



**Carling Technologies®**

Innovative Designs. Powerful Solutions.

# MINIATURE SWITCHES



CATALOG

# FOUNDED IN 1920



Since its founding, Carling Technologies has continually forged a tradition of leadership in quality and product innovation.

There are few products that Carling Technologies hasn't turned "ON" and fewer industries that haven't turned to Carling for solutions. With ISO and TS registered manufacturing facilities and technical sales offices worldwide, Carling ranks among the world's largest manufacturers of circuit breakers, switches, power distribution units, digital switching systems and electronic controls.



## SWITCHES & CONTROLS

- Rocker
- Toggle
- Pushbutton
- Rotary

## CIRCUIT PROTECTION

- Hydraulic-Magnetic
- Thermal
- GFCI / ELCI

## CUSTOM SOLUTIONS

- PDU's
- Keypads
- Control Modules

## MULTIPLEXED POWER SYSTEMS

- HMI Devices & I/O Modules
- Programmable Displays
- Data Communication Interfaces
- Electrical Systems Monitoring

## STRATEGIC MARKETS SERVED:



On/Off Highway



Marine



Telecom/Datacom



Military



Renewable Energy

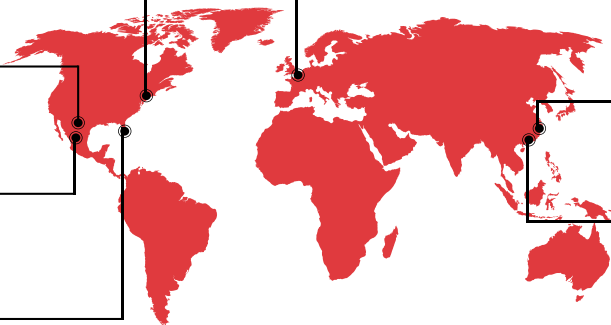
## GLOBAL LOCATIONS:

Carling Technologies  
World Headquarters  
Plainville, CT, USA  
ISO9001:2015  
IATF16949:2016

Carling Technologies  
Brownsville, TX, USA  
ISO14001:2015  
ISO9001:2015  
IATF16949:2016

Carling Technologies  
Matehuala, Mexico  
ISO14001:2015  
ISO9001:2015  
IATF16949:2016

Carling Technologies,  
Maretron  
Jupiter, FL, USA



Carling Technologies  
European Headquarters  
Exeter, UK  
ISO9001:2015  
IATF 16949:2016

Carling Technologies  
Kowloon, Hong Kong  
ISO9001:2015  
IATF16949:2016

Carling Technologies  
Zhongshan, China  
ISO14001:2015  
ISO9001:2015  
IATF16949:2016

## OTHER SERVED INDUSTRIES:



Medical



Industrial Control



Audio / Visual



Commercial Food



HVAC



Floor Care



Generators



Small Appliances



Security Systems



Test & Measurement

## WORLDWIDE NUMBERS:



2400+  
EMPLOYEES



150+  
ENGINEERS

## COMPETITIVE ADVANTAGES<sup>+</sup>



Innovative &  
Eco-Friendly Products



Excellent Quality &  
Customer Service



Reliable &  
On-Time Delivery



Vertical  
Integration



70+  
DISTRIBUTORS



50+  
REP FIRMS

# TABLE OF CONTENTS

Selector Guide .....	2		
<b>1S-SERIES</b>	<b>3</b>	<b>3S-SERIES</b>	<b>45</b>
Rocker Actuators (sub-miniature) .....	3	Pushbutton Actuators (sub-miniature) .....	45
General Specifications .....	4	General Specifications .....	46
Ordering Schemes .....	4	Ordering Schemes .....	46
Dimensional Specifications .....	6	Accessories .....	47
		Dimensional Specifications .....	48
<b>1M-SERIES</b>	<b>11</b>	<b>3M-SERIES</b>	<b>53</b>
Rocker and Paddle Actuators (miniature) .....	11	Pushbutton Actuators (miniature) .....	53
General Specifications .....	12	General Specifications .....	54
Ordering Schemes .....	13	Ordering Schemes .....	55
Dimensional Specifications .....	14	Dimensional Specifications .....	58
<b>2S-SERIES</b>	<b>24</b>	<b>4S-SERIES</b>	<b>70</b>
Toggle Actuators (sub-miniature) .....	24	Slide Actuators (sub-miniature) .....	70
General Specifications .....	25	General Specifications .....	71
Ordering Schemes .....	25	Ordering Schemes .....	71
General Specifications .....	27	Dimensional Specifications .....	72
<b>2M-SERIES</b>	<b>32</b>	<b>4M-SERIES</b>	<b>73</b>
Toggle Actuators (miniature) .....	32	Slide Actuators (miniature) .....	73
General Specifications .....	33	General Specifications .....	74
Ordering Schemes .....	33	Ordering Schemes .....	74
Accessories .....	35	Dimensional Specifications .....	75
Dimensional Specifications .....	36	Hardware and Accessories .....	78
		Additional Product Catalogs .....	81

**HELPFUL TIP** | Click on a product to go directly to that page number!

Carling’s miniature and subminiature sealed & non-sealed switches come in 1-4 pole configurations with ratings from 0.4VA to 6 amps. The miniature and subminiature switch lines include rocker, paddle, toggle, push button, and slide switches with PC, PCB, snap-in, and surface mount options. Certifications include UL, CSA, and cUL.

**Available Online** are tools such as a [configurit](#), [product selector](#) and [stock check](#). Please visit [www.carlingtech.com](http://www.carlingtech.com) for the latest information on all our products.

**Application Solution Engineers** are readily available to assist you in selecting the appropriate product for your application. For further assistance, please email us at [team2@carlingtech.com](mailto:team2@carlingtech.com)

**Custom Design Solutions** can be tailor-made for most any application using our extensive engineering resources.

**Other Products** such as switches, hydraulic-magnetic, ground fault and thermal circuit breakers.

# SELECTOR GUIDE

	Series	Sub-Miniature	Miniature	Sealed	Surface Mount	Approvals	IP Rating
ROCKER	1S1 	✓	-	-	-		N/A
	1SS 	✓	-	✓	-	N/A	IP67
	1SM 	✓	-	✓	✓	N/A	IP67
	1M1 	-	✓	-	-		N/A
	1MS 	-	✓	✓	-		IP67
TOGGLE	2S1 	✓	-	-	-		N/A
	2SM 	✓	-	✓	✓	N/A	IP67
	2SS 	✓	-	✓	-	N/A	IP67
	2M1 	-	✓	-	-		N/A
	2M1H 	-	✓	✓	-		IP67
	2MS 	-	✓	✓	-		IP67
PUSHBUTTON	3S1 	✓	-	-	-	N/A	N/A
	3SS 	✓	-	✓	-	N/A	IP67
	3SM 	✓	-	✓	✓	N/A	IP67
	3MN 	-	✓	-	-		N/A
	3MS 	-	✓	✓	-		IP68
	3MA 	-	✓	-	-		N/A
	3MNH 	-	✓	✓	-		IP67
SLIDE	4S1 	✓	-	-	-	N/A	N/A
	4M1 	-	✓	-	-		N/A

\*Manufacturer reserves the right to change product information without prior notice



# 1SS/1S1/1SM

## 1S-Series

### SUB-MINIATURE ROCKERS

The 1S family of sub-miniature rocker switches is composed of three switch series; the **1S1-Series** sub-miniature rocker switch, the **1SS-Series** sealed sub-miniature rocker switch, and the **1SM-Series** surface mount sealed sub-miniature rocker switch. All of these series offer a variety of ratings, circuits, contact materials, terminal platings, and actuator colors.



#### Product Highlights:

- IP67 Sealing
- 5 Circuit Configurations
- 3 Rocker Styles to choose from
- Dry-Circuit thru 3A 125VAC Rating
- Snap-in, Solder Lug or PC Terminations

#### Typical Applications:

- Instrumentation
- Test Equipment
- Telecommunications
- Networking
- Handheld Appliances

#### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)



**1SS-Series**  
Sealed  
Sub-Miniature  
Rocker Switch



**1S1-Series**  
Sub-Miniature  
Rocker Switch



**1SM-Series**  
Sealed Surface Mount  
Sub-Miniature  
Rocker Switch

### Electrical

Contact Rating	refer to ordering scheme
Electrical Life	<b>1S1-Series:</b> 30,000 make & break cycles @ full load <b>1SS &amp; 1SM-Series:</b> 50,000 make & break cycles @ full load
Contact Resistance	20 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts
Insulation Resistance	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level

### Material

Case	all UL94 V-0 <b>1S1-Series:</b> Diallyl phthalate (DAP) <b>1SS-Series:</b> Glass filled nylon 6/6, flame retardant, heat stabilized <b>1SM-Series:</b> Glass filled nylon 4/6, flame retardant, heat stabilized
Rocker	<b>1S1-Series:</b> Nylon (UL 94V-0) <b>1SS &amp; 1SM-Series:</b> Nylon, black standard, internal o-ring sealed
Bushing	<b>1S1-Series:</b> Brass, nickel plated <b>1SS-Series:</b> Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) <b>1SM-Series:</b> Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0)
Housing	<b>1S1-Series:</b> Stainless Steel
Switch Support	<b>1S1 &amp; 1SM-Series:</b> Brass, tin plated
Terminal Seal	Epoxy

### Physical

Operating Temperature	-30°C to +85°C
Index of Protection	1SS & 1SM-Series: IP67
Solder Heat Resistance	MIL-STD-202, Method 210
Actuator Travel	25°



<b>1 SERIES</b>	<b>1SS</b> Sealed Sub-Miniature Rocker Switch
-----------------	---

<b>2 POLES</b>	<b>WMSP</b> Single pole - uses terminals 1, 2 & 3
	<b>WMDP</b> Double pole - uses terminals 1, 2, 3, 4, 5 & 6

<b>3 CIRCUIT</b>			
() - momentary			
<b>Position:</b>	<b>1</b>	<b>2</b>	<b>3</b>
	2-3, 5-6	Connected Terminals	2-1, 5-4
<b>1</b>	ON	NONE	ON
<b>2</b>	ON	NONE	(ON)
<b>3</b>	ON	OFF	ON
<b>4</b>	(ON)	OFF	(ON)
<b>5</b>	ON	OFF	(ON)

<b>4 ACTUATOR STYLE</b>	
<b>R1</b>	Small Rocker
<b>R2</b>	Narrow Black Rocker

<b>5 ACTUATOR COLOR</b>	
<b>1</b>	White
<b>2</b>	Black
<b>3</b>	Red
Other colors available, consult factory.	

<b>6 TERMINATION</b>			
<b>M1</b>	Solder Lug	<b>M61</b>	Snap-In, U bracket, 90° horizontal
<b>M2</b>	PCB	<b>M71</b>	Snap-In, U bracket, 90° horizontal
<b>M6</b>	PC Mount, 90° horizontal	<b>VS21</b>	Snap-In, U bracket
<b>M7</b>	PC Mount, 90° vertical		
<b>VS2</b>	PC Mount, U bracket		
See page 6-7 for dimensional specifications.			

<b>7 CONTACTS / TERMINALS</b>				
	<b>Contact Material</b>	<b>Terminal Plating</b>	<b>Rating</b>	<b>Approvals</b>
<b>G</b>	silver <sup>1</sup>	gold over silver	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>K</b>	gold <sup>2,5</sup>	tin <sup>4</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b>	silver <sup>1,6</sup>	tin <sup>4</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>R</b>	gold <sup>2</sup>	gold <sup>2,3</sup>	0.4VA max 20V max (AC/DC)	IP67

<b>8 EPOXY SEAL</b>	
<b>E</b>	Epoxy Seal
<b>0</b>	without Epoxy Seal

Notes:  
 Tin option not available with M1 terminal.  
 1 Movable contact and terminal platings: silver over copper alloy  
 2 Movable contact platings: gold over nickel over copper alloy  
 3 Terminal platings: gold over nickel over copper alloy  
 4 Terminal platings: tin over copper alloy  
 5 Terminal contact platings: gold over nickel alloy  
 6 Terminal contact platings: silver over nickel alloy

\*Manufacturer reserves the right to change product specification without prior notice.

**1S1** - **MSP** **1** - **R2** / **2** **M6** **Q** **E**

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Actuator Color      6 Termination      7 Contacts      8 Seal

**1 SERIES**  
**1S1** Sub-Miniature Rocker Switch

**2 POLES**  
**MSP** Single pole - uses terminals 1, 2 & 3  
**MDP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6

**3 CIRCUIT**  
 ( ) - momentary  
**Position:**

Position	1	2	3
1	2-3, 5-6	Connected Terminals	2-1, 5-4
2	ON	NONE	ON
3	ON	NONE	(ON)
4	(ON)	OFF	ON
5	ON	OFF	(ON)

**4 ACTUATOR STYLE**  
**R1** Small Rocker  
**R2** Narrow Black Rocker  
**R3** Medium Rocker




**5 ACTUATOR COLOR**  
**1** White  
**2** Black  
**3** Red  
 Other colors available, consult factory.

**6 TERMINATION**

<b>M1</b> Solder Lug	<b>M61</b> Snap-In, U bracket, 90° horizontal
<b>M2</b> PCB	<b>M71</b> Snap-In, U bracket, 90° horizontal
<b>M6</b> PC Mount, 90° horizontal	<b>VS2</b> PC Mount, U bracket
<b>M7</b> PC Mount, 90° vertical	<b>VS3</b> PC Mount, U bracket

See page 8-9 for dimensional specifications.

**7 CONTACTS / TERMINALS**

Contact Material	Terminal Plating	Rating	Approvals
<b>G</b> silver <sup>1</sup>	gold over silver	3A 125VAC or 28VDC, 1.5A 250VAC	
<b>K</b> gold <sup>2</sup>	tin <sup>3</sup>	0.4VA max 20V max (AC/DC)	N/A
<b>P</b> silver <sup>1</sup>	tin <sup>3</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	
<b>Q</b> silver <sup>1</sup>	silver <sup>1</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	
<b>R</b> gold <sup>2</sup>	gold <sup>2</sup>	0.4VA max 20V max (AC/DC)	N/A

**8 EPOXY SEAL**  
**E** Epoxy Seal      **0** without Epoxy Seal

Notes:  
 Tin option available with M1 termination.  
 1 Movable contact and terminal platings: silver over copper alloy  
 2 Movable contact and terminal platings: gold over nickel over copper alloy  
 3 Terminal platings: tin over nickel over copper alloy

**1SM** - **WMSP** **1** - **R2** - **M2** **G** **E**  

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Termination      6 Contacts      7 Seal      8 Packaging

**1 SERIES**  
**1SM** Sealed Surface Mount Sub-Miniature Rocker Switch

**2 POLES**  
**WMSP** Single pole - uses terminals 1, 2 & 3

**3 CIRCUIT**  
 ( ) - momentary  
**Position:**

Position	1	2	3
1	2-3	Connected Terminals	2-1
2	ON	NONE	ON
3	ON	NONE	(ON)
4	(ON)	OFF	ON
5	ON	OFF	(ON)

**4 ACTUATOR STYLE**  
**R2** Narrow Black Rocker

**5 TERMINATION**  
**M6** Surface Mount, 90° flat - horizontal / side  
**S6** Surface Mount, 90° horizontal / back  
**S7** Surface Mount, 90° vertical  
 See page 10 for dimensional specifications.

**6 CONTACTS / TERMINALS**

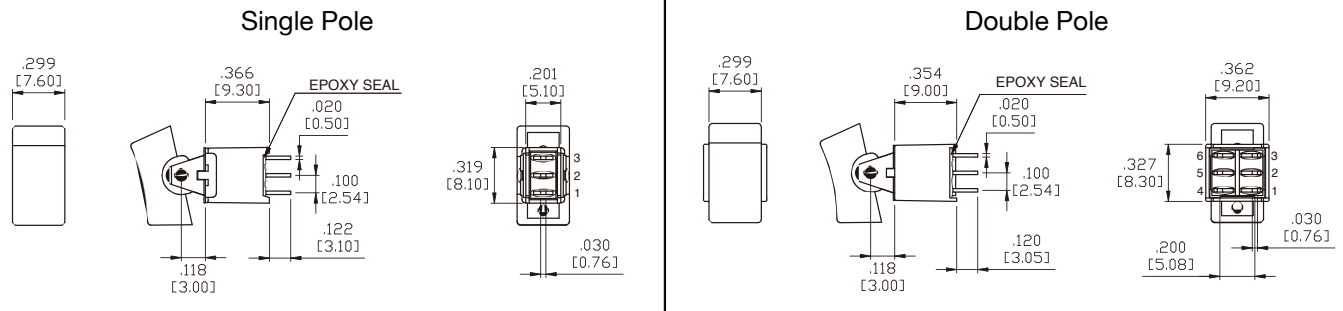
Contact Material	Terminal Plating	Rating	Approvals
<b>G</b> silver <sup>1</sup>	gold over silver	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>K</b> gold <sup>2,5</sup>	tin <sup>4</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b> silver <sup>1,6</sup>	tin <sup>4</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>Q</b> silver <sup>1</sup>	silver <sup>1</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>R</b> gold <sup>2</sup>	gold <sup>3</sup>	0.4VA max 20V max (AC/DC)	IP67

**7 EPOXY SEAL**  
**E** Epoxy Seal      **0** without Epoxy Seal

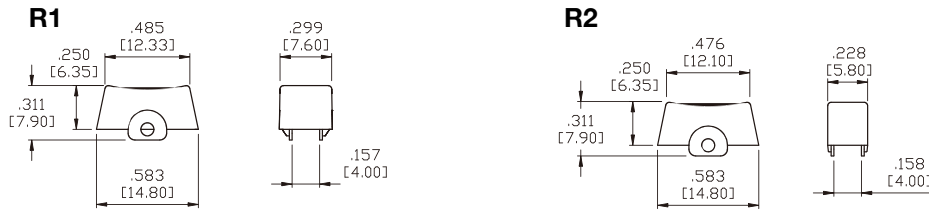
**8 PACKAGING**  
**T/R** tape reel - 500 pieces per reel  
 Switches are bulk packed, unless T/R is specified at the end of the part number.

Notes:  
 Tin option not available with M1 termination.  
 1 Movable contact and terminal platings: silver over copper alloy  
 2 Movable contact platings: gold over nickel over copper alloy  
 3 Terminal platings: gold over nickel over copper alloy  
 4 Terminal platings: tin over copper alloy  
 5 Terminal contact platings: gold over nickel alloy  
 6 Terminal contact platings: silver over nickel alloy

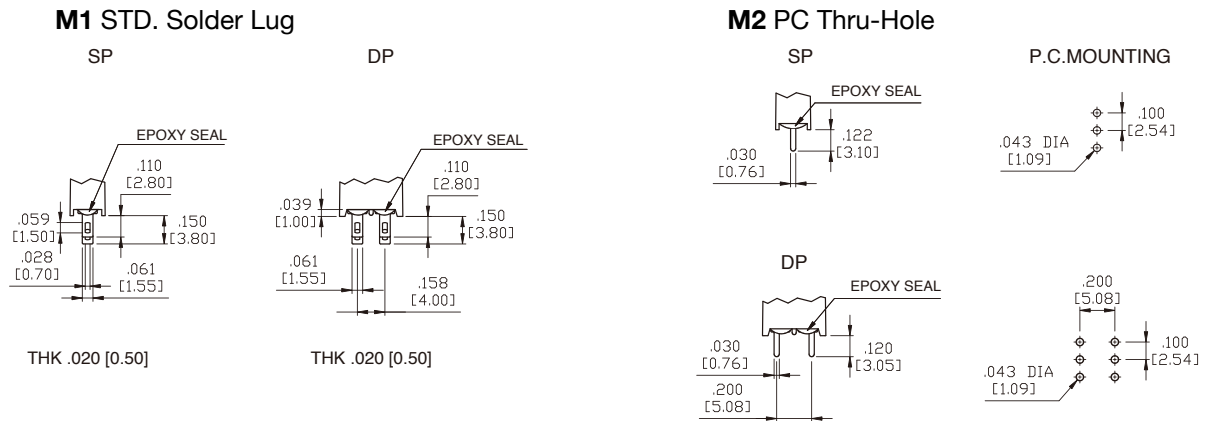
# 1SS-Series Dimensional Specifications: in. [mm]



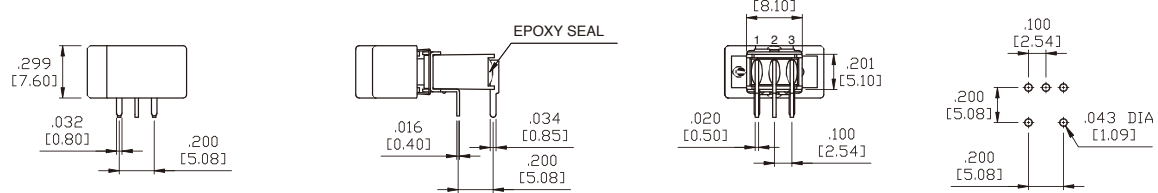
## Actuator Options



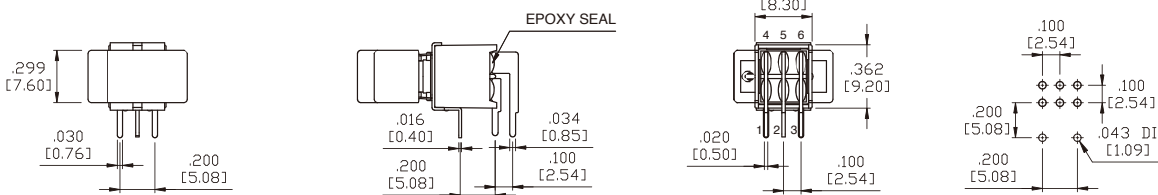
## Termination Options



## M6 Single Pole

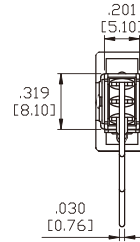
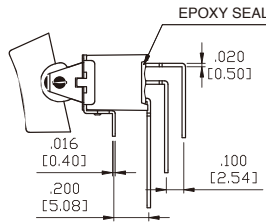
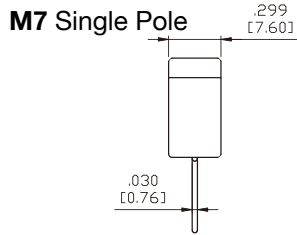


## M6 Double Pole

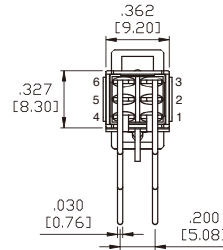
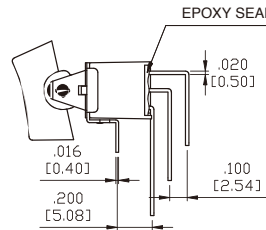
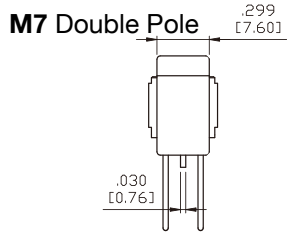
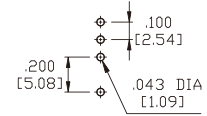


## 1SS-Series Dimensional Specifications: in. [mm]

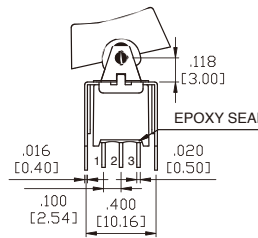
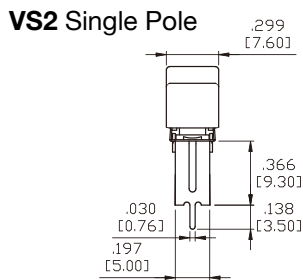
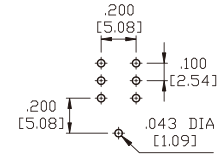
### Termination Options



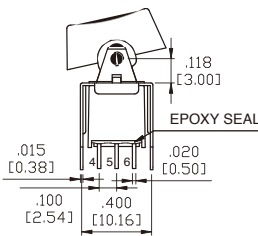
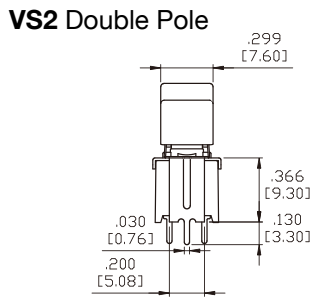
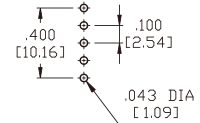
P.C.MOUNTING



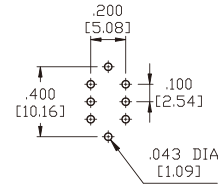
P.C.MOUNTING



P.C.MOUNTING

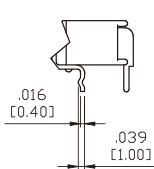


P.C.MOUNTING

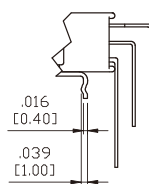


### Snap-In Termination Options

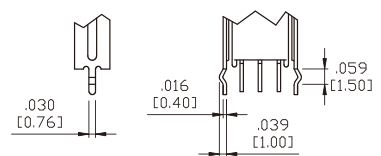
**M61**



**M71**

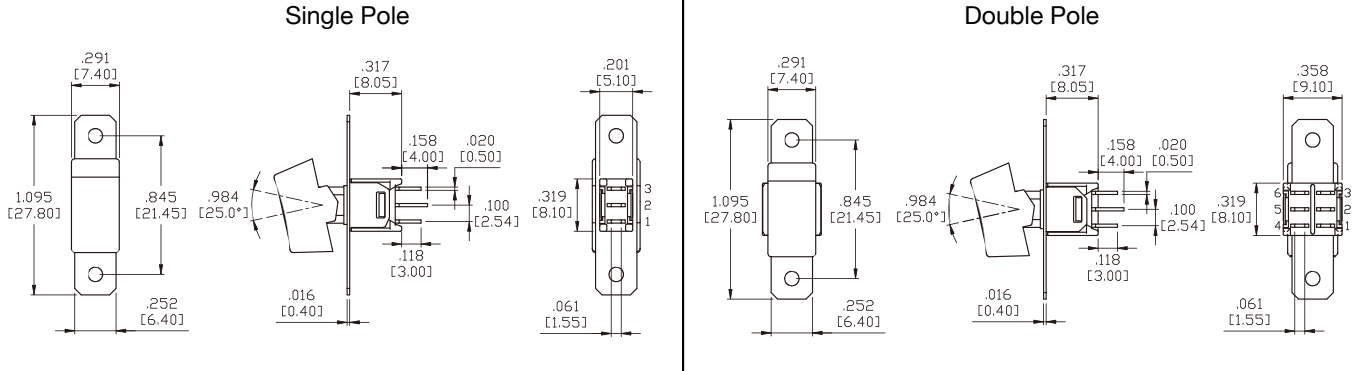


**VS21**

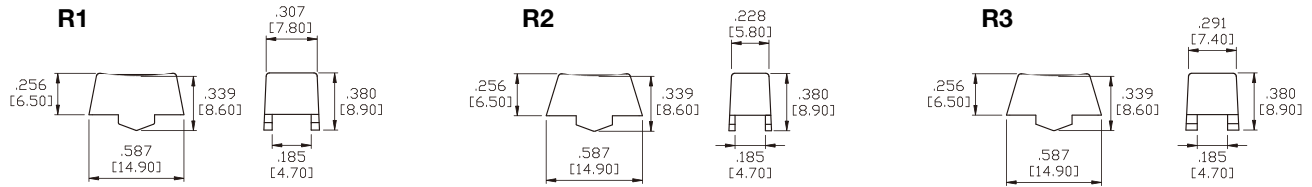


\* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

## 151-Series Dimensional Specifications: in. [mm]

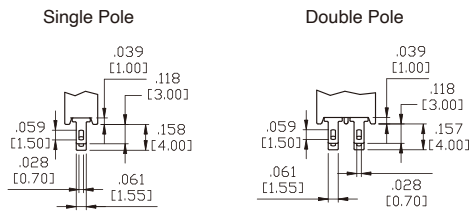


### Actuator Options

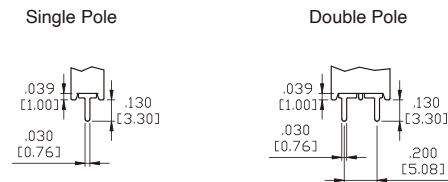


### Termination Options

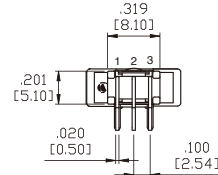
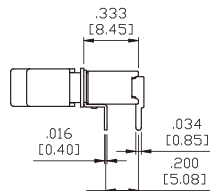
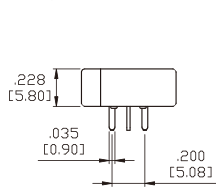
#### M1 STD. Solder Lug



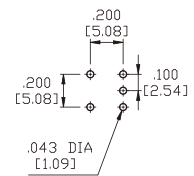
#### M2 PC Thru-Hole



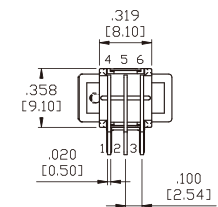
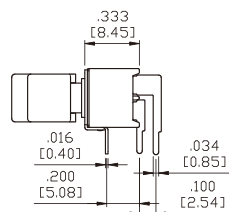
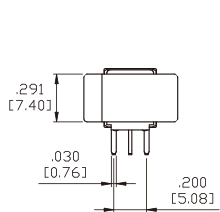
#### M6 Single Pole



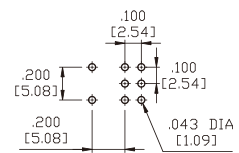
#### P.C.MOUNTING



#### M6 Double Pole



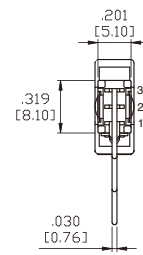
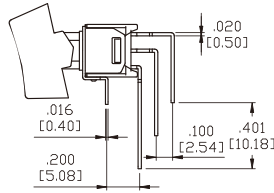
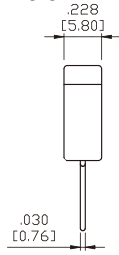
#### P.C.MOUNTING



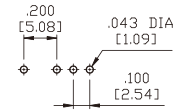
# 1S1-Series Dimensional Specifications: in. [mm]

## Termination Options

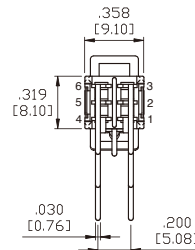
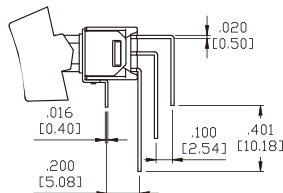
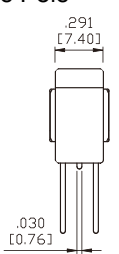
### M7 Single Pole



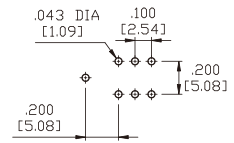
### P.C.MOUNTING



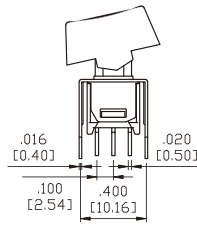
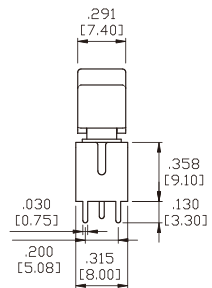
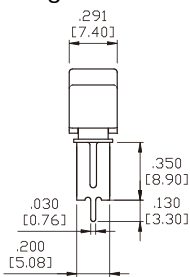
### M7 Double Pole



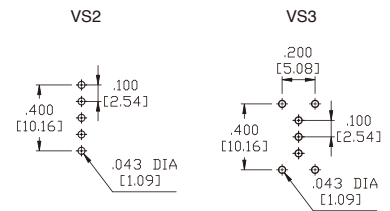
### P.C.MOUNTING



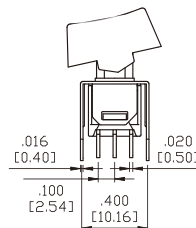
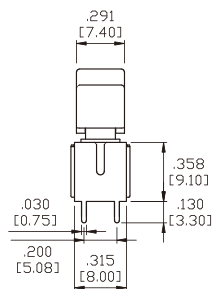
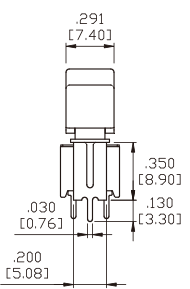
### VS2-VS3 Single Pole



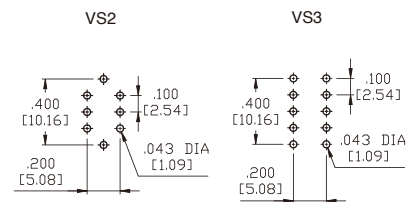
### P.C.MOUNTING



### VS2-VS3 Double Pole

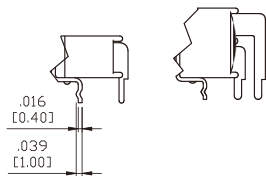


### P.C.MOUNTING

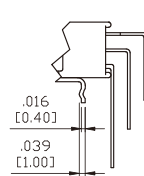


## Snap-In Termination Options

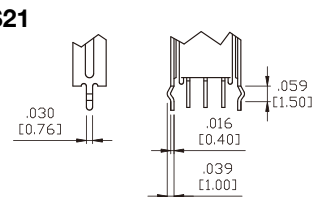
### M61



### M71



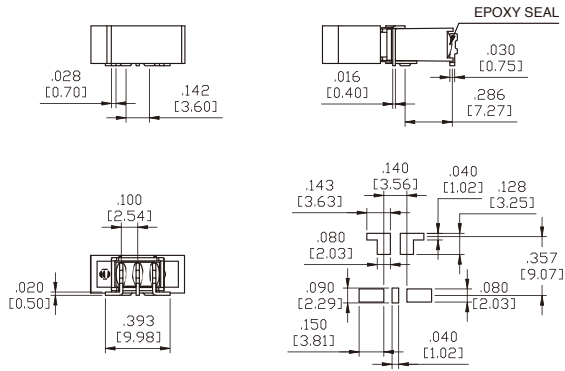
### VS21



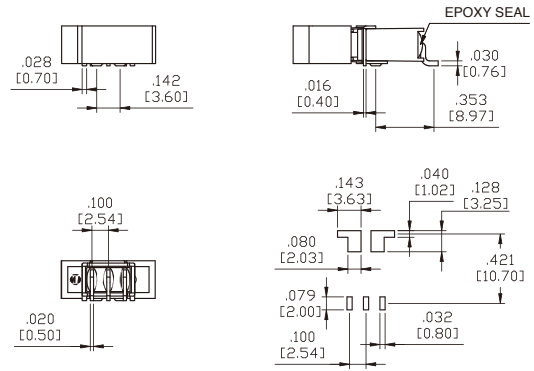
\* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

# 1SM-Series Dimensional Specifications: in. [mm]

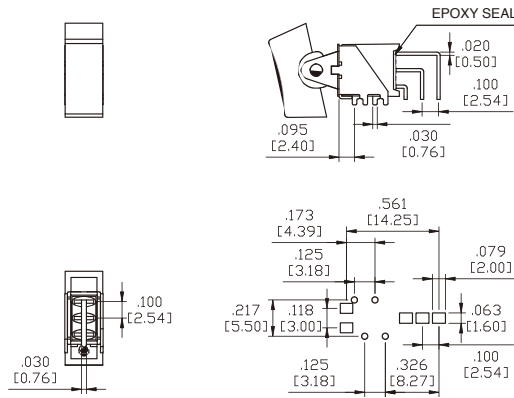
## M6 Single Pole



## S6 Single Pole

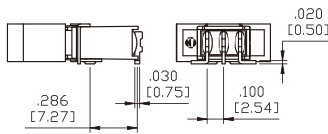


## S7 Single Pole

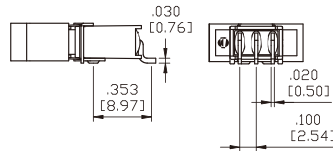


## Termination Options

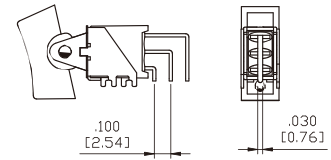
### M6



### S6



### S7





# 1MS/1M1

## 1M-Series

### MINIATURE ROCKERS & PADDLES

The 1M family of miniature rocker & paddle switches is composed of two switch series; the **1M1-Series** miniature rocker and paddle switch, and the **1MS-Series** sealed miniature rocker and paddle switch. Both products feature PC mounting and offer a variety of ratings, circuits, contact materials, terminal platings, rocker and paddle actuator styles and colors.



#### Product Highlights:

- IP67 Sealing
- 9 Circuit Options
- Over 20 Termination Styles
- UL, CSA & cUL Approvals

#### Typical Applications:

- Instrumentation
- Test Equipment
- Telecommunications
- Networking
- Handheld Appliance

#### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)



**1MS-Series**  
**Sealed**  
**Miniature Rocker**  
**& Rocker Switch**



**1M1-Series**  
**Miniature Rocker**  
**& Rocker Switch**

**Electrical**

Contact Rating	refer to ordering scheme
Electrical Life	<i>1MS-Series:</i> 30,000 make & break cycles @ full load <i>1M1-Series:</i> 50,000 make & break cycles @ full load
Contact Resistance	10 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts
Insulation Resistance	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level

**Physical**

Operating Temperature	-30°C to +85°C
Index of Protection	1MS-Series: IP67
Solder Heat Resistance	MIL-STD-202, Method 210
Actuator Travel	25°

**Material**

Case	<i>1MS-Series:</i> Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) <i>1M1-Series:</i> Diallyl phthalate (DAP) (UL 94V-0)
Rocker/Paddle	<i>1MS-Series:</i> Nylon, black standard, internal o-ring sealed <i>1M1-Series:</i> Nylon (UL 94V-0)
Bushing	<i>1MS-Series:</i> Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) <i>1M1-Series:</i> Brass, nickel plated
Housing	<i>1MS-Series:</i> Spring Steel <i>1M1-Series:</i> Stainless Steel
Actuator Pivot & Mounting Bracket	<i>1MS-Series:</i> Nylon (UL 94V-0) <i>1M1-Series:</i> Stainless Steel
Actuator Pivot Retainer	<i>1MS-Series:</i> Stainless Steel
Switch Support	Brass, tin plated
Terminal Seal	Epoxy

\*Manufacturer reserves the right to change product specification without prior notice.

**1MS** - **SP** **1** - **R6** / **2** **M6** **G** **E**

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Actuator Color      6 Termination      7 Contacts      8 Seal

**1 SERIES**

**1MS** Sealed Miniature Rocker Switch

**2 POLES**

**SP** Single pole - uses terminals 1, 2 & 3  
**DP** Double pole uses terminals 1,2, 3, 4, 5 & 6  
**3P** Three pole uses terminals 1,2, 3, 4, 5, 6, 7, 8 & 9

**3 CIRCUIT**

( ) - momentary

<b>Position:</b>	<b>1</b>	<b>2</b>	<b>3</b>
	2-3, 5-6, 8-9	Connected Terminals	2-1, 5-4, 8-7
<b>1</b>	ON	NONE	ON
<b>2</b>	ON	NONE	(ON)
<b>3</b>	ON	OFF	ON
<b>4</b>	(ON)	OFF	(ON)
<b>5</b>	ON	OFF	(ON)
<b>6*</b>	ON	ON	ON
<b>7*</b>	(ON)	ON	(ON)
<b>8*</b>	ON	ON	(ON)
<b>9*</b>	OFF	ON	(ON)

\*Center Position Connects 2-3, 5-4, 8-9

**4 ACTUATOR STYLE**

<b>R1</b> Standard Rocker	<b>R4</b> Large Paddle
<b>R2</b> Standard Paddle	<b>R5</b> Large Rocker
<b>R3</b> Medium Rocker	<b>R6</b> Small Rocker
	<b>R7</b> Medium Paddle

**5 ACTUATOR COLOR**



**1** White      **2** Black      **3** Red  
 Black is standard. Other colors available, consult factory.

**6 TERMINATION**

<b>M1</b> Solder Lug	<b>VS2</b> PC Mount, U bracket
<b>M2</b> PCB	<b>VS3</b> PC Mount, U bracket
<b>M3</b> Quick Connect	<b>VS4</b> PC Mount, U bracket
<b>M51</b> Wire Wrap	<b>VS5</b> PC Mount, U bracket
<b>M52</b> Wire Wrap	<b>VS21</b> Snap-In, U bracket
<b>M53</b> Wire Wrap	<b>VS31</b> Snap-In, U bracket
<b>M54</b> Wire Wrap	<b>VS41</b> Snap-In, U bracket
<b>M6</b> PC Mount, 90° horizontal	<b>VS51</b> Snap-In, U bracket
<b>M7</b> PC Mount, 90° vertical	<b>U2</b> Vertical Mount, 3-Pole
	<b>U4</b> Snap-In, U bracket, 3-Pole

See page 16-18 for dimensional specifications.

