

# ROTARY ENCODERS

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*Incremental & absolute encoders since 1976*

# ITALSENSOR



## Incremental & absolute encoders since 1976

**ITALSENSOR SRL** based its activity on consolidated and remarkable experience of historical italian brand **TEKEL INSTRUMENTS**.

TEKEL was one of the first Italian companies started manufacturing of incremental encoders, singleturn and multiturn absolute encoders in various executions, quickly becoming one of the leading company and point of reference in industrial automation.

Founded in 2009 **ITALSENSOR SRL** continues activity started by **TEKEL** and specialized in developing and manufacturing of wide range of rotary encoders, from standard to completely **customized versions** widely applied all over the world in various fields of industries (textile, packaging, printing & paper, woodworking, plastic, medical, energy, building, military etc.)

In collaboration with Department of Robotics of the Polytechnic of Turin, Company is focused on continual improvement of its range of products offering the best solutions based on expectations of customers and ensuring outstanding reliability and long service life of products. Continuously investing in research and development **ITALSENSOR SRL** offers **customized solutions** from initial project planning and development to the completed product for different applications as well for toughest environment conditions, such as high shock and vibration, temperature fluctuations, wet and dirty operations etc.



Well-known at the domestic market, **ITALSENSOR** has strong international orientation, exporting their products to more than **50 countries** all over the world. Working over minutes company continues to strive for perfection developing superior quality products and providing customers with high level service and the most effective solutions in industrial automation.

**We provide customers with what they need!**

EXPRESS PRODUCTION  
48/72 H

RESEARCH

PROJECT CUSTOM DESIGN





























ITALSENSOR  
TEKEL

MADE IN ITALY

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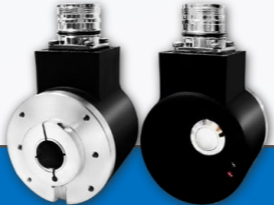






















# INCREMENTAL ENCODERS / *solid shaft*

						<p><b>Programmable</b></p> 		
<b>Model</b>	<b>TTM25</b>	<b>TK15/ TK38</b>	<b>TK25/ TS44</b>	<b>TS52</b>	<b>TS58</b>	<b>TISP58 PROGRAMMABLE</b>	<b>TK45/TK50/ TK60/TK50FRE</b>	<b>TK90/ TK100</b>
	<b>Miniature magnetic incremental encoder</b>	<b>Miniature incremental optical encoder</b>	<b>Low-cost Incremental optical encoder</b>	<b>Compact incremental optical encoder</b>	<b>Low-cost optical incremental encoder</b>	<b>Programmable incremental encoder (up to 65536 ppr)</b>	<b>Rugged optical incremental encoder</b>	<b>Rugged optical incremental encoder</b>
<b>Main features</b>	Magnetic incremental encoder for general industrial applications. Housing with integrated magnetic shield to ensure the best EM immunity.	Miniature encoder for general industrial application.	Low-cost encoder for general industrial applications. Wide range of mounting flange and high protection degree.	Compact encoder for general industrial applications. Particularly suitable for <b>lifts and elevators</b> .	Low-cost encoder for general industrial applications. Suitable for <b>packaging, printing, bottling</b> and other industries.	Programmable incremental optical encoder user-programmable from 1 up to 65536 PPR 	Rugged encoder for heavy duty industrial applications. Ideal solutions for lift, printing, metalworking, packaging industries.	Rugged encoder for heavy duty industrial applications.
<b>Body diameter (mm)</b>	25	38	44	52	58	58	63,5/115 (FRE)	80
<b>Shaft (mm)</b>	4	4,6	6	9,52	6, 8, 9.52, 10, 11, 11R	6, 8, 9.52, 10, 11, 11R	6, 8, 9.52, 10, 11, 11R	6, 8, 9.52, 10, 11, 11R,12
<b>Flange</b>								
<b>Resolution (ppr)</b>	Max. 2048	Max.3600	Max. 2048	Max. 2048	Max.5000 Up to 20,000 on demand	From 1 up to 65536 ppr Freely programmable	Max. 10000 Up to 20,000 on demand	Max, 10000 Up to 20,000 on demand
<b>Interface (output)</b>	LD, LD2, PP2	LD, LD2, PP2, NPN, PNP	LD, LD2, PP2, NPN, PNP	Line Driver	LD, LD2, PP2, NPN, PNP	LD2, PP2	LD, LD2, PP2, NPN, PNP	LD, LD2, PP2, NPN, PNP
<b>Operating temperature (C)</b>	-10°C...+85°C	-10°C ...+70°C	-10°C ... +70°C	-10°C ... +70°C	-10°C...+70°C	-10°C...+70°C	-10°C...+70°C	-10°C ...+70°C
<b>Protection degree</b>	IP55	IP55	IP66	IP65	IP66	IP66	IP66	IP66
<b>Connection</b>								

Note: click on the images of products to see more technical details directly on our website.























