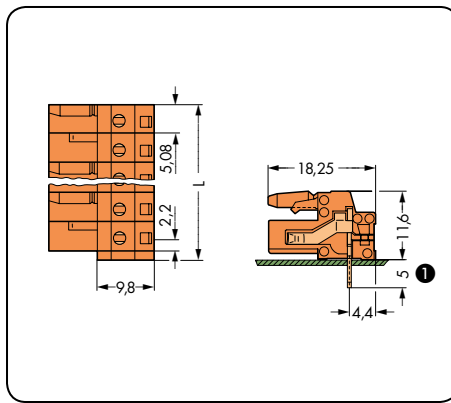
6 Female Headers with Solder Pins MCS-MIDI Classic

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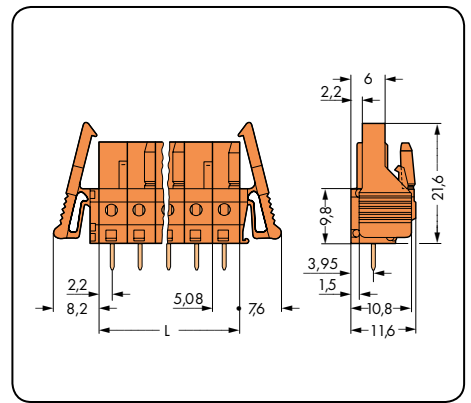
With straight solder pins Pin spacing 5.08 mm / 0.2 in		With angled solder pins Pin spacing 5.08 mm / 0.2 in		With straight solder pins and locking levers Pin spacing 5.08 mm / 0.2 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



L = (pole no. x pin spacing) + 1.5 mm



L = (pole no. x pin spacing) + 1.5 mm
Distance to first solder pin: 2.2 mm



L = pole no. x pin spacing

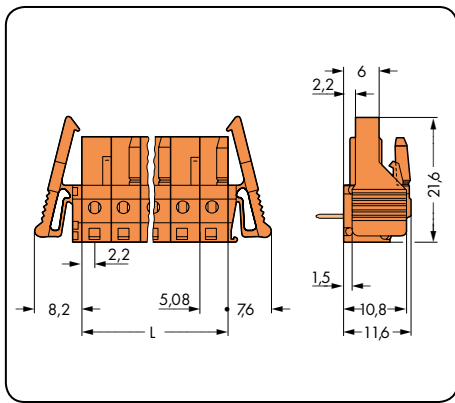
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, orange			Female header with angled solder pins, orange			Female header with straight solder pins and locking levers, orange		
2	232-162	100	2	232-262	100	2	232-162/039-000	100
3	232-163	100	3	232-263	100	3	232-163/039-000	50
4	232-164	100	4	232-264	100	4	232-164/039-000	50
5	232-165	100	5	232-265	100	5	232-165/039-000	50
6	232-166	50	6	232-266	50	6	232-166/039-000	50
7	232-167	50	7	232-267	50	7	232-167/039-000	50
8	232-168	50	8	232-268	50	8	232-168/039-000	50
9	232-169	50	9	232-269	50	9	232-169/039-000	25
10	232-170	50	10	232-270	50	10	232-170/039-000	25
11	232-171	25	11	232-271	25	11	232-171/039-000	25
12	232-172	25	12	232-272	25	12	232-172/039-000	25
13	232-173	25	13	232-273	25	13	232-173/039-000	25
14	232-174	25	14	232-274	25	14	232-174/039-000	25
15	232-175	25	15	232-275	25	15	232-175/039-000	25
16	232-176	25	16	232-276	25	16	232-176/039-000	10
17	232-177	25	17	232-277	25	17	232-177/039-000	10
18	232-178	25	18	232-278	25	18	232-178/039-000	10
19	232-179	10	19	232-279	10	19	232-179/039-000	10
20	232-180	10	20	232-280	10	20	232-180/039-000	10
21	232-181	10	21	232-281	10	21	232-181/039-000	10
22	232-182	10	22	232-282	10	22	232-182/039-000	10
23	232-183	10	23	232-283	10	23	232-183/039-000	10
24	232-184	10	24	232-284	10	24	232-184/039-000	10

2- to 3-pole female headers - one latch only

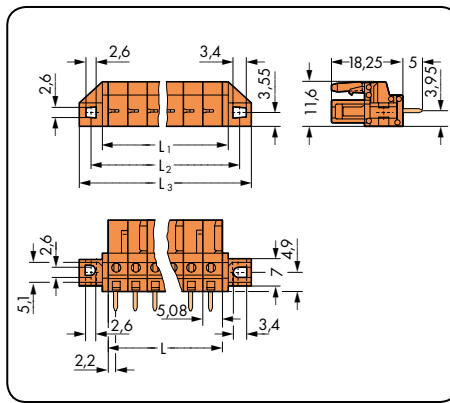
❶ MCS-MIDI female headers with solder pins are also available with 3.8 mm pin projection.
Add or insert item no. suffix .../045-000.

Female Headers with Solder Pins MCS-MIDI Classic

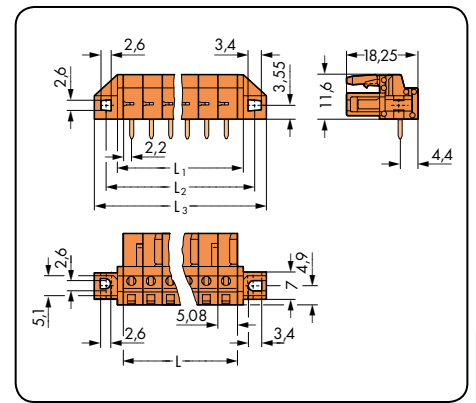
With angled solder pins and locking levers Pin spacing 5.08 mm / 0.2 in		With straight solder pins and fixing flanges Pin spacing 5.08 mm / 0.2 in		With angled solder pins and fixing flanges Pin spacing 5.08 mm / 0.2 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



L = pole no. x pin spacing
Distance to first solder pin: 2.2 mm



L = pole no. x pin spacing
L₁ = L + 3 mm
L₂ = L + 8.8 mm
L₃ = L + 14.8 mm



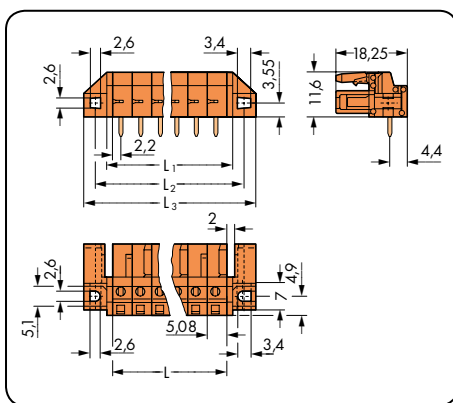
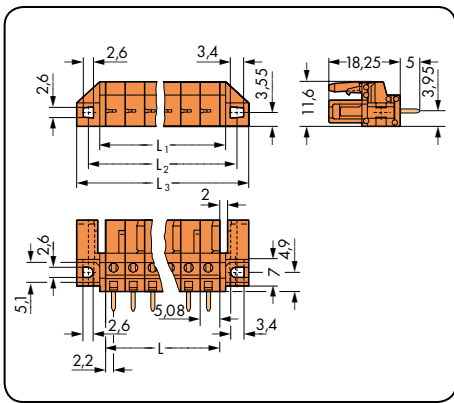
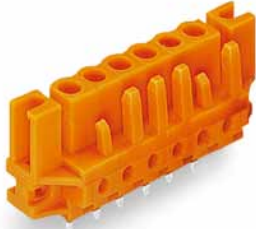
L = pole no. x pin spacing
L₁ = L + 3 mm
L₂ = L + 8.8 mm
L₃ = L + 14.8 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with angled solder pins and locking levers, orange			Female header with straight solder pins and fixing flanges, for through-panel mounting, orange			Female header with angled solder pins and fixing flanges, for through-panel mounting, orange		
2	232-262/039-000	100	2	232-162/031-000	100	2	232-262/031-000	100
3	232-263/039-000	50	3	232-163/031-000	50	3	232-263/031-000	50
4	232-264/039-000	50	4	232-164/031-000	50	4	232-264/031-000	50
5	232-265/039-000	50	5	232-165/031-000	50	5	232-265/031-000	50
6	232-266/039-000	50	6	232-166/031-000	50	6	232-266/031-000	50
7	232-267/039-000	50	7	232-167/031-000	50	7	232-267/031-000	50
8	232-268/039-000	50	8	232-168/031-000	50	8	232-268/031-000	50
9	232-269/039-000	25	9	232-169/031-000	25	9	232-269/031-000	25
10	232-270/039-000	25	10	232-170/031-000	25	10	232-270/031-000	25
11	232-271/039-000	25	11	232-171/031-000	25	11	232-271/031-000	25
12	232-272/039-000	25	12	232-172/031-000	25	12	232-272/031-000	25
13	232-273/039-000	25	13	232-173/031-000	25	13	232-273/031-000	25
14	232-274/039-000	25	14	232-174/031-000	25	14	232-274/031-000	25
15	232-275/039-000	25	15	232-175/031-000	25	15	232-275/031-000	25
16	232-276/039-000	10	16	232-176/031-000	10	16	232-276/031-000	10
17	232-277/039-000	10	17	232-177/031-000	10	17	232-277/031-000	10
18	232-278/039-000	10	18	232-178/031-000	10	18	232-278/031-000	10
19	232-279/039-000	10	19	232-179/031-000	10	19	232-279/031-000	10
20	232-280/039-000	10	20	232-180/031-000	10	20	232-280/031-000	10
21	232-281/039-000	10	21	232-181/031-000	10	21	232-281/031-000	10
22	232-282/039-000	10	22	232-182/031-000	10	22	232-282/031-000	10
23	232-283/039-000	10	23	232-183/031-000	10	23	232-283/031-000	10
24	232-284/039-000	10	24	232-184/031-000	10	24	232-284/031-000	10
For cutout dimensions, see page 486, table 3.								
2- to 3-pole female headers - one latch only								

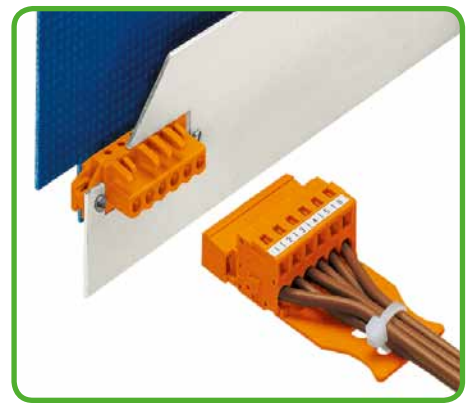
6 Female Headers with Solder Pins MCS-MIDI Classic

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With straight solder pins and spacers Pin spacing 5.08 mm / 0.2 in		With angled solder pins and spacers Pin spacing 5.08 mm / 0.2 in	
320 V/4 kV/2 12 A	300 V/15 A	320 V/4 kV/2 12 A	300 V/15 A



L = pole no. x pin spacing
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

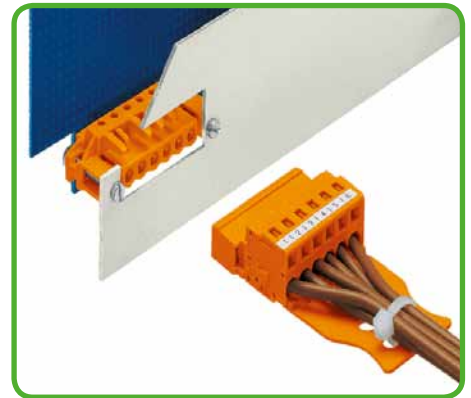


Depending on the application and type of flange, female headers are now suitable for through-panel mounting ...

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins and spacers, for flush mounting, orange			Female header with angled solder pins and spacers, for flush mounting, orange		
2	232-162/047-000	100	2	232-262/047-000	100
3	232-163/047-000	50	3	232-263/047-000	50
4	232-164/047-000	50	4	232-264/047-000	50
5	232-165/047-000	50	5	232-265/047-000	50
6	232-166/047-000	50	6	232-266/047-000	50
7	232-167/047-000	50	7	232-267/047-000	50
8	232-168/047-000	50	8	232-268/047-000	50
9	232-169/047-000	25	9	232-269/047-000	25
10	232-170/047-000	25	10	232-270/047-000	25
11	232-171/047-000	25	11	232-271/047-000	25
12	232-172/047-000	25	12	232-272/047-000	25
13	232-173/047-000	25	13	232-273/047-000	25
14	232-174/047-000	25	14	232-274/047-000	25
15	232-175/047-000	25	15	232-275/047-000	25
16	232-176/047-000	10	16	232-276/047-000	10
17	232-177/047-000	10	17	232-277/047-000	10
18	232-178/047-000	10	18	232-278/047-000	10
19	232-179/047-000	10	19	232-279/047-000	10
20	232-180/047-000	10	20	232-280/047-000	10
21	232-181/047-000	10	21	232-281/047-000	10
22	232-182/047-000	10	22	232-282/047-000	10
23	232-183/047-000	10	23	232-283/047-000	10
24	232-184/047-000	10	24	232-284/047-000	10

For cutout dimensions, see page 486, table 3.

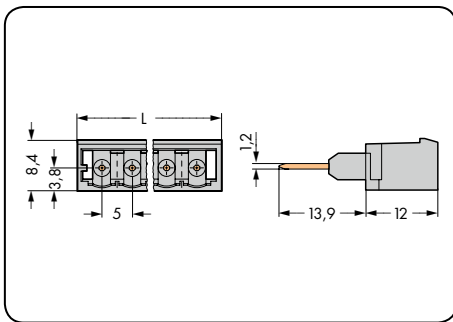
2- to 3-pole female headers - one latch only



... or flush mounting.

Male Connectors for Front-Entry, Rail-Mounted Terminal Blocks MCS-MIDI Classic

<p>With 1.2 x 1.2 mm straight contact pins Pin spacing 5 mm / 0.197 in</p> <p>250 V/4 kV/3 16 A 300 V/15 A</p>	<p>Rail-mounted spacer blocks width 5 mm / 0.197 in.</p>	<p>Application example</p>
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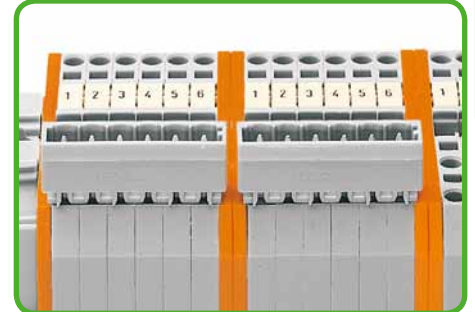


$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



Inserting male connector via multipole operating tool.

Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit
Male connector with straight, long contact pins, 1.2 x 1.2 mm solder pins, gray			Rail-mounted spacer block, same profile as through terminal blocks, orange	
			Horizontal type:	
2	231-162/003-000	200	2-conductor 280-902/056-000	100
3	231-163/003-000	200	3-conductor 280-650/056-000	100
4	231-164/003-000	200	4-conductor 280-335/056-000	
5	231-165/003-000	200		
6	231-166/003-000	100		
7	231-167/003-000	100	Angled type:	
8	231-168/003-000	100	3/4-conductor 280-654/056-000	100
9	231-169/003-000	100		
10	231-170/003-000	100		
11	231-171/003-000	100		
12	231-172/003-000	100		
16	231-176/003-000	50		
20	231-180/003-000	50		
12- to 20-pole male connectors are only suitable for factory assembly.				



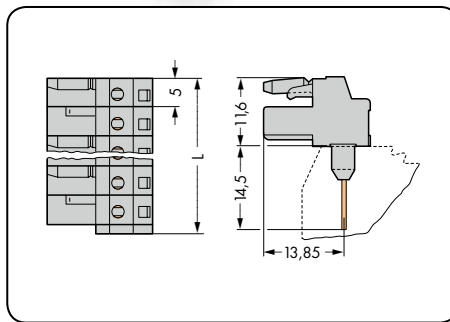
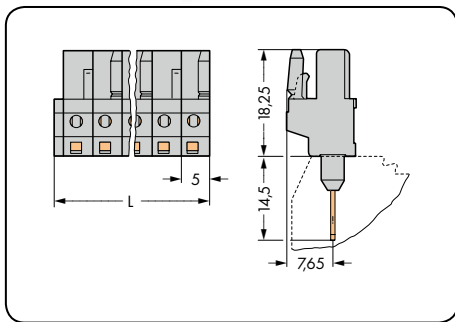
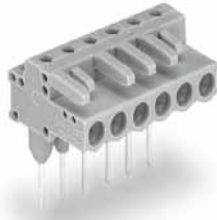
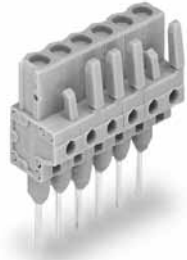
The extra width of the male connectors when used on front-entry rail-mounted terminal blocks must be compensated for by either two intermediate plates or ...



... a rail-mounted spacer block, when building assemblies. Spacer blocks can be bridged via alternate or staggered jumpers.

Female Connectors for Front-Entry, Rail-Mounted Terminal Blocks MCS-MIDI Classic

With 0.6 x 1 mm straight contact pins Pin spacing 5 mm / 0.197 in		With 0.6 x 1 mm angled contact pins Pin spacing 5 mm / 0.197 in	
320 V/4 kV/3 12 A	300 V/15 A	320 V/4 kV/3 12 A	300 V/15 A



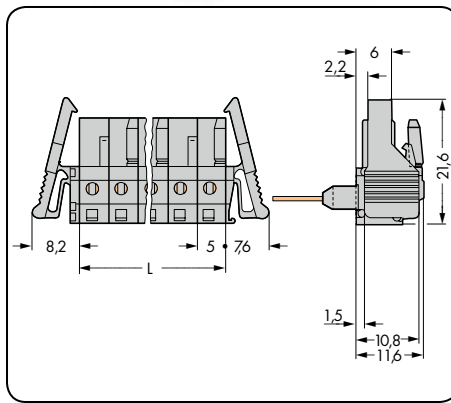
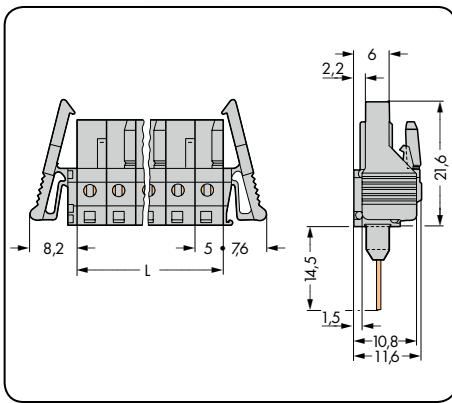
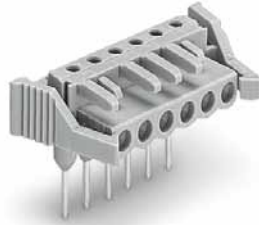
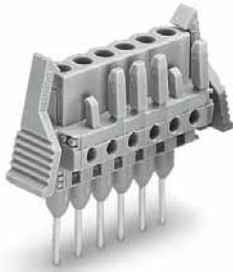
L = (pole no. x pin spacing) + 1.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with straight, long contact pins, gray			Female connector with angled, long contact pins, gray		
2	232-132/005-000	100	2	232-232/005-000	100
3	232-133/005-000	100	3	232-233/005-000	100
4	232-134/005-000	100	4	232-234/005-000	100
5	232-135/005-000	100	5	232-235/005-000	100
6	232-136/005-000	50	6	232-236/005-000	50
7	232-137/005-000	50	7	232-237/005-000	50
8	232-138/005-000	50	8	232-238/005-000	50
9	232-139/005-000	50	9	232-239/005-000	50
10	232-140/005-000	50	10	232-240/005-000	50
12	232-142/005-000	25	12	232-242/005-000	25
16	232-146/005-000	25	16	232-246/005-000	25
20	232-150/005-000	10	20	232-250/005-000	10
2- to 3-pole female connectors – one latch only					
12- to 20-pole female connectors are only suitable for factory assembly.					

For other lengths, please contact factory.

Female Connectors for Front-Entry, Rail-Mounted Terminal Blocks MCS-MIDI Classic

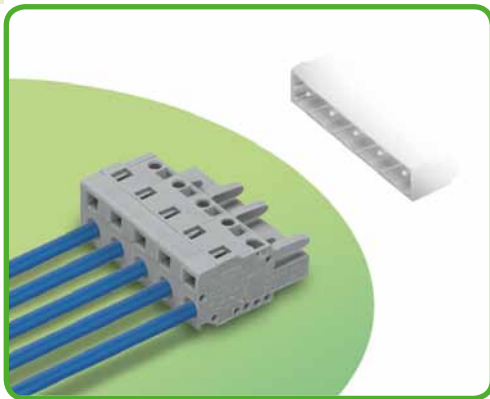
With 0.6 x 1 mm straight contact pins and locking levers Pin spacing 5 mm / 0.197 in		With 0.6 x 1 mm angled contact pins and locking levers Pin spacing 5 mm / 0.197 in		
320 V/4 kV/3 12 A	300 V/15 A	320 V/4 kV/3 12 A	300 V/15 A	



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with straight, long contact pins and locking levers, gray			Female connector with angled, long contact pins and locking levers, gray		
2	232-132/005-000/039-000	100	2	232-232/005-000/039-000	100
3	232-133/005-000/039-000	50	3	232-233/005-000/039-000	50
4	232-134/005-000/039-000	50	4	232-234/005-000/039-000	50
5	232-135/005-000/039-000	50	5	232-235/005-000/039-000	50
6	232-136/005-000/039-000	50	6	232-236/005-000/039-000	50
7	232-137/005-000/039-000	50	7	232-237/005-000/039-000	50
8	232-138/005-000/039-000	50	8	232-238/005-000/039-000	50
9	232-139/005-000/039-000	25	9	232-239/005-000/039-000	25
10	232-140/005-000/039-000	25	10	232-240/005-000/039-000	25
12	232-142/005-000/039-000	25	12	232-242/005-000/039-000	25
16	232-146/005-000/039-000	10	16	232-246/005-000/039-000	10
20	232-150/005-000/039-000	10	20	232-250/005-000/039-000	10
2- to 3-pole female connectors - one latch only					
12- to 20-pole female connectors are only suitable for factory assembly.					

Female Connectors Pin Spacing 7.5 mm, 7.62 mm MCS-MIDI Classic



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- With coding fingers
- Integrated test ports

Technical data:

Pin Spacing	Straight female connectors:			Angled female connectors:		
	7.5 mm/7.62 mm 0.295 in/0.3 in			7.5 mm/7.62 mm 0.295 in/0.3 in		
Rating based on	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A	14 A	14 A	14 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

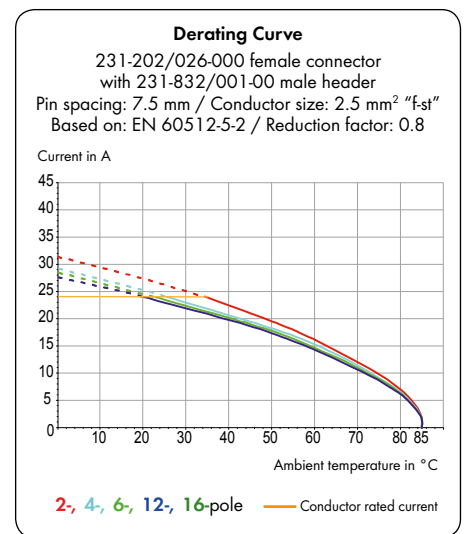
Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	28 - 12 12: THHN, THWN	
Strip length	8 - 9 mm / 0.31 - 0.35 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.



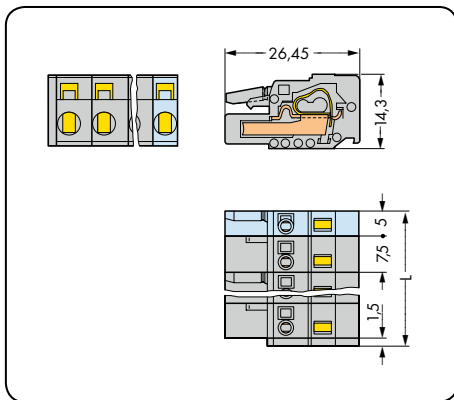
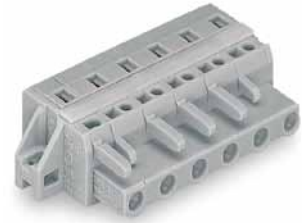
MCS-MIDI accessories:

Page:

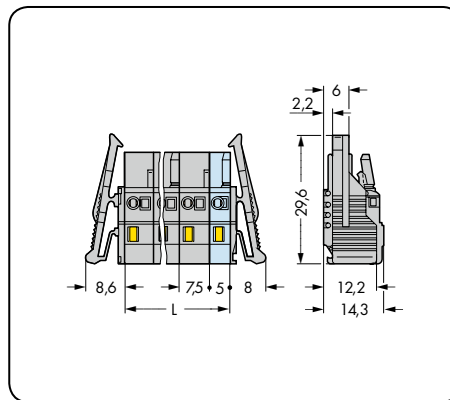
Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	474
Test plugs	538
Screws	546
Strain relief housings	472 - 473
Strain relief plates	470 - 471

Female Connectors MCS-MIDI Classic

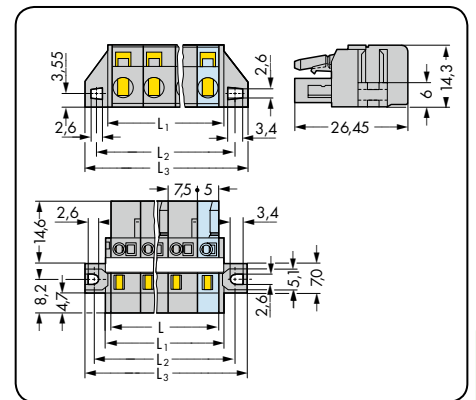
Pin spacing 7.5 mm / 0.295 in		With locking levers Pin spacing 7.5 mm / 0.295 in		With fixing flanges for racks and through-panel mounting Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$



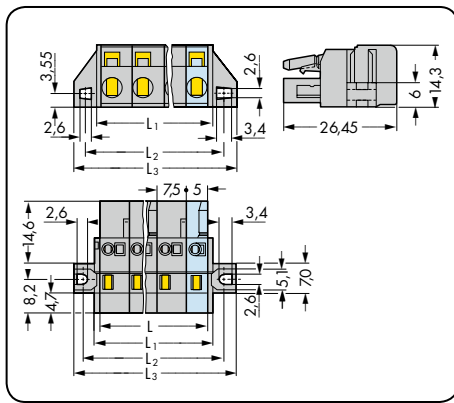
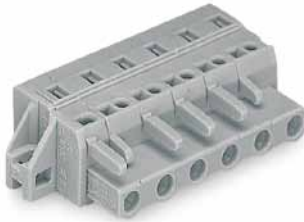
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$



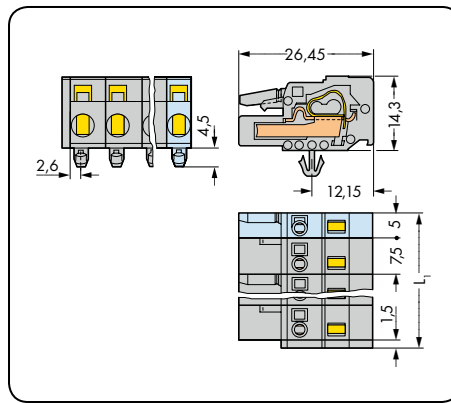
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, gray			Female connector with locking levers, gray			Female connector with fixing flanges, for racks and through-panel mounting, with reinforcing strips, gray		
2	231-202/026-000	100	2	231-202/037-000	50	2	231-202/031-000	50
3	231-203/026-000	100	3	231-203/037-000	50	3	231-203/031-000	50
4	231-204/026-000	50	4	231-204/037-000	50	4	231-204/031-000	50
5	231-205/026-000	50	5	231-205/037-000	50	5	231-205/031-000	50
6	231-206/026-000	50	6	231-206/037-000	25	6	231-206/027-000	25
7	231-207/026-000	50	7	231-207/037-000	25	7	231-207/027-000	25
8	231-208/026-000	25	8	231-208/037-000	25	8	231-208/027-000	25
9	231-209/026-000	25	9	231-209/037-000	25	9	231-209/027-000	25
10	231-210/026-000	25	10	231-210/037-000	25	10	231-210/027-000	25
11	231-211/026-000	25	11	231-211/037-000	10	11	231-211/027-000	10
12	231-212/026-000	25	12	231-212/037-000	10	12	231-212/027-000	10
13	231-213/026-000	10	13	231-213/037-000	10	13	231-213/027-000	10
16	231-216/026-000	10	16	231-216/037-000	10	16	231-216/027-000	10
2- to 3-pole female connectors - one latch only						Item nos. for 2- to 5-pole female connectors are identical to item nos. for panel-mounted female connectors.		
						For cutout dimensions, see page 484, table 1.		

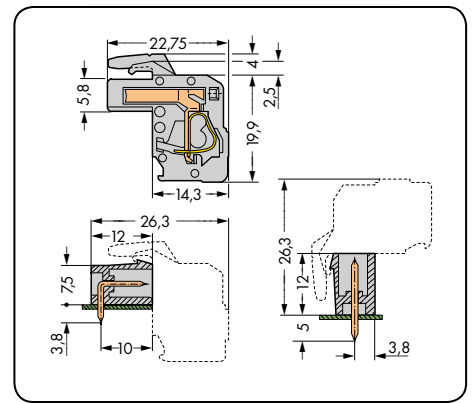
With fixing flanges for panel mounting Pin spacing 7.5 mm / 0.295 in		With snap-in mounting feet Pin spacing 7.5 mm / 0.295 in		Angled, with conductor entry opposite to latches Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 14 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$



$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$



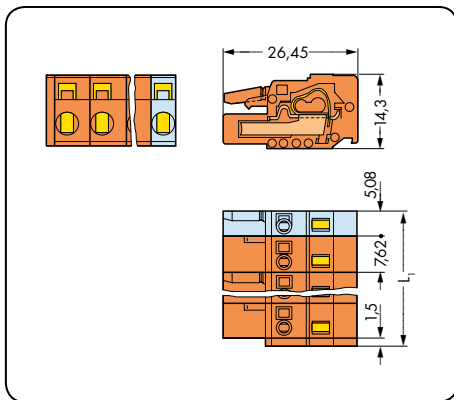
Total length = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm + 0.9 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with fixing flanges, for panel mounting, gray			Female connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, gray			Angled female connector, conductor entry opposite to latches, gray		
			2	231-202/008-000	100	2	732-102/026-000	100
3	231-203/031-000	50	3	231-203/008-000	100	3	732-103/026-000	100
4	231-204/031-000	50	4	231-204/008-000	50	4	732-104/026-000	50
5	231-205/031-000	50	5	231-205/008-000	50	5	732-105/026-000	50
6	231-206/031-000	25	6	231-206/008-000	50	6	732-106/026-000	50
7	231-207/031-000	25	7	231-207/008-000	50	7	732-107/026-000	50
8	231-208/031-000	25	8	231-208/008-000	25	8	732-108/026-000	25
9	231-209/031-000	25	9	231-209/008-000	25	9	732-109/026-000	25
10	231-210/031-000	25	10	231-210/008-000	25	10	732-110/026-000	25
11	231-211/031-000	10	11	231-211/008-000	25	11	732-111/026-000	25
12	231-212/031-000	10	12	231-212/008-000	25	12	732-112/026-000	25
13	231-213/031-000	10	13	231-213/008-000	10	13	732-113/026-000	10
16	231-216/031-000	10	16	231-216/008-000	10	16	732-116/026-000	10
For cutout dimensions, see page 484, table 1.								
2- to 3-pole female connectors - one latch only								

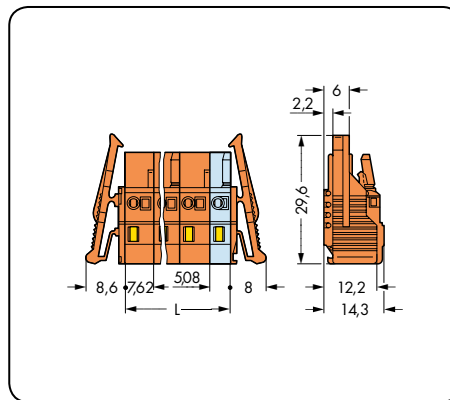
Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Female Connectors MCS-MIDI Classic

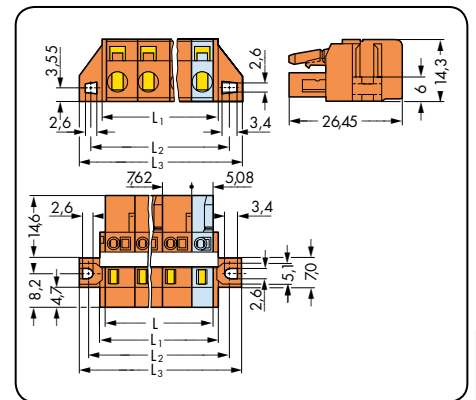
Pin spacing 7.62 mm / 0.3 in		With locking levers Pin spacing 7.62 mm / 0.3 in		With fixing flanges for racks and through-panel mounting Pin spacing 7.62 mm / 0.3 in	
0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/15 A



$$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm} + 1.5 \text{ mm}$$



$$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm}$$



$$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm}$$

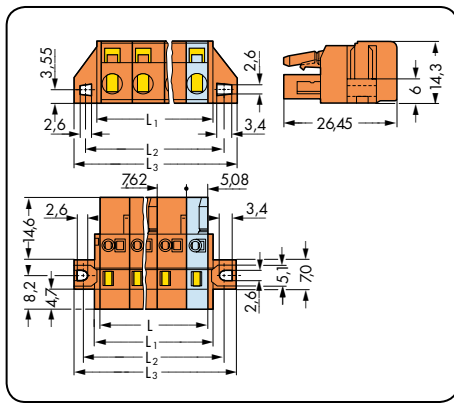
$$L_1 = L + 3 \text{ mm}$$

$$L_2 = L + 8.8 \text{ mm}$$

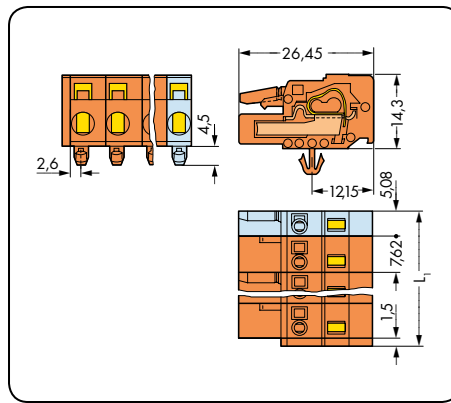
$$L_3 = L + 14.8 \text{ mm}$$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, orange			Female connector with locking levers, orange			Female connector with fixing flanges, for racks and through-panel mounting, with reinforcing strips, orange		
2	231-702/026-000	100	2	231-702/037-000	50	2	231-702/031-000	50
3	231-703/026-000	100	3	231-703/037-000	50	3	231-703/031-000	50
4	231-704/026-000	50	4	231-704/037-000	50	4	231-704/031-000	50
5	231-705/026-000	50	5	231-705/037-000	50	5	231-705/031-000	50
6	231-706/026-000	50	6	231-706/037-000	25	6	231-706/027-000	25
7	231-707/026-000	50	7	231-707/037-000	25	7	231-707/027-000	25
8	231-708/026-000	25	8	231-708/037-000	25	8	231-708/027-000	25
9	231-709/026-000	25	9	231-709/037-000	25	9	231-709/027-000	25
10	231-710/026-000	25	10	231-710/037-000	25	10	231-710/027-000	25
11	231-711/026-000	25	11	231-711/037-000	10	11	231-711/027-000	10
12	231-712/026-000	25	12	231-712/037-000	10	12	231-712/027-000	10
2- to 3-pole female connectors – one latch only						Item nos. for 2- to 5-pole female connectors are identical to item nos. for panel-mount female connectors.		
						For cutout dimensions, see page 484, table 1.		

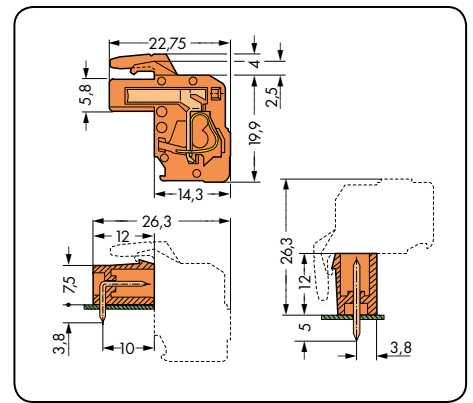
With fixing flanges for panel mounting Pin spacing 7.62 mm / 0.3 in		With snap-in mounting feet Pin spacing 7.62 mm / 0.3 in		Angled, with conductor entry opposite to latches Pin spacing 7.62 mm / 0.3 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 14 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$



$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm} + 1.5 \text{ mm}$



Total length = (pole no. - 1) x pin spacing + 5.08 mm
 + 1.5 mm + 0.9 mm

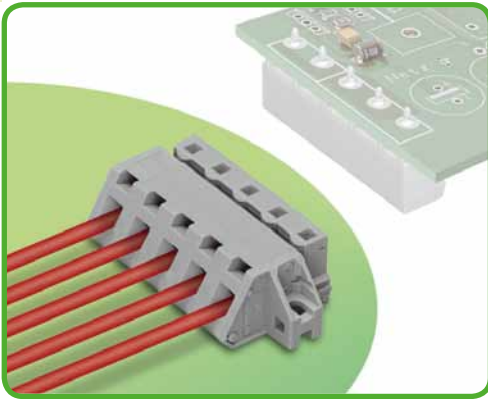
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with fixing flanges, for panel mounting, orange			Female connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, orange			Angled female connector, conductor exit opposite to latches, orange		
2	231-702/031-000	50	2	231-702/008-000	100	2	732-122/026-000	100
3	231-703/031-000	50	3	231-703/008-000	100	3	732-123/026-000	100
4	231-704/031-000	50	4	231-704/008-000	50	4	732-124/026-000	50
5	231-705/031-000	50	5	231-705/008-000	50	5	732-125/026-000	50
6	231-706/031-000	25	6	231-706/008-000	50	6	732-126/026-000	50
7	231-707/031-000	25	7	231-707/008-000	50	7	732-127/026-000	50
8	231-708/031-000	25	8	231-708/008-000	25	8	732-128/026-000	25
9	231-709/031-000	25	9	231-709/008-000	25	9	732-129/026-000	25
10	231-710/031-000	25	10	231-710/008-000	25	10	732-130/026-000	25
11	231-711/031-000	10	11	231-711/008-000	25	11	732-131/026-000	25
12	231-712/031-000	10	12	231-712/008-000	25	12	732-132/026-000	25
For cutout dimensions, see page 484, table 1.								
2- to 3-pole female connectors - one latch only								

Product Accessories	Page
Mounting adapter for TS 35, min. length 3 poles (209-137)	475

Angled Female Connectors for Panel Mounting

Pin Spacing 7.5 mm

MCS-MIDI Classic



- Universal connection for all conductor types
- Versions available with snap-in mounting feet or fixing flanges for panel or through-panel mounting
- Mounting adapter allows versions with snap-in mounting feet to be DIN-rail mounted
- Easy conductor termination, even when halves are mated

Technical data:

Pin Spacing	7.5 mm 0.295 in		
Rating based on	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.08 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	28 - 12	12: THHN, THWN
Strip length	7 - 8 mm / 0.28 - 0.31 in	

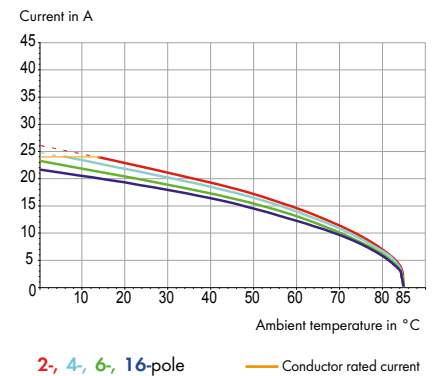
Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Derating Curve

731-532/031-000 female connector
with 231-232/001-000 male header
Pin spacing: 7.5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



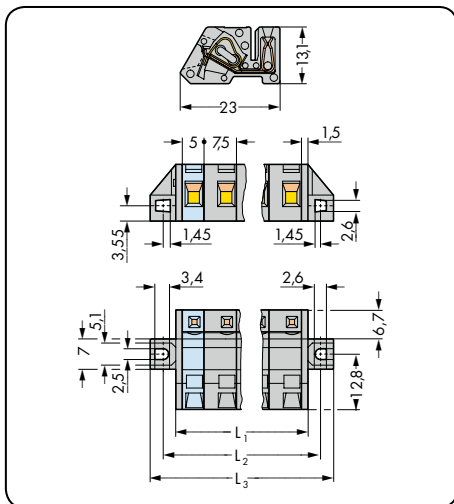
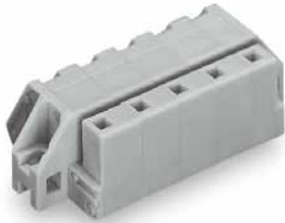
MCS-MIDI accessories:

Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Test plug adapter	474
Screws	546

Angled Female Connectors for Panel Mounting MCS-MIDI Classic

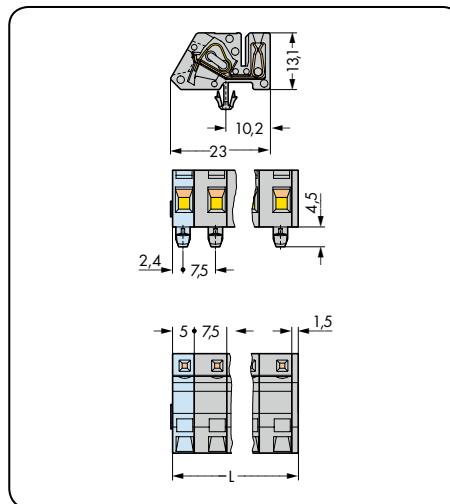
Angled, with fixing flanges Pin spacing 7.5 mm / 0.295 in		Angled, with snap-in mounting feet Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ²	AWG 28 - 12	0.08 - 2.5 mm ²	AWG 28 - 12
630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A



$$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 3 \text{ mm}$$

$$L_2 = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 8.8 \text{ mm}$$

$$L_3 = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 14.8 \text{ mm}$$



$$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$$



Angled female connector with DIN rail mounting adapter (209-120).

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Angled female connector with fixing flanges, gray			Angled female connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, gray		
2	731-532/031-000	50	2	731-532/008-000	100
3	731-533/031-000	50	3	731-533/008-000	50
4	731-534/031-000	50	4	731-534/008-000	50
5	731-535/031-000	50	5	731-535/008-000	50
6	731-536/031-000	25	6	731-536/008-000	50
7	731-537/031-000	25	7	731-537/008-000	50
8	731-538/031-000	25	8	731-538/008-000	25
9	731-539/031-000	25	9	731-539/008-000	25
10	731-540/031-000	25	10	731-540/008-000	25
11	731-541/031-000	10	11	731-541/008-000	25
12	731-542/031-000	10	12	731-542/008-000	10
13	731-543/031-000	10	13	731-543/008-000	10
16	731-546/031-000	10	16	731-546/008-000	10
Product Accessories		Page			
Mounting adapter for DIN 35 rail, min. length 3 poles (209-120)		475			



Angled female connector used as through-panel connector. Termination ports and operating slots are located outside the housing. Panel thickness up to 2 mm/0.079 in. Picture shows 5 mm/0.197 in pin spacing.

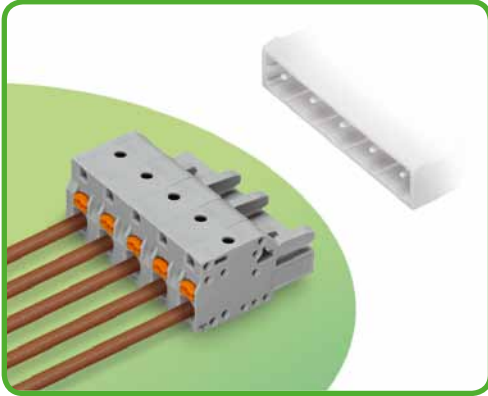


Angled female connector mounted within a housing. Horizontal mounting of male headers with straight solder pins in narrow housings.

Female Connectors with Push-Buttons

Pin Spacing 7.5 mm, 7.62 mm

MCS-MIDI Classic



- Universal connection for all conductor types
- Easy-to-use design does not require specialty tools
- Ability to wire while mated
- Simple, push-in terminations of solid and ferruled conductors
- Integrated test ports for testing parallel to conductor entry
- With coding fingers

Technical data:

Pin Spacing	7.5 mm 0.295 in			7.62 mm 0.3 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating based on	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	300 V	300 V	300 V	300 V	300 V
Nominal current UL	15 A	15 A	10 A	15 A	15 A	10 A
Nominal current CSA	15 A	15 A	10 A	15 A	15 A	10 A

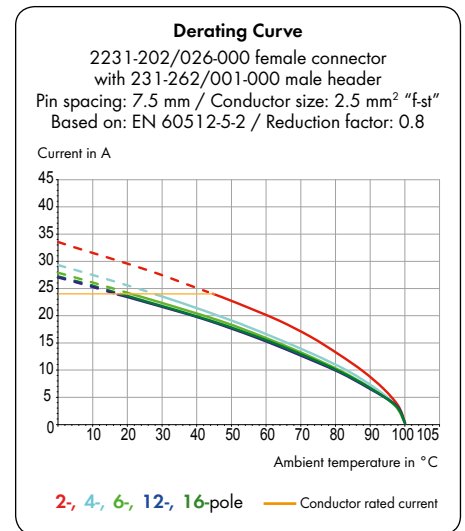
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®S	
Conductor size: solid	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	24 - 12 12: THHN, THWN	
Strip length	10 - 11 mm / 0.39 - 0.43 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

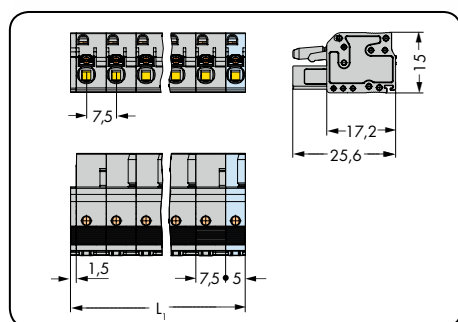
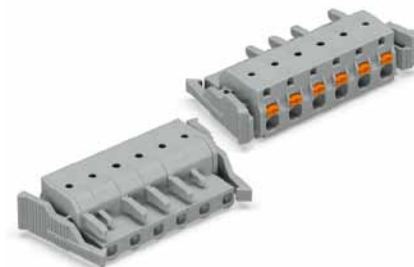
Page:

Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	474
Test plug, Ø 2 mm	538
Screws	546
Strain relief plates	470 - 471

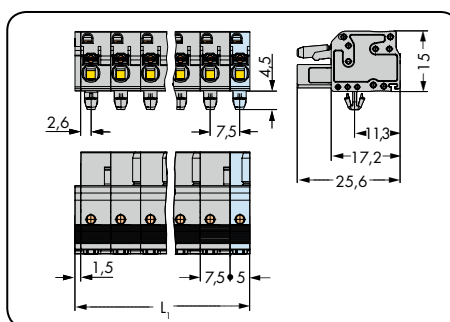
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors with Push-Buttons MCS-MIDI Classic

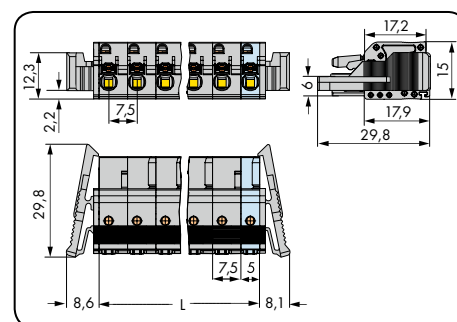
Pin spacing 7.5 mm / 0.295 in		With snap-in mounting feet Pin spacing 7.5 mm / 0.295 in		With locking levers Pin spacing 7.5 mm / 0.295 in	
0.2 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 - 12 300 V/15 A	0.2 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 - 12 300 V/15 A	0.2 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 - 12 300 V/15 A



$$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$$



$$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$$



$$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$$

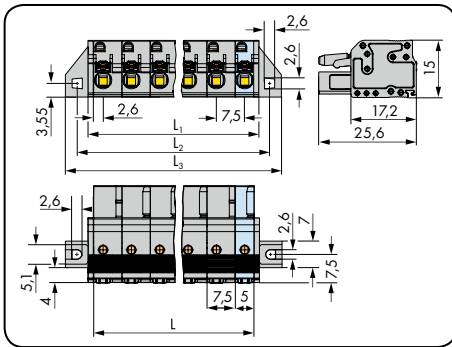
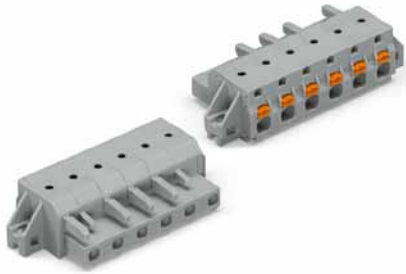
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons, gray			Female connector with push-buttons and snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, gray			Female connector with push-buttons and locking levers, gray		
2	2231-202/026-000	100	2	2231-202/008-000	100	2	2231-202/037-000	50
3	2231-203/026-000	100	3	2231-203/008-000	100	3	2231-203/037-000	50
4	2231-204/026-000	50	4	2231-204/008-000	50	4	2231-204/037-000	50
5	2231-205/026-000	50	5	2231-205/008-000	50	5	2231-205/037-000	50
6	2231-206/026-000	50	6	2231-206/008-000	50	6	2231-206/037-000	25
7	2231-207/026-000	50	7	2231-207/008-000	50	7	2231-207/037-000	25
8	2231-208/026-000	25	8	2231-208/008-000	25	8	2231-208/037-000	25
9	2231-209/026-000	25	9	2231-209/008-000	25	9	2231-209/037-000	25
10	2231-210/026-000	25	10	2231-210/008-000	25	10	2231-210/037-000	25
11	2231-211/026-000	25	11	2231-211/008-000	10	11	2231-211/037-000	10
12	2231-212/026-000	25	12	2231-212/008-000	25	12	2231-212/037-000	10
13	2231-213/026-000	10	13	2231-213/008-000	25	13	2231-213/037-000	10
16	2231-216/026-000	10	16	2231-216/008-000	10	16	2231-216/037-000	10

2- to 3-pole female connectors - one latch only

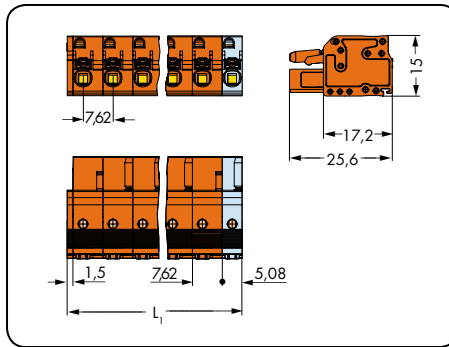
Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Female Connectors with Push-Buttons MCS-MIDI Classic

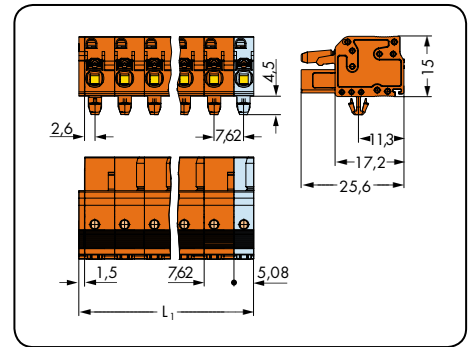
With fixing flanges Pin spacing 7.5 mm / 0.295 in		Pin spacing 7.62 mm / 0.3 in		With snap-in mounting feet Pin spacing 7.62 mm / 0.3 in	
0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12
630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 16 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 2.8 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$



$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm} + 1.5 \text{ mm}$



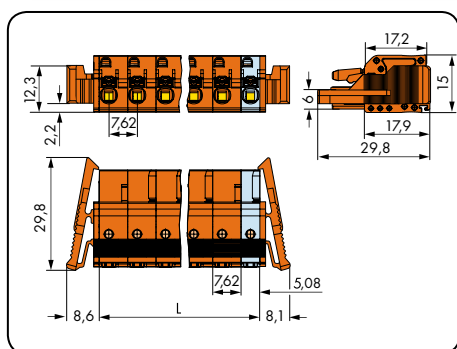
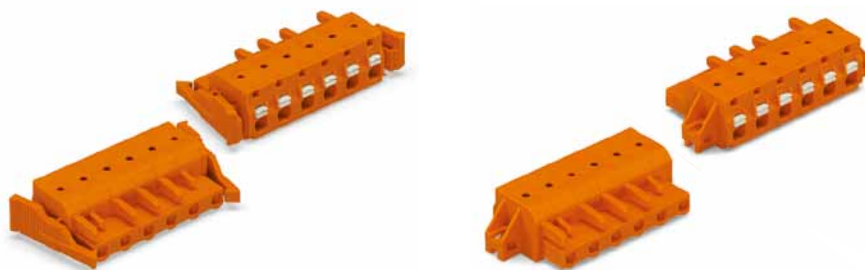
$L_1 = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm} + 1.5 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons and fixing flanges, gray			Female connector with push-buttons, orange			Female connector with push-buttons and snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, orange		
2	2231-202/031-000	50	2	2231-702/026-000	100	2	2231-702/008-000	100
3	2231-203/031-000	50	3	2231-703/026-000	100	3	2231-703/008-000	100
4	2231-204/031-000	50	4	2231-704/026-000	50	4	2231-704/008-000	50
5	2231-205/031-000	50	5	2231-705/026-000	50	5	2231-705/008-000	50
6	2231-206/031-000	25	6	2231-706/026-000	50	6	2231-706/008-000	50
7	2231-207/031-000	25	7	2231-707/026-000	50	7	2231-707/008-000	50
8	2231-208/031-000	25	8	2231-708/026-000	25	8	2231-708/008-000	25
9	2231-209/031-000	25	9	2231-709/026-000	25	9	2231-709/008-000	25
10	2231-210/031-000	25	10	2231-710/026-000	25	10	2231-710/008-000	25
11	2231-211/031-000	10	11	2231-711/026-000	25	11	2231-711/008-000	25
12	2231-212/031-000	10	12	2231-712/026-000	25	12	2231-712/008-000	25
13	2231-213/031-000	10						
16	2231-216/031-000	10						
For cutout dimensions, see page 485, table 2.								
2- to 3-pole female connectors - one latch only								

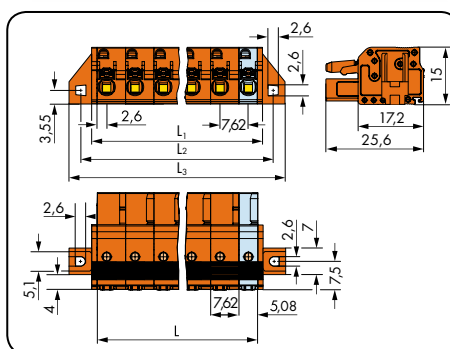
Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Female Connectors with Push-Buttons MCS-MIDI Classic

With locking levers Pin spacing 7.62 mm / 0.3 in		With fixing flanges Pin spacing 7.62 mm / 0.3 in	
0.2 - 2.5 mm ²	AWG 24 - 12	0.2 - 2.5 mm ²	AWG 24 - 12
630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 16 A	300 V/15 A



L = (pole no. - 1) x pin spacing + 5.08 mm



L = (pole no. - 1) x pin spacing + 5.08 mm
 $L_1 = L + 2.8$ mm
 $L_2 = L + 8.8$ mm
 $L_3 = L + 14.8$ mm

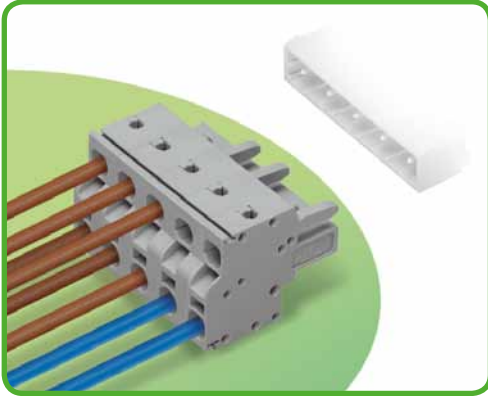
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector with push-buttons and locking levers, orange			Female connector with push-buttons and fixing flanges, orange		
2	2231-702/037-000	50	2	2231-702/031-000	50
3	2231-703/037-000	50	3	2231-703/031-000	50
4	2231-704/037-000	50	4	2231-704/031-000	50
5	2231-705/037-000	50	5	2231-705/031-000	50
6	2231-706/037-000	25	6	2231-706/031-000	25
7	2231-707/037-000	25	7	2231-707/031-000	25
8	2231-708/037-000	25	8	2231-708/031-000	25
9	2231-709/037-000	25	9	2231-709/031-000	25
10	2231-710/037-000	25	10	2231-710/031-000	25
11	2231-711/037-000	10	11	2231-711/031-000	10
12	2231-712/037-000	10	12	2231-712/031-000	10
For cutout dimensions, see page 485, table 2.					
2- to 3-pole female connectors - one latch only					

6 2-Conductor Female Connectors

Pin Spacing 7.5 mm, 7.62 mm

MCS-MIDI Classic

436



- Universal connection for all conductor types
- Two conductor entries per pole
- For looping through power or data buses
- Bus connection is retained, even when unmated
- Simple, push-in terminations of solid and ferruled conductors
- With coding fingers

Technical data:

Pin Spacing	7.5 mm 0.295 in			7.62 mm 0.3 in		
Rating based on	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	20 A	-	10 A	20 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A

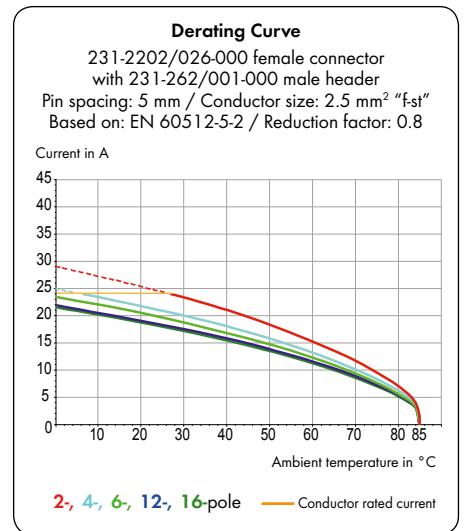
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®S	
Conductor size: solid	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.2 - 2.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)	
AWG	24 - 12 12: THHN, THWN	
Strip length	9 - 10 mm / 0.35 - 0.39 in	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI accessories:

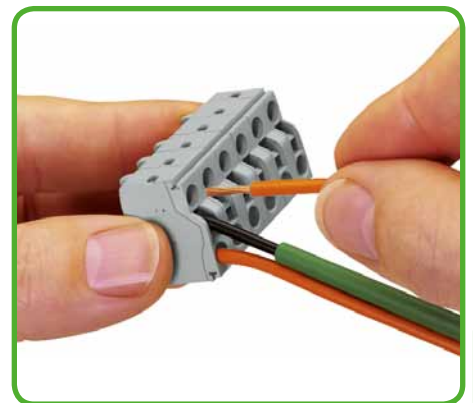
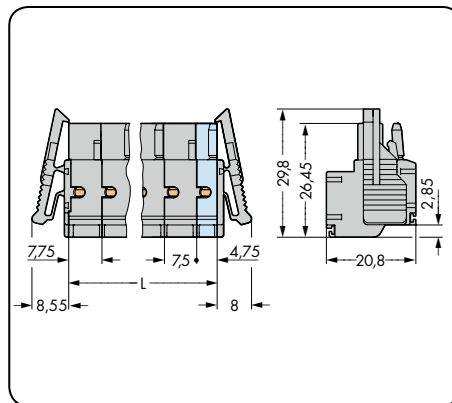
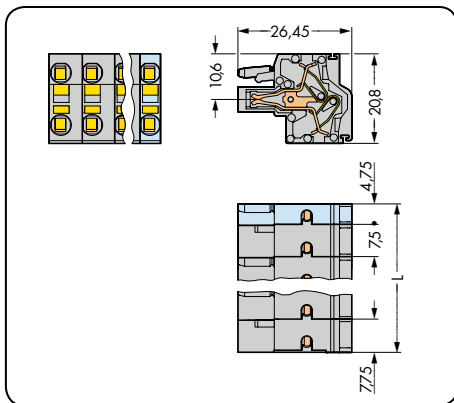
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Marking accessories	540 - 543
Operating tools	466 - 467
Direct marking	358 - 360
Insulation stop	469
Test plug adapter	474
Test pin	538
Strain relief plates	470 - 471

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

2-Conductor Female Connectors MCS-MIDI Classic

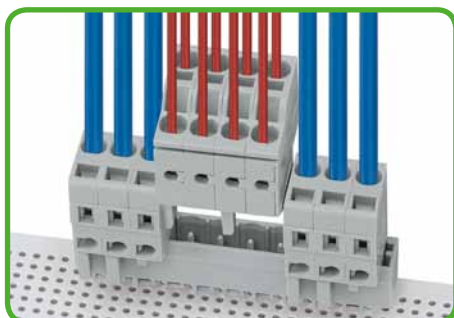
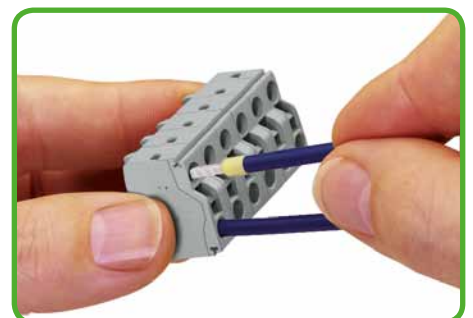
Pin spacing 7.5 mm / 0.295 in		With locking levers Pin spacing 7.5 mm / 0.295 in		Handling
0.2 – 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 – 12 300 V/20 A	0.2 – 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 – 12 300 V/20 A	



$L = (\text{pole no.} - 2) \times \text{pin spacing} + 12.5 \text{ mm}$

Operating CAGE CLAMP®S is easy, fast and identical to that of CAGE CLAMP®. The screwdriver is fully inserted into the operating slot, holding the CAGE CLAMP®S open. After the conductor has been inserted into the clamping unit and the screwdriver been withdrawn, the conductor is clamped safely. Solid and fine-stranded conductors < 0.5 mm² / AWG 20 are inserted and removed using a screwdriver.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor female connector, gray			2-conductor female connector with locking levers, gray		
2	231-2202/026-000	100	2	231-2202/037-000	50
3	231-2203/026-000	100	3	231-2203/037-000	50
4	231-2204/026-000	50	4	231-2204/037-000	50
5	231-2205/026-000	50	5	231-2205/037-000	50
6	231-2206/026-000	50	6	231-2206/037-000	25
7	231-2207/026-000	50	7	231-2207/037-000	25
8	231-2208/026-000	25	8	231-2208/037-000	25
9	231-2209/026-000	25	9	231-2209/037-000	25
10	231-2210/026-000	25	10	231-2210/037-000	25
11	231-2211/026-000	25	11	231-2211/037-000	10
12	231-2212/026-000	25	12	231-2212/037-000	10

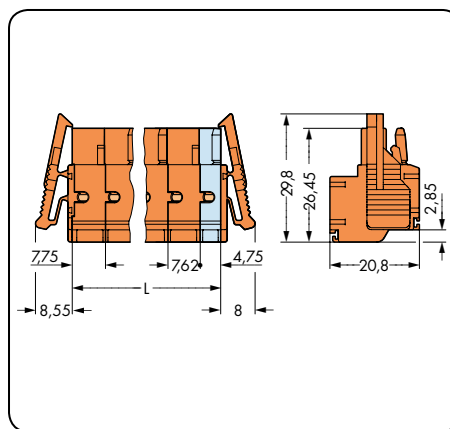
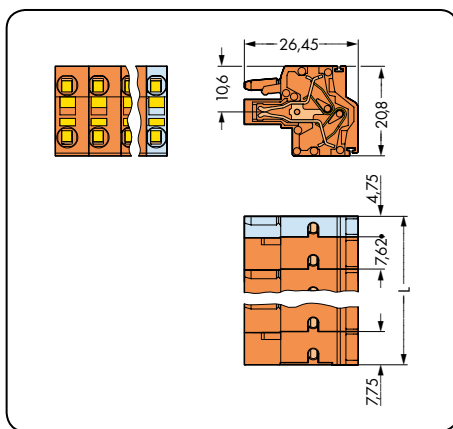
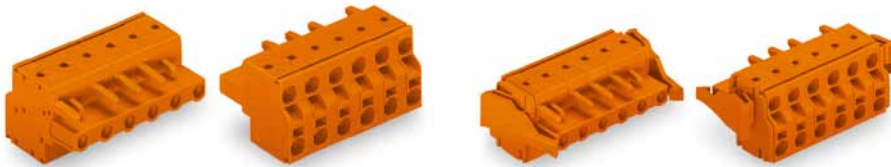


Group arrangement without loss of pin spacing

Combining WAGO MULTI CONNECTION SYSTEM multipole female connectors into a single, long male header is often a common customer request. This is made possible by using modular female connectors with integrated end plate, offering the possibility of side-by-side stacking without needing an unused pole between connectors for spacing. Female connectors with built-in end plate require no extra space, while maintaining the nominal cross-section. This means: Total length of female connectors is reduced to "pole no. x" pin spacing!

Solid conductors $\geq 0.5 \text{ mm}^2$ / AWG 20, as well as ferruled, fine-stranded conductors can be terminated by simply pushing them in. Integrated test ports allow tip contact with current bar via test probes in both horizontal and vertical directions.