**7 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>1</sup>	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	 us, IP67
<b>K</b>	gold <sup>2,5</sup>	tin <sup>4</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b>	silver <sup>1,6</sup>	tin <sup>4</sup>	5A 125VAC or 28VDC, 2A 250VAC	 us, IP67
<b>R</b>	gold <sup>2</sup>	gold <sup>3</sup>	0.4VA max 20V max (AC/DC)	IP67

**8 EPOXY SEAL**

**E** Epoxy Seal      **0** without Epoxy Seal

Notes:

- Tin option not available with M1 and M3 terminals.
- 1 Movable contact and terminal platings: silver over copper alloy
- 2 Movable contact platings: gold over nickel over copper alloy
- 3 Terminal platings: gold over nickel over copper alloy
- 4 Terminal platings: tin over copper alloy
- 5 Terminal contact platings: gold over nickel alloy
- 6 Terminal contact platings: silver over nickel alloy

**1M1** - **SP** **1** - **R8** / **2** - **M6** **Q** **E**

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Actuator Color      6 Frame Color      7 Termination      8 Contacts      9 Seal

**1 SERIES**

**1M1** Miniature Rocker Switch

**2 POLES**

**SP** Single pole - uses terminals 1, 2 & 3  
**DP** Double pole uses terminals 1,2, 3, 4, 5 & 6  
**3P** Three pole uses terminals 1,2, 3, 4, 5, 6, 7, 8 & 9  
**4P** Four pole uses terminals 1,2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

**3 CIRCUIT**

( ) - momentary

<b>Position:</b>	<b>1</b>	<b>2</b>	<b>3</b>
	2-3, 5-6, 8-9, 11-12	Connected Terminals	2-1, 5-4, 8-7, 11-10
<b>1</b>	ON	NONE	ON
<b>2</b>	ON	NONE	(ON)
<b>3</b>	ON	OFF	ON
<b>4</b>	(ON)	OFF	(ON)
<b>5</b>	ON	OFF	(ON)
<b>6<sup>1</sup></b>	ON	ON	ON
<b>7<sup>1</sup></b>	(ON)	ON	(ON)
<b>8<sup>1</sup></b>	ON	ON	(ON)
<b>9<sup>2</sup></b>	NONE	ON	(ON)

**4 ACTUATOR STYLE**

<b>R1</b> Standard Rocker	<b>R5</b> Large rocker
<b>R2</b> Standard Paddle	<b>R6</b> Rocker & frame
<b>R3</b> Medium Rocker	<b>R7</b> Paddle & frame
<b>R4</b> Large Paddle	<b>R8</b> Rocker without frame
	<b>R9</b> Paddle without frame

**5 ACTUATOR COLOR / 6 FRAME COLOR**







**0** No Frame\*      **2** Black  
**1** White      **3** Red  
 Black is standard. Other colors available, consult factory.  
 \*Actuator style R8 or R9 only.

**7 TERMINATION**

<b>M1</b> Solder Lug	<b>VS3</b> PC Mount, U bracket
<b>M2</b> PCB	<b>VS4</b> PC Mount, U bracket
<b>M3</b> Quick Connect	<b>VS5</b> PC Mount, U bracket
<b>M51</b> Wire Wrap	<b>M61</b> Snap-In, U bracket, 90° horizontal
<b>M52</b> Wire Wrap	<b>M71</b> Snap-In, U bracket, 90° vertical
<b>M53</b> Wire Wrap	<b>VS21</b> Snap-In, U bracket
<b>M54</b> Wire Wrap	<b>VS31</b> Snap-In, U bracket
<b>M6</b> PC Mount, 90° horizontal	<b>VS41</b> Snap-In, U bracket
<b>M7</b> PC Mount, 90° vertical	<b>VS51</b> Snap-In, U bracket
<b>VS2</b> PC Mount, U bracket	<b>U4</b> Snap-In, U bracket, 3-Pole

See page 21-23 for dimensional specifications.

**8 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>3</sup>	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	 us, 
<b>K</b>	gold <sup>4,7</sup>	tin <sup>6</sup>	0.4VA max 20V max (AC/DC)	N/A
<b>P</b>	silver <sup>3,8</sup>	tin <sup>6</sup>	5A 125VAC or 28VDC, 2A 250VAC	 us, 
<b>Q</b>	silver <sup>3</sup>	silver <sup>3</sup>	5A 125VAC or 28VDC, 2A 250VAC	 us, 
<b>R</b>	gold <sup>4</sup>	gold <sup>5</sup>	0.4VA max 20V max (AC/DC)	N/A

**9 EPOXY SEAL**

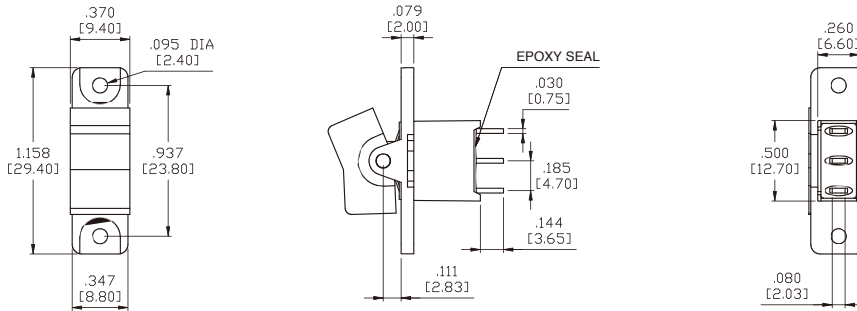
**E** Epoxy Seal      **0** without Epoxy Seal

Notes:

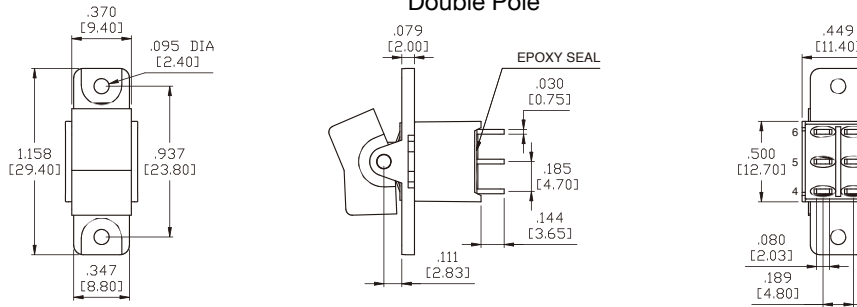
- Tin option not available with M1 and M3 terminals.
- 1 Double-Pole and Four-Pole only. Center position connects 2-3, 5-4, 8-9, 11-10
- 2 Double-Pole only
- 3 Movable contact and terminal platings: silver over copper alloy
- 4 Movable contact platings: gold over nickel over copper alloy
- 5 Terminal platings: gold over nickel over copper alloy
- 6 Terminal platings: tin over copper alloy
- 7 Terminal contact platings: gold over nickel alloy
- 8 Terminal contact platings: silver over nickel alloy

# 1MS-Series Dimensional Specifications: in. [mm]

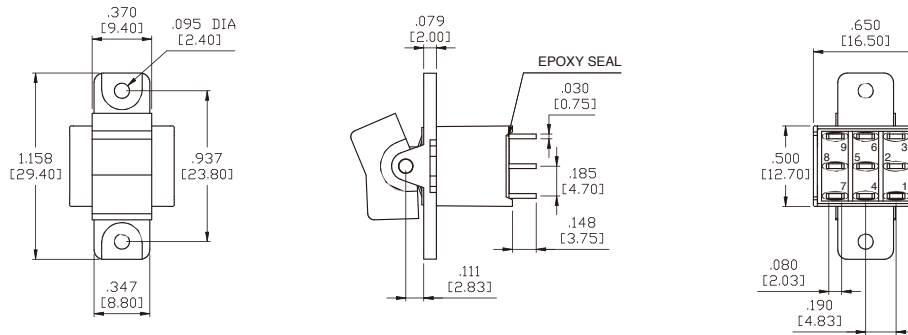
## Single Pole



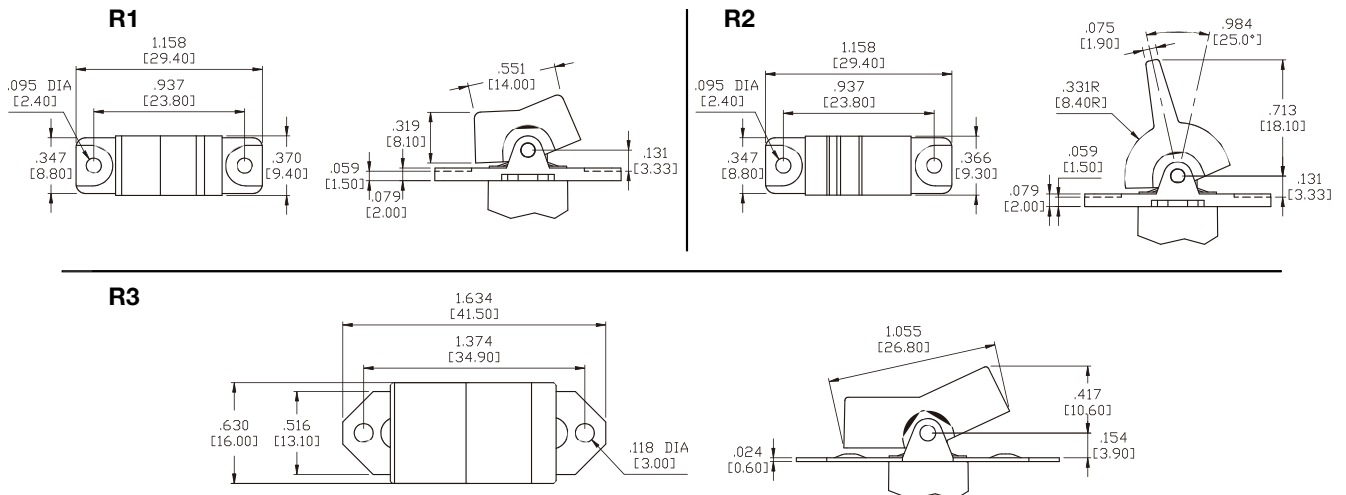
## Double Pole



## Three Pole



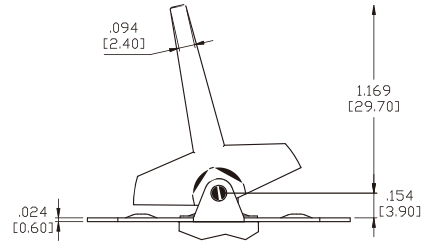
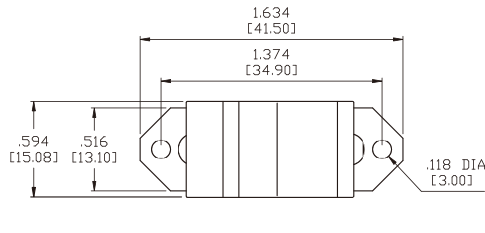
## Actuator Options for Panel Rear Mount



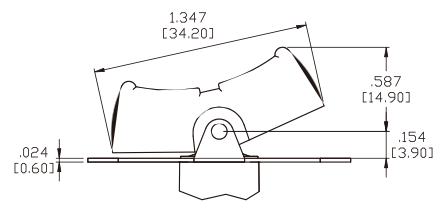
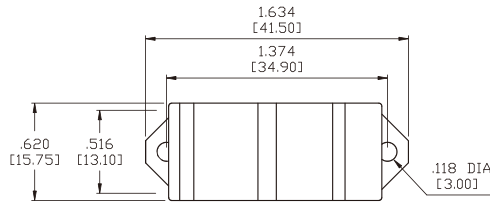
## 1MS-Series Dimensional Specifications: in. [mm]

### Actuator Options for Panel Rear Mount

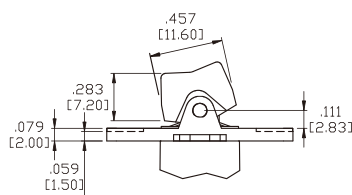
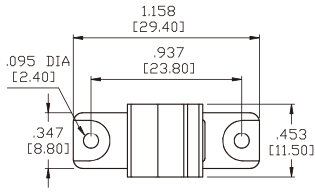
**R4**



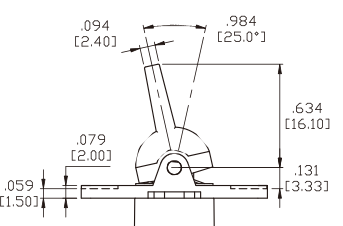
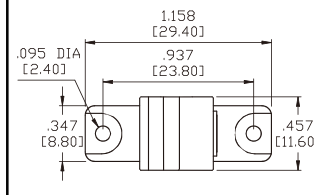
**R5**



**R6**

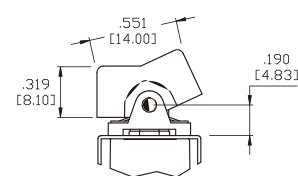
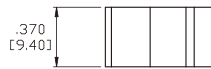


**R7**

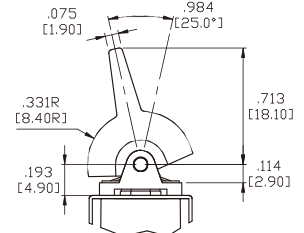
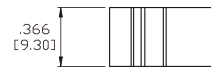


### Actuator Options for PC Mount

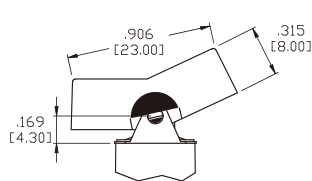
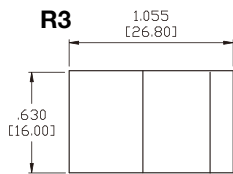
**R1**



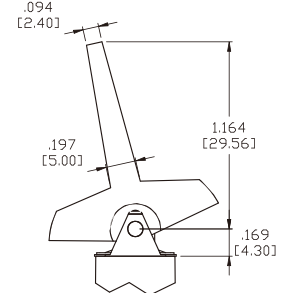
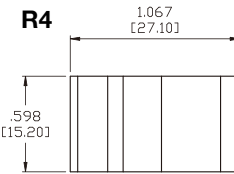
**R2**



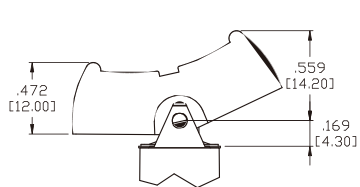
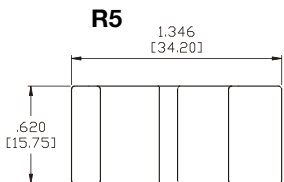
**R3**



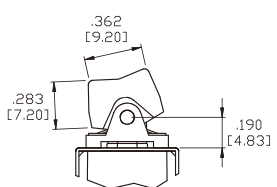
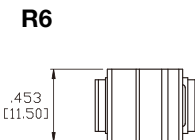
**R4**



**R5**



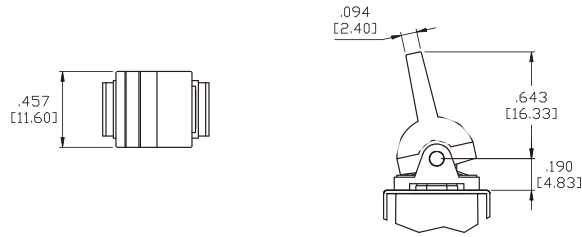
**R6**



# 1MS-Series Dimensional Specifications: in. [mm]

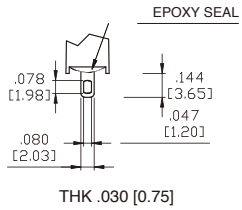
## Actuator Options for PC Mount

R7

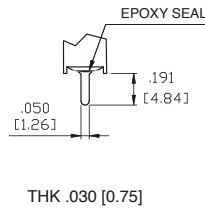


## Termination Options

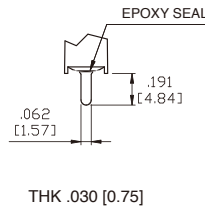
### M1 Standard Solder Lug



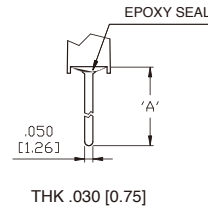
### M2 PC Thru-Hole



### M3 Quick Connect

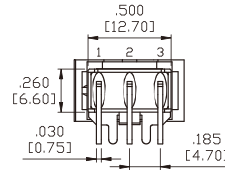
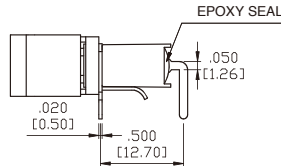
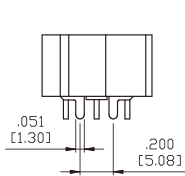


### M5 Wire Wrap

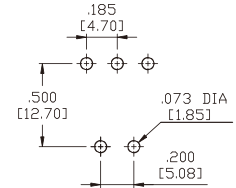


OPTION CODE	DIM.'A'
M5-1	.711 [18.05]
M5-2	.924 [23.48]
M5-3	.386 [9.80]
M5-4	1.022 [25.97]

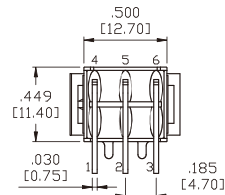
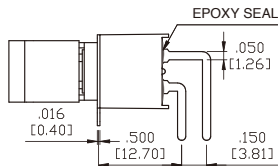
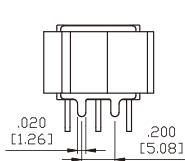
### M6 Single Pole



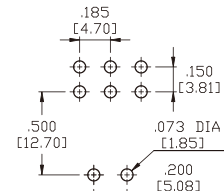
### P.C.MOUNTING



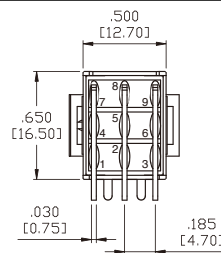
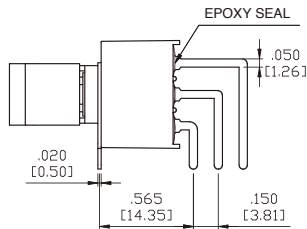
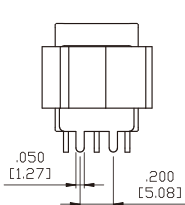
### M6 Double Pole



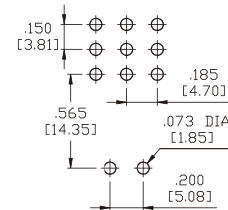
### P.C.MOUNTING



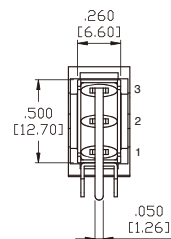
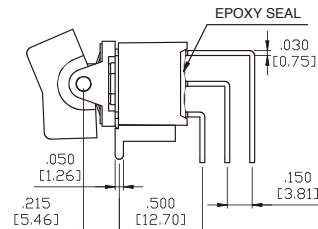
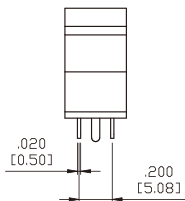
### M6 Three Pole



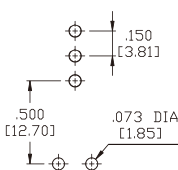
### P.C.MOUNTING



### M7 Single Pole



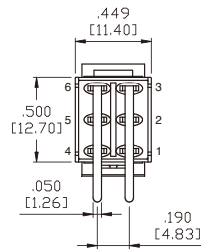
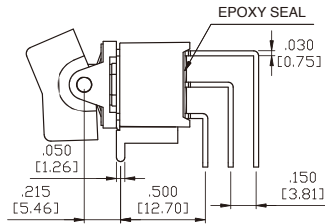
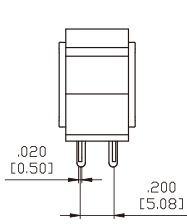
### P.C.MOUNTING



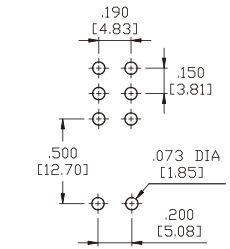
# 1MS-Series Dimensional Specifications: in. [mm]

## Termination Options

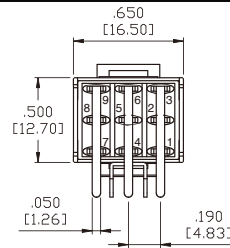
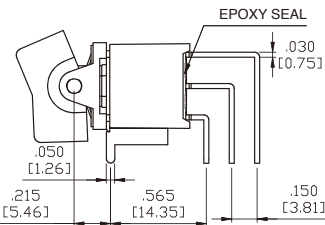
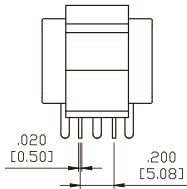
### M7 Double Pole



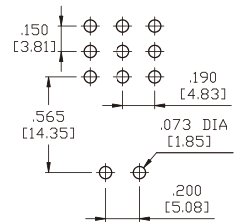
### P.C.MOUNTING



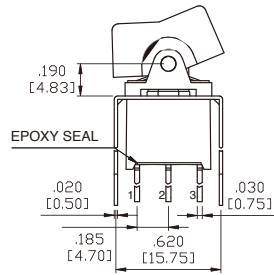
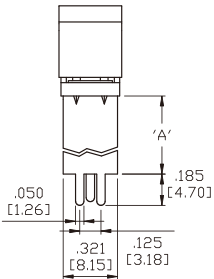
### M7 Three Pole



### P.C.MOUNTING

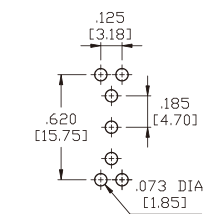


### VS2-VS3 Single Pole

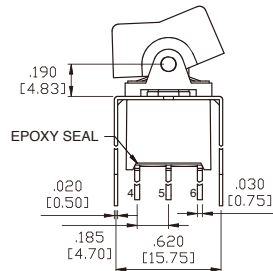
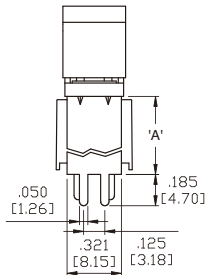


OPTION CODE	DIM.'A'
<b>VS2</b>	.461 [11.70]
<b>VS3</b>	.630 [16.00]

### P.C.MOUNTING

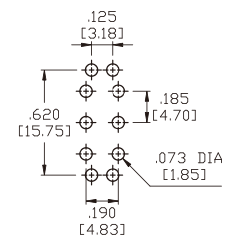


### VS2-VS3 Double Pole

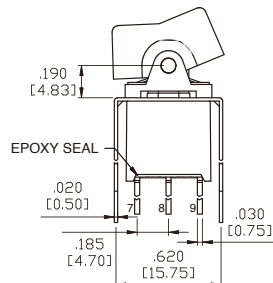
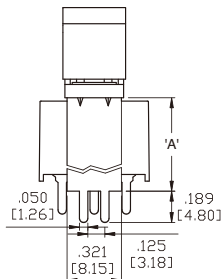


OPTION CODE	DIM.'A'
<b>VS2</b>	.461 [11.70]
<b>VS3</b>	.630 [16.00]

### P.C.MOUNTING

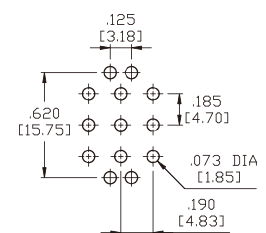


### U2-VS3 Three Pole



OPTION CODE	DIM.'A'
<b>U2</b>	.551 [14.00]
<b>VS3</b>	.630 [16.00]

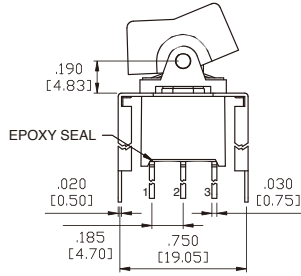
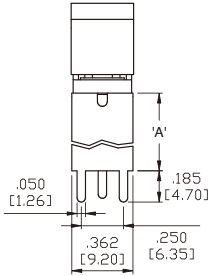
### P.C.MOUNTING



# 1MS-Series Dimensional Specifications: in. [mm]

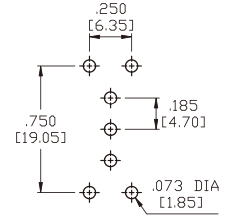
## Termination Options

### VS4-VS5 Single Pole

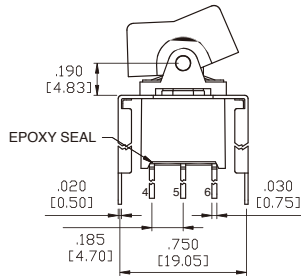
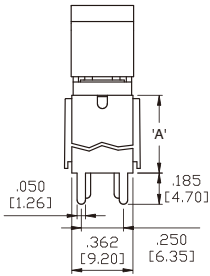


OPTION CODE	DIM.'A'
<b>VS4</b>	.461 [11.70]
<b>VS5</b>	.630 [16.00]

### P.C.MOUNTING

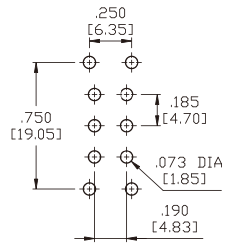


### VS4-VS5 Double Pole

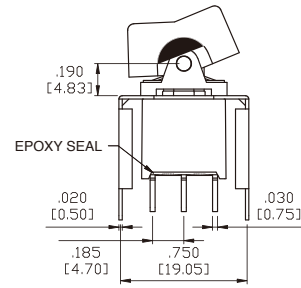
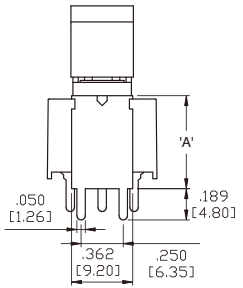


OPTION CODE	DIM.'A'
<b>VS4</b>	.461 [11.70]
<b>VS5</b>	.630 [16.00]

### P.C.MOUNTING

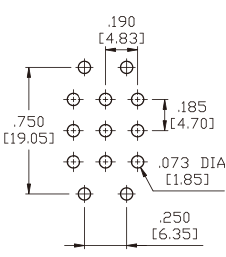


### U4-VS5 Three Pole



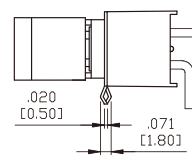
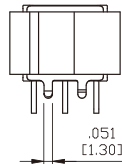
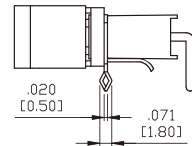
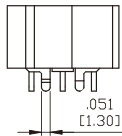
OPTION CODE	DIM.'A'
<b>U4</b>	.551 [14.00]
<b>VS5</b>	.630 [16.00]

### P.C.MOUNTING

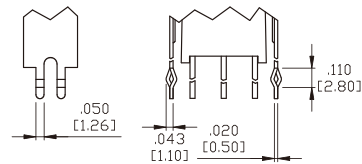


## Snap-In Termination Options

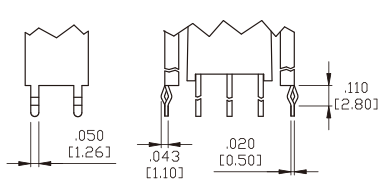
### M61



### VS21, VS31



### VS41, VS51

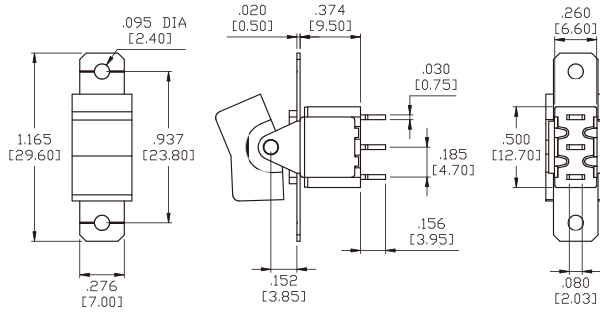


\* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.

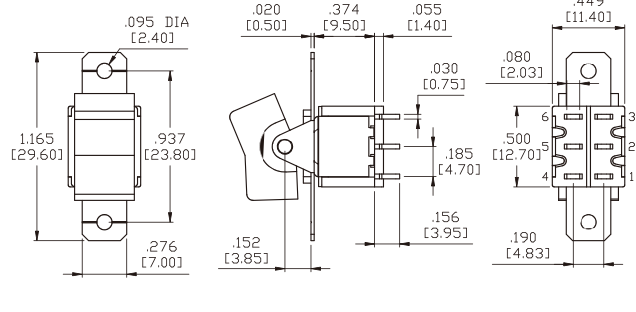


## 1M1-Series Dimensional Specifications: in. [mm]

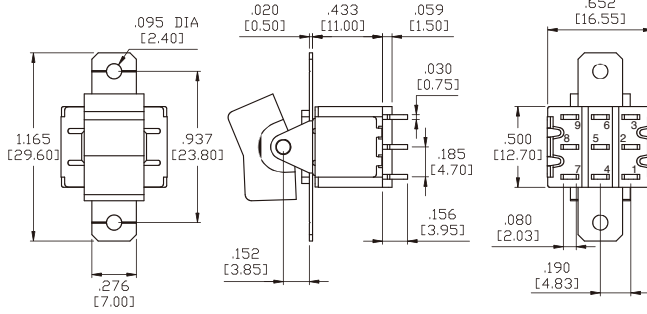
### Single Pole



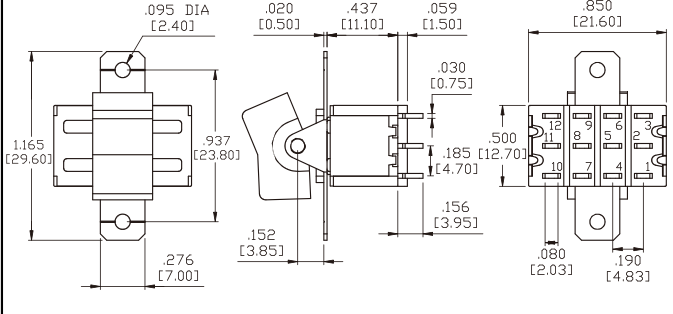
### Double Pole



### Three Pole

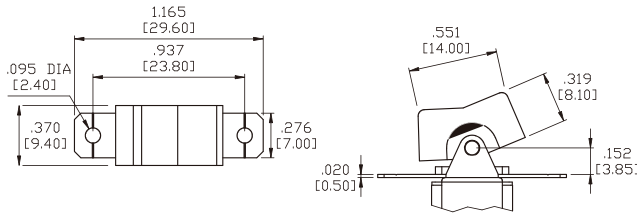


### Four Pole

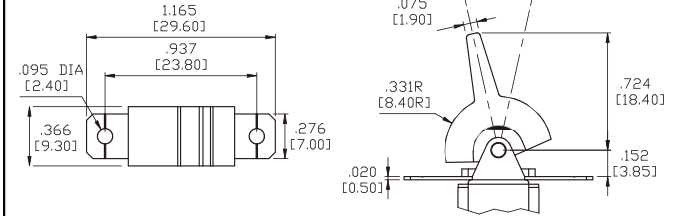


### Actuator Options for Panel Rear Mount

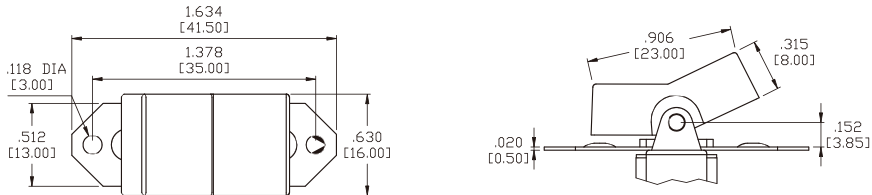
#### R1



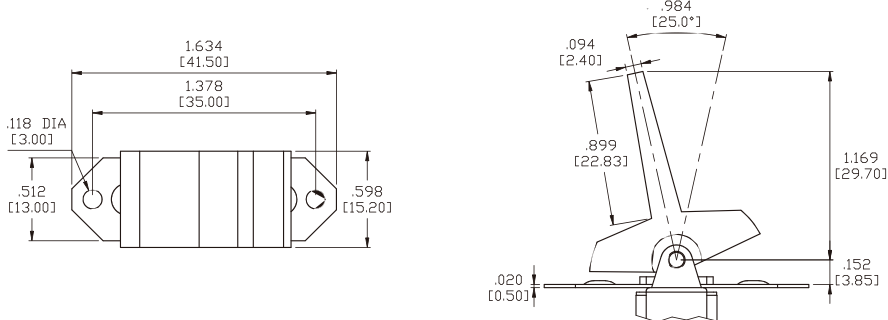
#### R2



#### R3



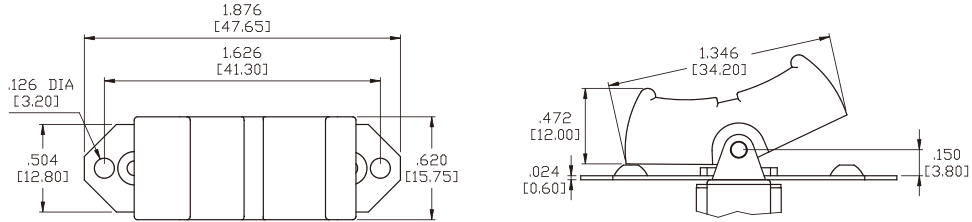
#### R4



## 1M1-Series Dimensional Specifications: in. [mm]

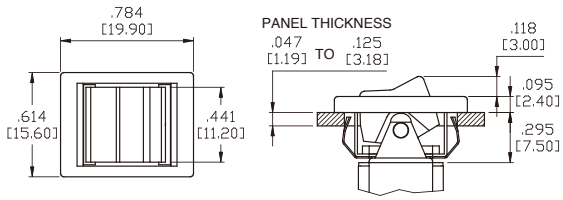
### Actuator Options for Panel Rear Mount

**R5**

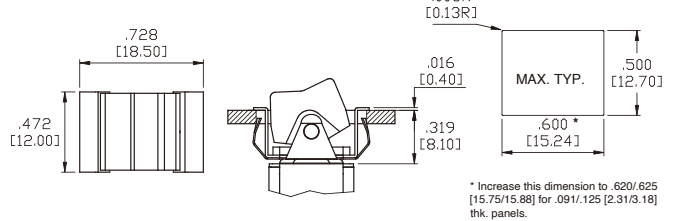


### Actuator Options for Snap-In Mount

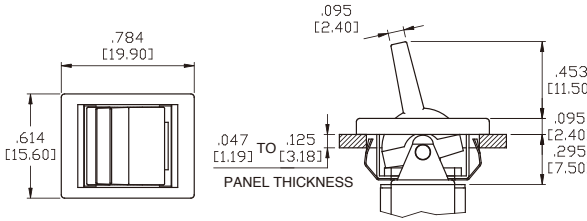
**R6**



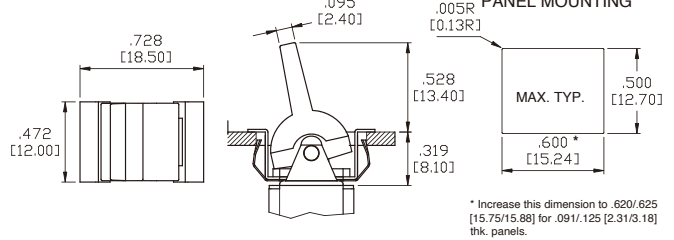
**R6 WITHOUT FRAME**



**R7**

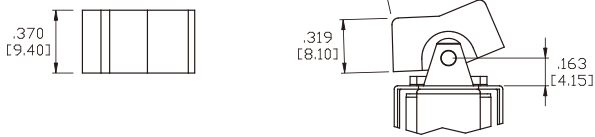


**R7 WITHOUT FRAME**

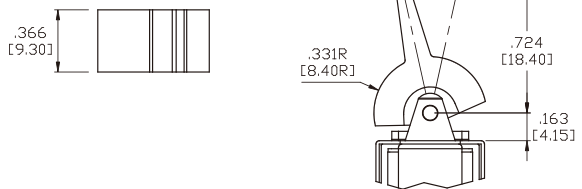


### Actuator Options for PC Mount

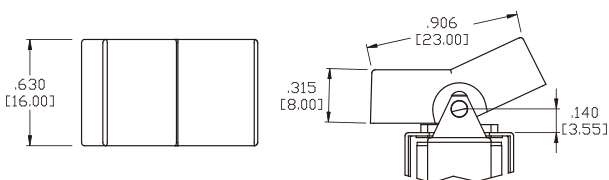
**R1**



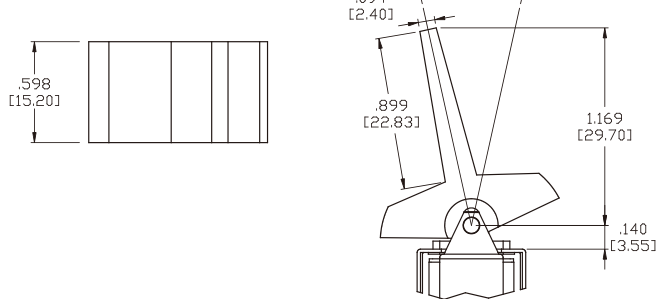
**R2**



**R3**

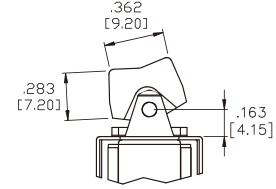
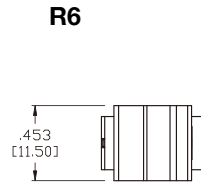
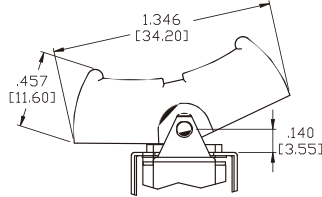
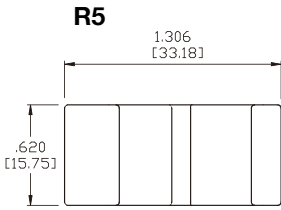


**R4**

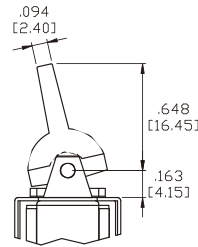
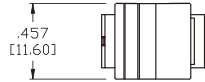


# 1M1-Series Dimensional Specifications: in. [mm]

## Actuator Options for PC Mount

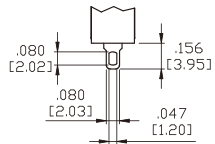


**R7**



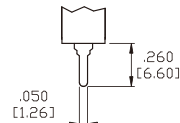
## Termination Options

**M1 Standard Solder Lug**



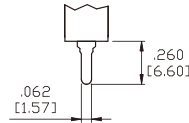
THK .030 [0.75]