Italsensor offers customization by adding new features and functionality to the new products, developing personalized high efficient solutions that perfectly fit needs of the final customer. For any information you may require, contact us at [info@italsensor.com](mailto:info@italsensor.com)

# INCREMENTAL ENCODERS / hollow shaft / hollow through shaft







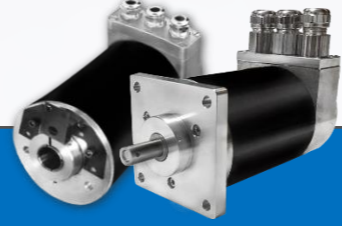







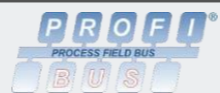






			<b>Programmable</b> 					
Model	TKW315	TSW365/ TSW58	TISPW58 programmable	TKW615C	TSW58HS	TS58HS	TSW80	TSW80P
	Compact optical incremental encoder Hollow shaft	Low-cost optical incremental encoder Hollow shaft	Programmable optical incremental encoder (up to 65536 ppr) Hollow shaft	Optical incremental encoder Hollow shaft	Optical incremental encoder Hollow through shaft	Heavy-duty incremental optical encoder Hollow through shaft	Rugged optical incremental encoder Hollow through shaft	Optical incremental encoder Hollow through shaft
Main features	Low-cost blind shaft encoder (with grub screw or with collar) for general industrial applications.	Low cost incremental encoder for generic industrial application, with a lot of connection interfaces is the best choice for the final user for the maximum free on the mechanical design. Shaft diameter is user changeable by using our reducing bushing) and electrical interfacing.	Programmable incremental optical encoder user-programmable <b>from 1 up to 65536 PPR</b>  	Low-cost blind hollow shaft incremental encoder (with grub screw or with collar) for generic industrial applications.	Compact encoder for general industrial applications. Particularly suitable for woodworking industries.	Hollow shaft encoder for heavy duty industrial applications. Particularly suitable applications of electric motors and for use at high temperatures. Shaft diameters modifiable (or changeable) by the user through reducing bushes.	Rugged hollow through shaft encoder (version with security dowels and clamping collar) for general and heavy-duty industrial applications	Hollow through shaft encoder for general industrial applications. Particularly suitable applications of electric motors, the body and the plastic housing ensures a high immunity to interference on the output signals. Shaft diameters modifiable (or changeable) by the user through reducing bushes
Body diameter (mm)	38	36,5/ 58	58	63,5	58	58	80	80
Shaft (mm)	6, 8	6,8, 9,52, 10,11,12,12.7,14, 15 (reducing bushing except 15 mm)	6,8, 9,52, 10,11,12,12.7,14, 15 (reducing bushing except 15 mm)	8, 9,52, 10,11,12,12.7,14, 15 (reducing bushing except 15 mm)	6,8, 9,52, 10,11,12,12.7,14, 15 (reducing bushing except 15 mm)	8, 10, 11,12,15	From 20 up to 44 mm. Others on demand.	6,8, 10, 9,52, 11,12,14, 15 (fixing with collar)
Flange								
Resolution (ppr)	Max. 3600	Max. 10000 Other resolutions on demand	From 1 up to 65536 ppr Freely programmable	Max. 5000 Other resolutions on demand	Max. 10000 Other resolutions on demand	Max. 10000	Max. 2500	1024, 2048 (other resolutions on demand)
Interface (output)	LD, LD2, PP2, OC, OP, NPN, PNP	LD, LD2, PP2, NPN, PNP	LD2, PP2	LD, LD2, PP2, NPN, PNP	LD, LD2, PP2, NPN, PNP	LD2, PP2	LD,LD2, PP2	LD, LD2, PP2
Operating temperature (C)	-10°C ...+70°C	-10°C ...+70°C	-25°C ...+85°C	-10°C ...+70°C	-10°C ...+70°C	-25°C ...+100°C	-10°C ...+100°C	-10°C ...+100°C
Protection degree	IP65	IP64	IP65	IP64	IP64	IP65	IP65	IP54
Connection								

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# ABSOLUTE ENCODERS *singleturn*














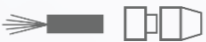
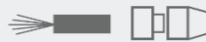

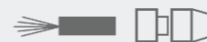

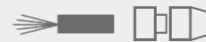
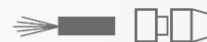
							