Pin spacing 7.62 mm / 0.3 in		With locking levers Pin spacing 7.62 mm / 0.3 in	
0.2 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 - 12 300 V/20 A	0.2 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 - 12 300 V/20 A



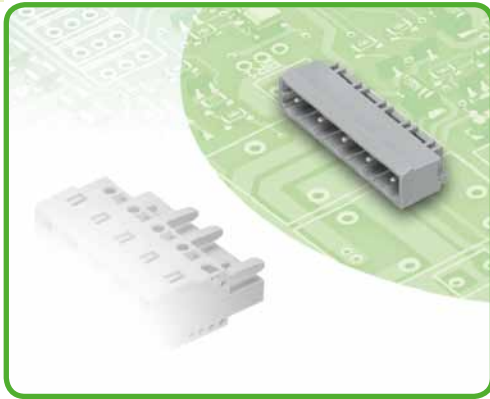
L = (pole no. - 2) x pin spacing + 12.5 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor female connector, orange			2-conductor female connector with locking levers, orange		
2	231-2702/026-000	100	2	231-2702/037-000	50
3	231-2703/026-000	100	3	231-2703/037-000	50
4	231-2704/026-000	50	4	231-2704/037-000	50
5	231-2705/026-000	50	5	231-2705/037-000	50
6	231-2706/026-000	50	6	231-2706/037-000	25
7	231-2707/026-000	50	7	231-2707/037-000	25
8	231-2708/026-000	25	8	231-2708/037-000	25
9	231-2709/026-000	25	9	231-2709/037-000	25
10	231-2710/026-000	25	10	231-2710/037-000	25
11	231-2711/026-000	25	11	231-2711/037-000	10
12	231-2712/026-000	25	12	231-2712/037-000	10
2- to 3-pole female connectors - one latch only					

Male Headers with Solder Pins

Pin Spacing 7.5 mm, 7.62 mm

MCS-MIDI Classic



- Male headers may be mounted horizontally or vertically via straight or angled solder pins
- 1.2 x 1.2 mm solder pins allow currents up to 16 A, enhancing stability of shorter headers
- Enclosed on each side, the pin housing design prevents mismatching
- With coding keys

Technical data:

1 x 1 mm solder pin:

1.2 x 1.2 mm solder pin:

Pin Spacing	7.5 mm/7.62 mm 0.295 in/0.3 in			7.5 mm/7.62 mm 0.295 in/0.3 in		
Rating based on	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	10 A	-	10 A	15 A	-	10 A
Nominal current CSA	10 A	-	10 A	15 A	-	10 A

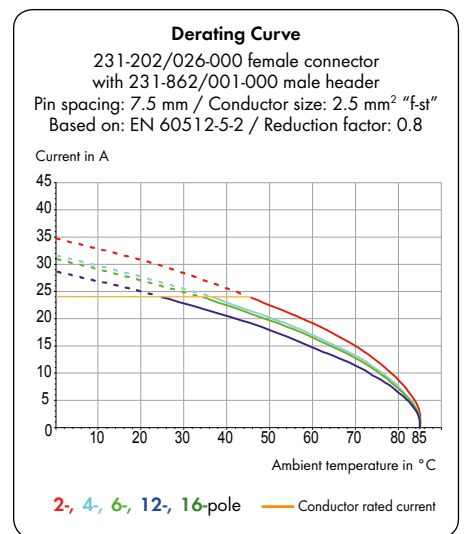
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder pin data:

Solder pin: length/width	5 mm / 1 x 1 mm (straight)
Solder pin: length/width	3.8 mm / 1 x 1 mm (angled)
Solder pin: drilled hole diameter	1.4 ^{+0.1} mm
Solder pin: length/width	5 mm / 1.2 x 1.2 mm (straight)
Solder pin: length/width	3.8 mm / 1.2 x 1.2 mm (angled)
Solder pin: drilled hole diameter	1.7 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix .../010-000" is added to the "basic item no."	



MCS-MIDI accessories:

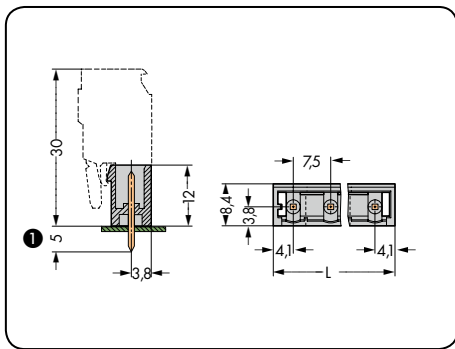
Page:

Fixing elements	469
Separators	468
Coding keys	468
Screws	546

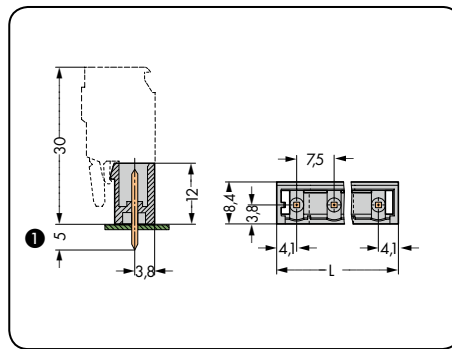
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Headers with Solder Pins MCS-MIDI Classic

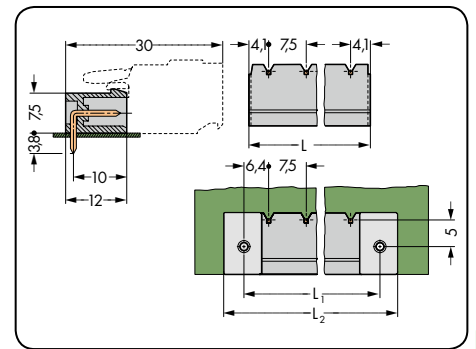
With 1 x 1 mm straight solder pins Pin spacing 7.5 mm / 0.295 in		With 1.2 x 1.2 mm straight solder pins Pin spacing 7.5 mm / 0.295 in		With 1 x 1 mm angled solder pins Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/10 A	630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/10 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



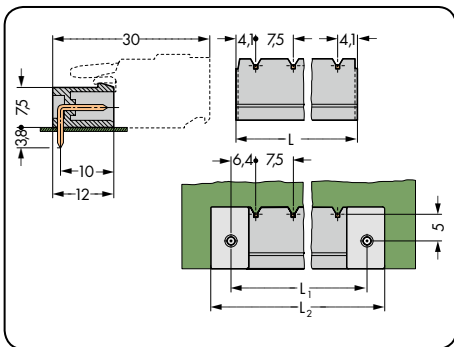
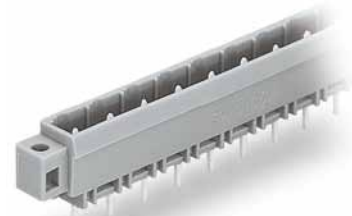
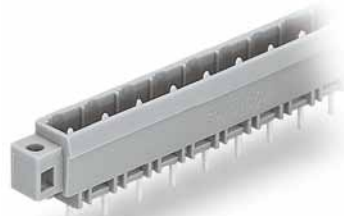
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L + 5 \text{ mm}$
 $L_2 = L_1 + 7.4 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with 1 x 1 mm straight solder pins, gray			Male header with 1.2 x 1.2 mm straight solder pins, gray			Male header with 1 x 1 mm angled solder pins, gray		
2	231-232/001-000	200	2	231-262/001-000	200	2	231-832/001-000	200
3	231-233/001-000	200	3	231-263/001-000	200	3	231-833/001-000	200
4	231-234/001-000	100	4	231-264/001-000	100	4	231-834/001-000	100
5	231-235/001-000	100	5	231-265/001-000	100	5	231-835/001-000	100
6	231-236/001-000	100	6	231-266/001-000	100	6	231-836/001-000	100
7	231-237/001-000	50	7	231-267/001-000	50	7	231-837/001-000	50
8	231-238/001-000	50	8	231-268/001-000	50	8	231-838/001-000	50
9	231-239/001-000	50	9	231-269/001-000	50	9	231-839/001-000	50
10	231-240/001-000	50	10	231-270/001-000	50	10	231-840/001-000	50
11	231-241/001-000	50	11	231-271/001-000	50	11	231-841/001-000	50
12	231-242/001-000	50	12	231-272/001-000	50	12	231-842/001-000	50
13	231-243/001-000	50	13	231-273/001-000	50	13	231-843/001-000	50
16	231-246/001-000	50	16	231-276/001-000	50	16	231-846/001-000	50

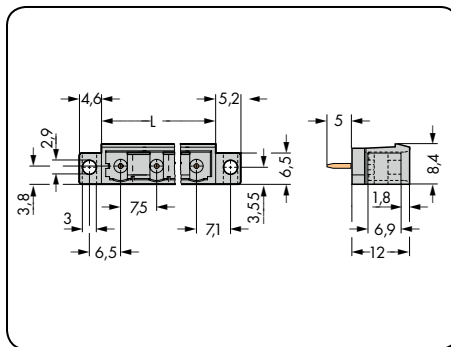
① MCS-MIDI male headers with straight solder pins are also available with 3.8 mm pin projection. Replace item no. suffix .../001-000 with .../046-000.

Male Headers with Solder Pins MCS-MIDI Classic

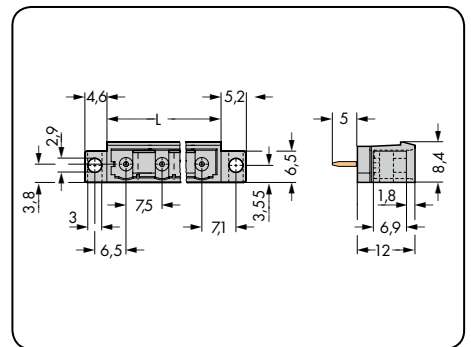
With 1.2 x 1.2 mm angled solder pins Pin spacing 7.5 mm / 0.295 in		With 1 x 1 mm straight solder pins and fixing flanges Pin spacing 7.5 mm / 0.295 in		With 1.2 x 1.2 mm straight solder pins and fixing flanges Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/10 A	630 V/6 kV/2 16 A	300 V/15 A



L = (pole no. - 1) x pin spacing + 8.2 mm
 L₁ = L + 5 mm
 L₂ = L₁ + 7.4 mm



L = (pole no. - 1) x pin spacing + 8.2 mm

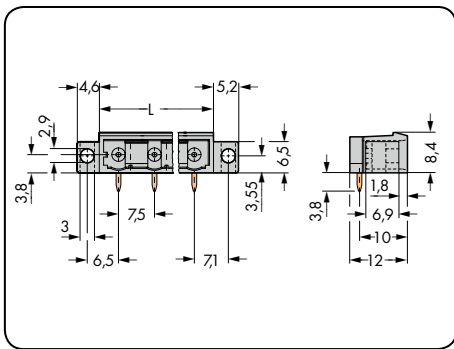
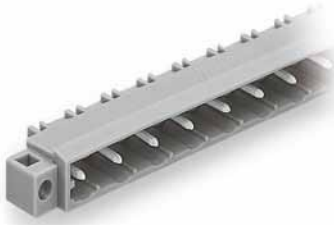


L = (pole no. - 1) x pin spacing + 8.2 mm

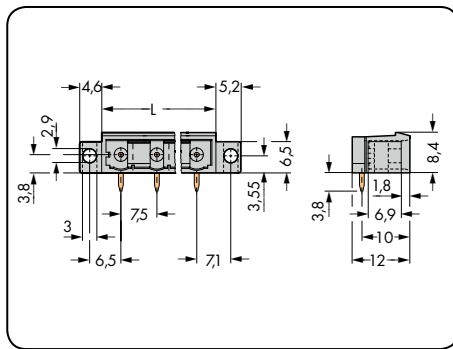
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with 1.2 x 1.2 mm angled solder pins, gray			Male header with 1 x 1 mm straight solder pins and fixing flanges, gray			Header with straight solder pins 1.2 x 1.2 mm and fixing flanges, gray		
2	231-862/001-000	200						
3	231-863/001-000	200						
4	231-864/001-000	100						
5	231-865/001-000	100						
6	231-866/001-000	100						
7	231-867/001-000	50						
8	231-868/001-000	50						
9	231-869/001-000	50						
10	231-870/001-000	50	10	231-240/040-000	50	10	231-270/040-000	50
11	231-871/001-000	50						
12	231-872/001-000	50						
13	231-873/001-000	50						
			For cutout dimensions, see page 487, table 4.			For cutout dimensions, see page 487, table 4.		
16	231-876/001-000	50						
			Female connectors with locking devices cannot be used.					

Male Headers with Solder Pins MCS-MIDI Classic

With 1 x 1 mm angled solder pins and fixing flanges Pin spacing 7.5 mm / 0.295 in		With 1.2 x 1.2 mm angled solder pins and fixing flanges Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/10 A	630 V/6 kV/2 16 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



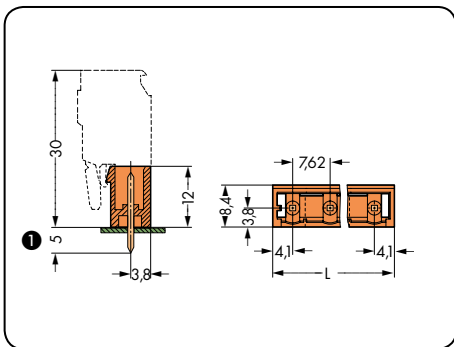
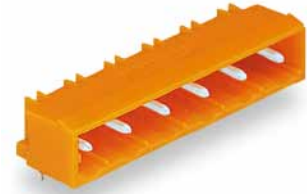
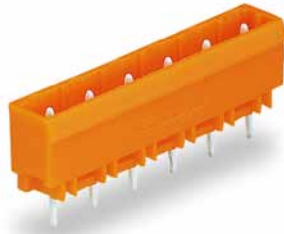
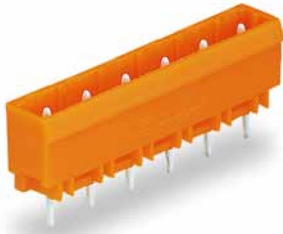
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with 1 x 1 mm angled solder pins and fixing flanges, gray			Male header with 1.2 x 1.2 mm angled solder pins and fixing flanges, gray		
10	231-840/040-000	50	10	231-870/040-000	50
For cutout dimensions, see page 487, table 4.			For cutout dimensions, see page 487, table 4.		
Female connectors with locking devices cannot be used.					

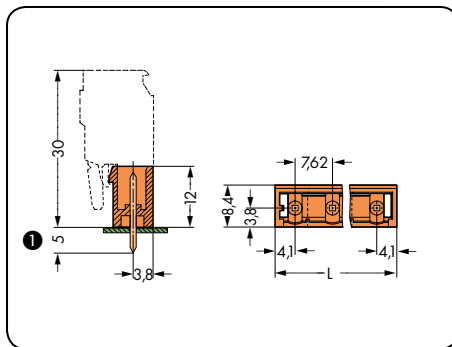
For other lengths, please contact factory.

Male Headers with Solder Pins MCS-MIDI Classic

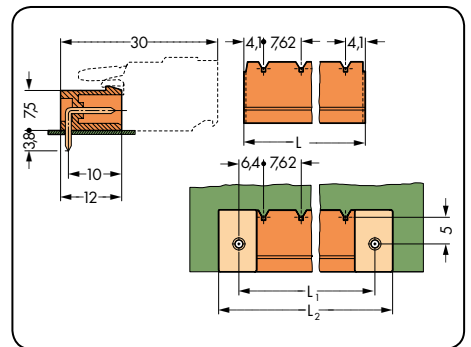
With 1 x 1 mm straight solder pins Pin spacing 7.62 mm / 0.3 in		With 1.2 x 1.2 mm straight solder pins Pin spacing 7.62 mm / 0.3 in		With 1 x 1 mm angled solder pins Pin spacing 7.62 mm / 0.3 in	
630 V/6 kV/2 12 A	300 V/10 A	630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/10 A



L = (pole no. - 1) x pin spacing + 8.2 mm



L = (pole no. - 1) x pin spacing + 8.2 mm



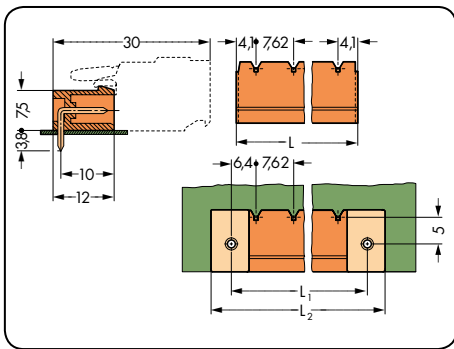
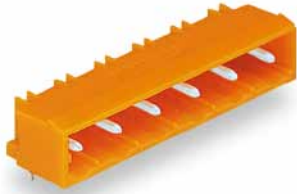
L = (pole no. - 1) x pin spacing + 8.2 mm
L₁ = L + 5 mm
L₂ = L₁ + 7.4 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with 1 x 1 mm straight solder pins, orange			Male header with 1.2 x 1.2 mm straight solder pins, orange			Male header with 1 x 1 mm angled solder pins, orange		
2	231-732/001-000	200	2	231-762/001-000	200	2	231-932/001-000	200
3	231-733/001-000	200	3	231-763/001-000	200	3	231-933/001-000	200
4	231-734/001-000	100	4	231-764/001-000	100	4	231-934/001-000	100
5	231-735/001-000	100	5	231-765/001-000	100	5	231-935/001-000	100
6	231-736/001-000	100	6	231-766/001-000	100	6	231-936/001-000	100
7	231-737/001-000	50	7	231-767/001-000	50	7	231-937/001-000	50
8	231-738/001-000	50	8	231-768/001-000	50	8	231-938/001-000	50
9	231-739/001-000	50	9	231-769/001-000	50	9	231-939/001-000	50
10	231-740/001-000	50	10	231-770/001-000	50	10	231-940/001-000	50
11	231-741/001-000	50	11	231-771/001-000	50	11	231-941/001-000	50
12	231-742/001-000	50	12	231-772/001-000	50	12	231-942/001-000	50

① MCS-MIDI male headers with straight solder pins are also available with 3.8 mm pin projection. Replace item no. suffix .../001-000 with .../046-000.

Male Headers with Solder Pins MCS-MIDI Classic

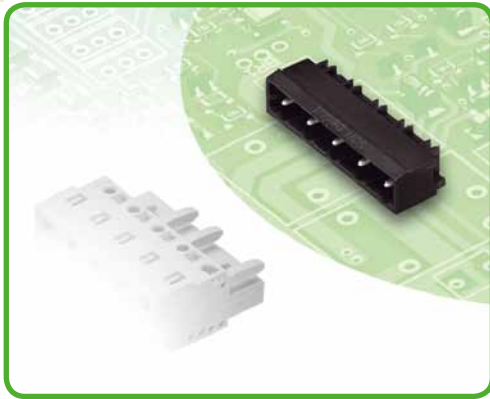
<p>With 1.2 x 1.2 mm angled solder pins Pin spacing 7.62 mm / 0.3 in</p>		
630 V/6 kV/2 16 A	300 V/15 A	



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L + 5 \text{ mm}$
 $L_2 = L_1 + 7.4 \text{ mm}$

Pole No.	Item No.	Pack. Unit
Male header with 1.2 x 1.2 mm angled solder pins, orange		
2	231-962/001-000	200
3	231-963/001-000	200
4	231-964/001-000	100
5	231-965/001-000	100
6	231-966/001-000	100
7	231-967/001-000	50
8	231-968/001-000	50
9	231-969/001-000	50
10	231-970/001-000	50
11	231-971/001-000	50
12	231-972/001-000	50

Male Headers with 1 x 1 mm and 1.2 x 1.2 mm Solder Pins, THR (Through-Hole Reflow*) Pin Spacing 7.5 mm MCS-MIDI Classic



- THR male headers for reflow soldering in SMT production
- Available in tape-and-reel packaging for automated pick-and-place assembly
- Also available in bulk packaging for manual placement
- Male headers may be mounted horizontally or vertically
- With coding keys

Technical data:

Pin Spacing	1 x 1 mm			1.2 x 1.2 mm		
	7.5 mm 0.295 in			7.5 mm 0.295 in		
Rating per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A	16 A	16 A	16 A
Approvals per	UL/CSA**			UL/CSA**		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	-	-	-	-	-	-
Nominal current UL	-	-	-	-	-	-
Nominal current CSA	-	-	-	-	-	-

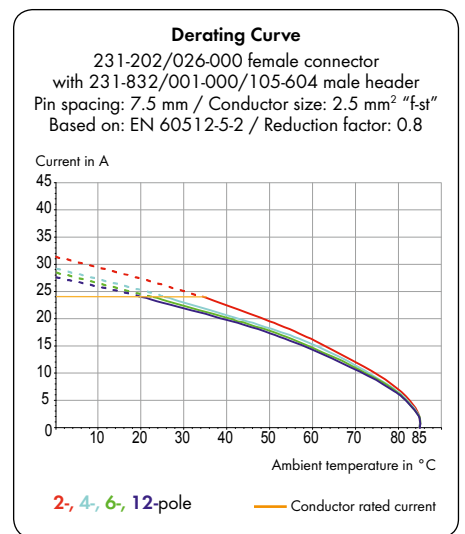
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder pin data:

Solder pin: length/width	2.4 mm / 1 x 1 mm
Solder pin: drilled hole diameter	1.4 ^{+0.1} mm
Solder pin: length/width	2.4 mm / 1.2 x 1.2 mm
Solder pin: drilled hole diameter	1.7 ^{+0.1} mm
For other pin lengths, please contact factory.	

Material data:

Material group	I
Insulating material	Glass fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Contact material	Electrolytic copper (E _C)
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, "item no. suffix ... /010-000" is added to the "basic item no."	



MCS-MIDI Classic accessories:

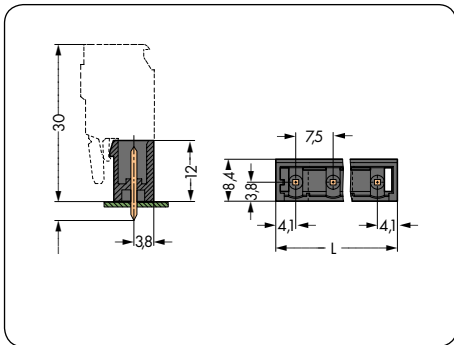
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Separators	468
Coding keys	468

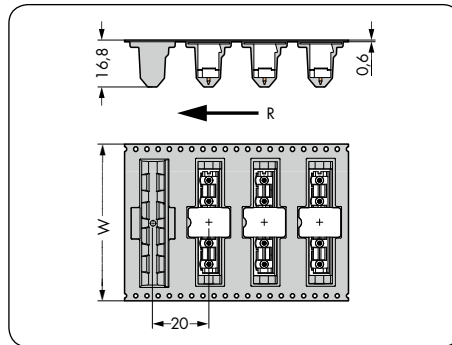
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Headers with 1 x 1 mm Straight Solder Pins, THR MCS-MIDI Classic

<p>With 1 x 1 mm straight solder pins</p> <p>Pin spacing 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 12 A</p>	<p>With 1 x 1 mm straight solder pins In tape-and-reel packaging</p> <p>Pin spacing 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 12 A</p>	
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$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



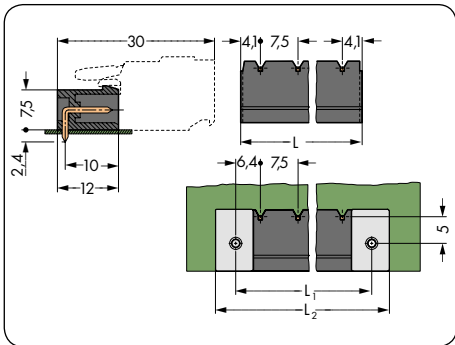
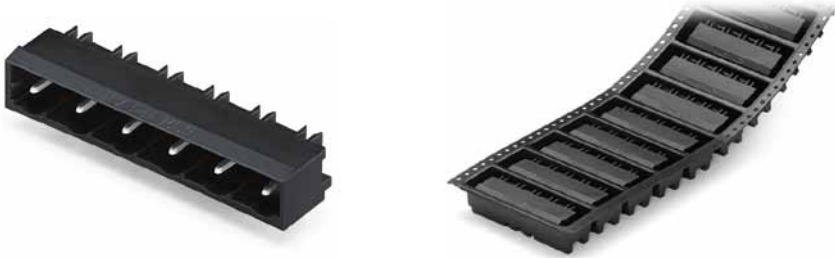
W= Tape width
R = Feed direction

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header 1 x 1 mm with straight solder pins, black			Male header with 1 x 1 mm straight solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
					(mm)
2	231-232/001-000/105-604	200	2	231-232/001-000/105-604/997-405	32
3	231-233/001-000/105-604	200	3	231-233/001-000/105-604/997-407	56
4	231-234/001-000/105-604	100	4	231-234/001-000/105-604/997-407	56
5	231-235/001-000/105-604	100	5	231-235/001-000/105-604/997-407	56
6	231-236/001-000/105-604	100	6	231-236/001-000/105-604/997-409	88
7	231-237/001-000/105-604	50	7	231-237/001-000/105-604/997-409	88
8	231-238/001-000/105-604	50	8	231-238/001-000/105-604/997-409	88
9	231-239/001-000/105-604	50	9	231-239/001-000/105-604/997-409	88
10	231-240/001-000/105-604	50			
11	231-241/001-000/105-604	50			
12	231-242/001-000/105-604	50			
Reel diameter: 330 mm, 170 pieces per reel					

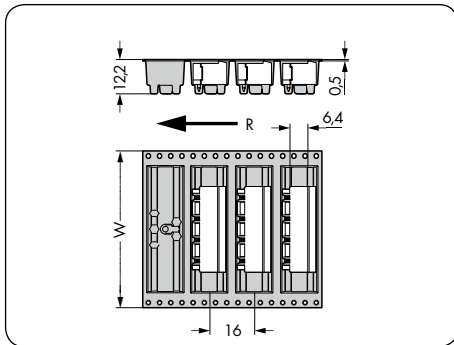


Male Headers with 1 x 1 mm Angled Solder Pins, THR MCS-MIDI Classic

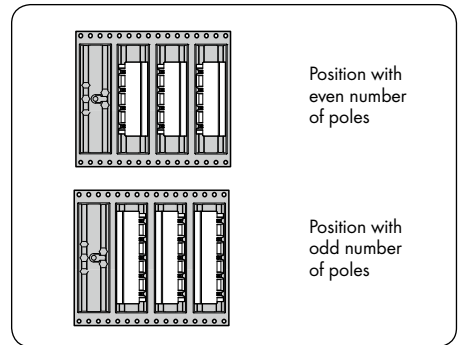
<p>With 1 x 1 mm angled solder pins</p> <p>Pin spacing 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 12 A</p>	<p>With 1 x 1 mm angled solder pins</p> <p>In tape-and-reel packaging</p> <p>Pin spacing 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 12 A</p>	
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$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L + 5 \text{ mm}$
 $L_2 = L_1 + 7.4 \text{ mm}$



$W = \text{Tape width}$
 $R = \text{Feed direction}$

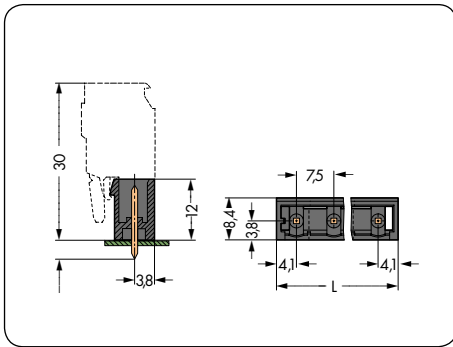


Male header position in tape-and-reel packaging

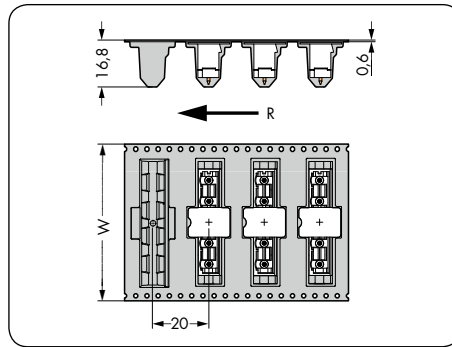
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with 1 x 1 mm angled solder pins, black			Male header with 1 x 1 mm angled solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
					(mm)
2	231-832/001-000/105-604	200	2	231-832/001-000/105-604/997-405	32
3	231-833/001-000/105-604	200	3	231-833/001-000/105-604/997-407	56
4	231-834/001-000/105-604	100	4	231-834/001-000/105-604/997-407	56
5	231-835/001-000/105-604	100	5	231-835/001-000/105-604/997-407	56
6	231-836/001-000/105-604	100	6	231-836/001-000/105-604/997-409	88
7	231-837/001-000/105-604	50	7	231-837/001-000/105-604/997-409	88
8	231-838/001-000/105-604	50	8	231-838/001-000/105-604/997-409	88
9	231-839/001-000/105-604	50	9	231-839/001-000/105-604/997-409	88
10	231-840/001-000/105-604	50			
11	231-841/001-000/105-604	50			
12	231-842/001-000/105-604	50			
Reel diameter: 330 mm, 170 pieces per reel					

Male Headers with 1.2 x 1.2 mm Straight Solder Pins, THR MCS-MIDI Classic

<p>With 1.2 x 1.2 mm straight solder pins</p> <p>Pin spacing 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 16 A</p>	<p>With 1.2 x 1.2 mm straight solder pins In tape-and-reel packaging</p> <p>Pin spacing 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 16 A</p>	
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$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$

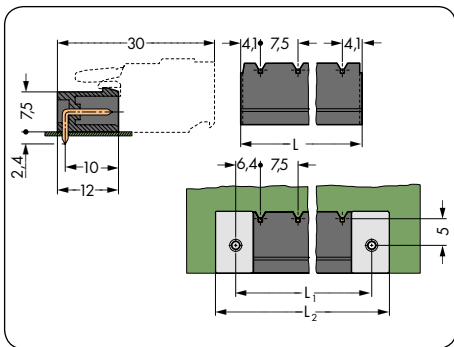
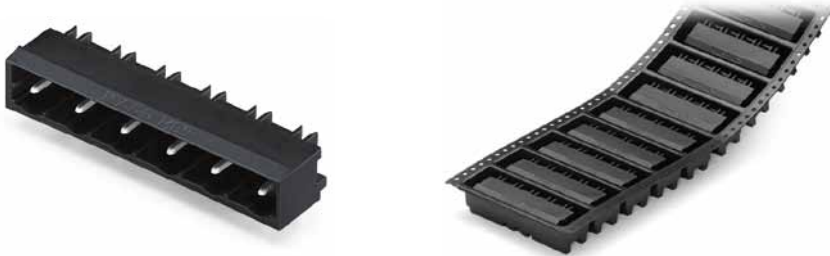


W= Tape width
R = Feed direction

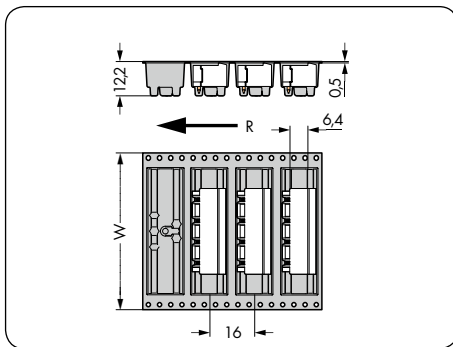
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with 1.2 x 1.2 mm straight solder pins, black			Male header with 1.2 x 1.2 mm straight solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
			(mm)		
2	231-262/001-000/105-604	200	2	231-262/001-000/105-604/997-405	32
3	231-263/001-000/105-604	200	3	231-263/001-000/105-604/997-407	56
4	231-264/001-000/105-604	100	4	231-264/001-000/105-604/997-407	56
5	231-265/001-000/105-604	100	5	231-265/001-000/105-604/997-407	56
6	231-266/001-000/105-604	100	6	231-266/001-000/105-604/997-409	88
7	231-267/001-000/105-604	50	7	231-267/001-000/105-604/997-409	88
8	231-268/001-000/105-604	50	8	231-268/001-000/105-604/997-409	88
9	231-269/001-000/105-604	50	9	231-269/001-000/105-604/997-409	88
10	231-270/001-000/105-604	50			
11	231-271/001-000/105-604	50			
12	231-272/001-000/105-604	50			
			Reel diameter: 330 mm, 170 pieces per reel		

Male Headers with 1.2 x 1.2 mm Angled Solder Pins, THR MCS-MIDI Classic

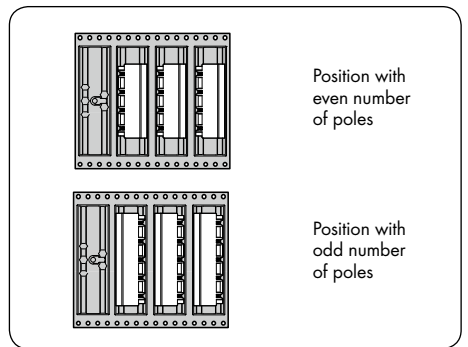
<p>With 1.2 x 1.2 mm angled solder pins</p> <p>Pin spacing 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 16 A</p>	<p>With 1.2 x 1.2 mm angled solder pins In tape-and-reel packaging</p> <p>Pin spacing 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 16 A</p>	
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$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L + 5 \text{ mm}$
 $L_2 = L_1 + 7.4 \text{ mm}$



$W = \text{Tape width}$
 $R = \text{Feed direction}$



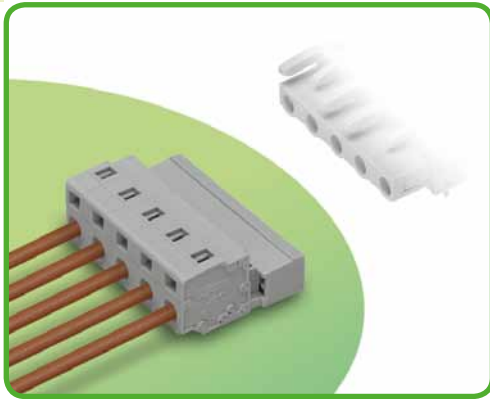
Male header position in tape-and-reel packaging

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W
Male header with 1.2 x 1.2 mm angled solder pins, black			Male header with 1.2 x 1.2 mm angled solder pins, in tape-and-reel packaging acc. to IEC 60286-3, black		
					(mm)
2	231-862/001-000/105-604	200	2	231-862/001-000/105-604/997-405	32
3	231-863/001-000/105-604	200	3	231-863/001-000/105-604/997-407	56
4	231-864/001-000/105-604	100	4	231-864/001-000/105-604/997-407	56
5	231-865/001-000/105-604	100	5	231-865/001-000/105-604/997-407	56
6	231-866/001-000/105-604	100	6	231-866/001-000/105-604/997-409	88
7	231-867/001-000/105-604	50	7	231-867/001-000/105-604/997-409	88
8	231-868/001-000/105-604	50	8	231-868/001-000/105-604/997-409	88
9	231-869/001-000/105-604	50	9	231-869/001-000/105-604/997-409	88
10	231-870/001-000/105-604	50			
11	231-871/001-000/105-604	50			
12	231-872/001-000/105-604	50			
Reel diameter: 330 mm, 170 pieces per reel					

Male Connectors

Pin Spacing 7.5 mm, 7.62 mm

MCS-MIDI Classic



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- For “wire-to-wire” and “wire-to-board” connections
- Versions available with snap-in mounting feet or fixing flanges for panel or through-panel mounting
- With coding keys

Technical data:

Pin Spacing	7.5 mm 0.295 in			7.62 mm 0.3 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A	12 A	12 A	12 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A

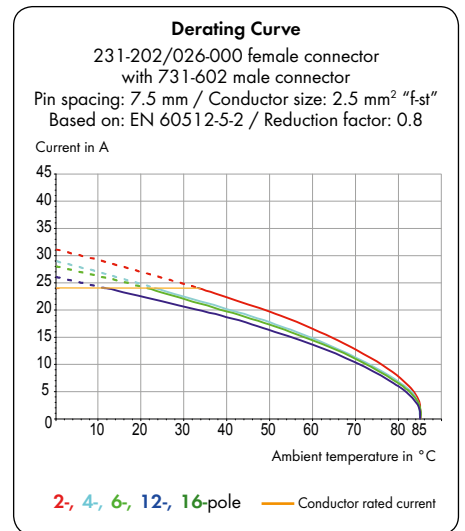
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Conductor data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 12 12: THHN, THWN
Strip length	8 - 9 mm / 0.31 - 0.35 in

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +100 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix . . . /010-000” is added to the “basic item no.”	



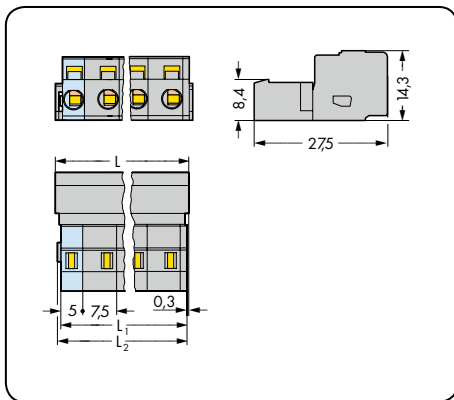
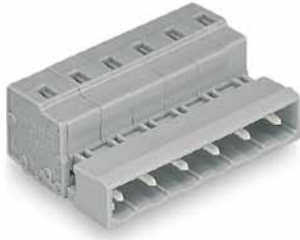
MCS-MIDI accessories:

Page:

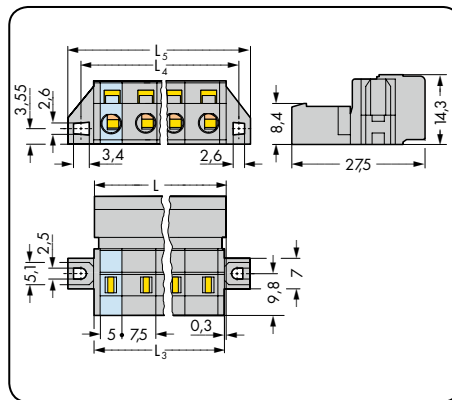
Marking accessories	540 - 543
Operating tools	466 - 467
Separators	468
Direct marking	358 - 360
Insulation stop	469
Coding keys	468
Screws	546

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

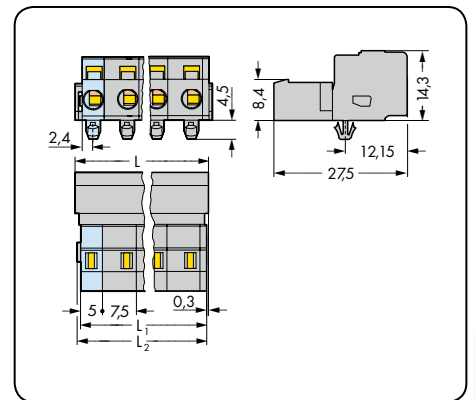
Pin spacing 7.5 mm / 0.295 in		With fixing flanges Pin spacing 7.5 mm / 0.295 in		With snap-in mounting feet Pin spacing 7.5 mm / 0.295 in	
0.08 - 2.5 mm ² 630 V/6 kV/2 12 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/6 kV/2 12 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/6 kV/2 12 A	AWG 28 - 12 300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 5.8 \text{ mm}$
 $L_5 = L_3 + 11.8 \text{ mm}$



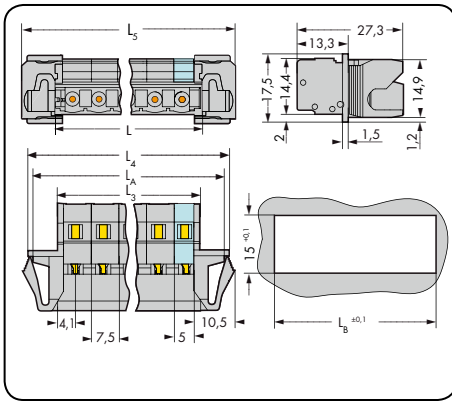
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector, gray			Male connector with fixing flanges, gray			Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, Ø 3.5 mm mounting holes, gray		
2	731-602	100	2	731-602/019-000	50	2	731-602/018-000	100
3	731-603	100	3	731-603/019-000	50	3	731-603/018-000	100
4	731-604	50	4	731-604/019-000	50	4	731-604/018-000	50
5	731-605	50	5	731-605/019-000	50	5	731-605/018-000	50
6	731-606	50	6	731-606/019-000	25	6	731-606/018-000	50
7	731-607	50	7	731-607/019-000	25	7	731-607/018-000	50
8	731-608	25	8	731-608/019-000	25	8	731-608/018-000	25
9	731-609	25	9	731-609/019-000	25	9	731-609/018-000	25
10	731-610	25	10	731-610/019-000	25	10	731-610/018-000	25
11	731-611	25	11	731-611/019-000	10	11	731-611/018-000	25
12	731-612	25	12	731-612/019-000	10	12	731-612/018-000	25
13	731-613	10	13	731-613/019-000	10	13	731-613/018-000	10
16	731-616	10	16	731-616/019-000	10	16	731-616/018-000	10
For cutout dimensions, see page 484, table 1.								

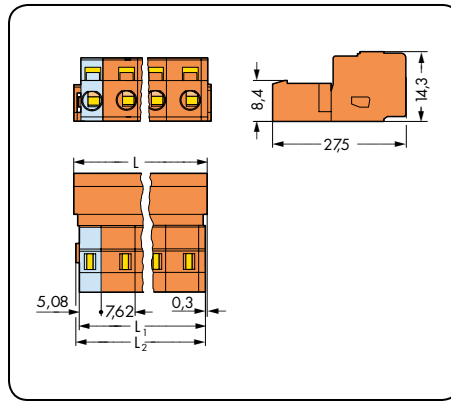
Product Accessories	Page
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)	475

Male Connectors MCS-MIDI Classic

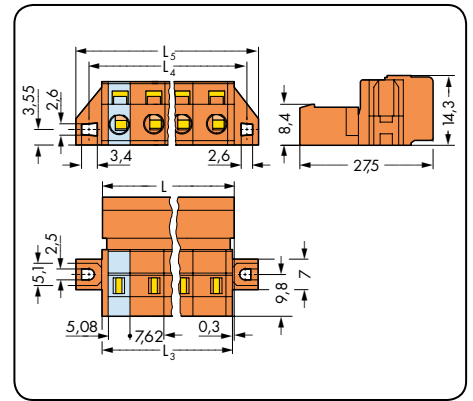
With snap-in flanges Pin spacing 7.5 mm / 0.295 in		Pin spacing 7.62 mm / 0.3 in		With fixing flanges Pin spacing 7.62 mm / 0.3 in	
0.08 - 2.5 mm ² 630 V/6 kV/2 12 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/6 kV/2 12 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/6 kV/2 12 A	AWG 28 - 12 300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 15.2 \text{ mm}$
 $L_5 = L_3 + 18 \text{ mm}$
 $L_A = L_3 + 12.6 \text{ mm}$
 $L_B = L_3 + 13.2 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$

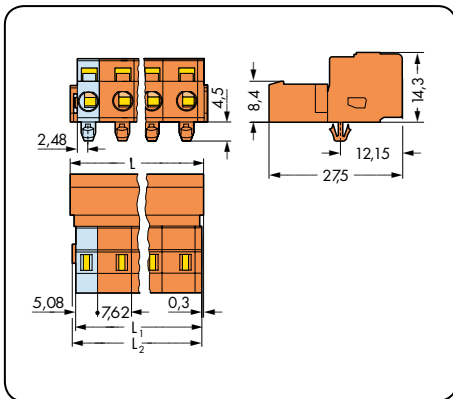
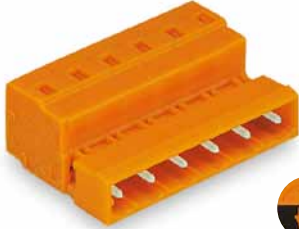


$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 5.8 \text{ mm}$
 $L_5 = L_3 + 11.8 \text{ mm}$

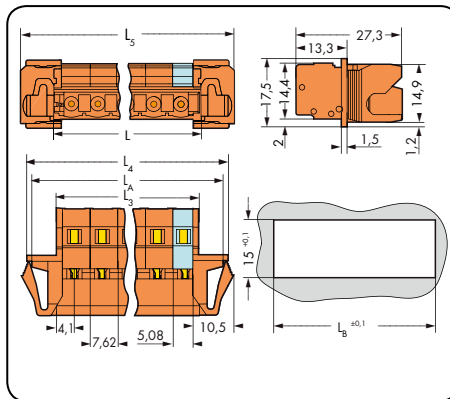
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector with snap-in flanges, gray			Male connector, orange			Male connector with fixing flanges, orange		
2	731-602/114-000	50	2	731-632	100	2	731-632/019-000	50
3	731-603/114-000	50	3	731-633	100	3	731-633/019-000	50
4	731-604/114-000	50	4	731-634	50	4	731-634/019-000	50
5	731-605/114-000	25	5	731-635	50	5	731-635/019-000	50
6	731-606/114-000	25	6	731-636	50	6	731-636/019-000	25
7	731-607/114-000	25	7	731-637	50	7	731-637/019-000	25
8	731-608/114-000	25	8	731-638	25	8	731-638/019-000	25
9	731-609/114-000	25	9	731-639	25	9	731-639/019-000	25
10	731-610/114-000	10	10	731-640	25	10	731-640/019-000	25
11	731-611/114-000	10	11	731-641	25	11	731-641/019-000	10
12	731-612/114-000	10	12	731-642	25	12	731-642/019-000	10
13	731-613/114-000	10				For cutout dimensions, see page 484, table 1.		
16	731-616/114-000	10						

Male Connectors MCS-MIDI Classic

Pin spacing 7.62 mm / 0.3 in		With snap-in flanges Pin spacing 7.62 mm / 0.3 in	
0.08 - 2.5 mm ² 630 V/6 kV/2 12 A	AWG 28 - 12 300 V/15 A	0.08 - 2.5 mm ² 630 V/6 kV/2 16 A	AWG 28 - 12 300 V/ 15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_3 = L - 0.2 \text{ mm}$
 $L_4 = L_3 + 15.2 \text{ mm}$
 $L_5 = L_3 + 18 \text{ mm}$
 $L_6 = L_3 + 12.6 \text{ mm}$
 $L_7 = L_3 + 13.2 \text{ mm}$

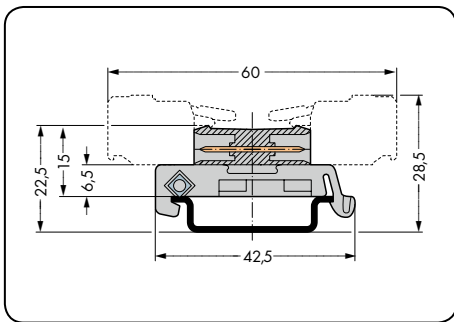
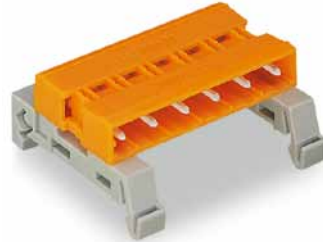


Male connectors with snap-in flanges for feedthrough applications, for 0.5 - 2.5 mm plate thickness

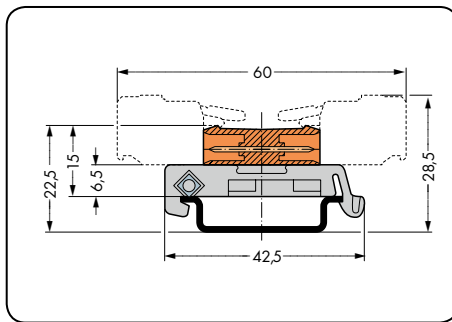
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector with snap-in mounting feet, for plate thickness 0.6 mm - 1.2 mm, mounting holes 3.5 mm diam., orange			Male connector with snap-in flanges, orange		
2	731-632/018-000	100	2	731-632/114-000	50
3	731-633/018-000	100	3	731-633/114-000	50
4	731-634/018-000	50	4	731-634/114-000	50
5	731-635/018-000	50	5	731-635/114-000	25
6	731-636/018-000	50	6	731-636/114-000	25
7	731-637/018-000	50	7	731-637/114-000	25
8	731-638/018-000	25	8	731-638/114-000	25
9	731-639/018-000	25	9	731-639/114-000	25
10	731-640/018-000	25	10	731-640/114-000	10
11	731-641/018-000	25	11	731-641/114-000	10
12	731-642/018-000	25	12	731-642/114-000	10
Product Accessories		Page			
Mounting adapter for DIN 35 rail, min. length 3 poles (209-137)		475			

Double-Pin Male Connectors with Mounting Feet for DIN 35 Rail MCS-MIDI Classic

Pin spacing 7.5 mm / 0.295 in		Pin spacing 7.62 mm / 0.3 in	
630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A

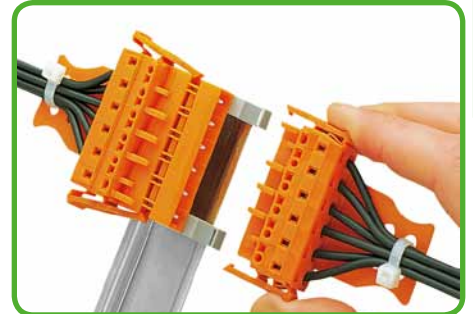


Total length = (pole no. - 1) x pin spacing + 8.2 mm



Total length = (pole no. - 1) x pin spacing + 8.2 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Double-pin male connector with mounting feet, for DIN 35 rail, gray			Double-pin male connector with mounting feet, for DIN 35 rail, orange		
2	232-562/007-000	50	2	232-582/007-000	50
3	232-563/007-000	50	3	232-583/007-000	50
4	232-564/007-000	25	4	232-584/007-000	25
5	232-565/007-000	50	5	232-585/007-000	25
6	232-566/007-000	25	6	232-586/007-000	25
7	232-567/007-000	10	7	232-587/007-000	10
8	232-568/007-000	10	8	232-588/007-000	10
9	232-569/007-000	10	9	232-589/007-000	10
10	232-570/007-000	10	10	232-590/007-000	10
11	232-571/007-000	10	11	232-591/007-000	10
12	232-572/007-000	10	12	232-592/007-000	10

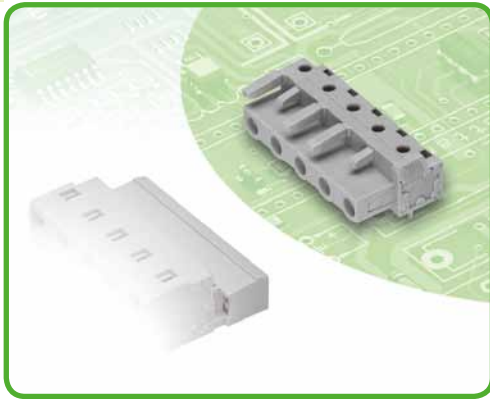


Double-pin male connector mounted on DIN 35 rail. Female connectors with locking levers.

Female Headers with Solder Pins

Pin Spacing 7.5 mm, 7.62 mm

MCS-MIDI Classic



- Female headers may be mounted horizontally or vertically via straight or angled solder pins
- For “board-to-board” and “board-to-wire” connections
- Touch-proof PCB outputs
- Easy-to-identify PCB inputs and outputs
- With coding fingers

Technical data:

Pin Spacing	7.5 mm 0.197 in			7.62 mm 0.3 in		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2
rated voltage	500 V	630 V	1000 V	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV	6 kV	6 kV	6 kV
Nominal current	12 A	12 A	12 A	12 A	12 A	12 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Nominal current UL	15 A	-	10 A	15 A	-	10 A
Nominal current CSA	15 A	-	10 A	15 A	-	10 A

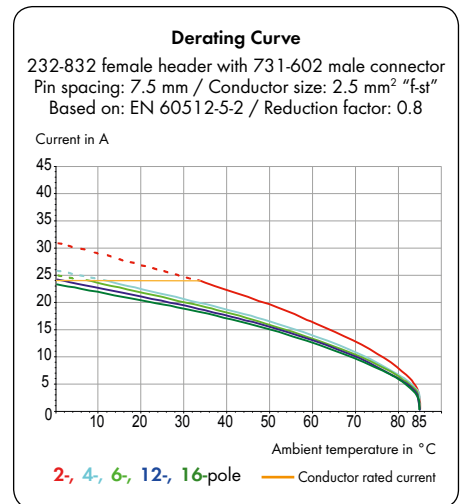
The MCS-MIDI connection system is UL 1977 approved and capable of up to 600 V for factory wiring.

Solder pin data:

Solder pin: length/width	5 mm / 0.6 x 1 mm
Solder pin: drilled hole diameter	1.3 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated
MCS connectors are also available upon request with gold-plated or partially gold-plated contact surfaces.	
Depending on the version requested, “item no. suffix ... /010-000” is added to the “basic item no.”	



MCS-MIDI accessories:

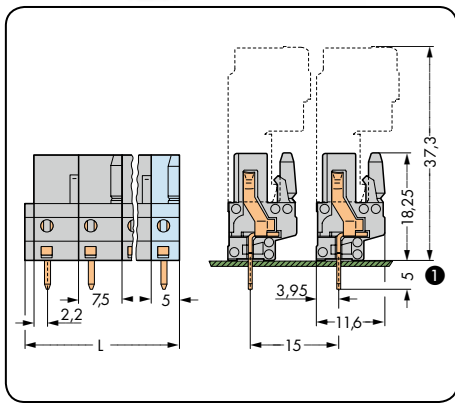
Page:

Marking accessories	540 – 543
Test plug adapter	474
Test plug	538
Screws	546

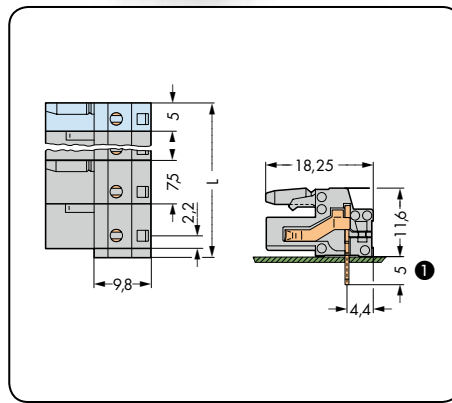
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Headers with Solder Pins MCS-MIDI Classic

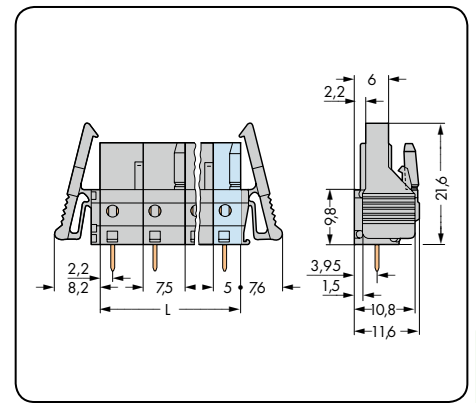
With straight solder pins Pin spacing 7.5 mm / 0.295 in		With angled solder pins Pin spacing 7.5 mm / 0.295 in		With straight solder pins and locking levers Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm} + 1.5 \text{ mm}$
Distance to first solder pin: 2.2 mm



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$

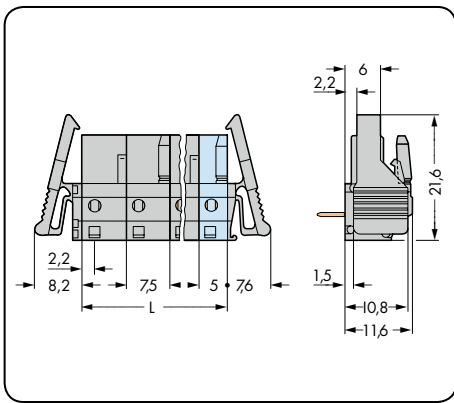
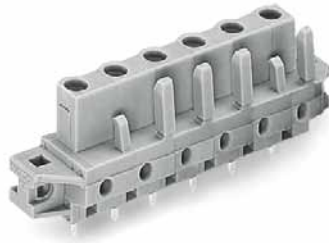
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, gray			Female header with angled solder pins, gray			Female header with straight solder pins and locking levers, gray		
2	232-732	100	2	232-832	100	2	232-732/039-000	50
3	232-733	100	3	232-833	100	3	232-733/039-000	50
4	232-734	50	4	232-834	50	4	232-734/039-000	50
5	232-735	50	5	232-835	50	5	232-735/039-000	50
6	232-736	50	6	232-836	50	6	232-736/039-000	25
7	232-737	50	7	232-837	50	7	232-737/039-000	25
8	232-738	25	8	232-838	25	8	232-738/039-000	25
9	232-739	25	9	232-839	25	9	232-739/039-000	25
10	232-740	25	10	232-840	25	10	232-740/039-000	25
11	232-741	25	11	232-841	25	11	232-741/039-000	10
12	232-742	25	12	232-842	25	12	232-742/039-000	10
13	232-743	10	13	232-843	10	13	232-743/039-000	10
16	232-746	10	16	232-846	10	16	232-746/039-000	10

2- to 3-pole female headers - one latch only

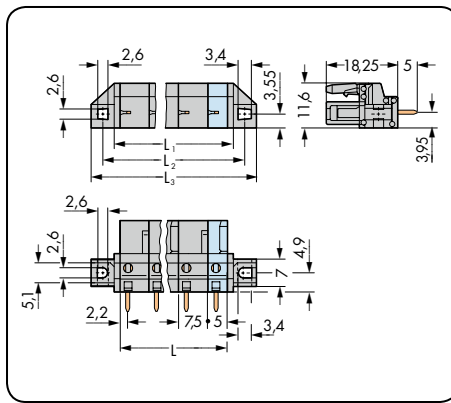
❶ MCS-MIDI female headers with solder pins are also available with 3.8 mm pin projection. Add or insert item no. suffix .../045-000.

Female Headers with Solder Pins MCS-MIDI Classic

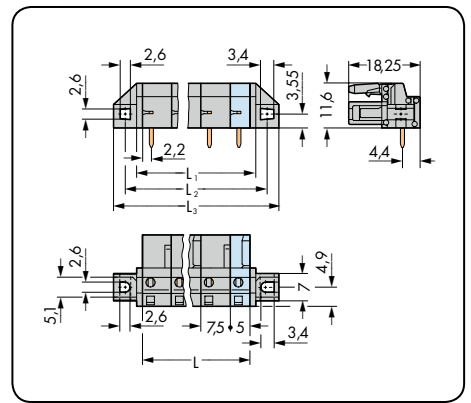
With angled solder pins and locking levers Pin spacing 7.5 mm / 0.295 in		With straight solder pins and fixing flanges Pin spacing 7.5 mm / 0.295 in		With angled solder pins and fixing flanges Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A



L = (pole no. - 1) x pin spacing + 5 mm
Distance to first solder pin: 2.2 mm



L = (pole no. - 1) x pin spacing + 5 mm
L₁ = L + 3 mm
L₂ = L + 8.8 mm
L₃ = L + 14.8 mm

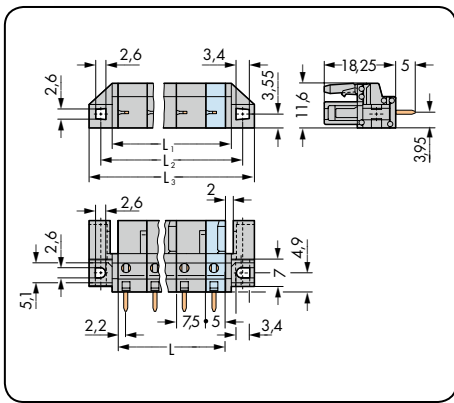
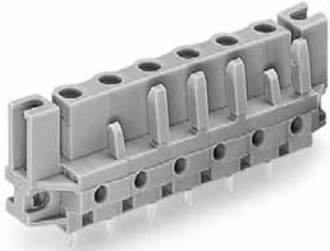


L = (pole no. - 1) x pin spacing + 5 mm
L₁ = L + 3 mm
L₂ = L + 8.8 mm
L₃ = L + 14.8 mm

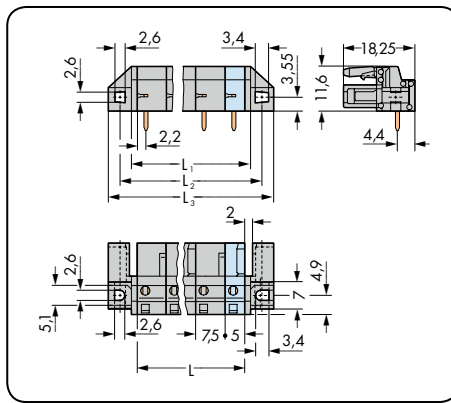
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with angled solder pins and locking levers, gray			Female header with straight solder pins and fixing flanges, for through-panel mounting, gray			Female header with angled solder pins and fixing flanges, for through-panel mounting, gray		
2	232-832/039-000	50	2	232-732/031-000	50	2	232-832/031-000	50
3	232-833/039-000	50	3	232-733/031-000	50	3	232-833/031-000	50
4	232-834/039-000	50	4	232-734/031-000	50	4	232-834/031-000	50
5	232-835/039-000	50	5	232-735/031-000	50	5	232-835/031-000	50
6	232-836/039-000	25	6	232-736/031-000	25	6	232-836/031-000	25
7	232-837/039-000	25	7	232-737/031-000	25	7	232-837/031-000	25
8	232-838/039-000	25	8	232-738/031-000	25	8	232-838/031-000	25
9	232-839/039-000	25	9	232-739/031-000	25	9	232-839/031-000	25
10	232-840/039-000	25	10	232-740/031-000	25	10	232-840/031-000	25
11	232-841/039-000	10	11	232-741/031-000	10	11	232-841/031-000	10
12	232-842/039-000	10	12	232-742/031-000	10	12	232-842/031-000	10
13	232-843/039-000	10	13	232-743/031-000	10	13	232-843/031-000	10
16	232-846/039-000	10	16	232-746/031-000	10	16	232-846/031-000	10
For cutout dimensions, see page 486, table 3.								
2- to 3-pole female headers - one latch only								

Female Headers with Solder Pins MCS-MIDI Classic

With straight solder pins and spacers Pin spacing 7.5 mm / 0.295 in		With angled solder pins and spacers Pin spacing 7.5 mm / 0.295 in	
630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$



The innovative flange design provides standard panel mounting options or various through-panel mounting configurations. Depending on the application and type of flange, female headers are now suitable for through-panel mounting ...

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins and spacers, for flush-panel mounting, gray			Female header with angled solder pins and spacers, for flush-panel mounting, gray		
2	232-732/047-000	50	2	232-832/047-000	50
3	232-733/047-000	50	3	232-833/047-000	50
4	232-734/047-000	50	4	232-834/047-000	50
5	232-735/047-000	50	5	232-835/047-000	50
6	232-736/047-000	25	6	232-836/047-000	25
7	232-737/047-000	25	7	232-837/047-000	25
8	232-738/047-000	25	8	232-838/047-000	25
9	232-739/047-000	25	9	232-839/047-000	25
10	232-740/047-000	25	10	232-840/047-000	25
11	232-741/047-000	10	11	232-841/047-000	10
12	232-742/047-000	10	12	232-842/047-000	10
13	232-743/047-000	10	13	232-843/047-000	10
16	232-746/047-000	10	16	232-846/047-000	10
For cutout dimensions, see page 486, table 3.					
2- to 3-pole female headers - one latch only					

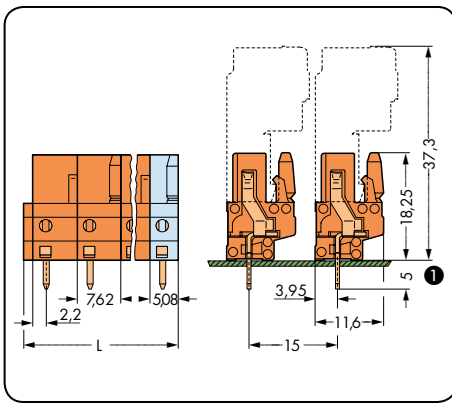
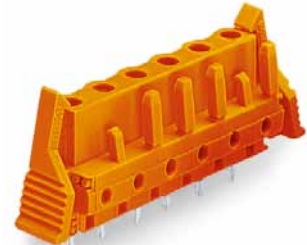


... or flush mounting.

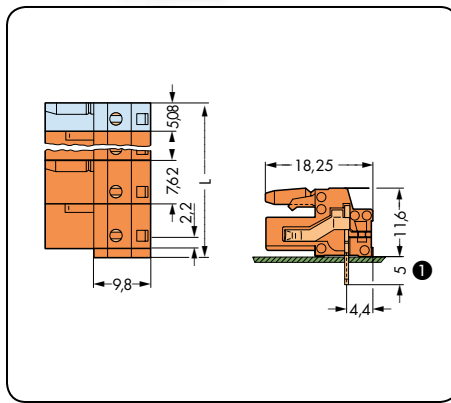
6 Female Headers with Solder Pins MCS-MIDI Classic

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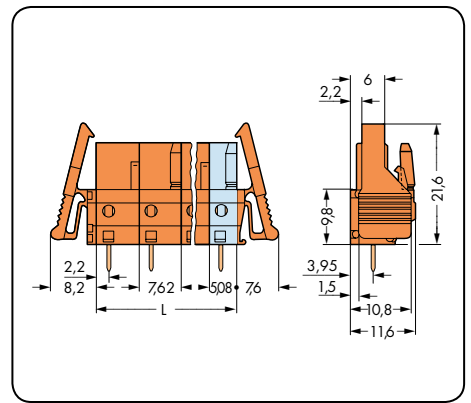
With straight solder pins Pin spacing 7.62 mm / 0.3 in		With angled solder pins Pin spacing 7.62 mm / 0.3 in		With straight solder pins and locking levers Pin spacing 7.62 mm / 0.3 in	
630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm} + 1.5 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm} + 1.5 \text{ mm}$
Distance to first solder pin: 2.2 mm



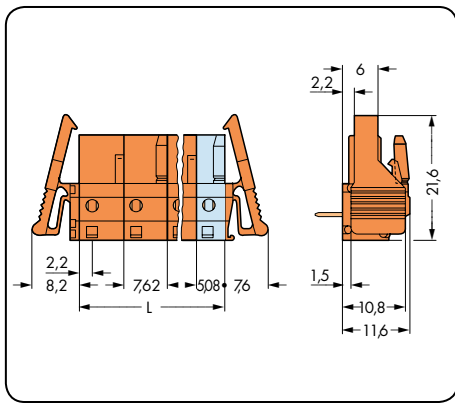
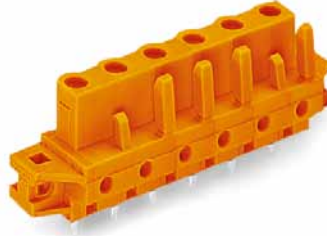
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, orange			Female header with angled solder pins, orange			Female header with straight solder pins and locking levers, orange		
2	232-762	100	2	232-862	100	2	232-762/039-000	50
3	232-763	100	3	232-863	100	3	232-763/039-000	50
4	232-764	50	4	232-864	50	4	232-764/039-000	50
5	232-765	50	5	232-865	50	5	232-765/039-000	50
6	232-766	50	6	232-866	50	6	232-766/039-000	25
7	232-767	50	7	232-867	50	7	232-767/039-000	25
8	232-768	25	8	232-868	25	8	232-768/039-000	25
9	232-769	25	9	232-869	25	9	232-769/039-000	25
10	232-770	25	10	232-870	25	10	232-770/039-000	25
11	232-771	25	11	232-871	25	11	232-771/039-000	10
12	232-772	25	12	232-872	25	12	232-772/039-000	10
2- to 3-pole female headers - one latch only								

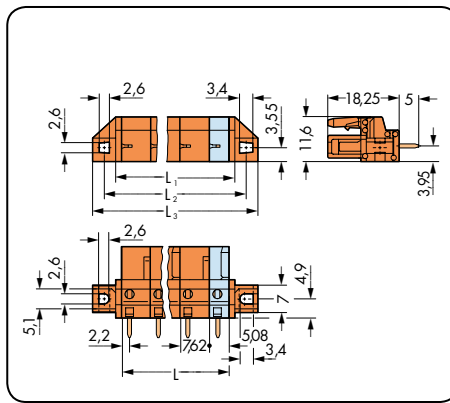
❶ MCS-MIDI female headers with solder pins are also available with 3.8 mm pin projection.
Add or insert **item no. suffix** .../045-000.