**M2 PC Thru-Hole**



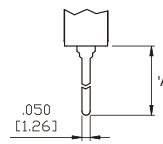
THK .030 [0.75]

**M3 Quick Connect**



THK .030 [0.75]

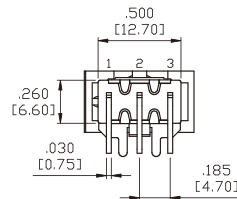
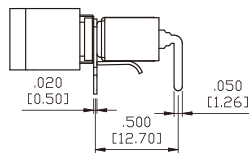
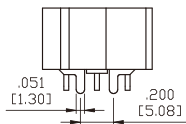
**M5 Wire Wrap**



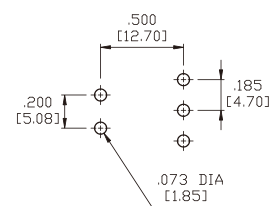
THK .030 [0.75]

OPTION CODE	DIM.'A'
<b>M5-1</b>	.750 [19.05]
<b>M5-2</b>	.964 [24.48]
<b>M5-3</b>	.425 [10.80]
<b>M5-4</b>	1.062 [26.97]

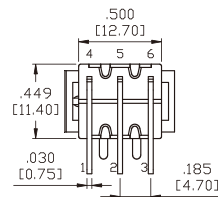
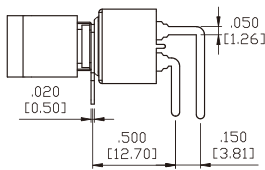
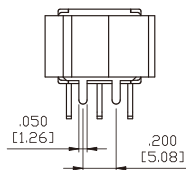
**M6 Single Pole**



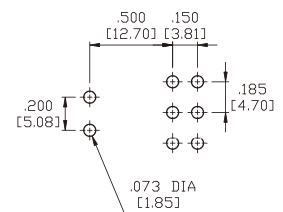
**P.C.MOUNTING**



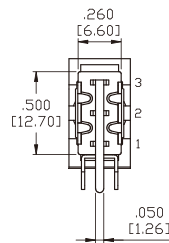
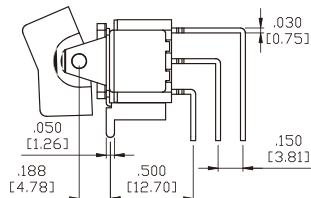
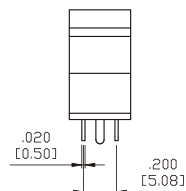
**M6 Double Pole**



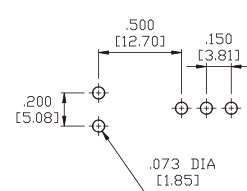
**P.C.MOUNTING**



**M7 Single Pole**



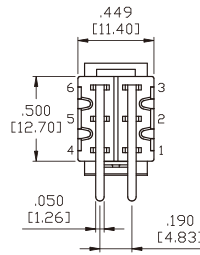
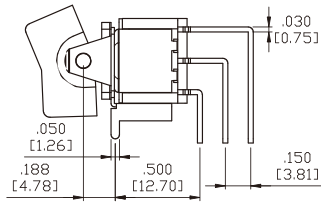
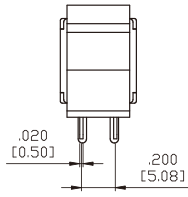
**P.C.MOUNTING**



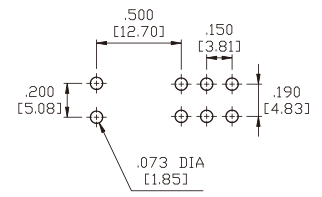
# 1M1-Series Dimensional Specifications: in. [mm]

## Termination Options

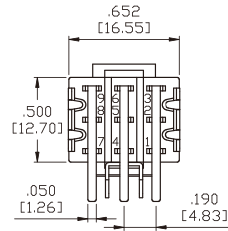
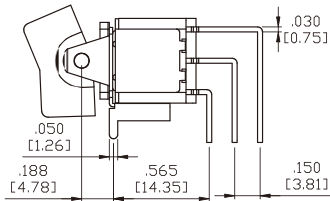
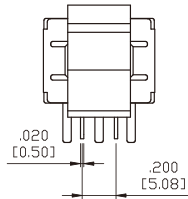
### M7 Double Pole



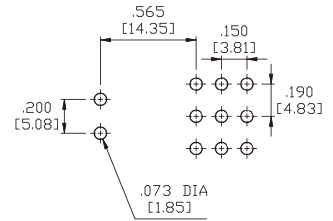
### P.C.MOUNTING



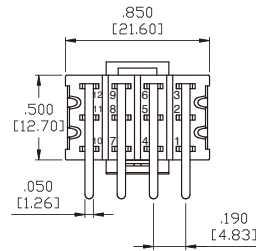
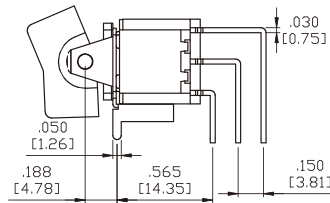
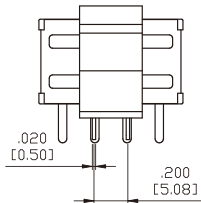
### M7 Three Pole



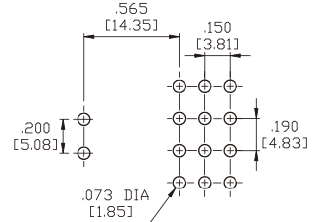
### P.C.MOUNTING



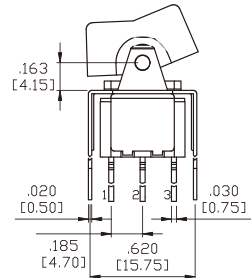
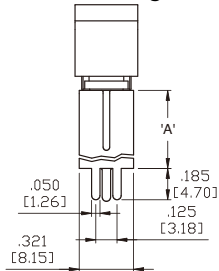
### M7 Four Pole



### P.C.MOUNTING

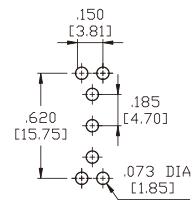


### VS2-VS3 Single Pole

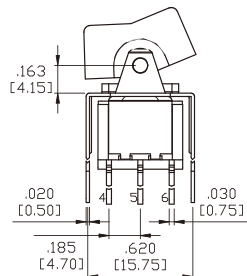
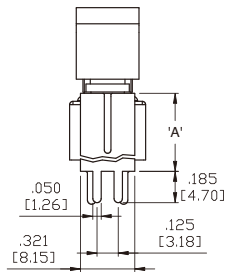


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

### P.C.MOUNTING

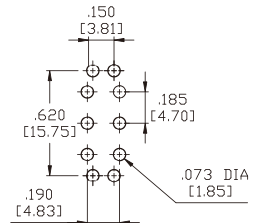


### VS2-VS3 Double Pole



OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

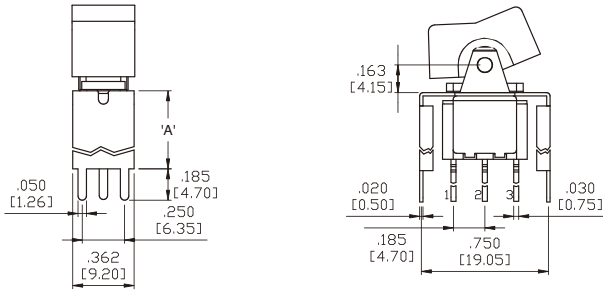
### P.C.MOUNTING



# 1M1-Series Dimensional Specifications: in. [mm]

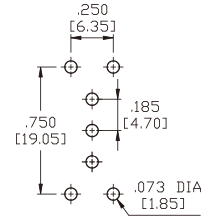
## Termination Options

### VS4-VS5 Single Pole

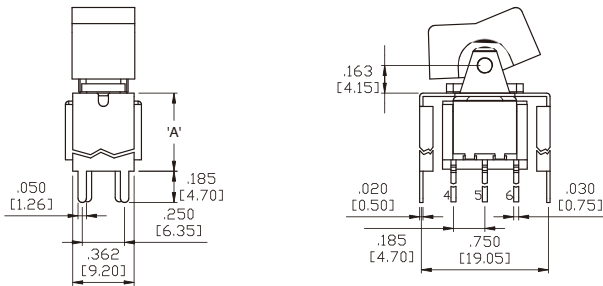


OPTION CODE	DIM. 'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

### P.C.MOUNTING

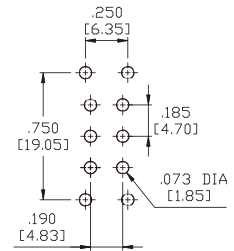


### VS4-VS5 Double Pole

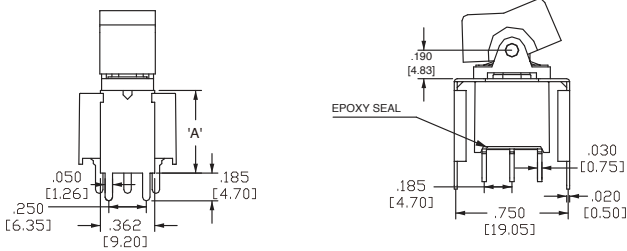


OPTION CODE	DIM. 'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

### P.C.MOUNTING

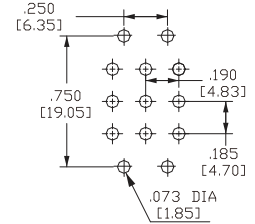


### U4-VS5 Three Pole



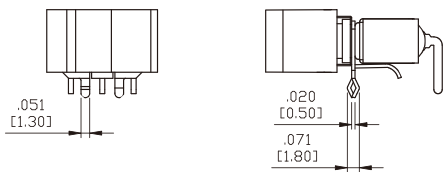
OPTION CODE	DIM. 'A'
U4	.551 [14.00]
VS5	.630 [16.00]

### P.C.MOUNTING

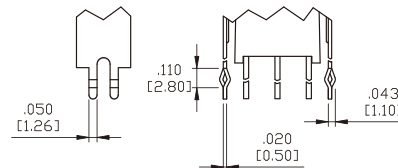


## Snap-In Termination Options

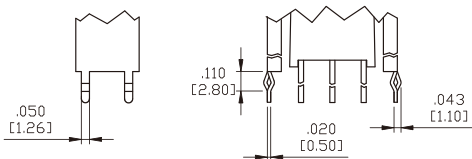
### M61



### VS21, VS31



### VS41, VS51



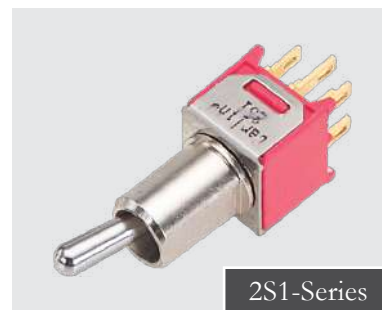
\* PC Mounting for M61, VS21, VS31, VS41, VS51 refer to M6, VS2, VS3, VS4, VS5 respectively.

# 2SS/2S1/2SM

## 2S-Series

### SUB-MINIATURE TOGGLES

The 2S family of sub-miniature toggle switches is composed of three switch series; the **2S1-Series** toggle switch, the **2SS-Series** sealed toggle switch, and the **2SM-Series** surface mount sealed sub-miniature toggle switch. All of these series offer a variety of ratings, circuits, contact materials, terminal platings, and actuator types.



#### Product Highlights:

- IP67 Sealing
- 6 Actuator Options
- Surface, Thru Hole or Snap-in Mounting
- Dry-Circuit thru 3A 125VAC Ratings
- UL, CSA Approvals

#### Typical Applications:

- Telecommunications
- Instrumentation
- Networking
- Medical Equipment

#### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)



**2SS-Series**  
**Sealed**  
**Sub-Miniature**  
**Toggle Switch**



**2S1-Series**  
**Sub-Miniature**  
**Toggle Switch**



**2SM-Series**  
**Sealed Surface Mount**  
**Sub-Miniature**  
**Toggle Switch**

## Electrical

Contact Rating	refer to ordering scheme
Electrical Life	30,000 make & break cycles @ full load
Contact Resistance	20 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts
Insulation Resistance	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level

## Physical

Operating Temperature	-30°C to +85°C
Index of Protection	2SS & 2SM-Series: IP67
Solder Heat Resistance	MIL-STD-202, Method 210
Actuator Travel	25°

## Material

Case	all UL94 V-0 <i>2S1-Series:</i> Dially phthalate (DAP) <i>2SS-Series:</i> Glass filled nylon 6/6, flame retardant, heat stabilized <i>2SM-Series:</i> Glass filled nylon 4/6, flame retardant, heat stabilized
Rocker	<i>2S1-Series:</i> Brass, chrome plated. <i>2SS &amp; 2SM-Series:</i> Brass, chrome plated or nylon, internal o-ring sealed
Bushing	<i>2S1-Series:</i> Brass, nickel plated <i>2SS-Series:</i> Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) <i>2SM-Series:</i> Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0)
Housing	Stainless Steel
Switch Support	Brass, tin plated
Terminal Seal	Epoxy



**1 SERIES**  
**2SS** Sealed Sub-Miniature Toggle Switch

**2 POLES**  
**MSP** Single pole - uses terminals 1, 2 & 3  
**MDP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6

**3 CIRCUIT**  
( ) - momentary

Position:	1	2	3
1	2-3, 5-6	Connected Terminals	2-1, 5-4
2	ON	NONE	ON
3	ON	NONE	(ON)
4	(ON)	OFF	ON
5	ON	OFF	(ON)

**4 ACTUATOR STYLE / LENGTH**

<b>T1</b>	Round toggle .421" [10.70 mm]
<b>T2</b>	Round toggle .240" [6.10 mm]
<b>T3</b>	Round toggle .342" [8.70 mm]
<b>T4</b>	Round toggle .551" [14.00 mm]
<b>P1</b>	ESD resistant toggle .425" [10.80 mm]
<b>P2</b>	ESD resistant toggle .268" [6.80 mm]
<b>P3</b>	ESD resistant toggle .244" [6.20 mm]
<b>P4</b>	ESD resistant toggle .291" [7.40 mm]

**5 BUSHING**  
**B1** Threaded  
**B4** Unthreaded

**6 TERMINATION**

- M1** Solder Lug
- M2** PCB
- M6** PC Mount, 90° horizontal
- M61** Snap-In, U bracket, 90° horizontal
- M7** PC Mount, 90° vertical
- M71** Snap-In, U bracket, 90° horizontal
- VS2** PC Mount, U bracket
- VS21** Snap-In, U bracket

See page 27-28 for dimensional specifications.

**7 CONTACTS / TERMINALS**

Contact	Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>1</sup>	gold over silver	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>K</b>	gold <sup>2</sup>	tin <sup>3</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b>	silver <sup>1</sup>	tin <sup>3</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>R</b>	gold <sup>2</sup>	gold <sup>2</sup>	0.4VA max 20V max (AC/DC)	IP67

**8 EPOXY SEAL**  
**E** Epoxy Seal   **0** without Epoxy Seal

Notes:  
Tin option not available with M1 terminal.  
1 Movable contact & terminal platings: silver over copper alloy  
2 Movable contact & terminal platings: gold over nickel over copper alloy  
3 Terminal platings: tin over nickel over copper alloy

\*Manufacturer reserves the right to change product specification without prior notice.

**2S1** - **MSP** **1** - **T1** - **B4** - **M6** **Q** **E**

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Bushing      6 Termination      7 Contacts      8 Seal

**1 SERIES**  
**2S1** Sub-Miniature Toggle Switch

**2 POLES**  
**MSP** Single pole - uses terminals 1, 2 & 3  
**MDP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6

**3 CIRCUIT**  
 ( ) - momentary  
**Position:**

1	2	3
2-3, 5-6	Connected Terminals	2-1, 5-4
1 ON	NONE	ON
2 ON	NONE	(ON)
3 ON	OFF	ON
4 (ON)	OFF	(ON)
5 ON	OFF	(ON)

**4 ACTUATOR STYLE / LENGTH 9**  
**T1** Round toggle .374" [9.50 mm]      **T3** Round toggle .311" [7.90 mm]  
**T2** Round toggle .236" [6.00 mm]      **T4** Round toggle .449" [11.40 mm]

**5 BUSHING 1**  
**B1** Threaded Standard, keyway  
**B2** Non-Threaded Standard, keyway  
**B3** Threaded Short, keyway  
**B4** Non-Threaded Short, keyway  
**B5** High Torque, flat, .276"  
**B6** High Torque, keyway, .276"  
**B7** Long threaded  
**B8** Non threaded Long, keyway

**6 TERMINATION**  
**M1** Solder Lug      **M71** Right Angle PC Thru Hole, vertical  
**M2** PCB      **VS2** PC Mount, U bracket  
**M6** PC Mount, 90° horizontal      **VS21** Snap-In, U bracket  
**M61** Snap-In, Right Angle  
**M7** PC Mount, 90° vertical  
 See page 29-30 for dimensional specifications.

**7 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>2</sup>	gold over silver	3A 125VAC or 28VDC, 1.5A 250VAC	<b>UL</b> , <b>CS</b>
<b>K<sup>8</sup></b>	gold <sup>3,6</sup>	tin <sup>5</sup>	0.4VA max 20V max (AC/DC)	N/A
<b>P<sup>8</sup></b>	silver <sup>2,7</sup>	tin <sup>5</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	<b>UL</b> , <b>CS</b>
<b>Q</b>	silver <sup>2</sup>	silver <sup>2</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	<b>UL</b> , <b>CS</b>
<b>R</b>	gold <sup>3</sup>	gold <sup>4</sup>	0.4VA max 20V max (AC/DC)	N/A

**8 EPOXY SEAL**  
**E** Epoxy Seal      **0** without Epoxy Seal

Notes: Tin option available with PC type terminations only.  
 1 All Switches come with standard nut, washer and locking ring shipped bulk. B5 & B7 bushing styles use small locking ring. See page 76-77.  
 2 Movable contact and terminal platings: silver over copper alloy  
 3 Movable contact and terminal platings: gold over nickel over copper alloy  
 4 Terminal platings: gold over nickel over copper alloy  
 5 Terminal platings: tin over copper alloy  
 6 Terminal contact platings: gold over nickel alloy  
 7 Terminal contact platings: silver over nickel alloy  
 8 Not available with M1 terminal  
 9 Lengths shown are with B1 - B4 bushings. For B5 & B6 subtract .108", for B7 & B8 subtract .043"

**2SM** - **MSP** **1** - **T1** - **M6** **G** **E**

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Termination      6 Contacts      7 Seal      8 Packaging

**1 SERIES**  
**2SM** Sealed Surface Mount Sub-Miniature Toggle Switch

**2 POLES**  
**MSP** Single pole - uses terminals 1, 2 & 3

**3 CIRCUIT**  
 ( ) - momentary  
**Position:**

1	2	3
2-3	Connected Terminals	2-1
1 ON	NONE	ON
2 ON	NONE	(ON)
3 ON	OFF	ON
4 (ON)	OFF	(ON)
5 ON	OFF	(ON)

**4 ACTUATOR STYLE / LENGTH 1**  
**T1** Round toggle .425" [10.80 mm]  
**T2** Round toggle .240" [6.10 mm]  
**P1** ESD resistant plastic toggle .425" [10.80 mm]  
**P2** ESD resistant plastic toggle .268" [6.80 mm]  
**P3** ESD resistant plastic toggle .244" [6.20 mm]  
**P4** ESD resistant plastic toggle .291" [7.40 mm]

**5 TERMINATION**  
**K6** Surface Mount, .433" [11.00 mm]  
**L6** Surface Mount, .354" [9.00 mm]  
**M6** Surface Mount, 90° flat, .286" [7.26 mm]  
**M7** Surface Mount, 90° vertical  
**S6** Surface Mount, 90°, .353" [8.96 mm]  
 See page 31 for dimensional specifications.

**6 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>2</sup>	gold over silver	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>K</b>	gold <sup>3</sup>	tin <sup>4</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b>	silver <sup>2</sup>	tin <sup>4</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>Q</b>	silver <sup>2</sup>	silver <sup>2</sup>	3A 125VAC or 28VDC, 1.5A 250VAC	IP67
<b>R</b>	gold <sup>3</sup>	gold <sup>3</sup>	0.4VA max 20V max (AC/DC)	IP67

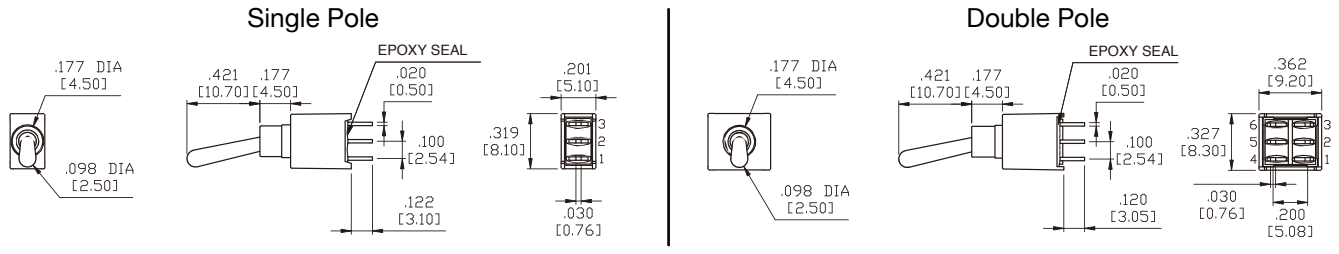
**7 EPOXY SEAL**  
**E** Epoxy Seal      **0** without Epoxy Seal

**8 PACKAGING**  
**T/R** tape reel - 500 pieces per reel  
 Switches are bulk packed, unless T/R is specified at the end of the part number.

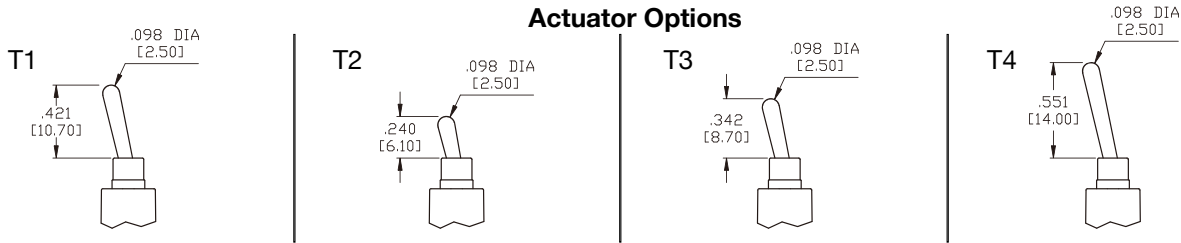
Notes:  
 Tin option available with PC type terminations only.  
 1 Bushing is unthreaded. .177" [4.50 mm] height  
 2 Movable contact & terminal platings: silver over copper alloy  
 3 Movable contact & terminal platings: gold over nickel over copper alloy  
 4 Terminal platings: tin over nickel over copper alloy



## 2SS-Series Dimensional Specifications: in. [mm]

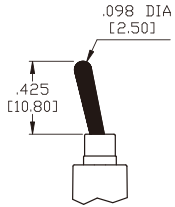


### Actuator Options

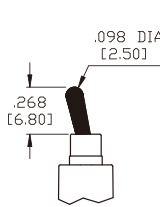


\* B4 bushing shown. Subtract 2.55mm from toggle length for B1 bushing.

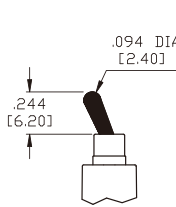
### P1 Plastic Toggle



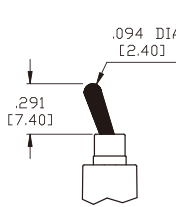
### P2 Plastic Toggle



### P3 Plastic Toggle



### P4 Plastic Toggle



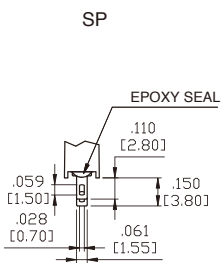
### Bushing Options



\* Subtract 2.55mm from toggle length for B1 bushing.

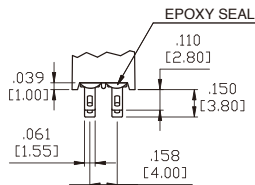
### Termination Options

#### M1 STD. Solder Lug



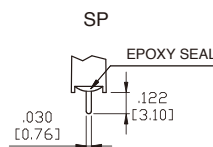
THK .020 [0.50]

#### DP

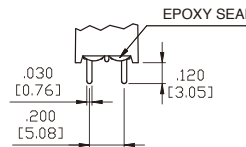


THK .020 [0.50]

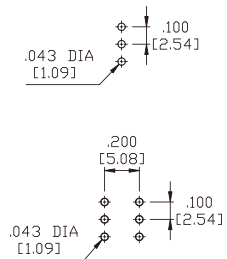
#### M2 PC Thru-Hole



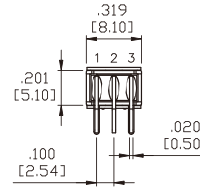
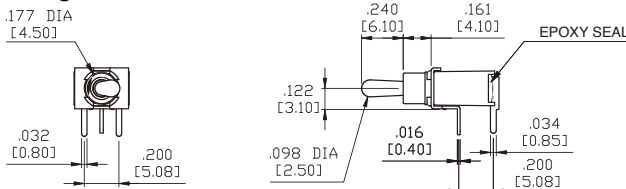
#### DP



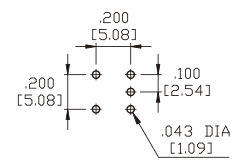
#### P.C.MOUNTING



### M6 Single Pole



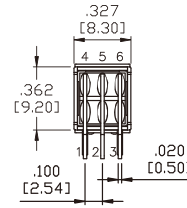
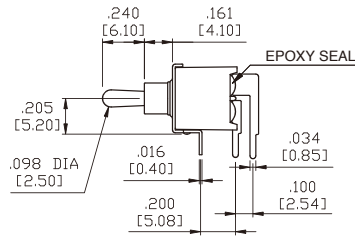
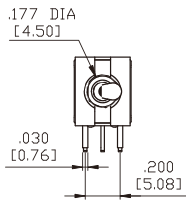
### P.C.MOUNTING



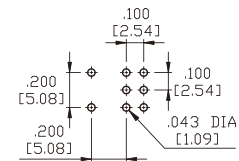
## 2SS-Series Dimensional Specifications: in. [mm]

### Termination Options

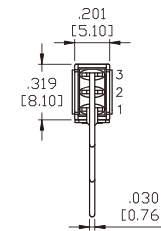
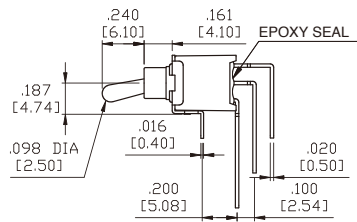
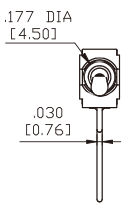
#### M6 Double Pole



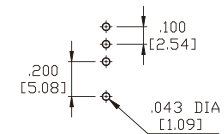
#### P.C.MOUNTING



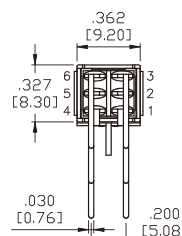
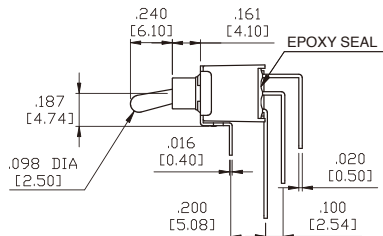
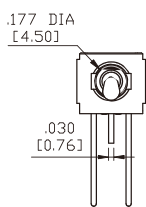
#### M7 Single Pole



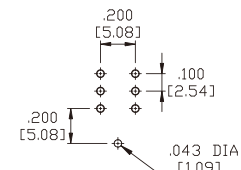
#### P.C.MOUNTING



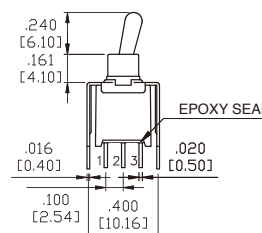
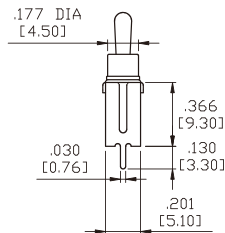
#### M7 Double Pole



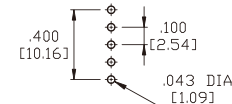
#### P.C.MOUNTING



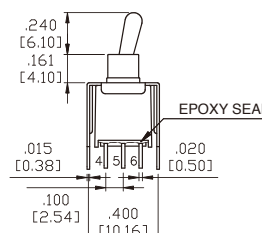
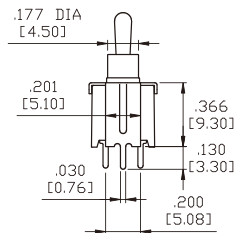
#### VS2 Single Pole



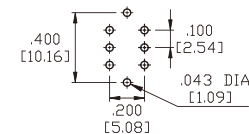
#### P.C.MOUNTING



#### VS2 Double Pole

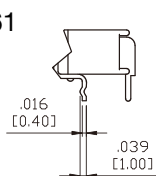


#### P.C.MOUNTING

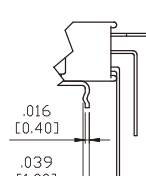


### Snap-In Termination Options

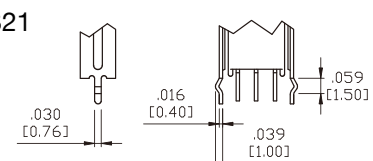
#### M61



#### M71

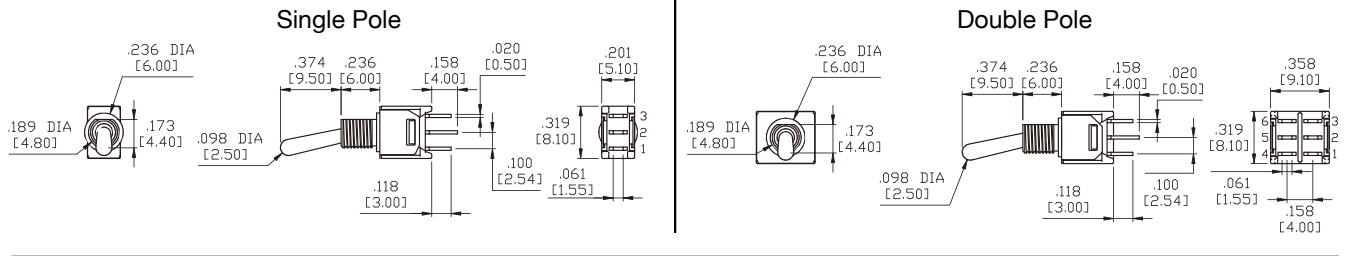


#### VS21

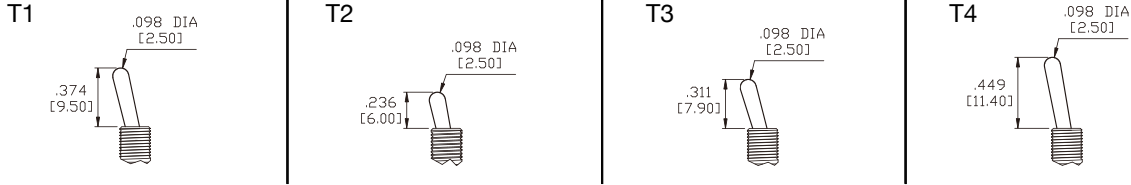


\* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

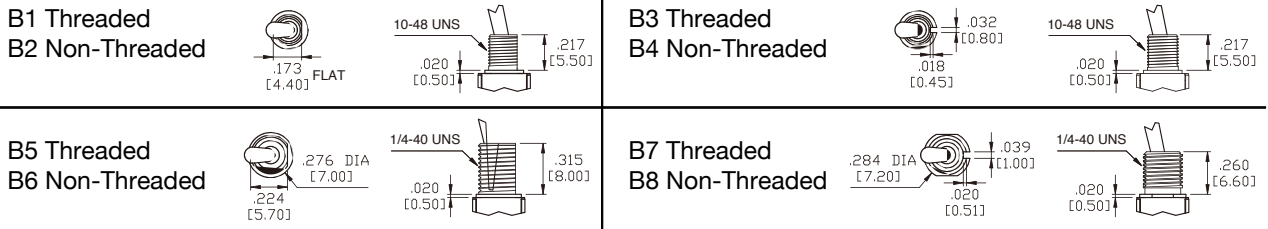
## 2S1-Series Dimensional Specifications: in. [mm]



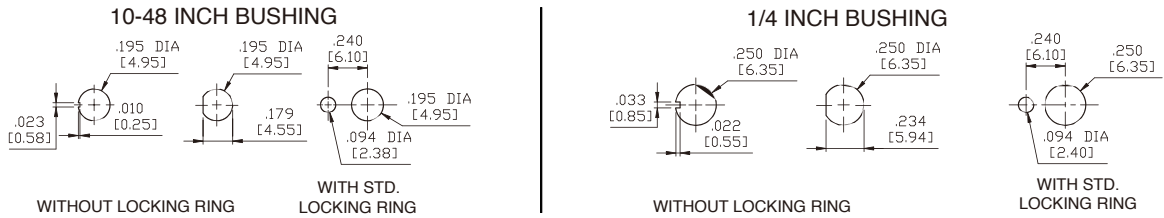
### Actuator Options



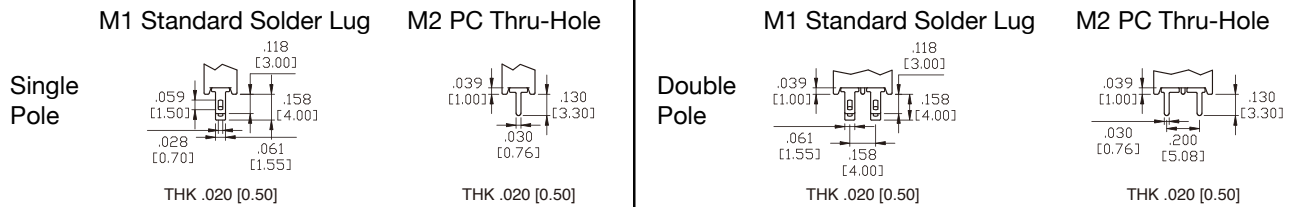
### Bushing Options



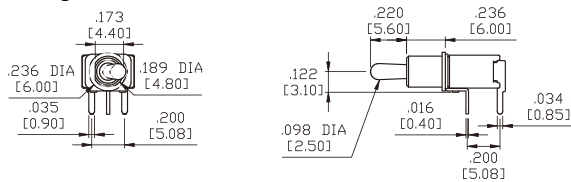
### Panel Mounting



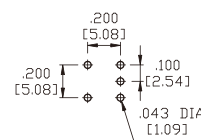
### Termination Options



### M6 Single Pole



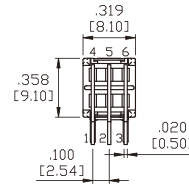
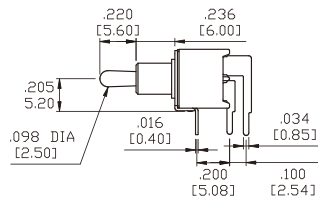
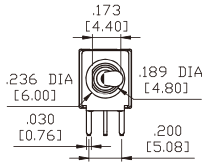
### P.C. MOUNTING



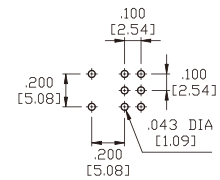
## 2S1-Series Dimensional Specifications: in. [mm]

### Termination Options

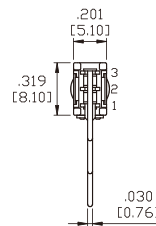
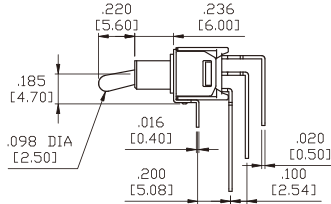
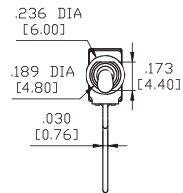
#### M6 Double Pole



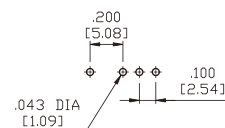
#### P.C.MOUNTING



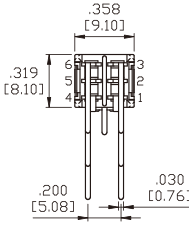
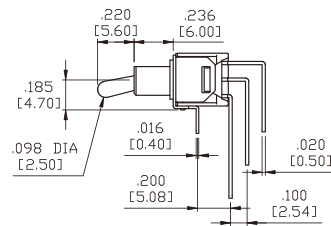
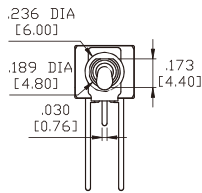
#### M7 Single Pole



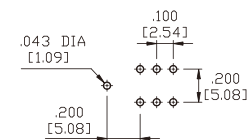
#### P.C.MOUNTING



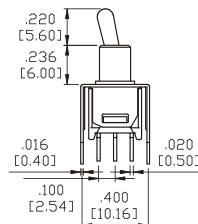
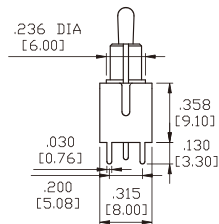
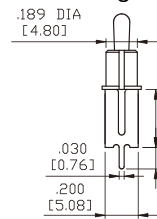
#### M7 Double Pole



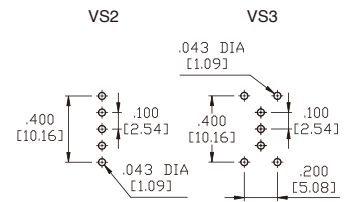
#### P.C.MOUNTING



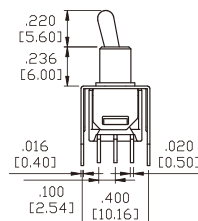
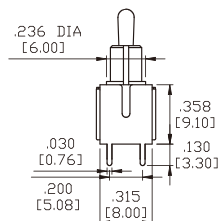
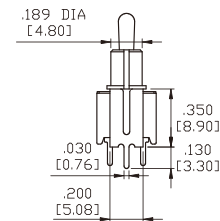
#### VS2-VS3 Single Pole



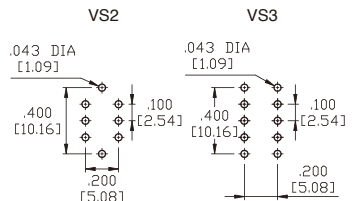
#### P.C.MOUNTING



#### VS2-VS3 Double Pole

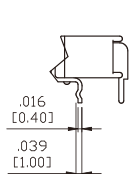


#### P.C.MOUNTING

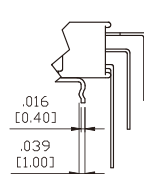


### Snap-In Termination Options

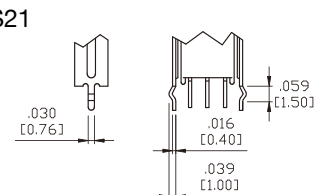
#### M61



#### M71



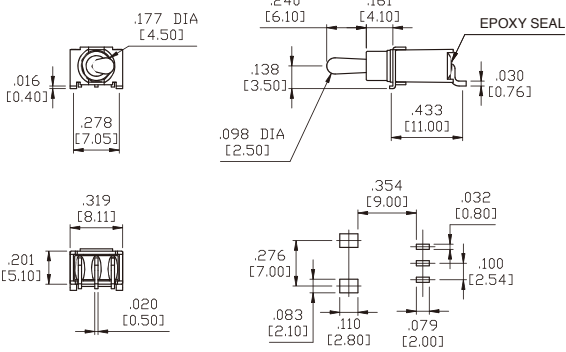
#### VS21



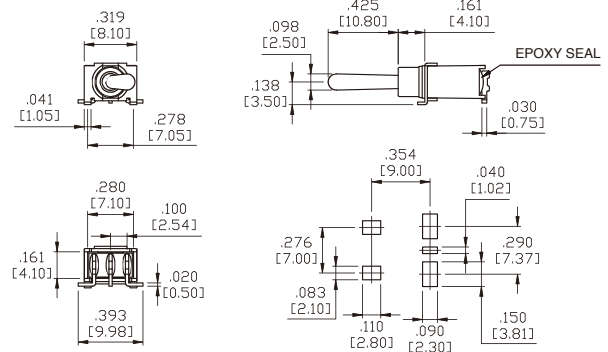
\* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

## 2SM-Series Dimensional Specifications: in. [mm]

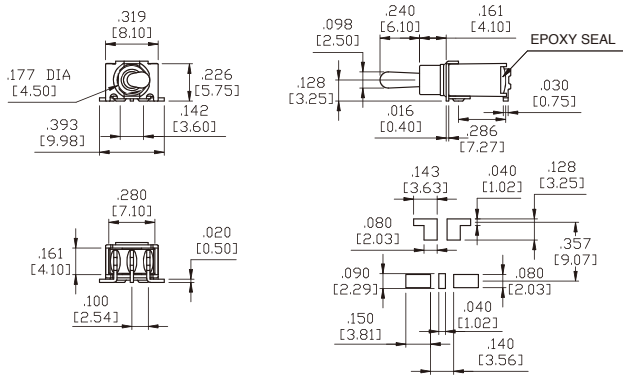
### K6 Single Pole



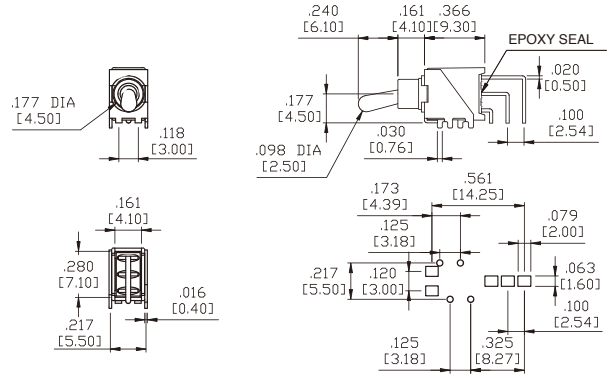
### L6 Single Pole



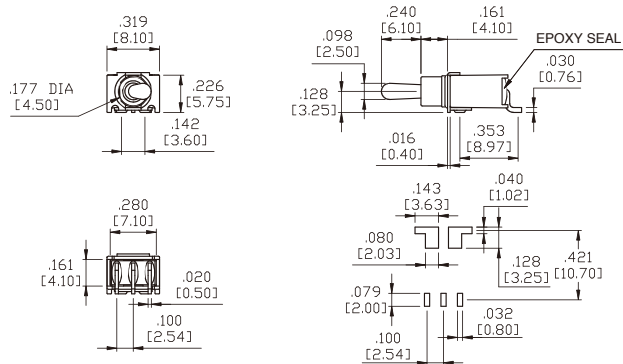
### M6 Single Pole



### M7 Single Pole

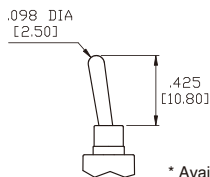


### S6 Single Pole



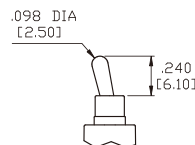
### Actuator Options

T1

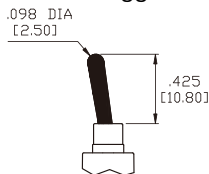


\* Available with L6, S6, K6, M7 terminals only.

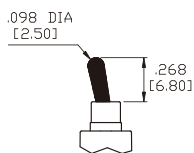
T2



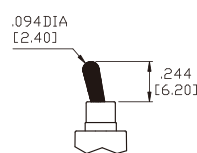
P1 Plastic Toggle



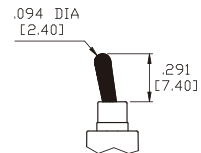
P2 Plastic Toggle



P3 Plastic Toggle



P4 Plastic Toggle



# 2M1H/2MS/2M1

## 2M-Series

### MINIATURE TOGGLES

The 2M family of miniature toggle switches is composed of three switch series; the **2M1-Series** miniature toggle switch, the **2MS-Series** sealed miniature toggle switch, and the **2M1H-Series** premium sealed miniature toggle switch. These series all feature PC mounting and offer a variety of ratings, circuits, contact materials, terminal platings, toggle styles and lengths, and optional color caps.



#### Product Highlights:

- IP67 Sealing
- 8 Single and Double Pole Circuits
- Long, Short and Flatted Bushing Options
- Large Variety of Termination Options
- Available Gold, Silver and Tin Platings
- UL Approved
- Sleek Black Finish

#### Typical Applications:

- Telecommunications
- Instrumentation
- Networking
- Medical Equipment
- Military Communications

#### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)



**2M1H-Series**  
Premium Sealed  
Miniature  
Toggle Switch



**2MS-Series**  
Sealed  
Miniature  
Toggle Switch



**2M1-Series**  
Miniature  
Toggle Switch

**Electrical**

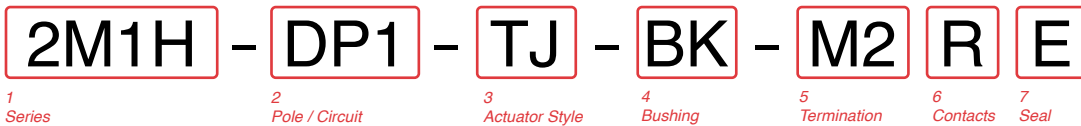
Contact Rating refer to ordering scheme  
 Electrical Life 50,000 make & break cycles @ full load  
 Contact Resistance 10 mΩ max. initial @ 2-4 VDC  
 100mA for both silver & gold plated contacts  
 Insulation Resistance 1000 MΩ min.  
 Dielectric Strength 1500 Volts RMS @ sea level

**Physical**

Operating Temperature -30°C to +85°C  
 Index of Protection *2M1H-Series:* IP67  
*2MS-Series:* IP67  
 Solder Heat Resistance MIL-STD-202, Method 210  
 Actuator Travel 25°

**Material**

Case *2M1H-Series & 2M1-Series:* Dially phthalate (DAP) (UL 94V-0)  
*2MS-Series:* Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)  
 Toggle *2M1H-Series:* Brass, black finish with o-ring seal  
*2MS-Series:* Brass, chrome plated, internal o-ring sealed  
*2M1-Series:* Brass, chrome plated  
 Bushing *2M1H-Series:* Brass, black finish with o-ring seal  
*2MS-Series:* Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)  
*2M1-Series:* Brass, nickel plated  
 Housing Stainless Steel  
 Bracket *2MS-Series:* Nylon (UL 94V-0)  
*2M1-Series:* Stainless Steel  
 Actuator Pivot Retainer *2MS-Series:* Stainless Steel  
 Switch Support Brass, tin plated  
 Terminal Seal Epoxy



**1 SERIES**  
**2M1H** Premium Sealed Miniature Toggle Switch

**2 POLE / CIRCUIT**  
 ( ) - momentary  
**Position:**

Position	1	2	3
	2-3, 5-6	Connected Terminals	2-1, 5-4
SP1	ON	NONE	ON
SP2	ON	NONE	(ON)
SP3	ON	OFF	ON
SP4	(ON)	OFF	(ON)
SP5	ON	OFF	(ON)
DP1	ON	NONE	ON
DP2	ON	NONE	(ON)
DP3	ON	OFF	ON
DP4	(ON)	OFF	(ON)
DP5	ON	OFF	(ON)
DP6 *	ON	ON	ON
DP7 *	(ON)	ON	(ON)
DP8 *	ON	ON	(ON)

\*Center position connects 2-3, 5-4

**3 ACTUATOR STYLE**  
**TJ** .709" [18 mm] length      **TK** .512" [13.00 mm] length

**4 BUSHING**  
**BK** .386" [9.80 mm] threaded, flat

**5 TERMINATION 7**

<b>M1</b> Solder Lug	<b>M51</b> Wire Wrap, .750" [19.05mm] length	<b>M52</b> Wire Wrap, .964" [24.48mm] length
<b>M2</b> PCB	<b>M53</b> Wire Wrap, .425" [10.80mm] length	<b>M54</b> Wire Wrap, 1.062" [25.97mm] length
<b>M3</b> Quick Connect		

**6 CONTACTS / TERMINALS**  
**Contact Material Terminal Plating Rating Approvals**

<b>G</b>	silver <sup>1</sup>	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	IP67
<b>K</b>	gold <sup>2,5</sup>	tin <sup>4,7</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b>	silver <sup>1,6</sup>	tin <sup>4,7</sup>	5A 125VAC or 28VDC, 2A 250VAC	IP67
<b>Q</b>	silver <sup>1</sup>	silver <sup>1</sup>	5A 125VAC or 28VDC, 2A 250VAC	IP67
<b>R</b>	gold <sup>2</sup>	gold <sup>3</sup>	0.4VA max 20V max (AC/DC)	IP67

**7 EPOXY SEAL**  
**E** Epoxy Seal

Notes:  
 Switches supplied with (1) 2M1-HDW4 hex nut and (1) 3MNH-WCP-0872 O-Ring  
 1 Movable contact and terminal platings: silver over copper alloy  
 2 Movable contact and terminal platings: gold over nickel over copper alloy  
 3 Terminal platings: gold over nickel over copper alloy  
 4 Terminal platings: tin over copper alloy  
 5 Terminal contact platings: gold over nickel alloy  
 6 Terminal contact platings: silver over nickel alloy  
 7 Tin option not available with M1 & M3 terminations.

\*Manufacturer reserves the right to change product specification without prior notice.

**2MS - WSP 1 - T1 - B4 - M1 G E**

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Bushing      6 Termination      7 Contacts      8 Seal

**1 SERIES**

**2MS** Sealed Miniature Toggle Switch

**2 POLES**

**WSP** Single pole - uses terminals 1, 2 & 3  
**WDP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6  
**W3P** Three pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 9

**3 CIRCUIT**

( ) - momentary  
**Position:** 1      2      3  
 1      2-3, 5-6, 8-9      Connected Terminals      2-1, 5-4, 8-7  
 2      ON      NONE      ON  
 3      ON      NONE      (ON)  
 4      ON      OFF      ON  
 5      (ON)      OFF      (ON)  
 6      ON      OFF      (ON)

**4 ACTUATOR STYLE**

**T9** Long Black Plastic .492" length  
**T1** Round Bat      **P1** Plastic Anti-Static .496" length  
**T2** Round Short Bat      **P2** Plastic Anti-Static .299" length

**5 BUSHING**

**B1** Threaded, Keyway      **B4** Unthreaded, Short, Keyway, Flat

**6 TERMINATION**

<b>M1</b> <sup>4</sup> Solder Lug	<b>VS21</b> Vertical, Snap-In, .460" [11.70mm]
<b>M2</b> PCB	<b>VS3</b> Vertical, .630" [16mm]
<b>M3</b> Quick Connect	<b>VS31</b> Vertical, Snap-In, .630" [16mm]
<b>M51</b> Wire Wrap, .750" [19.05mm]	<b>U2</b> Vertical, .551" [14mm] - only 3PDT
<b>M52</b> Wire Wrap, .964" [24.48mm]	<b>VS4</b> Vertical, .461" [11.70mm]
<b>M53</b> Wire Wrap, .425" [10.80mm]	<b>VS41</b> Vertical, Snap-In, .461" [11.70mm]
<b>M54</b> Wire Wrap, 1.062" [25.97mm]	<b>U4</b> Vertical, Right Angle, PC Thru-Hole, only 3PDT
<b>M6</b> Right Angle, PC Thru-Hole	<b>VS5</b> Vertical, .630" [16mm]
<b>M61</b> Right Angle, Snap-In	<b>VS51</b> Vertical, Snap-In, .630" [16mm]
<b>M7</b> Vertical, Right Angle, PC Thru-Hole	
<b>M71</b> Vertical, Right Angle, Snap-In	
<b>VS2</b> Vertical, .461" [11.70mm]	

**7 CONTACTS / TERMINALS**

Contact Material	Terminal Plating	Rating	Approvals
<b>G</b> silver <sup>1</sup>	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	US, IP67
<b>K</b> gold <sup>2</sup>	tin <sup>3,4</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b> silver <sup>1</sup>	tin <sup>3,4</sup>	5A 125VAC or 28VDC, 2A 250VAC	US, IP67
<b>R</b> gold <sup>2</sup>	gold <sup>2</sup>	0.4VA max 20V max (AC/DC)	IP67

**8 EPOXY SEAL**

**E** Epoxy Seal      **0** without Epoxy Seal

Notes:

- B1 Bushing switches supplied with (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer and (1) 2M1-HDW15 locking ring. See page 76-77.
- 1 Movable contact & terminal platings: silver over copper alloy
- 2 Movable contact & terminal platings: gold over nickel over copper alloy
- 3 Terminal platings: tin over nickel over copper alloy
- 4 Tin option not available with M1 terminal

**2M1 - SP 1 - T1 - B1 - M1 Q E**

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Bushing      6 Termination      7 Contacts      8 Seal

**1 SERIES**

**2M1** Miniature Toggle Switch

**2 POLES**

**SP** Single pole - uses terminals 1, 2 & 3  
**DP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6  
**3P** Three pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 9  
**4P** Four pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 & 12

**3 CIRCUIT**

( ) - momentary  
**Position:** 1      2      3  
 1      2-3, 5-6, 8-9, 11-12      Connected Terminals      2-1, 5-4, 8-7, 11-10  
 2      ON      NONE      ON  
 3      ON      NONE      (ON)  
 4      ON      OFF      ON  
 5      (ON)      OFF      (ON)  
 6\*      ON      ON      ON  
 7\*      (ON)      ON      (ON)  
 8\*      ON      ON      (ON)

\*Available with DP and 4P switches only. Center position connects 2-3, 5-4, 8-9, 11-10

**4 ACTUATOR STYLE**

**T7** Large Bat (B0 bushing)  
**T1** Round Bat      **T8** X-Large Bat (B0 bushing)  
**T2** Round Short Bat      **T9** Black Plastic  
**T3** Paddle      **T0** Rectangular  
**T4** Medium Paddle      **TA** Locking Lever  
**T5** Long Paddle      **TI** Locking Lever  
**T6** Flat (B1,B2,B5,BA,BB,BE)      **TL** Locking Lever

**5 BUSHING**

**B1** Threaded Standard, keyway      **B8** Metric  
**B2** Non-Threaded Standard, keyway      **B9** Splashproof  
**B3** Threaded Short, keyway      **B0** 15/32" Threaded (Standard for T7 & T8 actuator styles)  
**B4** Non-Threaded Short, keyway      **BA** Threaded for T6  
**B5** High Torque, 7.5mm, flat      **BB** Non-Threaded for T6  
**B6** High Torque, 8.0mm, keyway      **BE** Threaded Hi Torque for T6  
**B7** Long threaded      **BL** Threaded, Locking

**6 TERMINATION**

<b>M1</b> <sup>4</sup> Solder Lug	<b>M71</b> Vertical, Right Angle, Snap-In
<b>M2</b> PCB	<b>VS2</b> Vertical, .461" [11.70mm]
<b>M3</b> Quick Connect	<b>VS21</b> Vertical, Snap-In, .461" [11.70mm]
<b>M51</b> Wire Wrap, .750" [19.05mm]	<b>VS3</b> Vertical, .630" [16mm]
<b>M52</b> Wire Wrap, .964" [24.48mm]	<b>VS31</b> Vertical, Snap-In, .630" [16mm]
<b>M53</b> Wire Wrap, .425" [10.80mm]	<b>VS4</b> Vertical, .461" [11.70mm]
<b>M54</b> Wire Wrap, 1.062" [25.97mm]	<b>VS41</b> Vertical, Snap-In, .461" [11.70mm]
<b>M6</b> Right Angle, PC Thru-Hole	<b>VS5</b> Vertical, .630" [16mm]
<b>M61</b> Right Angle, Snap-In	<b>VS51</b> Vertical, Snap-In, .630" [16mm]
<b>M7</b> Vertical, Right Angle, PC Thru-Hole	

**7 CONTACTS / TERMINALS**

Contact Material	Terminal Plating	Rating	Approvals
<b>G</b> silver <sup>1</sup>	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	IP67
<b>K</b> gold <sup>2</sup>	tin <sup>3,4</sup>	0.4VA max 20V max (AC/DC)	N/A
<b>P</b> silver <sup>1</sup>	tin <sup>3,4</sup>	5A 125VAC or 28VDC, 2A 250VAC	IP67
<b>Q</b> silver <sup>1</sup>	silver <sup>1</sup>	5A 125VAC or 28VDC, 2A 250VAC	IP67
<b>R</b> gold <sup>2</sup>	gold <sup>2</sup>	0.4VA max 20V max (AC/DC)	N/A

**8 EPOXY SEAL**

**E** Epoxy Seal      **0** without Epoxy Seal

Notes:

- B1 Bushing switches supplied with (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer and (1) 2M1-HDW15 locking ring.
- 1 Movable contact & terminal platings: silver over copper alloy
- 2 Movable contact & terminal platings: gold over nickel over copper alloy
- 3 Terminal platings: tin over nickel over copper alloy
- 4 Tin option not available with M1 terminal



**2M-Series Accessories**

To order accessories assembled on a switch, specify the switch number followed by the accessory part number and the word "assembled". Ex: 2M1-SP1-T1-B1-M1QE-T12 ASSEMBLED. To order accessories in bulk, specify the Series, followed by the accessory. Ex: 2M1-T12. See page 76 for dimensional specifications.

**Optional Toggle Cap**

**2M1** - **T1** **2**

1 Series      2 Toggle Cap Size      3 Color

**1 SERIES**  
**2M1** Fits 2M1H, 2MS or 2M1

**2 TOGGLE CAP SIZE**  
**T1** 10.6 mm      **T2** 7.6 mm

**3 CAP COLOR**

<b>1</b> White	<b>5</b> Yellow
<b>2</b> Black	<b>6</b> Green
<b>3</b> Red	<b>7</b> Blue

**Optional Dress and Knurled Nuts**

**2M1** - **HDW3**

1 Series      2 Nut

**1 SERIES**  
**2M1** Fits 2M1H, 2MS or 2M1

**2 NUT**  
**HDW3** Dress nut for 1/4" bushing  
**HDW5** Knurled nut for 15/32" bushing (2M1-Series only)

**Optional Rubber Seals**

**2M1** - **E1A**

1 Series      2 Rubber Boot Seal

**1 SERIES**  
**2M1** Fits 2M1H, 2MS or 2M1

**2 RUBBER BOOT SEAL**

<b>E1A</b>	1/4 - 40" UNS bushing (Not available for B0 bushing option)
<b>K1</b>	Metric M6 bushing (B8 bushing only)
<b>YE1D</b>	15/32 - 32" UNS bushing (TJ, TK and B0 bushings only)
<b>YE1E</b>	15/32 - 32" UNS bushing 1/2 boot (T7, T8, TJ, TK and B0 bushings only)

**3MNH** - **WCP-0872**

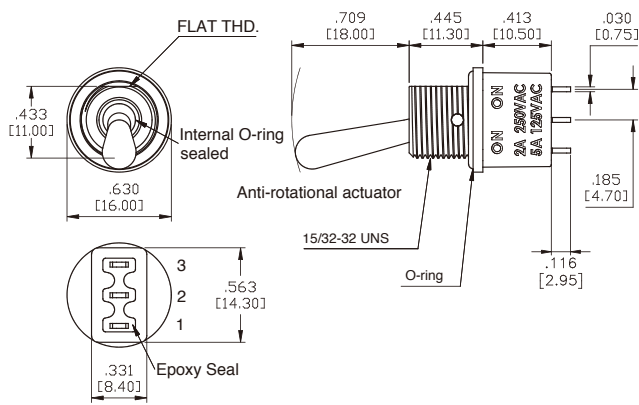
1 Series      2 Rubber O-Ring

**1 SERIES**  
**3MNH** Fits 3MNH or 2M1H

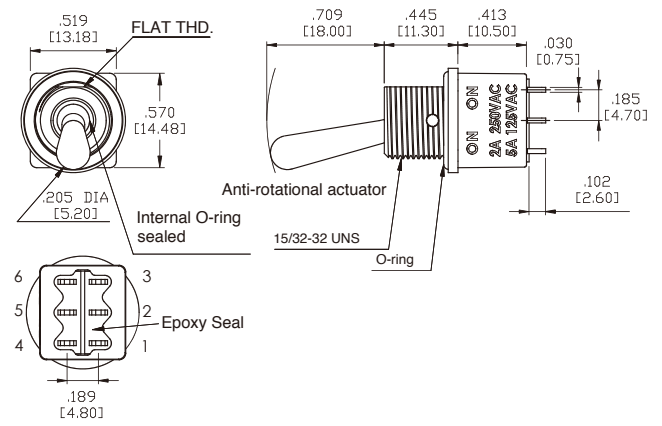
**2 RUBBER O-RING**  
**WCP-0872** For 15/32 bushing option

## 2M1H-Series Dimensional Specifications: in. [mm]

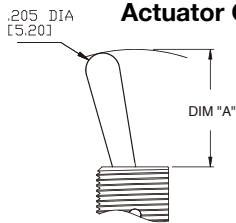
### Single Pole



### Double Pole

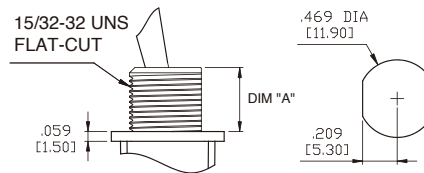


### Actuator Options



OPTION CODE	DIM. "A"
TJ	.709 [18.00]
TK	.512 [13.00]

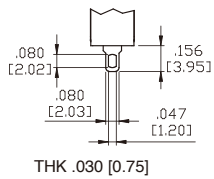
### Bushing Options & Mounting



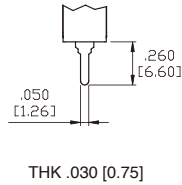
OPTION CODE	DIM. "A"
BK	.386 [9.80]

### Termination Options

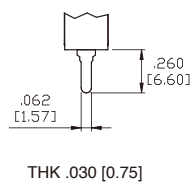
#### M1 Standard Solder Lug



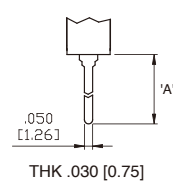
#### M2 PC Thru-Hole



#### M3 Quick Connect



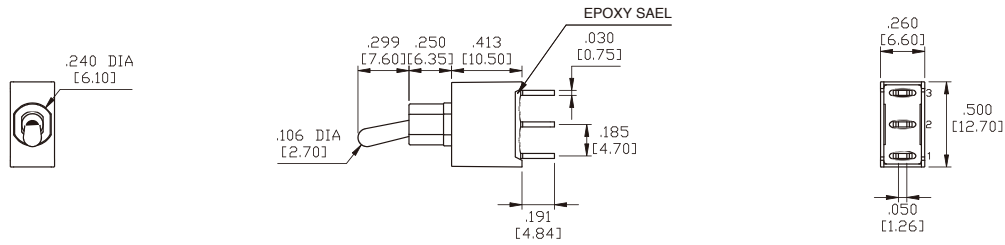
#### M5 Wire Wrap



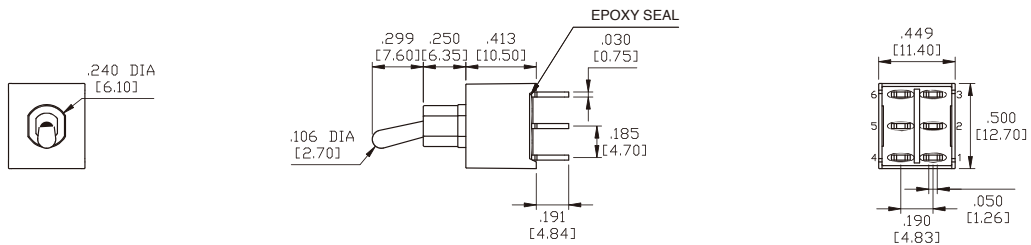
OPTION CODE	DIM. "A"
M5-1	.750 [19.05]
M5-2	.964 [24.48]
M5-3	.425 [10.80]
M5-4	1.062 [26.97]

## 2MS-Series Dimensional Specifications: in. [mm]

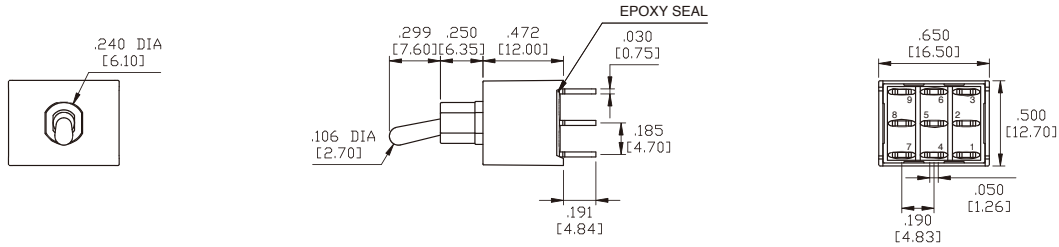
### Single Pole



### Double Pole

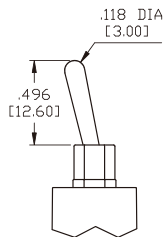


### Three Pole

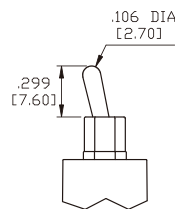


### Actuator Options

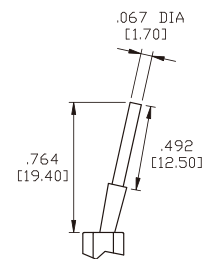
#### T1



#### T2

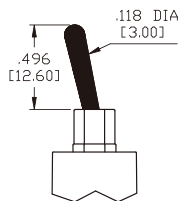


#### T9 with Plastic Cap

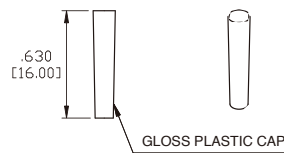
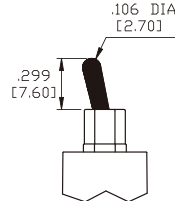


NO.	COLOR
1	White
2	Black(std.)
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
8	Brown
9	Gray

#### P1 Plastic Toggle



#### P2 Plastic Toggle

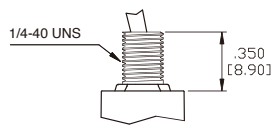


\* Shown with B4 bushing. Subtract .075" (1.90 mm) from actuator height for B1 bushing.

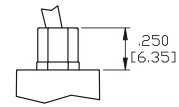
## 2MS-Series Dimensional Specifications: in. [mm]

### Bushing Options

**B1**

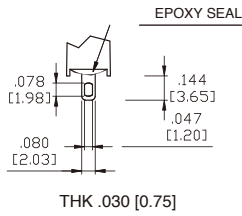


**B4**

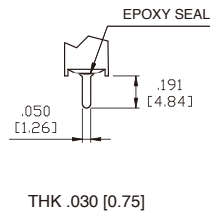


### Termination Options

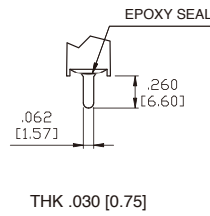
**M1 Standard Solder Lug**



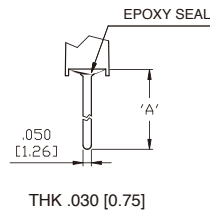
**M2 PC Thru-Hole**



**M3 Quick Connect**

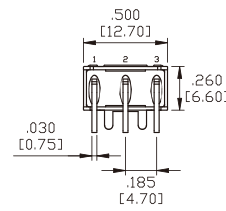
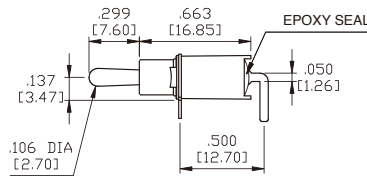
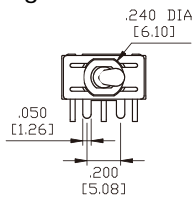


**M5 Wire Wrap**

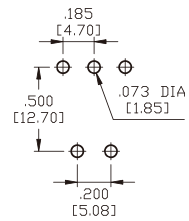


OPTION CODE	DIM. 'A'
<b>M5-1</b>	.750 [19.05]
<b>M5-2</b>	.964 [24.48]
<b>M5-3</b>	.425 [10.80]
<b>M5-4</b>	1.062 [26.97]

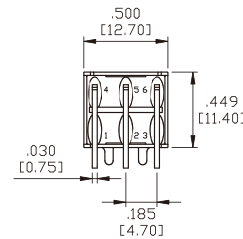
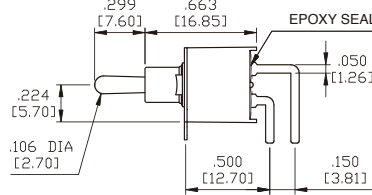
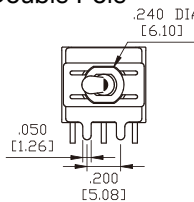
**M6 Single Pole**



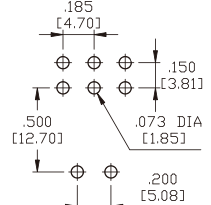
**P.C. MOUNTING**



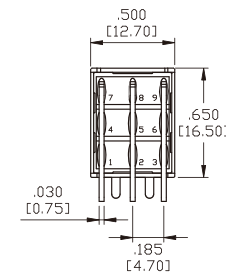
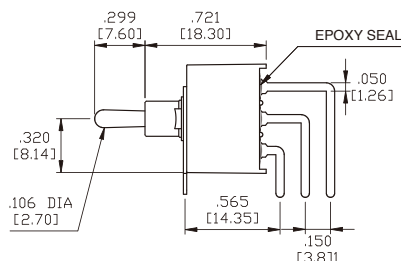
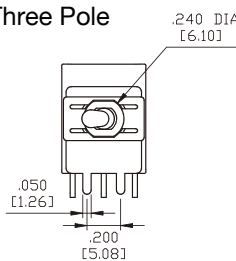
**M6 Double Pole**



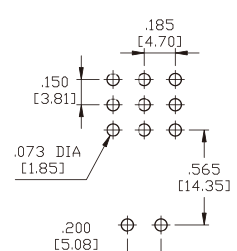
**P.C. MOUNTING**



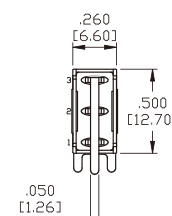
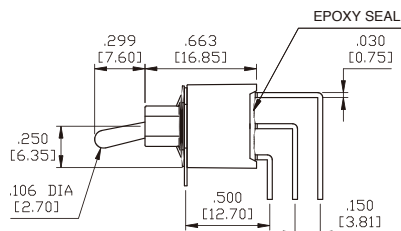
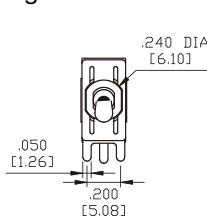
**M6 Three Pole**



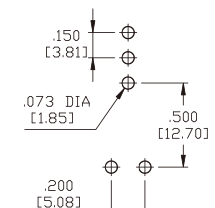
**P.C. MOUNTING**



**M7 Single Pole**



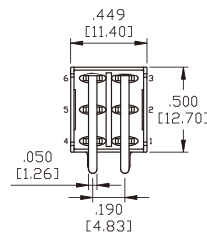
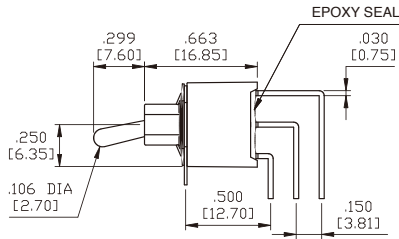
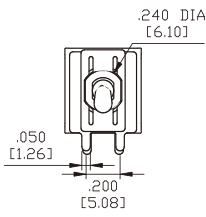
**P.C. MOUNTING**



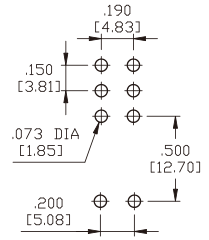
## 2MS-Series Dimensional Specifications: in. [mm]

### Termination Options

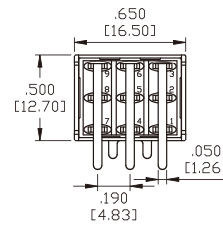
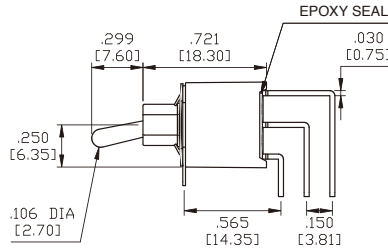
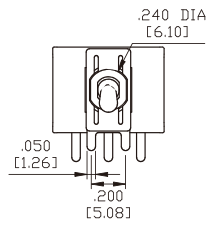
#### M7 Double Pole



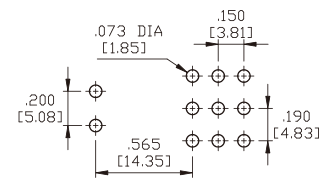
#### P.C.MOUNTING



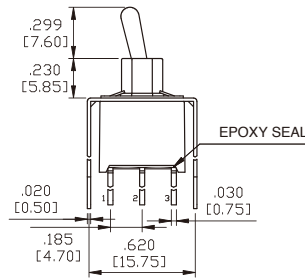
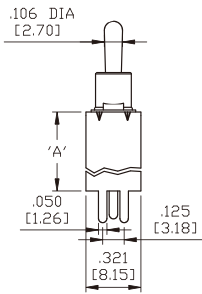
#### M7 Three Pole



#### P.C.MOUNTING

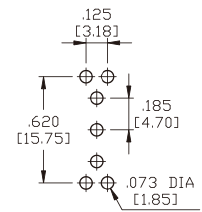


#### VS2-VS3 Single Pole

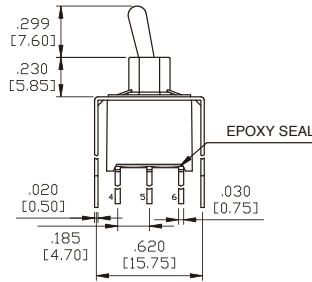
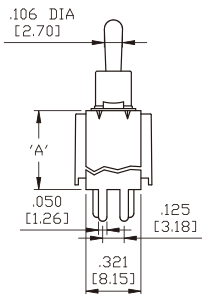


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

#### P.C.MOUNTING

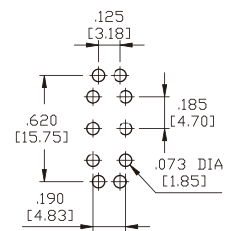


#### VS2-VS3 Double Pole

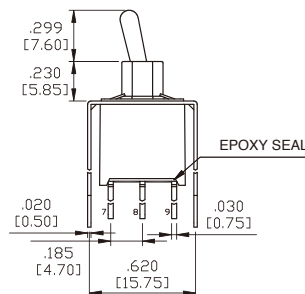
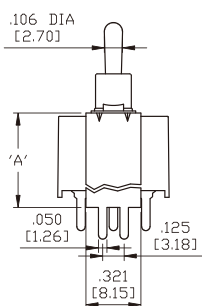


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

#### P.C.MOUNTING

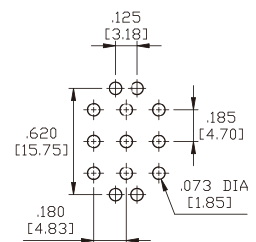


#### U2-VS3 Three Pole



OPTION CODE	DIM.'A'
U2	.551 [14.00]
VS3	.630 [16.00]

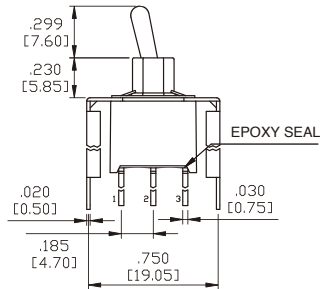
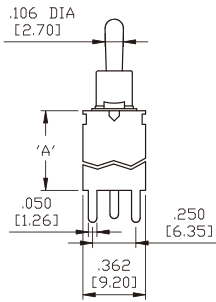
#### P.C.MOUNTING



## 2MS-Series Dimensional Specifications: in. [mm]

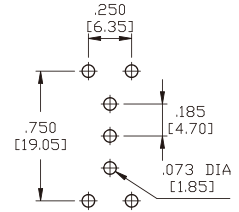
### Termination Options

#### VS4-VS5 Single Pole

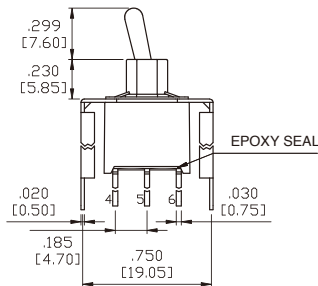
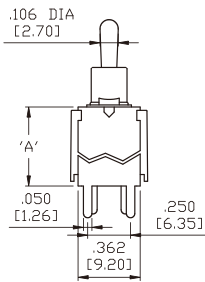


OPTION CODE	DIM.'A'
<b>VS4</b>	.461 [11.70]
<b>VS5</b>	.630 [16.00]

#### P.C.MOUNTING

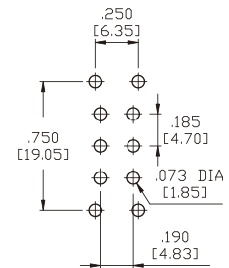


#### VS4-VS5 Double Pole

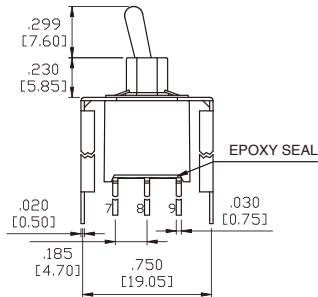
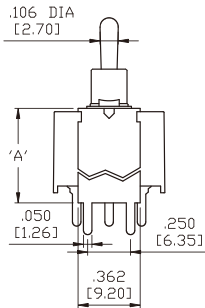


OPTION CODE	DIM.'A'
<b>VS4</b>	.461 [11.70]
<b>VS5</b>	.630 [16.00]

#### P.C.MOUNTING

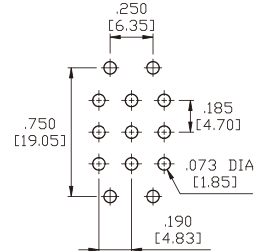


#### U4-VS5 Three Pole



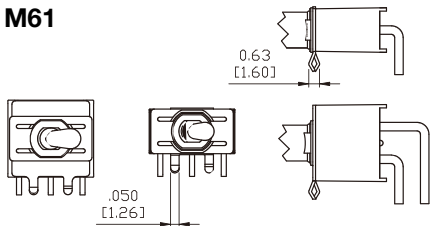
OPTION CODE	DIM.'A'
<b>U4</b>	.551 [14.00]
<b>VS5</b>	.630 [16.00]

#### P.C.MOUNTING

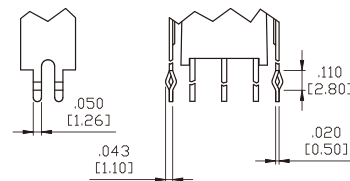


### Snap-In Termination Options

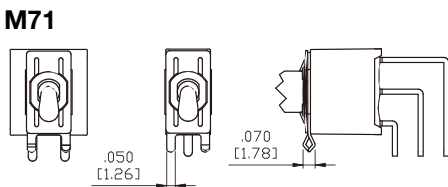
#### M61



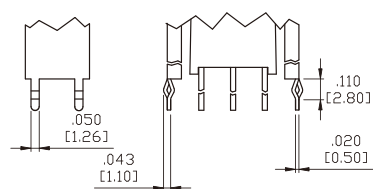
#### VS21, VS31



#### M71

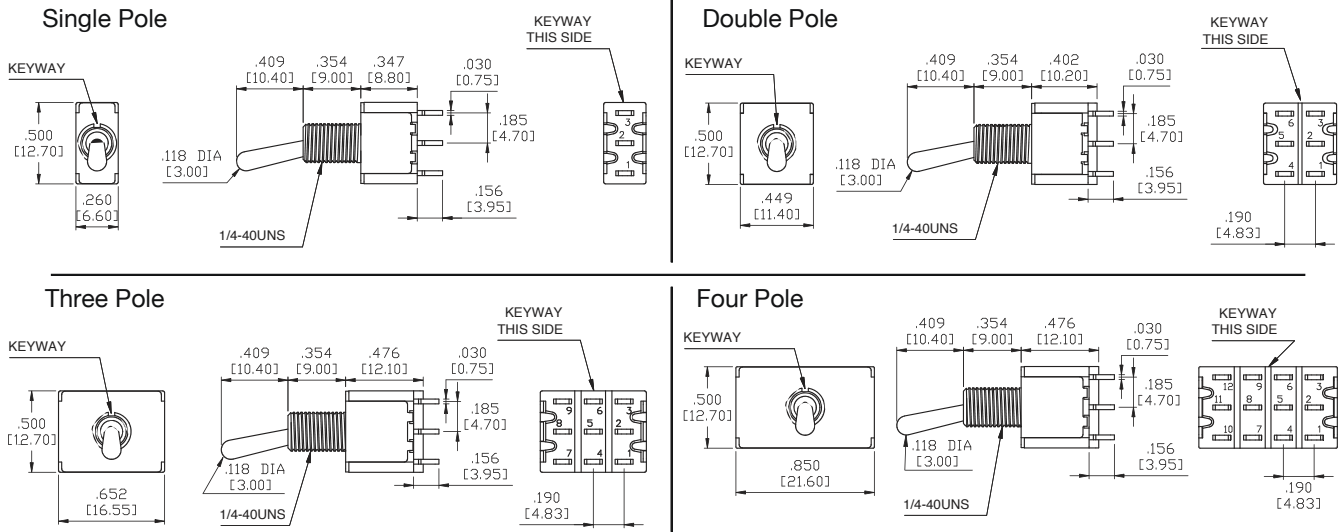


#### VS41, VS51

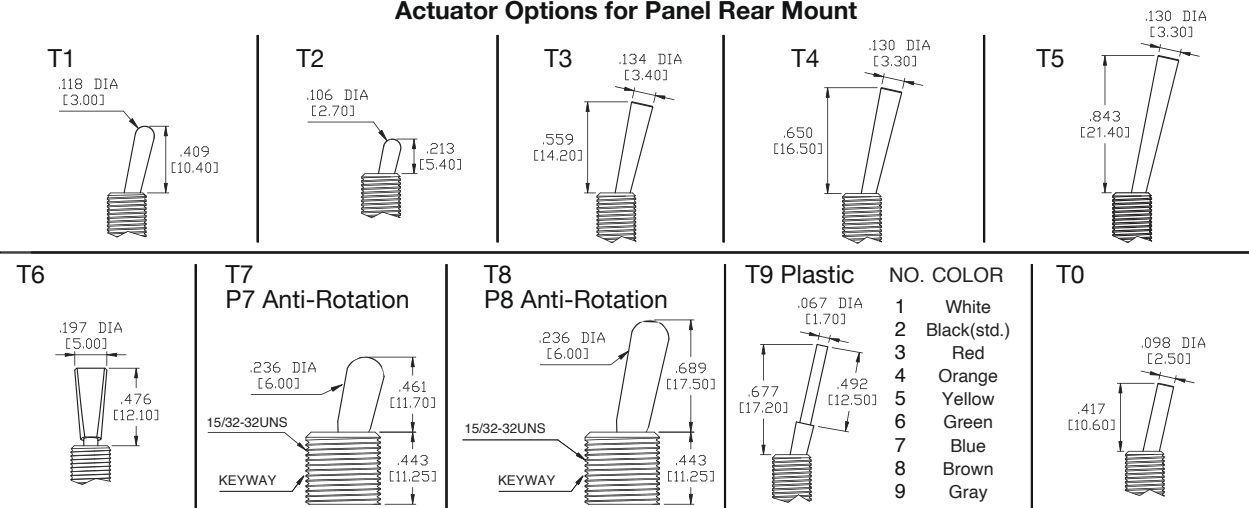


\* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.