Female Headers with Solder Pins MCS-MIDI Classic

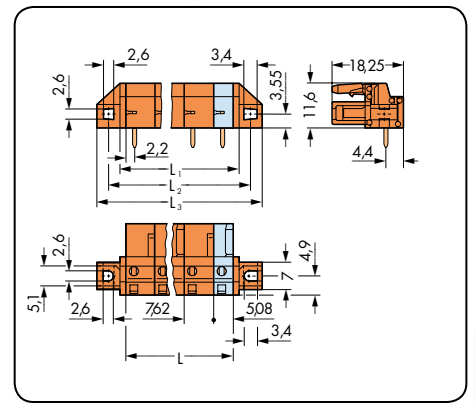
With angled solder pins and locking levers Pin spacing 7.62 mm / 0.3 in		With straight solder pins and fixing flanges Pin spacing 7.62 mm / 0.3 in		With angled solder pins and fixing flanges Pin spacing 7.62 mm / 0.3 in	
630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm}$
Distance to first solder pin: 2.2 mm



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with angled solder pins and locking levers, orange			Female header with straight solder pins and fixing flanges, for through-panel mounting, orange			Female header with angled solder pins and fixing flanges, for through-panel mounting, orange		
2	232-862/039-000	50	2	232-762/031-000	50	2	232-862/031-000	50
3	232-863/039-000	50	3	232-763/031-000	50	3	232-863/031-000	50
4	232-864/039-000	50	4	232-764/031-000	50	4	232-864/031-000	50
5	232-865/039-000	50	5	232-765/031-000	50	5	232-865/031-000	50
6	232-866/039-000	25	6	232-766/031-000	25	6	232-866/031-000	25
7	232-867/039-000	25	7	232-767/031-000	25	7	232-867/031-000	25
8	232-868/039-000	25	8	232-768/031-000	25	8	232-868/031-000	25
9	232-869/039-000	25	9	232-769/031-000	25	9	232-869/031-000	25
10	232-870/039-000	25	10	232-770/031-000	25	10	232-870/031-000	25
11	232-871/039-000	10	11	232-771/031-000	10	11	232-871/031-000	10
12	232-872/039-000	10	12	232-772/031-000	10	12	232-872/031-000	10

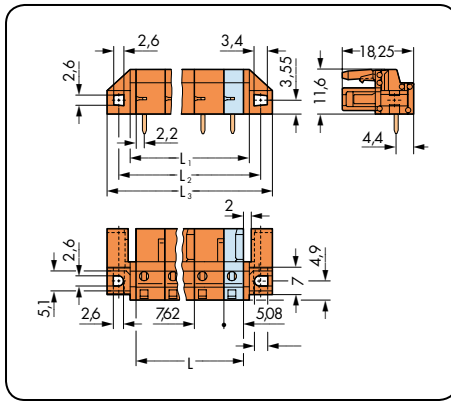
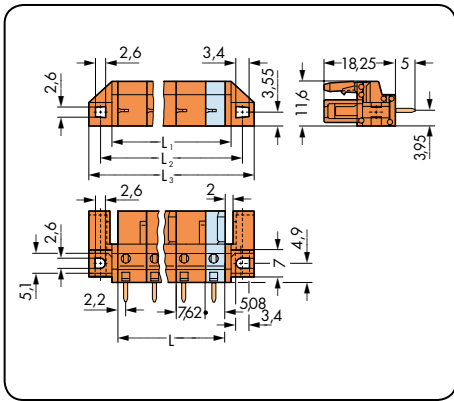
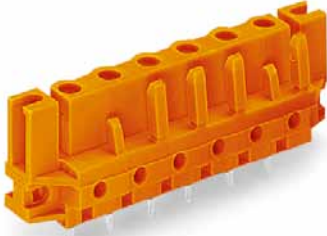
For cutout dimensions, see page 486, table 3.

2- to 3-pole female headers - one latch only

6 Female Headers with Solder Pins MCS-MIDI Classic

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With straight solder pins and spacer flanges Pin spacing 7.62 mm / 0.3 in		With angled solder pins and spacer flanges Pin spacing 7.62 mm / 0.3 in	
630 V/6 kV/2 12 A	300 V/15 A	630 V/6 kV/2 12 A	300 V/15 A



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5.08 \text{ mm}$
 $L_1 = L + 3 \text{ mm}$
 $L_2 = L + 8.8 \text{ mm}$
 $L_3 = L + 14.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins and spacers, for flush-panel mounting, orange			Female header with angled solder pins and spacers, for flush-panel mounting, orange		
2	232-762/047-000	50	2	232-862/047-000	50
3	232-763/047-000	50	3	232-863/047-000	50
4	232-764/047-000	50	4	232-864/047-000	50
5	232-765/047-000	50	5	232-865/047-000	50
6	232-766/047-000	25	6	232-866/047-000	25
7	232-767/047-000	25	7	232-867/047-000	25
8	232-768/047-000	25	8	232-868/047-000	25
9	232-769/047-000	25	9	232-869/047-000	25
10	232-770/047-000	25	10	232-870/047-000	25
11	232-771/047-000	10	11	232-871/047-000	10
12	232-772/047-000	10	12	232-872/047-000	10

For cutout dimensions, see page 486, table 3.

2- to 3-pole female headers - one latch only

Accessories Operating Tools MCS-MIDI

Operating tool for male and female connectors equipped with CAGE CLAMP®	Operating levers for male and female connectors equipped with CAGE CLAMP®	Operating tools for male and female connectors equipped with CAGE CLAMP®
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Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Operating tool, 5/5.08 mm and 7.5/7.62 mm pin spacing			Operating lever, 5/5.08 mm and 7.5/7.62 mm pin spacing			Operating tool, 5/5.08 mm and 7.5/7.62 mm pin spacing		
red	210-250	1	natural	231-131	100 (4 x 25)	natural	231-159	100 (4 x 25)
			red	231-291	100 (4 x 25)	red	231-231	100 (4 x 25)



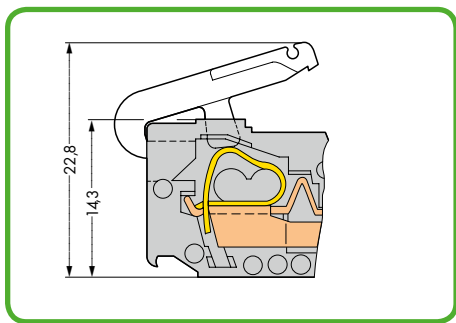
Inserting conductors via operating tool.



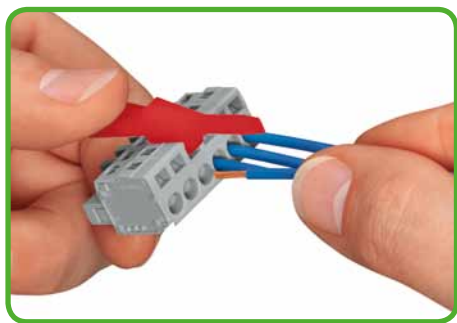
Inserting conductors via operating lever.



Inserting conductors - Operation parallel to conductor entry.



Not suitable for panel mounting with angled female connectors.



Inserting conductors - Operation perpendicular to conductor entry.

Accessories

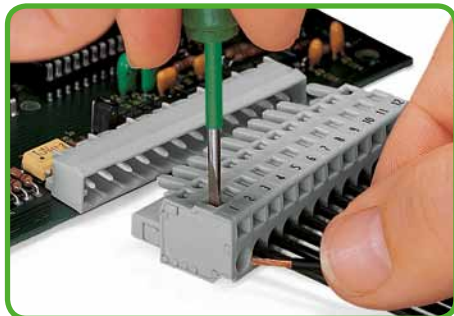
Operating Tools

MCS-MIDI

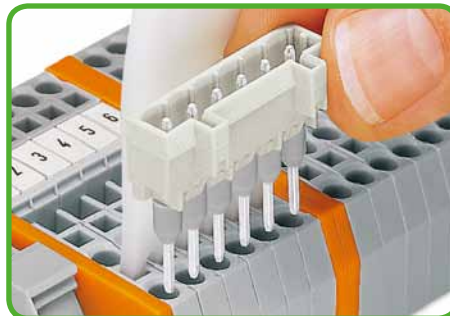
Operating tool with partially insulated shaft Type 2	Operating tool operation parallel to conductor entry	Operating tool operation perpendicular to conductor entry
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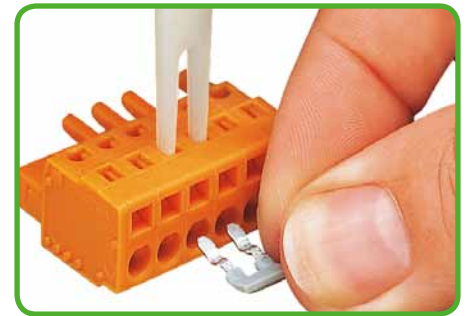
Item No.	Pack. Unit	Type	Pin Spacing	Item No.	Pack. Unit	Type	Pin Spacing	Item No.	Pack. Unit
Operating tool with partially insulated shaft, type 2, (3.5 x 0.5) mm blade, 5/5.08 mm and 7.5/7.62 mm pin spacing		Operating tool , insulated, operation parallel to conductor entry for male and female connectors equipped with CAGE CLAMP® Also suitable for 280 Series rail-mounted terminal blocks.				Operating tool , insulated, operation perpendicular to conductor entry for male and female connectors equipped with CAGE CLAMP®			
210-720	1								
		1-way	5/5.08 mm	209-130	1	2-way	5/5.08 mm	209-132	1
		2-way	5/5.08 mm	280-432	1				
		3-way	5/5.08 mm	280-433	1				
		4-way	5/5.08 mm	280-434	1				
		5-way	5/5.08 mm	280-435	1				
		6-way	5/5.08 mm	280-436	1				
		7-way	5/5.08 mm	280-437	1				
		8-way	5/5.08 mm	280-438	1				
		9-way	5/5.08 mm	280-439	1				
		10-way	5/5.08 mm	280-440	1				



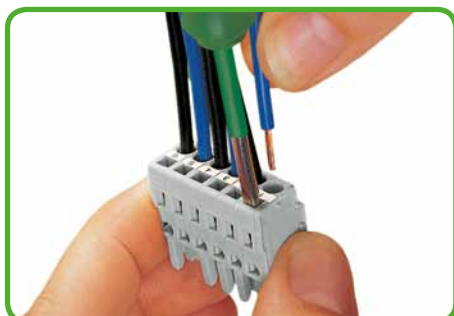
Inserting conductors via 3.5 x 0.5 mm screwdriver - Actuation perpendicular to conductor entry.



Operating tool used with 280 Series rail-mounted terminal blocks: For inserting male and female connectors with long contact pins into 280 Series rail-mounted terminal blocks (max. 10-pole for in-the-field assembly).
 Operating tool used with CAGE CLAMP®-equipped male and female connectors (5/5.08 mm pin spacing): For opening up to 10 CAGE CLAMP® units simultaneously, e.g., when inserting 231-90x comb-style jumper bars. Wiring male and female connectors should be performed in a suitable mount.



Operating tool for 231-902 comb-style jumper bars.



Inserting conductors via 3.5 x 0.5 mm screwdriver - Actuation parallel to conductor entry.

Accessories

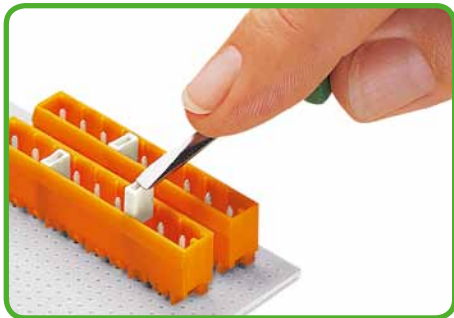
Separators, Coding Keys and Coding Pins

MCS-MIDI

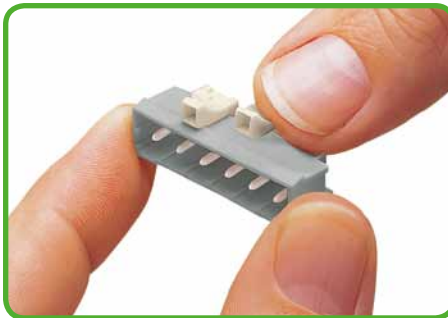
Separators for forming groups for male headers	Coding keys for male headers	Coding pins for male headers for double-deck assembly, to be snapped into lower level
--	--	--



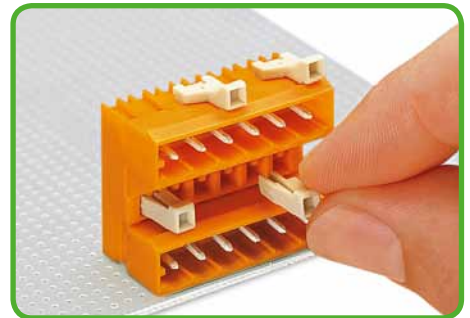
Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Separator for headers, for formation of groups			Coding keys for male headers, 5/5.08 mm pin spacing			Coding pin for male headers for double-deck assembly, snaps into lower level		
light gray	231-500	200 (2 x 100)	light gray	231-129	100	light gray	231-160	100
Coding key for male headers, 7.5/7.62 mm pin spacing								
			light gray	231-130	100			



Separators for formation of groups are inserted directly into the MCS MIDI Classic male headers. Formation of groups using separators means that at least 1 pole is lost on the header. Female connectors with integrated end plates are available for formation of groups without loss of any poles for 5/5.08 mm pin spacing. Formation of groups without the loss of any poles is possible without using separators for 7.5/7.62 mm pin spacing.



Snap-on coding key for male headers and CAGE CLAMP[®]-equipped male connectors. The last pole of male and female connectors with 7.5 mm pin spacing has a width of 5 mm/0.197 in; for 7.62 mm pin spacing, the pole width is 5.08 mm/0.2 in. Always use 231-129 coding key for coding this pole.



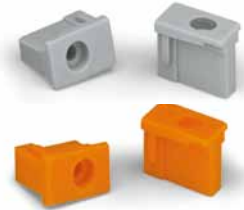
Coding lower male header in combination with male header for double-deck assembly.

Accessories

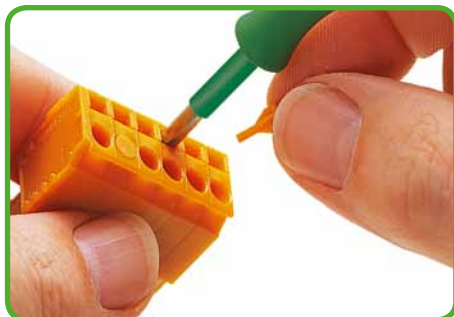
Lockout Caps, Insulation Stops and Fixing Elements

MCS-MIDI

Lockout caps for male and female connectors equipped with CAGE CLAMP®	Insulation stops for male and female connectors equipped with CAGE CLAMP® or CAGE CLAMP®S	Fixing elements for angled male headers with solder pins
---	---	--



Color	Item No.	Pack. Unit	Color	Conductor Size	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Lockout cap			Insulation stop, 5/5.08 mm pin spacing			Fixing element			
gray	231-668	500 (5 x 100)	white	0.08 - 0.2 mm ² "sol." 0.08 - 0.14 mm ² "fst"	231-670	200	gray	231-193	100
orange	231-669	500 (5 x 100)	light gray	0.25 - 0.5 mm ²	231-671	200		231-393	100
			dark gray	0.75 - 1 mm ²	231-672	200			
			Insulation stop, 7.5/7.62 mm pin spacing			Screws for fixing elements			
			white	0.08 - 0.2 mm ² "sol." 0.08 - 0.14 mm ² "fst"	231-673	200	Screw with nut		
			light gray	0.25 - 0.5 mm ²	231-674	200	M 2 x 12	231-195	100
			dark gray	0.75 - 1 mm ²	231-675	200	Tapping screw		
							B 2.2 x 13	231-194	100
							Drilled hole, Ø 1.8 mm		



Sealing unnecessary clamping points in CAGE CLAMP®-equipped male and female connectors (e.g., when doubling the pin spacing to meet clearance and creepage distance requirements, or when higher rated voltage is required). Lockout pins are not suitable for panel-mounted, angled female connectors.



Wiring of PLC and microprocessor control systems also employs small or very small fine-stranded conductors. These conductors are highly flexible, and deform when pushed against the conductor stop in terminal blocks. As a result, the conductor insulation – not the copper conductor – may be clamped, causing intermittent contact or no contact at all. This is common to all clamping systems currently on the market and results in time-consuming troubleshooting.



Fixing elements enhance connection reliability between male headers with angled solder pins and the PCB. This substantially reduces mechanical stress on both solder pins and joints, particularly when dealing with small lengths and frequent mating cycles.



Insulation stop for connectors reliably ensure proper termination. Insulation stops automatically bundle the cores of fine-stranded conductors when inserted into the clamping unit, preventing splaying. This also limits the conductor entry to a defined cross sectional area – ensuring the actual conductor, not the insulation, will enter the clamping unit.

Insulation stops are available as dividable 5-pole strips for MCD MIDI male and female connectors. Insulation stop usage will not affect the conductor strip lengths for the aforementioned connectors.

Insulation stops are not suitable for panel-mounted female connectors.

10.16 mm pin spacing available upon request.

Accessories

Strain Relief Plates (Factory-Assembled Only)

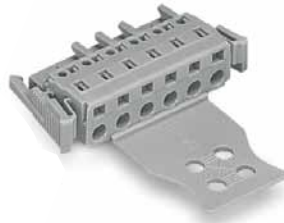
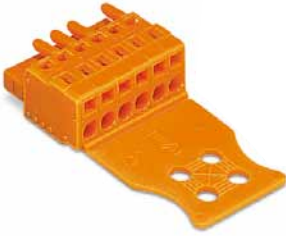
MCS-MIDI

Strain relief plates,
factory-assembled
Pin spacing 5/5.08 mm

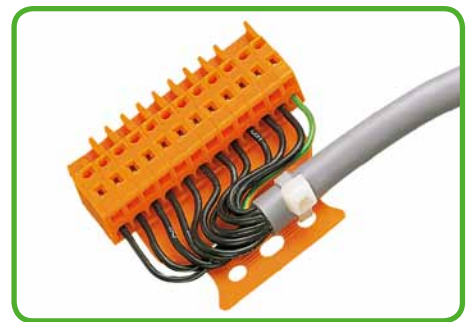
for male and female connectors
with CAGE CLAMP®

Strain relief plates,
factory-assembled
Pin spacing 7.5/7.62 mm

for male and female connectors
with CAGE CLAMP®



Width	Pole No.	Item No.	Width	Pole No.	Item No.
Strain relief plate, pre-assembled gray/orange			Strain relief plate, pre-assembled gray/orange		
11.5 mm	2- 3	.../032-000	11.5 mm	2	.../032-000
20 mm	4- 5	.../033-000	20 mm	3- 5	.../033-000
30 mm	6- 9	.../034-000	30 mm	6- 7	.../034-000
50 mm	10-24	.../035-000	50 mm	8-16	.../035-000
Ordering example:			Ordering example:		
Male connector with strain relief plate, 5 mm pin spacing, 8-pole, gray: 721-608/034-000			Angled female connector with strain relief plate, 7.62 mm pin spacing, 5-pole, orange: 732-125/026-000/033-000		
Ordering example:			Ordering example:		
Female connector with strain relief plate, 5 mm pin spacing, 8-pole, gray: 231-108/026-000/034-000					



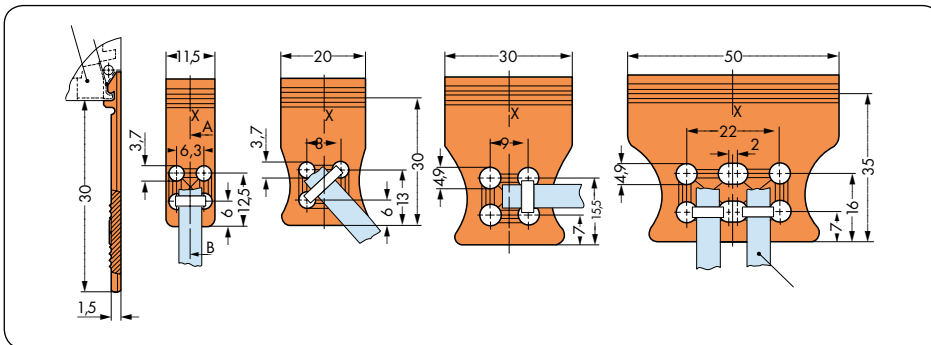
Female connector with strain relief plate,
5.08 mm pin spacing, 12-pole, orange:
231-312/026-000/035-000.



Female connector with strain relief plate,
5 mm pin spacing, 3-pole, gray:
231-103/026-000/032-000.

Both CAGE CLAMP®-equipped male and female connectors are supplied with pre-assembled (glued) strain relief plates. An "item no. suffix", referring to the width of the strain relief plate, is added to the "basic item no." of the male or female connector. Angled female connectors for panel mounting cannot be fitted with strain relief plates.

WAGO does not offer the recommended cable ties and cable binding tools; those are available from suppliers such as Hellermann. The width of the cable ties must correspond to the hole dimensions indicated for the strain relief plates.



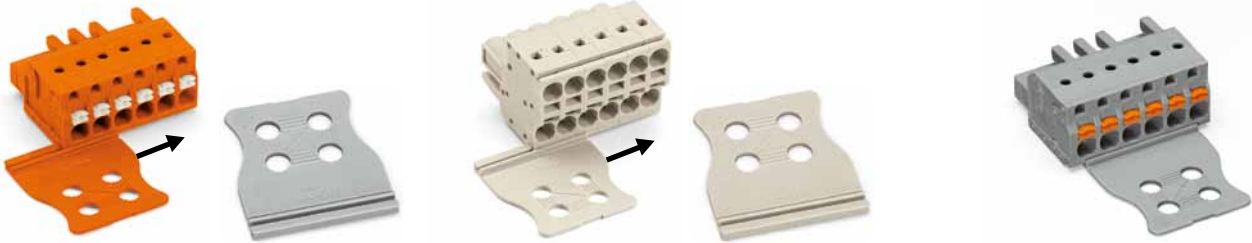
Gray strain relief plates are used for light gray 721, 722 and 723 Series CAGE CLAMP®-equipped male and female connectors.

Accessories

Strain Relief Plates (For In-The-Field Assembly or Factory-Assembled)

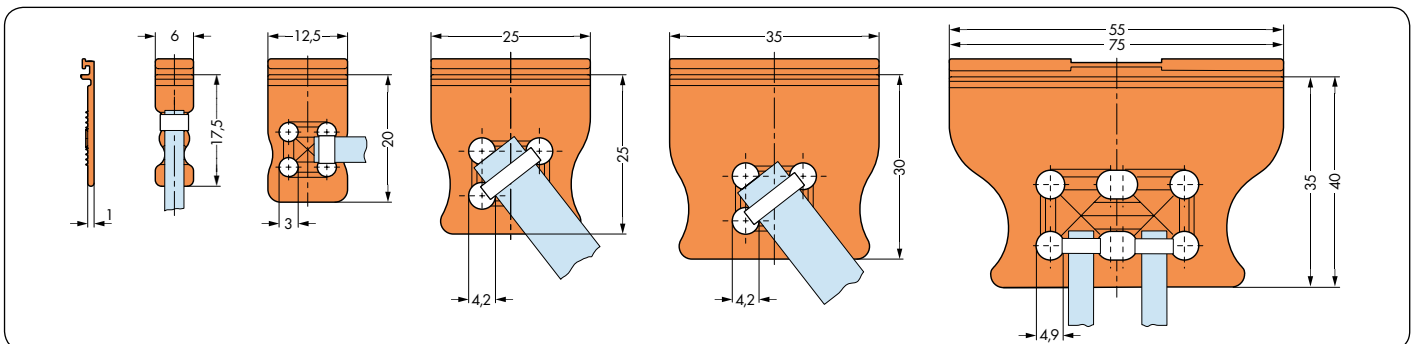
MCS-MIDI

<p>Strain relief plates for in-the-field assembly Pin spacing 5/5.08 mm</p> <p>for female connectors with CAGE CLAMP®S (2721, 2231 and 2-conductor 231, 721 Series)</p>	<p>Strain relief plates for in-the-field assembly Pin spacing 7.5/7.62 mm</p> <p>for female connectors with CAGE CLAMP®S (2721, 2231 and 2-conductor 231, 721 Series)</p>	<p>Strain relief plates, factory-assembled</p> <p>for female connectors with CAGE CLAMP®S (2721, 2231 and 2-conductor 231, 721 Series)</p>
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Width	Pole No.	Item No.	Pack. Unit	Width	Pole No.	Item No.	Pack. Unit	Width	Item No. Suffix
Strain relief plate, light gray				Strain relief plate, light gray				Strain relief plate, pre-assembled	
6 mm	2	734-127	100 (4 x 25)	6 mm	2- 3	734-127	100 (4 x 25)	6 mm	.../132-000
12.5 mm	3- 4	734-128	100 (4 x 25)	12.5 mm	2- 3	734-128	100 (4 x 25)	12.5 mm	.../133-000
25 mm	5- 7	734-129	100 (4 x 25)	25 mm	4- 6	734-129	100 (4 x 25)	25 mm	.../134-000
35 mm	8-11	734-126	100 (4 x 25)	35 mm	7- 9	734-126	100 (4 x 25)	35 mm	.../135-000
55 mm	12-16	734-426	50 (2 x 25)	55 mm	10-12	734-426	50 (2 x 25)	55 mm	.../136-000
75 mm	17-24	734-427	50 (2 x 25)	75 mm	13-16	734-427	50 (2 x 25)	75 mm	.../137-000
Strain relief plate, gray				Strain relief plate, gray				Ordering example: 2-conductor female connector with strain relief plate, 5 mm pin spacing, 8-pole, gray: 231-2108/026-000/135-000	
6 mm	2	734-327	100 (4 x 25)	6 mm	2- 3	734-327	100 (4 x 25)	Ordering example: Female connector with push-buttons and strain relief plate, 7.5 mm pin spacing, 8-pole, gray: 2231-208/026-000/135-000	
12.5 mm	3- 4	734-328	100 (4 x 25)	12.5 mm	2- 3	734-328	100 (4 x 25)		
25 mm	5- 7	734-329	100 (4 x 25)	25 mm	4- 6	734-329	100 (4 x 25)		
35 mm	8-11	734-326	100 (4 x 25)	35 mm	7- 9	734-326	100 (4 x 25)		
55 mm	12-16	734-430	50 (2 x 25)	55 mm	10-12	734-430	50 (2 x 25)		
75 mm	17-24	734-431	50 (2 x 25)	75 mm	13-16	734-431	50 (2 x 25)		
Strain relief plate, orange				Strain relief plate, orange				CAGE CLAMP®S-equipped female connectors can be retrofitted with a strain relief plate or pre-assembled with one at the factory. An "item no. suffix", referring to the width of the strain relief plate, is added to the "basic item no." and determines the type of connector (see ordering examples).	
6 mm	2	734-227	100 (4 x 25)	6 mm	2- 3	734-227	100 (4 x 25)	The arrangement of the attachments for cable ties allows single conductors or multi-core cables to be secured in different ways	
12.5 mm	3- 4	734-228	100 (4 x 25)	12.5 mm	2- 3	734-228	100 (4 x 25)		
25 mm	5- 7	734-229	100 (4 x 25)	25 mm	4- 6	734-229	100 (4 x 25)		
35 mm	8-11	734-226	100 (4 x 25)	35 mm	7- 9	734-226	100 (4 x 25)		
55 mm	12-16	734-428	50 (2 x 25)	55 mm	10-12	734-428	50 (2 x 25)		
75 mm	17-24	734-429	50 (2 x 25)	75 mm	13-16	734-429	50 (2 x 25)		

WAGO does not offer the recommended cable ties and cable binding tools; those are available from suppliers such as Hellermann. The width of the cable ties must correspond to the hole dimensions indicated for the strain relief plates.



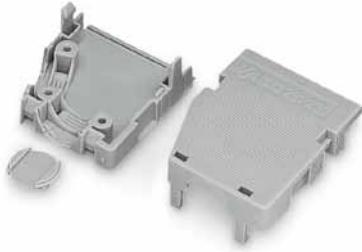
Accessories

Strain Relief Housings

MCS-MIDI

Snap-on type strain relief housing
Pin spacing 5 mm

for straight and angled
male and female connectors
with CAGE CLAMP® connection



Snap-on type strain relief housing
Pin spacing 5.08 mm

for straight and angled
male and female connectors
with CAGE CLAMP® connection



Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Snap-on type strain relief housing, suitable for 5 mm pin spacing, gray consists of strain relief support and housing			Snap-on type strain relief housing, suitable for 5.08 mm pin spacing, orange consists of strain relief support and housing		
2	232-602	25	2	232-632	25
3	232-603	25	3	232-633	25
4	232-604	25	4	232-634	25
5	232-605	25	5	232-635	25
6	232-606	25	6	232-636	25
7	232-607	25	7	232-637	25
8	232-608	25	8	232-638	25
9	232-609	25	9	232-639	25
10	232-610	25	10	232-640	25
12	232-612	25	12	232-642	25
			16	232-646	25

2- to 3-pole, only suitable for cable ties, 1 cable outlet (rear side), max. cable tie width 3.6 mm
 4- to 6-pole, suitable for cable clamp, 1 cable outlet (rear side)
 7- to 8-pole, suitable for cable clamp, 1 cable outlets (rear side) and 1 cable outlets (side), 1 cover (included)
 9- to 16-pole, suitable for cable clamp, 1 cable outlets (rear side) and 2 cable outlets (side), 2 covers (included)

Product Accessories	Pole No.	Item No.	Pack. Unit
---------------------	----------	----------	------------

Cable clamp, for strain relief



4 to 6 poles	209-177	25
7 poles and more	209-174	25

Fixing screws, for cable clamp



4 to 6 poles	209-176	50
7 - 16 poles	209-173	50



Snapping the cover into the unused cable outlet.

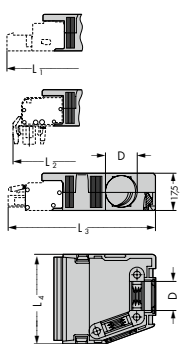


Snapping on the strain relief housing, demonstrated with a female connector with locking levers. Cable exits laterally. Strain relief by cable tie (up to a width of 4 mm).



Snapping on a strain relief housing, demonstrated with a male connector. Cable exits lengthwise. Strain relief by cable clamp.

Strain Relief Housing Dimensions



Max. Cable Diameter	
Pole No.	Ø mm
2	6.0
3	7.5
4 - 6	9.5
7 - 16	14.0

Pole No.	L ₄ Pin Spacing		L ₁	L ₂	L ₃	L ₅
	5	5.08				
2	13	13	59.0	55.5	58.0	41.5
3	18	18	59.0	55.5	58.0	41.5
4	23	23	59.0	55.5	58.0	41.5
5	28	28	59.0	55.5	58.0	41.5
6	33	33	59.0	55.5	58.0	41.5
7	38	38	71.5	68.0	70.5	54.0
8	43	43	71.5	68.0	70.5	54.0
9	48	48.7	71.5	68.0	70.5	54.0
10	53	53.8	71.5	68.0	70.5	54.0
12	63	64	71.5	68.0	70.5	54.0
16	85	85	71.5	68.0	70.5	54.0

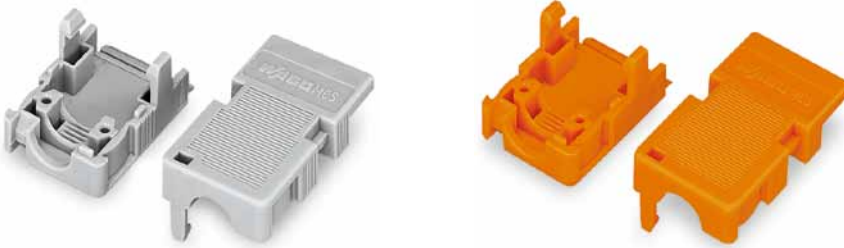
WAGO does not offer the recommended cable ties and cable binding tools; those are available from suppliers such as Hellermann.
 Gray strain relief plates are used for light gray 721, 722 and 723 Series CAGE CLAMP®-equipped male and female connectors.

Accessories

Strain Relief Housings

MCS-MIDI

Snap-on type strain relief housing Pin spacing 7.5 mm for straight and angled male and female connectors with CAGE CLAMP® connection	Snap-on type strain relief housing Pin spacing 7.62 mm for straight and angled male and female connectors with CAGE CLAMP® connection
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Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Snap-on type strain relief housing, suitable for 7.5 mm pin spacing, gray, consists of strain relief support and housing			Snap-on type strain relief housing, suitable for 7.62 mm pin spacing, orange, consists of strain relief support and housing		
2	232-662	25	2	232-682	25
3	232-663	25	3	232-683	25
4	232-664	25	4	232-684	25
5	232-665	25	5	232-685	25
7	232-667	25	7	232-687	25
10	232-670	25			


2-pole, only suitable for cable ties, 1 cable outlet at rear, max. cable tie width 3.6 mm
 3- and 4-pole, suitable for cable clamp, 1 cable outlet (rear side)
 5-pole, suitable for cable clamp, 1 cable outlets (rear side) and 1 cable outlets (side), 1 cover (included)
 7-pole, suitable for cable clamp, 1 cable outlets (rear side) and 2 cable outlets (side), 2 covers (included)

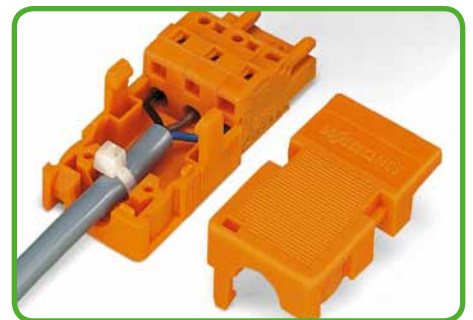
Product Accessories	Pole No.	Item No.	Pack. Unit
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Cable clamp, for strain relief

	3 and 4 poles	209-177	25
	5 poles and more	209-174	25

Fixing screws, for cable clamp

	3 and 4 poles	209-176	50
	5 poles and more	209-173	50



3-pole female connector with strain relief housing.



4-pole header with strain relief housing.



Gray strain relief plates are used for light gray 721, 722 and 723 Series CAGE CLAMP®-equipped male and female connectors.

Strain Relief Housing Dimensions

Pole No.	Pin Spacing		L ₁	L ₂	L ₃	L ₄
	7.5	7.62				
2	15.5	15.5	59.0	55.5	58.0	41.5
3	23	23	59.0	55.5	58.0	41.5
4	30.5	30.5	59.0	55.5	58.0	41.5
5	38	38	71.5	68.0	70.5	54.0
7	53	53,8	71.5	68.0	70.5	54.0

Max. Cable Diameter	
Pole No.	Ø mm
2	6.0
3 - 4	9.5
5 - 7	14.0


WAGO does not offer the recommended cable ties and cable binding tools; those are available from suppliers such as Hellermann.

Accessories

Test Plug Adapters

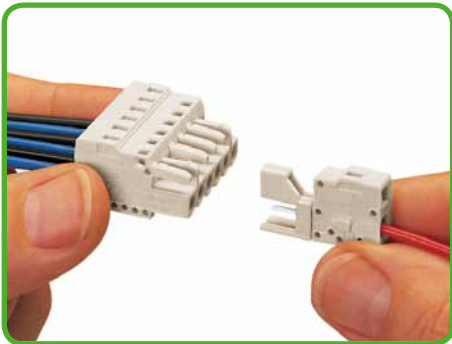
MCS-MIDI

Test plug adapters for female connectors

0.08 - 2.5 mm² | AWG 28 - 12
 320 V/4 kV/2 12 A
 8- 9 mm / 0.33 in



Conductor Size	Color	Item No.	Pack. Unit
Test plug adapter for female connectors, 5/5.08 mm pin spacing			
0.08 - 2.5 mm ²	light gray	231-661	100
Test plug adapter for female connectors, 7.5/7.62 mm pin spacing			
0.08 - 2.5 mm ²	light gray	231-662	100



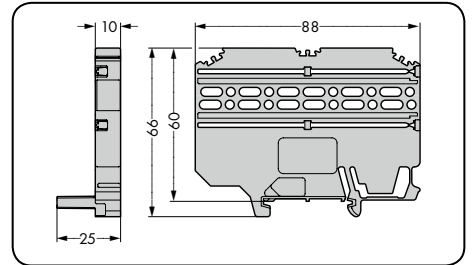
Test plug adapter with CAGE CLAMP® connection

Accessories

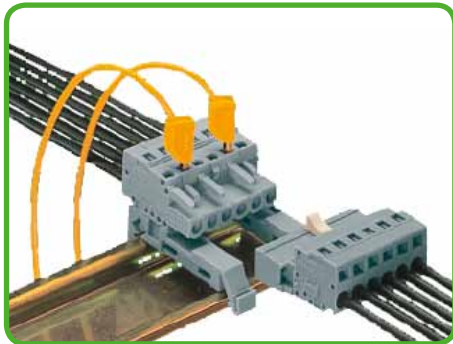
Mounting Adapter

MCS-MIDI

<p>Mounting adapter for DIN 35 rail</p> <p>for male and female connectors with snap-in mounting feet</p>	<p>Multi mounting adapter for DIN 35 rail</p> <p>for male and female connectors with snap-in mounting feet</p>	
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Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
<p>Mounting adapter for MCS-MIDI male and female connectors with snap-in mounting feet</p>			<p>Multi mounting adapter for MCS-MIDI male and female connectors with snap-in mounting feet</p>		
gray	209-137	1	gray	209-148	25
<p>Multi mounting adapter for MCS-MIDI angled female connectors with snap-in mounting feet for panel mounting</p>					
gray	209-120	1			



Female connector with snap-in mounting feet and 209-137 mounting adapter on DIN 35 rail.



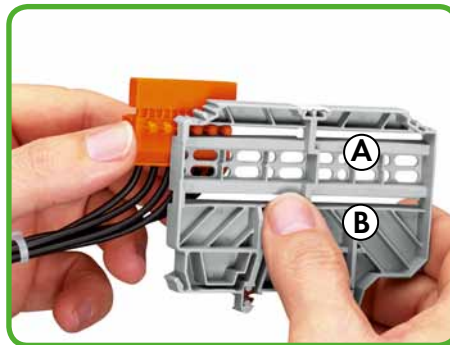
The pluggable male or female connector can also be fitted with strain relief.



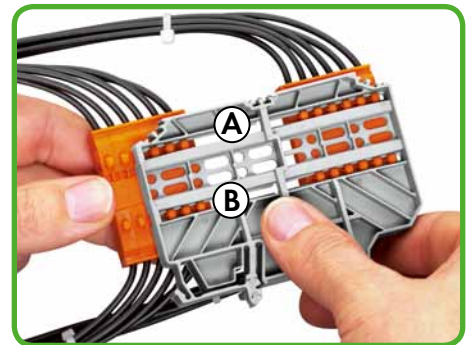
The adapter can be marked either with WSB, miniature WSB or WMB markers.



209-120 Multi Mounting Adapter on DIN 35 rail and angled female connector with snap-in mounting feet for panel mounting



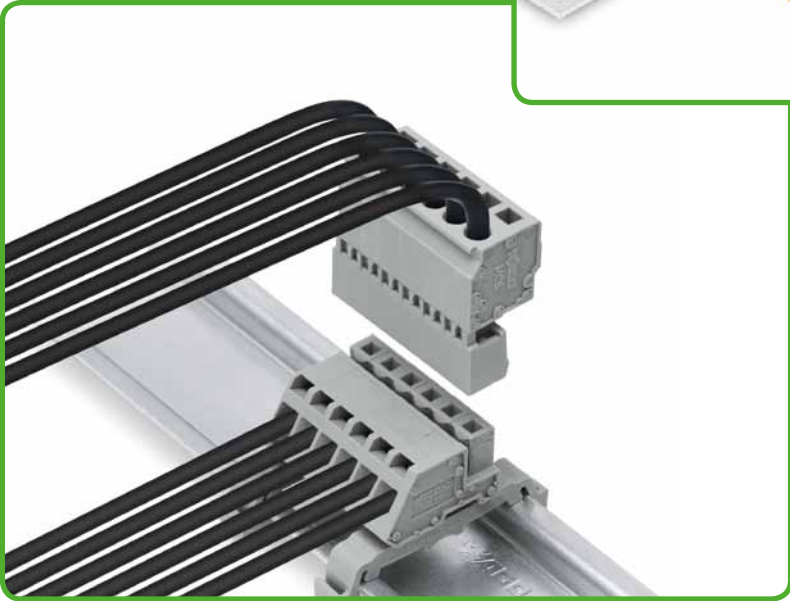
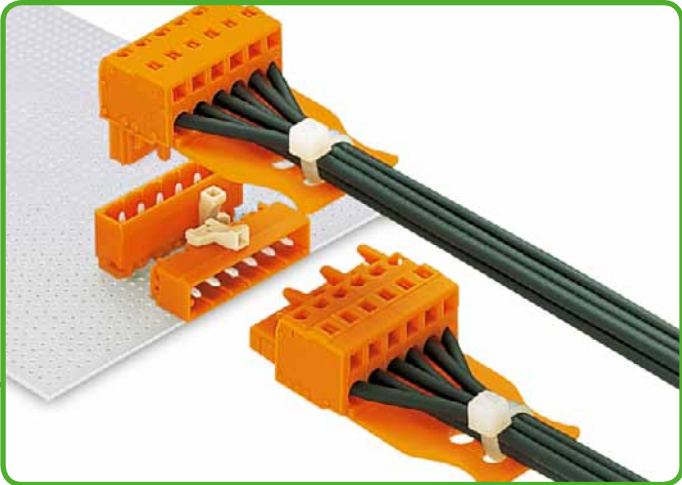
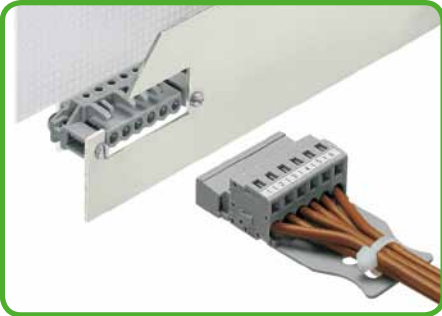
If either the male or female connector is equipped with mounting feet and mounted on the adapter using its oblong holes or open grooves (A/B), but the individual counterpart is not, then the connection remains pluggable.



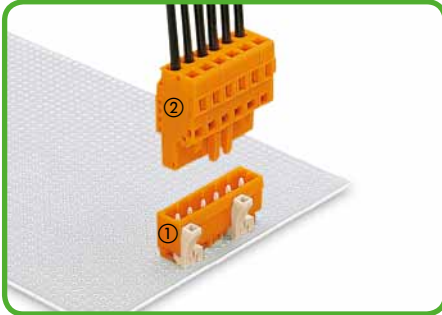
If a connector is pushed from the side into the open grooves (A/B) of the multi mounting adapter, the plug connection will be reliably protected from unintentional disconnection when mounted.

Examples of Application

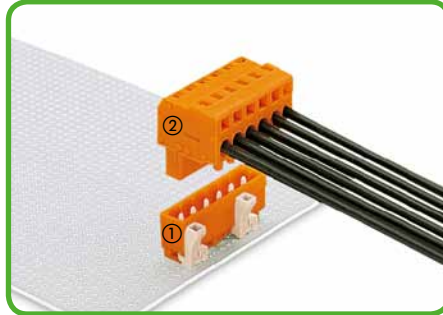
MCS - MULTI CONNECTION SYSTEM **MIDI Classic**



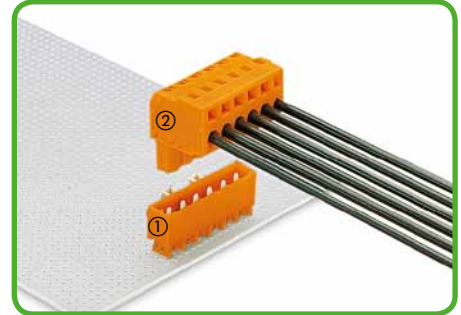
Application Examples PCB Connectors and Headers MCS-MIDI Classic



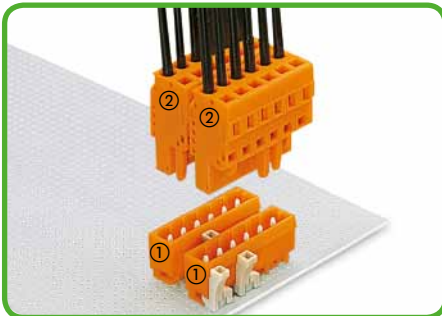
- ① *Male header, straight solder pins
② *Female connector with CAGE CLAMP®



- ① *Male header, straight solder pins
② *Angled female connector, conductor entry
same direction as latches

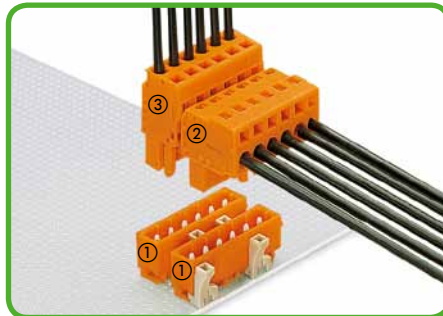


- ① Male header, straight solder pins
② Angled female connector, conductor entry
opposite of latches



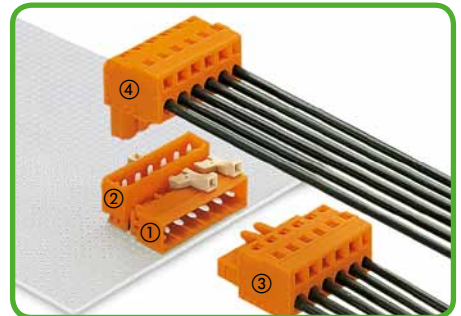
- ① *Male headers, straight solder pins**
② *Female connectors with CAGE CLAMP®

rear header must be coded **prior to soldering!

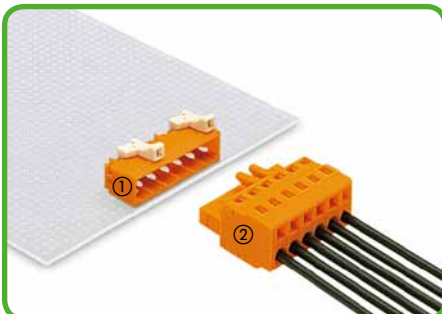


- ① *Male headers, straight solder pins**
② *Angled female connector, conductor entry
same direction as latches
③ *Female connector with CAGE CLAMP®

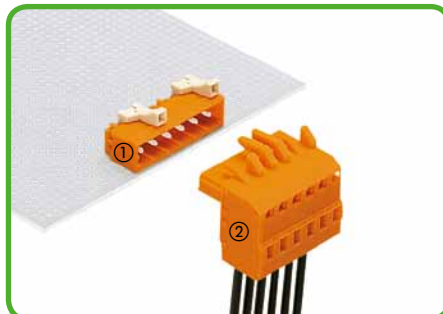
rear header must be coded **prior to soldering!



- ① Male header, angled solder pins
② Male header, straight solder pins
③ Female connector with CAGE CLAMP®
④ Angled female connector, conductor entry
opposite of latches



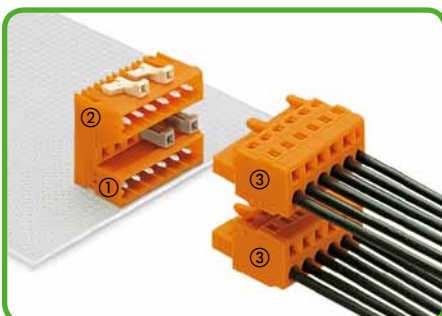
- ① *Male header, angled solder pins
② *Female connector with CAGE CLAMP®



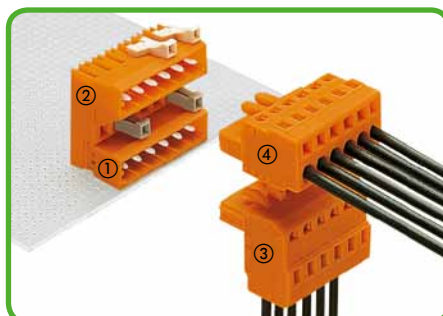
- ① Male header, angled solder pins
② Angled female connector, conductor entry
opposite of latches



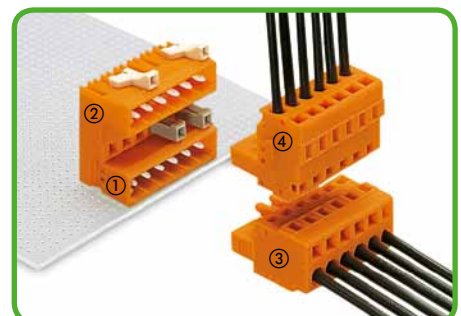
- ① *Male header, angled solder pins
② *Angled female connector, conductor entry
same direction as latches



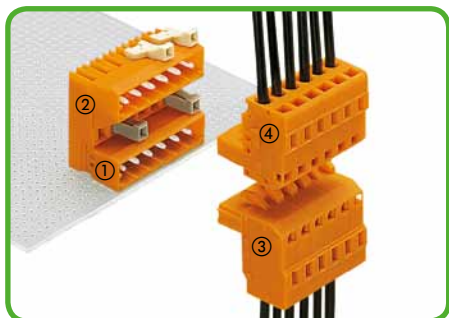
- ① Male header, angled solder pins
② Male header for double-deck assembly
③ Female connectors with CAGE CLAMP®



- ① Male header, angled solder pins
② Male header for double-deck assembly
③ Angled female connector, conductor entry
opposite of latches
④ Female connector with CAGE CLAMP®

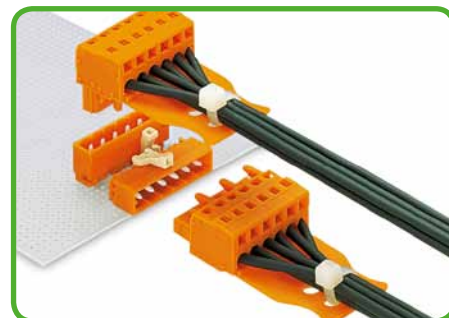


- ① Male header, angled solder pins
② Male header for double-deck assembly
③ Female connector with CAGE CLAMP®
④ Angled female connector, conductor entry
same direction as latches

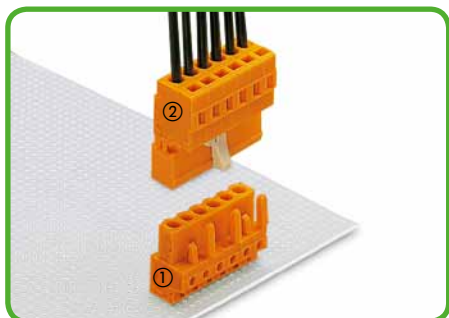


- ① Male header, angled solder pins
- ② Male header for double-deck assembly
- ③ Angled female connector, conductor entry **opposite of latches**
- ④ Angled female connector, conductor entry **same direction as latches**

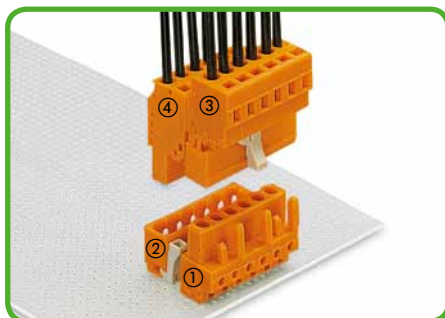
Angled female connectors are available with conductor entry in the same direction as latches, or opposite of latches. This allows different conductor entry directions with the same mounting direction of the male headers. Angled female connectors with conductor entry opposite of latches are not available in versions that are 100% protected against mismatching. Male headers and female connectors allow touch-proof supply **to** the PCB. Female headers and male connectors allow touch-proof supply **from** the PCB. These combinations can also be used for coding different circuits.



Female connectors with strain relief plate

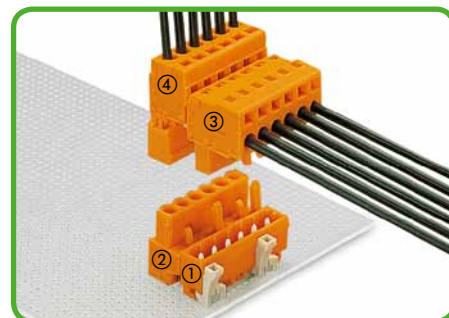


- ① *Female connector, straight solder pins
- ② *Male connector with CAGE CLAMP®

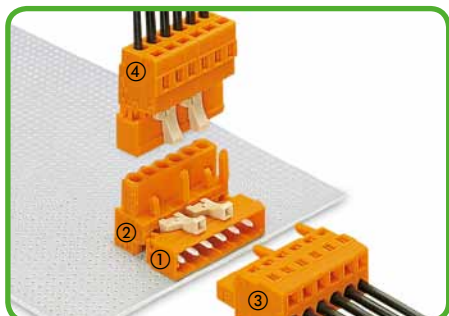


- ① *Female connector, straight solder pins
- ② *Male header, straight solder pins**
- ③ *Male connector with CAGE CLAMP®
- ④ *Female connector with CAGE CLAMP®

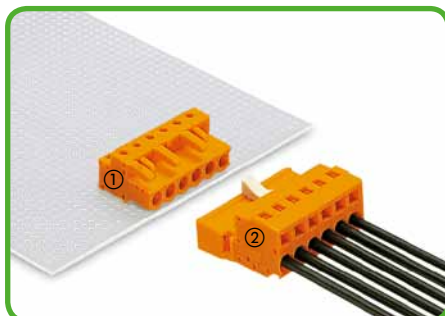
Male header must be coded **prior to soldering!



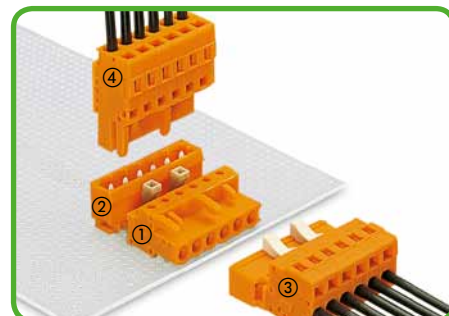
- ① *Male header, straight solder pins
- ② *Female header, straight solder pins
- ③ *Angled female connector, conductor entry **same direction as latches**
- ④ *Male connector with CAGE CLAMP®



- ① *Male header, angled solder pins
- ② *Female header, straight solder pins
- ③ *Female connector with CAGE CLAMP®
- ④ *Male connector with CAGE CLAMP®

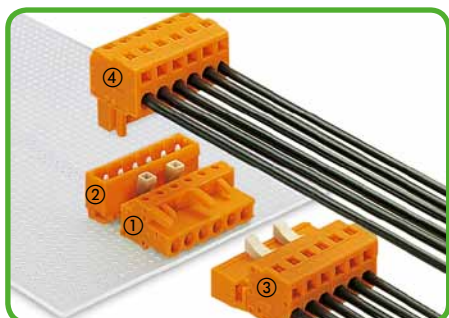


- ① *Female header, angled solder pins
- ② *Male connector with CAGE CLAMP®



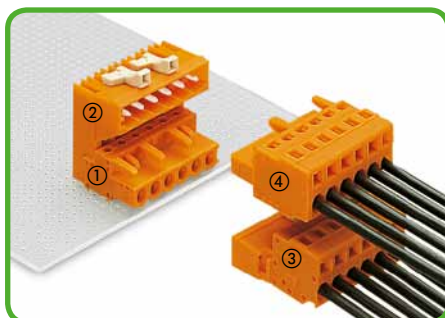
- ① *Female header, angled solder pins
- ② *Male header, straight solder pins**
- ③ *Male connector with CAGE CLAMP®
- ④ *Female connector with CAGE CLAMP®

Male header must be coded **prior to soldering!

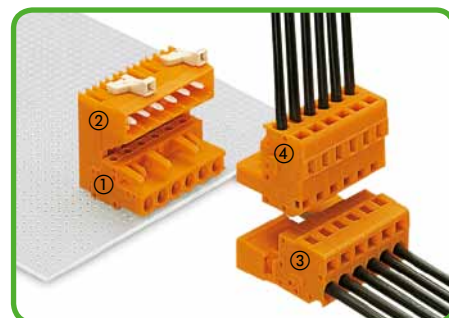


- ① *Female header, angled solder pins
- ② *Male header, straight solder pins**
- ③ *Male connector with CAGE CLAMP®
- ④ *Angled female connector, conductor exit **same direction as latches**

Male header must be coded **prior to soldering!



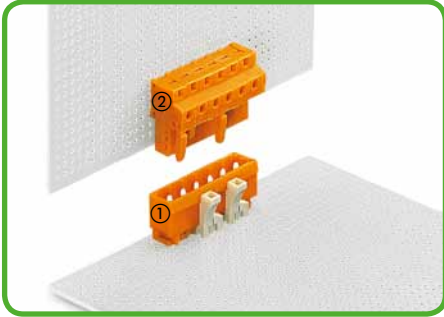
- ① Female header, angled solder pins
- ② Male header for double-deck assembly
- ③ Male connector with CAGE CLAMP®
- ④ Female connector with CAGE CLAMP®



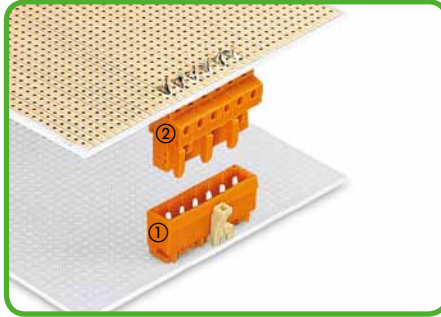
- ① Female header, angled solder pins
- ② Male header for double-deck assembly
- ③ Male connector with CAGE CLAMP®
- ④ Angled female connector, conductor entry **same direction as latches**

*also available in version "100% protected against mismatching" (see Section 5)

Application Examples PCB Connectors and Headers MCS-MIDI Classic

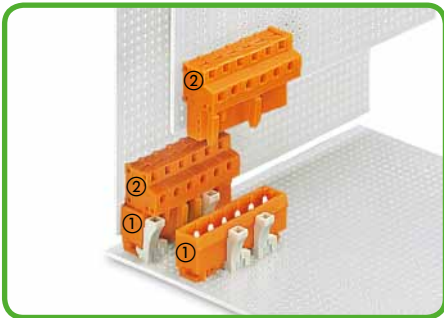


- ① *Male header, straight solder pins
- ② *Female header, angled solder pins

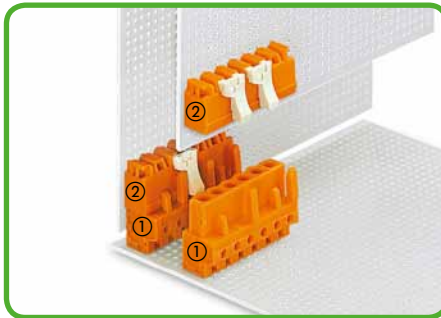


- ① *Male header, straight solder pins
- ② *Female header, straight solder pins

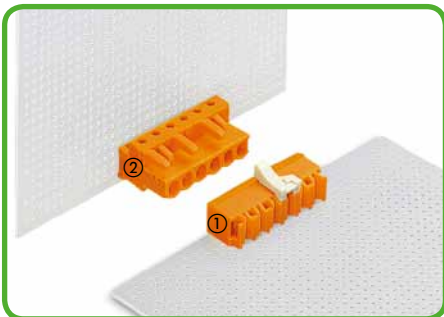
Total height when connected: 22.5 mm/0.886 in



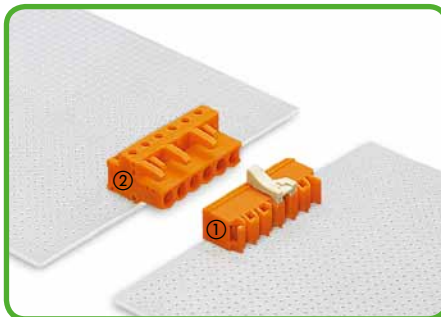
- ① *Male headers, straight solder pins
- ② *Female headers, angled solder pins



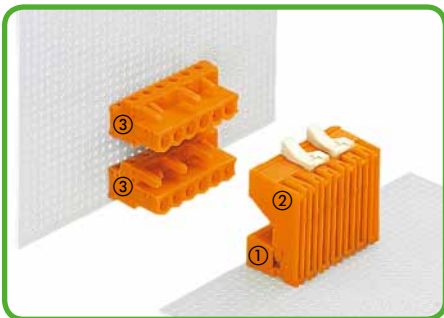
- ① *Female headers, straight solder pins
- ② *Male headers, angled solder pins



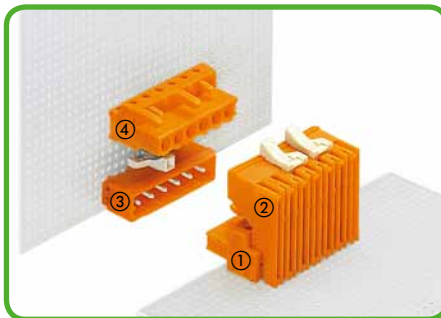
- ① *Male header, angled solder pins
- ② *Female header, straight solder pins



- ① *Male header, angled solder pins
- ② *Female header, angled solder pins



- ① Male header, angled solder pins
- ② Male header for double-deck assembly
- ③ Female header, straight solder pins

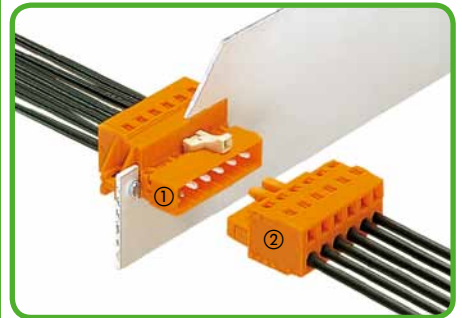


- ① Female header, angled solder pins
- ② Male header for double-deck assembly
- ③ Male header, straight solder pins
- ④ Female header, straight solder pins

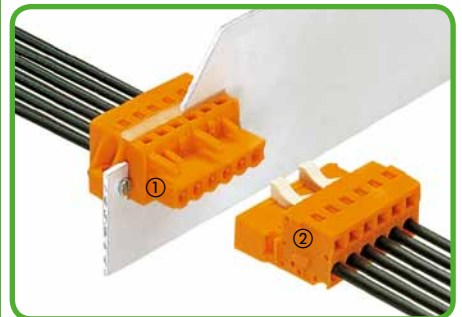
Panel Feedthrough Connectors



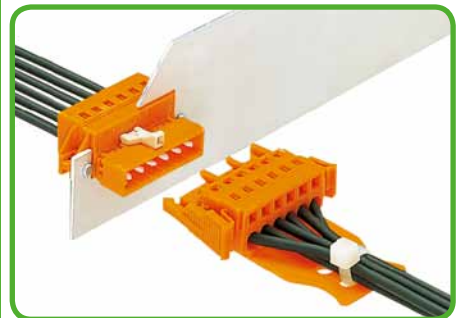
Snap-on type strain relief housings



- ① *Male connector with fixing flanges and CAGE CLAMP®
- ② *Female connector with CAGE CLAMP®



- ① *Female connector with fixing flanges and CAGE CLAMP®
- ② *Male connector with CAGE CLAMP®



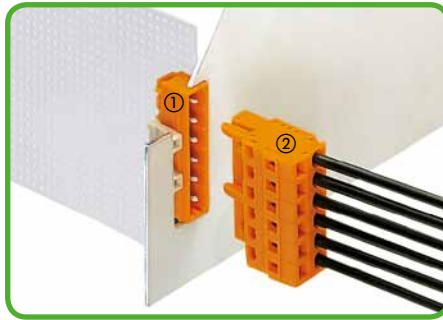
Female connector with locking levers and strain relief plate

*also available in version "100% protected against mismatching" (see Section 5)

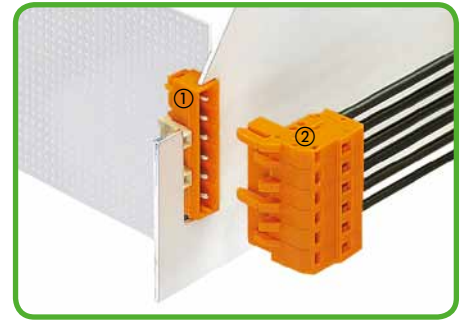
For cutout dimensions, see pages 484 - 487.



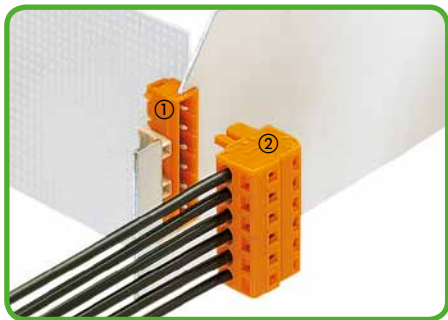
Panel feedthrough male header in large cutout.
Coding using coding keys.
Coding finger(s) opposite of coding key(s) must be broken off.



① * Male header, angled solder pins
② * Female connector with CAGE CLAMP®



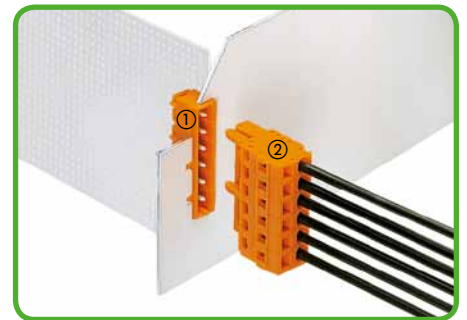
① Male header, angled solder pins
② Angled female connector, conductor entry **opposite of latches**



① * Male header, angled solder pins
② * Angled female connector, conductor entry **same direction as latches**

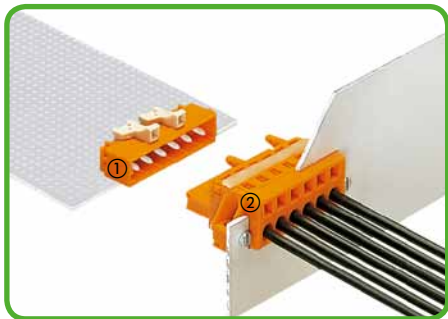


Panel feedthrough male header in small cutout.
Coding with coding holes.
Leave the coding finger(s) on female connector in position(s) of coding openings.
Break off remaining fingers.

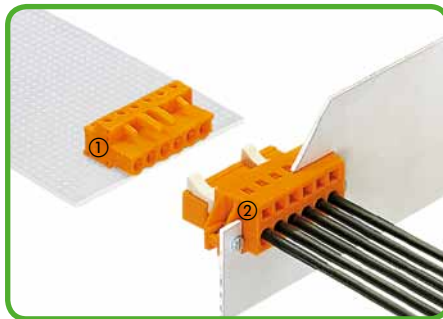


① * Male header, angled solder pins
② * Female connector with CAGE CLAMP®

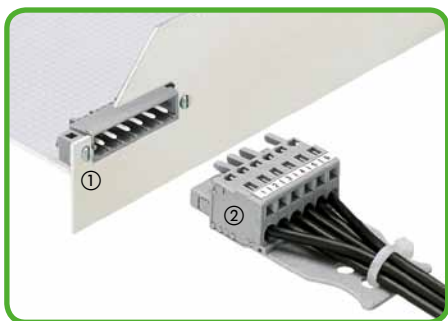
Angled female connectors with fixing flanges also available as "100% protected against mismatching" version.



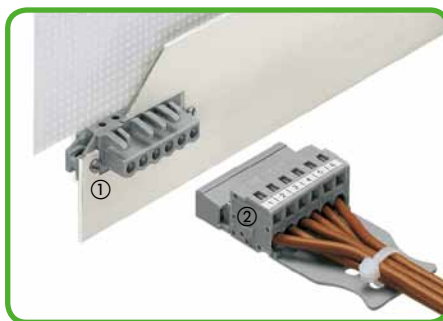
① * Male header, angled solder pins
② * Female connector with fixing flanges and CAGE CLAMP®



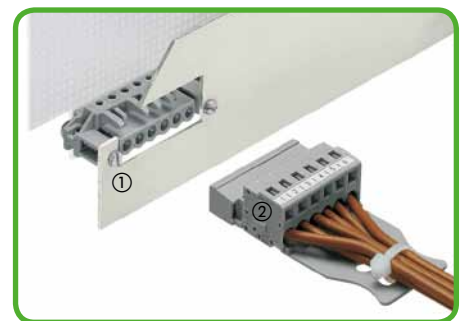
① * Female header, angled solder pins
② * Male connector with fixing flanges and CAGE CLAMP®



① Male header with fixing flanges, with solder pins
② Female connector with CAGE CLAMP®



① * Female header with feedthrough flanges and solder pins
② * Male connector with CAGE CLAMP®



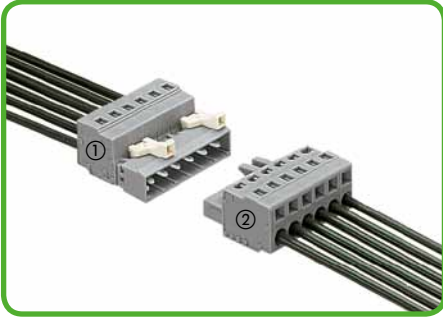
① * Female header with spacers and solder pins
② * Male connector with CAGE CLAMP®

Angled female connectors with fixing flanges are also available in version "100% protected against mismatching".