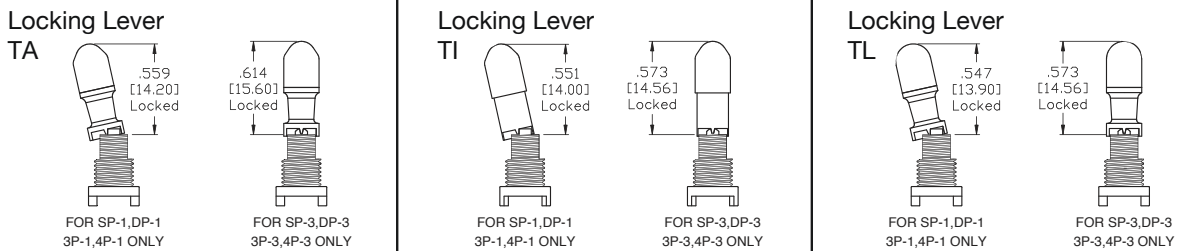
## 2M1-Series Dimensional Specifications: in. [mm]



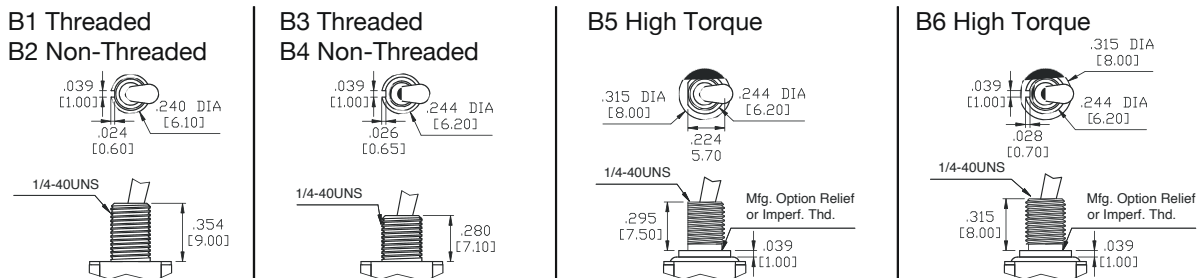
### Actuator Options for Panel Rear Mount



\* T6 actuator is available with B1, B2, B5, B6, BA, BB & BE bushing. Actuator length shown for T1 – T5, T9 and T0 is with B1 bushing. T7, P7, T8 & P8 does not require a bushing code.



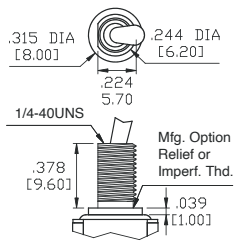
### Bushing Options



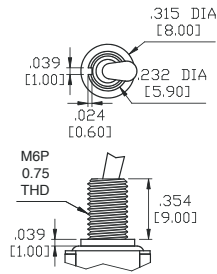
## 2M1-Series Dimensional Specifications: in. [mm]

### Bushing Options

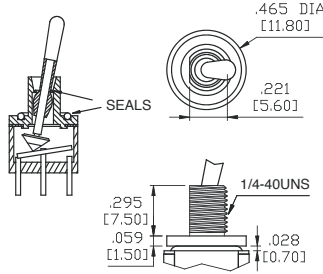
B7 Long



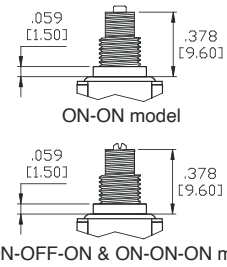
B8 Metric



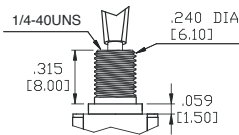
B9 Splash-Proof



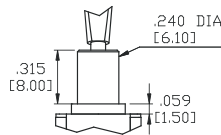
BL Locking Lever



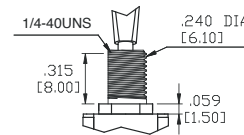
BA Threaded for T6



BB Non-Threaded for T6

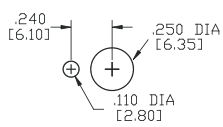
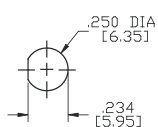
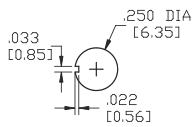


BB High Torque for T6

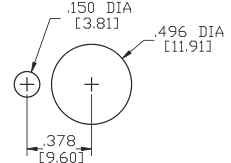
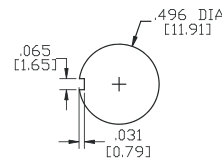


### Panel Mounting

1/4 INCH BUSHING

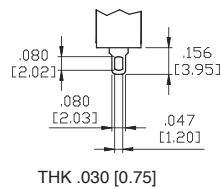


15/32 INCH BUSHING



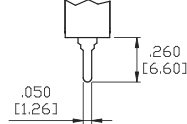
### Termination Options

M1 Standard Solder Lug



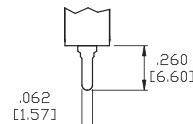
THK .030 [0.75]

M2 PC Thru-Hole



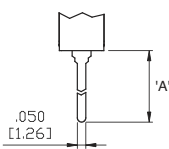
THK .030 [0.75]

M3 Quick Connect



THK .030 [0.75]

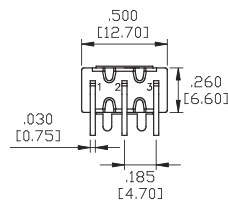
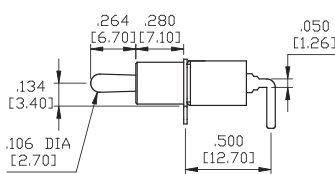
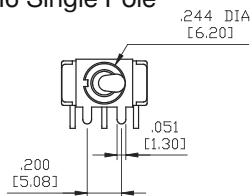
M5 Wire Wrap



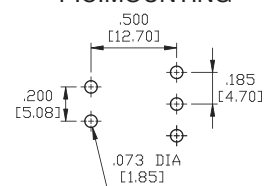
THK .030 [0.75]

OPTION CODE	DIM. 'A'
M5-1	.750 [19.05]
M5-2	.964 [24.48]
M5-3	.425 [10.80]
M5-4	1.062 [26.97]

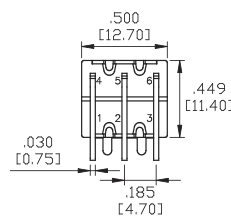
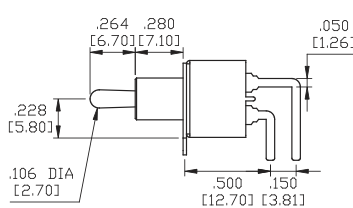
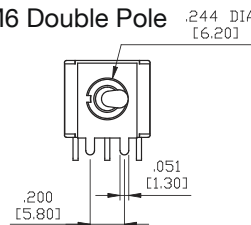
M6 Single Pole



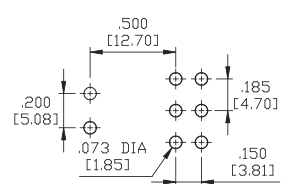
P.C.MOUNTING



M6 Double Pole



P.C.MOUNTING

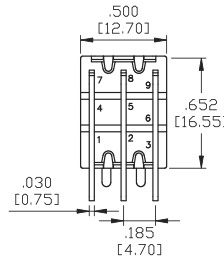
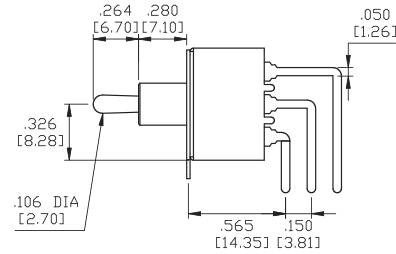
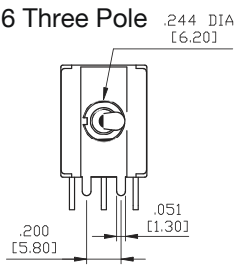




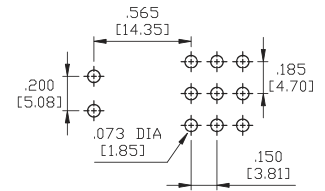
## 2M1-Series Dimensional Specifications: in. [mm]

### Termination Options

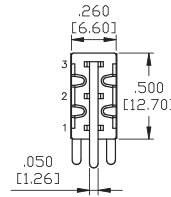
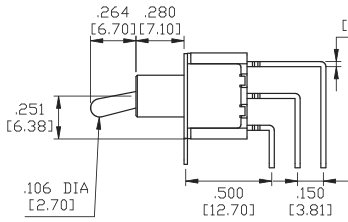
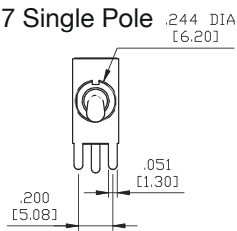
M6 Three Pole



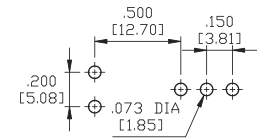
P.C.MOUNTING



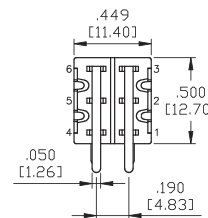
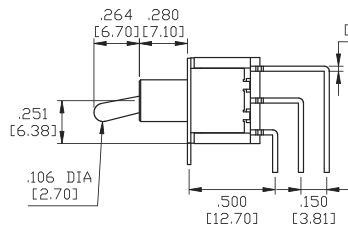
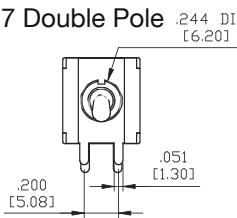
M7 Single Pole



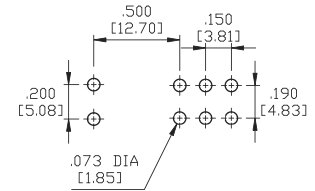
P.C.MOUNTING



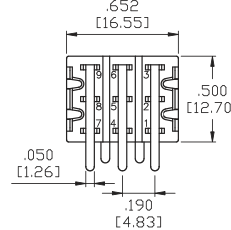
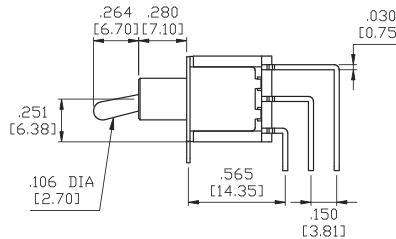
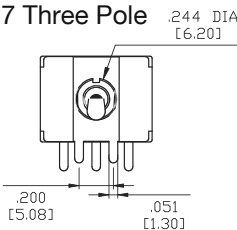
M7 Double Pole



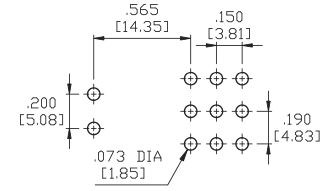
P.C.MOUNTING



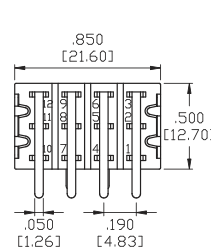
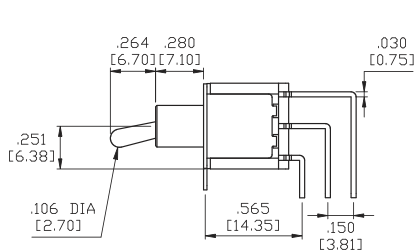
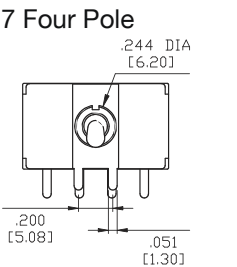
M7 Three Pole



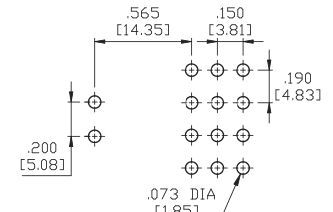
P.C.MOUNTING



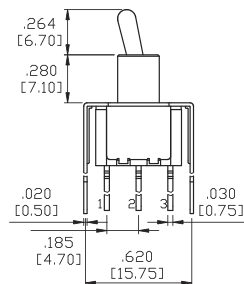
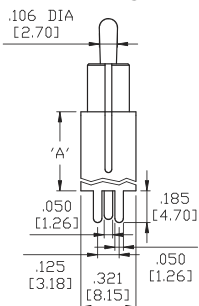
M7 Four Pole



P.C.MOUNTING

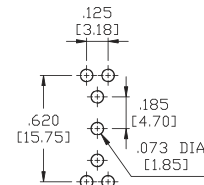


VS2-VS3 Single Pole



OPTION CODE	DIM. 'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

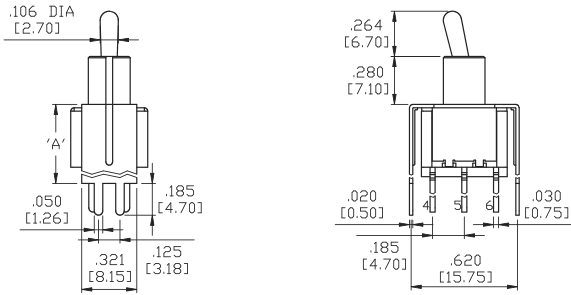
P.C.MOUNTING



## 2M1-Series Dimensional Specifications: in. [mm]

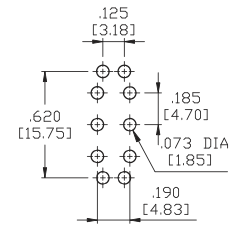
### Termination Options

#### VS2-VS3 Double Pole

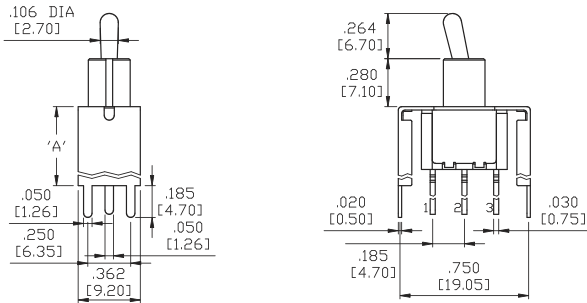


OPTION CODE	DIM. 'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

#### P.C. MOUNTING

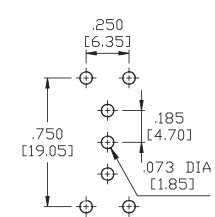


#### VS4-VS5 Single Pole

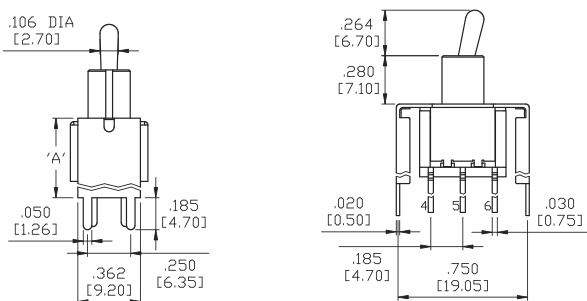


OPTION CODE	DIM. 'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

#### P.C. MOUNTING

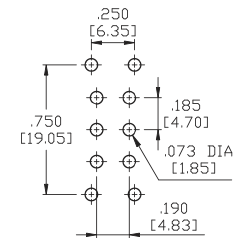


#### VS4-VS5 Double Pole



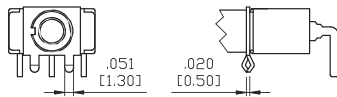
OPTION CODE	DIM. 'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

#### P.C. MOUNTING

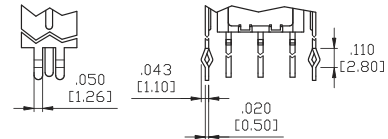


### Snap-In Termination Options

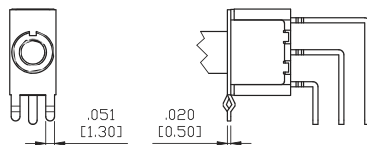
#### M61 (available with SP & DP)



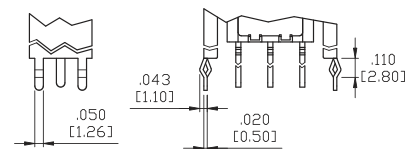
#### VS21, VS31



#### M71 (available with SP & DP)



#### VS41, VS51



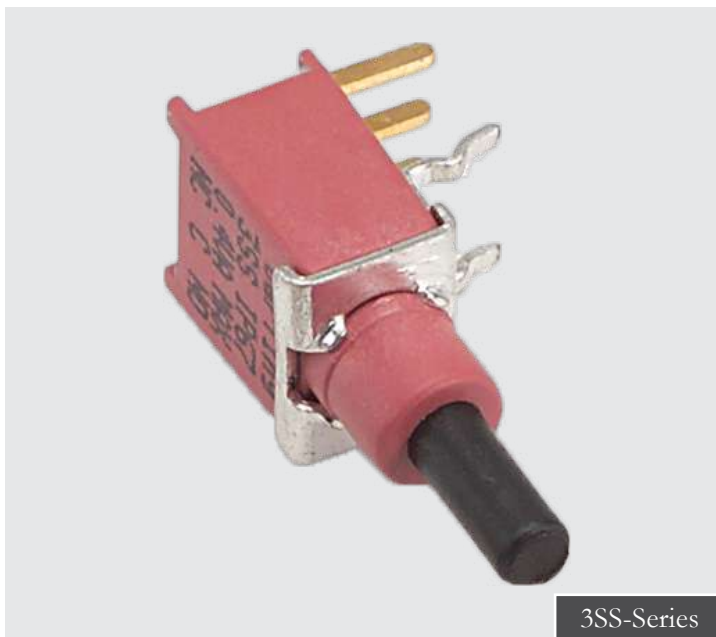
\* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.

# 3SS/3S1/3SM

## 3S-Series

### SUB-MINIATURE PUSHBUTTONS

The 3S family of sub-miniature pushbutton switches is composed of three switch series; the **3S1-Series** sub-miniature pushbutton switch, the **3SS-Series** sealed sub-miniature pushbutton switch, and the **3SM-Series** surface mount sealed sub-miniature pushbutton switch. All switches are available with a variety of rating, termination and actuator choices, and will withstand temperatures from -30°C to +85°C.



#### Product Highlights:

- IP67 Sealing
- AC or Low Voltage DC Rated
- Snap-in, PC or Surface Mounting
- Bulk Packed or Tape Reel

#### Typical Applications:

- Telecommunications
- Performance Audio
- Networking
- Computers
- Instrumentation
- Low Power On/Off Designs

#### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)



**3SS-Series**  
Sealed  
Sub-Miniature  
Pushbutton Switch



**3S1-Series**  
Sub-Miniature  
Pushbutton  
Switch



**3SM-Series**  
Sealed Surface Mount  
Sub-Miniature  
Pushbutton Switch

**Electrical**

Contact Rating	refer to ordering scheme
Electrical Life	50,000 make & break cycles @ full load
Contact Resistance	20 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts
Insulation Resistance	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level

**Physical**

Operating Temperature	-30°C to +85°C
Index of Protection	<i>3SS &amp; 3SM-Series</i> : IP67
Solder Heat Resistance	MIL-STD-202, Method 210

**Material**

Case	all UL94 V-0 <i>3S1-Series</i> : Diallyl phthalate (DAP) <i>3SS-Series</i> : Glass filled nylon 6/6, flame retardant, heat stabilized <i>3SM-Series</i> : Glass filled nylon 4/6, flame retardant, heat stabilized
Plunger	<i>3S1-Series</i> : Thermoplastic polyester, black <i>3SS-Series</i> : Thermoplastic polyester (UL 94V-0), with internal o-ring <i>3SM-Series</i> : Glass filled nylon 4/6, flame retardant, heat stabilized
Bushing	<i>3S1-Series</i> : Brass, nickel plated <i>3SS-Series</i> : Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) <i>3SM-Series</i> : Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0)
Housing	Stainless Steel
Switch Support	Brass, tin plated
Terminal Seal	Epoxy

**3SS - WSP 9 - M6 R E**

<sup>1</sup> Series      <sup>2</sup> Poles      <sup>3</sup> Circuit      <sup>4</sup> Termination      <sup>5</sup> Contacts      <sup>6</sup> Seal

**1 SERIES**  
**3SS** Sealed Sub-Miniature Pushbutton Switch

**2 POLES**  
**WSP** Single pole - uses terminals 1, 2 & 3  
**WDP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6

**3 CIRCUIT**  
( ) - momentary  
**Switching Position:**

	<b>1</b>	<b>2</b>
<b>8</b>	ON	(ON)
<b>9</b>	OFF	(ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

**4 ACTUATOR STYLE 4**

<b>M2</b>	PCB
<b>M6</b>	PC Mount, 90° horizontal
<b>M61</b>	Snap-In, 90° horizontal
<b>M7</b>	PC Mount, 90° vertical
<b>M71</b>	Snap-In, 90° vertical
<b>VS2</b>	PC Mount, U bracket
<b>VS21</b>	Snap-In, U bracket

**5 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>1</sup>	gold over silver	1A 125VAC or 28VDC	IP67
<b>K</b>	gold <sup>2</sup>	tin <sup>3,4</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b>	silver <sup>1</sup>	tin <sup>3,4</sup>	1A 125VAC or 28VDC	IP67
<b>R</b>	gold <sup>2</sup>	gold <sup>2</sup>	0.4VA max 20V max (AC/DC)	IP67

**6 EPOXY SEAL**  
**E** Epoxy Seal      **0** without Epoxy Seal

Notes:  
 1 Movable contact & terminal platings: silver over copper alloy  
 2 Movable contact & terminal platings: gold over nickel over copper alloy  
 3 Terminal platings: tin over nickel over copper alloy  
 4 Tin option available with PC terminations only.

\*Manufacturer reserves the right to change product specification without prior notice.

**3S1 - SP 9 - B6 - M7 - R E**

1 Series      2 Poles      3 Circuit      4 Bushing      5 Termination      6 Contacts      7 Seal

**1 SERIES**  
**3S1** Sub-Miniature Pushbutton Switch

**2 POLES**  
**SP** Single pole - uses terminals 1, 2 & 3

**3 CIRCUIT**  
 ( ) - momentary  
**Switching Position:**

	<b>1</b>	<b>2</b>
	2-3, 5-6	2-1, 5-4
<b>8</b>	ON	(ON)
<b>9</b>	OFF	(ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

**4 BUSHING**

<b>B5</b> <sup>1</sup>	10-48 Threaded	<b>B9</b>	Flush Bushing
<b>B6</b>	Unthreaded "D"	<b>B0</b>	1/4" Unthreaded "D"
<b>B7</b>	Unthreaded	<b>OP1</b>	Snap-In with bezel
<b>B8</b> <sup>2</sup>	1/4-40 Threaded "D"	<b>P0</b>	Flush Plunger

**5 TERMINATION**

<b>M1</b>	Solder Lug	<b>M7</b>	PC Mount, 90° vertical
<b>M2</b>	PCB	<b>M71</b>	Snap-In, 90° vertical
<b>M6</b>	PC Mount, 90° horizontal	<b>VS2</b>	PC Mount, U bracket
<b>M61</b>	Snap-In, 90° horizontal	<b>VS21</b>	Snap-In, U bracket

See page 50-51 for dimensional specifications.

**6 CONTACTS / TERMINALS**

Contact Material	Terminal Plating	Rating
<b>G</b> silver <sup>3</sup>	gold over silver	1A@125VAC or 28VDC
<b>K</b> gold <sup>4,7</sup>	tin <sup>6</sup>	0.4VA max @ 20V max (AC/DC)
<b>P</b> silver <sup>3,8</sup>	tin <sup>6</sup>	1A@125VAC or 28VDC
<b>Q</b> silver <sup>3</sup>	silver <sup>3</sup>	1A@125VAC or 28VDC
<b>R</b> gold <sup>4</sup>	gold <sup>5</sup>	0.4VA max @ 20V max (AC/DC)

**7 EPOXY SEAL**  
**E** Epoxy Seal      **0** without Epoxy Seal

Notes:  
 1 Hardware includes (2) 2M1-HDW21 nuts, and (1) 2M1-HDW22 washer  
 2 Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW16 locking ring  
 3 Movable contact and terminal platings: silver over copper alloy  
 4 Movable contact and terminal platings: gold over nickel over copper alloy  
 5 Terminal platings: gold over nickel over copper alloy  
 6 Terminal platings: tin over copper alloy  
 7 Terminal contact platings: Gold over nickel alloy  
 8 Terminal contact platings: silver over nickel alloy

**3SM - SP 9 - M6 - R E**

1 Series      2 Poles      3 Circuit      4 Termination      5 Contacts      6 Seal      7 Packaging

**1 SERIES**  
**3SM** Sealed Surface Mount Sub-Miniature Pushbutton Switch

**2 POLES**  
**SP** Single pole - uses terminals 1, 2 & 3

**3 CIRCUIT**  
 ( ) - momentary  
**Switching Position:**

	<b>1</b>	<b>2</b>
	2-3	2-1
<b>8</b>	ON	(ON)
<b>9</b>	OFF	(ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

**4 TERMINATION**

<b>K6</b>	Surface Mount, horizontal .433 [11.00 mm]
<b>M6</b>	Surface Mount, 90° flat .286 [7.26 mm]
<b>M7</b>	Surface Mount, 90° right angle
<b>S6</b>	Surface Mount, 90° horizontal .353 [8.97 mm]

**5 CONTACTS / TERMINALS**

Contact Material	Terminal Plating	Rating	Approvals
<b>G</b> silver <sup>1</sup>	gold over silver	1A 125VAC or 28VDC	IP67
<b>K</b> gold <sup>2,5</sup>	tin <sup>4</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b> silver <sup>1,6</sup>	tin <sup>4</sup>	1A 125VAC or 28VDC	IP67
<b>Q</b> silver <sup>1</sup>	silver <sup>1</sup>	1A 125VAC or 28VDC	IP67
<b>R</b> gold <sup>2</sup>	gold <sup>3</sup>	0.4VA max 20V max (AC/DC)	IP67

**6 EPOXY SEAL**  
**E** Epoxy Seal      **0** without Epoxy Seal

**7 PACKAGING**  
**T/R** tape reel - 500 pieces per reel  
 Switches are bulk packed, unless T/R is specified at the end of the part number.

Notes:  
 1 Movable contact and terminals platings: silver over copper alloy  
 2 Movable contact platings: gold over nickel over copper alloy  
 3 Terminal platings: gold over nickel over copper alloy  
 4 Terminals platings: tin over copper alloy  
 5 Terminal contact platings: gold over nickel alloy  
 6 Terminal contact platings: silver over nickel alloy

**3S-Series Accessories**

To order accessories assembled on a switch, specify the switch number followed by the accessory part number and the word "assembled".  
 Ex: 3S1-SP9-B6-M7-RE-C23 ASSEMBLED. To order accessories in bulk, specify the Series, followed by the accessory. Ex: 3S1-C13.

**Optional Cap**

**3S1 - C1 3**

1 Series      2 Toggle Cap Size      3 Color

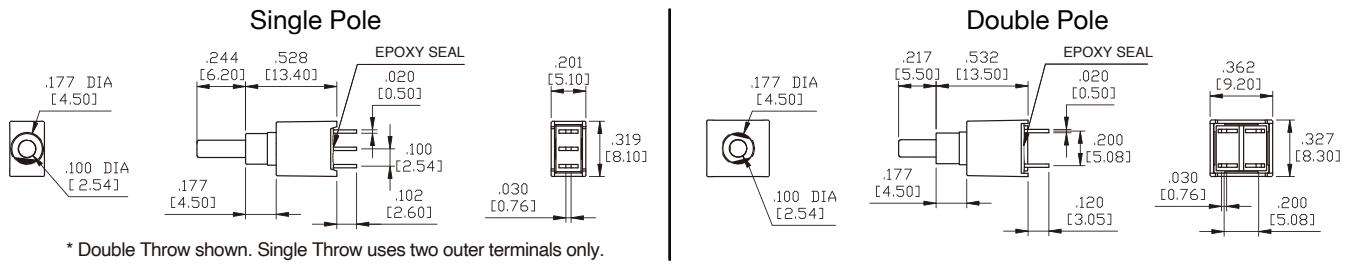
**1 SERIES**  
**3S1** Fits 3SS, 3S1 or 3MS

**2 TOGGLE CAP SIZE**  
**C1** .158" [4.01 mm] height      **C2** .138" [35.05 mm] height

**3 CAP COLOR**

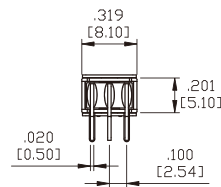
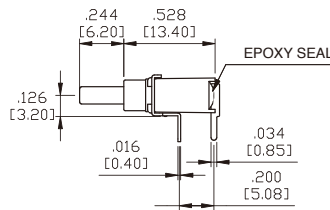
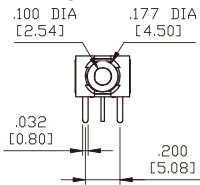
<b>1</b>	White	<b>5</b>	Yellow
<b>2</b>	Black	<b>6</b>	Green
<b>3</b>	Red	<b>7</b>	Blue
<b>4</b>	Orange		

## 3SS-Series Dimensional Specifications: in. [mm]

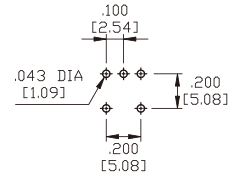


### Termination Options

#### M6 Single Pole

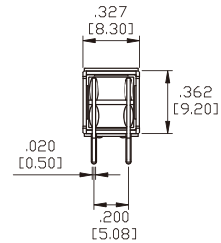
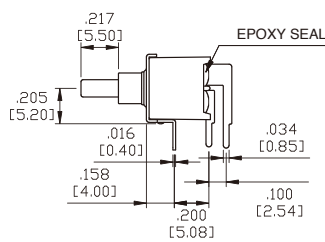
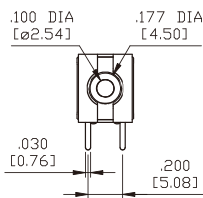


#### P.C.MOUNTING

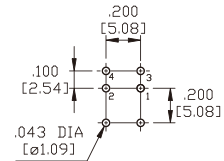


\* Double Throw shown. Single Throw uses two outer terminals only.

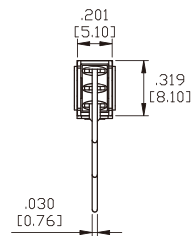
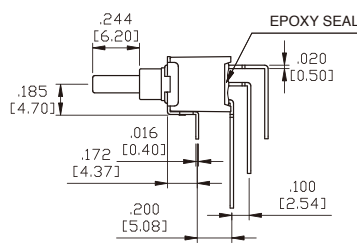
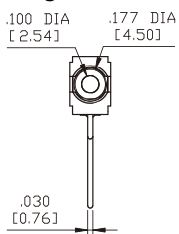
#### M6 Double Pole



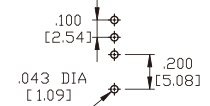
#### P.C.MOUNTING



#### M7 Single Pole

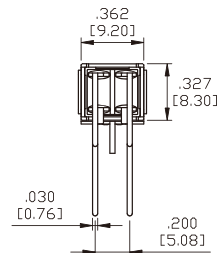
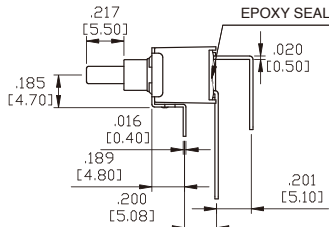
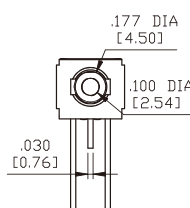


#### P.C.MOUNTING

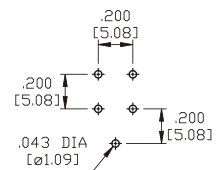


\* Double Throw shown. Single Throw uses two outer terminals only.

#### M7 Double Pole



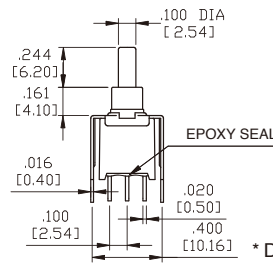
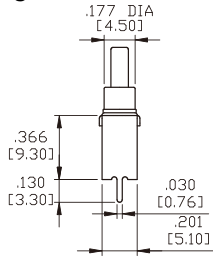
#### P.C.MOUNTING



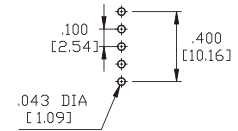
## 3SS-Series Dimensional Specifications: in. [mm]

### Termination Options

#### VS2 Single Pole

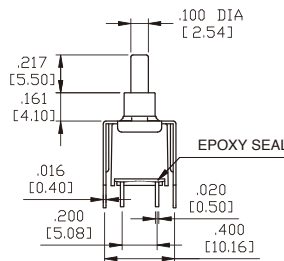
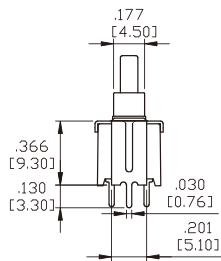


#### P.C. MOUNTING

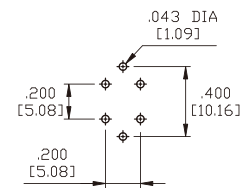


\* Double Throw shown. Single Throw uses outer terminals only.

#### VS2 Double Pole

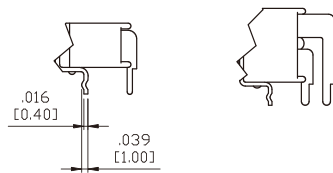


#### P.C. MOUNTING

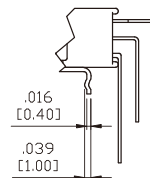


### Snap-In Termination Options

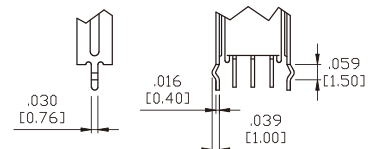
#### M61



#### M71

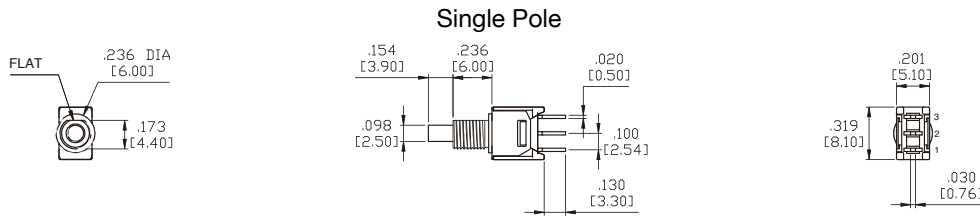


#### VS21



\* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

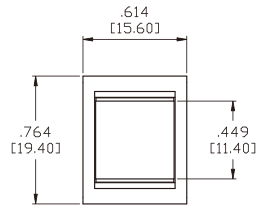
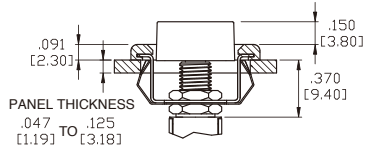
## 3S1-Series Dimensional Specifications: in. [mm]



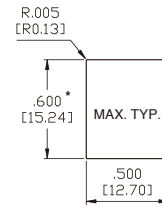
\* Double Throw shown. Single Throw uses two outer terminals only.

### Actuator Options for Snap-In Front Mount

**OP1**

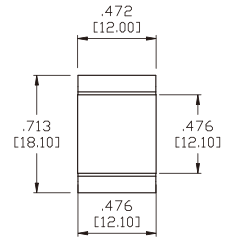
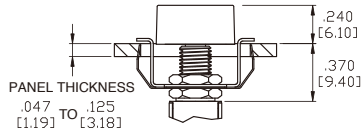


**PANEL MOUNTING**

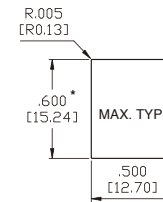


\* Increase this dimension to .620/.625 [15.75/15.88] for .091/.125[2.31/3.18] thk. panels.

**OP1 Without Frame**

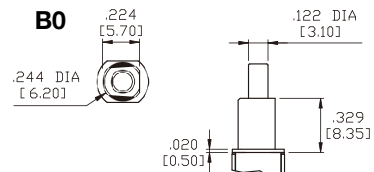
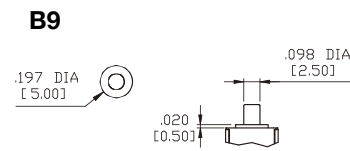
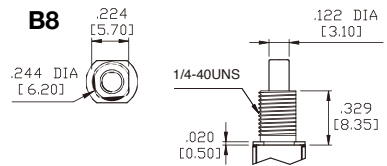
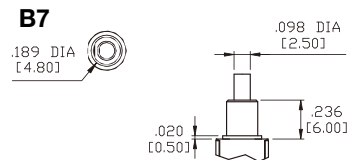
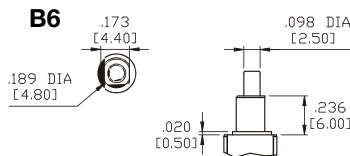
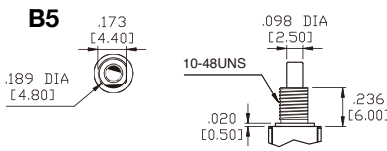


**PANEL MOUNTING**



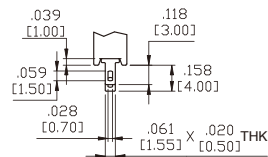
\* Increase this dimension to .620/.625 [15.75/15.88] for .091/.125[2.31/3.18] thk. panels.

### Bushing Options

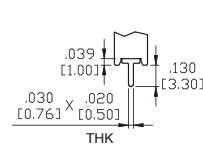


### Termination Options

**M1**



**M2**

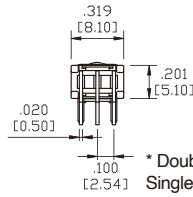
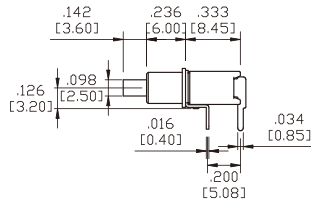
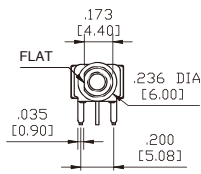




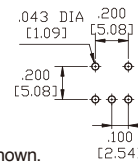
## 3S1-Series Dimensional Specifications: in. [mm]

### Termination Options

#### M6 Single Pole

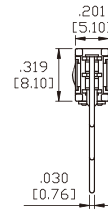
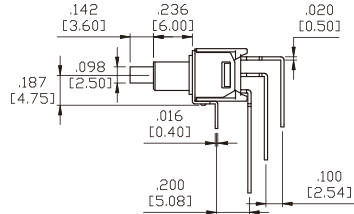
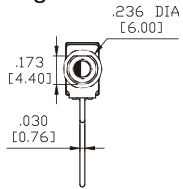


#### P.C.MOUNTING

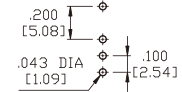


\* Double Throw shown.  
Single Throw uses two outer terminals only.

#### M7 Single Pole

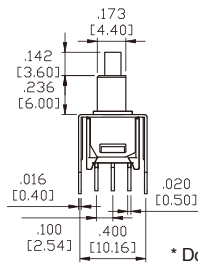
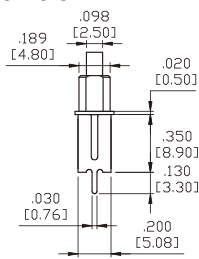


#### P.C.MOUNTING

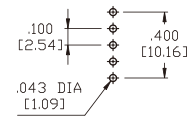


\* Double Throw shown.  
Single Throw uses two outer terminals only.

#### VS2 Single Pole



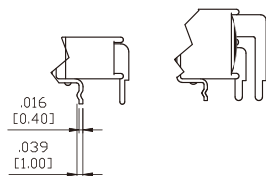
#### P.C.MOUNTING



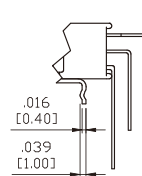
\* Double Throw shown. Single Throw uses outer terminals only.

### Snap-In Termination Options

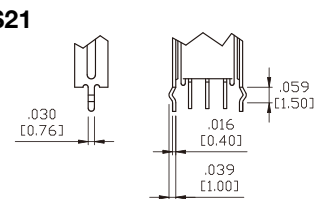
#### M61



#### M71



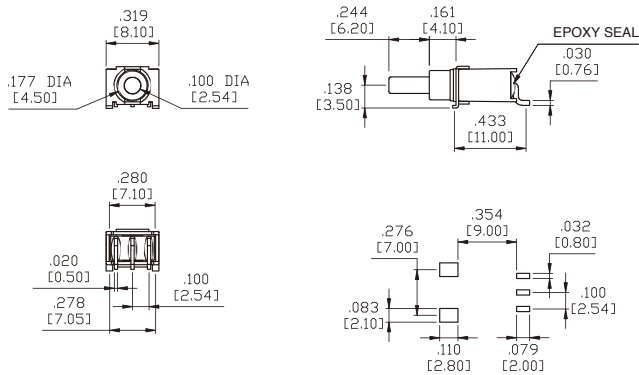
#### VS21



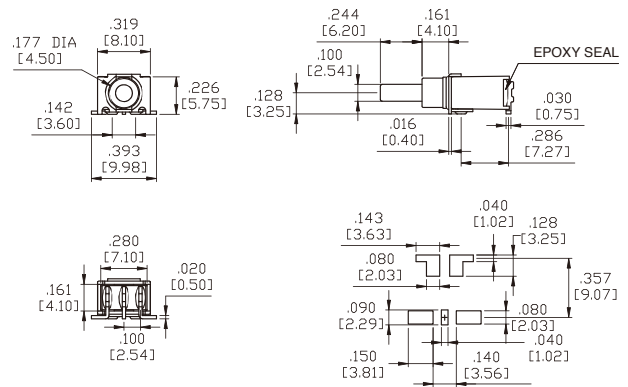
\* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

## 3SM-Series Dimensional Specifications: in. [mm]

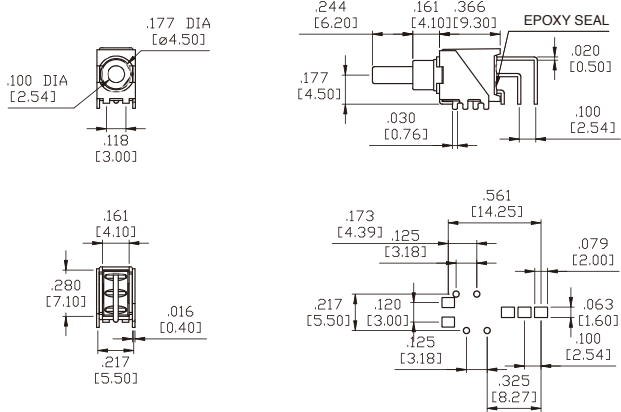
### K6 Single Pole



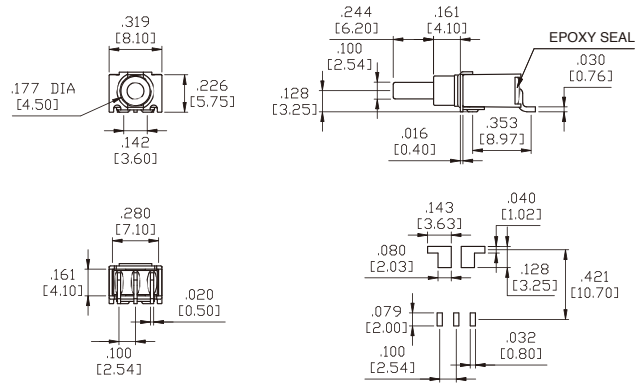
### M6 Single Pole



### M7 Single Pole



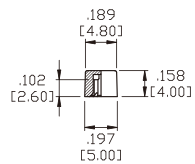
### S6 Single Pole



\* Double Throw shown. Single Throw uses two outer terminals only.

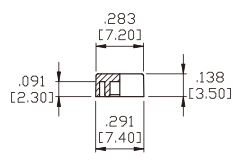
### Plunger Caps

#### C1



\* MATERIAL: ABS.

#### C2



\* MATERIAL: ABS.

#### CAP COLORS

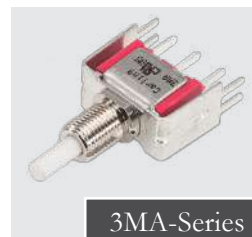
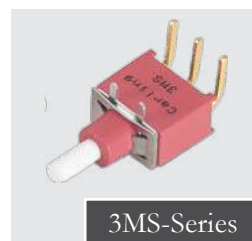
CAP COLORS			
1	White	6	Green
2	Black	7	Blue
3	Red	8	Brown
4	Orange	9	Gray
5	Yellow		

# 3MS/3MN/3MA

## 3M-Series

### MINIATURE PUSHBUTTONS

The 3M family of miniature pushbutton switches is composed of four switch series; the **3MNH-Series** premium sealed snap-action pushbutton, the **3MN-Series** snap-action pushbutton, the **3MS-Series** sealed snap-action pushbutton, and the **3MA-Series** alternate-action pushbutton. These PC mount pushbutton switches offer a variety of ratings, circuits, contact materials, terminal platings, pushbutton styles, and optional color caps.



#### Product Highlights:

- IP67 Sealing
- Snap Action Contact Mechanism
- Variety of Plunger and Bushing Lengths
- Up to 14 Termination Choices
- UL and cUL Approvals
- Sleek Black Finish

#### Typical Applications:

- Telecommunications
- Performance Audio
- Networking
- Computers
- Instrumentation
- Low Power On/Off Designs

#### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)



**3MNH-Series**  
Premium Sealed  
Miniature Pushbutton Switch



**3MS-Series**  
Sealed Snap-Action  
Miniature Pushbutton Switch



**3MN-Series**  
Snap-Action  
Miniature Pushbutton Switch



**3MA-Series**  
Alternate Action  
Miniature Pushbutton Switch

### Electrical

Contact Rating	refer to ordering scheme
Electrical Life	50,000 make & break cycles @ full load
Contact Resistance	<i>3MS-Series:</i> 50 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts. <i>3MN, 3MA &amp; 3NMH-Series:</i> 10 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts.
Insulation Resistance	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level

### Physical

Operating Temperature	-30°C to +85°C
Index of Protection	<i>3MS-Series:</i> IP68 <i>3MNH-Series:</i> IP67
Cap Installation Support	<i>3MS-Series:</i> 10 lbs. max.
Solder Heat Resistance	MIL-STD-202, Method 210

### Material

Case	<i>3MS-Series:</i> Glass filled nylon 6/6, flame retardant, heat stabilized (UL94V-0) <i>3MN, 3MA &amp; 3NMH-Series:</i> Diallyl phthalate (DAP) (UL 94V-0)
Plunger	<i>3MS &amp; 3MA-Series:</i> Glass filled nylon or glass filled polyester (UL94V-0) <i>3MN-Series:</i> Thermoplastic polyester, black <i>3NMH-Series:</i> Brass, black finish with o-ring seal
Bushing	<i>3MN-Series:</i> Brass, nickel plated <i>3MA-Series:</i> Zinc, nickel plated <i>3NMH-Series:</i> Brass, black finish with o-ring seal
Housing	<i>3MN &amp; 3MA-Series:</i> Stainless Steel
Switch Support Retainer	<i>3MS-Series:</i> Stainless Steel
Terminal Seal	Epoxy

\*Manufacturer reserves the right to change product specification without prior notice.

**3MNH - DP 1 - PJ - BJ - M2 - Q E**

1 Series      2 Pole      3 Circuit      4 Plunger      5 Bushing      6 Termination      7 Contacts      8 Seal

**1 SERIES**

**3MNH** Premium Sealed Miniature Pushbutton Switch

**2 POLES**

**SP** Single pole - uses terminals 1, 2 & 3  
**DP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6

**3 CIRCUIT**

( ) - momentary

Switching Position:	1	2
1	ON	ON
7	ON	(ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

**4 PLUNGER<sup>1</sup>**

**PJ** .325 height [8.25 mm]  
**PA** .157 height [4.00 mm]  
**PB** .354 height [9.00 mm]




**5 BUSHING<sup>2</sup>**

**BJ<sup>3</sup>** Threaded 15/32, flat, .553 height [14.05 mm]  
**BL<sup>4</sup>** Threaded 15/32, flat, .295 height [7.49 mm]

**6 TERMINATION**

**M1** Solder Lug  
**M2** PC thru-hole  
**M51** Wire wrap, .711" [18.05 mm]  
**M52** Wire wrap, .924" [23.48 mm]  
**M53** Wire wrap, .386" [9.80 mm]

**7 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating	Approvals	
<b>G</b>	silver <sup>5</sup>	gold over silver	(SP1, DP1) 6A@125VAC or 28VDC 3A@250VAC (SP7, DP7) 1A@120VAC or 38VDC	c  us, IP67	
			(SP1, DP1) 6A@125VAC or 28VDC 3A@250VAC (SP7, DP7) 1A@120VAC or 38VDC		c  us, IP67
			0.4VA max @ 20V max (AC/DC)		
<b>Q</b>	silver <sup>5</sup>	silver <sup>5</sup>	(SP1, DP1) 6A@125VAC or 28VDC 3A@250VAC (SP7, DP7) 1A@120VAC or 38VDC	c  us, IP67	
<b>R</b>	gold <sup>6</sup>	gold <sup>7</sup>	0.4VA max @ 20V max (AC/DC)		N/A

**8 EPOXY SEAL**

**E** Epoxy Seal

Notes:

- PJ Plunger for maintained circuits only. PA and PB Plunger for momentary circuits only
- Hardware includes (1) 2M1-HDW4 nut and (1) 3MNH-WCP-0872 o-ring
- BJ Bushing only available with PJ Plunger
- BL Bushing only available with PA or PB Plunger
- Movable contact & terminal platings: silver over copper alloy
- Movable Contact platings: gold over nickel over copper alloy
- Terminal platings: gold over nickel over copper alloy

**3MS - WSP 7 - P1 - B1 - M6 Q E**

1 Series      2 Pole      3 Circuit      4 Actuator Style      5 Bushing      6 Termination      7 Contacts      8 Seal

**1 SERIES**

**3MS** Sealed Snap-Action Miniature Pushbutton Switch

**2 POLES**

**WSP** Single pole - uses terminals 1, 2 & 3  
**WDP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6

**3 CIRCUIT**

( ) - momentary

Switching Position:	1	2
7	2-3, 5-6 ON	2-1, 5-4 (ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

**4 ACTUATOR STYLE**

**P1** Standard Plunger  
**P2** Long Plunger  
**P3** Short Plunger


**5 BUSHING**

**B1<sup>1</sup>** Threaded, with keyway, .350 height [8.89 mm]  
**B4** Unthreaded, flatted, .250 height [6.35 mm]

**6 TERMINATION**

**M1** Solder Lug  
**M2** PCB  
**M6** PC Mount, 90° horizontal  
**M61** Snap-In, 90° horizontal  
**M7** PC Mount, 90° vertical  
**M71** Snap-In, 90° vertical  
**VS2** PC Mount, U bracket, .620" mounting x .461" height  
**VS21** Snap-In, U bracket, .620" mounting x .461" height  
**VS3** PC Mount, U bracket, .620" mounting x .630" height  
**VS31** Snap-In, vertical, .630" height  
**VS4** PC Mount, U bracket, .750" mounting x .461" height  
**VS41** Snap-In, vertical, .461 height  
**VS5** PC Mount, U bracket, .750" mounting x .630" height  
**VS51** Snap-In, vertical, .630" height

**7 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>3</sup>	gold over silver	1A 120VAC or 38VDC	c  us, IP68
<b>Q</b>	silver <sup>3</sup>	silver <sup>3</sup>	1A 120VAC or 38VDC	
<b>R</b>	gold <sup>2</sup>	gold <sup>2</sup>	0.4VA max 20V max (AC/DC)	

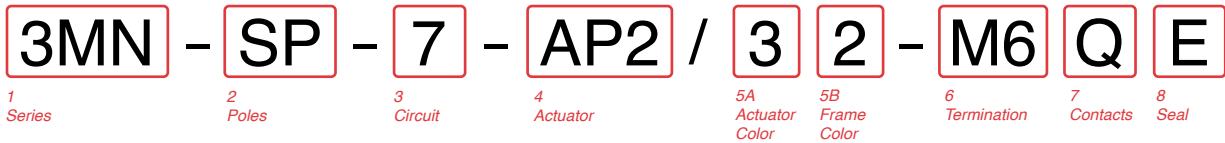
**8 EPOXY SEAL**

**E** Epoxy Seal      **0** without Epoxy Seal

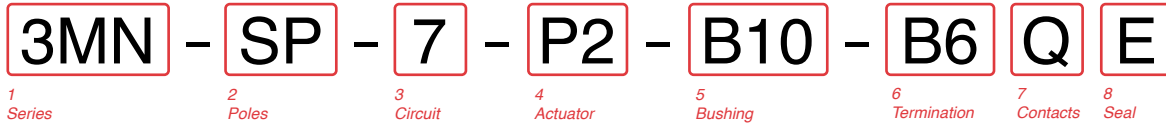
Notes:

- Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW15 locking ring
- Movable contact and terminal platings: gold over nickel over copper alloy
- Movable contact and terminal platings: silver over copper alloy

### 3MN-Series with Square Actuator



### 3MN-Series with Plunger Actuator



**1 SERIES**

**3MN** Snap-Action Miniature Pushbutton Switch

**2 POLES**

**SP** Single pole - uses terminals 1, 2 & 3  
**DP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6

**3 CIRCUIT**

( ) - momentary

<b>Switching Position:</b>	<b>1</b>	<b>2</b>
	2-3, 5-6	2-1, 5-4
<b>7</b>	ON	(ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

**4 ACTUATOR**

**Square Actuator** (use with Color Options in Selection 5A & 5B)

**AP1** Square with no frame  
**AP2** Square raised above frame  
**AP3** Square flush with frame

**Plunger Actuator** (use with Bushing Options in Selection 5)

**P0** Flush Plunger  
**P1** Standard Plunger  
**P2** Short Plunger

**5A ACTUATOR COLOR & 5B FRAME COLOR** <sup>3,4</sup>

**1** White  
**2** Black  
**3** Red

OR

**5B BUSHING**

**B6** Unthreaded (for terminations VS6-VS9 only)  
**B10**<sup>1</sup> Threaded keyway  
**B11**<sup>2</sup> Threaded with flat  
**B20** Unthreaded keyway  
**B21** Unthreaded with flat

**6 TERMINATION**

**M1** Solder Lug  
**M2** PCB  
**M51** Wire Wrap .750 [19.05]  
**M52** Wire Wrap .964 [24.40]  
**M53** Wire Wrap .425 [10.80]  
**M6** PC Mount, 90° horizontal  
**M7** PC Mount, 90° vertical  
**VS2** PC Mount, U bracket, .620" mounting x .461" height  
**VS3** PC Mount, U bracket, .620" mounting x .630" height  
**VS4** PC Mount, U bracket, .750" mounting x .461 height  
**VS5** PC Mount, U bracket, .750" mounting x .630" height  
**VS6** PC Mount, U bracket, .461 height (for B6 bushing only)  
**VS7** PC Mount, U bracket, .630 height (for B6 bushing only)  
**VS8** PC Mount, U bracket, .461 height (for B6 bushing only)  
**VS9** PC Mount, U bracket, .630 height (for B6 bushing only)

**7 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver	gold over silver	1A 125VAC or 28VDC	c US
<b>Q</b>	silver <sup>5</sup>	silver <sup>5</sup>	1A 125VAC or 28VDC	c US
<b>R</b>	gold <sup>6</sup>	gold <sup>6</sup>	0.4VA max 20V max (AC/DC)	N/A

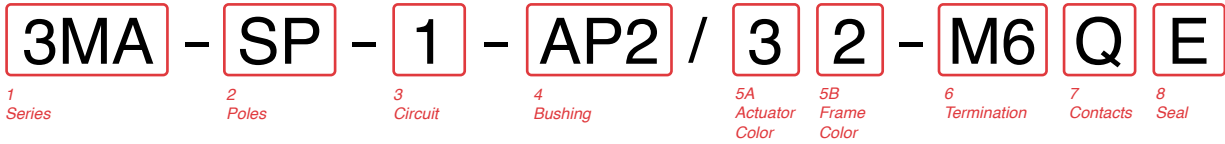
**8 EPOXY SEAL**

**E** Epoxy Seal      **0** without Epoxy Seal

Notes:

- Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW15 locking ring
- Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW16 locking ring
- Selection 5B is blank if actuator style is AP1 (no frame)
- Black, white and red are standard. Other colors available, consult factory for details.
- Movable contact & terminal platings: silver over copper alloy
- Movable contact & terminal platings: gold over nickel over copper alloy

### 3MA-Series with Square Actuator



### 3MA-Series with Plunger Actuator



**1 SERIES**

**3MA** Alternate Action Miniature Pushbutton Switch

**2 POLES**

**SP** Single pole - uses terminals 1, 2 & 3  
**DP** Double pole uses terminals 1, 2, 3, 4, 5 & 6  
**3P**<sup>1</sup> Three pole uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 9  
**4P**<sup>1</sup> Four pole uses terminals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

**3 CIRCUIT**

( ) - momentary  
**Switching**      **1**      **2**      **3**  
**Position:** 2-3, 5-6, 8-9, 11-12      Connected Terminals      2-1, 5-4, 8-7, 11-10  
**1**      ON      NONE      ON  
**2\***      ON      NONE      (ON)

\*Available in SP & DP only.

**4 ACTUATOR**

**Square Actuator** (use with Color Options in Selection 5A & 5B)

**AP1** Square with no frame  
**AP2** Square raised above frame

**Plunger Actuator** (use with Bushing Options in Selection 5)

**PA** Standard Plunger  
**PI** Medium Plunger  
**PL** Brass Chrome Plunger  
**PC** Brass Chrome Plated Plunger with Cap (for BD bushing only)  
**PD** Brass Chrome Plated Plunger (for BD bushing only)

**5A ACTUATOR COLOR & 5B FRAME COLOR**<sup>4,5</sup>

<b>1</b> White	<b>4</b> Orange	<b>7</b> Blue
<b>2</b> Black	<b>5</b> Yellow	<b>8</b> Brown
<b>3</b> Red	<b>6</b> Green	<b>9</b> Gray

**OR**

**5 BUSHING**

**BD**<sup>1</sup> Big bushing for PC, PD actuator 15/32"  
**B10**<sup>2</sup> Threaded 1/4 - 40  
**B20** Unthreaded  
**B21** Unthreaded with flat

**6 TERMINATION**

**M1** Solder Lug  
**M2** PCB  
**M51** Wire Wrap .750  
**M52** Wire Wrap .964  
**M53** Wire Wrap .425  
**M54** Wire Wrap 1.062  
**M6** PC Mount, 90° horizontal  
**M7** PC Mount, 90° vertical  
**VS2** PC Mount, U bracket, .620" mounting x .461" height  
**VS3** PC Mount, U bracket, .620" mounting x .630" height  
**VS4** PC Mount, U bracket, .750" mounting x .461" height  
**VS5** PC Mount, U bracket, .750" mounting x .630" height

**7 CONTACTS / TERMINALS**

	Contact	Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>6</sup>	gold over silver	6A	125VAC or 28VDC	c <b>RU</b> us
			3A	250VAC	
<b>K</b>	gold <sup>7</sup>	tin <sup>8</sup>	0.4VA max 20V max (AC/DC)		N/A
			<b>P</b>	silver <sup>6</sup>	
<b>Q</b>	silver <sup>6</sup>	silver <sup>6</sup>	6A 125VAC or 28VDC 3A 250VAC		c <b>RU</b> us
<b>R</b>	gold <sup>7</sup>	gold <sup>7</sup>	0.4VA max 20V max (AC/DC)		

**8 EPOXY SEAL**

**E** Epoxy Seal      **0** without Epoxy Seal

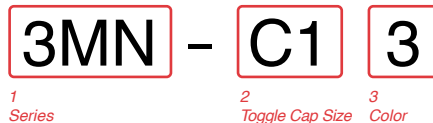
Notes:

- 1 Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW12 washer, and (1) 2M1-HDW17 locking ring
- 2 Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW15 locking ring
- 3 Tin option available with PC type terminations only.
- 4 Available with circuit 1 only
- 5 Black, white and red are standard. Other colors available, consult factory for details.
- 6 Selection 5B is blank if actuator style is AP1 (no frame)
- 7 Movable contact & terminal platings: silver over copper alloy
- 8 Movable contact & terminal platings: gold over nickel over copper alloy
- 9 Terminal platings: tin over nickel over copper alloy, available for PC mount terminations only

### 3M-Series Accessories

To order a cap assembled on a switch, specify the switch number followed by the cap part number and the word "assembled". Ex: 3MN-SP-7-P2-B6-M6QE-C13ASSEMBLED. To order caps in bulk, specify the Series, followed by the cap. Ex: 3MN-C13

### Optional Cap



**1 SERIES**

**3MN** Fits 3MN, 3MS or 3MA

**2 PUSHBUTTON CAP SIZE**

<b>C1</b> Round 8 mm diameter	<b>C5</b> <sup>1</sup> Round 15 mm diameter
<b>C2</b> Round 9.70 mm diameter	<b>C6</b> <sup>2</sup> Brass Chrome Plated, 3.15 mm diameter
<b>C3</b> Square 11.7 x 11.7 mm	
<b>C4</b> Round 5 mm diameter	

**3 CAP COLOR**

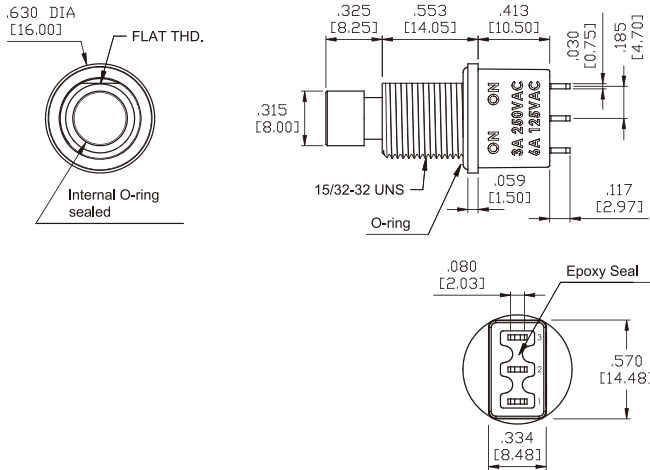
<b>1</b> White	<b>4</b> Orange
<b>2</b> Black	<b>5</b> Yellow
<b>3</b> Red	<b>6</b> Green
	<b>7</b> Blue

Notes:

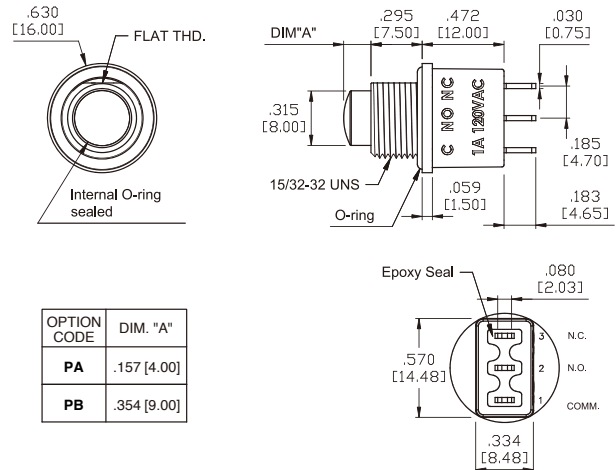
- 1 For 3MA with PL Bushing
- 2 For 3MA with PD Bushing

## 3MNH-Series Dimensional Specifications: in. [mm]

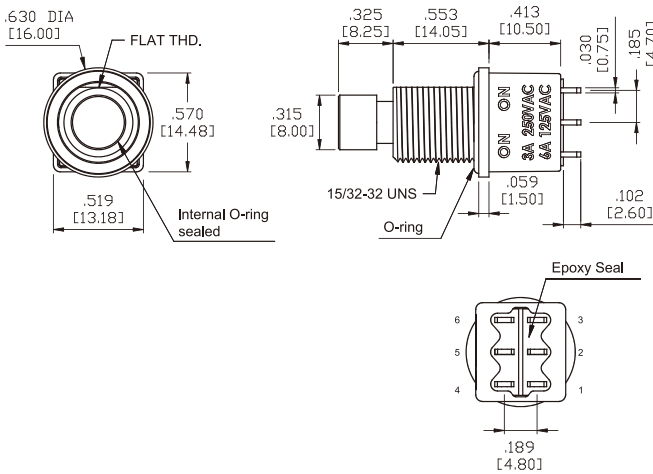
### Single Pole Maintained Circuit



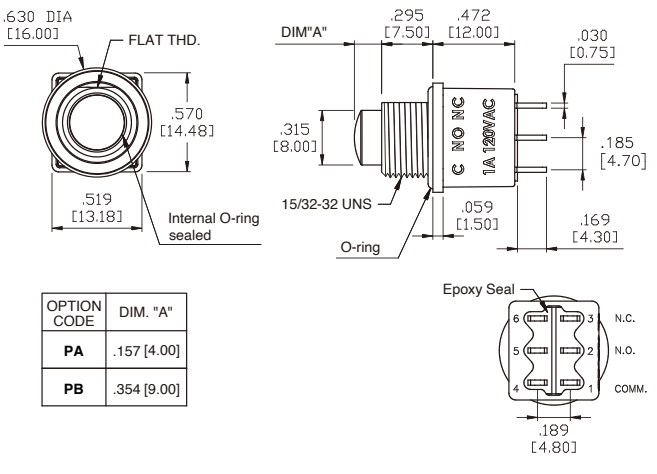
### Single Pole Momentary Circuit



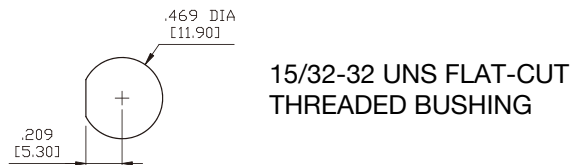
### Double Pole Maintained Circuit



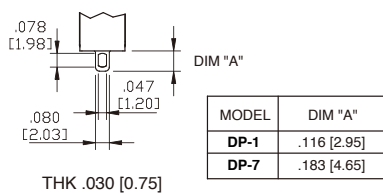
### Double Pole Momentary Circuit



### Panel Mounting

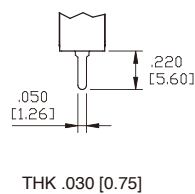


### M1 Standard Solder Lug

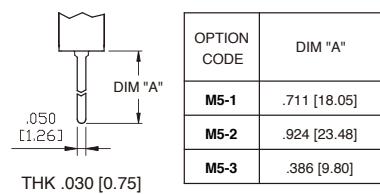


### Termination Options

#### M2 PC Thru-Hole

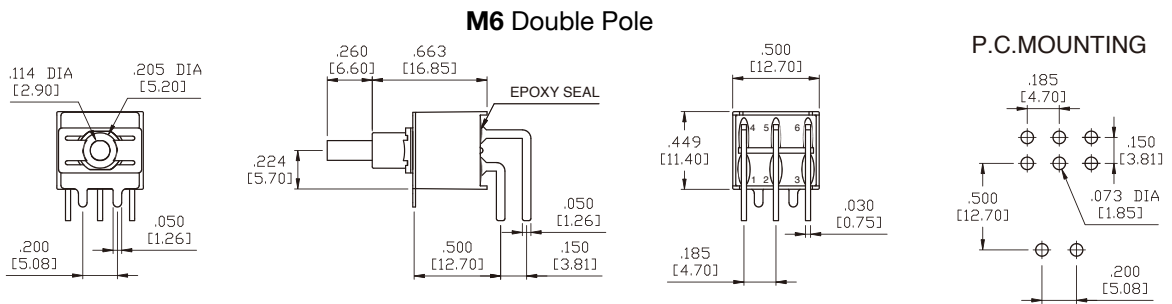
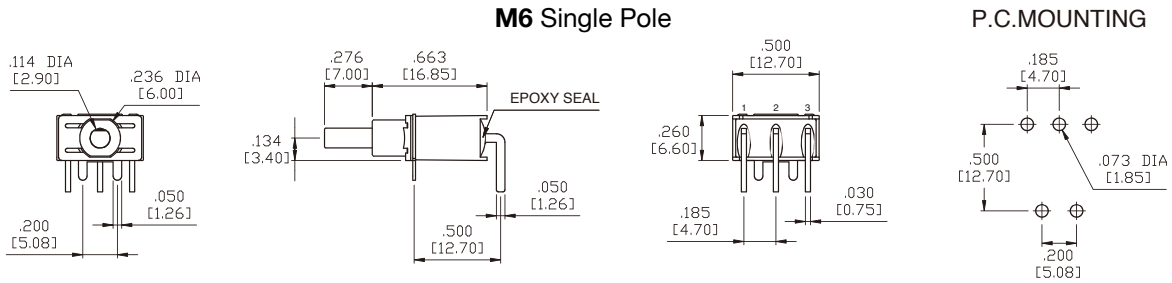
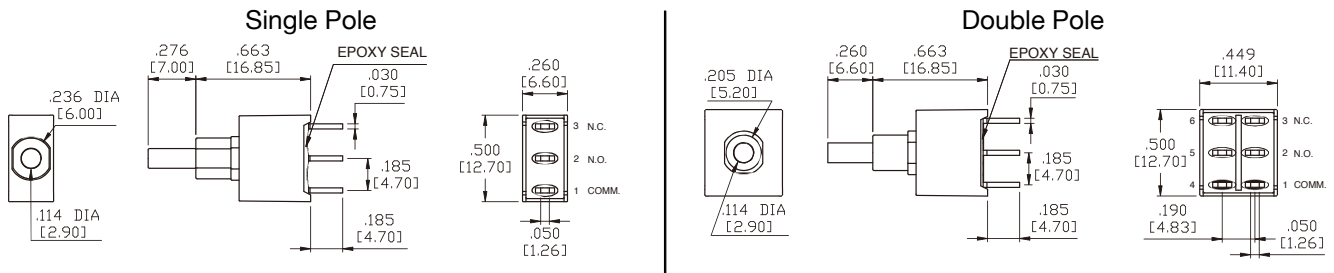


#### M5 Wire Wrap



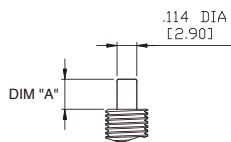


### 3MS-Series Dimensional Specifications: in. [mm]



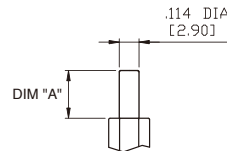
#### Plunger Options

For B1 Bushing



OPTION CODE	DIM. "A"
P1	.181 [4.60]
P2	.228 [5.80]
P3	.087 [2.20]

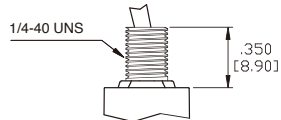
For B4 Bushing



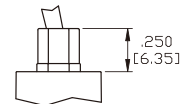
OPTION CODE	DIM. "A"
P1	.276 [7.00]
P2	.323 [8.20]
P3	.181 [4.60]

#### Bushing Options

B1



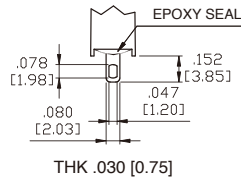
B4



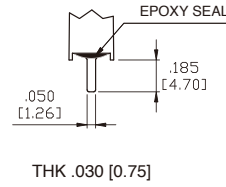
# 3MS-Series Dimensional Specifications: in. [mm]

## Termination Options

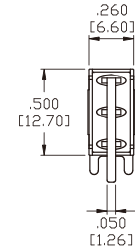
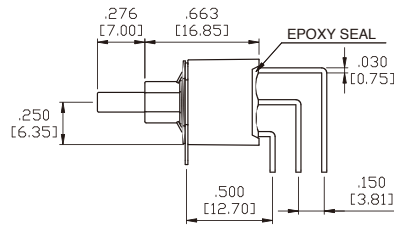
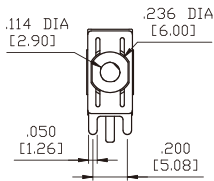
**M1**



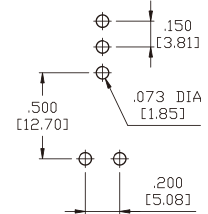
**M2**



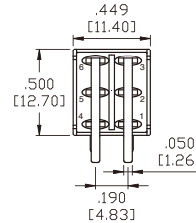
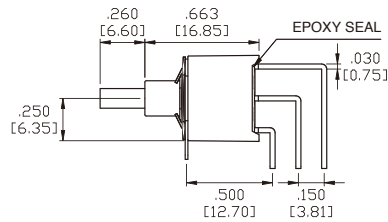
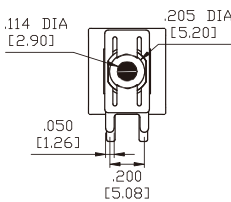
### M7 Single Pole



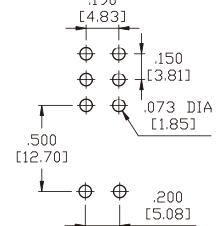
### P.C.MOUNTING



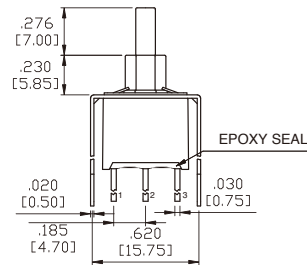
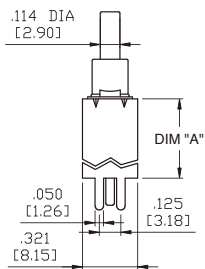
### M7 Double Pole



### P.C.MOUNTING

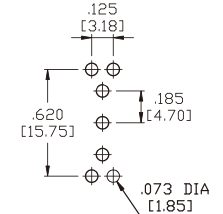


### VS2-VS3 Single Pole

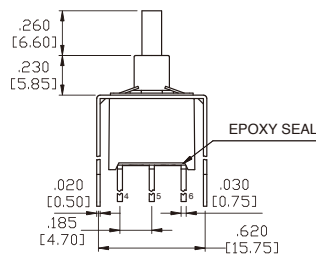
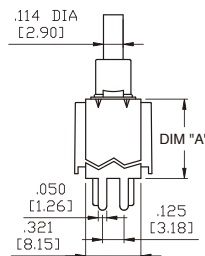


OPTION CODE	DIM. 'A'
<b>VS2</b>	.461 [11.70]
<b>VS3</b>	.630 [16.00]

### P.C.MOUNTING

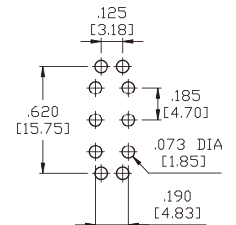


### VS2-VS3 Double Pole



OPTION CODE	DIM. 'A'
<b>VS2</b>	.461 [11.70]
<b>VS3</b>	.630 [16.00]

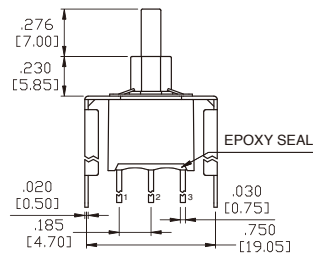
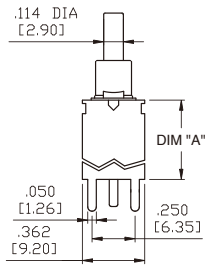
### P.C.MOUNTING



## 3MS-Series Dimensional Specifications: in. [mm]

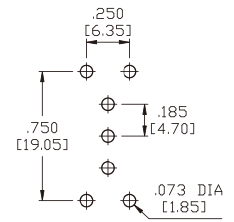
### Termination Options

#### VS4-VS5 Single Pole

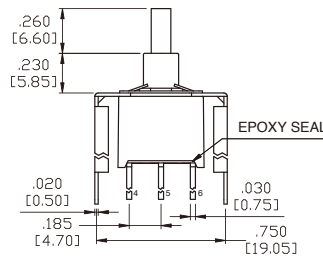
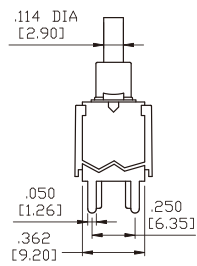


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

#### P.C. MOUNTING

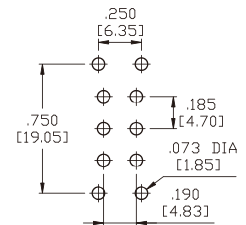


#### VS4-VS5 Double Pole



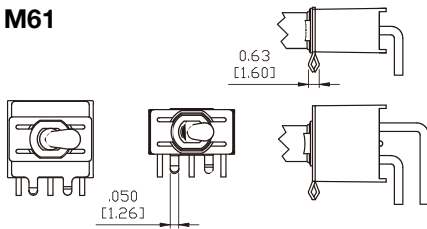
OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

#### P.C. MOUNTING

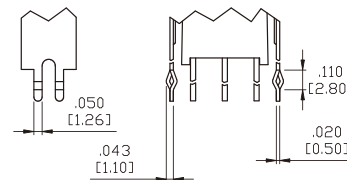


### Snap-In Termination Options

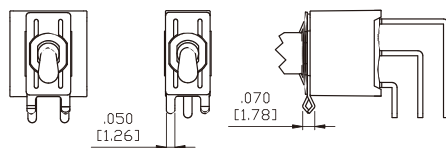
#### M61



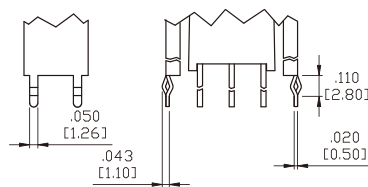
#### VS21, VS31



#### M71

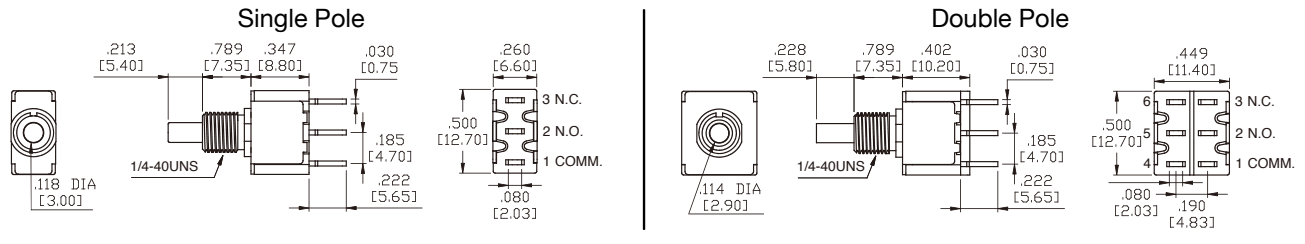


#### VS41, VS51



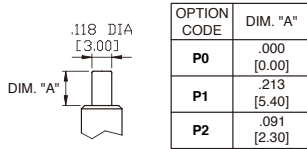
\* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.