* also available in version "100% protected against mismatching" (see Section 5)

For cutout dimensions, see pages 484 - 487.

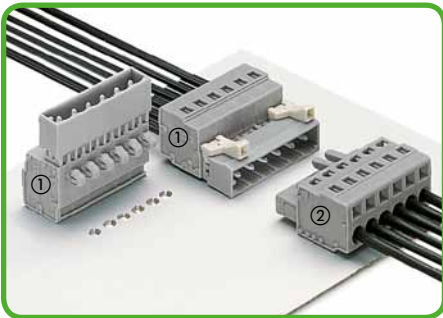
Application Examples Connectors for Different Types of Mounting and Connectors for Rail-Mounting MCS-MIDI Classic



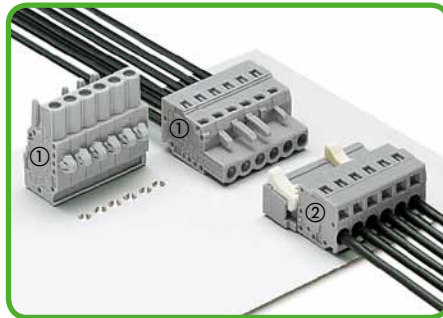
- ① *Male connector with CAGE CLAMP®
② *Female connector with CAGE CLAMP®



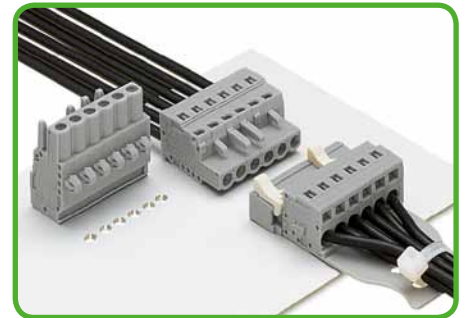
- Male connector with CAGE CLAMP® and strain relief plate.
Female connector with locking levers and strain relief plate



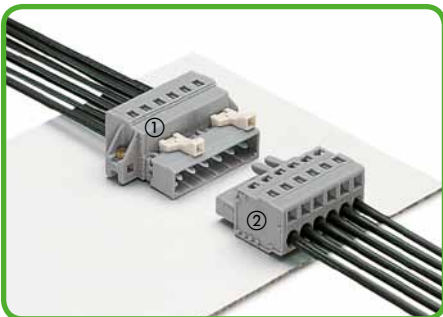
- ① *Male connector with snap-in mounting feet and CAGE CLAMP®
② *Female connector with CAGE CLAMP®



- ① *Female connector with snap-in mounting feet and CAGE CLAMP®
② *Male connector with CAGE CLAMP®



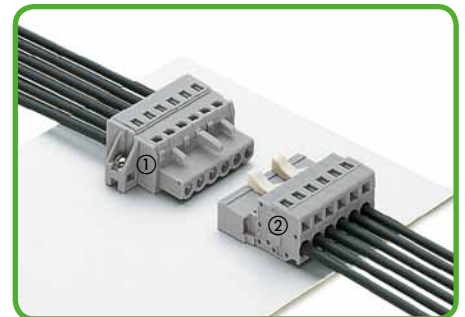
- Male connector with CAGE CLAMP® and strain relief plate



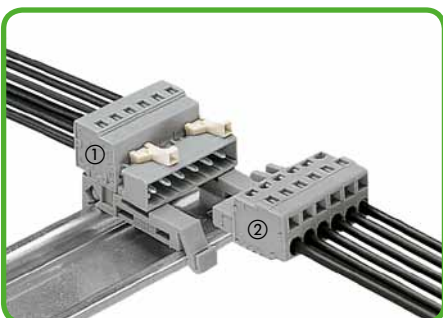
- ① *Male connector with fixing flanges and CAGE CLAMP®
② *Female connector with CAGE CLAMP®



- ① *Male connector with fixing flanges and CAGE CLAMP®
② *Angled female connector, conductor entry **same direction as latches**

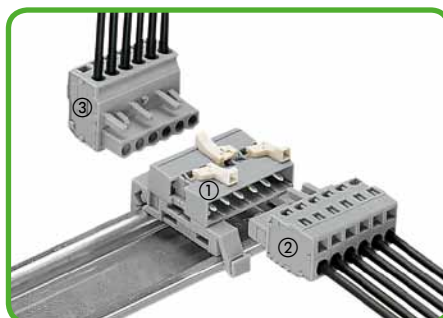


- ① *Female connector with fixing flanges and CAGE CLAMP®
② *Male connector with CAGE CLAMP®



- ① *Male connector with snap-in mounting feet and CAGE CLAMP®, on DIN 35 rail mounting adapter*
② *Female connector with CAGE CLAMP®

For 5/5.08 mm pin spacing, starting with 3 poles
For 7.5/7.62 mm pin spacing, starting with 2 poles



- ① Double-pin male connector with mounting feet for DIN 35 rail
② Female connector with CAGE CLAMP®
③ Angled female connector with CAGE CLAMP®, conductor exit **same direction as latches**



- ① Double-pin male connector with mounting feet for DIN 35 rail
② Female connectors with locking levers and CAGE CLAMP®

*Distance between mounting adapters: 30 – 40 mm

*also available in version "100% protected against mismatching" (see Section 5)

Connectors for Front-Entry, Rail-Mounted Terminal Blocks



① *Male connector with straight, long contact pins
② *Female connector with CAGE CLAMP®



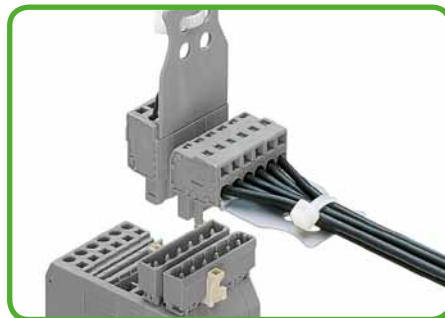
① *Male connectors with straight, long contact pins
② *Female connectors with CAGE CLAMP®



① *Male connector with straight, long contact pins
② *Angled female connector, conductor entry same direction as latches



① *Male connectors with straight, long contact pins
② *Angled female connector, conductor entry same direction as latches
③ *Female connector with CAGE CLAMP®



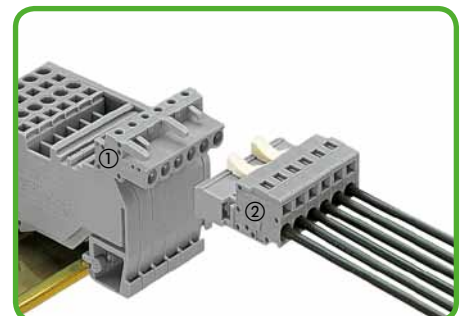
Female connector with strain relief plate
Angled female connector with strain relief plate



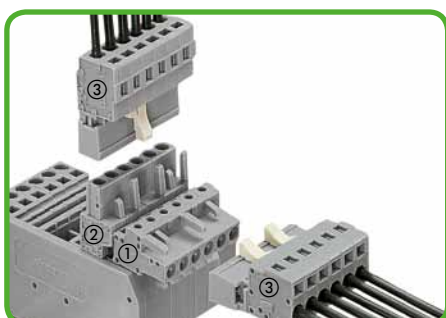
① *Female connector with straight, long contact pins
② *Male connector with CAGE CLAMP®



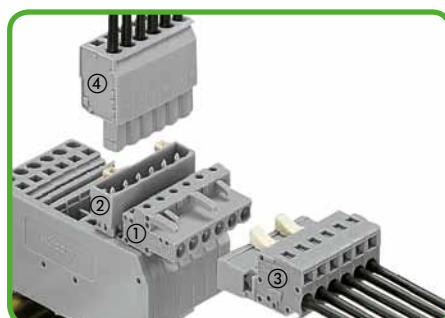
① *Male connector with straight, long contact pins
② *Female connector with straight, long contact pins
③ *Angled female connector, conductor entry same direction as latches
④ *Male connector with CAGE CLAMP®



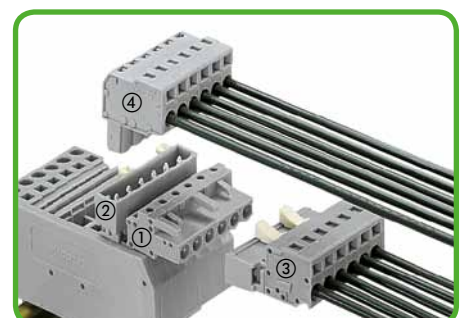
① *Female connector with angled, long contact pins
② *Male connector with CAGE CLAMP®



① *Female connector with angled, long contact pins
② *Male connector with straight, long contact pins
③ *Male connectors with CAGE CLAMP®



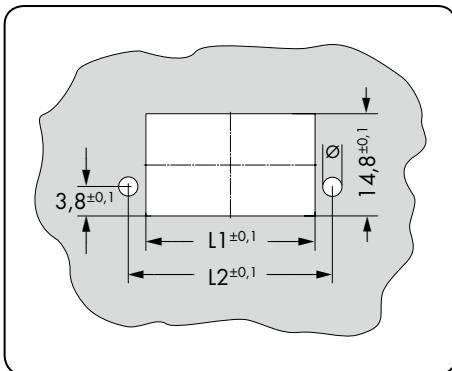
① *Female connector with angled, long contact pins
② *Male connector with straight, long contact pins
③ *Male connector with CAGE CLAMP®
④ *Female connector with CAGE CLAMP®



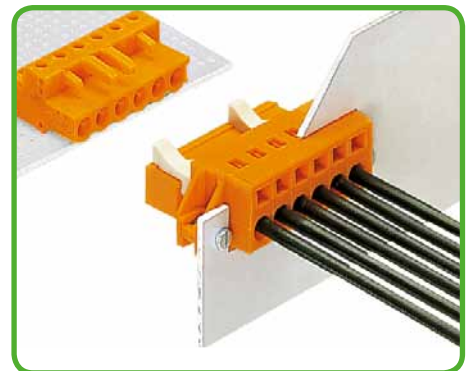
① Female connector with angled, long contact pins
② Male connector with straight, long contact pins
③ Male connector with CAGE CLAMP®
④ Angled female connector, conductor entry opposite of latches

* also available in version "100% protected against mismatching" (see Section 5)

Cutout	Screws
for 231, 721, 723 and 731 Series male/female connectors with fixing flanges	



Drilled hole \varnothing : Depends on the type of screw used
(see screws on the left).



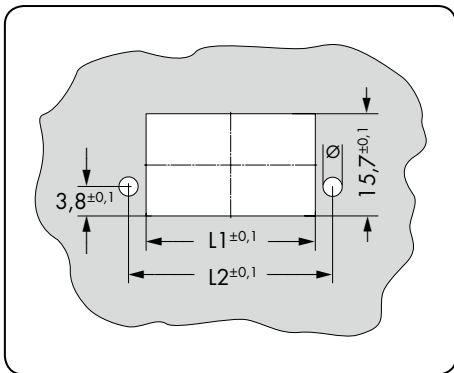
M 2.5 x 10 screws with nuts (e.g., fixing flanges)

Table 1

Pole No.	Pin Spacing 5 mm		Pin Spacing 5.08 mm		Pin Spacing 7.5 mm		Pin Spacing 7.62 mm		Dimensions	Item No.	Pack. Unit
	L1	L2	L1	L2	L1	L2	L1	L2			
2	13.4	18.4	13.6	18.6	15.9	20.9	16.0	21.0	Self-tapping screws Mounting hole \varnothing 1.8 \pm 0.1 mm		
3	18.4	23.4	18.6	23.6	23.4	28.4	23.6	28.6			
4	23.4	28.4	23.7	28.7	30.9	35.9	31.3	36.3			
5	28.4	33.4	28.8	33.8	38.4	43.4	38.9	43.9	B 2.2 x 9.5 mm	209-147	200 (2 x 100)
6	33.5	38.3	34.0	38.8	46.0	50.8	46.6	51.4	B 2.2 x 13 mm	231-194	200 (2 x 100)
7	38.5	43.3	39.1	43.9	53.5	58.3	54.2	59.0			
8	43.5	48.3	44.1	48.9	61.0	65.8	61.8	66.6			
9	48.5	53.3	49.2	54.0	68.5	73.3	69.5	74.3			
10	53.5	58.3	54.3	59.1	76.0	80.8	77.1	81.9	Screws with nuts Mounting hole \varnothing 2.5 \pm 0.1 mm		
11	58.5	63.3	59.4	64.2	83.5	88.3	84.7	89.5			
12	63.5	68.3	64.5	69.3	91.0	95.8	92.3	97.1			
13	68.6	73.2	69.6	74.2	98.6	103.2	100.0	104.6	M 2 x 12 mm	231-195	200 (2 x 100)
14	73.6	78.2	74.7	79.3	106.1	110.7	107.7	112.3			
15	78.6	83.2	79.8	84.4	113.6	118.2	115.3	119.9			
16	83.6	88.2	84.9	89.5	121.1	125.7	122.9	127.5			
17	88.6	93.2	90.0	94.6	128.6	133.2	130.5	135.1			
18	93.6	98.2	95.0	99.6	136.1	140.7	138.1	142.7	Screws with nuts Mounting hole \varnothing 3.0 \pm 0.1 mm		
19	98.7	103.1	100.2	104.6	143.7	148.1	145.9	150.3			
20	103.7	108.1	105.3	109.7	151.2	155.6	153.5	157.9			
21	108.7	113.1	110.4	114.8	158.7	163.1	161.1	165.5	M 2.5 x 10 mm	231-295	200 (2 x 100)
22	113.7	118.1	115.5	119.9	166.2	170.6	168.7	173.1			
23	118.7	123.1	120.5	124.9	173.7	178.1	176.3	180.7			
24	123.7	128.1	125.6	130.0	181.2	185.6	184.0	188.4			

Cutout Dimensions MCS-MIDI

Cutout for 2721 and 2231 Series female connectors with fixing flanges		Screws
---	--	---------------



Drilled hole Ø: Depends on the type of screw used (see screws on the left).

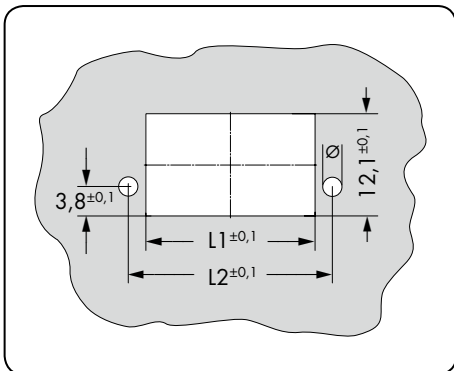
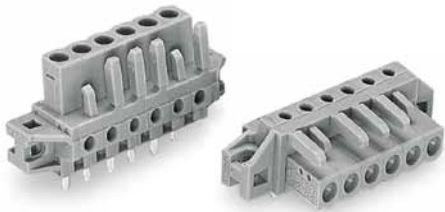


M 2.5 x 10 screws with nuts (e.g., fixing flanges)

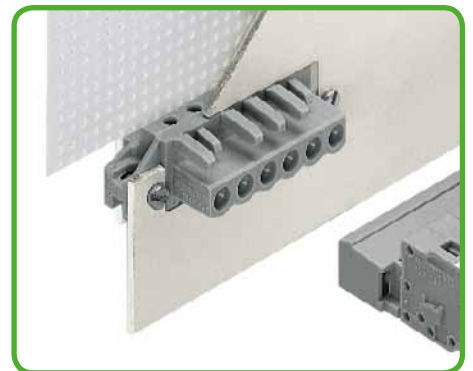
Table 2

Pole No.	Pin Spacing 5 mm		Pin Spacing 5.08 mm		Pin Spacing 7.5 mm		Pin Spacing 7.62 mm		Dimensions	Item No.	Pack. Unit
	L1	L2	L1	L2	L1	L2	L1	L2			
2	13.2	18.4	13.4	18.6	15.7	20.9	15.8	21.0	Self-tapping screws Mounting hole Ø 1.8 ^{±0.1} mm		
3	18.2	23.4	18.4	23.6	23.2	28.4	23.4	28.6			
4	23.2	28.4	23.5	28.7	30.7	35.9	31.1	36.3			
5	28.2	33.4	28.6	33.8	38.2	43.4	38.7	43.9			
6	33.4	38.3	33.9	38.8	45.9	50.8	46.5	51.4	B 2.2 x 9.5 mm	209-147	200 (2 x 100)
7	38.4	43.3	39.0	43.9	53.4	58.3	54.1	59.0			
8	43.4	48.3	44.0	48.9	60.9	65.8	61.7	66.6	B 2.2 x 13 mm	231-194	200 (2 x 100)
9	48.4	53.3	49.1	54.0	68.4	73.3	69.4	74.3			
10	53.4	58.3	54.2	59.1	75.9	80.8	77.0	81.9	Screws with nuts Mounting hole Ø 2.5 ^{±0.1} mm		
11	58.4	63.3	59.3	64.2	83.4	88.3	84.6	89.5			
12	63.4	68.3	64.4	69.3	90.9	95.8	92.2	97.1			
13	68.6	73.2	69.6	74.2	98.6	103.2	100.0	104.6			
14	73.6	78.2	74.7	79.3	106.1	110.7	107.7	112.3	M 2 x 12 mm	231-195	200 (2 x 100)
15	78.6	83.2	79.8	84.4	113.6	118.2	115.3	119.9			
16	83.6	88.2	84.9	89.5	121.1	125.7	122.9	127.5			
17	88.6	93.2	90.0	94.6	128.6	133.2	130.5	135.1			
18	93.6	98.2	95.0	99.6	136.1	140.7	138.1	142.7	Screws with nuts Mounting hole Ø 3.0 ^{±0.1} mm		
19	98.8	103.1	100.3	104.6	143.8	148.1	146.0	150.3			
20	103.8	108.1	105.4	109.7	151.3	155.6	153.6	157.9			
21	108.8	113.1	110.5	114.8	158.8	163.1	161.2	165.5			
22	113.8	118.1	115.6	119.9	166.3	170.6	168.8	173.1	M 2.5 x 10 mm	231-295	200 (2 x 100)
23	118.8	123.1	120.6	124.9	173.8	178.1	176.4	180.7			
24	123.8	128.1	125.7	130.0	181.3	185.6	184.1	188.4			

Cutout	Screws
for 232 and 722 Series female connectors with Solder Pins and fixing flanges	



Drilled hole \varnothing : Depends on the type of screw used (see screws on the left).



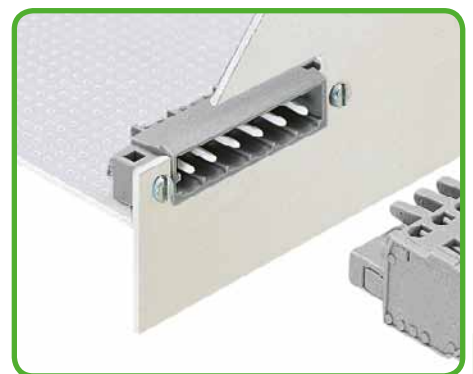
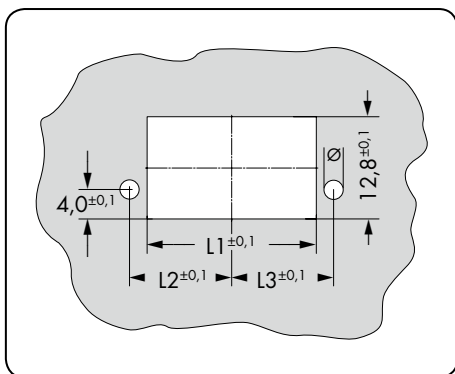
M 2.5 x 10 screws with nuts (e.g., fixing flanges)

Table 3

Pole No.	Pin Spacing 5 mm		Pin Spacing 5.08 mm		Pin Spacing 7.5 mm		Pin Spacing 7.62 mm		Dimensions	Item No.	Pack. Unit
	L1	L2	L1	L2	L1	L2	L1	L2			
2	13.4	18.4	13.6	18.6	15.9	20.9	16.0	21.0	Self-tapping screws Mounting hole \varnothing 1.8 \pm 0.1 mm		
3	18.4	23.4	18.6	23.6	23.4	28.4	23.6	28.6			
4	23.4	28.4	23.7	28.7	30.9	35.9	31.3	36.3	B 2.2 x 9.5 mm	209-147	200 (2 x 100)
5	28.4	33.4	28.8	33.8	38.4	43.4	38.9	43.9			
6	33.5	38.3	34.0	38.8	46.0	50.8	46.6	51.4	B 2.2 x 13 mm	231-194	200 (2 x 100)
7	38.5	43.3	39.1	43.9	53.5	58.3	54.2	59.0			
8	43.5	48.3	44.1	48.9	61.0	65.8	61.8	66.6			
9	48.5	53.3	49.2	54.0	68.5	73.3	69.5	74.3			
10	53.5	58.3	54.3	59.1	76.0	80.8	77.1	81.9	Screws with nuts Mounting hole \varnothing 2.5 \pm 0.1 mm		
11	58.5	63.3	59.4	64.2	83.5	88.3	84.7	89.5			
12	63.5	68.3	64.5	69.3	91.0	95.8	92.3	97.1	M 2 x 12 mm	231-195	200 (2 x 100)
13	68.6	73.2	69.6	74.2	98.6	103.2	100.0	104.6			
14	73.6	78.2	74.7	79.3	106.1	110.7	107.7	112.3			
15	78.6	83.2	79.8	84.4	113.6	118.2	115.3	119.9			
16	83.6	88.2	84.9	89.5	121.1	125.7	122.9	127.5			
17	88.6	93.2	90.0	94.6	128.6	133.2	130.5	135.1			
18	93.6	98.2	95.0	99.6	136.1	140.7	138.1	142.7	Screws with nuts Mounting hole \varnothing 3.0 \pm 0.1 mm		
19	98.7	103.1	100.2	104.6	143.7	148.1	145.9	150.3			
20	103.7	108.1	105.3	109.7	151.2	155.6	153.5	157.9	M 2.5 x 10 mm	231-295	200 (2 x 100)
21	108.7	113.1	110.4	114.8	158.7	163.1	161.1	165.5			
22	113.7	118.1	115.5	119.9	166.2	170.6	168.7	173.1			
23	118.7	123.1	120.5	124.9	173.7	178.1	176.3	180.7			
24	123.7	128.1	125.6	130.0	181.2	185.6	184.0	188.4			

Cutout Dimensions MCS-MIDI

Cutout for 231 Series male connectors with Solder Pins and fixing flanges	Blechausschnitt für Stiftleisten mit Lötstiften der Serie 231 mit Befestigungsflanschen	Screws
--	--	---------------



Drilled hole Ø: Depends on the type of screw used (see screws on the left).

M 2.5 x 10 screws with nuts (e.g., fixing flanges)

Table 4

Pole No.	Pin Spacing 5 mm			Pin Spacing 7.5 mm			Dimensions	Item No.	Pack. Unit
	L1	L2	L3	L1	L2	L3			
2	13.6	8.9	9.5	16.1	10.6	10.8	Self-tapping screws Mounting hole Ø 1.8 ± 0.1 mm		
3	18.6	11.4	12.0	23.6	14.3	14.5			
4	23.6	13.9	14.5	31.1	18.1	18.3			
5	28.6	16.4	17.0	38.6	21.8	22.0	B 2.2 x 9.5 mm	209-147	200 (2 x 100)
6	33.8	19.0	19.6	46.3	25.7	25.9			
7	38.8	21.5	22.1	53.8	29.4	29.6	B 2.2 x 13 mm	231-194	200 (2 x 100)
8	43.8	24.0	24.6	61.3	33.2	33.4			
9	48.8	26.5	27.1	68.8	36.9	37.1	Screws with nuts Mounting hole Ø 2.5 ± 0.1 mm		
10	53.8	29.0	29.6	76.3	40.7	40.9			
11	58.8	31.5	32.1	83.8	44.4	44.6			
12	63.8	34.0	34.6	91.3	48.2	48.4	M 2 x 12 mm	231-195	200 (2 x 100)
13	69.0	36.6	37.2	99.0	52.0	52.2			
14	74.0	39.1	39.7	106.5	55.8	56.0	Screws with nuts Mounting hole Ø 3.0 ± 0.1 mm		
15	79.0	41.6	42.2	114.0	59.5	59.7			
16	84.0	44.1	44.7	121.5	63.3	63.5			
17	89.0	46.6	47.2	129.0	67.0	67.2	M 2.5 x 10 mm	231-295	200 (2 x 100)
18	94.0	49.1	49.7	136.5	70.8	71.0			
19	99.2	51.7	52.3	144.2	74.6	74.8			
20	104.2	54.2	54.8	151.7	78.4	78.6			
21	109.2	56.7	57.3	159.2	82.1	82.3			
22	114.2	59.2	59.8	166.7	85.9	86.1			
23	119.2	61.7	62.3	174.2	89.6	89.8			
24	124.2	64.2	64.8	181.7	93.4	93.6			

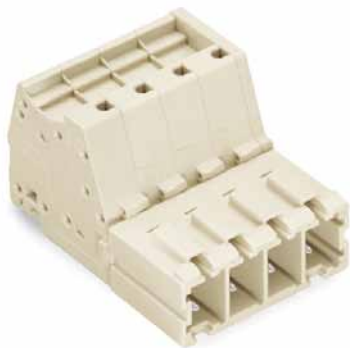
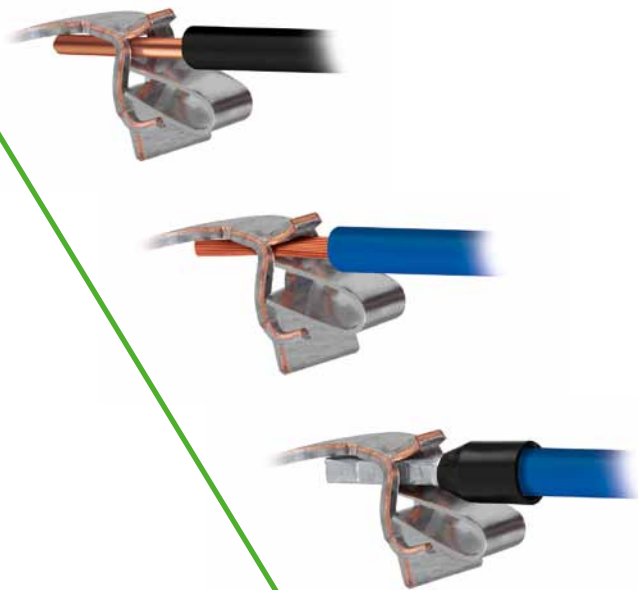
Connecting Technology for MCS – MULTI CONNECTION SYSTEM MAXI 10 mm²

CAGE CLAMP^{®S}

The universal connection with "SPECIAL"

Open clamping unit, insert the conductor,
release clamp - done!

Terminate both solid and ferruled conductors by
simply pushing them in - no operating tool needed.



Connectors and Headers

MCS - MULTI CONNECTION SYSTEM MAXI

Pin spacing 7.62 mm / Nominal cross section 10 mm²



Pages
492 - 493



Female Connectors with CAGE CLAMP[®]S Termination



Male Headers with Solder Pins

494 - 495



Male Connectors with CAGE CLAMP[®]S Termination

496 - 497

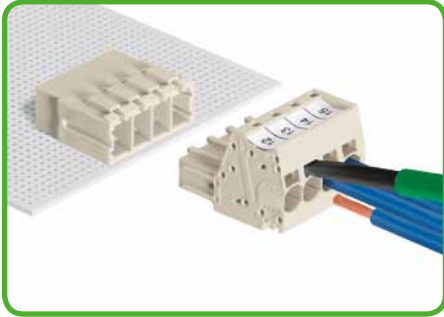


Accessories, General - Section 10

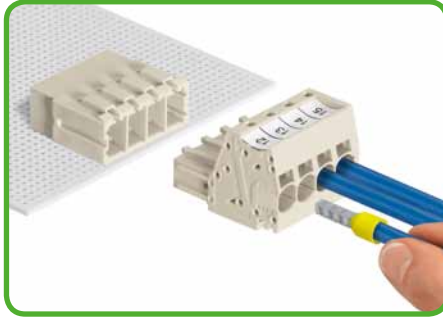
524 - 546

Description and Handling

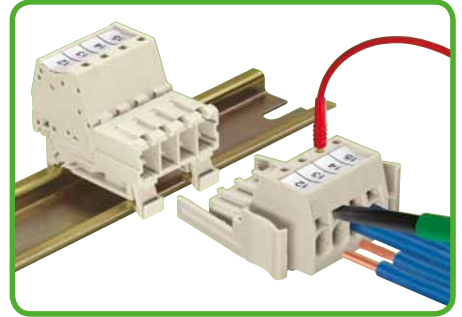
MCS - MULTI CONNECTION SYSTEM MAXI



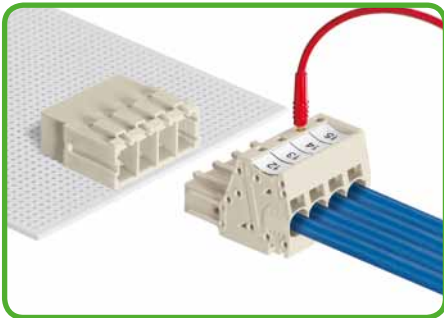
Inserting fine-stranded conductors via 5.5 x 0.8 mm screwdriver.



Inserting solid and ferruled conductors via push-in termination - no operating tool needed.



Male connector with CAGE CLAMP®S mounted on DIN 35-rail.



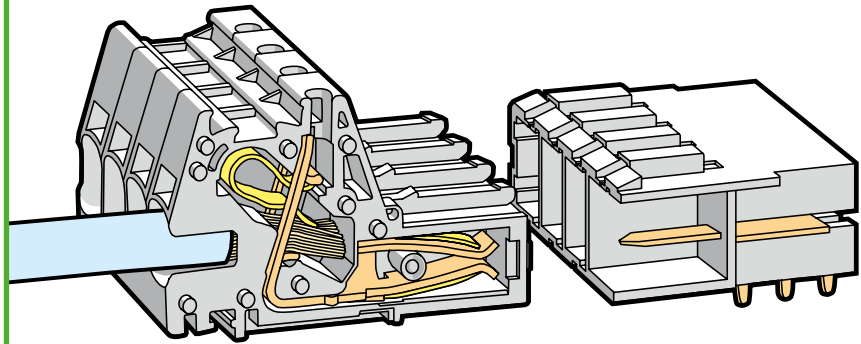
Testing with Ø 2 mm test plug.



Break or cut off coding pin from female connector . . .

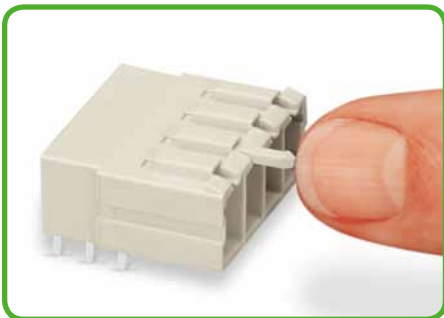
831 Series

100% protected against mismatching



MCS-MAXI

Pin spacing 7.62 mm



. . . Insert coding pin into male header (break first) until it engages.



Marking via WMB or miniature WSB marker strips.



Marking via factory direct printing.



CAGE CLAMP®S clamps the following copper conductors:*

solid

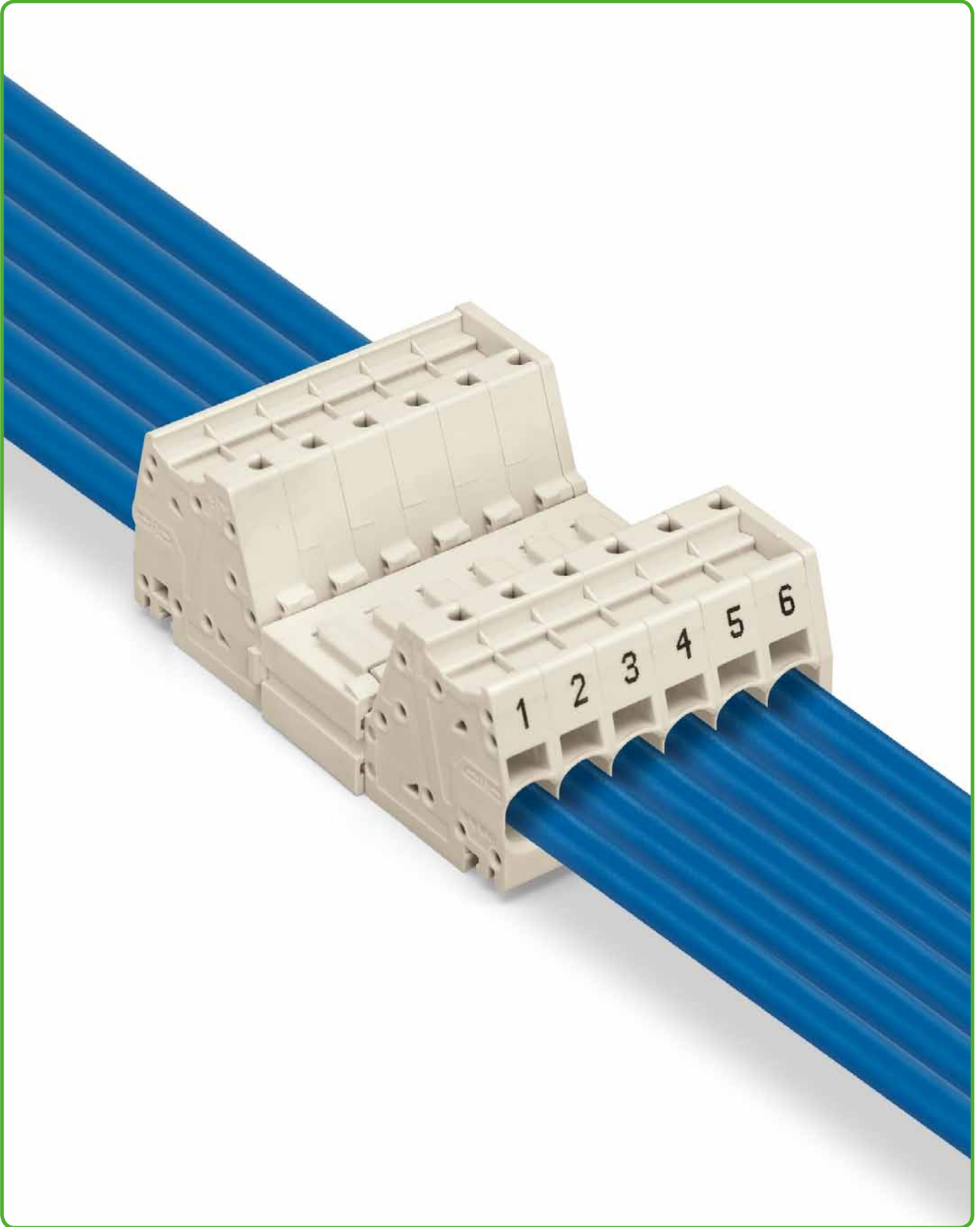


stranded



fine-stranded, also with tinned single strands

* For aluminum conductors, see notes in Section 11.



fine-stranded,
tip-bonded

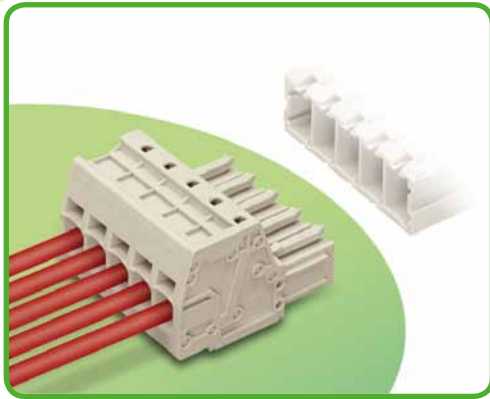


fine-stranded with
crimped ferrules
(gas-tight)



fine-stranded with
crimped pin terminal
(gas-tight)

Female Connectors Pin Spacing 7.62 mm MCS-MAXI



- Universal connection for all conductor types
- Simple, push-in terminations of solid and ferruled conductors
- Integrated test ports for Ø 2 mm test plugs
- 600 V to UL 1059
- 100% protected against mismatching
- With coding pins

Technical data:

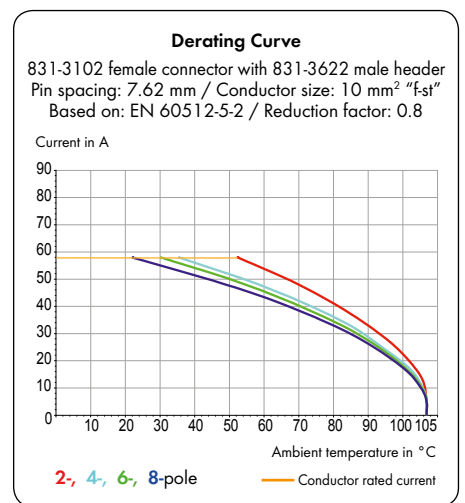
Pin Spacing	7.62 mm 0.3 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	800 V	1000 V	1000 V
Rated surge voltage	8 kV	8 kV	8 kV
Nominal current	41 A	41 A	41 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	-	600 V	-
Nominal current UL	-	42 A	-
Nominal current CSA	-	50 A	-

Conductor data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.5 - 10 mm ²
Conductor size: fine-stranded	0.5 - 10 mm ²
Conductor size: fine-stranded	0.5 - 6.0 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.5 - 6.0 mm ² (with uninsulated ferrule)
AWG	20 - 8
Strip length	13 - 15 mm / 0.52 - 0.58 in

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated
Additional springs for socket contact	Chrome-nickel spring steel (CrNi)



MCS-MAXI accessories:

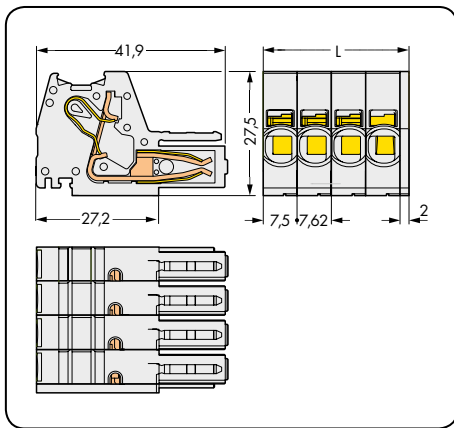
Page:

Marking accessories	540 - 543
Operating tool	526 - 528
Direct marking	493
Test plug, Ø 2 mm	538

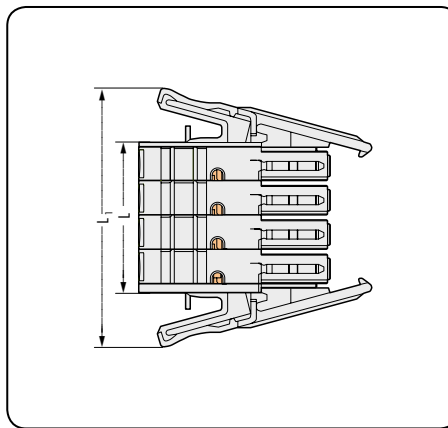
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Female Connectors MCS-MAXI

Pin spacing 7.62 mm / 0.3 in 0.5 – 10 mm ² | AWG 20 – 8 1000 V/ 8 kV/2 41 A | 600 V/42 A		With locking levers Pin spacing 7.62 mm / 0.3 in 0.5 – 10 mm ² | AWG 20 – 8 1000 V/ 8 kV/2 41 A | 600 V/42 A		Pole marking 1 – pole no. of female connectors for conductor termination
--	--	--	--	---



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 9.5 \text{ mm}$



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 10.5 \text{ mm}$
 $L_1 = L + 23.7 \text{ mm}$

Pole Marking Perpendicular to Conductor Entry

MCS-MAXI female connectors can be marked via miniature WSB or WMB markers (Section 10), or via marker strips. Other custom marking options are available upon request.

Pole No.	Item No.	Pack. Unit
Marker strips, 1 – pole no.		
2	2009-110/762-802	50
3	2009-110/762-803	50
4	2009-110/762-804	50
5	2009-110/762-805	50
6	2009-110/762-806	50
7	2009-110/762-807	50
8	2009-110/762-808	50

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female connector, light gray			Female connector with locking levers, light gray		
2	831-3102	48	2	831-3102/037-000	24
3	831-3103	48	3	831-3103/037-000	24
4	831-3104	24	4	831-3104/037-000	12
5	831-3105	24	5	831-3105/037-000	12
6	831-3106	24	6	831-3106/037-000	12
7	831-3107	12	7	831-3107/037-000	12
8	831-3108	12	8	831-3108/037-000	12
9	831-3109	12	9	831-3109/037-000	12

Marking Parallel to Conductor Entry
 Item No. Suffix: /... - 9037

Ordering examples:

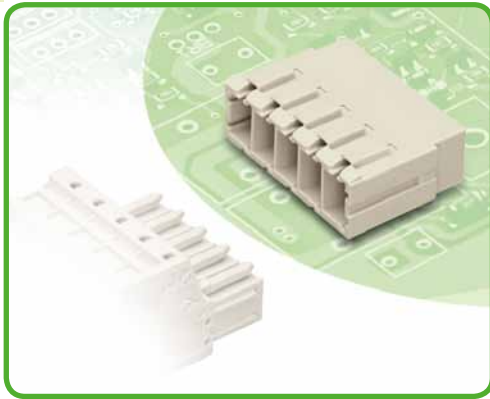
Female connector,
 7.62 mm pin spacing, 6-pole, light gray
831-3106/000-9037

Female connector with locking levers,
 7.62 mm pin spacing, 6-pole, light gray
831-3106/037-9037

Male Headers with Solder Pins

Pin Spacing 7.62 mm

MCS-MAXI



- Male headers may be mounted horizontally or vertically via straight or angled solder pins
- Three solder pins per pole provide high electrical and mechanical stability
- 100% protected against mismatching
- Coding via pins

Technical data:

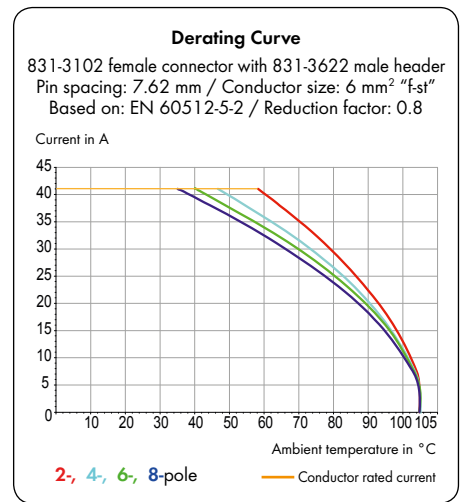
Pin Spacing	7.62 mm 0.3 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	500 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	41 A	41 A	41 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	-	300 V	600 V
Nominal current UL	-	42 A	5 A
Nominal current CSA	-	50 A	5 A

Solder pin data:

Solder pin: length/width	4 mm / 1 x 1.2 mm
Solder pin: drilled hole diameter	1.7 ^{+0.1} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



MCS-MAXI accessories:

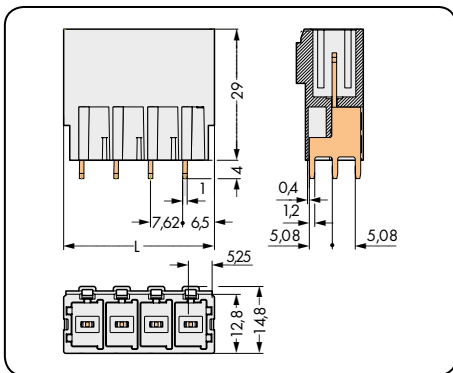
Page:

Coding pin carrier	495

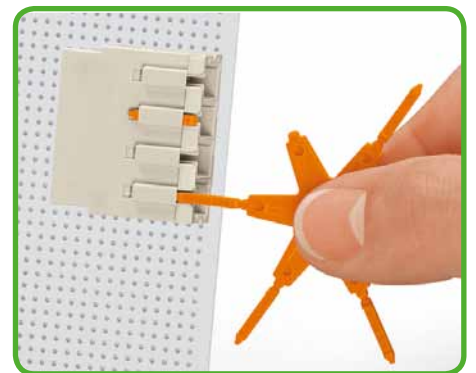
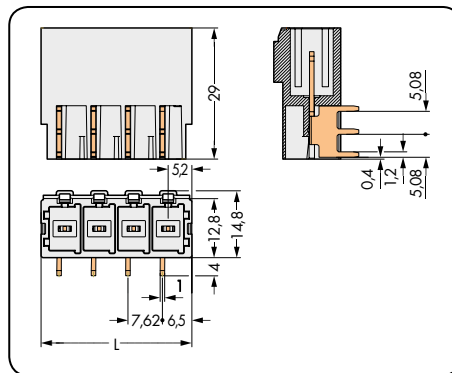
MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live in unmated condition.

Male Headers with Solder Pins MCS-MAXI

With straight solder pins Pin spacing 7.62 mm / 0.3 in		With angled solder pins Pin spacing 7.62 mm / 0.3 in		Coding pin carrier
630 V/ 6 kV/2 41 A	300 V/42 A	630 V/ 6 kV/2 41 A	300 V/42 A	



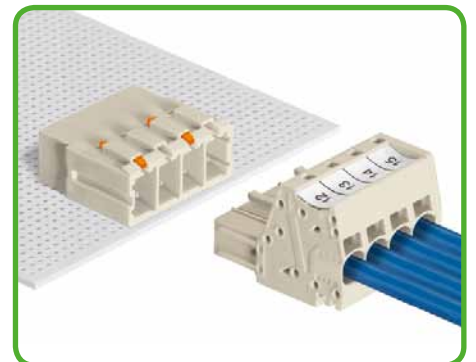
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 10.5 \text{ mm}$



Coding a male header by inserting a coding pin.

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit
Male header with straight solder pins, light gray (three solder pins per pole)*			Male header with angled solder pins, light gray (three solder pins per pole)			Coding pin carrier with six coding pins, orange	
2	831-3602	48	2	831-3622	48	831-500	100 (4 x 25)
3	831-3603	48	3	831-3623	48		
4	831-3604	24	4	831-3624	24		
5	831-3605	24	5	831-3625	24		
6	831-3606	24	6	831-3626	24		
7	831-3607	12	7	831-3627	12		
8	831-3608	12	8	831-3628	12		
9	831-3609	12	9	831-3629	12		

* Protection against PCB mounting errors is available upon request.

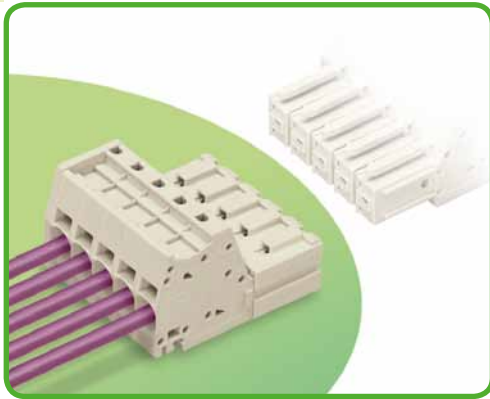


Coded connectors.

Male Connectors

Pin spacing 7.62 mm

MCS-MAXI



- Universal connection for all conductor types
- Simple, push-in terminations of solid and ferruled conductors
- Integrated test ports for Ø 2 mm test plugs
- 600 V to UL 1059
- 100% protected against mismatching
- Coding option available

Technical data:

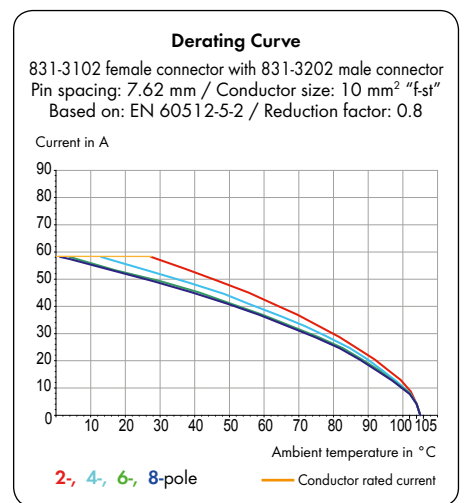
Pin Spacing	7.62 mm 0.3 in		
Rating per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	800 V	1000 V	1000 V
Rated surge voltage	8 kV	8 kV	8 kV
Nominal current	41 A	41 A	41 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	-	600 V	-
Nominal current UL	-	42 A	-
Nominal current CSA	-	50 A	-

Conductor data:

Connection technology	CAGE CLAMP®S
Conductor size: solid	0.5 - 10 mm ²
Conductor size: fine-stranded	0.5 - 10 mm ²
Conductor size: fine-stranded	0.5 - 6.0 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.5 - 6.0 mm ² (with uninsulated ferrule)
AWG	20 - 8
Strip length	13 - 15 mm / 0.52 - 0.58 in

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated



MCS-MAXI accessories:

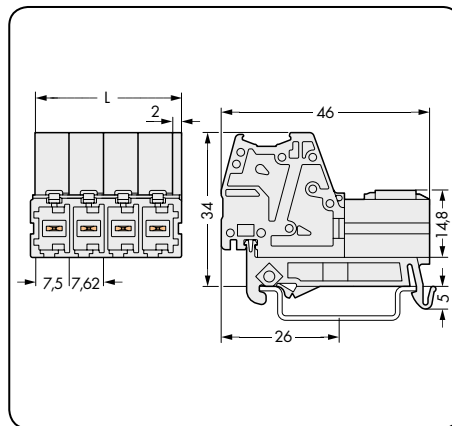
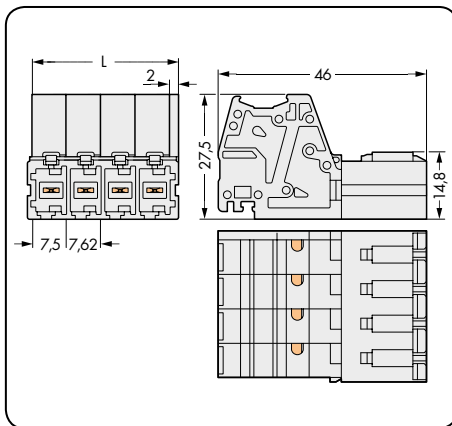
Page:

Marking accessories	540 - 543
Operating tool	526 - 528
Direct marking	497
Test plug, Ø 2 mm	538
DIN 35 rail	546

MCS - MULTI CONNECTION SYSTEM includes connectors **without** breaking capacity in accordance with IEC 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure male connector pins, which can be touched, are not live in unmated condition.

Male Connectors MCS-MAXI

Pin spacing 7.62 mm / 0.3 in 0.5 – 10 mm ² | AWG 20 – 8 1000 V/ 8 kV/2 41 A | 600 V/42 A		With integrated adapter for DIN 35-rail mounting Pin spacing 7.62 mm / 0.3 in 0.5 – 10 mm ² | AWG 20 – 8 1000 V/ 8 kV/2 41 A | 600 V/42 A		Pole marking 1 – pole no. of male connectors for conductor termination
--	--	---	--	---



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 9.5 \text{ mm}$

Pole Marking Perpendicular to Conductor Entry

MCS-MAXI male connectors can be marked via miniature WSB or WMB markers (Section 10), or via marker strips. Other custom marking options are available upon request.

Pole No.	Item No.	Pack. Unit
Marker strips, pole no. - 1		
2	2009-110/762-852	50
3	2009-110/762-853	50
4	2009-110/762-854	50
5	2009-110/762-855	50
6	2009-110/762-856	50
7	2009-110/762-857	50
8	2009-110/762-858	50

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector, light gray			Male connector with integrated adapter for DIN 35-rail mounting, light gray		
2	831-3202	48	2	831-3202/007-000	48
3	831-3203	48	3	831-3203/007-000	48
4	831-3204	24	4	831-3204/007-000	24
5	831-3205	24	5	831-3205/007-000	24
6	831-3206	24	6	831-3206/007-000	24
7	831-3207	12	7	831-3207/007-000	12
8	831-3208	12	8	831-3208/007-000	12
9	831-3209	12	9	831-3209/007-000	12
Product Accessories					
Mounting adapter for DIN 35-rail					
	831-137	48			

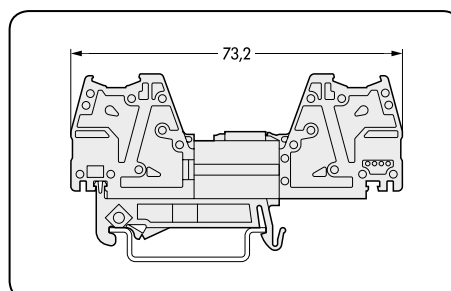


Marking Parallel to Conductor Entry Item No. Suffix: /... - 9034

Ordering examples:

Male connector, 7.62 mm pin spacing, 6-pole, light gray
831-3206/000-9034

Male connector for DIN 35-rail mounting, 7.62 mm pin spacing, 6-pole, light gray
831-3206/007-9034-9034



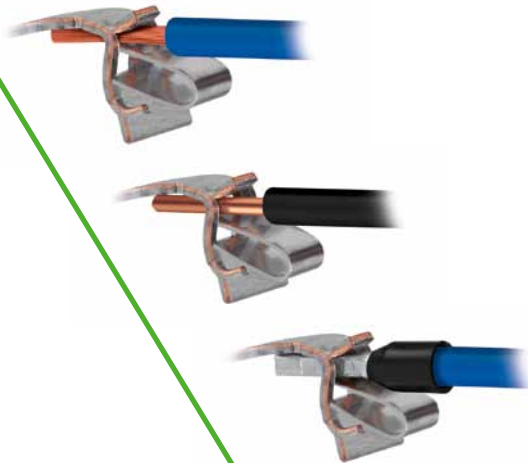
For other lengths, please contact factory.

CAGE CLAMP[®]S

The universal connection with "SPECIAL"

Open clamping unit, insert the conductor, release clamp - done!

Terminate both solid and ferruled conductors by simply pushing them in - no operating tool needed.

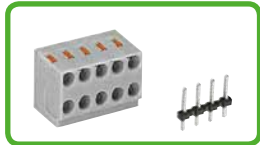
**PUSH WIRE[®]**

PUSH WIRE[®] connection for solid and stranded conductors (depending on model used)

Tool-free, twist-free terminations for solid and rigid stranded conductors - simply push into unit.



8



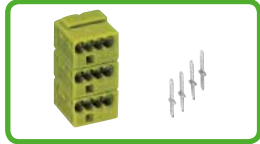
2-Conductor Compact PCB Connectors, PUSH WIRE®

Pin Spacing 3.5 mm / 0.137 in
 Ø 0.4 - 0.8 mm (AWG 26 - 20) "sol."



2-Conductor PCB Connector Strips (Pinstrip Pluggable), CAGE CLAMP®S

Pin Spacing 5 mm / 0.197 in
 2 x 0.2 - 1.5 mm



4-Conductor Modular PCB Connectors, PUSH WIRE®

Pin Spacing 5.75 mm / 0.226 in
 Ø 0.4 - 0.8 mm (AWG 26 - 20) "sol."



Accessories, General - Section 10

Series Pages

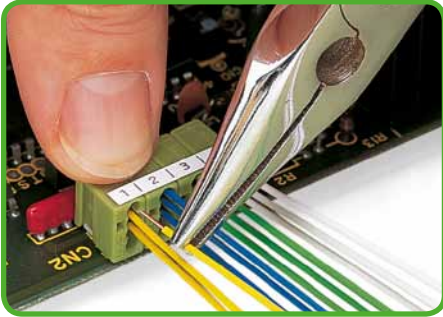
252 502 - 503

806 504 - 505

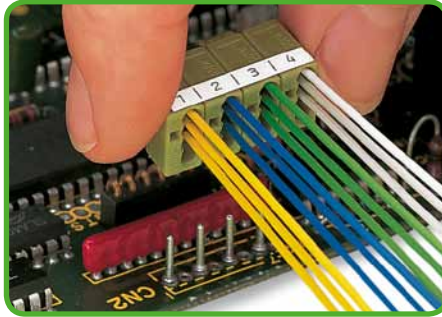
243 506 - 507

524 - 546

Description and Handling Pluggable PCB Connectors 252 and 243 Series



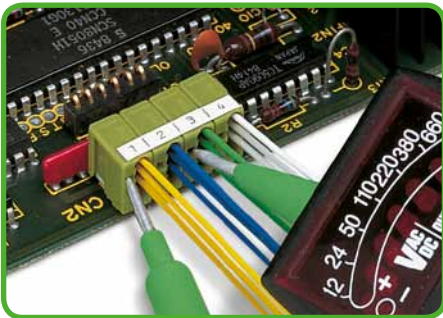
Inserting conductor using pliers until it hits backstop – directly on the PCB . . .
. . . or wiring prior to mounting on PCB.



Removing modular PCB connector strip to replace the board.

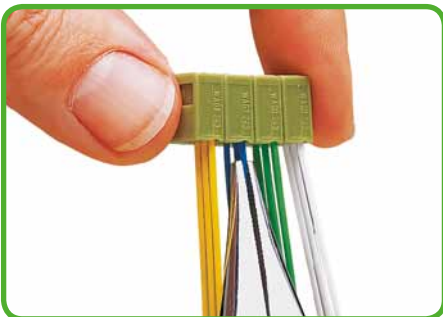
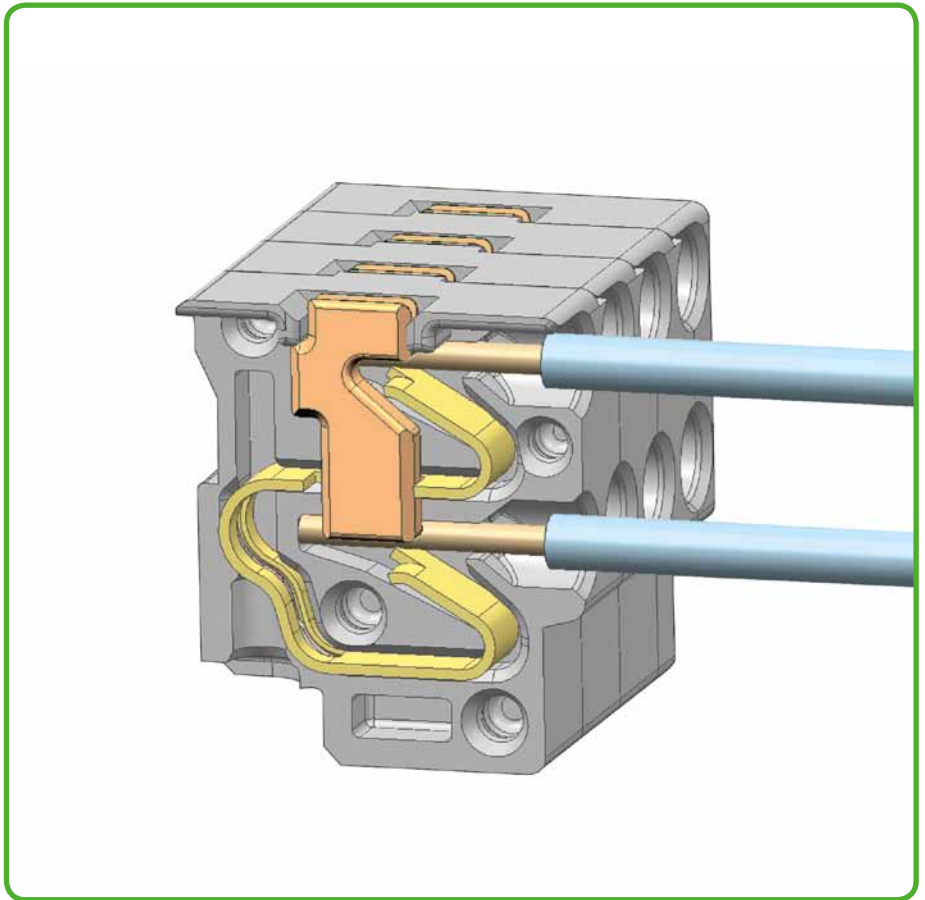


Removing conductors via push-button – 252 Series

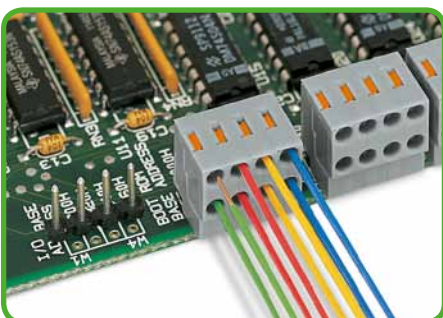


Testing – 243 Series

252 Series



Removing conductor using pliers, twisting alternately left and right – 243 Series



Conductor termination directly on the PCB . . .
. . . or wiring prior to mounting on PCB – 252 Series



Solder pin strip with strain relief, 4-pole



Plugging a compact PCB connector - 252 Series

PUSH WIRE® clamps the following copper conductors:*



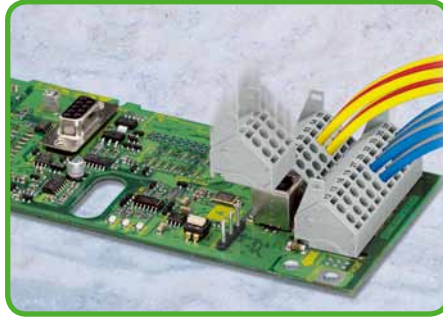
solid

* For aluminum conductors, see notes in Section 11.

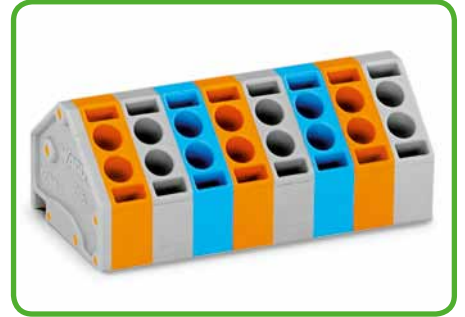
Description and Handling Pluggable PCB Connectors 806 Series



Inserting solid conductors via push-in termination.
Inserting/removing fine-stranded conductors: Open clamping unit using a screwdriver and insert stripped conductor until it hits backstop.

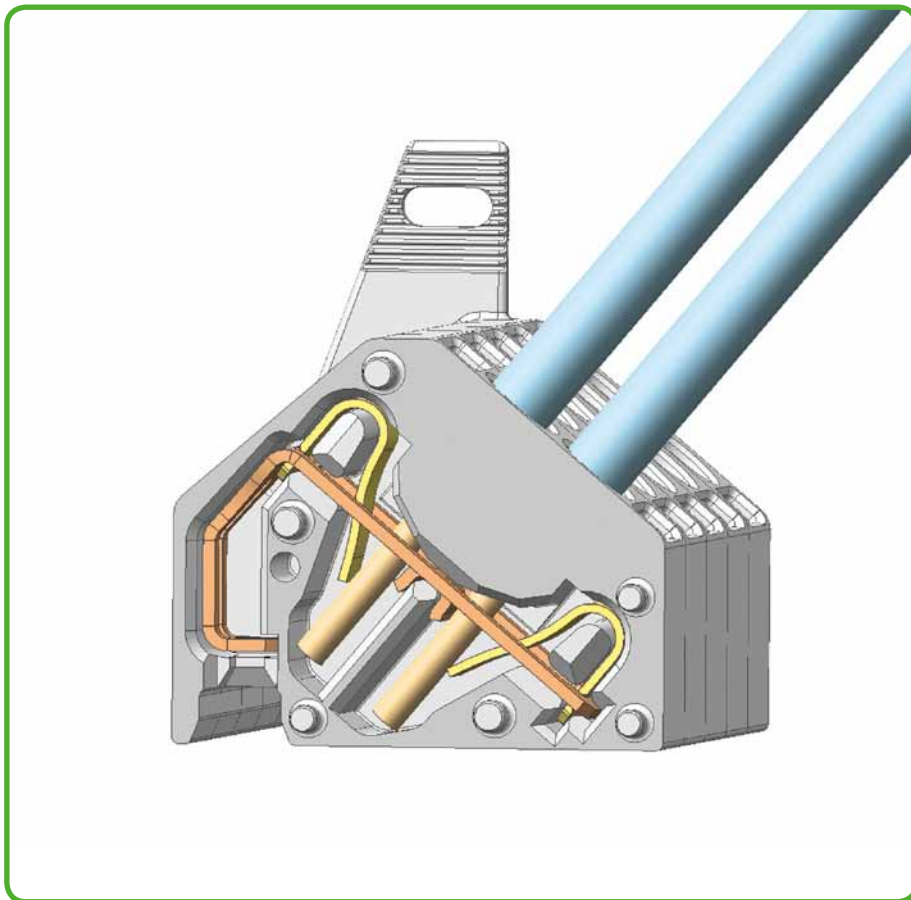


Conductor termination directly on the board . . .
. . . or wiring prior to mounting on PCB.



Mixed-color connector strips (with or without spacer)
available upon request.