## 3MN-Series Dimensional Specifications: in. [mm]

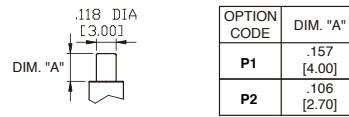


### Plunger Options

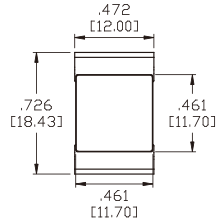
For B1, B2, B3, B4 Bushing



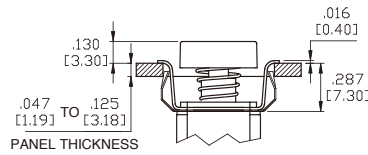
For B6 Bushing



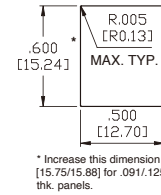
AP1



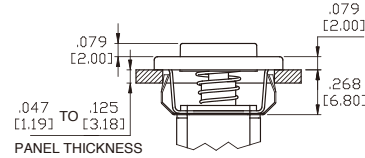
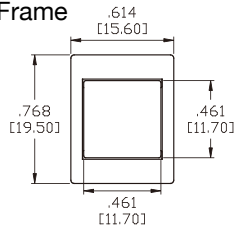
### Actuator Options for Snap-In Front Mount



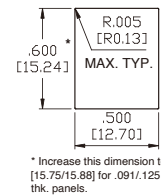
PANEL MOUNTING



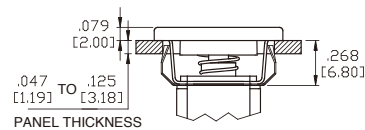
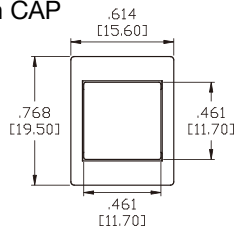
AP2 with Frame



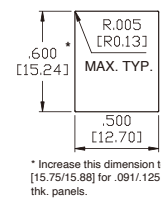
PANEL MOUNTING



AP3 Flush CAP

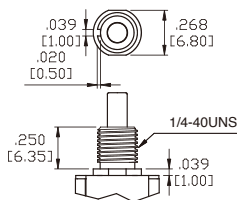


PANEL MOUNTING

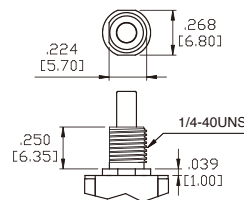


### Bushing Options

B1 Threaded Standard  
B2 Non-Threaded

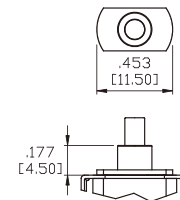


B3 Threaded Standard  
B4 Non-Threaded



B6 Non-Threaded

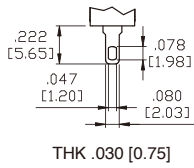
(FOR TERMINATION OPTIONS VS6-VS9 ONLY)



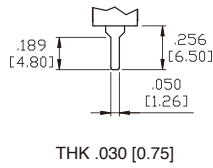
## 3MN-Series Dimensional Specifications: in. [mm]

### Termination Options

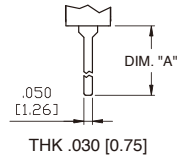
#### M1 Standard Solder Lug



#### M2 PC Thru-Hole

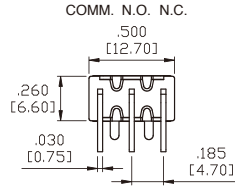
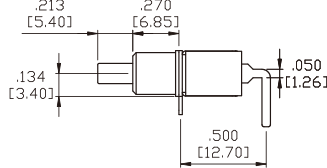
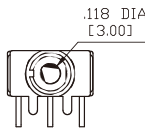


#### M5 Wire Wrap

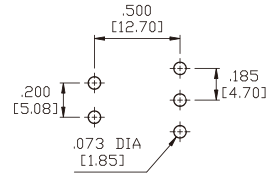


OPTION CODE	DIM. "A"
M5-1	.750 [19.05]
M5-2	.964 [24.48]
M5-3	.425 [10.80]

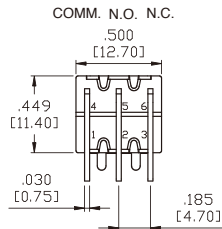
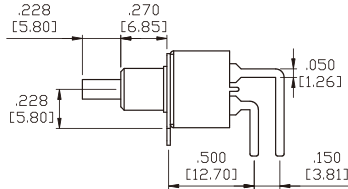
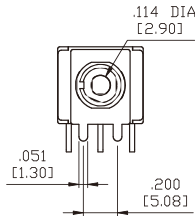
#### M6 Single Pole



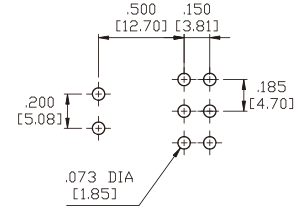
#### P.C.MOUNTING



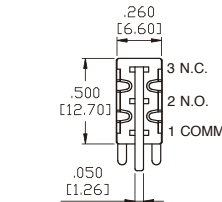
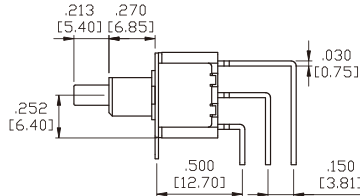
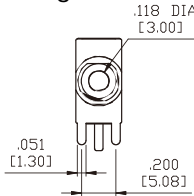
#### M6 Double Pole



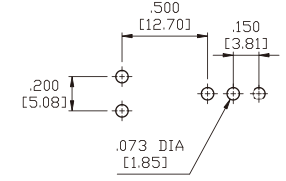
#### P.C.MOUNTING



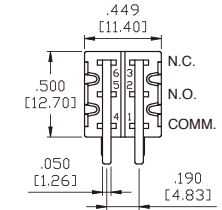
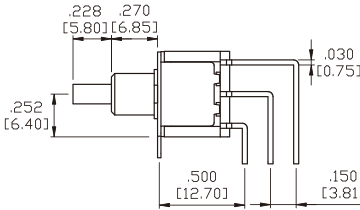
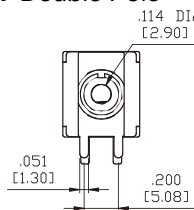
#### M7 Single Pole



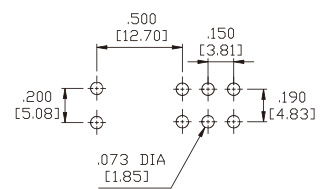
#### P.C.MOUNTING



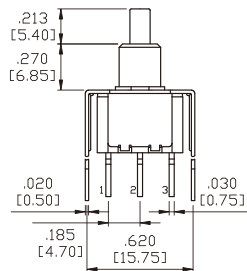
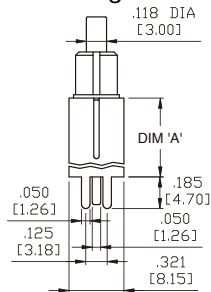
#### M7 Double Pole



#### P.C.MOUNTING

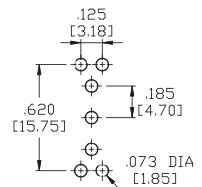


#### VS2-VS3 Single Pole



OPTION CODE	DIM. 'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

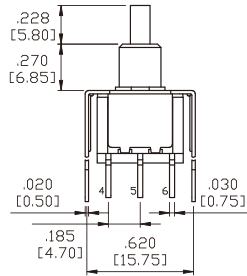
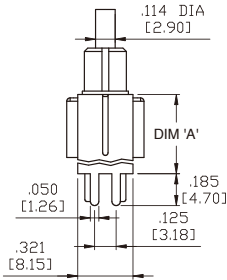
#### P.C.MOUNTING



## 3MN-Series Dimensional Specifications: in. [mm]

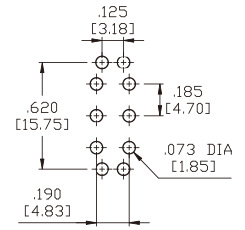
### Termination Options

#### VS2-VS3 Double Pole

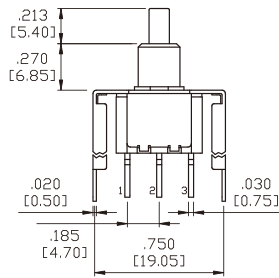
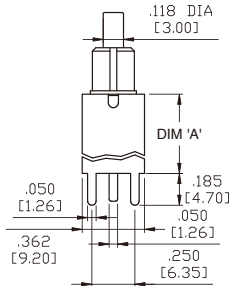


OPTION CODE	DIM.'A'
<b>VS2</b>	.461 [11.70]
<b>VS3</b>	.630 [16.00]

#### P.C.MOUNTING

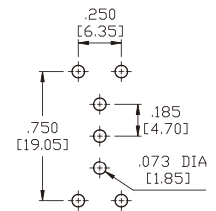


#### VS4-VS5 Single Pole

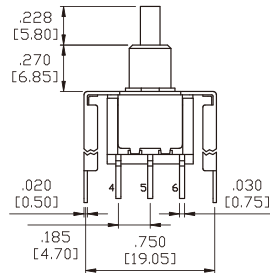
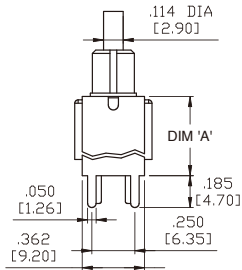


OPTION CODE	DIM.'A'
<b>VS4</b>	.461 [11.70]
<b>VS5</b>	.630 [16.00]

#### P.C.MOUNTING

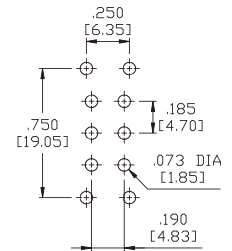


#### VS4-VS5 Double Pole

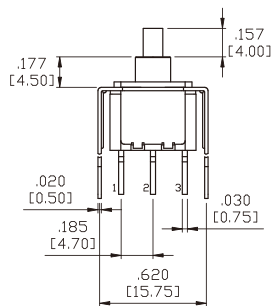
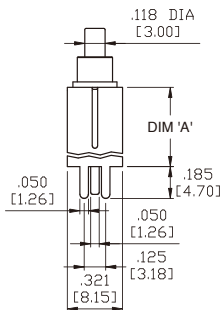


OPTION CODE	DIM.'A'
<b>VS4</b>	.461 [11.70]
<b>VS5</b>	.630 [16.00]

#### P.C.MOUNTING

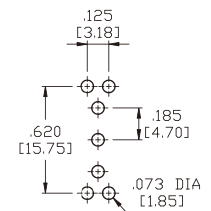


#### VS6-VS7 Single Pole (FOR B6 BUSHING ONLY)



OPTION CODE	DIM.'A'
<b>VS6</b>	.461 [11.70]
<b>VS7</b>	.630 [16.00]

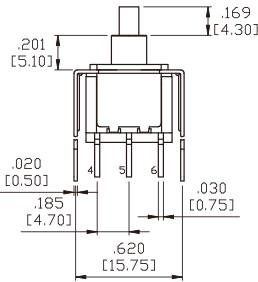
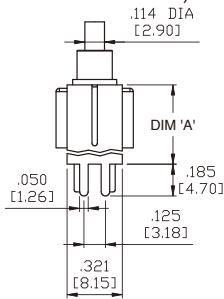
#### P.C.MOUNTING



## 3MN-Series Dimensional Specifications: in. [mm]

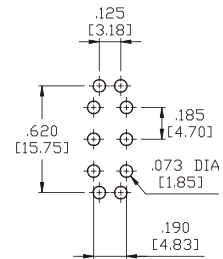
### Termination Options

#### VS6-VS7 Double Pole (FOR B6 BUSHING ONLY)

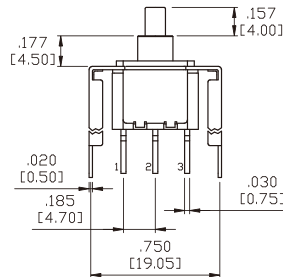
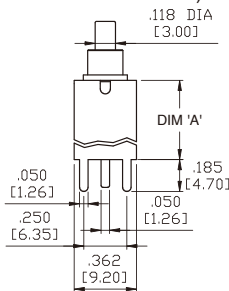


OPTION CODE	DIM.'A'
VS6	.461 [11.70]
VS7	.630 [16.00]

#### P.C.MOUNTING

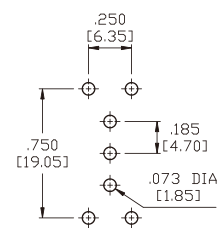


#### VS8-VS9 Single Pole (FOR B6 BUSHING ONLY)

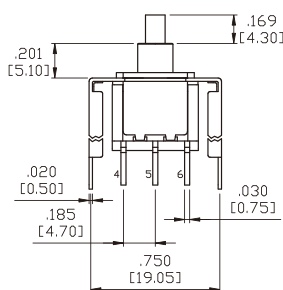
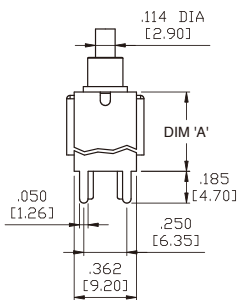


OPTION CODE	DIM.'A'
VS8	.461 [11.70]
VS9	.630 [16.00]

#### P.C.MOUNTING

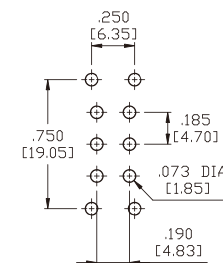


#### VS8-VS9 Double Pole (FOR B6 BUSHING ONLY)



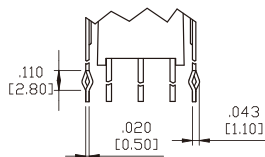
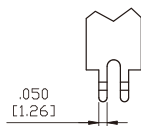
OPTION CODE	DIM.'A'
VS8	.461 [11.70]
VS9	.630 [16.00]

#### P.C.MOUNTING

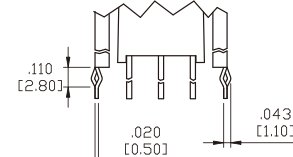
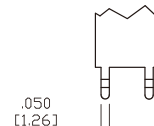


### Snap-In Termination Options

#### VS21, VS31

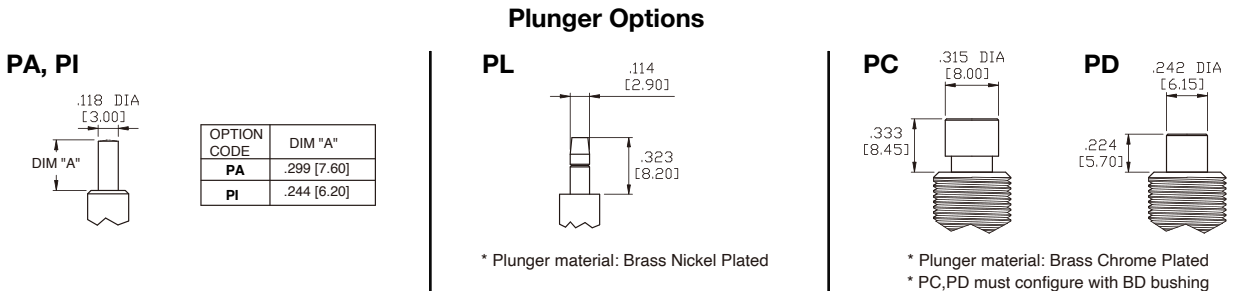
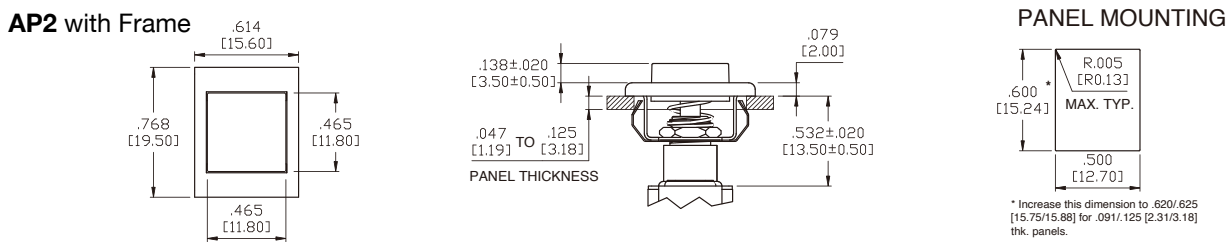
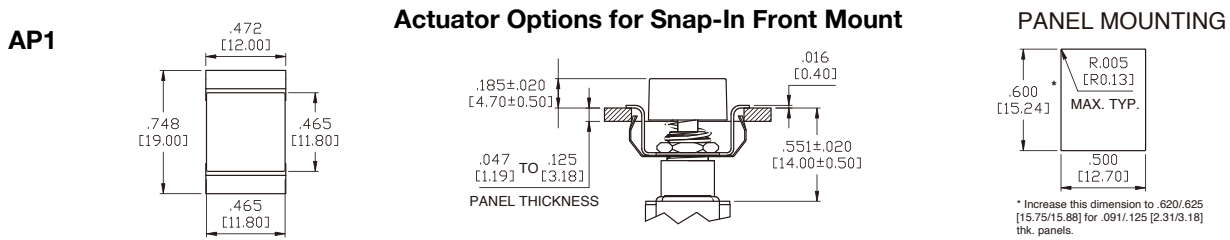
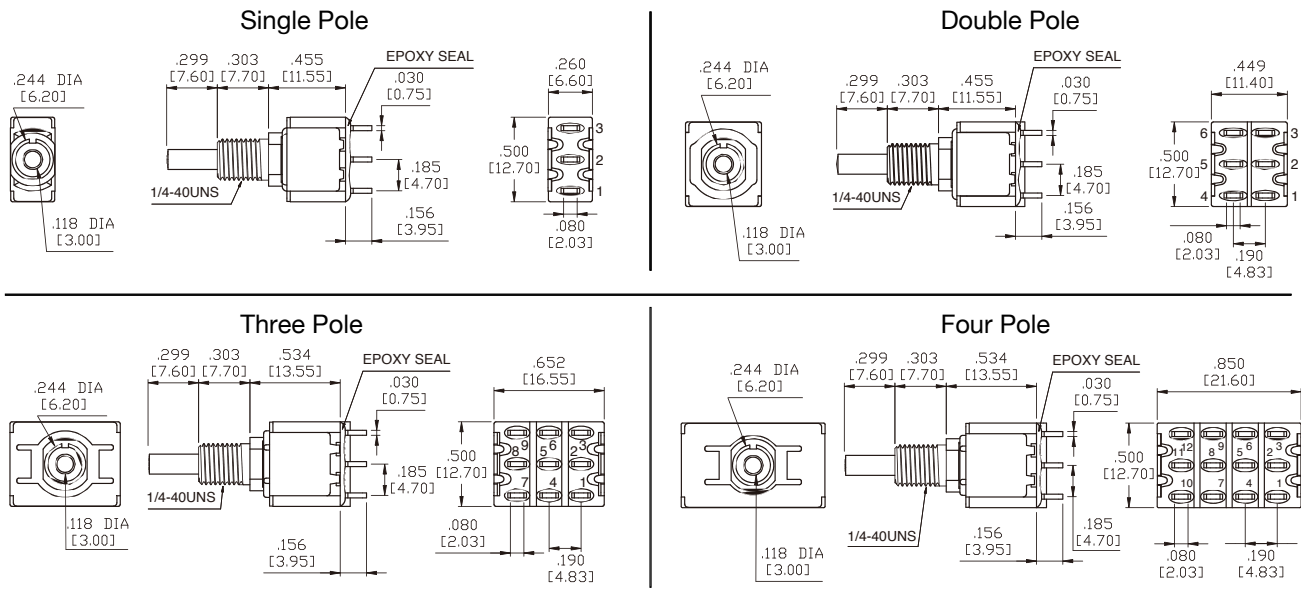


#### VS41, VS51



\* PC Mounting for VS21, VS31, VS41, VS51 refer to VS2, VS3, VS4, VS5 respectively.

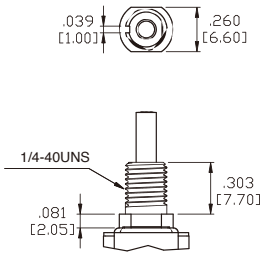
## 3MA-Series Dimensional Specifications: in. [mm]





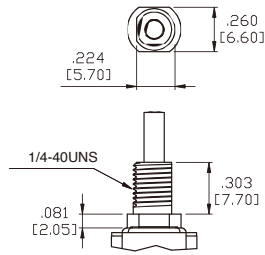
## 3MA-Series Dimensional Specifications: in. [mm]

### B10 Threaded Standard B20 Non-Threaded

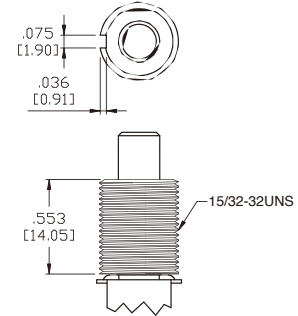


### Bushing Options

#### B21 Non-Threaded

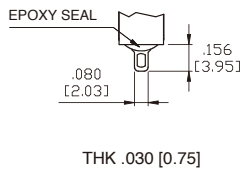


#### BD Threaded Standard

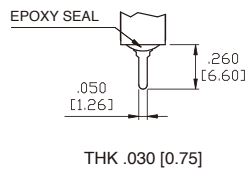


### Termination Options

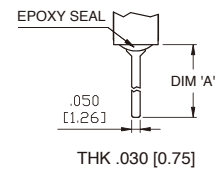
#### M1 Standard Solder Lug



#### M2 PC Thru-Hole

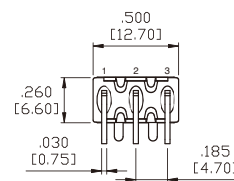
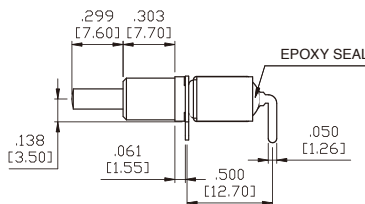
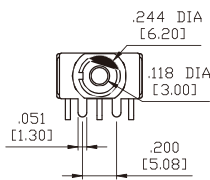


#### M5 Wire Wrap

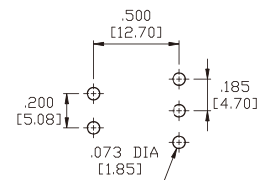


OPTION CODE	DIM. 'A'
M5-1	.750 [19.05]
M5-2	.964 [24.48]
M5-3	.425 [10.80]
M5-4	1.062 [26.97]

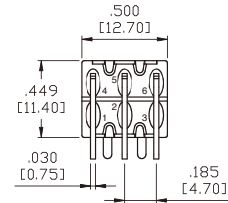
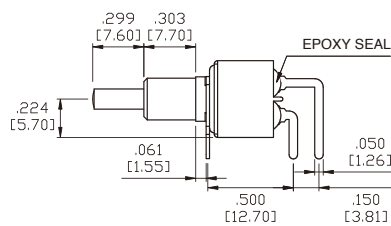
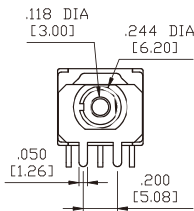
### M6 Single Pole



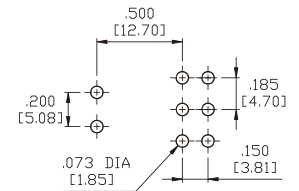
#### P.C. MOUNTING



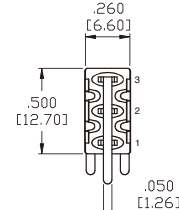
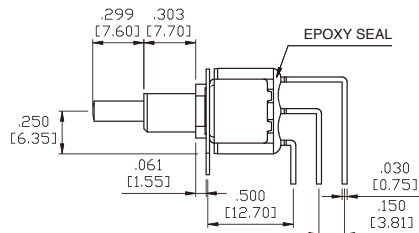
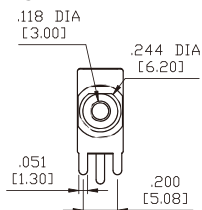
### M6 Double Pole



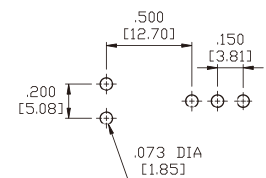
#### P.C. MOUNTING



### M7 Single Pole



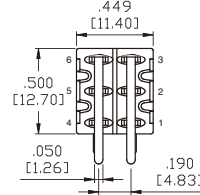
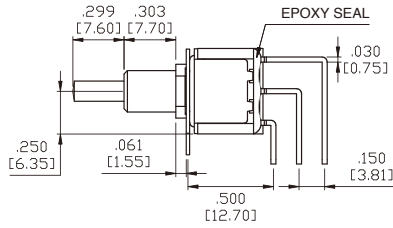
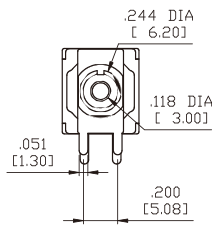
#### P.C. MOUNTING



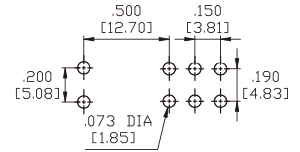
## 3MA-Series Dimensional Specifications: in. [mm]

### Termination Options

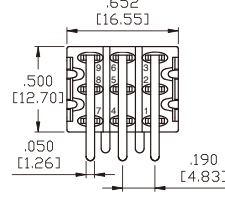
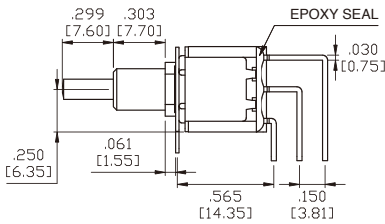
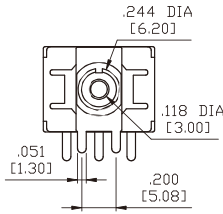
#### M7 Double Pole



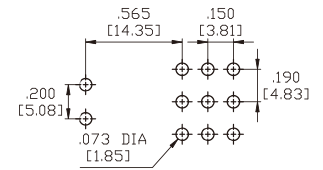
#### P.C.MOUNTING



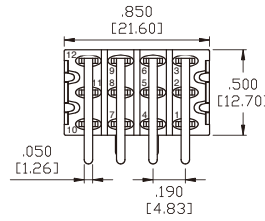
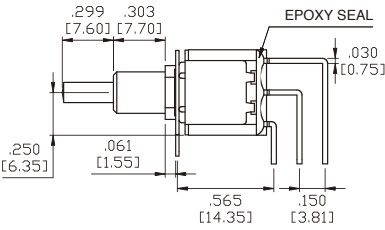
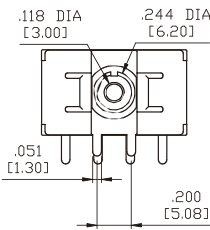
#### M7 Three Pole



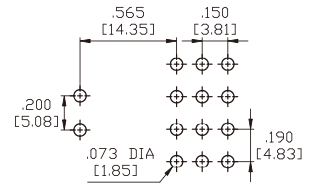
#### P.C.MOUNTING



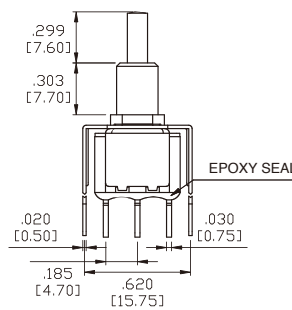
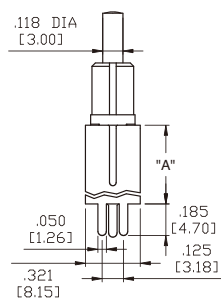
#### M7 Four Pole



#### P.C.MOUNTING

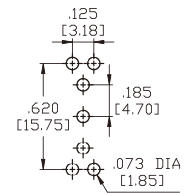


#### VS2-VS3 Single Pole

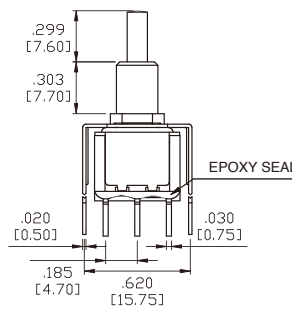
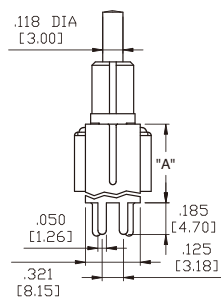


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

#### P.C.MOUNTING

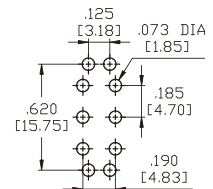


#### VS2-VS3 Double Pole



OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

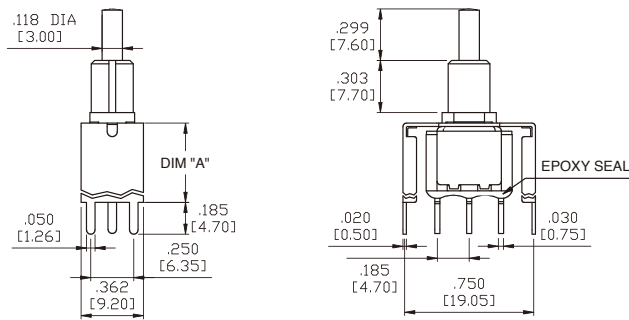
#### P.C.MOUNTING



## 3MA-Series Dimensional Specifications: in. [mm]

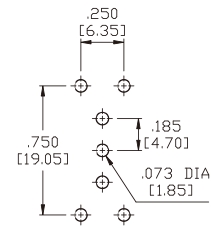
### Termination Options

#### VS4-VS5 Single Pole

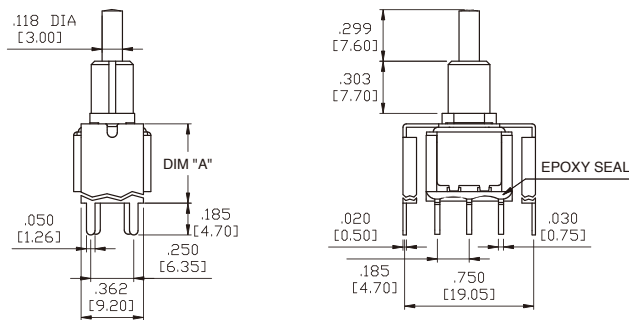


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

#### P.C.MOUNTING

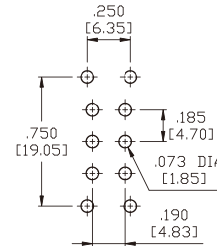


#### VS4-VS5 Double Pole



OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

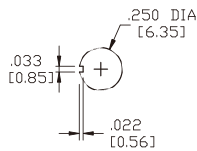
#### P.C.MOUNTING



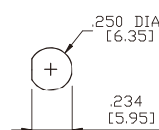
### Panel Mounting

#### 1/4 INCH BUSHING

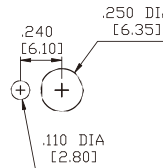
##### B10



##### B20

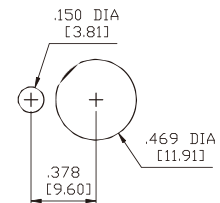
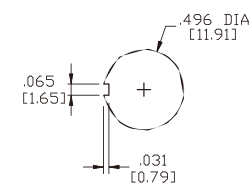


##### B21



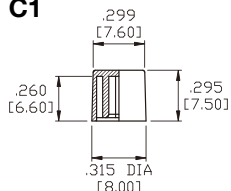
#### 15/32 INCH BUSHING

##### BD

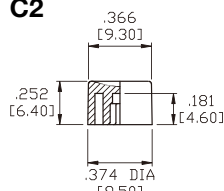


### Plunger Caps

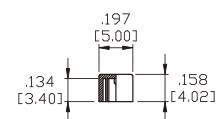
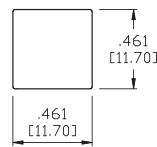
#### C1



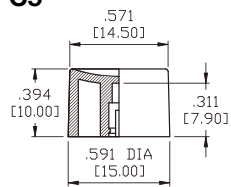
#### C2



#### C3

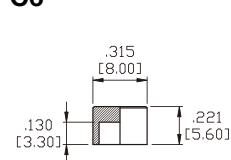


#### C5



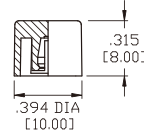
For PL plunger only

#### C6



For PD plunger only

#### C7



For PL plunger only

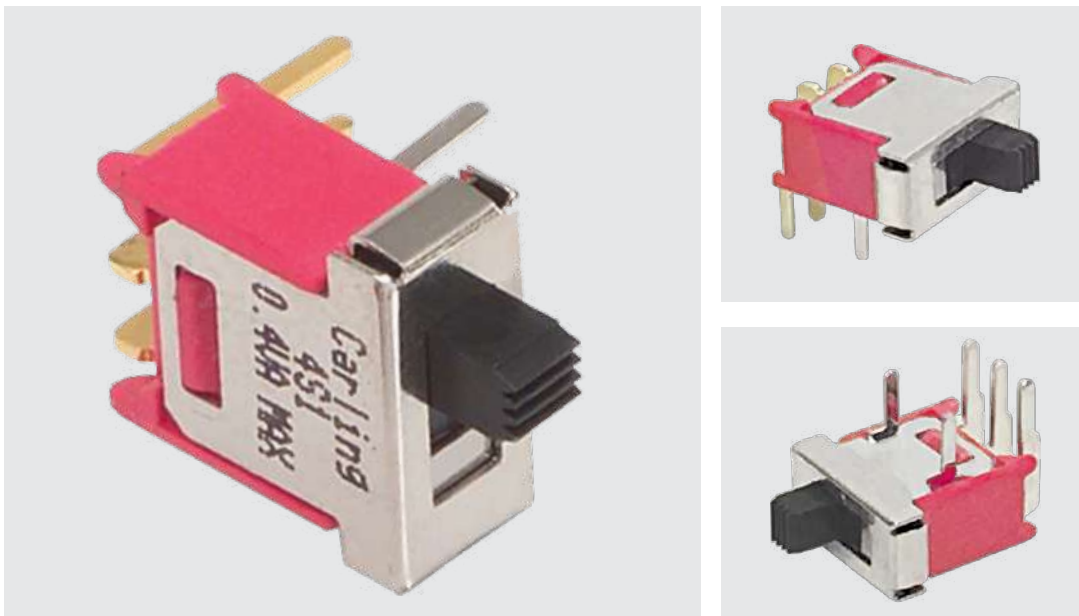
CAP AND FRAME COLORS			
1	White	6	Green
2	Black	7	Blue
3	Red	8	Brown
4	Orange	9	Gray
5	Yellow		

MATERIAL: ABS for C1~C5, C7  
MATERIAL: Chrome plated brass for C6

# 4S-Series

## SUB-MINIATURE SLIDE SWITCHES

The 4S-Series sub-miniature slide switches feature maintained and momentary 2 or 3 position circuits, and offer a variety of ratings, contact materials, terminal platings, and mounting styles. These switches are able to withstand temperatures from -30°C to +85°C.



### Product Highlights:

- Two or Three Position Circuitry
- Maintained or Momentary Action
- 125/250VAC or up to 28VDC
- Available in Silver, Gold or Tin Plating
- Supplied in Bulk or Tape Reel
- UL and CSA Approvals Available

### Typical Applications:

- Consumer Electronics
- Instrumentation
- Computer Servers / Peripherals
- Test / Measurement

### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)

**Electrical**

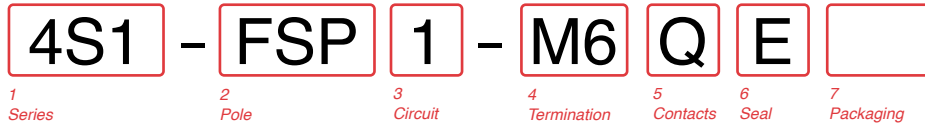
Contact Rating refer to ordering scheme  
 Electrical Life 30,000 make & break cycles @ full load  
 Contact Resistance 10 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts  
 Insulation Resistance 1000 MΩ min.  
 Dielectric Strength 1500 Volts RMS @ sea level

**Physical**

Operating Temperature -30°C to +85°C  
 Solder Heat Resistance MIL-STD-202, Method 210

**Material**

Case Dially phthalate (DAP) (UL 94V-0)  
 Slide Handle Nylon  
 Housing Stainless Steel  
 Terminal Seal Epoxy



**1 SERIES**  
**4S1** Sub-Miniature Slide Switch

**2 POLES**  
**FSP** Single Pole

**3 CIRCUIT**  
 ( ) - momentary  
**Position:**

	1	2	3
	2-1	Connected Terminals	2-3
1	ON	NONE	ON
2	ON	NONE	(ON)
3	ON	OFF	ON

**4 TERMINATION**  
**M2** PCB  
**M6** PC Mount, horizontal, right angle  
**M7** PC Mount, vertical, right angle  
**M71** Snap-In, vertical, right angle

**5 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating
<b>G</b>	silver <sup>1</sup>	gold over silver	3A 125VAC or 28VDC; 1.5A 250VAC
<b>K</b>	gold <sup>2,5</sup>	tin <sup>4,7</sup>	0.4VA max 20V max (AC/DC)
<b>P</b>	silver <sup>1,6</sup>	tin <sup>4,7</sup>	3A 125VAC or 28VDC; 1.5A 250VAC
<b>Q</b>	silver <sup>1</sup>	silver <sup>1</sup>	3A 125VAC or 28VDC; 1.5A 250VAC
<b>R</b>	gold <sup>2</sup>	gold <sup>3</sup>	0.4VA max 20V max (AC/DC)

**6 EPOXY SEAL**

<b>E</b>	Epoxy Seal	<b>0</b>	without Epoxy Seal
----------	------------	----------	--------------------

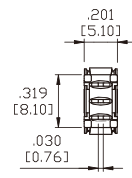
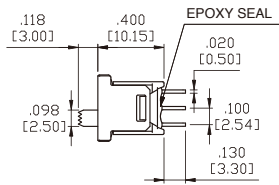
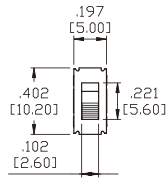
**7 PACKAGING**  
**T/R** tape reel - 500 pieces per reel  
 Switches are bulk packed, unless T/R is specified at the end of the part number.

- Notes:
- Movable contact / terminal platings: silver over copper alloy
  - Movable contact platings: gold over nickel over copper alloy
  - Terminal platings: gold over nickel over copper alloy
  - Terminal platings: tin over copper alloy, available with PC type terminations only
  - Terminal contact platings: gold over nickel alloy
  - Terminal contact platings: silver over nickel alloy
  - Tin option available with PC type terminations only

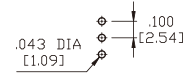
\*Manufacturer reserves the right to change product specification without prior notice.

## 4S1-Series Dimensional Specifications: in. [mm]

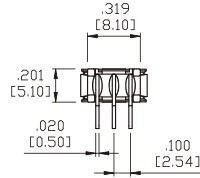
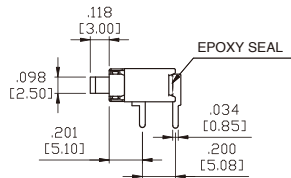
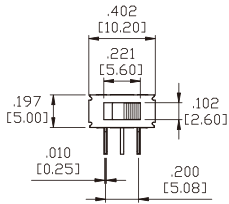
### M2 Single Pole



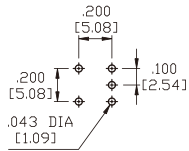
### P.C.MOUNTING



### M6 Single Pole

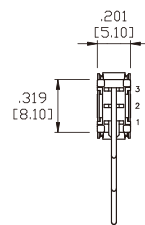
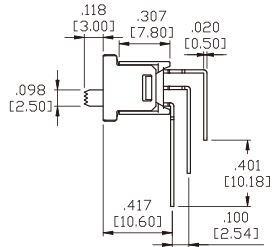
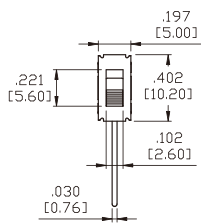


### P.C.MOUNTING



### M7 Single Pole

### M71 Snap-In Termination Single Pole



### P.C.MOUNTING

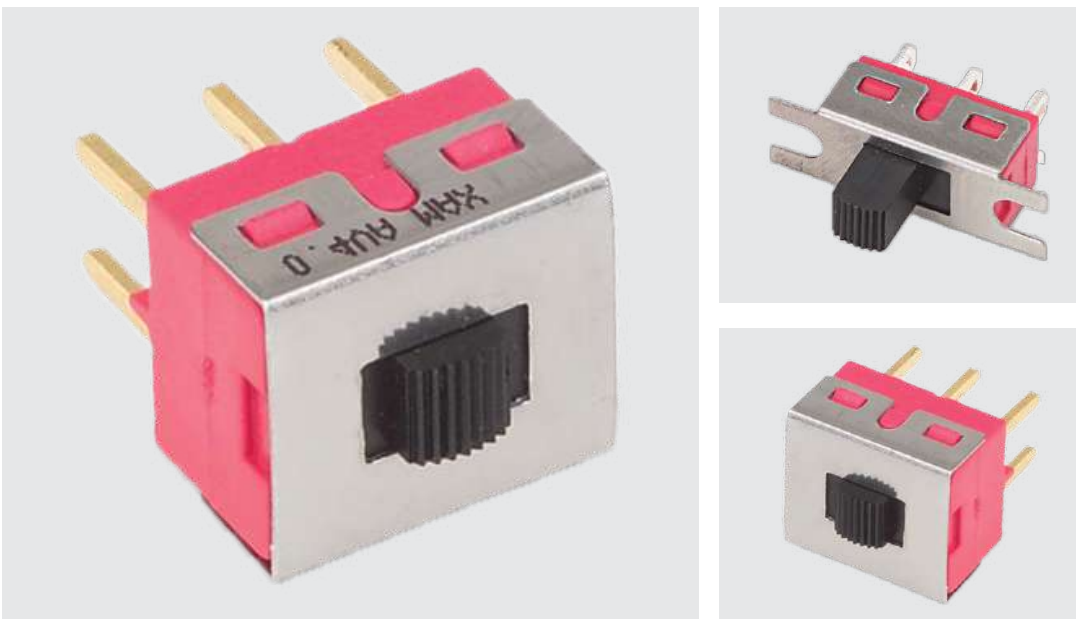


# 4M-SERIES

## 4M-Series

### MINIATURE SLIDE SWITCHES

The 4M-Series miniature slide switches offer a variety of ratings, circuits, contact materials, and terminal platings. With 14 termination choices and 8 actuator styles, this versatile switch adapts to a variety of applications, and is able to withstand temperatures from -30°C to +85°C.



#### Product Highlights:

- Two or Three Position Circuitry
- 125/250VAC or up to 28VDC
- Available in Silver, Gold or Tin Plating
- Supplied in Bulk or Tape Reel
- UL and CSA Approvals Available

#### Typical Applications:

- Consumer Electronics
- Instrumentation
- Computer Servers / Peripherals
- Test / Measurement

#### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)

### Electrical

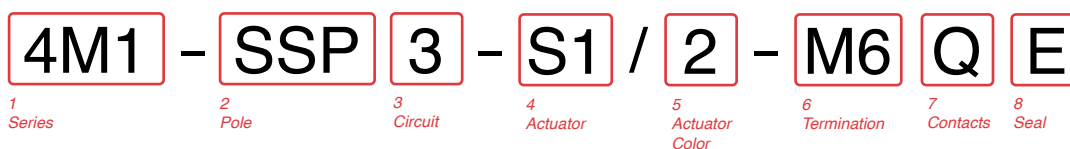
Contact Rating	refer to ordering scheme
Electrical Life	30,000 make & break cycles @ full load
Contact Resistance	10 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts
Insulation Resistance	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level

### Physical

Operating Temperature	-30°C to +85°C
Solder Heat Resistance	MIL-STD-202, Method 210

### Material

Case	Dially phthalate (DAP) (UL 94V-0)
Slide Handle	Nylon
Housing	Stainless Steel
Terminal Seal	Epoxy



<b>1 SERIES</b>
<b>4M1</b> Miniature Slide Switch

<b>2 POLES</b>
<b>SSP</b> Single Pole <b>SDP</b> Double Pole

<b>3 CIRCUIT</b>
( ) - momentary
<b>Switching Position:</b>
1                      2                      3
2-1, 5-4      Connected Terminals      2-3, 5,6
1                      ON                      NONE                      ON
3                      ON                      OFF                      ON

<b>4 ACTUATOR</b>
<b>S1</b> .201" height <b>S5</b> .053" height (for DPDT only)
<b>S2</b> .301" height <b>S6</b> .488" height
<b>S3</b> .370" height <b>S7</b> .311" height
<b>S4</b> .140" height <b>T1</b> .209" height (for DPDT only)

<b>5 ACTUATOR COLORS</b>
<b>1</b> White <b>6</b> Green
<b>2</b> Black <b>7</b> Blue
<b>3</b> Red <b>8</b> Brown
<b>4</b> Orange <b>9</b> Gray
<b>5</b> Yellow

<b>6 TERMINATION</b>	<b>M61</b> Snap-In, 90°
<b>M1</b> Solder Lug	<b>M7</b> PC Mount, 90° vertical
<b>M2</b> PCB	<b>M71</b> Snap-In, 90°
<b>M3</b> Quick Connect	<b>VS2</b> PC Mount, U bracket, .350 height
<b>M51</b> Wire Wrap .750	<b>VS3</b> PC Mount, U bracket, .575 height
<b>M52</b> Wire Wrap .964	<b>N1</b> Solder Lug without mounting tabs
<b>M53</b> Wire Wrap .425	
<b>M54</b> Wire Wrap 1.062	
<b>M6</b> PC Mount, 90° horizontal	

<b>7 CONTACTS / TERMINALS</b>	
<b>Contact Material</b> <b>Terminal Plating</b> <b>Rating</b> <b>Approvals</b>	
<b>G</b> silver <sup>1</sup> gold over silver      5A 125VAC or 28VDC 2A 250VAC	<b>RA, CE</b>
<b>K</b> gold <sup>2</sup> tin <sup>3,5</sup> 0.4VA max 20V max (AC/DC)	N/A
<b>P</b> silver <sup>1</sup> tin <sup>3,5</sup> 5A 125VAC or 28VDC 2A 250VAC	<b>RA, CE</b>
<b>Q</b> silver <sup>1</sup> silver <sup>1</sup> 5A 125VAC or 28VDC 2A 250VAC	<b>RA, CE</b>
<b>R</b> gold <sup>2</sup> gold <sup>2</sup> 0.4VA max 20V max (AC/DC)	N/A

<b>8 EPOXY SEAL</b>
<b>E</b> Epoxy Seal <b>0</b> without Epoxy Seal

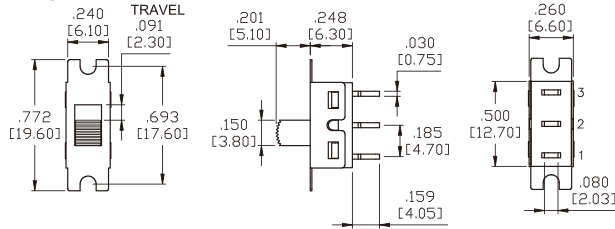
- Notes:
- Movable contact & terminal platings: silver over copper alloy
  - Movable contact & terminal platings: gold over nickel over copper alloy
  - Terminal platings: tin over nickel over copper alloy, available with PC terminations only
  - Non-Black, white and red colors require a minimum order of 2500 pieces
  - Tin option available with PC type terminations only

\*Manufacturer reserves the right to change product specification without prior notice.

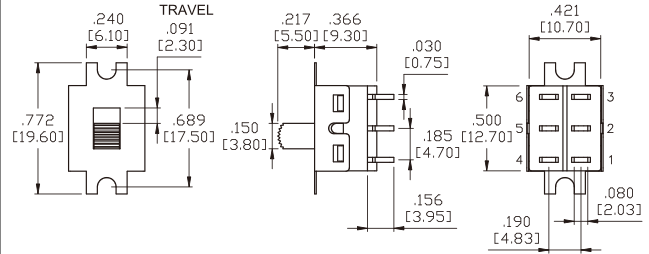


## 4M1-Series Dimensional Specifications: in. [mm]

### Single Pole



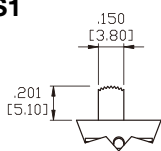
### Double Pole



### Actuator Options

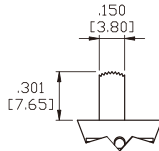
\* All actuator length shown is SPDT model with M1 and M2 terminals.

#### S1



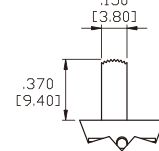
\* Add 0.40 (.016) from actuator height for DPDT-M1 and M2 model.

#### S2



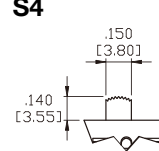
\* Add 0.20 (.008) from actuator height for DPDT-M1 and M2 model.

#### S3



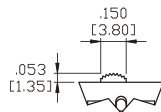
\* Add 0.30 (.012) from actuator height for DPDT-M1 and M2 model.

#### S4

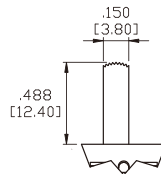


\* Add 0.40 (.016) from actuator height for DPDT-M1 and M2 model.

#### S5

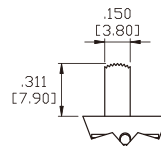


#### S6



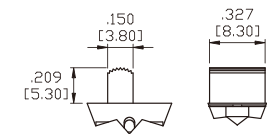
\* Add 0.70 (.028) from actuator height for DPDT-M1 and M2 model.

#### S7



\* Add 0.40 (.016) from actuator height for DPDT model.

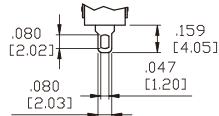
#### T1 for DPDT only



## 4M1-Series Dimensional Specifications: in. [mm]

### Termination Options

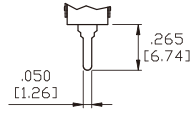
#### M1 Standard Solder Lug



THK .030 [0.75]

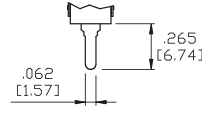
\* Standard with Mounting Tabs.

#### M2 PC Thru-Hole



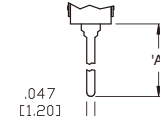
THK .030 [0.75]

#### M3 Quick Connect



THK .030 [0.75]

#### M5 Wire Wrap

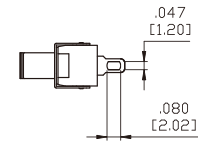
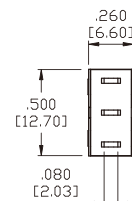
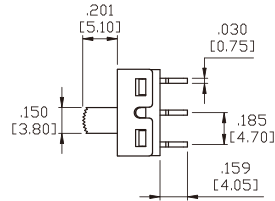
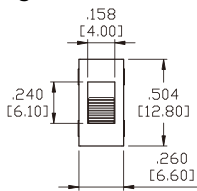


THK .030 [0.75]

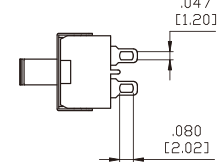
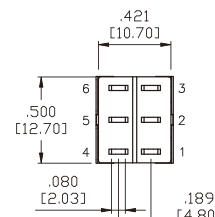
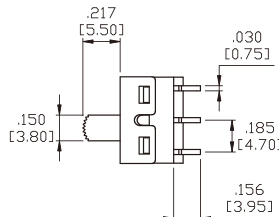
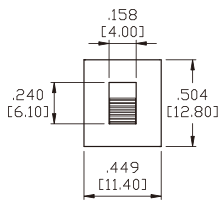
OPTION CODE	DIM.'A'
M5-1	.750 [19.05]
M5-2	.964 [24.48]
M5-3	.425 [10.80]
M5-4	1.062 [26.97]

### Termination Options without Mounting Tabs

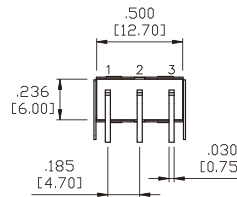
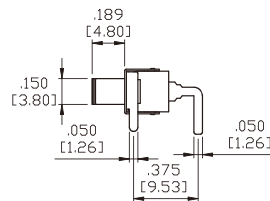
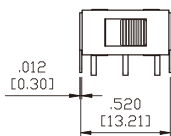
#### N1 Single Pole



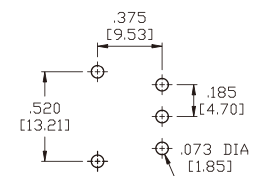
#### N1 Double Pole



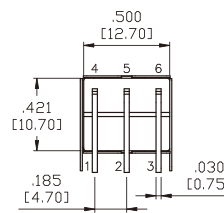
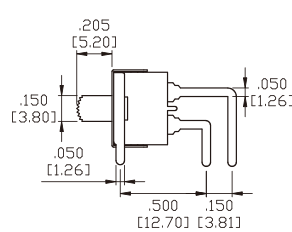
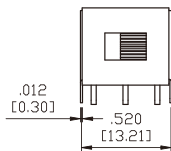
#### M6 Single Pole



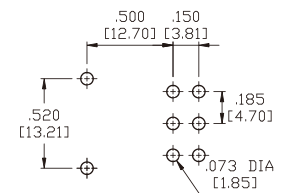
#### P.C. MOUNTING



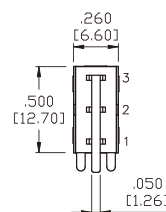
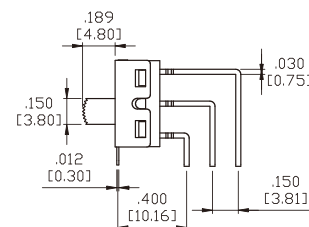
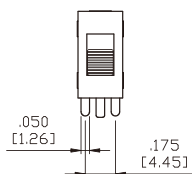
#### M6 Double Pole



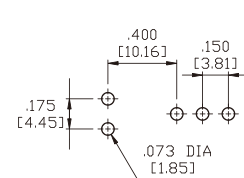
#### P.C. MOUNTING



#### M7 Single Pole



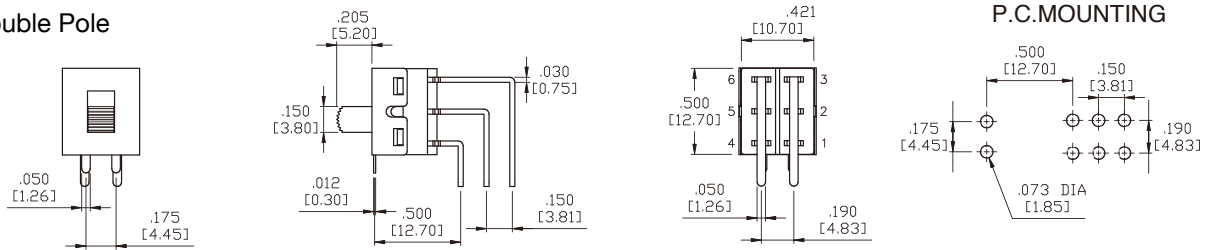
#### P.C. MOUNTING



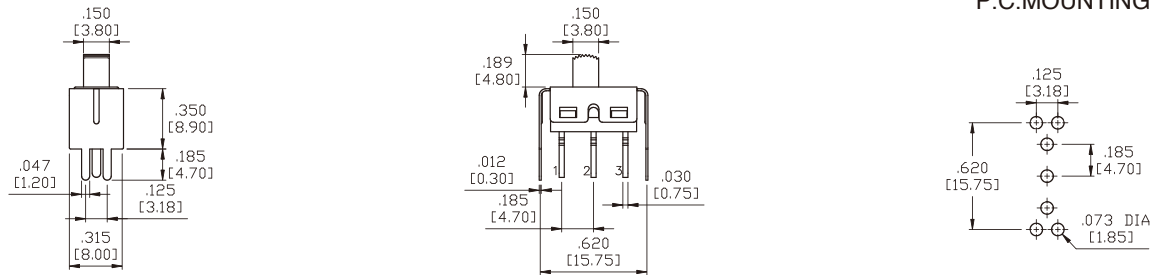
## 4M1-Series Dimensional Specifications: in. [mm]

### Termination Options

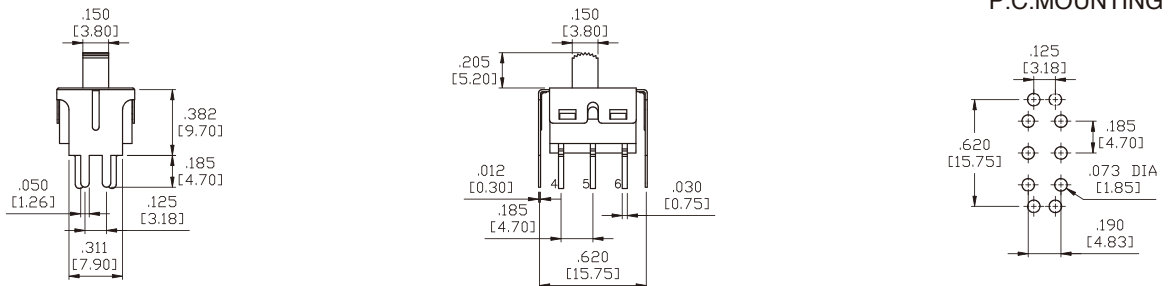
#### M7 Double Pole



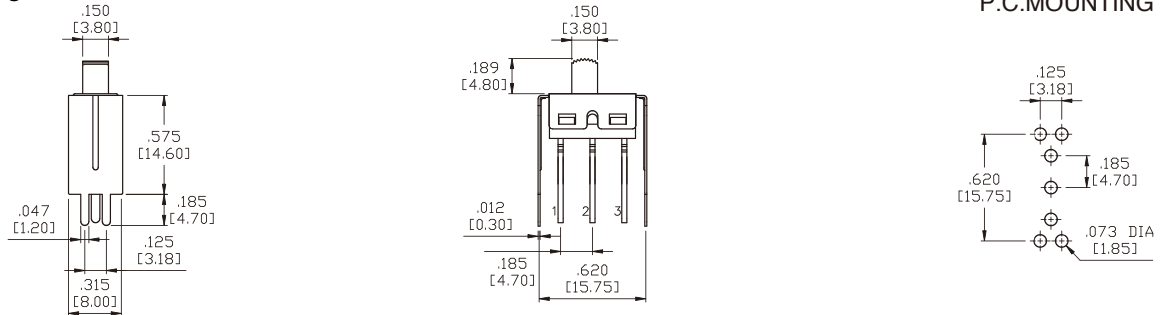
#### VS2 Single Pole



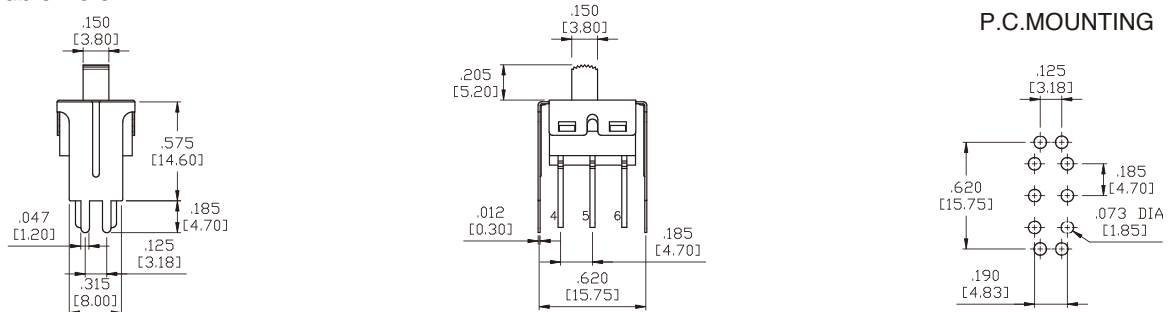
#### VS2 Double Pole



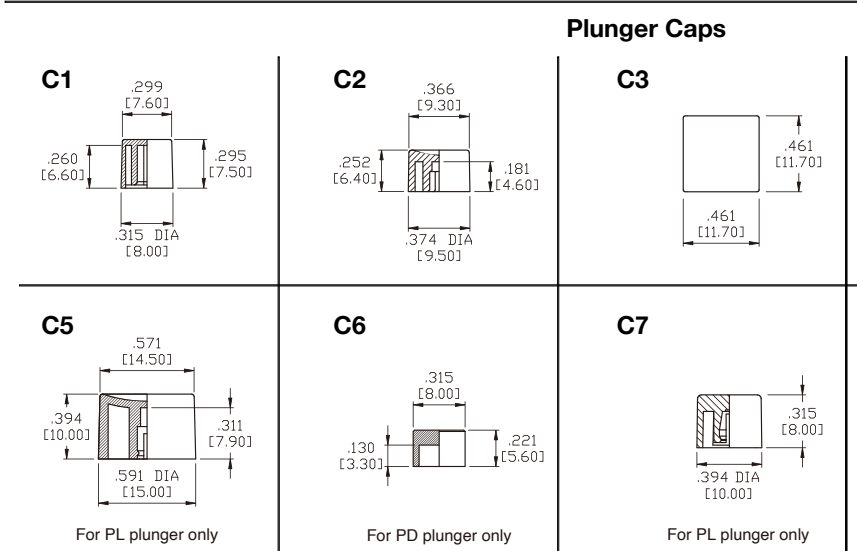
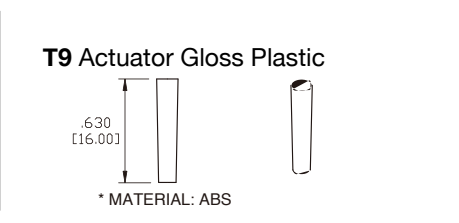
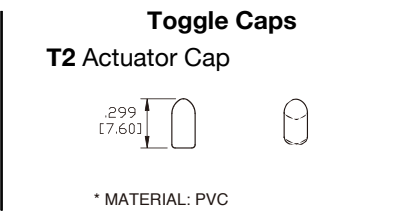
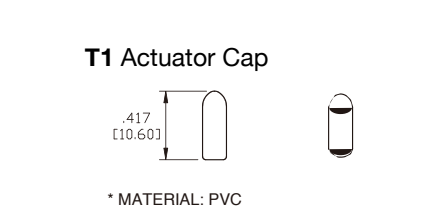
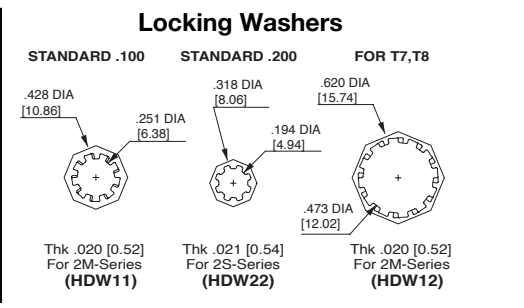
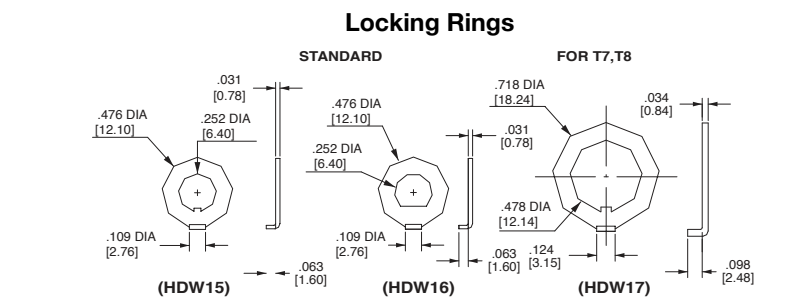
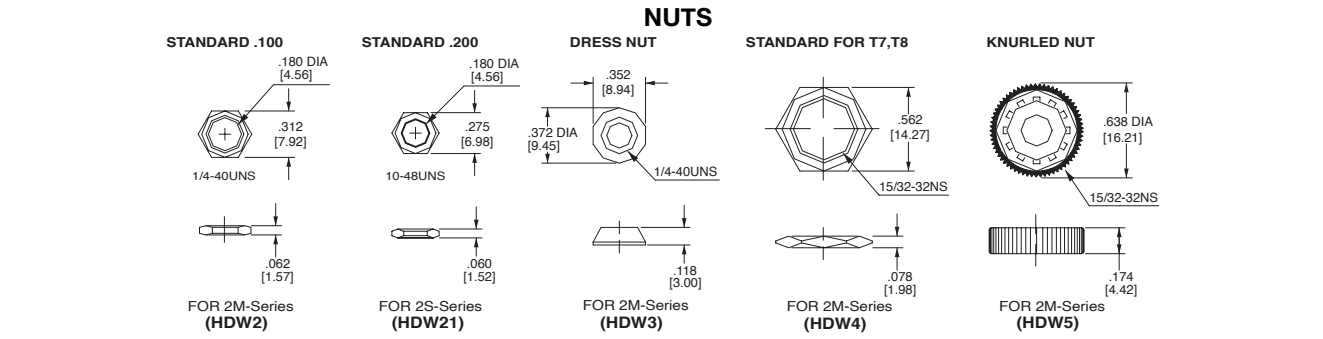
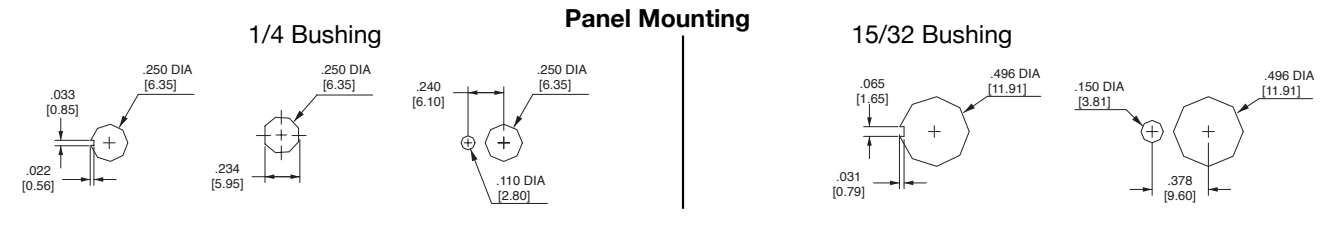
#### VS3 Single Pole



#### VS3 Double Pole



Dimensions: in. [mm]



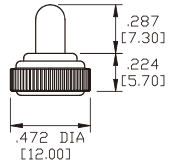
CAP AND FRAME COLORS			
1	White	6	Green
2	Black	7	Blue
3	Red	8	Brown
4	Orange	9	Gray
5	Yellow		

MATERIAL: ABS for C1~C5, C7  
 MATERIAL: Chrome plated brass for C6

Dimensions: in. [mm]

Rubber Boots

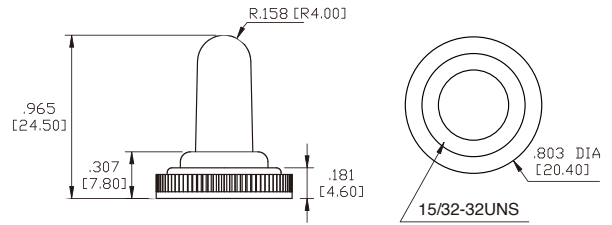
2M1-E1A Rubber Boot



E1A with Internal O-Ring Seal  
K1=METRIC M6 THREADED (For B8 bushing only)

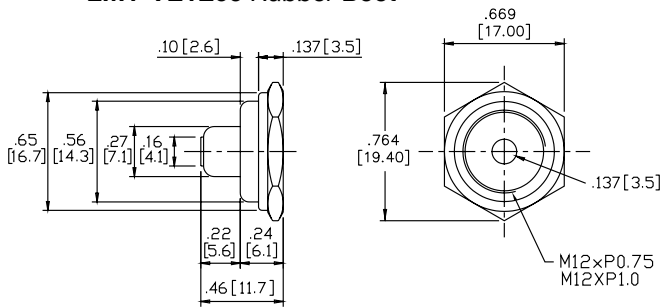
\* FOR 2M1-SERIES, T1 ACTUATOR ONLY (not available with B0 bushing)

2M1-YE1A06 Rubber Boot



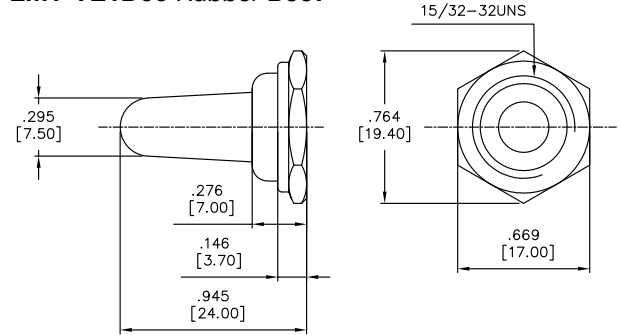
\* FOR 2M1-SERIES, T8 ACTUATOR and B0 BUSHING ONLY

2M1-YE1E06 Rubber Boot



\* FOR 2M1-SERIES, T7 & T8 ACTUATORS and B0 BUSHING ONLY

2M1-YE1D06 Rubber Boot



\* FOR 2M1-SERIES, T8 ACTUATOR and B0 BUSHING ONLY

Accessory Photos:

E1A



YE1A06



T9



T1



T2



Hardware Table				
Series	Bushing	Nut	Washer	Locking Ring
1S1	Rocker	none	none	none
1SS	Rocker	none	none	none
1SM	Rocker	none	none	none
1M1	Rocker	none	none	none
1MS	Rocker	none	none	none
2S1	B1	2M1-HDW21 *2 pieces	2M1-HDW22 *1 piece	none
	B2, B4, B6, B8	none	none	none
	B3	2M1-HDW21 *2 pieces	2M1-HDW22 *1 piece	none
	B5	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	none
	B7	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	none
2SM	N/A	none	none	none
2SS	B4	none	none	none
2M2/2MS	B4	none	none	none
	B1	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW15 *1 piece
2M1	B2, B4	none	none	none
	B1, B3	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW15 *1 piece
	B5	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW16 *1 piece
	B6	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW15 *1 piece
	B7	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW16 *1 piece
	B8	2M1-HDW6 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW14 *1 piece
	B9	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW16 *1 piece
	B0	2M1-HDW4 *2 pieces	2M1-HDW17 *1 piece	2M1-HDW12 *1 piece
2M1H	BJ, BK	2M1-HDW4 *1 piece	3MNH-WCP WCP-0872 (O-Ring) *1 piece	none
3MNH	BJ, BL	2M1-HDW4 *1 piece	3MNH-WCP WCP-0872 (O-Ring) *1 piece	none
3S1	B6, B7, B0, B9	none	none	none
	B5	2M1-HDW21 *2 pieces	2M1-HDW22 *1 piece	none
	B8	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW16 *1 piece
3SS	N/A	none	none	none
3SM	N/A	none	none	none
3MN	B6, B20, B21	none	none	none
	B10	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW15 *1 piece
	B11	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW16 *1 piece
3MS	B1	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW15 *1 piece
	B4	none	none	none
3MA	B20, B21	none	none	none
	BD	2M1-HDW4 *2 pieces	2M1-HDW12 *1 piece	2M1-HDW17 *1 piece
	B10	2M1-HDW2 *2 pieces	2M1-HDW11 *1 piece	2M1-HDW15 *1 piece
4S1	Slide	none	none	none
4M1	Slide	none	none	none
4PM	Slide	none	none	none

Below is a list of useful product catalogs.

Please scan the QR codes below or visit [carlingtech.com/onthego](http://carlingtech.com/onthego) for complete details.

### WEBSITE

Product Selector, Resources, Configurit, Find Rep, Product Materials and Videos.



*carlingtech.com*



*/onthego*

### SWITCHES AND CONTROLS

Rocker, toggle, pushbutton, rotary, battery disconnects and controls.



*catalog*

### MINI & SUB-MINI SWITCHES

Sealed and non-sealed rocker, toggle, pushbutton and slide options.



*catalog*

### HYDRAULIC-MAGNETIC CIRCUIT PROTECTION

1-6 poles from .02 to 700A with CSA, VDE, TUV, UL489, UL489A, UL1500 approvals.



*catalog*

### THERMAL CIRCUIT PROTECTION

1 pole from 3 to 60A with UL, cUL, CE, UL1500/ISO 8846 approvals.



*catalog*

### GFCI/ELCI CIRCUIT PROTECTION

1-3 poles from 0.10 to 50A with CSA, UL489, UL1077, UL1053, UL1500 approvals.



*catalog*

Below is a list of useful market specific catalogs and brochures.  
Please scan the QR codes below or visit [carlingtech.com/onthego](http://carlingtech.com/onthego) for complete details.

### ON-OFF HIGHWAY

Switches, Controls and Custom Solutions



*brochure*

### MARINE

Circuit Protection and Switches



*brochure*

### RENEWABLE ENERGY

Circuit Breakers and Disconnect products



*brochure*

### MILITARY

COTS Switches and Circuits Breakers



*brochure*

### TELECOM/DATACOM

Hydraulic-Magnetic Circuit Breakers



*brochure*

### INDUSTRIAL AUTOMATION

Switches and Circuit Breakers



*brochure*



## Authorized Sales Representatives and Distributors

Click on a region of the map below to find your local representatives and distributors or visit [www.carlingtech.com/findarep](http://www.carlingtech.com/findarep).



## About Carling

Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With four ISO9001 and IATF16949 registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit [www.carlingtech.com/company-profile](http://www.carlingtech.com/company-profile).

To view all of Carling's environmental, quality, health & safety certifications please visit [www.carlingtech.com/environmental-certifications](http://www.carlingtech.com/environmental-certifications)

## European Headquarters

Carling Technologies LTD

4 Airport Business Park, Exeter Airport,  
Clyst Honiton, Exeter, Devon, EX5 2UL, UK  
Phone: Int + 44 1392.364422  
Email: ltd.sales@carlingtech.com

### Sales Offices:

Germany:  
gmbh@carlingtech.com

France:  
sas@carlingtech.com

## Worldwide Headquarters

Carling Technologies Inc.

60 Johnson Avenue,  
Plainville, CT 06062 USA  
Phone: 860.793.9281  
Email: sales@carlingtech.com

### Sales Offices:

Northern Region: nrsm@carlingtech.com  
Southeast Region: sersm@carlingtech.com  
Midwest Region: mrrsm@carlingtech.com  
West Region: wrsm@carlingtech.com  
Latin America: larsm@carlingtech.com

## Asia-Pacific Headquarters

Carling Technologies, Asia-Pacific LTD.,

Suite 1607,16/F Tower 2, The Gateway, Harbour City, 25  
Canton Road, Tsimshatsui, Kowloon, Hong Kong  
Phone: Int + 852-2737-2277  
Email: sales@carlingtech.com.hk

### Sales Offices:

Shenzhen, China: shenzhen@carlingtech.com  
Shanghai, China: shanghai@carlingtech.com  
Pune, India: india@carlingtech.com  
Kaohsiung, Taiwan: taiwan@carlingtech.com  
Yokohama, Japan: japan@carlingtech.com



[WWW.CARLINGTECH.COM](http://WWW.CARLINGTECH.COM)