806 Series



CAGE CLAMP® S clamps the following copper conductors:*



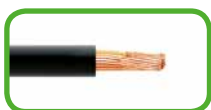
solid



stranded



fine-stranded,
also with tinned
single strands



fine-stranded,
tip-bonded



fine-stranded with
crimped ferrules
(gas-tight)



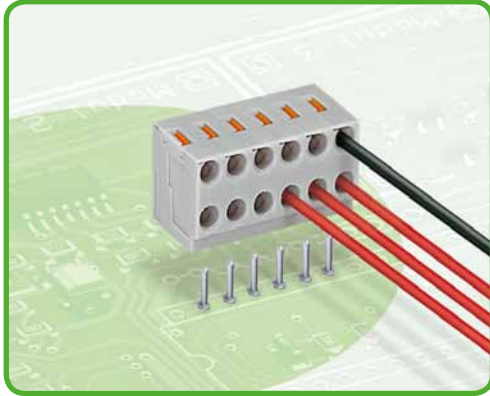
fine-stranded with
crimped pin terminal
(gas-tight)

8 2-Conductor Compact PCB Connectors

Pin Spacing 3.5 mm

252 Series

502



- 2-conductor, compact PCB connectors with push-buttons and PUSH WIRE® connection
- Simple push-in termination for solid conductors – conductor removal via push-buttons
- Double entries for supply and power distribution
- Quick and easy PCB replacement
- Loop connection is retained, even when unmated
- Group arrangement is possible without losing any poles

Technical data:

Pin Spacing	3.5 mm 0.138 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	2 A	2 A	2 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	2 A	-	2 A
Nominal current CSA	-	-	-

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	∅ 2 x 0.4 – 0.8 mm
AWG	26 – 20 "sol."
Strip length	6 – 7 mm / 0.24 – 0.28 in
Conductor entry angle	0° to PCB
Solder pin: length/diameter	3.5 mm/1 mm (solder pin strip)
Solder pin: length/diameter	4.5 mm/1 mm (individual solder pins)
Solder pin: drilled hole diameter	1.2 ^{±0.05} mm

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Copper alloy
Contact plating	tin-plated

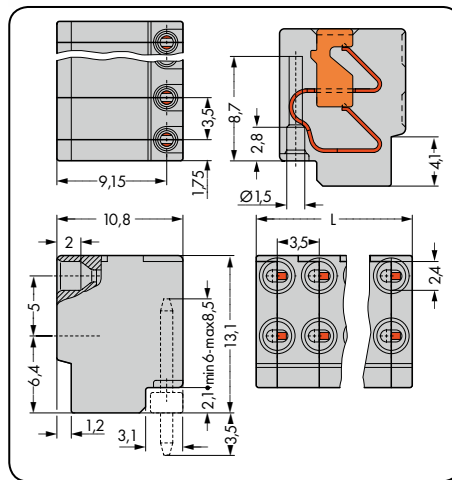
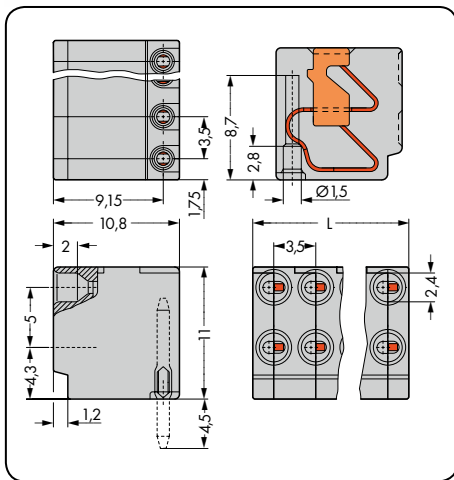
252 Series accessories:

Page:



Marking accessories	540 – 543
Operating tool	526

2-Conductor, Compact PCB Connectors

For individual solder pins Pin spacing 3.5 mm / 0.138 in		For solder pin strips Pin spacing 3.5 mm / 0.138 in		Solder pin strips
Ø 2 x 0.4 - 0.8 mm "sol."	2 x AWG 26 - 20 "sol."	Ø 2 x 0.4 - 0.8 mm "sol."	2 x AWG 26 - 20 "sol."	
320 V/ 4 kV/2 2 A	300 V/2 A	320 V/ 4 kV/2 2 A	300 V/2 A	



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor compact PCB connector for individual solder pins, gray			2-conductor compact PCB connector for solder pin strip, gray			Solder pin strip,		
2	252-102	600 (6 x 100)	2	252-152	600 (6 x 100)	2	252-902	500
3	252-103	400 (4 x 100)	3	252-153	400 (4 x 100)	3	252-903	500
4	252-104	300 (3 x 100)	4	252-154	300 (3 x 100)	4	252-904	500
5	252-105	300 (3 x 100)	5	252-155	300 (3 x 100)	5	252-905	500
6	252-106	200 (2 x 100)	6	252-156	200 (2 x 100)	6	252-906	500
7	252-107	200 (2 x 100)	7	252-157	200 (2 x 100)	7	252-907	500
8	252-108	200 (2 x 100)	8	252-158	200 (2 x 100)	8	252-908	500
9	252-109	200 (2 x 100)	9	252-159	200 (2 x 100)	9	252-909	500
10	252-110	150 (3 x 50)	10	252-160	150 (3 x 50)	10	252-910	500
Product Accessories			Product Accessories					
Solder pin, Ø 1 x 8.5 mm for PCBs up to 2 mm thick			Solder pin strip with strain relief, 4-pole					
								
243-131 1000			252-954 1000					

2-Conductor PCB Connector Strips (Pinstrip Pluggable) 1.5 mm²

Pin Spacing 5 mm

806 Series



- Compact, 2-conductor PCB connector strips (pinstrip pluggable) with screwdriver-actuated CAGE CLAMP®S
- Simple push-in termination for solid or ferruled conductors
- Double-conductor connection for feed-in and potential distribution
- Quick and easy PCB replacement, without disrupting looped-through potentials

Technical data:

Pin Spacing	5 mm 0.197 in				
Rating per	IEC/EN 60664-1				
Overvoltage category	III	III	II		
Pollution degree	3	2	2		
Rated voltage	250 V	320 V	630 V		
Rated surge voltage	4 kV	4 kV	4 kV		
Nominal current	10 A	10 A	10 A		
Approvals per	UL/CSA				
Use group UL 1059	B	C	D		
Rated voltage	300 V	-	300 V		
Nominal current UL	10 A	-	10 A		
Nominal current CSA	10 A	-	-		

Conductor and solder pin data:

Connection technology	CAGE CLAMP®S	
Conductor size: solid	2 x 0.2 - 1.5 mm ²	
Conductor size: fine-stranded	2 x 0.2 - 1.5 mm ²	
Conductor size: fine-stranded	0.25 - 1.0 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 1.0 mm ² (with uninsulated ferrule)	
AWG	2 x 24 - 16	12: THHN, THWN
Strip length	9 - 10 mm / 0.35 - 0.39 in	
Conductor entry angle	45° to PCB	
Solder pin: length/diameter	3.4 mm / 1 mm	
Solder pin: drilled hole diameter	1.3 mm	

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated

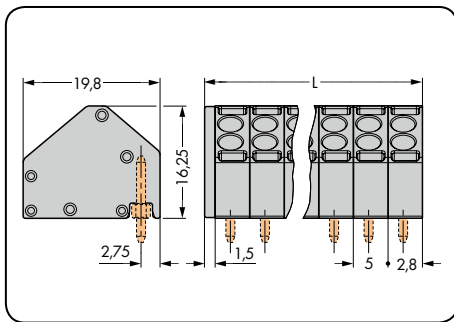
806 Series accessories:

Page:

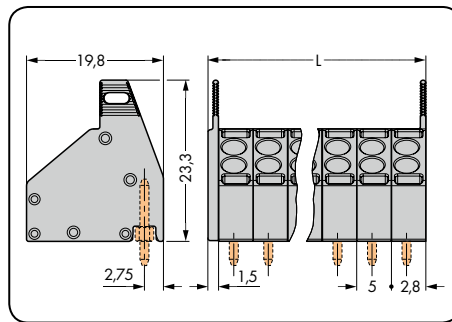
Marking accessories	540 - 543
Operating tool	526

2-Conductor PCB Connector Strips (Pinstrip Pluggable) 1.5 mm² **CAGE CLAMP® S**

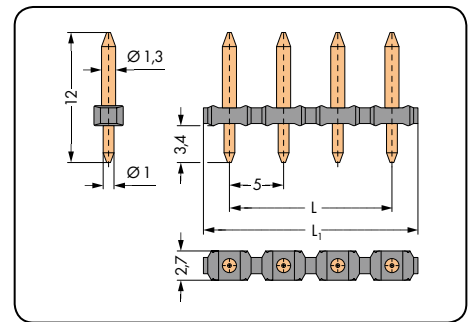
Pin spacing 5 mm / 0.197 in		Pin spacing 5 mm / 0.197 in		Solder pin strips
2 x 0.2 - 1.5 mm ² 320 V/4 kV/2 10 A	2 x AWG 24 - 16 300 V/10 A	2 x 0.2 - 1.5 mm ² 320 V/4 kV/2 10 A	2 x AWG 24 - 16 300 V/10 A	



L = (pole no. x pin spacing) + 1.5 mm



L = (pole no. x pin spacing) + 1.5 mm



L = (pole no. - 1) x pin spacing
L₁ = (pole no. - 1) x pin spacing + 4.8 mm

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2-conductor PCB connector strip (pinstrip pluggable), gray			2-conductor PCB connector strip (pinstrip pluggable) with removal aid, gray			Solder pin strip, Ø 1.3 mm connector pin, Ø 1 mm solder pin		
2	806-102	400	2	806-202	400	2	806-902	100
3	806-103	250	3	806-203	250	3	806-903	100
4	806-104	200	4	806-204	200	4	806-904	100
5	806-105	175	5	806-205	175	5	806-905	100
6	806-106	150	6	806-206	150	6	806-906	100
7	806-107	125	7	806-207	125	7	806-907	100
8	806-108	100	8	806-208	100	8	806-908	100
9	806-109	100	9	806-209	100	9	806-909	100
10	806-110	80	10	806-210	80	10	806-910	100
11	806-111	80	11	806-211	80	11	806-911	100
12	806-112	60	12	806-212	60	12	806-912	100

Item no. suffixes for colored connector strips: (Production and prices depend on quantity required)

- blue ...-.../000-006
- orange ...-.../000-012

Ordering example:

PCB connector strip, 5 mm pin spacing, 8-pole,
blue: **806-108/000-006**

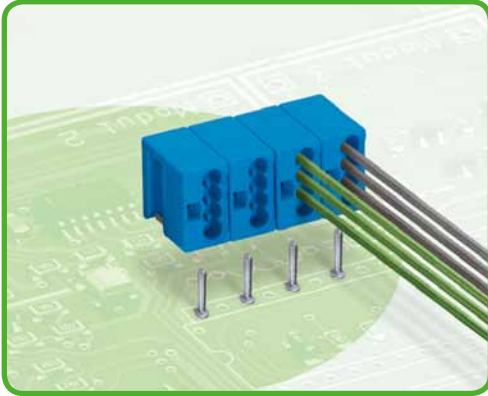


8 4-Conductor Modular PCB Connectors

Pin Spacing 5.75 mm

243 Series

506



- Compact, 4-conductor modular PCB connectors with PUSH WIRE® connection
- Simple push-in termination for solid conductors
- Feed-in and potential distribution via 4-conductor connection
- Quick and easy PCB replacement, without disrupting looped-through potentials

Technical data:

Pin Spacing	5.75 mm 0.226 in		
Rating per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	6 A	6 A	6 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	150 V	-	150 V
Nominal current UL	7 A	-	7 A
Nominal current CSA	7 A	-	7 A

Conductor and solder pin data:

Connection technology	PUSH WIRE®
Conductor size: solid	Ø 4 x 0.5 - 1.0 mm
AWG	4 x 24 - 18 "sol."
Strip length	5 - 6 mm / 0.20 - 0.24 in
Conductor entry angle	0° to PCB
Solder pin: length/diameter	4.5 mm / 1.0 mm
Solder pin: drilled hole diameter	1.2 ^{±0.05} mm

Material data:

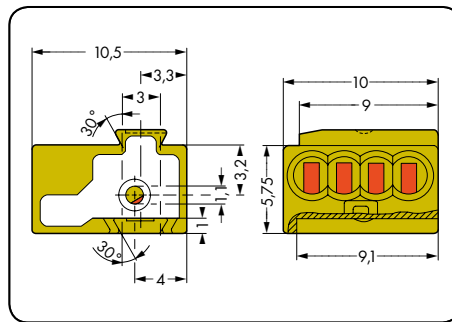
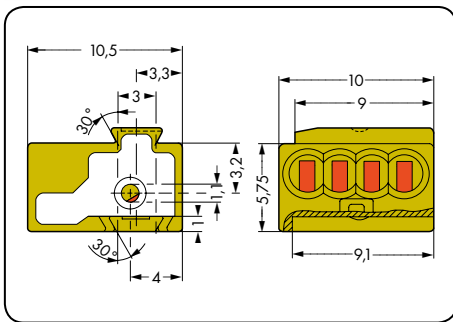
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Copper alloy
Contact plating	tin-plated

243 Series accessories:

Page:

Marking accessories	540 - 543

Pin spacing 5.75 mm / 0.226 in Ø 4 x 0.5 - 1.0 mm | 4 x AWG 24 - 18 320 V/4 kV/2 6 A | 150 V/7 A		Pin spacing 5.75 mm / 0.226 in Ø 4 x 0.5 - 1.0 mm | 4 x AWG 24 - 18 320 V/4 kV/2 6 A | 150 V/7 A		Solder pins
---	--	---	--	--------------------

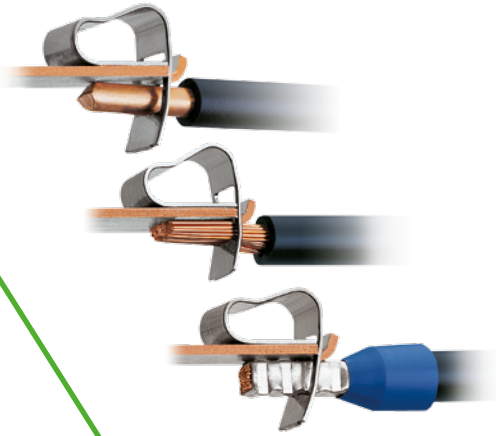


Color	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit
4-conductor modular PCB connector, can be assembled to connector strips using dovetail joints, with test slot, for solid conductors			4-conductor PCB connector strip, with test slots, for solid conductors, light green			Solder pin for PCBs	
● gray	243-721	400	2	243-742	50	243-131	1000
● blue	243-722	400	3	243-743	50		
● orange	243-723	400	4	243-744	50		
● light green	243-724	400	5	243-745	50		
			6	243-746	50		
			7	243-747	50		
			8	243-748	50		
			Note: To limit the insertion forces of multi-pole PCB connector strips to the solder pins, the pole no. of the assembly should not exceed 8.				
			Item No. Suffix for Colored Connector Strips				
			● blue .../000-006 ● gray .../000-007 ● orange .../000-012				
			(Production and prices depend on quantity required)				
			Ordering example: PCB connector strip, 5 mm pin spacing, 8-pole, blue: 243-748/000-006				

CAGE CLAMP®

The universal connection for solid, stranded and fine-stranded conductors

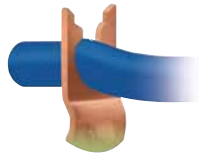
Open clamping unit, insert the conductor, release clamp - done!



FIT CLAMP®

Insulation displacement connection (IDC)

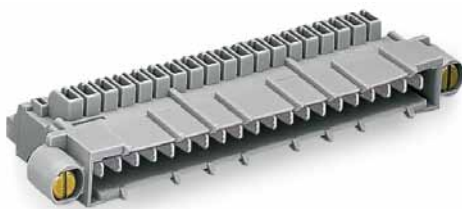
Insert unstripped, fine-stranded conductors into the bottom half of the socket. Simply snap the two socket halves together to connect the conductors.



PUSH WIRE®

PUSH WIRE® connection for solid and stranded conductors (depending on model used)

Tool-free, twist-free terminations for solid and rigid stranded conductors - simply push into unit.



9



3- and 6-Pole Tap-Off Connectors with CAGE CLAMP® / FIT CLAMP® (e.g., for Elevators)
 CAGE CLAMP®: 0.08 - 2.5 mm²
 FIT CLAMP®: 0.75 - 1.5 mm² "f-st"

Series	Pages
730	512 - 514



10- and 20-Pole Connectors with CAGE CLAMP® (e.g., for Racks)
 0.08 - 2.5 mm²

246	518 - 520
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Connectors for KNX/EIB Bus Coupler Units with PUSH WIRE®,
 Ø 0.6 - 0.8 mm "sol."

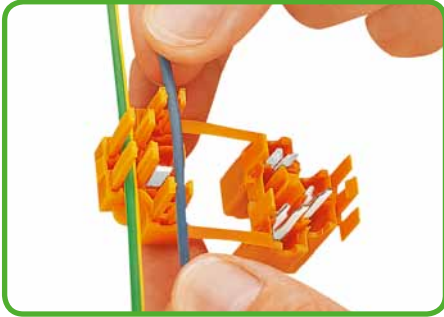
243	522 - 523
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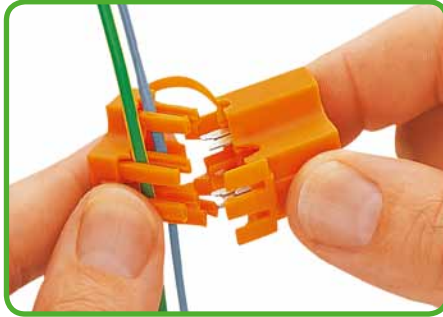
Accessories, General - Section 10

	524 - 546
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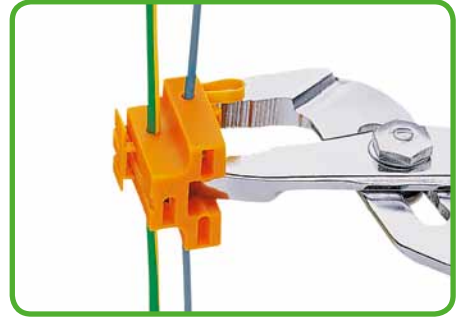
Description and Handling Tap-Off Connectors, 3- and 6-Pole



Pressing conductors into strain relief fingers.

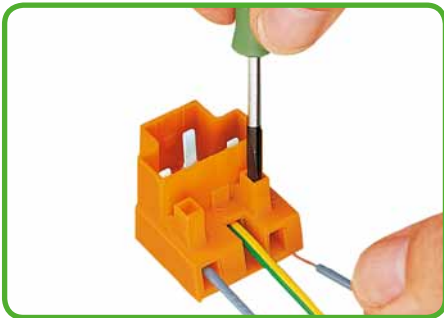


Place upper and lower part of the socket into pre-locked position ...

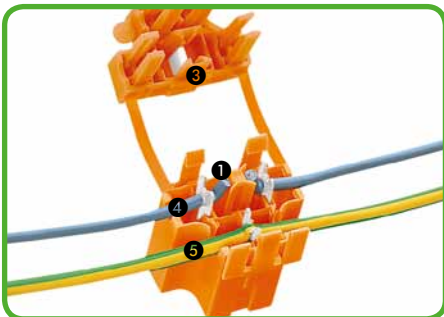


... and squeeze with pliers into final, locked position.

730 Series Tap-Off Connectors, 3-Pole

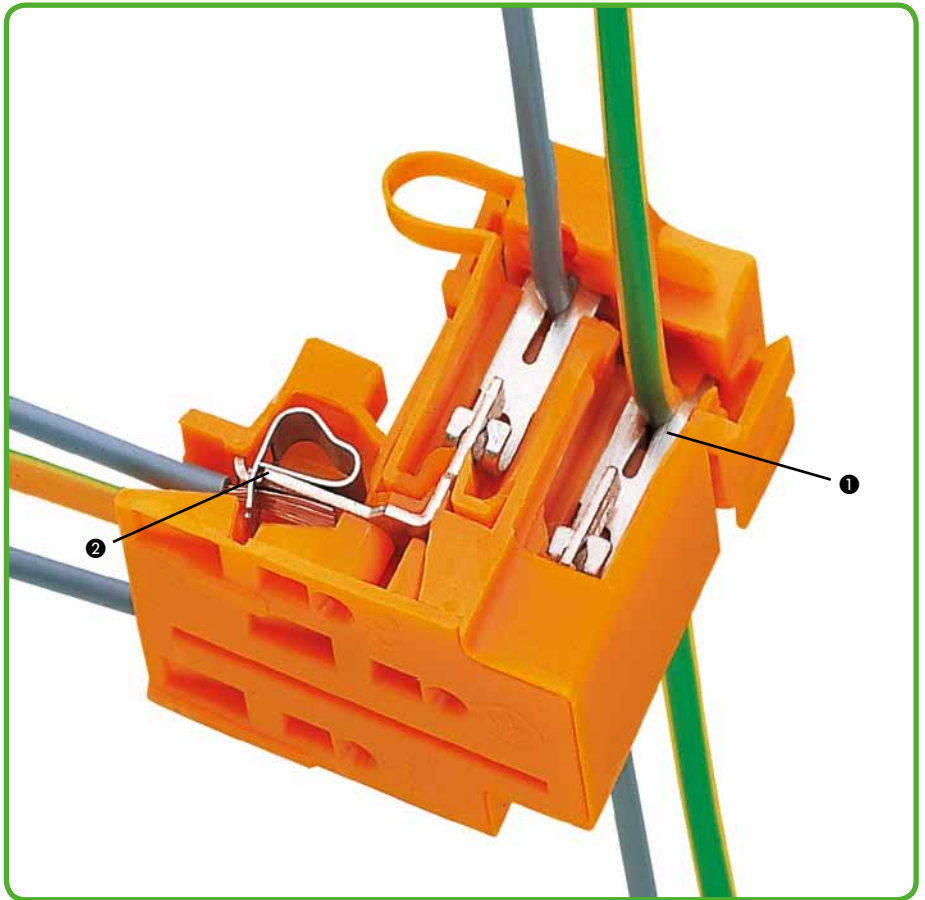


Wiring a 3-pole plug equipped with CAGE CLAMP®.

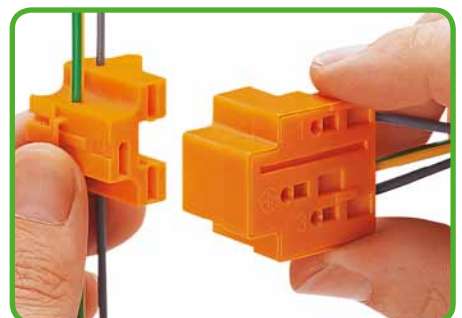


Three-pole socket includes:

- 1 IDC connection
- 2 CAGE CLAMP® connection
- 3 Isolating blade
- 4 Cut and IDC contacted "live" conductor
- 5 IDC contacted ground conductor



Snapping socket halves together will automatically cut and terminate a "live" conductor without stripping, allowing switching applications (e.g., door switches).



Inserting a plug into the socket.



CAGE CLAMP® clamps the following copper conductors:*

solid

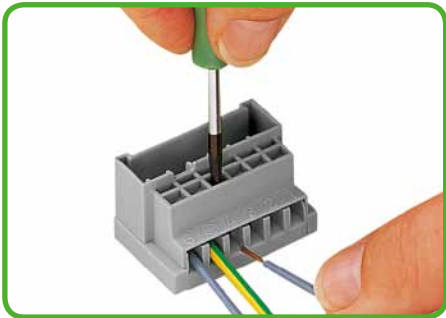


stranded

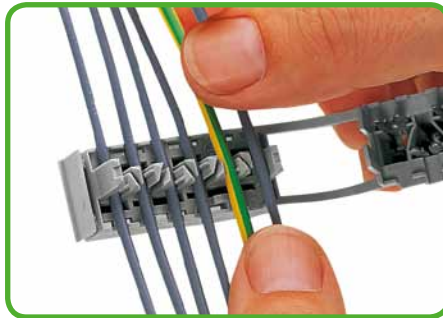


fine-stranded, also with tinned single strands

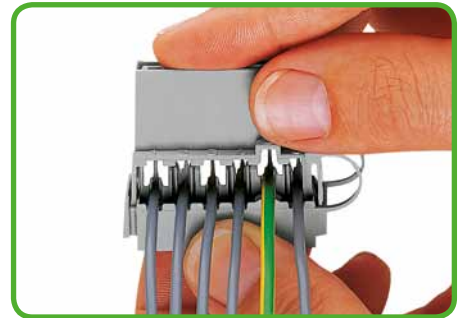
* For aluminum conductors, see notes in Section 11.



Wiring a 6-pole plug equipped with CAGE CLAMP®.

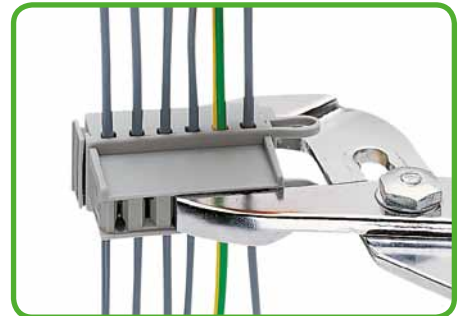


Pressing conductors into strain relief fingers.



Place upper and lower part of the socket into pre-locked position ...

730 Series Tap-Off Connectors, 6-Pole



... and squeeze with pliers into final, locked position.



Inserting a plug into the socket.



Marking via side marker carrier.



Testing via Ø 2.3 mm test plug.



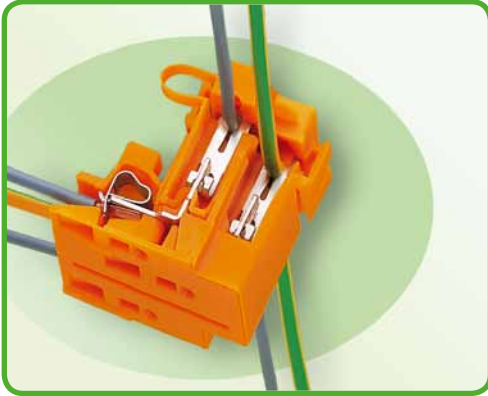
fine-stranded, tip-bonded



fine-stranded with crimped ferrules (gas-tight)



fine-stranded with crimped pin terminal (gas-tight)



- Plugs with CAGE CLAMP® for the universal connection of all conductor types
- Sockets with IDC connection for tapping individual conductors without stripping
- Three-pole sockets automatically cut “live” conductor (e.g., door switches in elevator shafts)
- Sockets available with additional fixing flanges

Technical data:

Pin Spacing	Potential – Potential			Potential – Surface		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	320 V	320 V	630 V
Rated surge voltage	6 kV	6 kV	6 kV	4 kV	4 kV	4 kV
Nominal current	10 A	10 A	10 A	10 A	10 A	10 A
Approvals per	UL/CSA					
Use group UL 1059	B	C	D			
Rated voltage	-	600 V	-			
Nominal current UL	-	10 A	-			
Nominal current CSA	-	10 A	-			

Conductor data for plugs:

Connection technology	CAGE CLAMP®	
Conductor size: solid	0.08 – 2.5 mm ²	
Conductor size: fine-stranded	0.08 – 2.5 mm ²	
Conductor size: fine-stranded	0.25 – 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 – 2.5 mm ² (with uninsulated ferrule)	
AWG	28 – 14	12: THHN, THWN
Strip length	8 – 9 mm / 0.31 – 0.35 in	

Conductor data for sockets:

Connection technology	FIT CLAMP®	(IDC connection)
Conductor size: fine-stranded	0.75 – 1.5 mm ²	(PVC insulation, single)
AWG	18 – 16	
Insulation diameter	max. Ø 3.5 mm	

Material data:

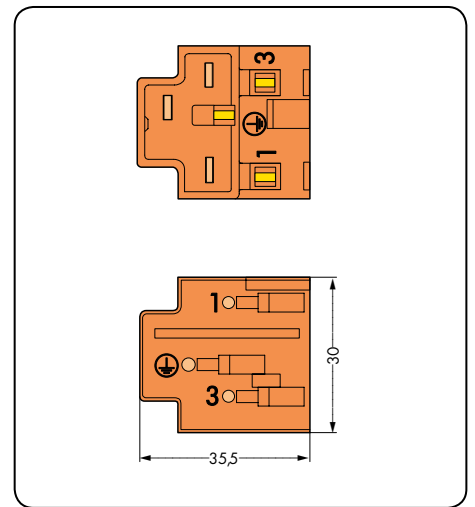
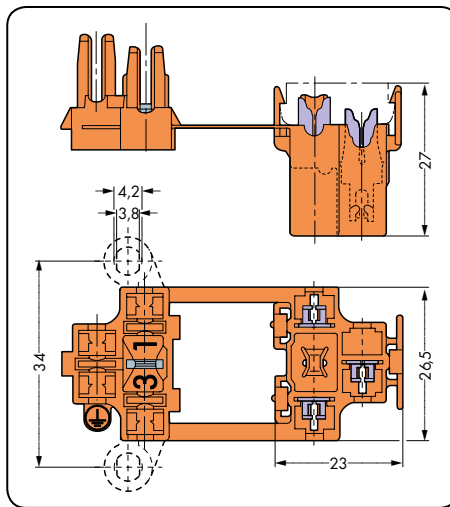
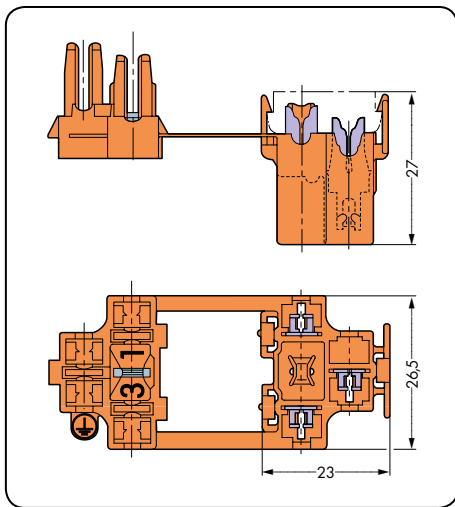
Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +85 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material (socket)	Brass
Contact material (plug)	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

730 Series accessories:

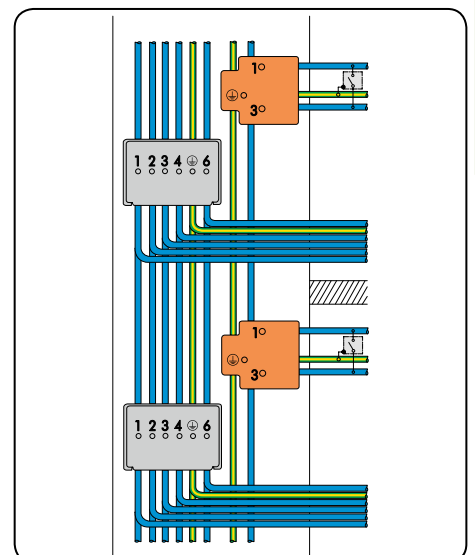
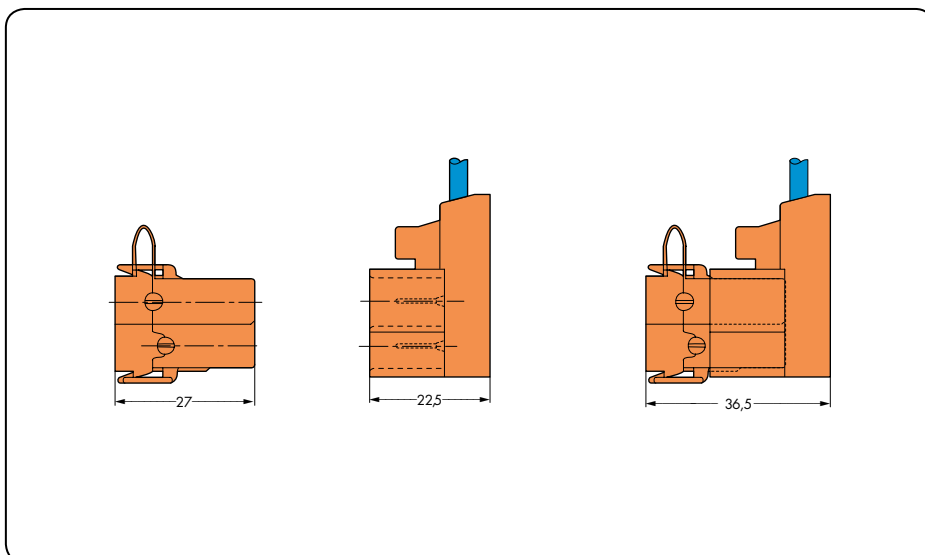
Page:

Operating tools	526 – 528
Test plug, Ø 2.3 mm	538

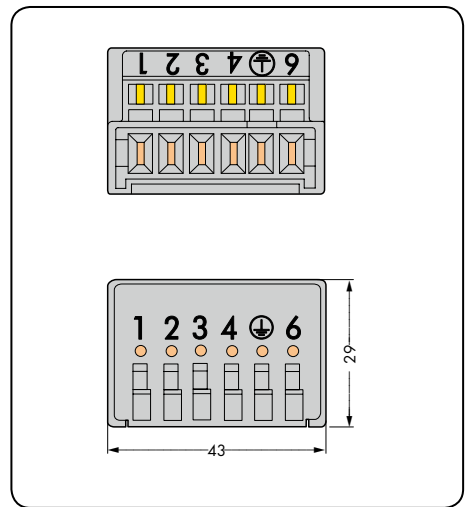
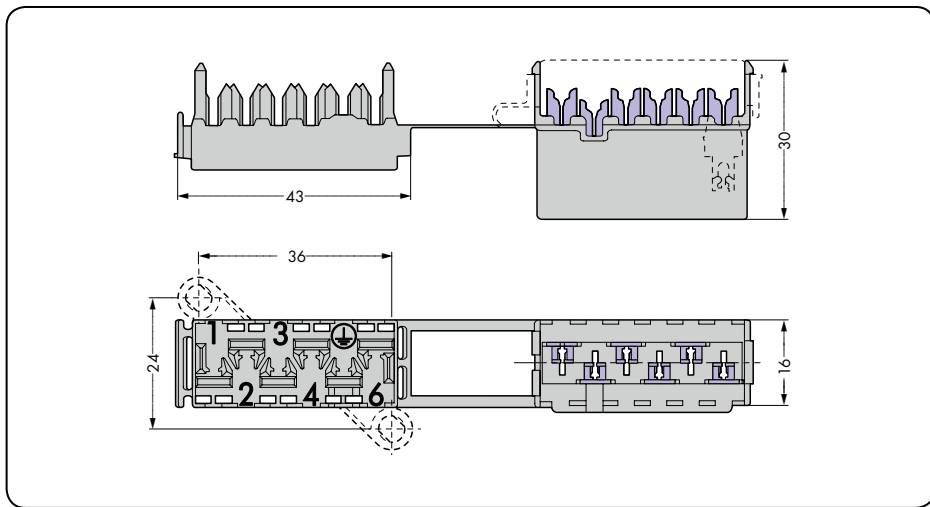
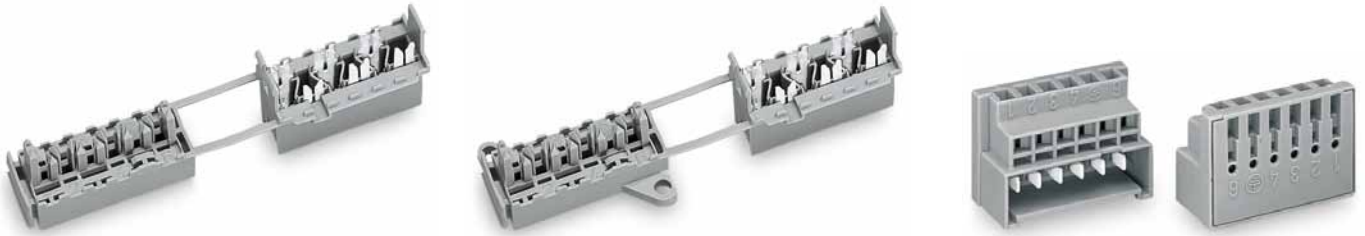
Sockets		Sockets with fixing flanges		Plugs	
0.75 - 1.5 mm ² "f-st"	AWG 18 - 16 "f-st"	0.75 - 1.5 mm ² "f-st"	AWG 18 - 16 "f-st"	0.08 - 2.5 mm ² "sol."+"f-st"	AWG 28 - 14 "sol."+"f"
500 V/ 6 kV/3 10 A	600 V/10 A	500 V/ 6 kV/3 10 A	600 V/10 A	500 V/ 6 kV/3 10 A	600 V/10 A



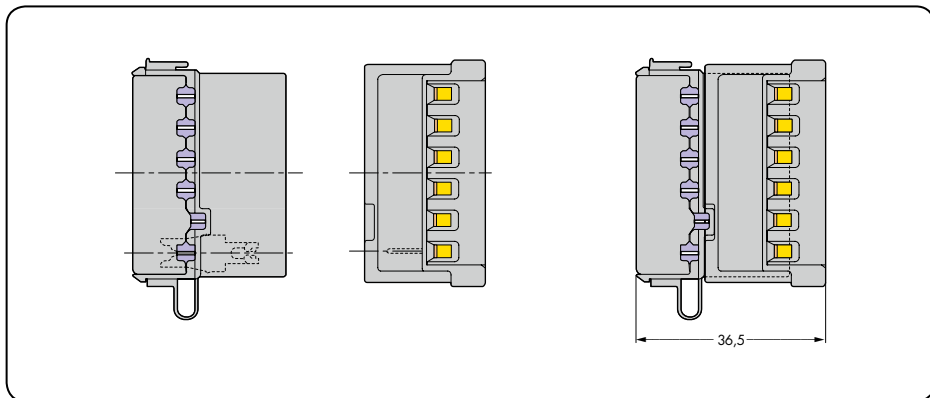
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Socket with IDC connection, 2 x live, 1 x protective ground, orange			Socket with IDC connection and fixing flanges, 2 x live, 1 x protected ground, orange			Plug with CAGE CLAMP®, 2 x live, 1 x protected ground, orange		
3	730-103	50	3	730-123	50	3	730-113	50



Sockets		Sockets with fixing flanges		Plugs	
0.75 - 1.5 mm ² "f-st"	AWG 18 - 16 "f-st"	0.75 - 1.5 mm ² "f-st"	AWG 18 - 16 "f-st"	0.08 - 2.5 mm ² "sol."+"f-st"	AWG 28 - 14 "sol."+"f"
500 V/ 6 kV/3 10 A	600 V/10 A	500 V/ 6 kV/3 10 A	600 V/10 A	500 V/ 6 kV/3 10 A	600 V/10 A



Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Socket with IDC connection, 5 x live, 1 x protected ground, gray			Socket with IDC connection and fixing flanges, 5 x live, 1 x protected ground, gray			Plug with CAGE CLAMP®, 5 x live, 1 x protected ground, gray		
6	730-106	50	6	730-126	50	6	730-116	50





Female connector for side-entry wiring.

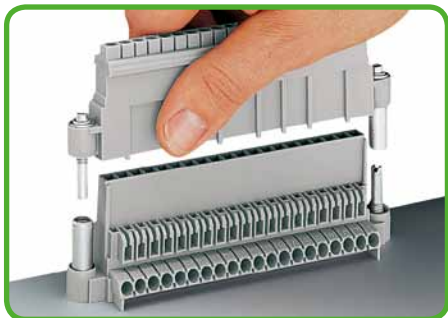
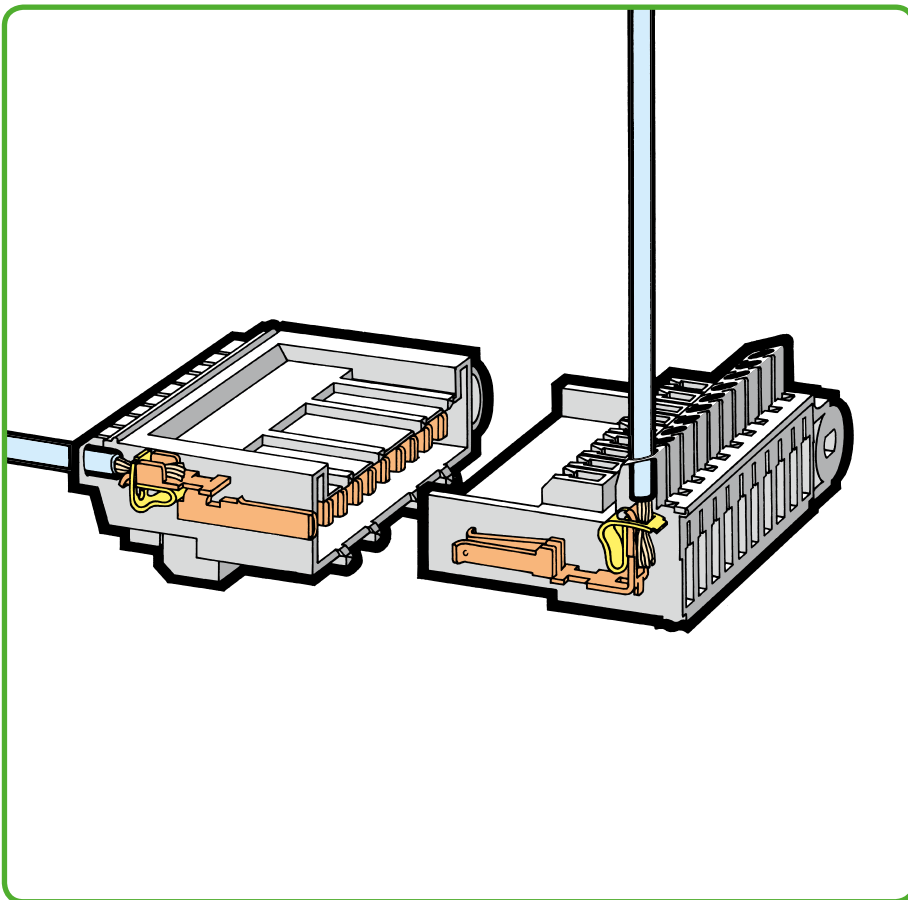


Male connector for side-entry wiring.

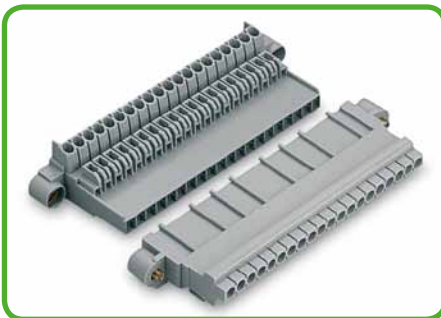


Ability to wire mated halves equipped with coding/securing elements.

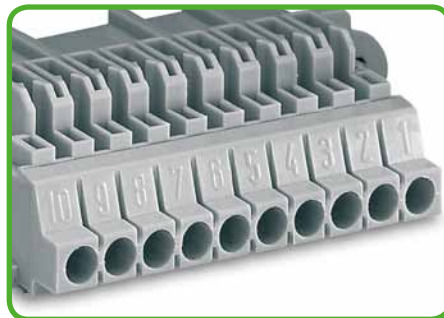
246 Series



Coding – male and female connector with coding/securing elements.



Male and female connector without coding/securing elements.



Marking via molded pole marking.



CAGE CLAMP® clamps the following copper conductors:*

solid



stranded



fine-stranded, also with tinned single strands

* For aluminum conductors, see notes in Section 11.



20-pole connectors (e.g., racks for motor control systems)

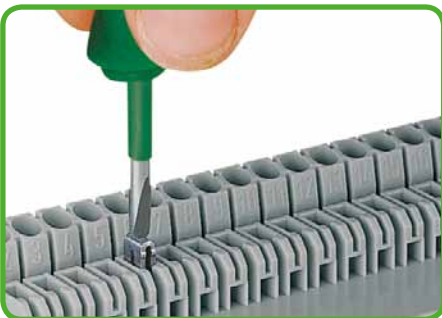
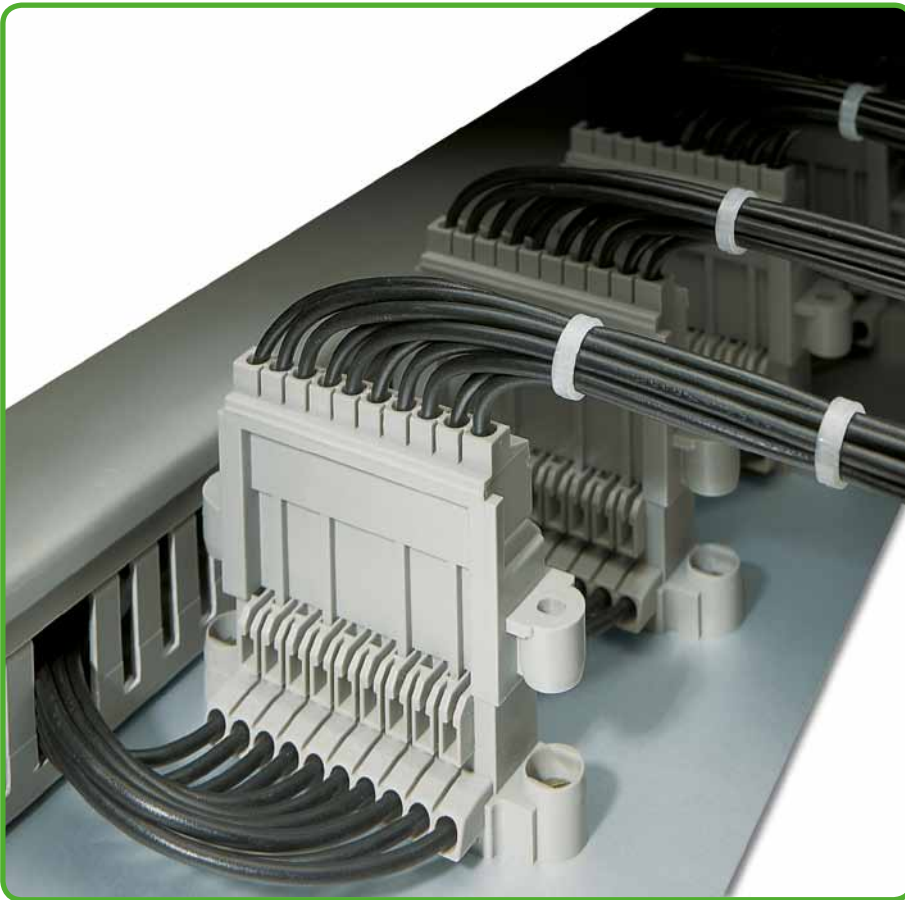


Connector for racks (e.g., control system of power circuits)



20-pole connectors (e.g., panel-to-door wiring)

246 Series



Commoning with adjacent jumpers – push jumper down until fully inserted!



Inserting jumper position marker.



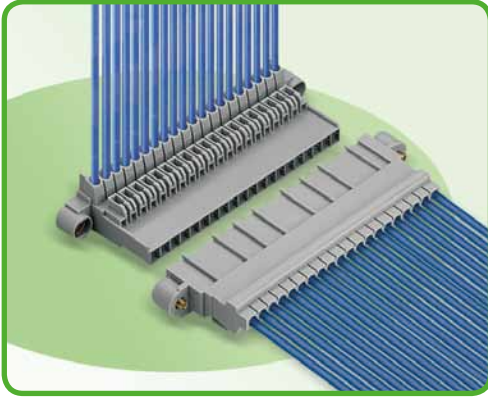
fine-stranded, tip-bonded



fine-stranded with crimped ferrules (gas-tight)



fine-stranded with crimped pin terminal (gas-tight)



- Universal connection for all conductor types
- 10- and 20-pole male and female connectors
- Commoning with adjacent jumpers
- Combined coding/securing elements prevent mismating and unintentional disconnection
- For racks or panel-to-door wiring

Technical data:

Pin Spacing	Without Jumper			With Adjacent Jumper		
	IEC/EN 60664-1			IEC/EN 60664-1		
Rating per	III	III	II	III	III	II
Overtoltage category	3	2	2	3	2	2
Pollution degree	3	2	2	3	2	2
Rated voltage	500 V	630 V	1000 V	320 V	320 V	630 V
Rated surge voltage	6 kV	6 kV	6 kV	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A	16 A	16 A	16 A
Approvals per	UL/CSA			UL/CSA		
Use group UL 1059	B	C	D	B	C	D
Rated voltage	-	300 V	600 V	-	300 V	600 V
Nominal current UL	-	15 A	5 A	-	15 A	5 A
Nominal current CSA	-	-	-	-	-	-

Conductor data:

Connection technology	CAGE CLAMP®
Conductor size: solid	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.08 - 2.5 mm ²
Conductor size: fine-stranded	0.25 - 1.5 mm ² (with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm ² (with uninsulated ferrule)
AWG	28 - 14
Strip length	8 - 10 mm / 0.32 - 0.39 in

Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V2
Lower/Upper temperature limit	-60 °C / +65 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	tin-plated

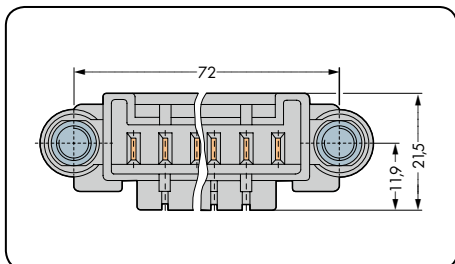
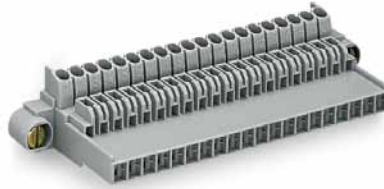
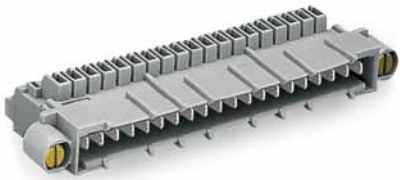
246 Series accessories:

Page:

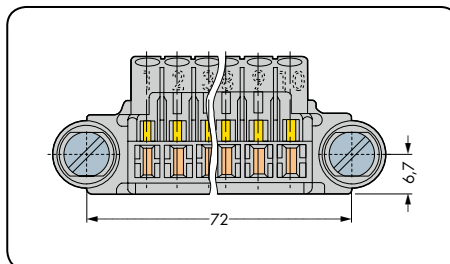
Jumper position markers	521
Adjacent jumpers	521

In compliance with DIN EN 61984, the 246 Series connectors are designed without breaking capacity. When used as intended, these connectors shall not be connected or disconnected when live or under load. The circuit design should ensure male connector pins, which can be touched, are not live in unmated condition.

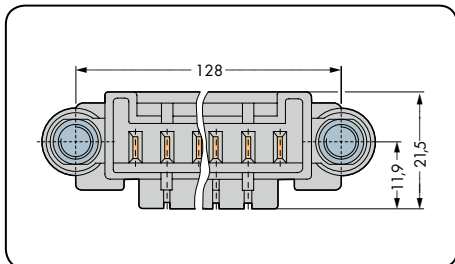
Male connectors		Female connectors	
0.08 - 2.5 mm ²	AWG 28 - 14	0.08 - 2.5 mm ²	AWG 28 - 14
500 V/ 6 kV/3 16 A	300 V/15 A	500 V/ 6 kV/3 16 A	300 V/15 A



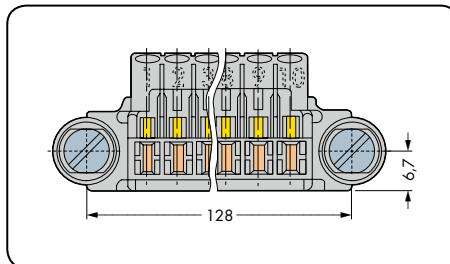
Male connector, 10-pole



Female connector, 10-pole

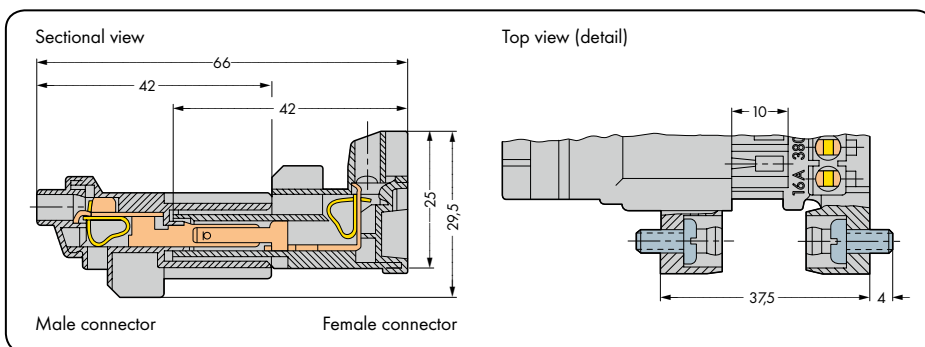


Male connector, 20-pole



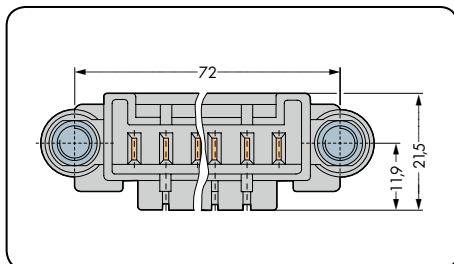
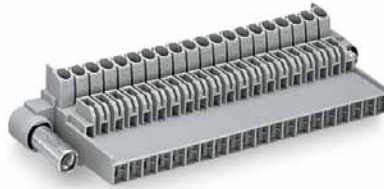
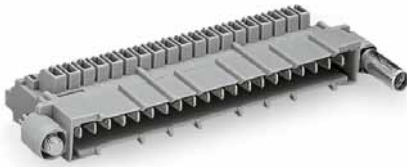
Female connector, 20-pole

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector, including M 4 fixing screws, gray			Female connector, including M 4 fixing screws, gray		
10	246-132	30	10	246-131	30
20	246-102	15	20	246-101	15

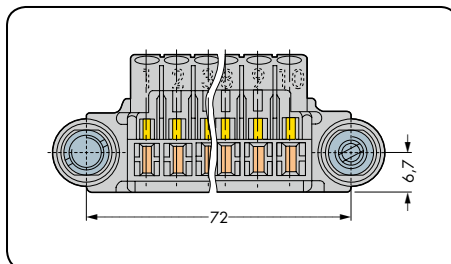


Mated connector, 10-pole or 20-pole

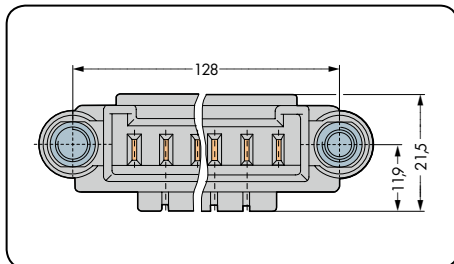
Male connector with coding/securing elements		Female connector with coding/securing elements	
0.08 - 2.5 mm ²	AWG 28 - 14	0.08 - 2.5 mm ²	AWG 28 - 14
500 V/ 6 kV/3 16 A	300 V/15 A	500 V/ 6 kV/3 16 A	300 V/15 A



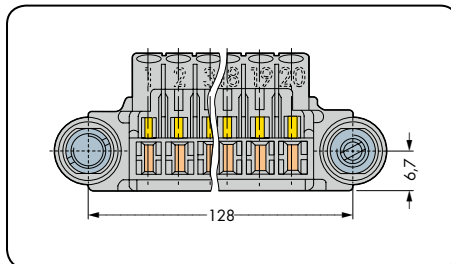
Male connector, 10-pole



Female connector, 10-pole

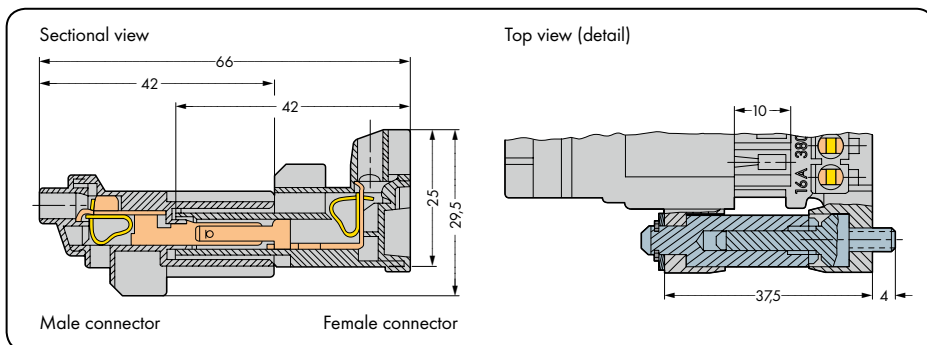


Male connector, 20-pole



Female connector, 20-pole

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector with coding/securing elements, including fixing screws M 4, gray			Female connector with coding/securing elements, including fixing screws M 4, gray		
10	246-142	30	10	246-141	30
20	246-112	15	20	246-111	15
20 (marking)	246-114	15			



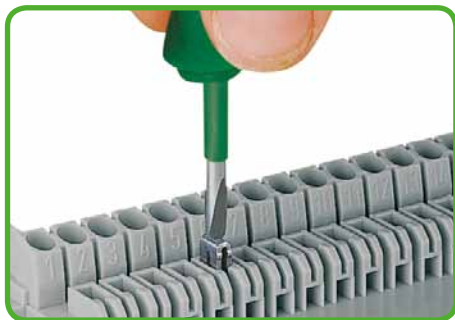
Mated connector, 10-pole or 20-pole

Accessories for 10- and 20-Pole Connectors

Adjacent jumpers	Jumper position markers	
------------------	-------------------------	--



Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Adjacent jumper			Jumper position marker		
uninsulated	246-103	200 (8 x 25)	orange	246-108	200 (8 x 25)



Notice:
Using adjacent jumpers reduces the rated current to 320 V/4 kV/3.



Inserting jumper position markers.

Connectors for KNX/EIB Bus Coupler Units 243 Series



- Compact, 4-conductor KNX connector with PUSH WIRE® connection
- Simple push-in termination for solid conductors
- 4-conductor entries allow devices to be replaced without disrupting the KNX bus connection

Technical data:

	IEC/EN 60664-1		
Rating per	III	III	II
Overtoltage category	3	2	2
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	6 A	6 A	6 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

Conductor data:

Connection technology	PUSH WIRE®
Conductor size: solid	Ø 4 x 0.6 – 0.8 mm or Ø 4 x 1.0 mm
AWG	4 x 22 – 20 "sol." or 4 x 18 "sol."
Strip length	5 – 6 mm / 0.20 – 0.24 in

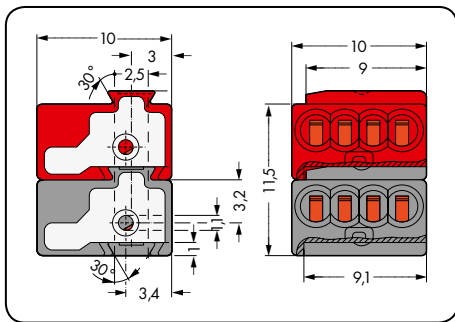
Material data:

Material group	I
Insulating material	Nylon 6.6 (PA 6.6)
Flammability rating per UL 94	V0
Lower/Upper temperature limit	-60 °C / +105 °C
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

243 Series accessories:

Page:

<p align="center">Connectors for KNX bus coupler units</p> <p>Ø 0.6 - 0.8 mm 320 V/ 4 kV/2 6 A</p>	<p align="center">Description</p>	
	<p align="center">AWG 22 - 20 "sol."</p>	



The KNX bus system is the intelligent solution to simplify existing building installation control. Instead of many different conventional wiring styles, the KNX bus system offers a flexible general solution for all applications in the field of switching, controlling, measuring, monitoring and signaling.

The decentralized KNX system works without a central unit. All components are active, intelligent modules. Only when using the different KNX components does the system become user-specific. For example, pairs of sensors/actuators control:

- lighting
- window blinds
- heating/ventilation
- energy management systems
- information display/transmission

Command data is transmitted via twisted-pair bus cable, which is connected to the sensors and actuators via WAGO modules.

Sensors transmit commands as "telegrams" via the bus to the actuators, which record the information and act on the commands. To ensure that only fixed transmitters can trigger reactions in the fixed receivers, the "telegram" is provided with an address. The allocation (= addressing) is stipulated during programming.

The bus system is divided into "lines" (segments). The bus lines can be wired at will acc. to the line, star or tree topology. WAGO connectors connect the different branches to one another in the junction boxes.

If the installation will be extended later on, new components can be added to the existing bus without any problems. If rooms, floors or buildings are to be used differently one day, the installations can remain unchanged. It is only necessary to reprogram the allocation of actuators to sensors.

Color	Item No.	Pack. Unit
<p>Connectors for KNX bus coupler units, mounted, with test slot</p>		
	<p>dark gray and red 243-211</p>	<p>250</p>
	<p>light gray and yellow 243-212</p>	<p>250</p>

Accessories, General



10

Pages

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Operating Tools

Disconnection Tools

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Cable Strippers

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Wire Strippers

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Cable Cutters

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Crimping Tools

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Ferrules

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Test and Measurement Tools

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Test Plugs

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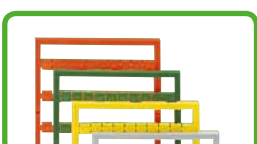
Test Pin

538



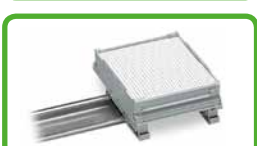
"Alu-Plus" Contact Paste

539



Marking Accessories

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DIN-Rail Mount PCB Carriers

544 - 545



Screws

546

Carrier Rails

546

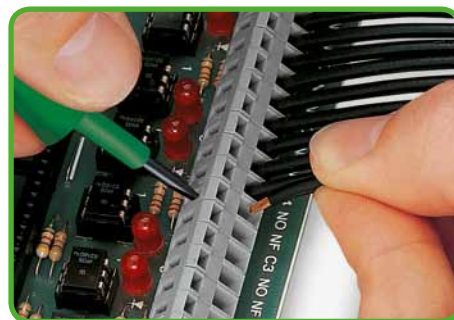
<p>Operating tools</p> <p>with partially insulated shaft Type 1, 2 and 3</p>	<p>Operating tools</p> <p>with partially insulated shaft Type 1, 2 and 3 in set</p>	<p>Operating tools</p> <p>with partially insulated shaft Type 1 and 2, short</p>
---	--	---



Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
<p>Operating tool, type 1, (2.5 x 0.4) mm blade, with partially insulated shaft, suitable for 218, 233, 234, 235, 250, 253, 730, 733, 734, 735, 739, 713, 714, 805 and 2734 Series</p>	1	<p>Set of operating tools Type 1, (2.5 x 0.4) mm blade Type 2, (3.5 x 0.5) mm blade Type 3, (5.5 x 0.8) mm blade</p>	1	<p>Operating tool, type 1, short, (2.5 x 0.4) mm straight blade, with partially insulated shaft, suitable for 218, 233, 234, 235, 250, 253, 730, 733, 734, 735, 739, 713, 714, 805, and 2734 Series</p>	1
210-719		210-722		210-647	
<p>Operating tool, type 2, (3.5 x 0.5) mm blade, with partially insulated shaft, suitable for 226, 231, 232, 235, 236, 237, 246, 250, 254, 255, 256, 257, 721, 722, 723, 731, 732, 733, 735, 736, 737, 738, 739, 740, 741, 742, 745, 804, 805, 806, 816, 2231, and 2721 Series</p>	1			<p>Operating tool, type 2, short, (3.5 x 0.5) mm straight blade, with partially insulated shaft, suitable for 226, 231, 232, 235, 236, 237, 246, 250, 254, 255, 256, 257, 721, 722, 723, 731, 732, 733, 735, 736, 737, 738, 739, 740, 741, 742, 745, 804, 805, 806, 816, 2231 and 2721 Series</p>	1
210-720				210-657	
<p>Operating tool, type 3, (5.5 x 0.8) mm blade, with partially insulated shaft, suitable for 745, 746 and 831 Series</p>	1			<p>Operating tool, type 1, short, (2.5 x 0.4) mm angled blade, with partially insulated shaft, suitable for 218, 233, 234, 235, 250, 253, 730, 733, 734, 735, 739, 713, 714, 805, and 2734 Series</p>	1
210-721				210-648	
				<p>Operating tool, type 2, short, (3.5 x 0.5) mm angled blade, with partially insulated shaft, suitable for 226, 231, 232, 235, 236, 237, 246, 250, 254, 255, 256, 257, 721, 722, 723, 731, 732, 733, 735, 736, 737, 738, 739, 740, 741, 742, 745, 804, 805, 806, 816, 2231 and 2721 Series</p>	1
				210-658	



The blade dimensions of the above-listed operating tools are ideal for operating both PCB terminal blocks and MCS connectors.



The above-listed operating tools with blade dimensions to DIN 5264 are ideal for operating PCB terminal blocks.

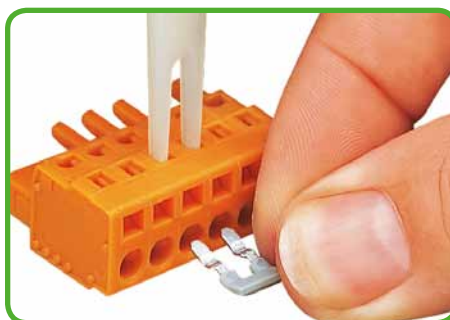
<p>Operating tools</p> <p>Operation parallel to conductor entry</p>	<p>Operating tool</p> <p>Operation perpendicular to conductor entry</p>	<p>Operating tool</p>
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Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
<p>Multipole operating tool, insulated, 5/5.08 mm pin spacing, operation parallel to conductor entry, suitable for male and female connectors with CAGE CLAMP®, also suitable for 280 Series rail-mounted terminal blocks</p>		<p>Operating tool, insulated, 5/5.08 mm pin spacing, operation perpendicular to conductor entry, suitable for male and female connectors with CAGE CLAMP®</p>		<p>Operating tool, suitable for 2080 Series</p>	
1-pole	209-130	1	2-pole	209-132	1
2-pole	280-432	1			
3-pole	280-433	1			
4-pole	280-434	1			
5-pole	280-435	1			
6-pole	280-436	1			
7-pole	280-437	1			
8-pole	280-438	1			
9-pole	280-439	1			
10-pole	280-440	1			
				206-880	3



Inserting a male connector with long contact pins into a front-entry rail-mounted terminal block via 6-pole operating tool.



Commoning a female connector with 231-902 comb-style jumper bar via 2-pole operating tool.

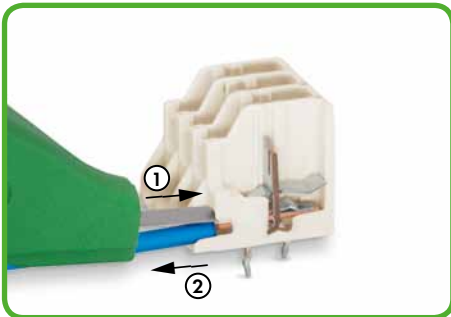


Conductor removal (2080 Series) - via push-button and 1 mm \varnothing operating tool (206-880).

<p>Disconnection tool, for removing conductors from PUSH WIRE® connections</p>	<p>Disconnection tool, for removing conductors from PUSH WIRE® connections</p>	
--	--	--



Item No.	Pack. Unit	Item No.	Pack. Unit
Disconnection tool, with two replacement blades in the handle, suitable for 251 Series, "mini" version		Disconnection tool, suitable for 744 Series	
206-830	1	206-840	1



Removing a conductor by sliding disconnection tool over the conductor (1) and pulling it out (2).





Removing a conductor by inserting disconnection tool into the operating slot and pulling it out.



Two replacement blades in the handle

<p>Cable stripper for round cables</p> <p>2.5 - 11 mm / 0.1 - 0.43 in. Ø</p>	<p>Cable stripper for round cables</p> <p>4.5 - 45 mm / 0.18 - 1.77 in. Ø</p>	
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Item No.	Pack. Unit	Item No.	Pack. Unit
<p>Cable stripper, for round cables with 2.5 - 11 mm outer diameter</p>		<p>Cable stripper, for round cables with 4.5 - 45 mm outer diameter</p>	
206-171	1	206-174	1
<p>Product Accessories</p>		<p>Product Accessories</p>	
<p>Replacement blade, for 2.5 - 11 mm Ø</p>		<p>Replacement blade, for 4.5 - 45 mm Ø</p>	
 <p>206-170</p>	1	 <p>206-173</p>	1

206-171 Cable Stripper:

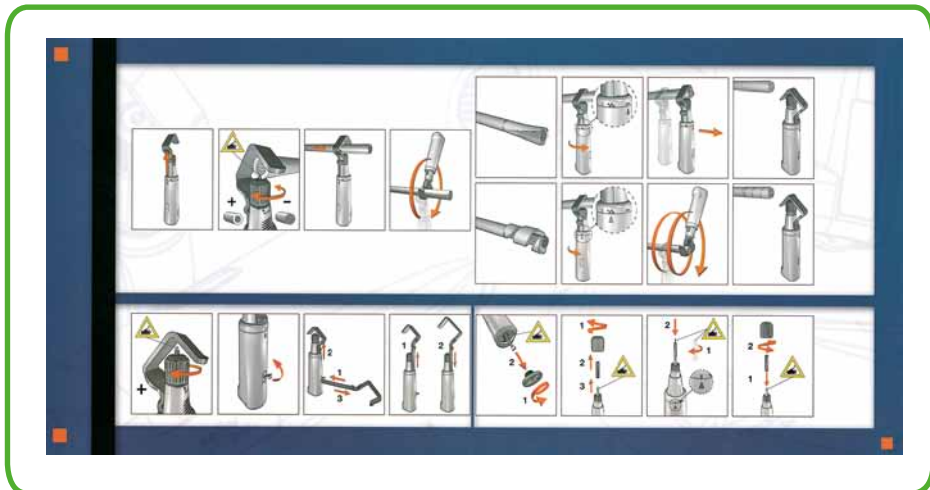
- 10-position adjustment wheel ensures repeatable stripping results
- Fine adjustability via 10-position blade cutting depth adjustment
- Strips the sheath from multi-core and fiber optic cables up to 11 mm/0.43 inch diameter
- Safe and easy to use through closed stripping cavity

206-174 Cable Stripper:

- Safe and easy to use: Three locking positions for circular, longitudinal and spiral cuts
- High cable stripping capacity of up to 40 mm/1.57 inch diameter
- Well balanced, ergonomic design features rests for thumb, index and pinky fingers to ease raising of the cable retention hook
- Replacement blades can be stored within the tool body



Operating instructions for 206-171 Cable Stripper








Operating instructions for 206-174 Cable Stripper



"Microstrip" wire stripper 0.14 mm ² - 1.5 mm ² (AWG 24 - 16)	"Quickstrip" 10 wire stripper 0.02 mm ² - 10 mm ² "f-st" (AWG 34 - 8)	"Quickstrip 16" wire stripper 4 mm ² - 16 mm ²
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Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
"Microstrip" wire stripper, 0.14 - 1.5 mm ² "sol." and "f-st" Cutter for conductors up to 1.5 mm ² "sol." and "f-st"		"Quickstrip 10" wire stripper, 0.02 - 10 mm ² "f-st" (6 mm ² "sol.") Wire cutter up to 10 mm ² "f-st" (1.5 mm ² "sol.")		"Quickstrip 16" wire stripper, 4 - 16 mm ² Wire cutter up to 10 mm ² "f-st" (1.5 mm ² "sol.")	
206-501	1	206-124	1	206-125	1
Product Accessories		Product Accessories		Product Accessories	
Replacement stripping unit, complete 		"Standard" blade cassette, 0.02 - 10 mm² 		"Standard" blade cassette, 4 - 16 mm² 	
206-502	1	206-126	1	206-128	1
Replacement blade, for wire cutter 		"V" blade cassette, 0.1 - 4 mm ² for PTFE 			
206-503	1	206-127	1		

- Automatically adjusts to conductor size
- No damage to conductor strands
- Gripping pressure of jaws automatically adjusts to conductor insulation diameter
- Clamping jaws and stripping blades automatically open once the stripping process is completed, ensuring no damage to the conductor strands
- Exact strip length may be set by sliding red setting stop.
- Stripping blades can be replaced
- Self-sharpening, fully protected cutter; also replaceable*
- The entire body is made of glass fiber-reinforced polyamide

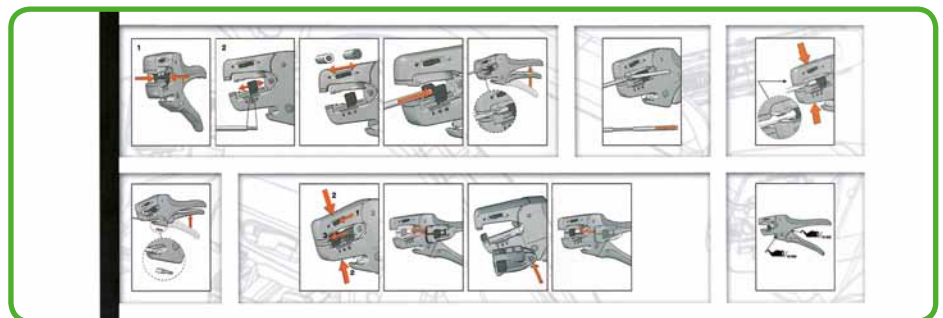
*applies for Microstrip



Cutting a conductor.



Stripping a conductor.



Handling instructions are included.

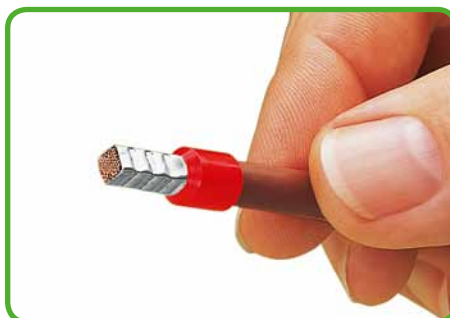
Cable cutter acc. to VDE up to 35 mm ² / AWG 2	"Variocrimp 4" crimping tool 0.25 - 4 mm ² / AWG 22 - 12	"Variocrimp 16" crimping tool 6 mm ² - 16 mm ² / AWG 10 - 6
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Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Cable cutter, for copper and aluminum cables up to 35 mm ² /AWG 2		"Variocrimp 4" crimping tool, for insulated and uninsulated ferrules, crimping range of 0.25 - 4 mm ²		"Variocrimp 16" crimping tool, for insulated and uninsulated ferrules, crimping range of 6 - 16 mm ²	
206-118	1	206-204	1	206-216	1



Cutting



A perfect gastight crimp, both electrically and mechanically reliable.

Application notes:

- With "Variocrimp 4," the built-in crimping pressure control automatically adjusts crimping force to the conductor cross section used
- With "Variocrimp 16," it is necessary to select the wire gauge on the tool before crimping
- Only one crimping station is needed to handle the specified conductor size range
- Uniform compact crimping from all four sides for high conductor retention
- No need to center the conductor into the ferrule
- Conductor and ferrule insertion possible from both sides (for left- and right-handers)
- Built-in ratchet mechanism ensures gastight crimp connection
- Crimping tools open automatically after crimping operation is complete
- Comfortable handles for operator

What is a "gas-tight" connection?

In a gas-tight connection, the conductor and the ferrule are compressed together, eliminating all spaces. Under normal atmospheric conditions, neither a liquid nor a gaseous medium can penetrate into the crimped connection.

Oxidation between crimped single conductors is prevented, ruling out nearly any increase in the crimped connection resistance. In some exceptional cases, minute, isolated spaces may be present. These can be considered to be closed off on account of the twisted wires, however.

Inadequate crimping can allow the conductor to be pulled out of the connection. Hollow spaces also remain in which oxidation can form. Oxidation leads to an increase in contact resistance.

Elevated resistance is detrimental for signal transmission, as the signal flow is damped (weakened), and for power transmission, as power loss and, hence a temperature increase due to contact (risk of fire) can result.

Crimping tools with built-in ratchets are recommended, such as the **WAGO Variocrimp** tools. These tools only open after the crimping process has been fully completed. Space-saving crimping from all four sides is ideal for spring clamp termination.

Cross section data for ferruled conductors indicated for WAGO products is based on this crimping method.

Crimping Tools

Crimping tool 25 10 mm ² , 16 mm ² , 25 mm ² / AWG 8, 6, 4	Crimping tool 50 35 mm ² and 50 mm ² / AWG 2 and 1
---	--



Item No.	Pack. Unit	Item No.	Pack. Unit
Crimping tool 25, for insulated and uninsulated ferrules, crimping range of 10 mm ² , 16 mm ² and 25 mm ²		Crimping tool 50, for insulated and uninsulated ferrules, crimping range of 35 mm ² and 50 mm ²	
206-225	1	206-250	1



Insert ferruled conductor into crimping station.



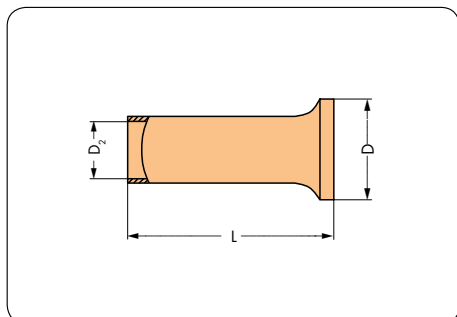
Squeeze handles until ratchet mechanism is released.



















Application notes:

- Improved crimping for higher conductor retention
- Conductor and ferrule insertion possible from both sides (for left- and right-handers)
- Built-in ratchet mechanism ensures gastight crimp connection
- Crimping tools open automatically after crimping operation is complete
- Comfortable handles for operator

Uninsulated ferrules

Electrolytic copper, electro fin-plated,
acc. to DIN 46288, part 1/08.92

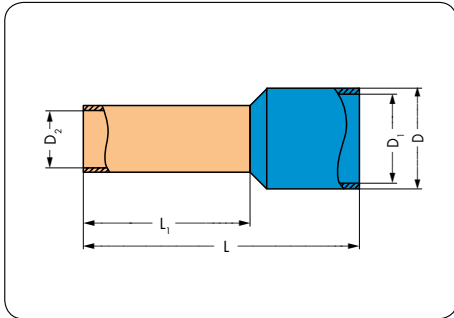




















0.25 – 0.5 mm ²	Item No.	Pack. Unit	0.75 – 1.5 mm ²	Item No.	Pack. Unit	2.5 – 16 mm ²	Item No.	Pack. Unit
Uninsulated ferrule, sleeve for 0.25 mm²/AWG 24 , 5 mm strip length, L: 5 mm , D: 1.7 mm, D ₂ : 0.75 mm	 216-151	1000	Uninsulated ferrule, sleeve for 0.75 mm²/AWG 20 , 6 mm strip length, L: 6 mm , D: 2.3 mm, D ₂ : 1.2 mm	 216-122	1000	Uninsulated ferrule, sleeve for 2.5 mm²/AWG 14 , 8 mm strip length, L: 8 mm , D: 3.4 mm, D ₂ : 2.2 mm	 216-105	1000
Uninsulated ferrule, sleeve for 0.25 mm²/AWG 24 , 7 mm strip length, L: 7 mm , D: 1.7 mm, D ₂ : 0.75 mm	 216-131	1000	Uninsulated ferrule, sleeve for 0.75 mm² / AWG 20 , 8 mm strip length, L: 8 mm , D: 2.3 mm, D ₂ : 1.2 mm	 216-102	1000	Uninsulated ferrule, sleeve for 2.5 mm²/AWG 14 , 10 mm strip length, L: 10 mm , D: 3.4 mm, D ₂ : 2.2 mm	 216-106	1000
Uninsulated ferrule, sleeve for 0.34 mm²/AWG 24 , 5 mm strip length, L: 5 mm , D: 1.8 mm, D ₂ : 0.85 mm	 216-152	1000	Uninsulated ferrule, sleeve for 1 mm²/AWG 18 , 6 mm strip length, L: 6 mm , D: 2.5 mm, D ₂ : 1.4 mm	 216-123	1000	Uninsulated ferrule, sleeve for 4 mm²/AWG 12 , 10 mm strip length, L: 10 mm , D: 4 mm, D ₂ : 2.8 mm	 216-107	1000
Uninsulated ferrule, sleeve for 0.34 mm²/AWG 24 , 7 mm strip length, L: 7 mm , D: 1.8 mm, D ₂ : 0.85 mm	 216-132	1000	Uninsulated ferrule, sleeve for 1 mm²/AWG 18 , 8 mm strip length, L: 8 mm , D: 2.5 mm, D ₂ : 1.4 mm	 216-103	1000	Uninsulated ferrule, sleeve for 6 mm²/AWG 10 , 12 mm strip length, L: 12 mm , D: 4.7 mm, D ₂ : 3.5 mm	 216-108	1000
Uninsulated ferrule, sleeve for 0.5 mm²/AWG 22 , 6 mm strip length, L: 6 mm , D: 2.1 mm, D ₂ : 1 mm	 216-121	1000	Uninsulated ferrule, sleeve for 1.5 mm²/AWG 16 , 6 mm strip length, L: 6 mm , D: 2.8 mm, D ₂ : 1.7 mm	 216-124	1000	Uninsulated ferrule, sleeve for 10 mm²/AWG 8 , 12 mm strip length, L: 12 mm , D: 5.8 mm, D ₂ : 4.5 mm	 216-109	250
Uninsulated ferrule, sleeve for 0.5 mm²/AWG 22 , 8 mm strip length, L: 8 mm , D: 2.1 mm, D ₂ : 1 mm	 216-101	1000	Uninsulated ferrule, sleeve for 1.5 mm²/AWG 16 , 8 mm strip length, L: 8 mm , D: 2.8 mm, D ₂ : 1.7 mm	 216-104	1000	Uninsulated ferrule, sleeve for 16 mm²/AWG 6 , 15 mm strip length, L: 15 mm , D: 7.5 mm, D ₂ : 5.8 mm	 216-110	250

Ferrules

Insulated ferrules

Electrolytic copper, electro tin-plated,
acc. to DIN 46288, part 4/09.09



0.25 – 0.5 mm ²	Item No.	Pack. Unit	0.75 – 1.5 mm ²	Item No.	Pack. Unit	2.08 – 16 mm ²	Item No.	Pack. Unit
Insulated ferrule, sleeve for 0.25 mm²/AWG 24 , 7.5 mm strip length, L: 10 mm, L₁: 6 mm , D: 2.3 mm, D ₁ : 1.8 mm, D ₂ : 0.85 mm, yellow	 216-321	1000	Insulated ferrule, sleeve for 0.75 mm²/AWG 20 , 8 mm strip length, L: 12 mm, L₁: 6 mm , D: 3.3 mm, D ₁ : 2.8 mm, D ₂ : 1.2 mm, gray	 216-222	1000	Insulated ferrule, sleeve for 2.08 mm²/AWG 14 , 10 mm strip length, L: 15 mm, L₁: 8 mm , D: 4.8 mm, D ₁ : 4.2 mm, D ₂ : 2.05 mm, yellow	 216-205	1000
Insulated ferrule, sleeve for 0.25 mm²/AWG 24 , 9.5 mm strip length, L: 12 mm, L₁: 8 mm , D: 2.3 mm, D ₁ : 1.8 mm, D ₂ : 0.85 mm, yellow	 216-301	1000	Insulated ferrule, sleeve for 0.75 mm²/AWG 20 , 10 mm strip length, L: 14 mm, L₁: 8 mm , D: 3.3 mm, D ₁ : 2.8 mm, D ₂ : 1.2 mm, gray	 216-202	1000	Insulated ferrule, sleeve for 2.5 mm²/AWG 14 , 10 mm strip length, L: 15 mm, L₁: 8 mm , D: 4.7 mm, D ₁ : 4.2 mm, D ₂ : 2.2 mm, blue	 216-206	1000
Insulated ferrule, sleeve for 0.34 mm²/AWG 24 , 7.5 mm strip length, L: 10 mm, L₁: 6 mm , D: 2.5 mm, D ₁ : 2 mm, D ₂ : 0.85 mm, green	 216-322	1000	Insulated ferrule, sleeve for 1 mm²/AWG 18 , 8 mm strip length, L: 12 mm, L₁: 6 mm , D: 3.5 mm, D ₁ : 3 mm, D ₂ : 1.4 mm, red	 216-223	1000	Insulated ferrule, sleeve for 4 mm²/AWG 12 , 12 mm strip length, L: 18 mm, L₁: 10 mm , D: 5.4 mm, D ₁ : 4.8 mm, D ₂ : 2.8 mm, gray	 216-207	1000
Insulated ferrule, sleeve for 0.34 mm²/AWG 24 , 9.5 mm strip length, L: 12 mm, L₁: 8 mm , D: 2.5 mm, D ₁ : 2 mm, D ₂ : 0.85 mm, green	 216-302	1000	Insulated ferrule, sleeve for 1 mm²/AWG 18 , 10 mm strip length, L: 14 mm, L₁: 8 mm , D: 3.5 mm, D ₁ : 3 mm, D ₂ : 1.4 mm, red	 216-203	1000	Insulated ferrule, sleeve for 6 mm²/AWG 10 , 14 mm strip length, L: 20 mm, L₁: 12 mm , D: 6.9 mm, D ₁ : 6.3 mm, D ₂ : 3.5 mm, yellow	 216-208	100
Insulated ferrule, sleeve for 0.5 mm²/AWG 22 , 7.5 mm strip length, L: 12 mm, L₁: 6 mm , D: 3.1 mm, D ₁ : 2.6 mm, D ₂ : 1 mm, white	 216-221	1000	Insulated ferrule, sleeve for 1.5 mm²/AWG 16 , 8 mm strip length, L: 12 mm, L₁: 6 mm , D: 4 mm, D ₁ : 3.5 mm, D ₂ : 1.7 mm, black	 216-224	1000	Insulated ferrule, sleeve for 10 mm²/AWG 8 , 16 mm strip length, L: 22 mm, L₁: 12 mm , D: 8.4 mm, D ₁ : 7.6 mm, D ₂ : 4.5 mm, red	 216-209	100
Insulated ferrule, sleeve for 0.5 mm²/AWG 22 , 9.5 mm strip length, L: 14 mm, L₁: 8 mm , D: 3.1 mm, D ₁ : 2.6 mm, D ₂ : 1 mm white	 216-201	1000	Insulated ferrule, sleeve for 1.5 mm²/AWG 16 , 10 mm strip length, L: 14 mm, L₁: 8 mm , D: 4 mm, D ₁ : 3.5 mm, D ₂ : 1.7 mm, black	 216-204	1000	Insulated ferrule, sleeve for 16 mm²/AWG 6 , 23 mm strip length, L: 28 mm, L₁: 18 mm , D: 9.6 mm, D ₁ : 8.8 mm, D ₂ : 5.8 mm, blue	 216-210	100



Voltage tester

Profi-LCD+

Voltage tester

Profi-LED+



Item No.	Pack. Unit	Item No.	Pack. Unit
Profi-LCD+, 2-pole voltage tester with LCD display, removable test probes, 4 mm Ø Measuring range: 6 – 1000 V AC/DC Protection class: IP65 Resistance measurement: up to 2000 Ω		Profi-LED+, 2-pole voltage tester with LED display, removable test probes, 4 mm Ø Measuring range: 6 – 1000 V AC/DC Protection class: IP65 Resistance measurement: up to 2000 Ω	
206-807	1	206-806	1
Product Accessories		Product Accessories	
Replacement test probes, 4 mm Ø (2 pcs)		Replacement test probes, 4 mm Ø (2 pcs)	
 206-808	1	 206-808	1

**Additional Profi LCD+ features:**

- Automatic measurement range selection
- Single-pole phase testing AC >100 V
- Two-pole sequence testing (R and L)
- Continuity testing
- FI/RCD testing (30 mA) via buttons
- One-hand operation for SCHUKO and CEE sockets
- LED torch lamp function
- Automatic backlight
- Auto power-off function
- CAT IV 1000 V
- TÜV/GS tested and approved
- IEC/EN 61243-3 (DIN VDE 0682-401)

**Additional Profi LED+ features:**


- Automatic measurement range selection
- Single-pole phase testing AC >100 V
- Two-pole sequence testing (R and L)
- Continuity testing
- FI/RCD testing (30 mA) via buttons
- One-hand operation for SCHUKO and CEE sockets
- LED torch lamp function
- CAT IV 1000 V
- TÜV/GS tested and approved
- IEC/EN 61243-3 (DIN VDE 0682-401)

**Profi-LCD+ and Profi-LED+:**

- Improved socket contact via 4 mm Ø test probes
- Removable test probes for small test ports (suitable for all WAGO terminal blocks)

Digital multimeter Multi-Tester	Digital clamp meter Amp-Tester	Voltage tester TESTBOY
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Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Multi-Tester, digital multimeter with non-contact voltage tester, with bag Measuring range: 600 V AC/DC, 10 A AC/DC Resistance measurement: up to 20 MΩ		Amp-Tester, digital clamp meter, true RMS measurement, with bag Measuring range: 0.01 - 200 A AC/DC, up to 400 Hz (sinus) Protection class: IP44		TESTBOY, non-contact voltage tester, with integrated flashlight Voltage range: 12 - 1000 VAC	
206-810	1	206-815	1	206-804	1
Product Accessories					
Replacement test leads, red/black					
		206-811	1		



Additional Multi-Tester features:

- Contact-less voltage test AC >100 V (optical and acoustical)
- Resistance measurement up to 20 MΩ
- Acoustical continuity test
- Diode test
- Data hold function
- Auto power-off function
- LED torch lamp function
- CAT IV 600 V
- TÜV/GS tested and approved
- IEC/EN 61243-3 (DIN VDE 0682-401)



Additional Amp-Tester features:

- AC and DC current measurement
- True RMS measurement
- Data hold function
- Maximum jaw opening: 21 mm Ø
- Compact design for measuring in tight spaces
- Resolution: 0.01 A at 40 A
- Resolution: 0.1 A at 200 A
- Sampling rate: 3 times per second
- Auto power-off function
- CAT III 300 V
- TÜV/GS tested and approved
- IEC/EN 61243-3 (DIN VDE 0682-401)



A device that will reliably detect AC voltage in cables, sockets, fuses, switches, outlets, etc.

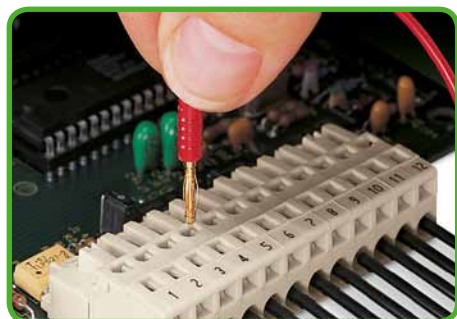
The voltage tester detects:

- Live conductors
- Cable breaks
- Blown fuses
- Defective switches
- Defective lamps

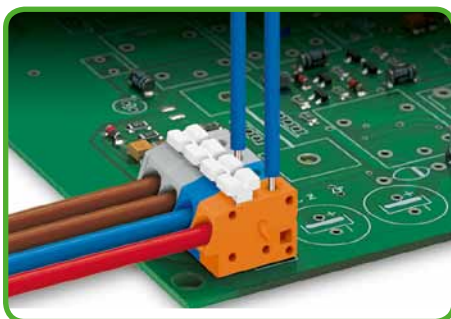
Test plugs	Test pin	
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Item No.	Pack. Unit	Item No.	Pack. Unit
Test plug, 2 mm Ø, 500 mm cable length		Test pin, 1 mm Ø, with solder connection for test cable	
red	210-136	50	735-500
			1
Test plug, 2.3 mm Ø, 500 mm cable length			
yellow	210-137	50	



Testing with 2 mm Ø test plug.



Testing with 1 mm Ø test pin, tip contact.

"Alu-Plus" contact paste		
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Item No.	Pack. Unit
"Alu-Plus" syringe, contains 20 ml "Alu-Plus" contact paste for reliable connection of solid aluminum conductors* up to 4 mm ² /AWG 12 in WAGO spring-clamp terminal blocks	
249-130	20 (4 x 5)
Use "Alu-Plus" contact paste when terminating solid aluminum conductors in WAGO spring-clamp terminal blocks.	

WAGO "Alu-Plus" contact paste also allows WAGO spring-clamp terminal blocks to be reliably terminated with solid aluminum conductors up to 4 mm²/AWG 12.

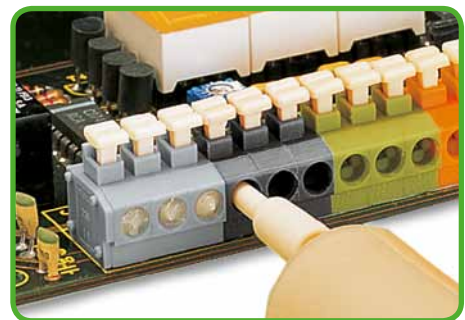
"Alu-Plus" Contact Paste:

- Prevents fresh oxidation at the clamping point
- Prevents electrolytic corrosion between aluminum and copper conductors.
- Provides long-term protection against corrosion

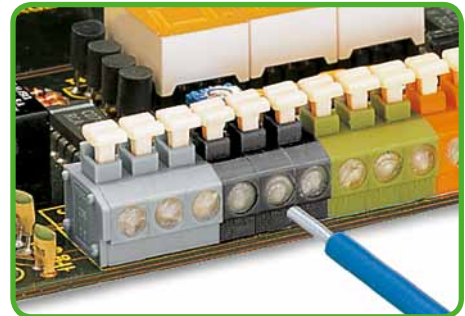
Using terminal blocks with CAGE CLAMP® Spring Pressure Connection Technology, aluminum conductors must first be cleaned and then immediately be inserted into the clamping units filled with WAGO "Alu-Plus" contact paste.

It is, of course, also possible to apply WAGO "Alu-Plus" additionally on the whole surface of the aluminum conductor before termination.

Please note that the nominal currents must be adapted to the reduced conductivity of the aluminum conductors:
2.5 mm² / AWG 14 = 16 A,
4 mm² / AWG 12 = 22 A



1. Push nozzle of the "Alu-Plus" syringe into each conductor entry hole (one after the other).

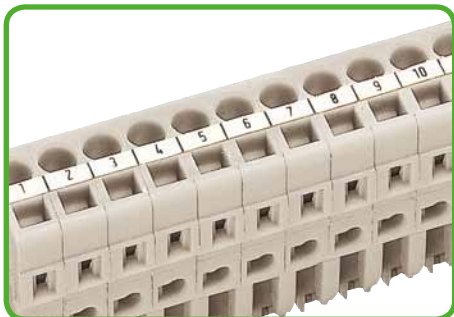


2. Press plunger down until "Alu-Plus" has filled all conductor entry holes.

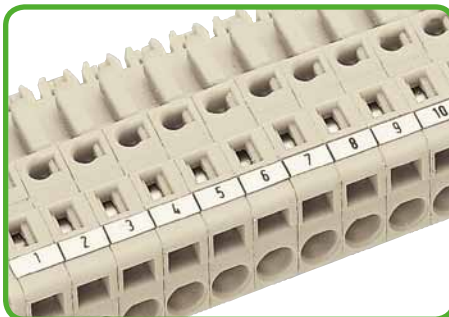
* Aluminum conductors according to IEC 61545, Class B, "Alloy 1370" with a tensile strength of 90 - 180 N/mm² and a tensile strain of 1 - 4%.

Self-adhesive marking strips on DIN A4 card

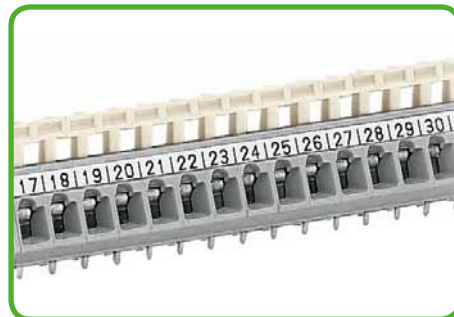
Pin spacing: 2.5 mm, 2.54 mm, 3.5 mm, 3.81 mm, 3.96 mm, 4 mm, 5 mm



MCS marking parallel to conductor entry



MCS marking perpendicular to conductor entry



Marking - PCB terminal blocks (256 Series)

Pin Spacing: 2.5 mm/0.098 in

	Marking	Item No.	Pack. Unit
suitable for MCS-MICRO male and female connectors with conductor connection (perpendicular to conductor entry) and Series: 218 233 234 250	1 - 16 (400 x)	210-331/250-202	Marking strip height: 2.3 mm 1 card / 100 strips
	17 - 32 (400 x)	210-331/250-204	1 card / 100 strips
	33 - 48 (400 x)	210-331/250-206	1 card / 100 strips
	1 - 48 (400 x)	210-331/250-207	1 card / 100 strips

Pin Spacing: 2.54 mm/0.1 in

	Marking	Item No.	Pack. Unit
suitable for Series: 218 233 234 250	1 - 16 (400 x)	210-331/254-202	Marking strip height: 2.3 mm 1 card / 100 strips
	17 - 32 (400 x)	210-331/254-204	1 card / 100 strips
	33 - 48 (400 x)	210-331/254-206	1 card / 100 strips
	1 - 48 (100 x)	210-331/254-207	1 card / 100 strips

Pin Spacing: 3.5 mm/0.138 in

	Marking	Item No.	Pack. Unit
suitable for MCS-MINI male and female connectors with conductor connection (perpendicular to conductor entry) and Series: 250 252 739 805	1 - 16 (240 x)	210-332/350-202	Marking strip height: 3 mm 1 card / 80 strips
	17 - 32 (240 x)	210-332/350-204	1 card / 80 strips
	33 - 48 (240 x)	210-332/350-206	1 card / 80 strips

Pin Spacing: 3.81 mm/0.15 in

	Marking	Item No.	Pack. Unit
suitable for Series: 235 734 735 739	1 - 16 (160 x)	210-332/381-202	Marking strip height: 3 mm 1 card / 80 strips
	17 - 32 (160 x)	210-332/381-204	1 card / 80 strips
	33 - 48 (160 x)	210-332/381-206	1 card / 80 strips
	1 - 32 (80 x)	210-332/381-205	1 card / 80 strips

Pin Spacing: 3.96 mm/0.156 in

	Marking	Item No.	Pack. Unit
suitable for 235 Series	1 - 16 (160 x)	210-332/396-202	Marking strip height: 3 mm 1 card / 80 strips
	17 - 32 (160 x)	210-332/396-204	1 card / 80 strips
	33 - 48 (160 x)	210-332/396-206	1 card / 80 strips
	1 - 32 (80 x)	210-332/396-205	1 card / 80 strips

Pin Spacing: 4 mm/0.157 in

	Marking	Item No.	Pack. Unit
suitable for 235 Series	1 - 16 (160 x)	210-332/400-202	Marking strip height: 3 mm 1 card / 80 strips
	17 - 32 (160 x)	210-332/400-204	1 card / 80 strips
	33 - 48 (160 x)	210-332/400-206	1 card / 80 strips
	1 - 32 (80 x)	210-332/400-205	1 card / 80 strips

Pin Spacing: 5 mm/0.197 in

	Marking	Item No.	Pack. Unit
suitable for MCS-MIDI male and female connectors with conductor connection (perpendicular to conductor entry) and Series: 235 236 250 253 254 255 256 257 736 737 738 739 740 741 745 806 816	1 - 16 (160 x)	210-332/500-202	Marking strip height: 3 mm 1 card / 80 strips
	17 - 32 (160 x)	210-332/500-204	1 card / 80 strips
	33 - 48 (160 x)	210-332/500-206	1 card / 80 strips
	1 - 32 (80 x)	210-332/500-205	1 card / 80 strips
suitable for MCS-MIDI male and female connectors with CAGE CLAMP® connection (parallel to conductor entry) and 804 Series	1 - 12 (300 x)	210-331/500-103	Marking strip height: 2.3 mm 1 card / 100 strips
	13 - 24 (300 x)	210-331/500-104	1 card / 100 strips

Self-adhesive marking strips on DIN A4 card

Pin spacing: 5.08 mm, 5.75 mm, 7 mm, 7.5 mm, 7.62 mm, 10 mm, 10.16 mm

Pin Spacing: 5.08 mm/0.2 in	Marking	Item No.	Pack. Unit
suitable for MCS-MIDI male and female connectors with conductor connection (perpendicular to conductor entry) and Series: 235 236 254 255 256 257 736 737 738 739 741	1 - 16 (160 x)	210-332/508-202	Marking strip height: 3 mm 1 card / 80 strips
	17 - 32 (160 x)	210-332/508-204	1 card / 80 strips
	33 - 48 (160 x)	210-332/508-206	1 card / 80 strips
	1 - 32 (80 x)	210-332/508-205	1 card / 80 strips
suitable for MCS-MIDI male and female connectors with CAGE CLAMP® connection (parallel to conductor entry)	1 - 12 (200 x)	210-331/508-103	Marking strip height: 2.3 mm 1 card / 100 strips
	13 - 24 (200 x)	210-331/508-104	1 card / 100 strips

Pin Spacing: 5.75 mm/0.226 in	Marking	Item No.	Pack. Unit
suitable for 243 Series	1 - 12 (160 x)	210-332/575-103	Marking strip height: 3 mm 1 card / 80 strips

Pin Spacing: 7 mm	Marking	Item No.	Pack. Unit
suitable for 826 Series	1 - 12 (160 x)	210-332/700-103	Marking strip height: 3 mm 1 card / 80 strips
	12 - 1 (160 x)	210-332/700-102	1 card / 80 strips

Pin Spacing: 7.5 mm/0.295 in	Marking	Item No.	Pack. Unit
suitable for MCS-MIDI male and female connectors with conductor connection (perpendicular to conductor entry) and Series: 235 236 239 250 254 255 256 257 736 737 739 741 746 745	1 - 20 (80 x)	210-332/750-020	Marking strip height: 3 mm 1 card / 80 strips
suitable for MCS-MIDI male and female connectors with CAGE CLAMP® connection (parallel to conductor entry) and 804 Series	1 - 16 (100 x)	210-331/750-202	Marking strip height: 2.3 mm 1 card / 100 strips

Pin Spacing: 7.62 mm/0.3 in	Marking	Item No.	Pack. Unit
suitable for MCS-MIDI male and female connectors with conductor connection (perpendicular to conductor entry) and Series: 235 236 254 255 256 257 736 737 739 741	1 - 20 (80 x)	210-332/762-020	Marking strip height: 3 mm 1 card / 80 strips
suitable for MCS-MIDI male and female connectors with CAGE CLAMP® connection (parallel to conductor entry)	1 - 16 (100 x)	210-331/762-202	Marking strip height: 2.3 mm 1 card / 100 strips
suitable for MCS-MAXI male and female connectors	1 - 16 (100 x)	210-334/762-202	Marking strip height: 5 mm 1 card / 48 strips

Pin Spacing: 10 mm/0.394 in	Marking	Item No.	Pack. Unit
suitable for Series: 235 236 254 255 256 257 736 737 741 745	1 - 16 (80 x)	210-332/1000-202	Marking strip height: 3 mm 1 card / 80 strips
	17 - 32 (80 x)	210-332/1000-204	1 card / 80 strips
	33 - 48 (80 x)	210-332/1000-206	1 card / 80 strips

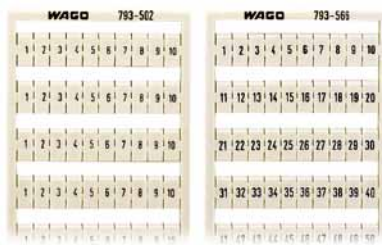
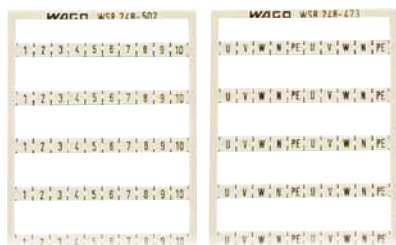
Pin Spacing: 10.16 mm/0.4 in	Marking	Item No.	Pack. Unit
suitable for Series: 235 236 254 255 256 257 736 737 741	1 - 16 (80 x)	210-332/1016-202	Marking strip height: 3 mm 1 card / 80 strips
	17 - 32 (80 x)	210-332/1016-204	1 card / 80 strips
	33 - 48 (80 x)	210-332/1016-206	1 card / 80 strips

Available for all pin spacing dimensions:	Marking Strip Height	Item No.	Pack. Unit
plain	2.3 mm	210-331	1 card / 100 strips
	3 mm	210-332	1 card / 80 strips
	5 mm	210-334	1 card / 48 strips
Only separators printed (xxxx = pin spacing) Ordering example: 5.08 mm pin spacing, 3 mm height: 210-332/0508-001	2.3 mm	210-331/xxxx-001	1 card / 100 strips
	3 mm	210-332/xxxx-001	1 card / 80 strips
	5 mm	210-334/xxxx-001	1 card / 48 strips

* Plain marking cards can be printed using WAGO smart SCRIPT. WAGO smartSCRIPT is part of the WAGO ProServe® Software. You can download this software free of charge at www.wago.com.

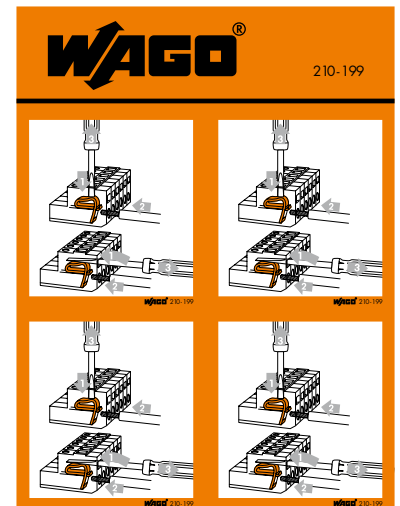
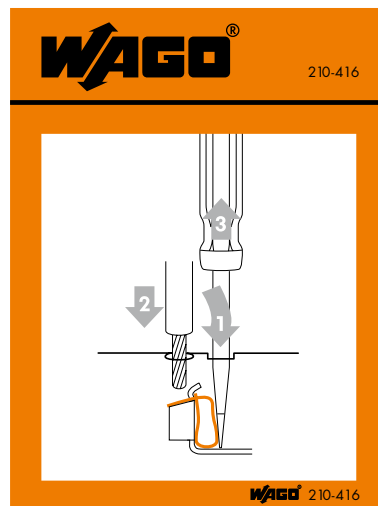
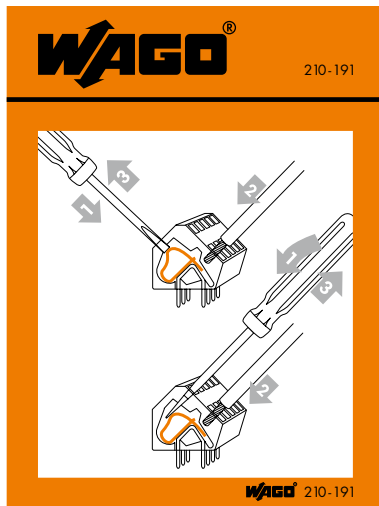
Mini-WSB and WMB Marking Systems

Horizontal marking Consecutive numbers/letters each strip	Horizontal marking Consecutive numbers each strip	Horizontal marking In color
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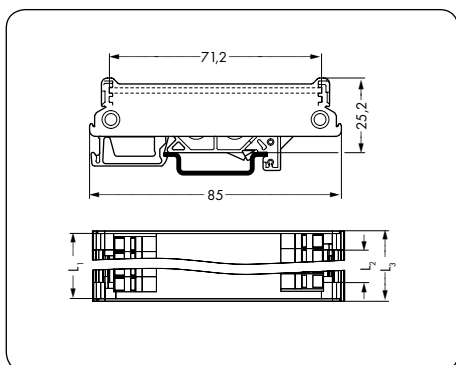
Marking per card	Item No.	Pack. Unit	Marking per card	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
Mini-WSB marker card, e.g., for 745 and 831 Series 10 strips with 10 makers per card			WMB marker card, e.g., for 745 Series (4 mm ² /10 mm pin spacing) and 831 Series 10 strips with 10 makers per card			Item no. suffixes for colored maker cards: e.g., for 745 and 831 Series 10 strips with 10 makers per card		
1 - 10 (10x)	248-502	5 cards	1 - 10 (10x)	793-502	5 cards	yellow	.../000-002	
11 - 20 (10x)	248-503	5 cards	11 - 20 (10x)	793-503	5 cards	red	.../000-005	
21 - 30 (10x)	248-504	5 cards	21 - 30 (10x)	793-504	5 cards	blue	.../000-006	
31 - 40 (10x)	248-505	5 cards	31 - 40 (10x)	793-505	5 cards	gray	.../000-007	
41 - 50 (10x)	248-506	5 cards	41 - 50 (10x)	793-506	5 cards	orange	.../000-012	
51 - 60 (10x)	248-569	5 cards	51 - 60 (10x)	793-569	5 cards	light green	.../000-017	
61 - 70 (10x)	248-570	5 cards	61 - 70 (10x)	793-570	5 cards	green	.../000-023	
71 - 80 (10x)	248-571	5 cards	71 - 80 (10x)	793-571	5 cards	violet	.../000-024	
81 - 90 (10x)	248-572	5 cards	81 - 90 (10x)	793-572	5 cards			
91 - 100 (10x)	248-573	5 cards	91 - 100 (10x)	793-573	5 cards			
						Ordering example: Mini-WSB Marking on yellow card, 41 - 50, 248-506/000-002		
1 - 50 (2x)	248-566	5 cards	1 - 50 (2x)	793-566	5 cards			
51 - 100 (2x)	248-507	5 cards	51 - 100 (2x)	793-507	5 cards			
101 - 150 (2x)	248-508	5 cards	101 - 150 (2x)	793-508	5 cards			
151 - 200 (2x)	248-509	5 cards	151 - 200 (2x)	793-509	5 cards			
201 - 300 (2x)	248-510	5 cards	201 - 300 (2x)	793-510	5 cards			
301 - 400 (2x)	248-511	5 cards	301 - 400 (2x)	793-511	5 cards			
401 - 500 (2x)	248-512	5 cards	401 - 500 (2x)	793-512	5 cards			
501 - 600 (2x)	248-513	5 cards	501 - 600 (2x)	793-513	5 cards			
601 - 700 (2x)	248-514	5 cards	601 - 700 (2x)	793-514	5 cards			
701 - 800 (2x)	248-515	5 cards	701 - 800 (2x)	793-515	5 cards			
801 - 900 (2x)	248-516	5 cards	801 - 900 (2x)	793-516	5 cards			
901 - 1000 (2x)	248-517	5 cards	901 - 1000 (2x)	793-517	5 cards			
1 - 9, ; (10x)	248-565	5 cards	1 - 9, ; (10x)	793-565	5 cards			
U, V, W, N, PE, U, V, W, N, PE; (10x)	248-474	5 cards						
L1, L2, L3, N, PE, L1, L2, L3, N, PE; (10x)	248-472	5 cards						
plain, for self-marking	248-501	5 cards	plain, for self-marking	793-501	5 cards			
Felt-tip pen, for permanent marking			210-110			Note: Please note that colored marker cards are normally on longer delivery and more expensive than standard cards.		

<p>Operating stickers</p> <p>for PCB terminal blocks with CAGE CLAMP® connection</p>	<p>Operating sticker</p> <p>for CAGE CLAMP® connection, universal</p>	<p>Operating sticker</p> <p>für MCS connectors</p>
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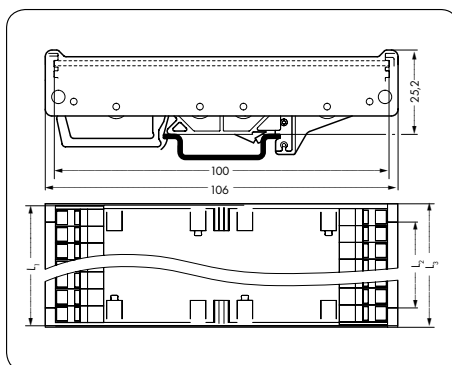


Series	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit		
Operating stickers for PCB terminal blocks Size: 60 mm x 63 mm			Operating sticker for CAGE CLAMP®, universal Size: 60 mm x 63 mm			Operating sticker for MCS with CAGE CLAMP® Size: (30 x 30) mm x 4 mm		
236	210-191	100	210-416	100	210-199	100		
736, 737 and 738	210-406	100						

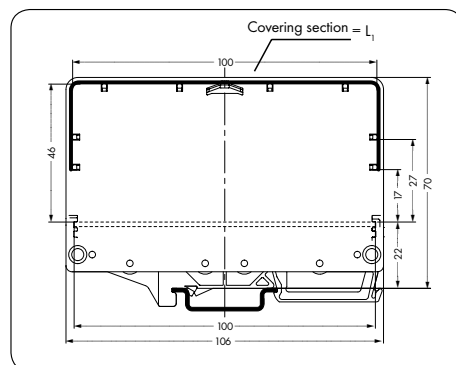
DIN-rail mount PCB carrier Size 1	DIN-rail mount PCB carrier Size 2	DIN-rail mount PCB carrier Size 2 with cover and end plates
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L_1 = PCB length
 $L_2 = L_1 - 11$ mm (L_2 = Carrier base length)
 $L_3 = L_1 + 2$ mm

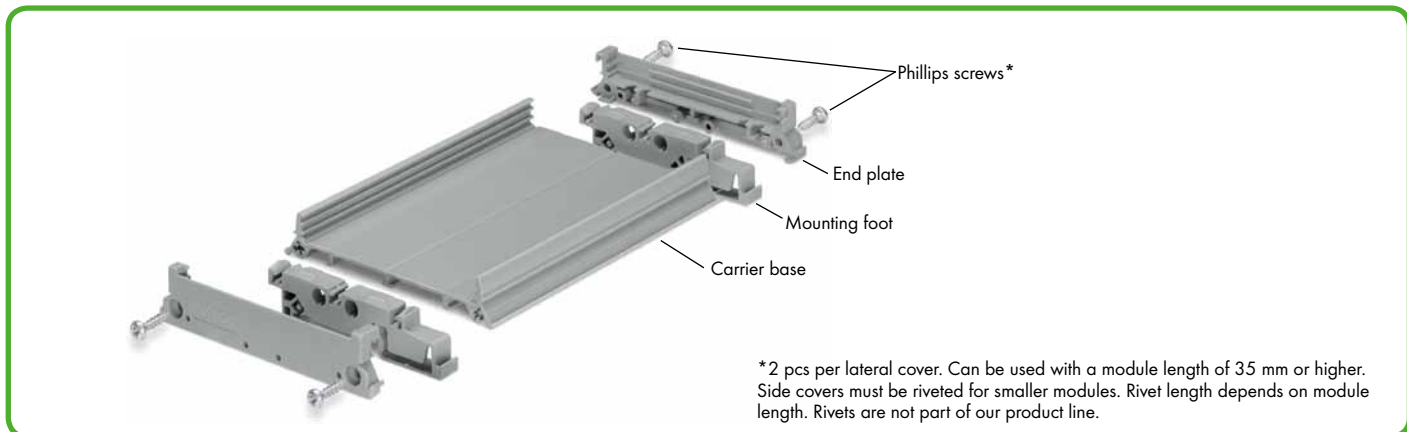


L_1 = PCB/Cover length
 $L_2 = L_1 - 15.8$ mm (L_2 = Carrier base length)
 $L_3 = L_1 + 2$ mm



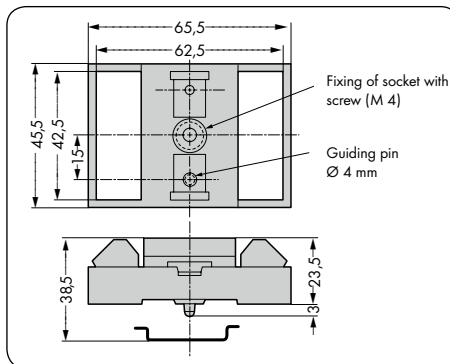
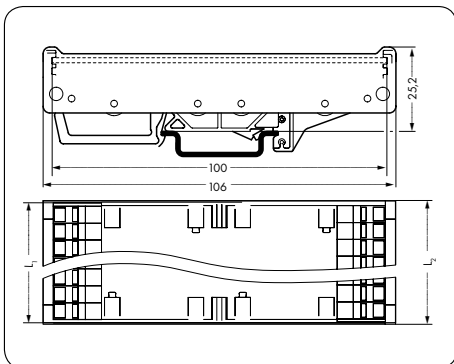
Item No.	Length	Pack. Unit	Item No.	Length	Pack. Unit	Item No.	Length	Pack. Unit
DIN-rail mount PCB carrier, size 1			DIN-rail mount PCB carrier, size 2			DIN-rail mount PCB carrier, size 2 with cover		
End plate, size 1			End plate, size 2			End plate, size 2, "Alu-Plus"		
288-601		1	288-621		1	288-626		1
Mounting foot for DIN 35 rail			Mounting foot for DIN 35 rail			Cover, size 2		
288-602		1	288-622		1	288-627	1 m	1
Carrier base, size 1			Carrier base, size 2					
288-600	1 m	1	288-620	1 m	1			
Phillips screw 2.9 x 13*			Phillips screw 2.9 x 13*					
210-533		25	210-533		25			
Marking strips 7.5 x 0.5 mm								
translucent	709-196	1 m						
white	709-198	1 m						
PCB is not included in the scope of delivery.			PCB is not included in the scope of delivery.			PCB is not included in the scope of delivery.		

Minimum PCB length without carrier base, size 1: $L_1 = 11$ mm, size 2: $L_1 = 15.8$ mm
 Free space between base and PCB bottom side: 5 mm
 PCB tolerances: 1.5 mm \pm 0.2 mm (thickness), \pm 0.2 mm (length/width); -0.1/+0.3 for milling contours



*2 pcs per lateral cover. Can be used with a module length of 35 mm or higher. Side covers must be riveted for smaller modules. Rivet length depends on module length. Rivets are not part of our product line.

DIN-rail mount PCB carrier, complete assembly for 100 x 160 mm PCBs	DIN-rail mount PCB carrier	
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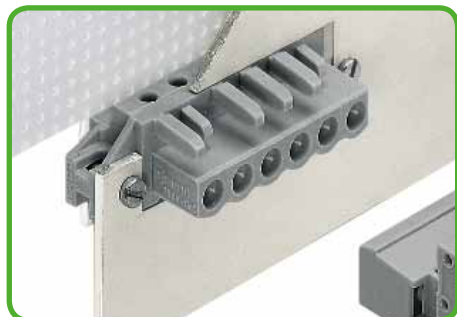
L₁ = 160 mm (PCB length)
L₂ = 162 mm

Item No.	Pack. Unit	Item No.	Pack. Unit
DIN-rail mount PCB carrier, suitable for "Eurocard" PCBs (100 x 160 mm)		DIN-rail mount PCB carrier, for screw fixing or DIN-rail mounting via snap-fit type universal mounting feet, suitable for 42.5 x 62.5 mm PCBs	
288-003	1	288-001	1
		Universal mounting foot, snap-fit type, suitable for DIN 15, 32 and 35 rails	
		288-002	10
PCB is not included in the scope of delivery.		PCB is not included in the scope of delivery.	

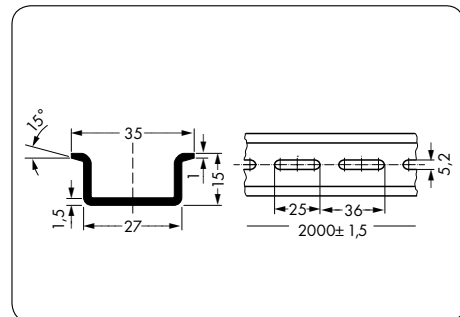
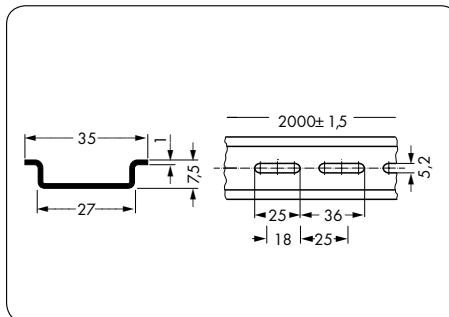
Screws	Steel carrier rails 35 x 7.5 mm to EN 60715	Steel carrier rails 35 x 15 mm to EN 60715
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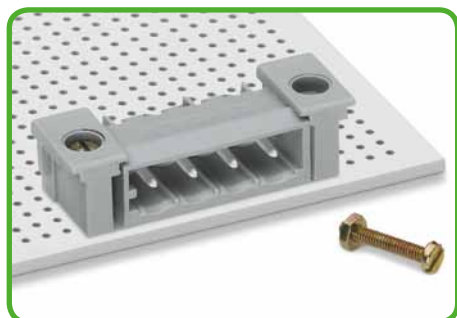
Dimensions	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Tapping screws for 1.8 mm Ø mounting hole			Steel carrier rail, I_N 76 A (based on 1 m length) 35 x 7.5 mm, 1 mm thick, 2 m long		Steel carrier rail, I_N 125 A (based on 1 m length) 35 x 15 mm, 1.5 mm thick, 2 m long	
B 2.2 x 9.5 mm	209-147	200 (2 x 100)	unslotted 210-113	10 (10x1)	unslotted 210-114	10 (10x1)
B 2.2 x 13 mm	231-194	200 (2 x 100)	Hole width: 25 mm; hole spacing: 36 mm slotted 210-112	10 (10x1)	Hole width: 25 mm; hole spacing: 36 mm slotted 210-197	10 (10x1)
Screws with nuts, e.g., for fixing elements or fixing flanges			Hole width 18 mm; hole spacing 25 mm slotted 210-115	10 (10x1)		
M 2 x 12 mm	231-195	200 (2 x 100)				
M 2.5 x 10 mm	231-295	200 (2 x 100)				



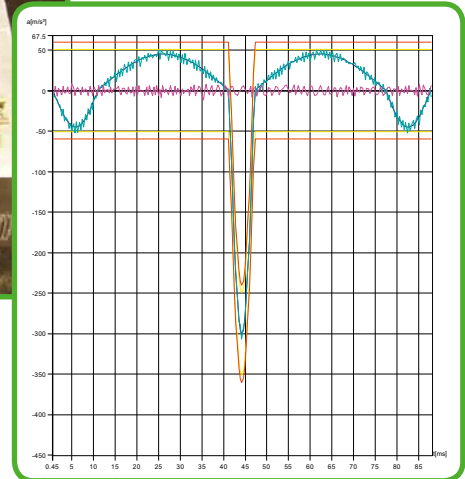
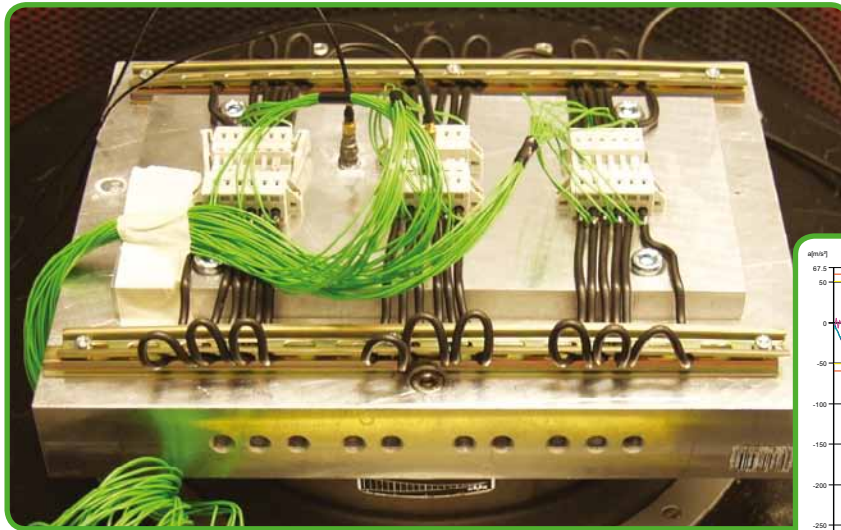
M 2.5 x 10 screws with nuts (e.g., for fixing flanges)



For the entire range of WAGO carrier rails, refer to Full Line Catalog, Volume 1, Rail-Mounted Terminal Block Systems, or go to www.wago.com

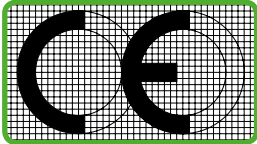


M 2 x 12 screws with nuts (e.g., for fixing elements)



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CE Marking and EC Directives

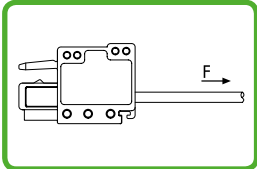


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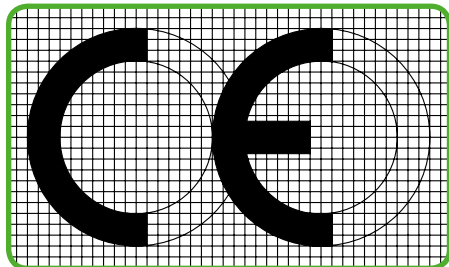
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CE Marking and EC Directives

CE Conformity Marking:

The CE conformity marking consists of the characters "CE" with the following script:



Communauté Européenne
(European Community)

EC directives are legally binding specifications for the European Community. Their goal is aligning legal and administrative specifications in the various EC member countries, in order to prevent trading hindrances arising from different national specifications.

In order to launch a product on the market, it must comply with the relevant directives. Several directives may apply for one single product, for example EMC and low voltage directives.

For WAGO products the following **EC directives** apply:

2006/95/EC – Low Voltage Directive

This directive covers electrical equipment designed for use with a voltage rating between 50 and 1000 V for alternating current and between 75 and 1500 V for direct current.

This directive applies to products such as rail-mounted terminal blocks, terminal blocks, modular terminal blocks, terminal strips, etc. which comply with the specifications of the coordinated European standards and their specific parts (e.g., EN 60947 for rail-mounted terminal blocks and EN 60998 for terminal blocks).

The CE conformity marking must be applied to all electrical equipment, or, should this not be possible, to the smallest packing unit. With the CE marking, manufacturers attest conformity of their products to relevant directives.

In addition to the CE marking, the manufacturer provides an EC "Declaration of Conformity" for the product. The manufacturer must retain this declaration of conformity and present it on request to a national surveillance authority.

2004/108/EC – EMC Directive

This directive applies to any apparatuses, equipment and systems containing electric or electronic components. The BAPT (Bundesamt für Post und Telekommunikation / Federal Office for Post and Telecommunications) is authorized to draw a distinction between elementary and complex components. Elementary components such as resistors, transformers, ICs, relays, etc. are not provided with marking. For complex components, such as electro-motors, electronic cards, thermostats, etc., the EMC directives apply only if these components are sold directly to the end user.

All products subject to the application range of the EMC directive must display the CE marking on their housing. This marking proves conformity with the corresponding standards.

2006/42/EC – Machinery Directive

This directive applies to "complete" machines or equipment.

The manufacturers of machines or equipment are, however, obliged to use components which meet the corresponding EC directives (e.g., low voltage or EMC directives).

Fulfillment and conformity with these directives is required for the free exchange of goods within Europe.

94/9/EC Ex Protection Directive, ATEX 100a

Explosion-proof devices.

General technical information on electrical equipment used in hazardous environments.

In particular, the following standards apply to the design and application of the terminal blocks and connectors contained in this catalog:

IEC 60364-1 VDE 0100-100 /.. Erection of power installations with nominal voltages up to 1000 V - Fundamental principles, assessment of general characteristics, definitions	IEC 60079-7 EN 60079-7 VDE 0170 Part 6 / Electrical apparatus for potentially explosive atmospheres - Increased safety "e"	IEC 61439-1 EN 61439-1 VDE 0660 Part 600 / Low-voltage switchgear and control-gear assemblies - General Rules
EN 50110-1 VDE 0105 Part 1 / Operation of electrical installations	IEC 60079-11 EN 60079-11 VDE 0170 Part 7 / Electrical apparatus for potentially explosive atmospheres - Intrinsic safety "i"	IEC 60439-3 EN 60439-3 VDE 0660 Part 504 /- Particular requirements for low-voltage switchgear and control gear assemblies intended to be installed in places where unskilled persons have access - Distribution boards
IEC 61140 EN 61140 VDE 0140 Part 1 / Protection against electric shock - Common aspects for installation and equipment	IEC 60079-14 EN 60079-14 VDE 0165 Part 1 / Erection of electrical installations in hazardous areas	IEC 61643-1 EN 61643-11 VDE 0675 Part 6-11 / Surge protective devices connected to low-voltage power distribution systems, - Performance requirements and testing methods
VDE 0100-482 HD 384.4.482S1 /Erection of power installations with nominal voltages up to 1000 V Fire protection for special risks or hazards	IEC 60079-15 EN 60079-15 VDE 0170 Part 16 / Electrical apparatus for potentially explosive atmospheres - Type of protection "n"	IEC 60335-1 EN 60335-1 VDE 0700 Part 1 / Safety of household and similar electrical appliances - General requirements
VDE 0100 Part 710 /- Requirements for special installations or locations Part 710: Medically used areas	IEC 60038 HD 472 S1 VDE 0175 / IEC standard voltages	IEC 60598-1 EN 60598-1 VDE 0711 Part 1 / Lighting fixtures - General requirements and tests
VDE 0100-718 /- Requirements for special installations or locations Part: 718: Institutional facilities	DIN VDE 0298 Part 4 / Application of cables and flexible cords in power installations - Recommended values for current carrying capacities of cables for fixed installation in and on buildings and for flexible cables	IEC 60715 EN 60715 /- Standardized carrier rails for mechanical attachment of electrical devices in switchgear units
IEC 60664-1 EN 60664-1 VDE 0110 Part 1 / Insulation coordination for equipment within low-voltage systems - Fundamental principles, requirements and tests	IEC 60112 EN 60112 VDE 0303 Part 11 / Method for determining the comparative and the proof tracking indices of solid insulating materials	IEC 60999-1 EN 60999-1 VDE 0609 Part 1 / Connecting devices -Electrical copper conductors- Safety requirements for screw-type and screwless-type clamping units - General requirements and particular requirements for clamping units for conductors from 0.2 mm ² up to 35 mm ²
IEC 60204-1 EN 60204-1 VDE 0113 Part 1 / Safety of machinery - General requirements	IEC 60529 EN 60529 VDE 0470 Part 1 / Degrees of protection provided by enclosures (IP Code) - Testing equipment and testing method	
IEC 60079-0 EN 60079-0 VDE 0170 Part 1 / Electrical apparatus for potentially explosive atmospheres - General requirements		

- IEC 60999-2
EN 60999-2
VDE 0609 Part 101
/- General requirements and particular requirements for clamping units for conductors from 35 mm² up to 300 mm² (included)
- IEC 60998-1
EN 60998-1
VDE 0613 Part 1
/ Connecting devices for low-voltage circuits for household and similar purposes
- General requirements
- IEC 60998-2-1
EN 60998-2-1
VDE 0613 Part 2-1
/- Special requirements for connecting devices as standalone devices with screw-type terminals
- IEC 60998-2-2
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VDE 0613 Part 2-2
/- Special requirements for connecting devices as standalone devices with screwless-type terminals
- IEC 60998-2-3
EN 60998-2-3
VDE 0613 Part 2-3
/- Special requirements for connecting devices as standalone devices with insulation piercing clamping units
- IEC 60947-1
EN 60947-1
VDE 0660 Part 100
/ Low-voltage switchgear and control gear
- General rules
- IEC 60947-7-1
EN 60947-7-1
VDE 0611 Part 1
/- Ancillary equipment, Terminal blocks for copper conductors
- IEC 60947-7-2
EN 60947-7-2
VDE 0611 Part 3
/- Ancillary equipment; Ground (earth) conductor terminal blocks
- DIN VDE 0611 Part 4
/ Rail-mounted terminal blocks for connection of copper conductors;
- Multi-level distribution rail-mounted terminal blocks
up to 6 mm²
- IEC 60947-7-3
EN 60947-7-3
VDE 0611 Part 6
/- Ancillary equipment; Safety requirements for fuse terminal blocks
- IEC 61984
EN 61984
VDE 0627
/ Connectors - Safety requirements and tests
- IEC 60512-1
EN 60512-1
/ Connectors for electronic equipment - Tests and measurements
- General
- IEC 60320-1
EN 60320-1
VDE 0625 Part 1
/ Appliance couplers for household and similar general purposes
- General requirements
- IEC 60352-1
EN 60352-1
/ Solderless connections;
Wrapped connections
- General requirements,
Test methods and practical guidance
- IEC 60352-2
EN 60352-2
/ Solderless connections;
Solderless crimped connections
- General requirements,
Test methods and practical guidance
- IEC 60352-3
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/ Solderless connections;
Solderless accessible insulation displacement connections
- General requirements,
Test methods and practical guidance
- IEC 60352-4
EN 60352-4
/ Solderless connections;
Solderless non-accessible insulation displacement connections
- General requirements,
Test methods and practical guidance
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Solderless press-in connections
- General requirements,
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Insulation piercing connections
- General requirements,
Test methods and practical guidance
- IEC 60352-7
EN 60352-7
/ Solderless connections;
Spring clamp connections
- General requirements,
Test methods and practical guidance

Tests and Testing Procedures per IEC/EN Standards

Products such as connecting devices, rail-mounted terminal blocks and connectors, etc., have their own product-specific test specifications. The following sections with the most important tests are limited to a description of the test procedures and an explanation of the test purpose. The data shown (e.g., voltages, temperatures, forces) only serve as illustration and may differ depending on the test.

Mechanical Tests

All WAGO products meet requirements for the following mechanical tests:

• Termination Requirements

Conductor Termination

Two WAGO connection systems, PUSH WIRE® and CAGE CLAMP®, are proven on the market for Spring Pressure Termination Technology:

The PUSH WIRE® connection for applications requiring solid conductors (e.g., for lighting and building wiring, telecommunications, house communication or alarm systems. Conductor sizes: 0.2 – 4 mm² (AWG 24 to 12).

The **universal CAGE CLAMP® spring connection** for solid, stranded and fine-stranded conductors, designed for a variety of industrial, electrical and electronic applications (e.g., fine-stranded conduc-

tors in the elevator industry, in power stations, in the chemical and automotive industry and aboard ships).

Conductor sizes: 0.08 – 35 mm² (AWG 28 to 2).

The **CAGE CLAMP®S connection** is a further development of the universal CAGE CLAMP® spring connection, allowing the termination of 0.2 – 16 mm² (AWG 24 to 6) solid, stranded and fine-stranded conductors 25 mm² (AWG 4) only “f-st” and offering all the benefits and safety of the original CAGE CLAMP®. Furthermore, CAGE CLAMP®S connection technology allows solid and stranded conductors from

0.5 – 16 mm² (AWG 20 to 6), as well as 0.5 – 16 mm² (AWG 20 to 6) feruled stranded conductors to be terminated by simply pushing them in. Fine-stranded conductors of small or very small size are highly flexible, and deform when pushed against the conductor stop in terminal blocks. As a result, the conductor insulation – not the copper conductor – may be clamped, causing intermittent contact or no contact at all. In order to prevent conductor insulation from being inserted into the clamp, insulation stops are available, even providing protection for 0.08 mm² (AWG 28) conductors.

Rated Cross-Sections and Connectable Conductors

I. According to IEC 60999-1 / EN 60999-1 / VDE 0609 Part 1, Table 1

Rated cross section	Theoretical diameter of largest conductor							Connectable conductors	
	Metric			AWG				Rigid	Flexible
	Rigid		Flexible	Rigid		Flexible			
	Solid	Stranded			^{b)} Solid	^{b)} Class B Stranded	^{c)} Class I, K, M Stranded		
mm ²	mm	mm	mm	Conductor size	mm	mm	mm		
0.2	0.51	0.53	0.61	24	0.54	0.61	0.64	To be defined in the corresponding product standard	
0.34	0.63	0.66	0.8	22	0.68	0.71	0.8		
0.5	0.9	1.1	1.1	20	0.85	0.97	1.02		
0.75	1.0	1.2	1.3	18	1.07	1.23	1.28		
1.0	1.2	1.4	1.5	–	–	–	–		
1.5	1.5	1.7	1.8	16	1.35	1.55	1.60		
2.5	1.9	2.2	2.3	14	1.71	1.95	2.08		
4.0	2.4	2.7	2.9	12	2.15	2.45	2.70		
6.0	2.9	3.3	3.9	10	2.72	3.09	3.36		
10.0	3.7	4.2	5.1	8	3.34	3.89	4.32		
16.0	4.6	5.3	6.3	6	3.2	4.91	5.73		
25.0	–	6.6	7.8	4	5.45	6.18	7.26		
35.0	–	7.9	9.2	2	6.87	7.78	9.02		

NOTE: The diameters of the largest rigid and flexible conductors are based on Table 1 in accordance with IEC 60228 A and IEC 60344 and on ASTM B172-71 [4], IECA Publication S-19-81 [5], IECA Publication S-66-524 [6] and IECA Publication S-66-516 [7] for AWG conductors,

a) Dimensions for class 5 flexible conductors only, according to IEC 60228 A,

b) Nominal diameter + 5 %

c) Largest diameter for conductors of classes I, K, M + 5 %

In practical use, the conductor cross-sections are approx. 5 % below the values stated in the table!

According to IEC 60999-1/EN 60999-1/VDE 0609 requirements for clamping units (Part 1, Section 7.1):

Clamping units must be able to clamp unprepared conductors.

Under normal operating conditions, direct clamping (i.e., direct conductor connection to the current bar of the terminal block) provides optimal contact quality since all risk factors arising from anti-splaying methods are prevented. Occasionally, conductor anti-splaying protection may be required, including various methods (see illustrations below).

For applications in special areas with extremely corrosive atmospheres, special conditions apply.

In this case, WAGO recommends using either solid copper conductors or fine-stranded copper conductors with properly crimped, tin-coated copper ferrules or copper pin terminals.

As with solid copper conductors, the fine strands are crimped to a dense inner core. This prevents ingress of the aggressive atmosphere (depending on the ppm concentration), which can diffuse into the conductor bundle along the individual strands and cause corrosion deposits between individual strands and the clamping point.

One Conductor per Clamping Unit

A number of VDE specifications specify that **only one conductor must be connected per clamping unit** (e.g., DIN VDE 0611, Part 4, 02.91, Section 3.1.9). The same applies to the recommendations of the German Automotive Industry Association (VDA) "Supply specification for the electrical equipment of machines, mechanical installations and buildings in the automotive industry" according to Section 15.1.1.3; Draft 8.93.

Other VDE and EN specifications likewise recommend the connection of **only one conductor per clamping unit**, unless the clamping unit is specifically tested and approved for the connection of several conductors, for example: VDE 0609, Part 1, 12.00/ EN 60999-1:2000, Paragraph 7.1 VDE 0660-600-1, 06.10/ EN61439-1: 2009, Paragraph 8.6.3 VDE 0113, Part 1, 06.07/ EN 60204-1:2006, Paragraph 13.1.1 This WAGO principle is the basis for a number of other technical and economic advantages:

- Each conductor may be terminated or removed without affecting previously connected conductors.
- Where re-wiring is required, only the conductor to be changed is removed from the clamping point, all other conductors remain safely clamped.
- Each conductor is clamped independently.
- Any combination of conductor cross section can be connected.

WAGO provides 2-conductor terminal blocks and connectors to increase the number of clamping units.

II. According to IEC 60999-2 / EN 60999-2 / VDE 0609 Part 101, Table 1:

Rated cross section mm ²	Theoretical diameter of largest conductor					Connectable conductors	
	Metric		AWG/Kcmil				
	Rigid Stranded	Fine-stranded ^{a)}	Gage	Rigid Stranded	Fine-stranded ^{a)}	Rigid	Flexible
50	9.1	11	0	9.64	12.08	To be defined in the corresponding product standard.	
70	11	13.1	00	11.17	13.54		
95	12.9	15.1	000	12.54	15.33		
-	-	-	0000	14.08	17.22		
120	14.5	17	250	15.34	19.01		
150	16.2	19	300	16.8	20.48		
185	18	21	350	18.16	22.05		
-	-	-	400	19.42	24.05		
240	20.6	24	500	21.68	26.57		
300	23.1	27	600	23.82	30.03		

a) Dimensions for class 5 flexible conductors only, according to IEC 60228A.

NOTE: The diameters of the largest rigid and flexible conductors are based on Table 1 and Table 3 of IEC 60228 A and, on ASTM B 172-71 [1], IECA Publication S-19-81 [2], IECA Publication S-66-524 [3] and IECA Publication S-66-516 [7] for AWG conductors.



Tip-bonded conductor



Ultrasonically bonded conductor



Crimped pin terminals (gas-tight), preferably made of copper with a tin-plated surface.



Tin-plated copper ferrule (gas-tight, crimped)

Anti-splaying methods require a terminal block one size larger than the nominal cross-section of the conductor to be terminated.

The cross section values assigned to the individual products with ferrules are based on the WAGO Variocrimp method from all sides.

Gas-tight, crimped twin ferrules may be used, provided the ferrule is inserted all the way into the clamping unit and that there is a sufficient clearance and creepage distance between adjacent potentials.

- Pull-Out Test to IEC/EN 60947-7-1, IEC/EN 60998-2-2, IEC/EN 60999-1

This test simulates the mechanical stress on the clamping unit when, for example, the installer pushes the conductor aside to better access/operate the adjacent clamping unit, or verifies if the conductor is connected properly by briefly pulling on it. During the test, a pull-out force is applied without jerking, for one minute, to the connected conductor. The pulling force is selected according to the cross-sectional area. The larger the cross section of the conductor, the higher the pull-out force that is selected. For example, the pulling force is 40 N for a conductor having a cross section of 1.5 mm² (AWG 16) and 100 N for a conductor with a cross section of 16 mm² (AWG 6). The values specified by the standard are the same for both screw-clamp and spring-clamp terminal blocks. During the test, the conductor must neither slip out of the clamping unit, nor break near the clamping unit.

Conductor Pull-Out Forces

The clamping units of screwless terminal blocks must withstand the pull-out forces as follows:

IEC 60947-1/EN 60947-1/VDE 0660, Part 100, Table 5

Low-voltage switchgear, General rules

IEC 60947-7-1/EN 60947-7-1/

VDE 0611, Part 1,

Rail-mounted terminal blocks for copper conductors

IEC 60998-2-1/EN 60998-2-1/

VDE 0613, Part 2-1, Table 104

IEC 60998-2-2/ EN 60998-2-2/VDE 0613, Part 2-2, Table 103:

Connecting devices for low-voltage circuits for household and similar purposes.

Particular requirements for connecting devices as separate entities with screw-clamp or screwless terminal blocks.

IEC 60999-1/EN 60999-1/VDE 0609, Part 1, Table 3

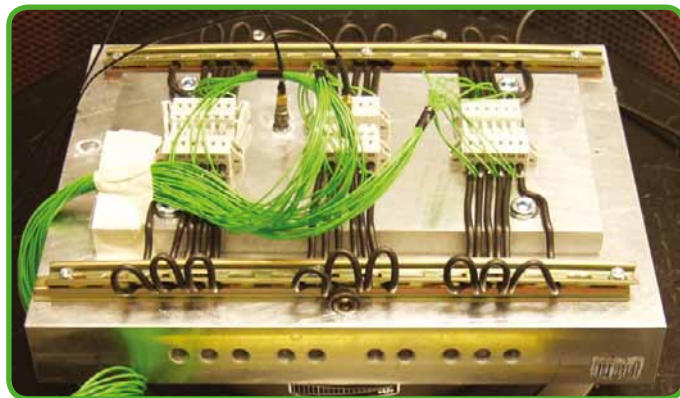
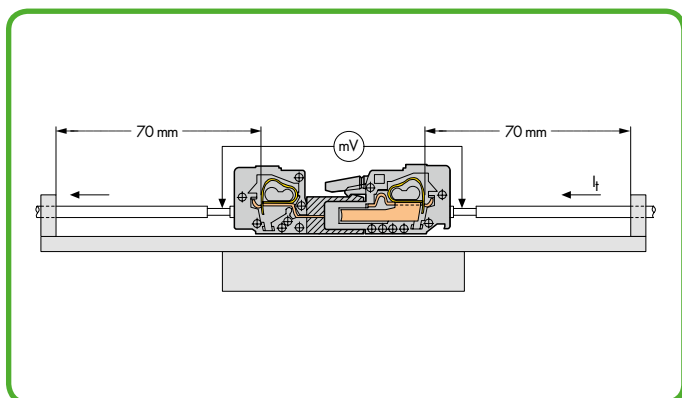
IEC 60999-2/EN 60999-2, /VDE 0609, Part 101, Table 2

Safety requirements for screw-clamp and screwless clamping units for electrical copper conductors.

Rated cross-section		Pull-out forces per IEC/EN		
mm ²	AWG/MCM	60947-7-1 N	60998-2-2 N	60999-1/-2 N
0.2	24	10	10	10
0.34	22	15	15	15
0.5	20	20	20	20
0.75	18	30	30	30
1.0	–	35	35	35
1.5	16	40	40	40
2.5	14	50	50	50
4.0	12	60	60	60
6.0	10	80	80	80
10	8	90	90	90
16	6	100	100	100
25	4	135	135	135
–	3	156		
35	2	190	190	190
–	1	236		
50	0	236		236
70	00	285		285
95	000	351		351
–	0000	427		427
120	250	427		427
150	300	427		427
185	350	503		503
–	400	503		503
240	500	578		578
300	600	578		578

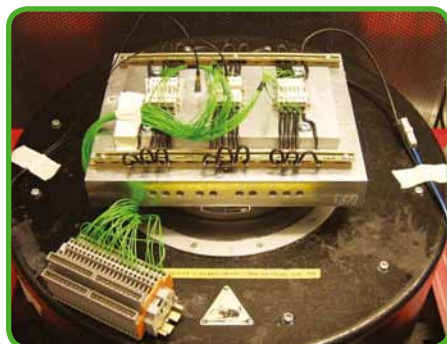
• Shock/Vibration Test to IEC/EN 60068-2-6; Shipbuilding GL, LR, DNV; Railway Applications IEC/EN 61373

This test determines whether vibrations, such as those produced in the vicinity of machines or in vehicles, will permanently affect the electrical connection, or if contact breaks will occur during vibrations. Using a vibration table, the test specimen is subjected to vibration in each of the X, Y and Z axes (see pictures). The amplitude, acceleration and, in particular the frequency of the vibration must vary during the test.

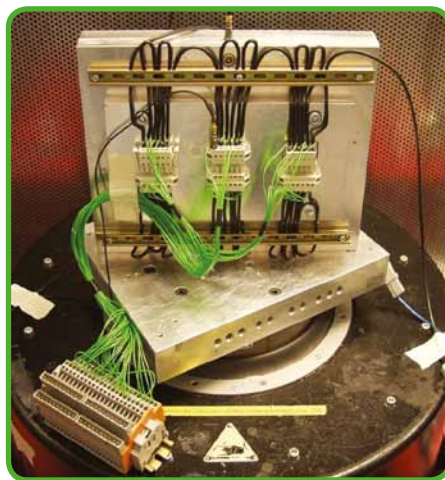


The "open length" of the conductor up to point where the conductor is attached in the application shall be kept as short as possible, in this example shown here 70 mm, for example.

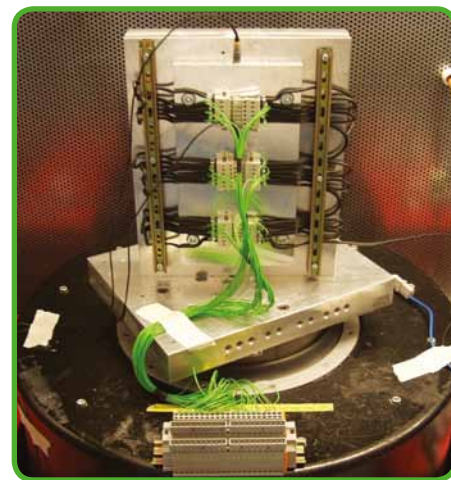
1st axis



2nd axis



3rd axis



The exact test procedure shall vary considerably, depending on how the product is to be used.

Applications according to IEC/EN 60068-2-6	Associated test levels
Devices attached to heavy, rotating machines.	1 Hz - 35 Hz, 50 m/s ² (5 g) or 100 m/s ² (10 g)
Devices designed for use in large-scale power plants and general industrial applications.	10 Hz - 55 Hz, 20 m/s ² (2 g) or 50 m/s ² (5 g)
Devices designed for use in large-scale power plants and general industrial applications if it has been determined that detectable vibration components greater than 55 Hz exist.	10 Hz - 150 Hz, 20 m/s ² (2 g) or 50 m/s ² (5 g)

Some test specifications require the determination of possible resonant frequencies, i.e., determining if resonance occurs within the frequency spectrum will be passed through. Analysis of specimen behavior under the influence of resonant frequencies is performed via special testing procedure.

Beyond the standardized testing mentioned above, each market segment performs additional testing. Examples include a railway company testing on rolling electrical equipment, or by testing by shipping classification societies such as Germanischen Lloyd, Lloyd's Register of Shipping, Det Norske Veritas. Though the requirements of such test procedures are particularly demanding, test arrangements are identical for all of them. During vibrations, possible contact breaks are monitored on an oscilloscope. Voltage drop is measured before and after the test to detect permanent failures, i.e., checking if electrical resistance at the clamping unit has not increased beyond the permissible limit. The smaller this value is, the smaller the contact resistance of the clamping unit.

The test is passed if:

The conductor has neither slipped out of the terminal block nor been damaged, the maximum permissible voltage drop has not been exceeded and neither contact breaks have occurred nor a defined break time has been exceeded.

The test specimen must not be damaged in any way that might affect future use.

Since their inception, CAGE CLAMP® and CAGE CLAMP®S have been routinely tested for their resistance to shock/vibration in connection with approval tests.

Note:

These test results are based solely on tests conducted under "laboratory conditions." Usability of the connectors in actual applications must be investigated by the user.

- Shock Test per IEC/EN 60068-2-27; Railway Applications IEC/EN 61373)

The shock test is similar to the vibration test except that, instead of continuous vibrations, single shocks are applied to the specimen. Shock tests are usually performed with an acceleration of 15 g, for example, over a period of 11 ms. Tests for special requirements often call for much higher values. Like the vibration tests, shock tests are primarily used to test the voltage drop variation or contact breaks, etc.

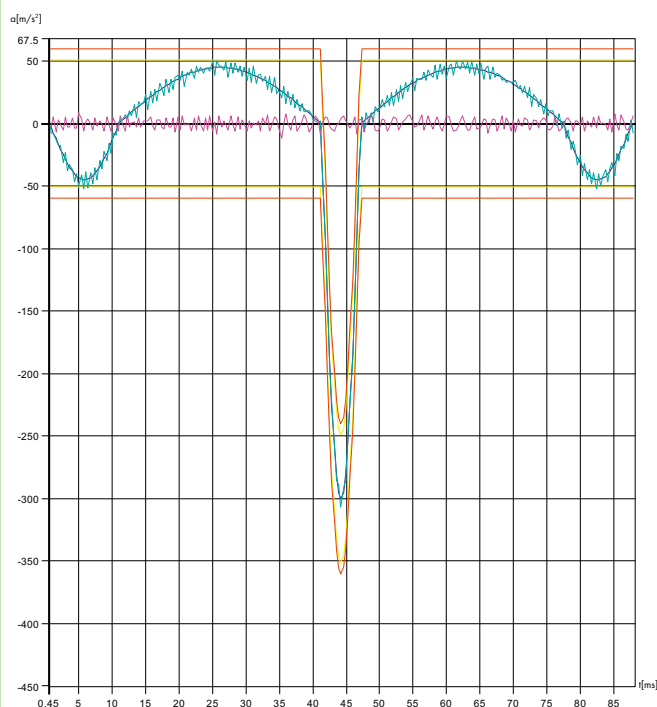
E.g., shock requirement

per IEC/EN 60068-2-27 (half-sine shock)

30 g acceleration, 6 ms duration

Shock direction: 3 axes (3 shocks in positive direction and 3 shocks in negative direction)

Time dependent course of the shock / 30 g, 6 ms, Negative direction



Status : Stop
Cause : Number of shocks ready!

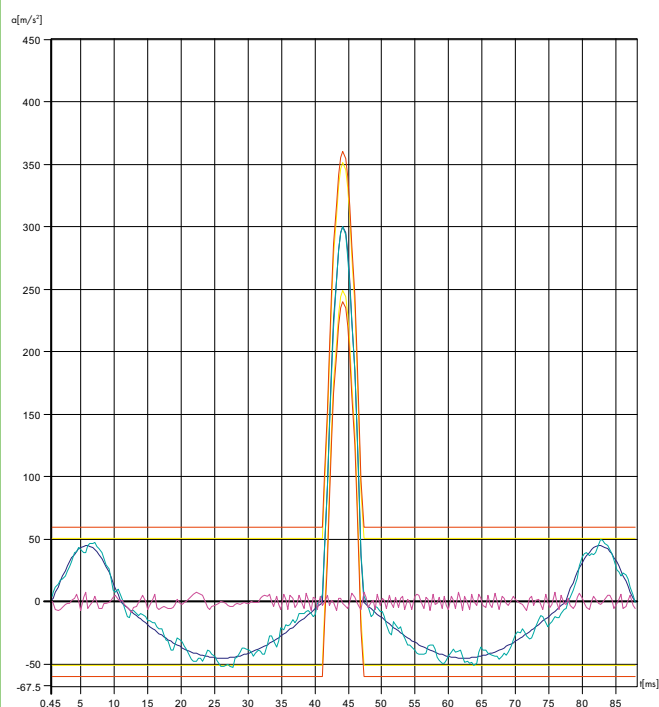
Date : 30.04.2009	Control : active
Time : 07:27:59	Total number of shocks : 3
Modulation : 42.0 %	Shocks processed : 3
Warning limits : inactive	Top acceleration : 306.71 m/s ²
Turn-off limits : inactive	Speed : 1.13 m/s

Legend:
■ Upper warning limits ■ Lower warning limits ■ Upper turn-off limits ■ Lower turn-off limits ■ Scheduled curve of acc.
■ Actual curve of acc. ■ Measurement curve of acceleration

RMS - SWR 900 - Testmanager

Test file: 68-2-27.SHO (Shock)

Time dependent course of the shock / 30 g, 6 ms, Positive direction



Status : Stop
Cause : Number of shocks ready!

Date : 30.04.2009	Control : active
Time : 07:26:38	Total number of shocks : 3
Modulation : 43.1 %	Shocks processed : 3
Warning limits : inactive	Top acceleration : 305.74 m/s ²
Turn-off limits : inactive	Speed : 1.13 m/s

Legend:
■ Upper warning limits ■ Lower warning limits ■ Upper turn-off limits ■ Lower turn-off limits ■ Set acceleration curve
■ Actual acceleration curve ■ Measured acceleration curve

RMS - SWR 900 - Testmanager

Test file: 68-2-27.SHO (Shock)

Electrical Tests

All WAGO products meet requirements for the following electrical tests:

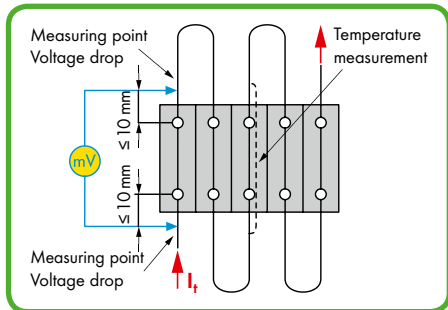
- Temperature-Rise Test to IEC/EN 61984, IEC/EN 60947-7-1, IEC/EN 60998-1

The Temperature-Rise Test examines the clamping point, including surrounding insulation, at rated current, over-current and short-circuit current levels. Unless otherwise specified in the related equipment specification, e.g., by specifying the nominal currents of the equipment, terminal blocks and connectors are tested with current loads as specified in the respective construction specification.

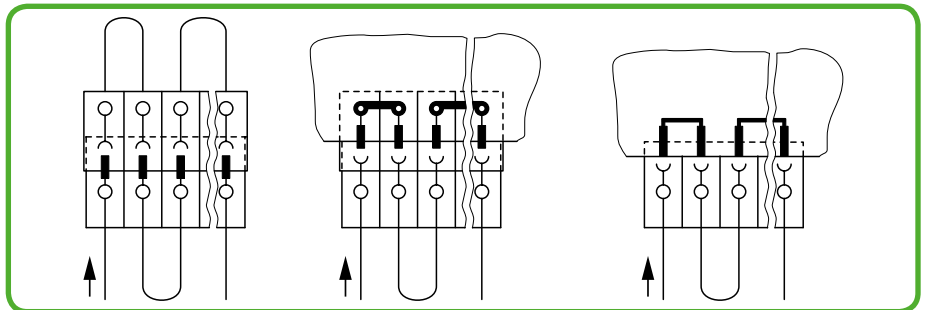
For rail-mounted terminal blocks according to IEC 60947-7-1/EN 60947-7-1/VDE 0611, Part 1, or terminal blocks according to IEC 60998-1/EN 60998-1/ VDE 0613, Part 1, the temperature rise must not exceed 45 Kelvin.

Connectors must withstand the upper and lower values of the temperature range as specified in the detailed specification or manufacturer’s specification.

The sum of the ambient temperature and the temperature rise of a connector shall not exceed the upper temperature limit.



Test arrangement: "Temperature-Rise Test" acc. to IEC/EN 60947-7-1



Test arrangement of the "laboratory conditions." temperature-rise test acc. to IEC/EN 61984

Rated cross-section	Test current acc. to IEC/EN		Conductor size	Test current acc. to IEC/EN 60947-7-1 Table 5
	60947-7-1 Table 4	60998-1 Table 2		
mm ²	A	A	AWG/MCM	A
0.2	4	4	24	4
0.34	5	5	22	6
0.5	6	6	20	8
0.75	9	9	18	10
1.0	13.5	13.5	-	-
1.5	17.5	17.5	16	16
2.5	24	24	14	22
4.0	32	32	12	29
6.0	41	41	10	38
10	57	57	8	50
16	76	76	6	67
25	101	101	4	90
35	125	125	2	121
-	-	-	1	139
50	150	-	0	162
70	192	-	00	185
95	232	-	000	217
-	-	-	0000	242
120	269	-	250 kcmil	271
150	309	-	300 kcmil	309
185	353	-	350 kcmil	353
240	415	-	500 kcmil	415
300	520	-	600 kcmil	520

• Current-Carrying Capacity Curve (Derating Curve) to EN 60512-5-2

Both the design requirements (e.g., dimensions) and the current-carrying capacity of a connector must be checked by the user when selecting connectors.

This information depends on the following factors: conductor size, ambient temperature, number of simultaneously loaded poles, internal resistance of the connector, PCB layout, width and thickness of the printed circuits and connector materials.

A current-carrying capacity curve (basic curve) is determined based on the EN 60512-5-2 standard, taking into account the upper temperature limit.

The relationship between current, ambient temperature and temperature rise up to the connector's upper temperature limit is illustrated via current-carrying capacity curve (derating curve, reduction factor 0.8).

The connector shall only be operated up to this temperature limit (sum of self-generated heat and ambient temperature) without being damaged or destroyed during operation.

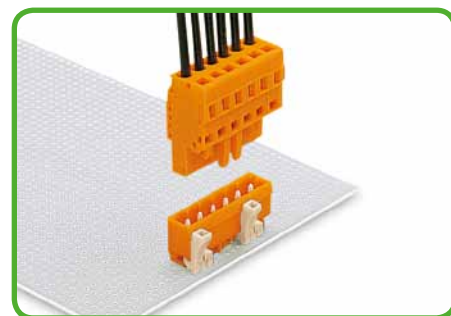
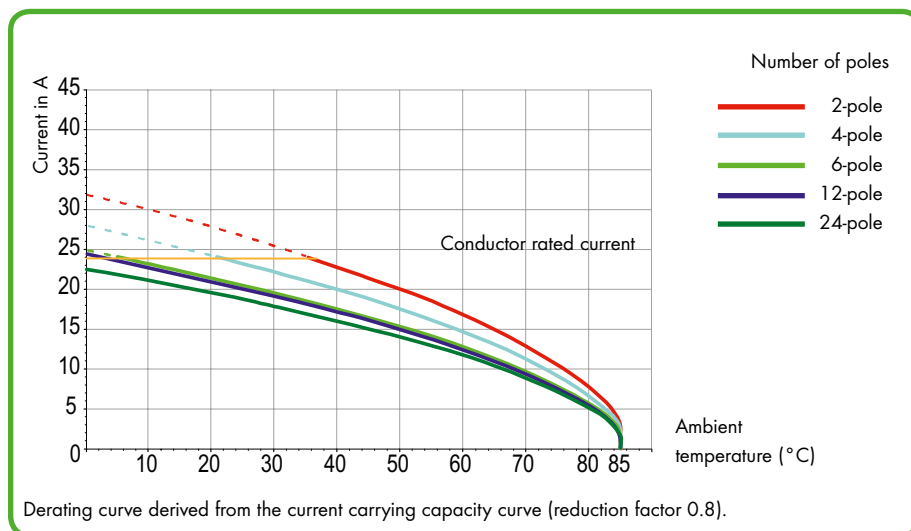
The nominal current figures given for WAGO PCB connectors are based on the maximum number of poles, the maximum conductor cross section and a maximum temperature rise of 45 K.

Note: Current-carrying capacity curves merely document the self-generated heat of the connectors and terminal blocks under defined test conditions (conductor length, commoning of solder pins).

Usability of the components in actual applications must be investigated by the user.

Functioning of a current-carrying capacity curve (derating curve) according to EN 60512-5-2 is shown by an application using a derating curve for the MULTI CONNECTION SYSTEM:

This application requires each pole of a 4-pole connector be subjected to a load of 20 A. Based on the derating curve determined for this number of poles with a conductor cross section of 2.5 mm², it has been determined the maximum ambient temperature is 39°C. The current must be reduced at higher ambient temperatures, e.g., to 11 A at an ambient temperature of 70°C.



Male header with straight solder pins
Female connector with CAGE CLAMP® connection

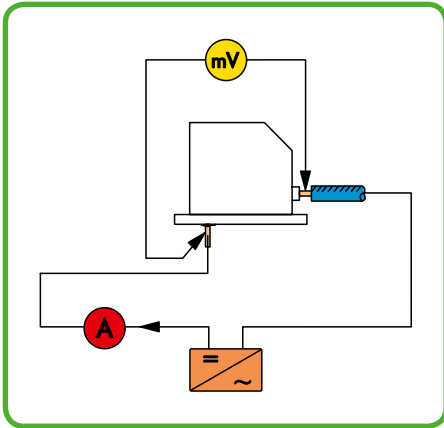
The non-reduced current-carrying capacity curves (basic curves, reduction factor 1) can be used when selecting WAGO PCB terminal blocks!

The nominal current values given are based on a 4-pole terminal block with a temperature rise of 45 K.



• Voltage Drop Test to IEC/EN 60947-7-1, IEC/EN 60999-1

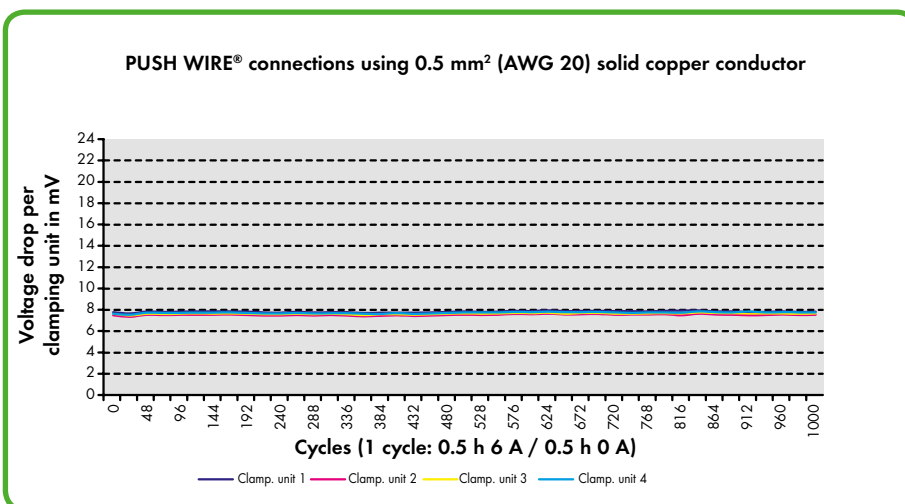
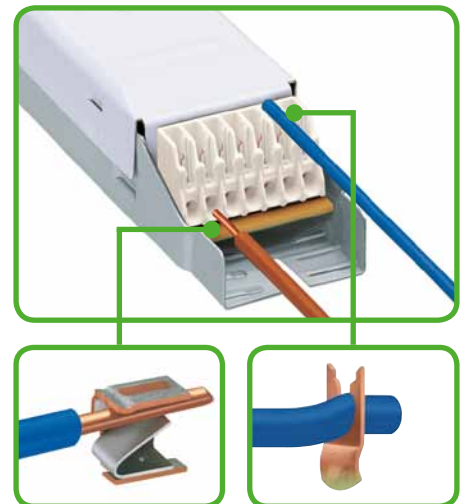
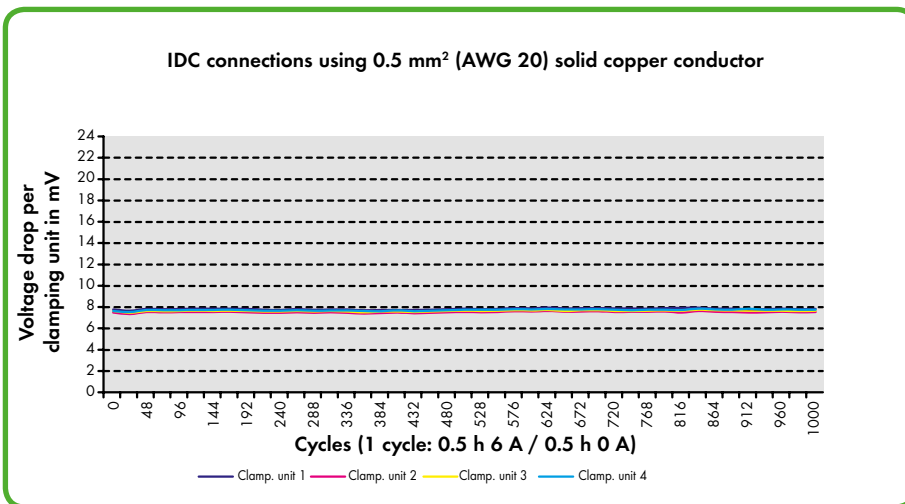
The Voltage Drop Test evaluates clamping point quality under stresses such as vibrations, temperature changes and corrosive influences, in order to verify that the contact point is gas-tight.



Test arrangement: "Voltage Drop Test"

Example: Current load cycling test result for Combi PCB terminal blocks with IDC and PUSH WIRE® connections

Voltage drop variation over longer periods under current load cycling conditions is shown for 251-3xx Combi PCB terminal blocks using solid copper conductors. The diagram shows that the voltage drop is constant, far beyond the 192 cycles required in IEC/EN 60998-2-2.



(The voltage drop was determined at rated current)

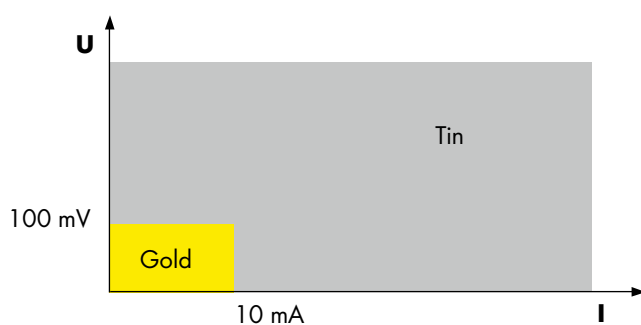
• Minimum Current / Special Connector Applications

The contact surfaces of WAGO connectors are tin-plated. This surface exhibits excellent conductivity, along with outstanding corrosion protection. Pollution layer deposits on this pure tin coating may be broken when the contacts are connected, providing low contact resistance.

The following information regarding proper selection of suitable WAGO components should be taken into account for applications in which connectors are used with minimal current and voltage levels and under special conditions, involving, for example, temperature, aggressive gases, vibration, shock, etc.

Signal corruption may occur in applications with minimal current and voltage levels under the special conditions cited above. In such cases, we recommend using gold-plated contacts. Here, the user must always examine the suitability of the connectors for the application at hand.

The diagram below is based on practical experience.



WAGO also offers connectors with gold-plated contacts upon request.

Fig.: Selection of surface properties for special conditions

Tests and Testing Procedures per IEC/EN Standards (continued)

Electrical Tests (continued)

• Insulation Parameters to IEC/EN 60664-1

Clearances and Creepage Distances

The following generally applies:
The equipment specification contains data for the measurement of clearances and creepage distances, or refers to the data contained in the new revised edition of the basic standard DIN EN 60664-1/VDE 0110, Part 1. DIN EN 60664-1/VDE 0110, Part 1 contains new clearances and creepage distances in compliance with insulation coordination requirements. That is, the insulation parameters of equipment are assigned to:

- anticipated surge voltages,
- parameters of the protection device against surge voltage
- anticipated environmental conditions and the protection measures against pollution.

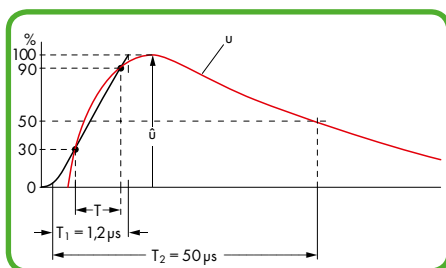
This standard is based on IEC 60604-1.

Clearances, Rated Surge Voltages, Overvoltage Categories, Pollution Degrees

Surge voltages (Table 1) are a decisive factor in determining air distances. The basis forms the **overvoltage category**, i.e., the allocation of the equipment to the expected surge voltage, and the **conductor-ground voltage** derived from the rated line voltage in installations with a grounded Y (star) point.

In ungrounded installations, or in installations where the conductor is not grounded, the voltage between conductors is applicable in the same way as conductor voltage to ground.

① Voltage pulse 1.2/50



acc. to DIN EN 60060-1 / VDE 0432, Part 1

Overvoltage Categories for Electrical Equipment:

A specific overvoltage category must be defined on the basis of the following, general description:

- Equipment in **overvoltage category I** is intended for connection to the fixed electrical installations of buildings. Protective measures are taken outside the equipment - either in the fixed installation or between the fixed installation and the equipment - to limit transient overvoltages to the specific level.
- Equipment in **overvoltage category II** is to be connected to the fixed electrical installations of buildings.

Note: Examples of such equipment are household appliances, portable tools and similar loads.

- Equipment in **overvoltage category III** is part of the fixed electrical installations and other equipment where a higher degree of availability is expected.

Note: Examples of such equipment are distribution boards, circuit breakers, wiring systems (IEV 826-06-01, including cables, bus-bars, junction boxes, switches, socket-outlets) in the fixed installation and equipment for industrial use and other equipment, e.g., stationary motors with permanent connection to the fixed installation.

- Equipment in **overvoltage category IV** is for use at or in the proximity of the origin of the electrical installations of buildings upstream of the main distribution board.

Note: Examples include electricity meters, primary overcurrent protection devices and ripple control units.

The rated surge voltage shall be selected from Table 1 corresponding to the overvoltage category specified and to the rated voltage of the equipment.

Table F.1- Rated surge voltage for equipment energized directly from the low-voltage mains (DIN EN 60664-1/VDE 0110, Part 1)

① Voltage curve: 1.2/50 μs acc. to DIN EN 60060-1 / VDE 0432, Part 1

Nominal voltage of the supply system ¹⁾ (mains) based on IEC 60038 ³⁾		Voltage line to neutral derived from nominal voltage a.c. or d.c. up to and including	Rated surge voltage ²⁾			
Three-phase V	Single-phase V		Overvoltage category ⁴⁾			
		V	I V	II V	III V	IV V
		50	330	500	800	1500
		100	500	800	1500	2500
	120-240	150 ⁵⁾	800	1500	2500	4000
230/400 277/480		300	1500	2500	4000	6000
400/690		600	2500	4000	6000	8000
1000		1000	4000	6000	8000	12000

¹⁾ See Annex B for application to existing different low-voltage mains and their nominal voltages.

²⁾ Equipment with these rated overvoltage levels can be used in installations in accordance with IEC 60364-4-443.

³⁾ The / mark indicates a 4-wire, three-phase distribution system. The lower value is the voltage line-to-neutral, while the higher value is the voltage line-to-line. Where only one value is indicated, it refers to 3-wire, three-phase systems and specified the value line-to-line.

⁴⁾ See 4.3.3.2.2 for an explanation of the overvoltage categories.

⁵⁾ The nominal voltages for single-phase systems in Japan are 100 V or 100 - 200 V.

The value for the rated surge voltage is, however, derived from the voltage gaps line-to-neutral for a voltage level of 150 V (see Annex B)

The nominal supply voltage and the corresponding rated surge voltage values apply for grounded and ungrounded circuits.

• Insulation Parameters to IEC/EN 60664-1 (continued)

Pollution Degrees

Pollution factors are all solid, liquid or gaseous foreign matter which may reduce the dielectric strength or the specific surface resistance. Factors are divided into 4 classes based on expected environmental conditions:

		Examples of pollution degrees for assigned areas:
Pollution degree 1:	No pollution, or only dry, non-conductive pollution occurs. The pollution has no influence.	Open, unprotected insulated equipment in air-conditioned or clean, dry rooms.
Pollution degree 2:	Only non-conductive pollution occurs; occasional, temporary conductivity caused by condensation can also be expected.	Open, unprotected insulated equipment in occupied areas, shops, laboratories, mechanical workshops and medical rooms.
Pollution degree 3:	Conductive pollution occurs, or dry, non-conductive pollution occurs which will become conductive due to condensation.	Open, unprotected insulated equipment in industrial, business and farming areas, e.g., unheated rooms, workshops and boiler rooms.
Pollution degree 4:	The pollution generates persistent conductivity caused by conductive dust, rain or wet conditions.	Open, unprotected insulated equipment for outdoor use.

Dimensioning of Clearances

acc. to DIN EN 60664-1/ VDE 0110, Part 1, Table F.2.

Select the minimum clearances in accordance with the rated surge voltages and pollution degree. For the operating life of the equipment, do not go below these minimum clearances.

Table F.2 contains a list of information for Case A, the inhomogeneous field and for Case B, the homogeneous field.

This involves an electric field with essentially constant (Case B) or non-constant (Case A) voltage gradients between the electrodes.

Equipment with a clearance in accordance with Case A, in other words rated for the most unfavorable case, can be employed without evidence of surge voltage testing.

Equipment whose clearances are dimensioned acc. to Case B, or between A and B, requires verification by the surge voltage test.

The clearances shown in Table F.2 are applicable for an installation height of up to 2000 m above sea level.

Values for clearances above 2000 m must be multiplied by a high correction factor in accordance with Table A.2.

Table F.2 - Clearances to Withstand Transient Overvoltages
DIN EN 60664-1/ VDE 0110, Part 1

Required impulse withstand voltage ¹⁾⁵⁾	Minimum clearances in air up to 2000 m above sea level					
	Case A (inhomogeneous field, see 3.15)			Case B homogeneous field (see 3.14)		
	Pollution degree ⁶⁾			Pollution degree ⁶⁾		
	1 mm	2 mm	3 mm	1 mm	2 mm	3 mm
kV						
0.33 ²⁾	0.01	0.2 ³⁾⁴⁾	0.8 ⁴⁾	0.01	0.2 ³⁾⁴⁾	0.8 ⁴⁾
0.40	0.02			0.02		
0.50 ²⁾	0.04			0.04		
0.60	0.06			0.06		
0.80 ²⁾	0.10			0.10		
1.0	0.15			0.15		
1.2	0.25	0.25	0.2	0.3		
1.5 ²⁾	0.5	0.5	0.3			
2.0	1.0	1.0	1.0	0.45	0.45	
2.5 ²⁾	1.5	1.5	1.5	0.60	0.60	
3.0	2.0	2.0	2.0	0.80	0.80	
4.0 ²⁾	3.0	3.0	3.0	1.2	1.2	1.2
5.0	4.0	4.0	4.0	1.5	1.5	1.5
6.0 ²⁾	5.5	5.5	5.5	2.0	2.0	2.0
8.0 ²⁾	8.0	8.0	8.0	3.0	3.0	3.0
10	11	11	11	3.5	3.5	3.5
12 ²⁾	14	14	14	4.5	4.5	4.5
15	18	18	18	5.5	5.5	5.5
20	25	25	25	8.0	8.0	8.0
25	33	33	33	10	10	10
30	40	40	40	12.5	12.5	12.5
40	60	60	60	17	17	17
50	75	75	75	22	22	22
60	90	90	90	27	27	27
80	130	130	130	35	35	35
100	170	170	170	45	45	45

¹⁾ This voltage is

- for functional insulation: the maximum surge voltage expected to occur across the clearance (see 5.1.5);
- for basic insulation directly exposed to or significantly influenced by transient overvoltages from the low-voltage mains (see 4.3.3.3, 4.3.3.4.1 and 5.1.6): and the rated surge voltage for the equipment;
- for other basic insulation (see 4.3.3.4.2): the highest surge voltage that can occur in the circuit for reinforced insulation, see 5.1.6.

²⁾ Preferred values specified in 4.2.3.

³⁾ For printed wiring material, the values for pollution degree 1 apply except that the value may not be less than 0.04 mm, as specified in Table F.4.

⁴⁾ The minimum clearances given for pollution degree 2 and 3 are based on the reduced withstand characteristics of the associated creepage distance under humidity conditions (see IEC 60664-5).

⁵⁾ For parts or circuit within equipment subject to surge voltages according to 4.3.3.4.2 interpolation of values is allowed. However, standardization is achieved by using the preferred series of surge voltage values based on 4.2.3.

⁶⁾ The dimensions for pollution degree 4 are as specified for pollution degree 3, except that the minimum clearance is 1.6 mm.

Table A.2:
Height Correction Factors
(DIN EN 60664-1/VDE 0110, Part 1)



Height (elevation) m	Standard air pressure kPa	Multiplier for distance
2000	80	1
3000	70	1.14
4000	62	1.29
5000	54	1.48
6000	47	1.7
7000	41	1.95
8000	35.5	2.25
9000	30.5	2.62
10000	26.5	3.02
15000	12	6.67
20000	5.5	14.5

Creepage Distances, Rated Voltages, Material Groups

Criteria for dimensioning creepage distances are the rated voltages, pollution degrees and material groups. The pollution degrees specified for the clearances, and its quoted allocation to locations, is also applicable for creepage distances.

Tables F.3 a and F.3 b of DIN EN 60664-1/ VDE 0110, Part 1 contain the rated voltages which have to be considered for dimensioning the minimum creepage distance.

Table F.3a - Single-Phase, 3- or 2-Wire, AC or DC Systems

Nominal voltage of the supply system (mains)*	Voltages for Table F.4	
	For insulation line-to-line ¹⁾	For insulation line-to-ground ¹⁾
	All systems  V	Three-wire systems mid-point grounded  V
12.5	12.5	
24 25	25	
30	32	
42 48 50**	50	
60	63	
30 - 60	63	32
100**	100	
110 120	125	
150**	160	
200	200	
110 - 200	200	100
220	250	
110 - 220 120 - 240	250	
300**	320	
220 - 440	500	250
600**	630	
480 - 960	1000	500
1000**	1000	


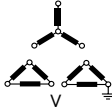
¹⁾ Line-to-ground insulation level for non-grounded or impedance-grounded systems equals that for line-to-line, as the operating voltage to ground of any line can, in practice, approach full line-to-line voltage. This is because the actual voltage to ground is determined by the insulation resistance and capacitive reactance of each line to ground; thus, low (but acceptable) insulation resistance of one line can in effect ground it and raise the other two to full line-to-line voltage to ground.

* For the relationship to rated voltage, see 4.3.2.

**These values correspond to the values given in Table F.1.

• Insulation Parameters to IEC/EN 60664-1 (continued)

Table F.3b - Single-Phase, 4- or 3-Wire AC Systems

Nominal voltage of the supply system (mains)*	Voltages for Table F.4		
	For insulation line-to-line ¹⁾	For insulation line-to-ground ¹⁾	
	All systems	Three-phase 4-wire systems, neutral grounded ²⁾	Three-phase 3-wire systems non-grounded ¹⁾ or corner grounded
V	V	 V	 V
60	63	32	63
110 120 127	125	80	125
150**	160		160
200	200		200
208	200	125	200
220 230 240	250	160	250
300**	320		320
380 400 415	400	250	400
440	500	250	500
480 500	500	320	500
575	630	400	630
600**	630		630
660 690	630	400	630
720 830	800	500	800
960	1000	630	1000
1000**	1000		1000

¹⁾ Line-to-ground insulation level for non-grounded or impedance-grounded systems equals that for line-to-line, as the operating voltage to ground of any line can, in practice, approach full line-to-line voltage. This is because the actual voltage to ground is determined by the insulation resistance and capacitive reactance of each line to ground; thus, low (but acceptable) insulation resistance of one line can in effect ground it and raise the other two to full line-to-line voltage to ground.

²⁾ For equipment used on both three-phase, 4-wire and three-phase 3-wire systems, grounded and non-grounded, use only the values for 3-wire systems.

* For the relationship to rated voltage see 4.3.2.

**These values correspond to the values given in Table F.1.

Material Groups

Insulating materials are classified into four groups according to their CTI (Comparative Tracking Index) as follows:

- Material group I: $600 \leq \text{CTI}$
 Material group II: $400 \leq \text{CTI} < 600$
 Material group III a: $175 \leq \text{CTI} < 400$
 Material group III b: $100 \leq \text{CTI} < 175$

The CTI values above refer to values obtained in accordance with DIN EN 60664-1 / VDE 0110, Part 1 on samples specially made for this purpose and tested with Solution A.

Tests and Testing Procedures per IEC/EN Standards (continued)

Electrical Tests (continued)

Table F.4 - Creepage Distances to Avoid Failure due to Tracking (Excerpt)
DIN EN 60664-1 / VDE 0110, Part 1

Voltage ¹⁾ rms V	Minimum Creepage Distances								
	Printed Wiring Material		Pollution Degree						
	Pollution Degree		Pollution Degree						
	1 All Material Groups	2 All Mat. Gr. except IIIb	1 All Material Groups	2 Material Group I	2 Material Group II	2 Material Group III	3 Material Group I	3 Material Group II	3 Material Group III ²⁾
mm	mm	mm	mm	mm	mm	mm	mm	mm	
10	0.025	0.040	0.080	0.400	0.400	0.400	1.000	1.000	1.000
12.5	0.025	0.040	0.090	0.420	0.420	0.420	1.050	1.050	1.050
16	0.025	0.040	0.100	0.450	0.450	0.450	1.100	1.100	1.100
20	0.025	0.040	0.110	0.480	0.480	0.480	1.200	1.200	1.200
25	0.025	0.040	0.125	0.500	0.500	0.500	1.250	1.250	1.250
32	0.025	0.040	0.14	0.53	0.53	0.53	1.30	1.30	1.30
40	0.025	0.040	0.16	0.56	0.80	1.10	1.40	1.60	1.80
50	0.025	0.040	0.18	0.60	0.85	1.20	1.50	1.70	1.90
63	0.040	0.063	0.20	0.63	0.90	1.25	1.60	1.80	2.00
80	0.063	0.100	0.22	0.67	0.95	1.30	1.70	1.90	2.10
100	0.100	0.160	0.25	0.71	1.00	1.40	1.80	2.00	2.20
125	0.160	0.250	0.28	0.75	1.05	1.50	1.90	2.10	2.40
160	0.250	0.400	0.32	0.80	1.10	1.60	2.00	2.20	2.50
200	0.400	0.630	0.42	1.00	1.40	2.00	2.50	2.80	3.20
250	0.560	1.00	0.56	1.25	1.80	2.50	3.20	3.60	4.00
320	0.75	1.60	0.75	1.60	2.20	3.20	4.00	4.50	5.00
400	1.0	2.0	1.0	2.0	2.8	4.0	5.0	5.6	6.3
500	1.3	2.5	1.3	2.5	3.6	5.0	6.3	7.1	8.0 (7.9) ⁴⁾
630	1.8	3.2	1.8	3.2	4.5	6.3	8.0 (7.9) ⁴⁾	9.0 (8.4) ⁴⁾	10.0 (9.0) ⁴⁾
800	2.4	4.0	2.4	4.0	5.6	8.0	10.0 (9.0) ⁴⁾	11.0 (9.6) ⁴⁾	12.5 (10.2) ⁴⁾
1000	3.2	5.0	3.2	5.0	7.1	10.0	12.5 (10.2) ⁴⁾	14.0 (11.2) ⁴⁾	16.0 (12.8) ⁴⁾
1250			4.2	6.3	9.0	12.5	16.0 (12.8) ⁴⁾	18.0 (14.4) ⁴⁾	20.0 (16.0) ⁴⁾
1600			5.6	8.0	11.0	16.0	20.0 (16.0) ⁴⁾	22.0 (17.6) ⁴⁾	25.0 (20.0) ⁴⁾
2000			7.5	10.0	14.0	20.0	25.0 (20.0) ⁴⁾	28.0 (22.4) ⁴⁾	32.0 (25.6) ⁴⁾
2500			10.0	12.5	18.0	25.0	32.0 (25.6) ⁴⁾	36.0 (28.8) ⁴⁾	40.0 (32.0) ⁴⁾
3200			12.5	16.0	22.0	32.0	40.0 (32.0) ⁴⁾	45.0 (36.0) ⁴⁾	50.0 (40.0) ⁴⁾
4000			16.0	20.0	28.0	40.0	50.0 (40.0) ⁴⁾	56.0 (44.8) ⁴⁾	63.0 (50.4) ⁴⁾
5000			20.0	25.0	36.0	50.0	63.0 (50.4) ⁴⁾	71.0 (56.8) ⁴⁾	80.0 (64.0) ⁴⁾
6300			25.0	32.0	45.0	63.0	80.0 (64.0) ⁴⁾	90.0 (72.0) ⁴⁾	100.0 (80.0) ⁴⁾
8000			32.0	40.0	56.0	80.0	100.0 (80.0) ⁴⁾	110.0 (88.0) ⁴⁾	125.0 (100.0) ⁴⁾
10000			40.0	50.0	71.0	100.0	125.0 (100.0) ⁴⁾	140.0 (112.0) ⁴⁾	160.0 (128.0) ⁴⁾
12500			50.0 ³⁾	63.0 ³⁾	90.0 ³⁾	125.0 ³⁾			
16000			63.0 ³⁾	80.0 ³⁾	110.0 ³⁾	160.0 ³⁾			
20000			80.0 ³⁾	100.0 ³⁾	140.0 ³⁾	200.0 ³⁾			
25000			100.0 ³⁾	125.0 ³⁾	180.0 ³⁾	250.0 ³⁾			
32000			125.0 ³⁾	160.0 ³⁾	220.0 ³⁾	320.0 ³⁾			
40000			160.0 ³⁾	200.0 ³⁾	280.0 ³⁾	400.0 ³⁾			
50000			200.0 ³⁾	250.0 ³⁾	360.0 ³⁾	500.0 ³⁾			
63000			250.0 ³⁾	320.0 ³⁾	450.0 ³⁾	600.0 ³⁾			

¹⁾ This voltage for:

- functional insulation; the working voltage;
- basic and supplementary insulation of the circuit energized directly from the mains (see 4.3.2.2.1): for the voltage rationalized through Table F.3a or F.3b, based on the rated voltage of the equipment, or the rated insulation voltage;
- basic and supplementary insulation of systems, equipment and internal circuits not energized directly from the mains (see 4.3.2.2.2): the highest rms voltage which can occur in the system, equipment or internal circuit when supplied at rated voltage and under the most onerous combination of operation conditions within equipment rating.

²⁾ Material group IIIb is not recommended for applications in pollution degree 3 above 630V.

³⁾ Provisional data based on extrapolation. Technical committees who have other information based on experience may use their dimensions.

⁴⁾ The values in brackets shall only be applied for reducing creepage distances if a rib is used (see 5.2.5).

The high degree of accuracy of the creepage distances given in the table does not imply that the measuring accuracy must be of the same quality.

- Insulation Parameters to IEC/EN 60664-1 (continued)

Based on the application, WAGO terminal blocks and connectors are suitable for pollution degrees 2 or 3 and for overvoltage categories II or III.

The rated voltages of the WAGO PCB terminal blocks and connectors are based on pollution degree 2 and overvoltage category III in accordance with IEC/EN 60664-1 (insulation parameters).

Example:

WAGO PCB terminal strips, 236 Series
(Pin spacing 5/5.08 mm / 0.197/0.2 in)
 320 V/4kV/2

Rated voltage	320 V DC
Rated surge voltage	4kV
Pollution degree	2
Overvoltage category	III

The specific values for pollution degree 3 and overvoltage category II are also given in the technical data.

The clearances and creepage distances required for defined voltage values in Table 3 of IEC/EN 60998-1 deviate somewhat from the requirements specified in the insulation parameters.

Table 3: Clearances and Creepage Distances
 (IEC/EN 60998-1)

Rated insulation voltage V	Creepage distances, clearances mm
≤ 130	1.5
> 130 and ≤ 250	3.0
> 250 and ≤ 450	4.0
> 450 and ≤ 750	6.0
> 750	8.0

It must be determined in the end application which creepage and clearance requirements are to be observed for approval.

Tests and Testing Procedures per IEC/EN Standards (continued)

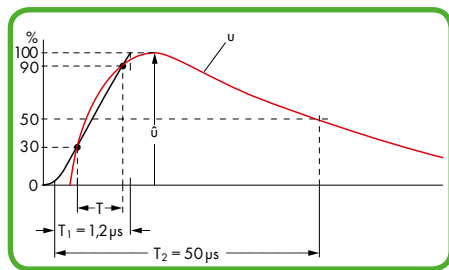
Electrical Tests (continued)

• Power-Frequency Withstand Voltage Test to IEC/EN 60998-1

This test procedure verifies creepage distances. Creepage distances, i.e., the distances of creeping currents, are caused by conductive impurities on the surface of the insulation housing. Apart from the amount of impurities to which a terminal block is subjected, for example, the plastic material and housing design are also involved in generating creeping currents. The insulation material of the housing may be carbonized by a creeping current, further increasing conductivity. The specimen is tested using a power-frequency withstand voltage for a short time. For example, a PCB terminal block designed to operate at 320 V nominal voltage is usually tested using 2500 V alternating voltage for one minute. The test is considered to be passed if no flashovers or breakdowns have occurred.

• Rated Impulse Withstand Voltage Test to IEC/EN 60664-1

This test verifies the clearances of a product. In simplified terms, a clearance is the distance between two poles of a terminal block. If this distance is too small, voltage peaks may cause flashovers or breakdowns. The arrangement of the rated impulse withstand voltage test is identical to that of the power frequency withstand voltage test; the test voltages, however, are comparatively higher and the testing times shorter, e.g., 7.385 kV over 50 μ s (see figure).



Voltage pulse; measurement curve (red) and auxiliary curve (black) for calculating the rate of rise of the pulse and the resulting (virtual) peak of the curve.

- T Time interval for calculating the rate of rise
- T_1 Front time (duration between start of impulse and reaching the peak)
- T_2 Total pulse duration

The test values are the values at sea level as specified in the relevant test specification.
 The values indicated in the catalog correspond to an altitude of 2000 m.
 The test is considered to be passed if no flashovers or breakdowns have occurred.

• IP Ratings for Electrical Equipment to IEC/EN 60529

Alphanumeric nomenclature for type of protection			
Code letters IP	Protection against touch and solid objects or water	IP (Ingress Protection)	
First digit 0 to 6	Indicates degrees of protection against touch or solid objects.	If indicating the degree of protection requires only one digit, the other (second) digit must be substituted for with an X.	
Second digit 0 to 8	Indicates degree of protection against water.		
First Digit:		Second Digit:	
IPOX	No protection against touch, or solid objects	IPX0	No protection against water
IP1X	Protected against solid objects > 50 mm	IPX1	Protected against vertically falling water
IP2X	Protected against solid objects > 12 mm (e.g., finger)	IPX2	Protected against dripping water - 15° angle
IP3X	Protected against solid objects > 2.5 mm	IPX3	Protected against water spray
IP4X	Protected against solid objects > 1 mm	IPX4	Protection against water splash
IP5X	Dust-protected (limited ingress, no harmful deposits)	IPX5	Protected against water jet, e.g., from a nozzle
IP6X	Dust-tight (totally protected against dust)	IPX6	Protected against flooding
		IPX7	Protected against temporary immersion
		IPX8	Protected against continuous immersion

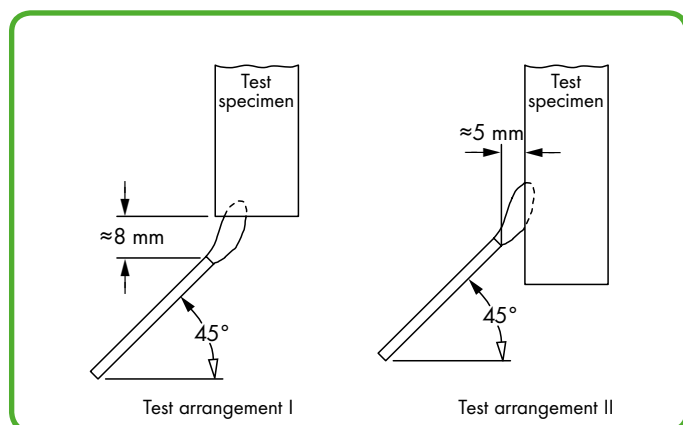
IP vs. NEMA	
IP Code	NEMA
10	1
11	2
54	3
14	3R
54	3S
55	4&4X
52	5
67	6&6P
52	12&12K
54	13

Material Tests

All WAGO products meet requirements for the following material tests:

- Needle Flame Test to IEC/EN 60695-11-5

This test simulates flames that may arise under certain conditions (e.g., fault current over a creepage distance, overloading of parts or components). Nearby parts can also be affected by such flames. Not only is the ignition of the test specimen resulting from an intrinsic defect tested, but also its behavior when other parts are ignited.

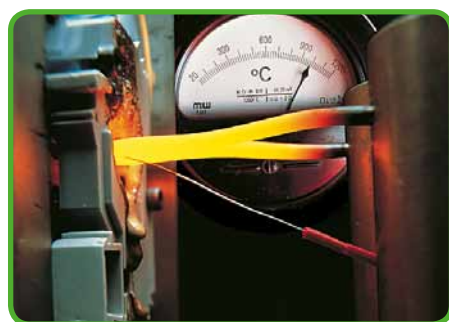


Flames shall not be further fed by the insulation materials used, creating a larger fire. The test specimen is exposed to a standard gas flame during a defined time period (e.g., 10 seconds).

After the test flame has been removed, the specimen must self-extinguish within 30 seconds. Furthermore, a layer of tissue paper located beneath the specimen shall not be ignited by glowing particles falling from the specimen.

- Glow-Wire Test to IEC/EN 60998-1, IEC/EN 60695-2-11

In the event of failure, a high current may cause a conductor to glow.



However, the glowing conductor shall not cause ignition of the product involved (e.g., a rail-mounted terminal block). For the glow-wire test, the tip of the glow-wire is pressed against a surface of the test specimen (see picture).

The position of the test specimen, surface to be tested, test duration and glow-wire temperature (e.g., 960°C over 30 seconds, or 850°C over 5 seconds) are specified in the standards.

The specimen must be positioned such that the tip of the glow-wire acts on the surface section of the specimen (vertical surface of the specimen) that is most like-

ly to be exposed to thermal loading during normal use. As the highest temperature in the event of a fault is anticipated at the contact insert / conductor connection, the tip of the glow-wire must act upon the section of the insulation housing that is the closest to this contact point. The test is passed if there are no visible flames or permanent glowing, or if flames or glowing extinguish within 30 seconds after removal of the glow-wire. Furthermore, a layer of tissue paper located beneath the specimen shall not be ignited by glowing particles falling from the specimen.

Tests and Testing Procedures per IEC/EN Standards (continued)

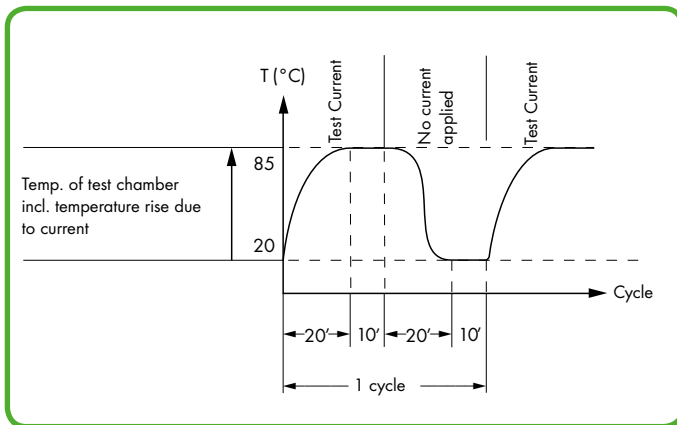
Environmental Tests

The following tests show how a product reacts when exposed to an aggressive environment. Frequently occurring industrial atmospheres capable of influencing the long-term consistency of clamping points are simulated in the thermal chamber for climatic tests.

All WAGO products meet requirements for the following environmental tests:

- Temperature Cycling Test to IEC/EN 60947-7-1, IEC/EN 60998-2-2

This test shows the change of voltage drop over longer periods under temperature cycling conditions. A typical test procedure usually consists of 192 temperature cycles, for example, each cycle having a duration of 60 minutes (see diagram).



The rated current is applied to the test specimen during temperature rise and when the temperature has reached its maximum value; during the second half of the cycle, the current is zero. Voltage drop is measured every 24 cycles and may not exceed a maximum value or vary greatly. The voltage drop measured at the end of the 192nd cycle may not exceed 1.5 times the value measured after the 24th cycle. After the test, an inspection shall show no changes impairing further product use.

- Industrial Atmospheres to EN ISO 6988, IEC/EN 60068-2-42, IEC/EN 60068-2-60

Sulfur and its combustion products are particularly aggressive pollutants commonly found in industrial environments.

A test procedure simulating such corrosive conditions consists of exposing a test specimen to water condensation in variable atmospheres containing sulfur dioxide.



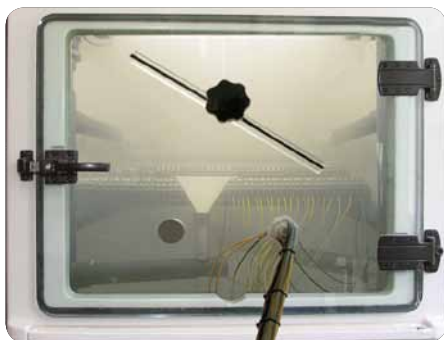
A humid atmosphere is first created in a climatic chamber by heating an aqueous sulfur dioxide solution. After less than half an hour, the test specimen is fully saturated by the condensing vapors and exposed to this atmosphere for eight hours.

After exposure to humid atmosphere, the test specimen is subjected to dry and cooler conditions at room temperature for 16 hours. Depending on the test severity, the specimen is exposed to both these conditions several times. The gas-tightness of the clamping unit is checked by measuring the voltage drop.

In other test procedures, products are exposed to a dry corrosive gas atmosphere containing, sulfide, nitrogen and sulfur oxides or chloride gas. These tests can be performed over a period of 4 to 21 days.

- Salt Spray Test to IEC/EN 60068-2-11; Shipbuilding GL, LR, DNV

This test is similar to the test performed in water condensation alternating atmospheres, except that instead of industrial atmospheres, salt mist conditions will be simulated in a heated test chamber (see picture).



Depending on the test procedure being used, the test specimen is sprayed with salt mist for 16 hours up to 672 hours (4 weeks).

Salt spray tests are widely used, especially for ship approvals.

However, this test is performed differently than the test procedures described previously for general applications:

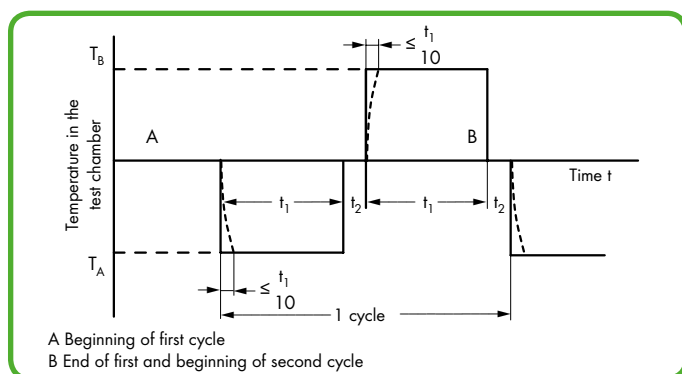
During a typical test, the test specimen is sprayed with a salt solution for two hours and is then stored for seven days in an atmosphere with a relative humidity between 90 and 95 %.

This procedure is repeated four times. Voltage drop measurements are used as an evaluation criterion.

- Quick Change of Temperature to IEC/EN 60068-2-14

Without air-conditioning, distribution panels and terminal boxes are exposed to seasonal (and ever-changing) temperature extremes – especially on the open field side.

In process technology, for example, a terminal block is exposed to even quicker changes in temperature.



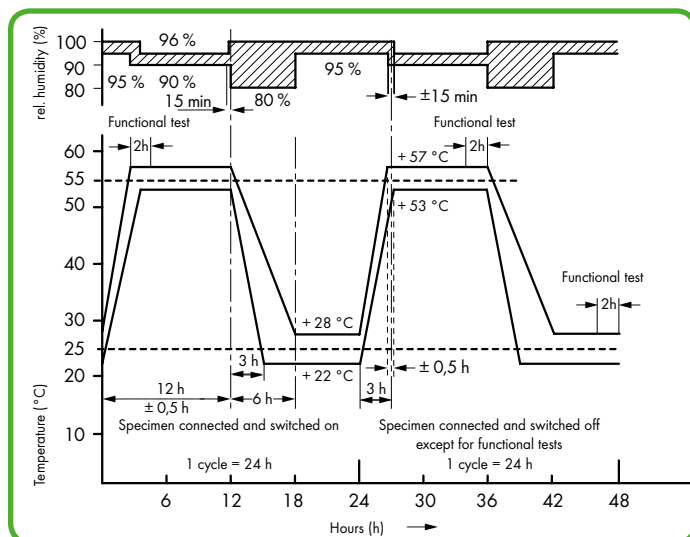
To simulate such conditions, the test specimen is exposed to repeated temperature changes, for example, between $T_A -40^{\circ}\text{C}$ and $T_B +70^{\circ}\text{C}$.

The dwell time t_1 depends on the thermal capacity of the test specimen and should be between maximum 3 h and minimum 10 min. and the transition time t_2 2 - 3 min., 20 - 30 s or less than 10 seconds.

The mechanical and electrical properties of the product are checked at the end of the test.

- Damp Heat, Cyclic (12 + 12 Hour Cycle) to IEC/EN 60068-2-30; Shipbuilding GL, LR, DNV

This test determines the suitability of electrical equipment for use and storage under conditions of high relative humidity when combined with cyclic temperature changes and, in general, producing condensation on the surface of the specimen.



In addition to the salt spray tests, the damp heat test is also used for ship approvals.

For this test the specimens are subjected to temperatures varying cyclically between $+25^{\circ}\text{C}$ (77°F) and $+55^{\circ}\text{C}$ (131°F) with a relative humidity of 95 % (for tolerances see figure).

Functional tests are performed at defined times during the storage period.

The mechanical and electrical properties of the product are checked at the end of the test.

UL Specifications – Underwriters Laboratories, USA

WAGO terminal blocks and connectors are tested by Underwriters Laboratories Inc. according to one or more of the relevant following UL standards:

- PCB terminal strips (e.g. 236, 745 Series) are approved as non-stand-alone components according to UL 1059 in connection with UL 486E.

UL 1059 Standard for Terminal Blocks

UL 486 E Equipment Wiring Terminals for Use with Aluminium and / or Copper Conductors
- The MCS - *MULTI CONNECTION SYSTEM MIDI* has dual approval; as a terminal block according to UL Standard 1059 in connection with UL 486 E. It is therefore defined for "field and factory wiring" with a voltage of 300 V.
- It is also approved as a "Connector For Use In Data, Signal Control And Power Applications" according to UL 1977 for "factory wiring" at 600 V (i.e., the clamping unit must be wired under controlled manufacturing conditions).

UL 1977 Component Connectors for Use in Data, Signal, Control and Power Applications
- Ex e II terminal blocks are approved according to UL 60079-7.

UL 60079-7 Electrical Apparatus for Explosive Gas Atmospheres – Part 7: Increased Safety
- Insulating materials are tested for flammability and performance in accordance with UL 94.

UL 94 Tests for Flammability of Plastic Materials for Parts in Devices and Appliances

Tests and Testing Procedures per UL Standards

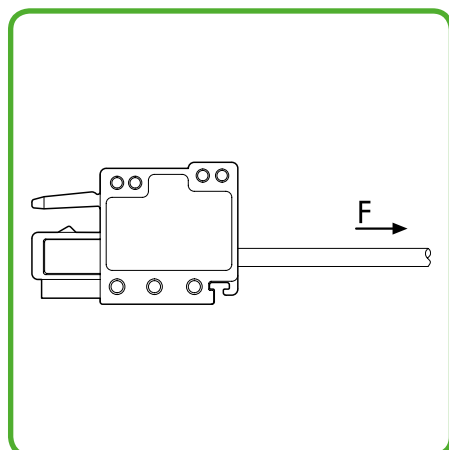
All WAGO products meet requirements for the following tests:

- Pull-Out Test to UL 1059, UL 486 E

In this test, the connected wires are subjected to the appropriate pull-out forces specified in the following table without jerking for a period of one minute.

Conductor size		Pull-out force, pounds (N)			
		UL 486 E, Table 22			
AWG or	kcmil	Copper		Aluminum	
	(mm ²)				
30	(0.05)	0.5	(2.2)	-	-
28	(0.08)	1	(4.5)	-	-
26	(0.13)	2	(8.9)	-	-
24	(0.20)	3	(13.4)	-	-
22	(0.32)	4.5	(20)	-	-
20	(0.52)	6.75	(30)	-	-
18	(0.82)	6.75	(30)	-	-
16	(1.3)	9	(40)	-	-
14	(2.1)	11.5	(50)	-	-
12	(3.3)	13.5	(60)	10	(44)
10	(5.3)	18	(80)	10	(44)
8	(8.4)	20.5	(90)	10	(44)
6	(13.3)	21	(94)	28	(124)
4	(21.2)	30	(133)	36	(160)
3	(26.7)	35	(156)	42	(187)
2	(33.6)	42	(186)	50	(222)
1	(42.4)	53	(236)	61	(271)
1/0	(53.5)	64	(285)	72	(320)
2/0	(67.4)	64	(285)	78	(347)
3/0	(85.0)	79	(351)	97	(432)
4/0	(107)	96	(427)	116	(516)
250	(127)	96	(427)	116	(516)
300	(156)	99	(441)	116	(516)

Test Arrangement to UL 1059, UL 486 E:



UL Specifications – Underwriters Laboratories, USA (continued)

Tests and Testing Procedures per UL Standards (continued)

• Heat Cycling Test based on UL 1059, UL 486 E

Tests performed:
to **UL 1059**

to **UL 486 E** (equipment wiring terminals)

Test performed with maximum rated cross sectional area
Test current: 150 % of the max. rated current

Test performed with maximum rated cross sectional area
Test current: increased test current to UL 486 E, Tab. 4

84 cycles of: 3 1/2 h "ON" / 1/2 h "OFF"

500 cycles of: 1 h "ON" / 1 h "OFF"
1 1/2 h "ON" / 1 1/2 h "OFF"
(from AWG 4/0 up to 400 kcmil acc. to UL 486 E)

The temperature rise is measured after the first and the 84th cycle.

The temperature rises at the terminal blocks and control wires are measured and recorded after: 1, 25, 50, 75, 100, 125, 175, 225, 275, 350, 425 and 500 cycles.

The temperature rise shall not exceed 5°C (41°F) after the 84th cycle, compared to the temperature measured after the first cycle.

The temperature rise shall not exceed 125°C (257°F) and the stability factor "S" shall exceed ± 10.

Conductor size		Test current for copper conductors in A			
		UL 486 E, Table 4			
AWG or kcmil	mm ²	Assigned max. ampere rating ^b	Static heating ^{a,c,g}	Heating cycling Temperature rating ^a	
				75 °C ^{d,g}	90 °C ^{e,g}
30	(0.05)	-	3	3.5	4
28	(0.08)	-	3.5	4	5
26	(0.13)	-	5.5	6	8
24	(0.20)	-	7	8	10
22	(0.32)	-	9	12	13
20	(0.52)	-	12	16	17
18	(0.82)	-	17	19	24
16	(1.3)	-	18	20	31
14	(2.1)	15	[20] 30	[22] 33	[27] 40
12	(3.3)	20	[25] 35	[28] 39	[40] 54
10	(5.3)	30	[40] 50	[45] 56	[60] 75
8	(8.4)	50	70	80	100
6	(13.3)	65	95	105	131
4	(21.2)	85	125	140	175
3	(26.7)	100	145	165	205
2	(33.6)	115	170	190	240
1	(42.4)	130	195	220	275
1/0	(53.5)	150	230	255	320
2/0	(67.4)	175	265	300	370
3/0	(85.0)	200	310	345	435
4/0	(107)	230	360	405	505
250	(127)	255	405	445	565
300	(152)	285	445	500	625

^a See Section 7.2, 8.2 and 9.2 (UL 486 E)
^b Values are for 75°C (167°F), not more than 3 conductors in raceway or cable ampacities, National Electric Code, ANSI/NFPA 70
^c Values are for 75°C (167°F) single conductor in free air ampacities, National Electric Code, ANSI/NFPA 70
^d Values are approximately 112 % of the static heating test currents.
^e Values for No. 8 AWG and larger conductors are approximately 140 % of the static heating test currents.
^f See Section 9.2.4
^g Values in parentheses apply to connectors with assigned ampere ratings.

- **Conditioning – Temperature-Rise Rest to UL 1059**

Tests performed:

to UL 1059 (terminal blocks)

Conditioning:

The clamping units are **pre-wired/pre-inserted 9 times** using a conductor with maximum rated cross section.

At the 10th time a new conductor is connected.

After this, a static heating test is performed.

Static Heating Test:

Test current: Rated current of terminal block

Test duration: 30 days

Max. permissible

temperature rise: 30°C

UL Specifications – Underwriters Laboratories, USA (continued) Tests and Testing Procedures per UL Standards (continued)

• Insulation Parameters to UL 1059

The table below shows the potential involved and the corresponding clearances and creepage distances required in different applications.

Minimum Acceptable Spacing for Terminal Blocks, UL Standard 1059, Table 8.1

Application	Potential involved in volts	Spacing in inches (mm) between uninsulated live parts of opposite polarity, uninsulated live parts and uninsulated grounded parts other than the enclosure	
		Through air	Over surfaces
A. Dead-front switchboards, panelboards, service equipment and similar applications	51 - 150	1/2 (12.7)	3/4 (19.1)
	151 - 300	3/4 (19.1)	1-1/4 (31.8)
	301 - 600	1 (25.4)	2 (50.8)
B. Commercial appliances, including business equipment, electronic data processing equipment and similar applications	51 - 150	1/16 ^a (1.6) ^a	1/16 ^a (1.6) ^a
	151 - 300	3/32 ^a (2.4) ^a	3/32 ^a (2.4) ^a
	301 - 600	3/8 (9.5)	1/2 (12.7)
C. Industrial, general	51 - 150	1/8 ^a (3.2) ^a	1/4 (6.4)
	151 - 300	1/4 (6.4)	3/8 (9.5)
	301 - 600	3/8 (9.5)	1/2 (12.7)
D. Industrial, devices having limited ratings	51 - 300	1/16 ^a (1.6) ^a	1/8 ^a (3.2) ^a
	301 - 600	3/16 ^a (4.8) ^a	3/8 (9.5)
E. Terminal Blocks rated 601 - 1500V ^c	601 - 1000	0.55 (14.0)	0.85 (21.6)
	1001 - 1500	0.70 (17.8)	1.20 (30.5)

Notes:

1 A slot, groove, or similar, 0.013 inches (0.33 mm) wide or less in the contour of the insulating material is to be disregarded.

2 Air space of 0.013 inches (0.33 mm) or less between a live part and an insulating surface is to be disregarded for the purpose of measuring over surface spacing.

^a The spacing between wiring terminals of opposite polarity and the spacing between a wiring terminal and a grounded dead metal part may not be less than 1/4 inch (6.4 mm) if short-circuiting or grounding of such terminals may result from projecting strands of wire.

^b See Section 8.5 (UL 1059)

The spacing values indicated in sub-paragraph D in Table 8.1 are applicable to a terminal block for use only in or with industrial control equipment where the load on any single circuit of the terminal block does not exceed
15 A at 51 - 150 V, 10 A at 151 - 300 V,
5 A at 301 - 600 V,
or the maximum ampere rating, whichever is less.

^c Applies only to terminal blocks investigated to Part II of this standard. See Section 22.1 (UL 1059).

• Flammability Test to UL 94

This test provides an indication of the material's ability to extinguish a flame, once ignited.

Several ratings can be applied, based on the rated of burning, time to extinguish, ability to resist dripping and after-glow extinguishing time. Each material tested may receive several ratings, depending on the wall thickness.

UL 94 rating categories:

V2

- Specimen mounted vertically
- Burning stops within 30 seconds after the flame is removed
- Flaming drips allowed
- After-glow extinguishes within max. 60 seconds

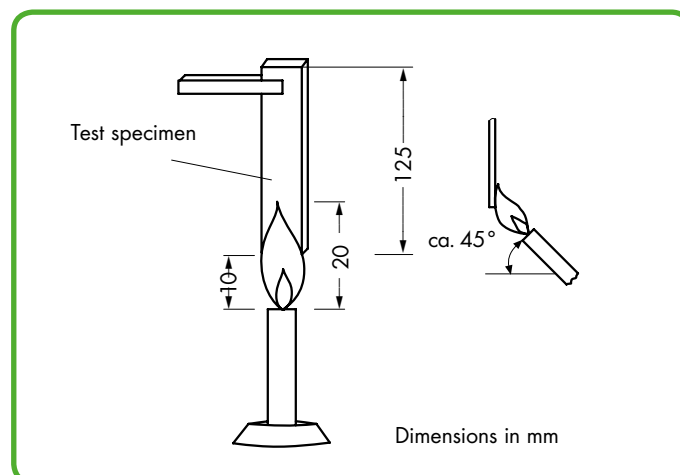
V1

- Specimen mounted vertically
- Burning stops within 30 seconds after the flame is removed
- No flaming drips allowed
- After-glow extinguishes within max. 60 seconds

V0

- Specimen mounted vertically
- Burning stops within 10 seconds after the flame is removed
- No flaming drips allowed
- After-glow extinguishes within max. 30 seconds

During the test, a 3/4 inch (20 ±1 mm) flame is applied for two 10-second intervals to the specified bar specimen held vertically.



Terminating Aluminum Conductors

WAGO spring-clamp terminal blocks are suitable for solid aluminum conductors ① up to 4 mm² (AWG 12) if WAGO contact paste "Alu-Plus" is used for the connection (see Page 11.29).

Also note that the nominal currents must be also adapted to the reduced conductivity of the aluminum conductor:

2.5 mm² = 16 A

4 mm² = 22 A

Use the WAGO contact paste "Alu-Plus" instead, which is directly injected into the conductor entry hole of WAGO terminal blocks by means of the handy syringe.

Aluminum conductors that clearly show corrosion (i.e., black discoloration) require mechanical cleaning.

After injecting "Alu-Plus", unprepared, solid aluminum conductors can be easily terminated (also in combination with copper conductors in multipole terminal blocks).

WAGO "Alu-Plus"

- prevents fresh oxidation at the clamping point
- prevents electrolytic corrosion between aluminum and copper conductors (in the same terminal block)
- offers permanent protection against corrosion

Of course it is **also** possible to apply WAGO "Alu-Plus" directly to the whole surface of the aluminum conductor before clamping.

WAGO "Alu-Plus" in the syringe offers a higher degree of reliability and cleanliness when connecting solid wire aluminum conductors. Filling is, for example, quickly performed on the three following WAGO terminal blocks (see description at right).

① Aluminum conductors in accordance with IEC Standard 61545, Class B, "Alloy 1370" with a tensile strength of 90 -180 N/mm² and elongation of 1 - 4 %.

Standard values: Tensile strength 90 - 180 MPa, Elongation 1 - 4 % (acc. to EN 615.4.1)

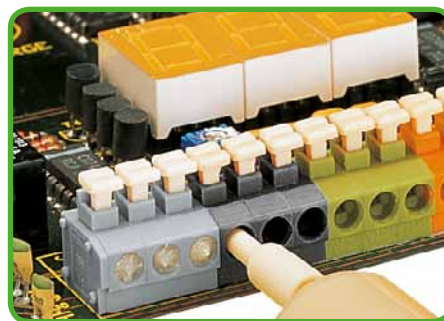
How to proceed:

There are two possibilities for using the contact past when terminating solid aluminum conductors:

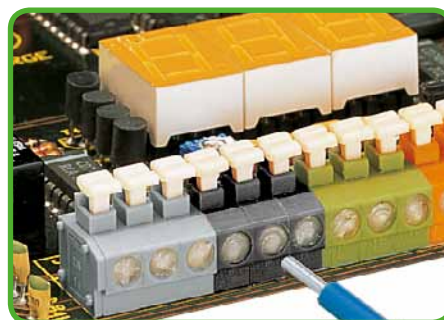
1. Apply WAGO "Alu-Plus" to the whole surface of the aluminum conductor before clamping.
2. Or, insert the nozzle of the syringe into every conductor entry hole of the WAGO terminal blocks as demonstrated with the three examples.

These procedures invariably offer more security and cleanness in a quick and easy manner.

WAGO PCB Terminal Blocks



1. Push nozzle of the "Alu-Plus" syringe into every conductor entry hole.



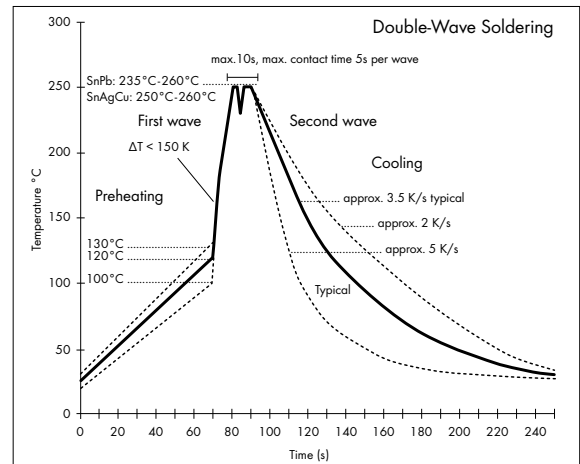
2. Press plunger down **until "Alu-Plus" has filled each of these entries.**

Soldering Information

Wave Soldering:

WAGO's PCB terminal blocks and connectors comply with the 2011/65/EU Directive of June 8, 2011 and display the "RoHS compliant" logo on their packaging.

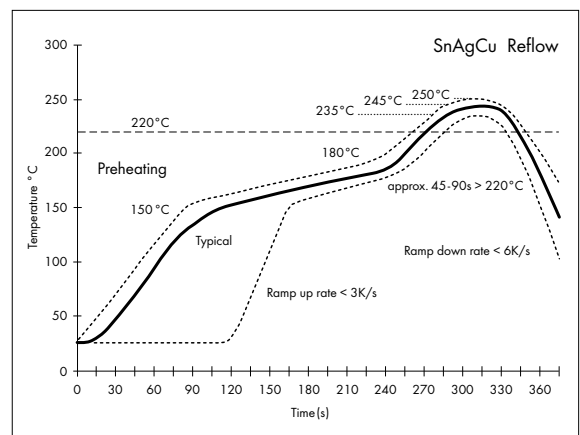
In accordance with IEC 61760-1, the maximum double-wave soldering temperature is 260 °C for maximum 10 seconds or 5 seconds per wave.



Reflow Soldering:

WAGO's THR and SMD PCB terminal blocks/connectors have high-temperature-resistant insulated housings and reflow solder contacts.

In accordance with IEC 61760-1 or IEC 60068-2-58, the maximum soldering temperature is 260 °C (peak temperature). Due to customer-specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.



Insulating Materials

WAGO primarily uses polyamide (PA 6.6 and PA 4.6) as carriers of current-conducting parts and polycarbonate (PC) as insulating material (see table). These materials have proven their value in WAGO products for more than 40 years and are approved by the responsible test authorities.

Table: Standard Insulating Materials

Material	PA 6.6	PA 6.6 - GF	PPA - GF	PA 4.6
Flammability UL 94 flammability test ratings	V0	V0	V0	V2
Glow-wire test acc. to IEC 60695-2-12 GWFI IEC 60695-2-13 GWIT	960 °C 775 °C	960 °C 750 °C	960 °C 725 °C	750 °C 725 °C
CTI Comparative Tracking Index (CTI) to IEC 60112	600 V	550 V	600 V	375 V
RTI impact to UL 746B	105 °C	100 °C	115 °C	115 °C
Temperature resistance under HDT/B to ISO 75 (at 0.45 MPa bending stress)	215 °C	235 °C	285 °C	280 °C
Surface resistivity to IEC 60093	10 ¹² Ω	10 ¹² Ω	10 ¹⁵ Ω	10 ¹³ Ω
Specific through resistance acc. to IEC 60093	10 ¹⁵ Ω/cm	10 ¹⁵ Ω/cm	10 ¹³ Ω/cm	10 ¹³ Ω/cm
Dielectric strength to IEC 60243-1	30 kV/mm	40 kV/mm	26 kV/mm	25 kV/mm

Nylon (PA 6.6)

WAGO uses a modified nylon that is **free** of halogens, chlorinated hydrocarbons, silicone, asbestos, cadmium and formaldehyde.

This material does not corrode, is difficult to ignite, self-extinguishing (VO rating to UL 94) and is temperature-stabilized, allowing long-term temperature resistance up to 105°C (221°F).

Long-term thermal stability refers to UL "Mechanical Impact RTI" (Relative Temperature Index) and guarantees adequate safety margin in terms of electrical and mechanical insulation properties. The short-term upper temperature limit is 200°C (392°F).

The same philosophy also forms the basis for data relevant to the lower temperature limit.

Insulating material can be handled at temperatures as low as -35°C (-31°F) without damage. After installation and wiring, WAGO products can even be used at temperatures down to -60°C (-76°F).

Environmental humidity (up to 2.5 % on average) is absorbed chemically, achieving optimum elasticity and fracture safety.

In practical use, basic stabilization provides sufficient protections against damage by ozone or ultraviolet light for long-term use. Resistance against adverse climate conditions is excellent and nylon has proven itself in tropical applications.

Insulating parts produced from nylon are resistant to termites. The material does not provide oxygen or other biogenic elements to microorganisms. The presence of anaerobic earth bacteria, mold, fungus and enzymes does not result in degradation of the material. Resistance to fuels, most oils and greases, as well as the

most common cleaning agents (e.g., alcohol, Freon, Frigen, carbon tetrachloride) is excellent. Acid resistance depends on the acid type and concentration. More details are available upon request.

WAGO only accepts deliveries of granular insulation material against certificates of conformity and after select material tests.

Nylon 4.6 (PA 4.6)

In comparison with nylon 6.6, nylon 4.6 features a much higher dimensional stability under heat. Long-term temperature resistance under RTI impact mechanical stress is 115°C (239°F). Long-term heat resistance after 10,000 hours is 140°C (284°F). Short-time upper temperature limit is 280°C (536°F) for nylon 4.6 used by WAGO.

For more information, see table.

Glass fiber-reinforced nylon (PA-GF)

Thanks to its excellent strength properties, its high thermal stability and dimensional stability, glass fiber-reinforced nylon is well-suited for applications requiring not only outstanding mechanical properties, but also excellent electrical properties and high fire protection requirements. The material's outstanding tracking resistance permits short creepage distances. The halogen and heavy-metal-free fire protection equipment allows a flammability category of VO with extremely thin walls.

Polyphthalamide (PPA-GF)

The glass fiber-reinforced, high-performance nylon PPA-GF is predestined for high-temperature applications, thanks to the material's high level of thermal dimensional stability, its low dependence on ambient conditions and its excellent strength properties. The material's outstanding tracking resistance permits short creepage distances to be implemented in miniature components. The halogen and heavy-metal-free fire protection equipment allows a flammability category of VO with extremely thin walls. PPA-GF absorbs considerably less moisture from the surroundings and is therefore very well-suited for THR applications.

Contact Materials

Hard and extra-hard electrolytic copper (E_{Cu}) as well as extra-hard copper alloys are standard materials used for the current-carrying parts of all WAGO products.

This material combines excellent conductivity and good chemical resistance without the risk of stress-induced cracking.

Contact Plating

The special tin layer, which is the standard layer for all current-carrying parts in WAGO products, ensures perfect long-term protection against corrosive substances. Furthermore, these layers provide a gas-tight contact that ensures a durable transition resistance.

At the clamping unit, the conductor is embedded into the soft tin layer via high contact pressure. This protects the contact area against corrosion.

The thick tin layer also ensures good solderability of the solder pins for both PCB terminal blocks and connectors.

Clamping Spring Material

All WAGO clamping springs are made of high-quality, accurately tested austenitic chrome nickel steel (CrNi) with high tensile strength, which boasts proven corrosion resistance through long-term usage.

It is resistant to salt sea air, city pollutants and industrial emissions (e.g., sulfur dioxide, hydrogen sulphide).

At room temperatures of approximately 20°C (68°F), the material is resistant to salt solutions up to 30 % and dilute phosphoric acids up to 30 %.

Even after decades of use, no galvanic corrosion between the chrome nickel spring steel (in connection with the contact materials used by WAGO) and the connected copper conductors has been detected.

The relaxation of the material as a function of time and surrounding temperatures up to 105°C (221°F) can be ignored. Samples loaded with 500 N/mm² at a temperature of 250°C showed a relaxation of only 1.5 %.

In certain product lines, the clamping springs are thermally treated at temperatures between 350 (662°F) and 420°C (788°F) after production.

This treatment reduces internal stress due to the material's mechanical deformation, which may result in a slight brown discoloration of the spring surface.

WAGO only accepts deliveries of chrome nickel spring steel against certificates of conformity and after select material tests.

General Technical Information for Electrical Equipment in Hazardous Areas

A prerequisite for a potentially explosive hazard is the formation of an explosive atmosphere. Such an atmosphere can be produced at any location where flammable gases or liquids are manufactured, processed, transported and/or stored.

Such **hazardous areas** can be formed for example in chemical plants, refineries, power plants, paint-producing facilities, painting shops, filling stations, vehicles, sewage treatment plants, airports, grain mills or harbor facilities.

THE FOLLOWING APPLY AS A GUIDELINE FOR THE UNDERLYING PRINCIPLE FOR EXPLOSION PROTECTION:

General Provisions

European Standard EN 60079-0 - Classification VDE 0170, Part 1 - contains the "General provisions" for the design and testing of electrical equipment to be used in hazardous areas.

This ensures this equipment does not cause an explosion in the surrounding atmosphere.

EN 60079-0 is supplemented or revised by the European standards indicated on the right which refer to the specifically standardized types of protection.

Electrical Equipment

Electrical equipment includes all objects used in whole or in part with electricity. This includes items for generation, transport, distribution, storage, measurement, control, conversion and consumption of electrical power, as well as telecommunications.

Ex Components

Ex components are elements of electrical equipment for hazardous areas that are marked with the letter "U." These components shall not be used on their own in such areas and require an additional certificate when used in such areas when installed in the electrical equipment.

Ignition Protection Categories

Only explosion-proof equipment must be used in areas where an explosive atmosphere may still be expected despite the implementation of prevention measures.

Explosion-proof electrical equipment can have various types of protection in accordance with the EN 60079 construction specifications of the relevant standards.

Protection used by the manufacturer essentially depends on the type and function of the apparatus. From a safety point of view, all standardized types of protection should be viewed as equal.

Ignition protection category "n" describes exclusively the use of explosion-proof electrical components in Zone 2.

This zone includes areas where explosive atmospheres can only be expected to occur rarely or for short duration.

This represents a transition between Zone 1, in which explosion protection is required, and the safe area in which, for example, welding may be performed at any time.

Regulations covering these electrical components are being prepared worldwide. Organizations such as KEMA in the Netherlands, or PTB in Germany certify that the devices meet the requirements of the EN 60079-15 European standard. Ignition protection category "n" also requires that electrical equipment be provided with additional ID markings as follows:

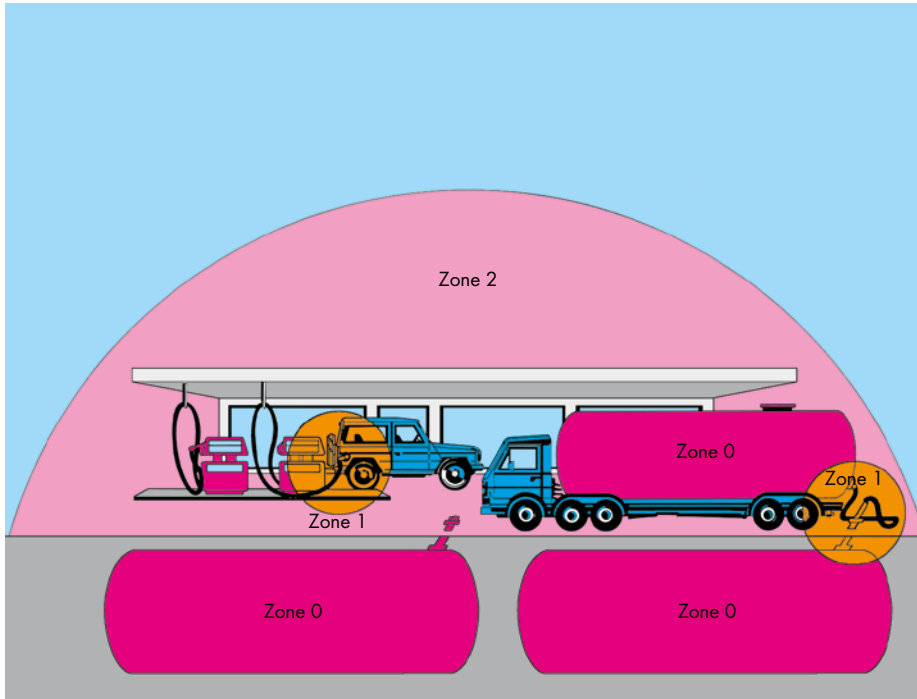
- A - non-sparking (function modules without relays/switches)
- AC - sparking, contacts protected with seals (function modules with relays/without switches)
- L - limited power (function modules with switches)

General Technical Information (continued) for Electrical Equipment in Hazardous Areas

Hazardous environments are areas in which the atmosphere may become explosive. An explosive atmosphere is a mixture of flammable substances in the form of gases, vapors or mixtures

with air under atmospheric conditions in critically mixed ratios such that excessive high temperature, arcs or sparks may cause an explosion.

According to EN 1127-1 and other standards, hazardous areas are divided into "Zones" based on the likelihood of an explosive atmosphere occurring:



- ❶ Hazardous areas resulting from flammable gases, vapors or mist

Zone 0:

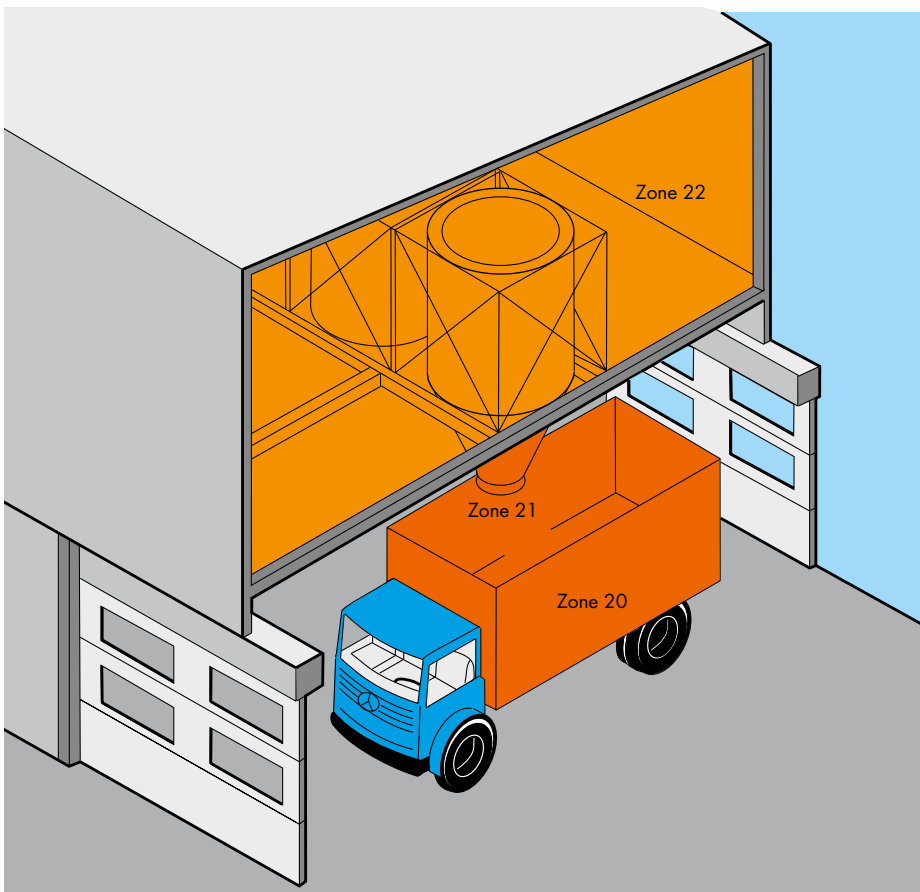
Areas in which a hazardous, potentially explosive atmosphere is present permanently, for long periods or frequently.

Zone 1:

Areas in which hazardous, potentially explosive atmospheres are likely to occur "occasionally" during normal operation.

Zone 2:

Areas in which hazardous, potentially explosive atmospheres are likely to occur "rarely" or "short-term" during normal operation.



- ❷ Hazardous areas resulting from combustible dust

Zone 20:

Areas in which an explosive dusty atmosphere is present "permanently," for "long periods" or "frequently" and in which deposits of combustible dust of unknown or excessive thickness may form. Dust deposits alone do not constitute a Zone 20.

Zone 21:

Areas in which an explosive dusty atmosphere is present "occasionally" under normal operating conditions and in which deposits or layers of combustible dust can generally be present.

Zone 22:

Areas in which an explosive dusty atmosphere is not likely to occur during normal operation and, if it occurs, will only exist for a "short period", or in which accumulations or layers of flammable dust are present.

EN 60079-0 also classifies electrical equipment for use in hazardous areas into two groups:

Group I:

Electrical equipment for mines susceptible to firedamp.

Group II:

Electrical equipment for hazardous areas, except for mines susceptible to firedamp.

As this broad application range encompasses a large number of potentially flammable gases, Group II is broken down into subgroups IIA, IIB and IIC. This breakdown is based on different gases/materials exhibiting differing ignition power levels as parameters. Therefore, representative gases have been allocated to these three sub-groups:

- IIA – Propane
- IIB – Ethylene
- IIC – Hydrogen

Publication of the WBK Mining Authority dated March 1989.

Quote: "... terminal blocks that have been certified for the type of protection Ex e II will also be accepted, for example, for Group I – equipment with increased safety "e" protection type".

This information is also given under Item 12 in the EC Prototype Test Certificates, based on which the terminal blocks have been approved for Group I and Group II.

Temperature Category	Maximum Surface Temperature °C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

Depending on the maximum surface temperature, electrical equipment in Group II are classified in temperature categories T 1 to T 6 for all protection types. The ambient temperature, which must be accounted for in dimensioning, is defined as 40°C (104°F) (deviations are acceptable under some conditions).

Terminal blocks for protection type – Increased safety "e" – are generally assigned to temperature category T 6. When terminal blocks are used in equipment of temperature categories T 1 to T 5, ensure that the highest temperature on the insulating parts does not exceed 85°C (185°F).

The highest measured surface temperature rise shall not exceed 40 K.

Thermal resistance of the insulating material must be at least 20°C greater than the highest operating temperature. Low temperature stability is considered sufficient when the insulating material can withstand 24-hour storage at a temperature of -60°C without nullifying the type of protection.

Special Requirements

"Increased Safety Ex e"

The European Standard EN 60079-7 – VDE 0170, Part 6 – contains "special requirements" for the design and testing of electrical equipment with protection type – Increased safety "e" – for use in hazardous areas.

This standard is a supplement to EN 60079-0 and applies to equipment or parts thereof that neither generate sparks or arcing under normal operating conditions, nor exhibit hazardous temperatures. This standard describes special measures, which have to be observed to obtain a safety degree according to the type of protection – Increased safety "e" –. Ex components such as PCB terminal blocks are covered by Section 4.2 "Terminal Blocks for External Conductors." The following are the most important design requirements for terminal blocks for external electrical conductors:

These must:

- be sufficiently large to permit reliable connection of external conductors with cross section of at least the size required by the nominal current of the equipment.
- be protected against self-loosening and designed such that external conductors cannot slip out of the clamping units.
- be designed such that adequate contact pressure is ensured without damaging the conductors.
- be designed such that their contact pressure does not change with temperature cycling.
- be equipped with a spring connecting link for the connection of stranded conductors.
- be designed so as to allow safe connection of smaller conductor cross sections for terminal blocks up to 4 mm² (AWG 12).

Minimum Ignition Power of Typical Gases:

Explosion group	I	IIA	IIB	IIC
Gas	Methane	Propane	Ethylene	Hydrogen
Ignition power	280	250	82	16

The following table shows a comparison between the current practice based on ElexV, DIN VDE 0165: 1991 and the new EN 1127-1:

Device Group II				
Category	Protection degree	Adequate safety for	Comparable to current practice	New, based on EN 1127
1 Ex atmosphere is very probable, dust in air	Highest	2 protective measures 2 faults	Group II Zone 0 Zone 10	Zone 0 Zone 20
2 Occasional Ex atmosphere	Increased	Equipment failure or fault	Group II, Zone 1	Zone 1 Zone 21
3 Low probability of Ex atmosphere, settled dust	Normal	Fault-free operation	Group II, Zone 2 Zone 11	Zone 2 Zone 22

It is expressly prohibited to use insulating parts for transferring contact forces! Terminal blocks with sharp edges which could damage supply lines and those types that can be rotated, turned or permanently deformed when fixed in place are not permitted for use. Terminal blocks for internal connections in electrical equipment must not be subjected to excessive mechanical stress. These items must fulfill the requirements for terminal blocks used for external electrical conductors.

Air clearance between conductive parts having different potentials must be at least 3 mm for external connections, as specified in Table 1.

Creepage distances depend on the operating voltage, surface geometry of the insulating parts and tracking resistance of the insulating material.

Grooves on the top surface may only be considered when they are at least 2.5 mm deep and at least 2.5 mm wide; ribs on the top surface only if they are at least 2.5 mm high and their width is appropriate for the mechanical strength of the material, but not smaller than 1 mm.

Table 1: Creepage Distances and Clearances

Voltage ¹⁾ RMS value for AC voltage or DC voltage V	Minimum creepage distance mm			Minimum clearance mm
	Material group			
	I	II	III a	
10 ²⁾	1.6	1.6	1.6	1.6
12.5	1.6	1.6	1.6	1.6
16	1.6	1.6	1.6	1.6
20	1.6	1.6	1.6	1.6
25	1.7	1.7	1.7	1.7
32	1.8	1.8	1.8	1.8
40	1.9	2.4	3	1.9
50	2.1	2.6	3.4	2.1
63	2.1	2.6	3.4	2.1
80	2.2	2.8	3.6	2.2
100	2.4	3	3.8	2.4
125	2.5	3.2	4	2.5
160	3.2	4	5	3.2
200	4	5	6.3	4
250	5	6.3	8	5
320	6.3	8	10	6
400 (440)* ¹⁾	8	10	12.5	6
500 (550)* ¹⁾	10	12.5	16	8
630 (690)* ¹⁾	12	16	20	10
800	16	20	25	12
1000	20	25	32	14
1250	22	26	32	18
1600	23	27	32	20
2000	25	28	32	23
2500	32	36	40	29
3200	40	45	50	36
4000	50	56	63	44
5000	63	71	80	50
6300	80	90	100	60
8000	100	110	125	80
10000	125	140	160	100

¹⁾The listed voltages are taken from IEC 60664-1. The working voltage *) may exceed the voltage indicated in the table by 10 %. This is based on the simplification of the supply voltages in accordance with Table 3b in IEC 60664-1.

The listed values for creepage and clearances are based on a maximum limit deviation for supply voltage of $\pm 10\%$.

²⁾CTI values are not applicable for voltages of 10 V or less. Materials that do not meet the requirements of material group III a can be used.

Classification of insulating materials according to their tracking resistance is based on their Comparative Tracking Index (CTI) and is defined in Table 2 as follows:

This classification applies to insulating parts without ribs or grooves.

If the insulating parts have ribs or grooves sufficiently large to be considered, the minimum creepage distances must be set according to values for the insulating materials in the next-higher level, for example Group I, instead of Group II.

Considering the ambient temperature of 40 °C (104 °F) specified for electrical equipment, the current-carrying capacity of rubber-insulated conductors is reduced to 82 %, based on DIN VDE 0298-4: 2003-08, Table 10 and to 87 % for PVC-insulated conductors for the current-carrying capacity defined for 30 °C (86 °F) in accordance with Item 4.3.3 in DIN VDE 0298-4: 2003-08.

**Table 2:
Tracking Resistance for Insulating
Materials**

Material Group	Comparative Tracking Index
I	$600 \leq \text{CTI}$
II	$400 \leq \text{CTI} < 600$
III a	$175 \leq \text{CTI} < 400$

Conductor Types and Conductor Preparation

In accordance with EN 60079-14/DIN VDE 0165-1, the ends of stranded and fine-stranded conductors must be protected against splaying (e.g., via cable lugs or ferrules) or by the type of terminal blocks used. Soldering alone is not sufficient.

The conductor entry funnels of WAGO PCB terminal blocks fulfill this requirement.

According to EN 60069-7/DIN VDE 0170 Part 6, connecting electrical equipment to terminal blocks having an increased safety "e" protection type must not lead to a reduction of the clearances and creepage distances.

Based on experience gained with use of equipment in aggressive atmospheres in the chemical industry, we recommend using either gas-tight crimped, tinned copper ferrules or tinned pin terminals made of copper with fine-stranded conductors for connection of terminal blocks in corrosive atmospheres.

Approvals

Terminal blocks may be used in Zones 1 and 2, provided that the terminal blocks are accommodated in an enclosure that has a minimum of IP54 protection with the Ex e certification.

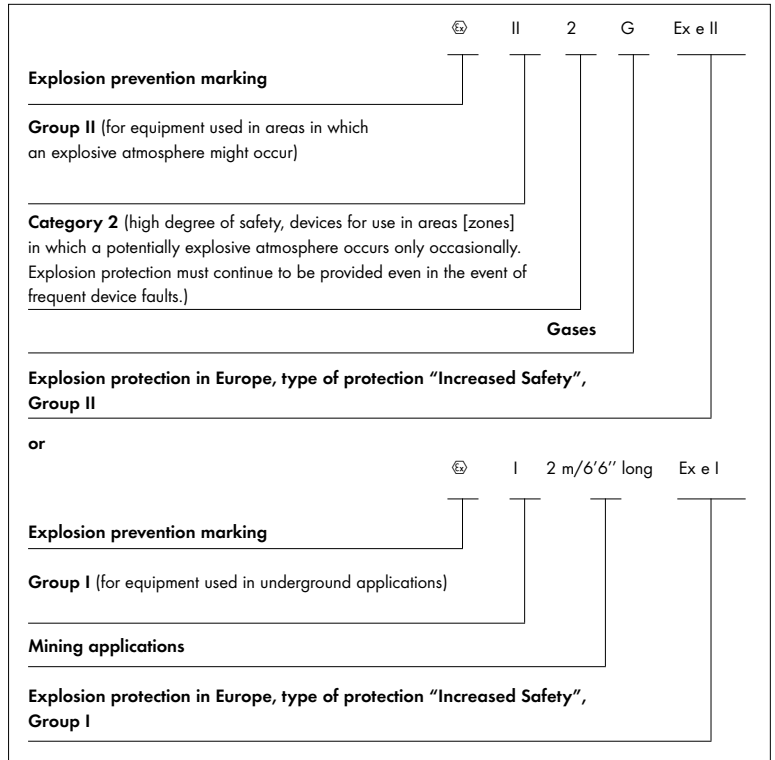
Terminal blocks are considered to be Ex components, as they are a part of the equipment. Part certificates provided by Ex Certification Agencies serve as a basis for issuing the complete conformity declaration for the unit.

In accordance with the Explosion Protection Directive 94/9/EC (ATEX 100 a), an EC-type examination certificate based on ATEX 100 a is issued.

In addition, an IEXEx certificate may also be obtained from an appropriate, recognized certification agency in accordance with the IECEx Certification Agreement that is accepted throughout Europe and also in countries such as Canada, China and Australia.

These certificates can also be viewed at: www.iecex.com.

The marking of terminal blocks shall appear as follows in accordance with 94/9/EC Ex Safety Guideline ATEX 100 a:

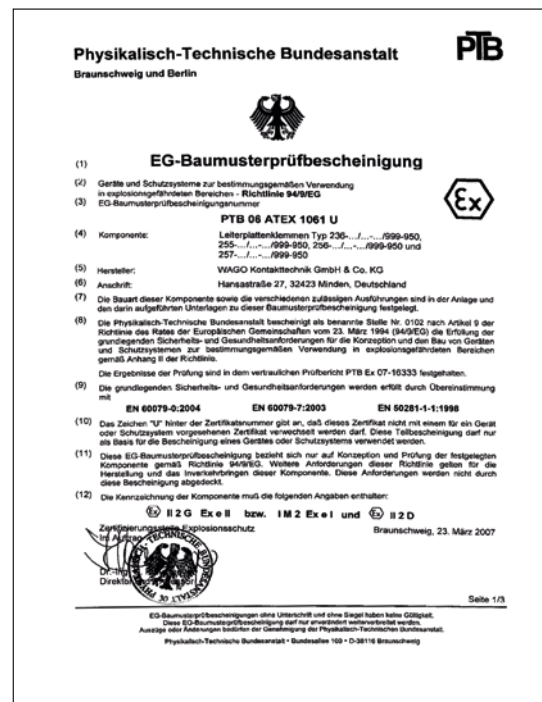
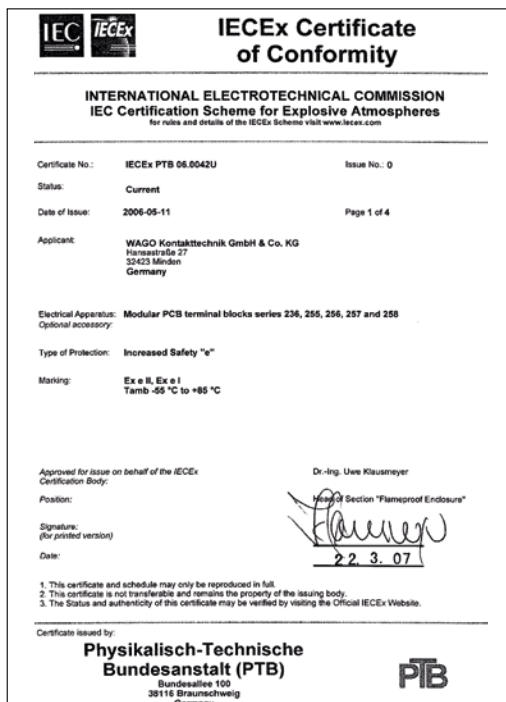


Marking with the Ex code Ex is also adequate as an alternative.

EC-type examination certificates have been granted to all WAGO terminal blocks listed in this catalog. The WAGO terminal blocks approved for the ignition protection type Ex e II are manufactured of flame-resistant,

self-extinguishing Nylon 6.6. The same applies to the other terminal blocks in the non explosion endangered area. Tracking resistance with a CTI value of 600 as per IEC 60112 and a constant operating temperature of 105°C (22°F)

in accordance with IEC 60216-1 and -2 are provided. A routine check test is performed at the factory on all PCB terminal blocks with Ex e II certification to monitor and ensure the quality features described previously.



General Technical Information for Electrical Equipment in Hazardous Areas (continued)

Special Requirements

"Intrinsic safety Ex i"

European Standard EN 60079-11 – Classification DIN EN 60079-11 (VDE 0170-7) – contains special requirements for the design and testing of electrical equipment with protection type – Intrinsic safety "i" – for use in hazardous areas.

A circuit is designated as "intrinsically safe" when under normal operating conditions, and in the event of defined faulted conditions, no sparks and no thermal effects can cause an ignition in a defined potentially explosive atmosphere.

A distinction is made here between:

- intrinsically safe electrical equipment when all circuits are intrinsically safe and
- associated item of equipment that contains both intrinsically safe non-intrinsically safe circuits and is designed such that the non-intrinsically safe circuits cannot affect the intrinsically safe ones.

Intrinsically safe electrical equipment and intrinsically safe parts of associated electrical equipment are classified at protection level "ia" or "ib."

Electrical equipment classified Ex "ia" shall not ignite in the following cases with power applied:

- a) During fault-free operation, with those non-discreet faults present that result in the most adverse condition;
- b) During fault-free operation and with a discreet fault, plus those non-discreet faults that result in unfavorable conditions.
- c) During fault-free operation with two discreet faults, plus those non-discreet faults that result in the most adverse conditions.

Products classified Ex "ib" shall not ignite when current is applied in the following cases:

- a) During fault-free operation, with non-discreet faults present that result in the most adverse condition;
- b) During fault-free operation, with a discreet fault present, plus those non-discreet faults that result in the most adverse condition.

No special approval is required for terminal blocks used as simple electrical equipment for type of protection "Ex i", as they do not contain a voltage source and precise information is available concerning electrical data and temperature rise performance.

The terminal blocks must be identifiable, for example by their type designation, and the following design requirements must also be upheld:

- The air clearance between bare, conductive parts of terminal blocks in different intrinsically safe circuits must be equal to or greater than the values specified in the standard. In addition, clearances between the terminal blocks must be so that the clearances between the bare, conductive parts of the connected external conductors is at least 6 mm when measured. Each possible motion of metallic parts that are not rigidly fixed must be considered.
- When a possible connection has not been considered during safety analysis, the minimum clearance between grounded metallic or other conducting parts and the uninsulated conducting parts of the conductors that are connected to the terminal blocks must be 3 mm.

- **Terminal block marking must be unique and clearly visible. If a color is used for this, the color must be light blue (similar to RAL 5015).**

Note also when using terminal blocks: Terminal blocks used for intrinsically safe circuits must be isolated from those used in non-intrinsically safe circuits. If this isolation is achieved by spatial separation alone, the distance between the terminals must be at least 50 mm. Isolation may also be achieved by accommodating the terminals for intrinsically safe and non-intrinsically safe circuits in different enclosures, or by using either an insulating or grounded metallic partition between the terminals with a common cover. The partition size must allow for either 1.5 mm or less distance from the sides of the housing or provide at least 50 mm of creepage distance between the intrinsically and non-intrinsically safe circuits in all directions.

Requirements pertaining to the necessary distances as appropriate for use of the terminal blocks in the area DIN EN 60079-11 (VDE 0170-7) "Explosive atmosphere - Part 11: Device protection by intrinsically safe features "i" (IEC 60079-11)" are defined under Section 6.2 "Connecting point for external circuits," Section 6.2.1 "Terminal blocks." In general, the following can be stated for terminal blocks based on figure 1b: "Example of isolation of intrinsically safe terminals with partition" in conjunction with figure 2: "Example of isolation of conductive parts," considering Table 5 - "Clearances and creepage distances and isolation distances."

Outside

a) Isolated intrinsically safe circuits at least 6 mm

All PCB terminal blocks listed on the ordering pages as suitable for Ex "i" applications fulfill these requirements.

b) Intrinsically safe circuits and normal circuits (non-intrinsically safe) ≥ 50 mm.

Inside

a) Ex "i" to Ex "i" →

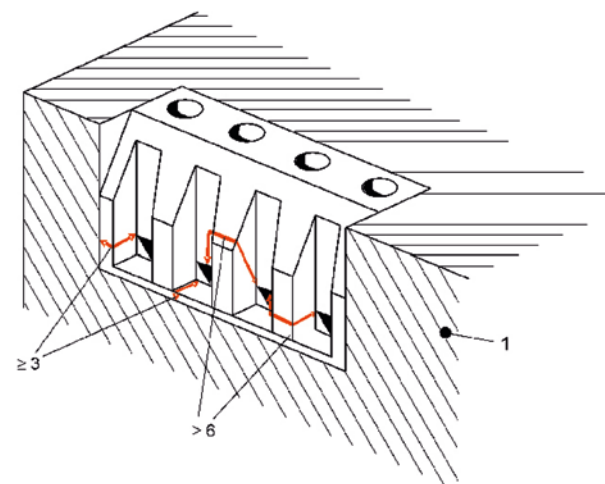
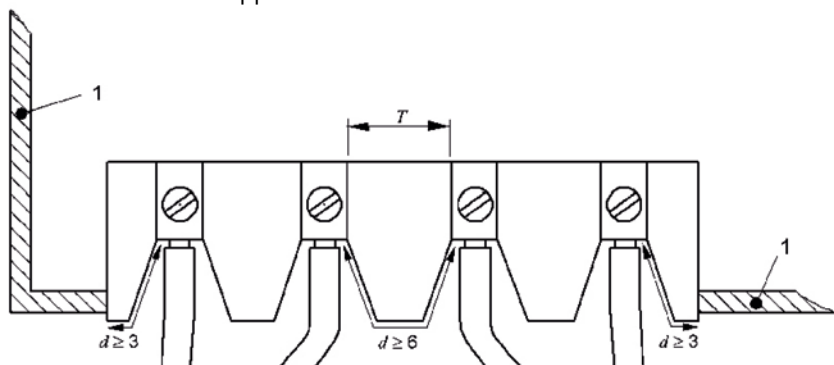
b) Ex "i" to normal circuits →

c) Ex "i" to ground →

Based on Figure 2 and Table 5 in accordance with the selected protection level and the special requirements for separation distances as described in Sections 6.3.1 to 6.3.13, or in accordance with the alternative procedure for dimensioning of separation distances given in Annex F.

Terminal blocks with smaller pin spacing may also be used for internal connections, provided they meet the requirements laid out in Table 5. (see below)

The exact clearances and creepage distances as well as separation distances based on Table 5 must be derived from the application items cited above.



Legend

- 1 conductive cover
- T Distances based on Table 5
- d Distance at outer connecting parts of the terminal blocks according to 6.2.1

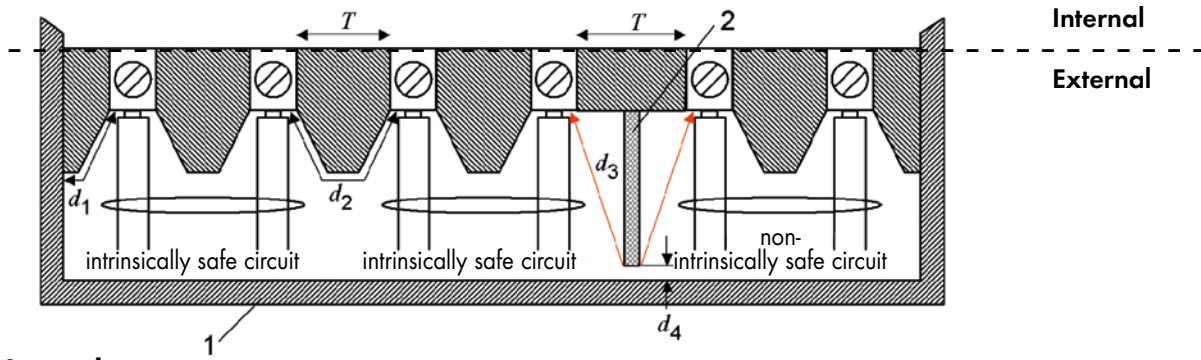
Note:

The dimensions indicated here represent the clearances and creepage distances around the insulation and not the thickness of the insulation!

Dimensions in mm

Figure 1a – Requirements for clearances and creepage distances for terminal blocks with isolated, intrinsically safe circuits

General Technical Information for Electrical Equipment in Hazardous Areas (continued)



Legend

- 1 Cover: non-conductive or conductive and grounded
- 2 Partition based on 6.2.1 b); in this example, the partition must end at the base or be glued to the base
- T Distances based on Table 5
- d1 ≥ 3 mm, when the cover is conductive and grounded
- d2 ≥ 6 mm
- d3 ≥ 50 mm or d4 ≤ 1.5 mm

Note:
The dimensions indicated here represent the clearance distances around the insulation and not the thickness of the insulation!

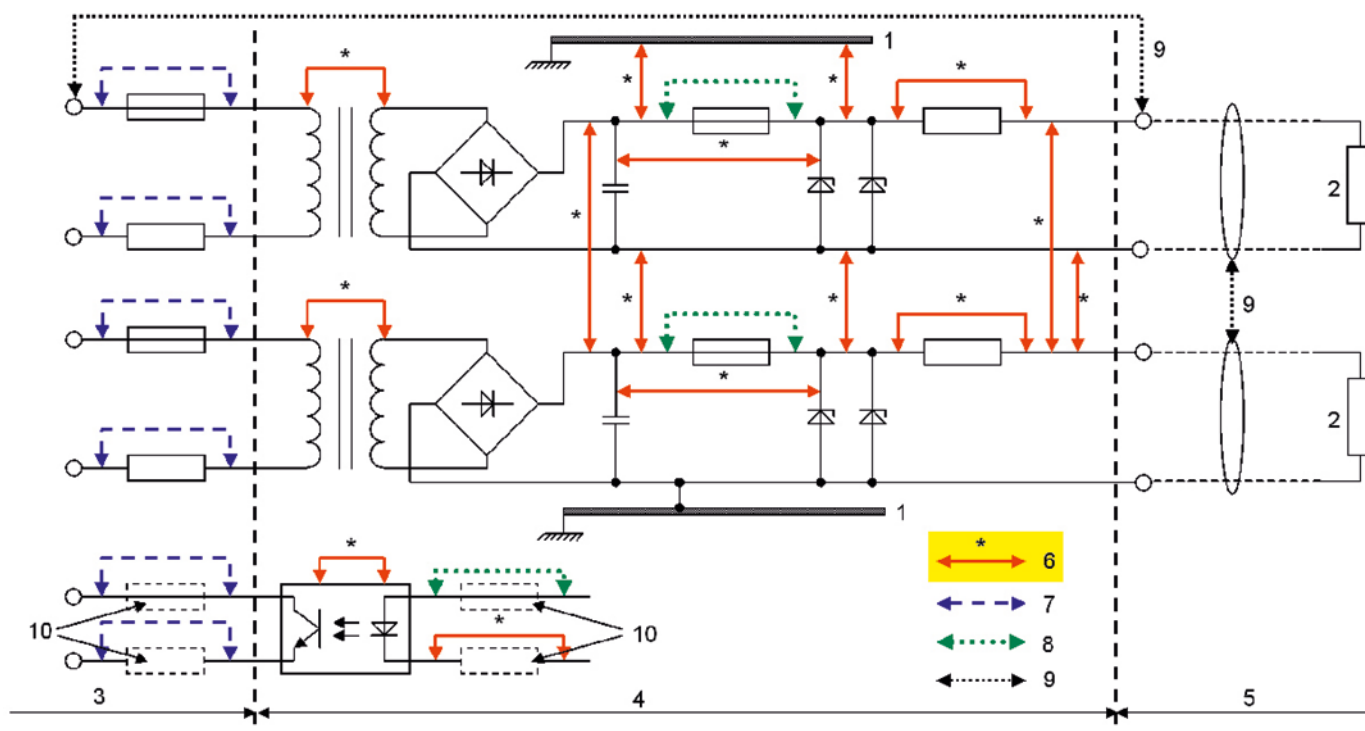
Figure 1b – Example of isolation of intrinsically safe and non-intrinsically safe terminal blocks by a partition

Table 5 - Clearances and Creepage Distances and Isolation Spacing

1 Voltage (peak) V	2 Clearance mm		3 Separation by encapsulation mm		4 Separation by fixed insulation mm		5 Creepage distance through air mm		6 Creepage distance beneath protective layer mm		7 Comparative tra- cking index (CTI)	
	ia, ib	ic	ia, ib	ic	ia, ib	ic	ia, ib	ic	ia, ib	ic	ia	ib, ic
10	1.5	0.4	0.5	0.2	0.5	0.2	1.5	1.0	0.5	0.3	-	
30	2.0	0.8	0.7	0.2	0.5	0.2	2.0	1.3	0.7	0.3	100	100
60	3.0	0.8	1.0	0.3	0.5	0.3	3.0	1.9	1.0	0.6	100	100
90	4.0	0.8	1.3	0.3	0.7	0.3	4.0	2.1	1.3	0.6	100	100
190	5.0	1.5	1.7	0.6	0.8	0.6	8.0	2.5	2.6	1.1	175	175
375	6.0	2.5	2.0	0.6	1.0	0.6	10.0	4.0	3.3	1.7	175	175
550	7.0	4.0	2.4	0.8	1.2	0.8	15.0	6.3	5.0	2.4	275	175
750	8.0	5.0	2.7	0.9	1.4	0.9	18.0	10.0	6.0	2.9	275	175
1000	10.0	7.0	3.3	1.1	1.7	1.1	25.0	12.5	8.3	4.0	275	175
1300	14.0	8.0	4.6	1.7	2.3	1.7	36.0	13.0	12.0	5.8	275	175
1575	16.0	10.0	5.3	*	2.7	*	49.0	15.0	16.3	*	275	175
3.3k	*	18.0	9.0	*	4.5	*	*	32.0	*	*	*	*
4.7k	*	22.0	12.0	*	6.0	*	*	50.0	*	*	*	*
9.5k	*	45.0	20.0	*	10.0	*	*	100.0	*	*	*	*
15.6k	*	70.0	33.0	*	16.5	*	*	150.0	*	*	*	*

Note 1 *At present, no values have been recommended for these voltages.

Note 2 Proof of fulfillment of the CTI requirements for the insulating materials must be provided by the manufacturer. Defining of a CTI is not required for insulating materials for voltage levels up to 10 V.



Legend




- 1 Chassis
- 2 Load
- 3 non-intrinsically safe circuit defined by U_m
- 4 Portion of intrinsically safe circuit, item proper is not intrinsically safe
- 5 Intrinsically safe circuit
- 6 Dimensions for which Table 5 applies
- 7 Dimensions for which general industrial standards apply
- 8 Dimensions based on 7.3
- 9 Dimensions based on 6.2.1 for output terminal blocks between isolated intrinsically safe circuits ($d_2 \geq 6 \text{ mm}$) and between intrinsically safe circuits and non-intrinsically safe circuits ($d_3 \geq 50 \text{ mm}$)
- 10 where required














Figure 2 – Examples of isolation for conductive parts

In accordance with the Electrical Installations Design Guideline DIN EN 60079-14 (VDE 0165-1), the ends of fine-stranded and stranded conductors used in intrinsically safe circuits shall be protected against splaying of individual wires (e.g., via cable lugs or ferrules) **or by the type of terminal blocks used**, but not by soldering alone.

The conductor introduction funnels of WAGO PCB terminal blocks fulfill this requirement.

WAGO recommends gas-tight tinned copper ferrules or tinned copper pin terminals when connecting fine-stranded conductors to terminal blocks in corrosive atmospheres.

	Abbreviation for online search		Abbreviation for online search
 Underwriters Laboratories USA http://www.ul.com	UL	 Danmarks Elektriske Materielkontrol Denmark http://www.demko.dk	DEMKO
 Underwriters Laboratories USA http://www.ul.com	UL	CENELEC CERTIFICATION AGREEMENT	
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BV Bureau Veritas France http://www.bureauveritas.fr	BV	 Underwriters Laboratories USA http://www.ul.com	cURus-EX
 Lloyd's Register of Shipping Great Britain http://www.lloydsregister.com	LR	 N.V. tot Keuring van Elektrotechnische Materialien Netherlands http://www.kemaquality.com	KEMA-EX
 NV – Det Norske Veritas Norway http://www.dnv.com	DNV	GOSENERGO-Ex GOSENERGONADZOR Russia	GOSENERGO-EX
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ABS American Bureau of Shipping USA http://www.eagle.org	ABS		

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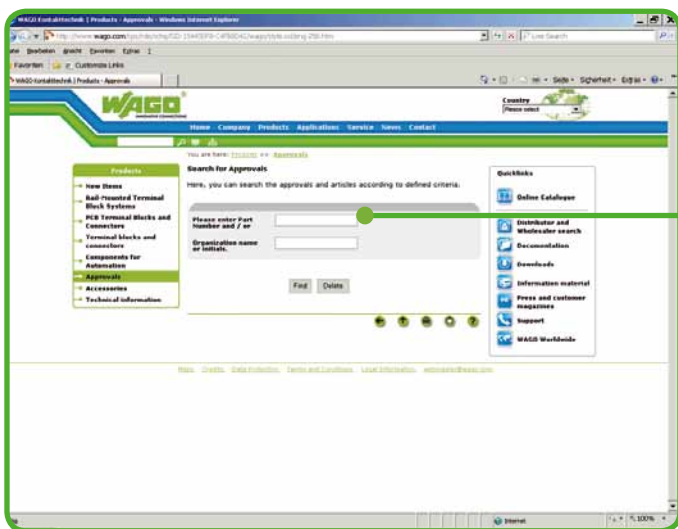
E.g., United Kingdom

• 2: Select "Products"



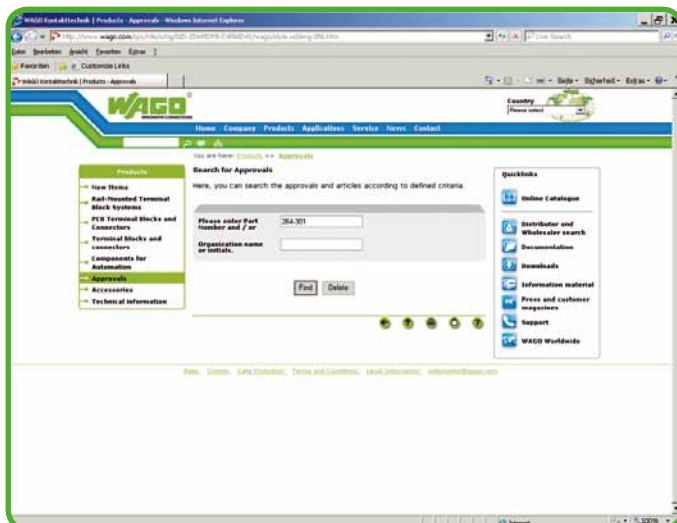
Select "Approvals"

• 3: "Search for Approvals"



Here, you can search the approvals and items according to defined criteria.

① Step 1 is only required if the country has not been detected automatically.



• 4: Entry Options

a) Item number;
e.g., 264-301

b) Certification agency;
e.g., "UL"

c) Certification agency and
item number range;
e.g., "280 - 6" and "UR"

Part Number	Organization	Approval No.	Voltage [V]	Current [A]	Wire Size [mm ²]
264-301	ABS	04-HG476174/1-PDA	800	24	2,5
264-301	BV	07436/C0			0,08-2,5
264-301	CCA	NL6511	800	24	2,5
264-301	CSA	18677-23	600	20	26-12
264-301	DNV	E-9215	800	24	2,5
264-301	GL	17295-00HH	800	24	2,5
264-301	KR	HMB05880-EL002	800	24	
264-301	LR	92/20242(E5)	800	24	2,5
264-301	RMR	11130002	800	24	2,5
264-301	UR	E45172	600/600	20/20	28-12

Search Result a)
Item Number:

All approvals related to that product will be displayed.

Part Number	Organization	Approval No.	Voltage [V]	Current [A]	Wire Size [mm ²]
222-412	UL	E69654	600	20	28-12"s"/str"
222-413	UL	E69654	600	20	28-12"s"/str"
222-415	UL	E69654	600	20	28-12"s"/str"
224-101	UL	E69654	300	20	14-12"s"/20-16"s"/str"
224-104	UL	E69654	300	20	14-12"s"/20-16"s"/str"
224-112	UL	E69654	300	20	18-16"s"/20-16"s"/str"
224-114	UL	E69654	300	20	18-16"s"/20-16"s"/str"
224-201	UL	E69654	300	20	20-16
273-100	UL	E69654	600	20	20-16"s"
273-101	UL	E69654	600	20	20-16"s"

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280-602	UR	E45172	600/600	20/20	28-12
280-603	UR	E45172	600/600	20/30	28-12
280-604	UR	E45172	300/300	15/15	28-12
280-606	UR	E45172	300/300	10/10	28-12
280-607	UR	E45172			28-12
280-610	UR	E45172	300/300	10/10	28-12
280-612	UR	E45172	300/300	15/15	28-12
280-616	UR	E45172	300/300	10/10	28-12
280-621	UR	E45172	300/300	15/15	28-12

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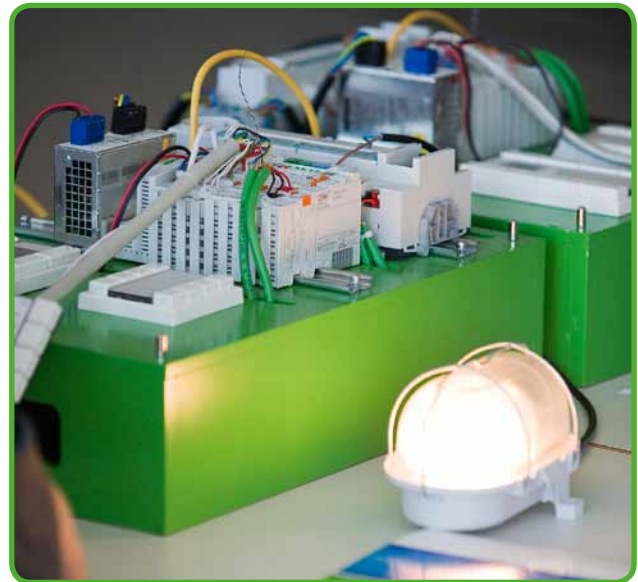
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• Conductor retention force testing

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Frankfurt, 2009-12-22

Dipl.-Ing. (FH) Ralf Egner
Leiter der Abteilung Elektrotechnik/IT

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		2231-302/037-000	379	2721-102/037-000	311	2734-208/037-000	250
2081 Series		2231-324/037-000		2721-116/037-000		2734-210/037-000	
2081-1122	141	2231-302/102-000	380	2721-120/008-000	311	2734-212	250
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2081-1128		2231-324/102-000		2721-120/031-000	312	2734-212/037-000	250
2081-1122/200-604	143	2231-302/107-000	380	2721-120/037-000	311	2734-214	250
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2081-1132/200-604	143	2231-312/107-000	380	2721-212/008-000		2734-216	250
2081-1202	141	2231-314/107-000	380	2721-202/026-000	341	2734-216/031-000	251
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2231-202/026-000	433	2734-124/107-000	250				
2231-213/026-000		2734-202	250				
2231-202/031-000	434						
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