<b>Model</b>	<b>TKC38</b>	<b>TKTE TKTC</b>	<b>TKE45</b>	<b>TKC50/TKC60</b>	<b>TKC100</b>	<b>TKE615</b>	<b>TSTMW42 Sin/cos</b>
	<b>Miniature magnetic absolute singleturn encoder</b>	<b>Compact optical absolute singleturn encoder</b>	<b>Optical absolute singleturn encoder</b>	<b>Optical absolute singleturn encoder</b>	<b>Rugged optical absolute singleturn encoder</b>	<b>Optical absolute singleturn encoder Blind shaft</b>	<b>Absolute singleturn encoder sin/cos</b>
<b>Main features</b>	<p>Low-cost magnetic single-turn absolute encoder with 4-20mA analog output interface and 10 bit resolution over a full mechanical turn developed for current-loop based control systems.</p>	<p>Compact single-turn absolute encoder with max. resolution 13 bit represents a good compromise between price and performance suitable for heavy-duty and generic industrial applications ((aluminum body and housing). Available also in programmable version (resolution, type of output code, optional inputs, RS232 output).</p>	<p>Low-cost encoder for general industrial applications.</p>	<p>Rugged encoder for heavy duty industrial applications.</p>	<p>Rugged encoder for heavy duty industrial applications.</p>	<p>Rugged encoder for heavy duty industrial applications.</p>	<p>Analog single-turn absolute encoder for motor control application. The encoder output is a pair of SIN-COS signals developed on a single mechanical turn and can be also supplied with incremental output interface. Shaft diameter up to 15 mm (from 6 up to 14 mm with bushing).</p>
<b>Body diameter (mm)</b>	38	50	63,5	63,5	80	63,5	42
<b>Shaft (mm)</b>	6	6	10	6, 8, 9.52, 10	6,8, 9.52 ,10	15	15
<b>Flange</b>							
<b>Resolution (ppr)</b>	1024/360	Max 8192	Max 8192	Max 8192	Max. 8192	Max 8192	Sin/Cos
<b>Code</b>	Analogue	Gray, binary, BCD	Gray, binary, BCD	Gray, binary, BCD, Analog	Gray, binary, BCD, Analog	Gray, binary, BCD	Analogue
<b>Interface (output)</b>	4:20 mA	NPN,PNP, SSI, RS232	NPN,PNP, SSI	TTL, OC, OP, NPN, PNP, S13D, ANALOG, SSI, PP2	TTL, OC, OP, NPN, PNP, S13D, ANALOG, SSI, PP2	OC,OP,NPN,PNP, SSI	2 Vpp
<b>Operating temperature (C)</b>	-10°C ...+70°C	-10°C ...+70°C	-10°C ...+70°C	-10°C ...+70°C	-10°C ...+70°C	-10°C ...+70°C	-20°C ...+105°C
<b>Protection degree</b>	IP65	IP66	IP 64	IP 66	IP66	IP64	Open frame
<b>Connection</b>							

# ABSOLUTE ENCODERS / *multiturn*

				
Model	 <p>TSM60P-SSI/ TSMW60P-SSI</p>	 <p>TSM60P-PRDP-PDNET/ TSMW60P-PRDP-PDNET</p>	 <p>TSM58P-PRNET-IO/ TSMW58P-PRNET-IO</p>	 <p>TSM58P-ETHCAT/ TSMW58P-ETHCAT</p>
	<p><b>Optical absolute multiturn encoder (SSI) Solid/hollow shaft</b></p>	<p><b>Optical absolute multiturn encoder (PRDP/PDNET) Solid/hollow shaft</b></p>	<p><b>Optical absolute multiturn encoder (Profinet IO) Solid/hollow shaft</b></p>	<p><b>Optical absolute multiturn encoder (EtherCAT) Solid/hollow shaft</b></p>
Main features	<p>Compact multiturn programmable absolute encoder with SSI for industrial application.</p>	<p>Multiturn programmable absolute encoder with Profibus for industrial application.</p>	<p>Multiturn programmable absolute encoder with Profinet for general and heavy-duty industrial application.</p>	<p>Multiturn programmable absolute encoder with EtherCat Technology for general and heavy-duty industrial application.</p>
Body diameter (mm)	58	65	58	58
Shaft (mm)	Solid shaft 6,10 Hollow shaft 12	Solid shaft 6,10 Hollow shaft 8, 10, 11, 12, 14	Solid shaft 6,10 Hollow shaft 10, 12, 14, 15	Solid shaft 6,10 Hollow shaft 10, 12, 14, 15
Flange				
Resolution (ppr)	Max 8192/4096 programmable	Max 8192/4096 programmable	Singleturn – up to 16 bit Number of turn – up to 12 bit Total resolution – 28 bit programmable	Singleturn – up to 16 bit Number of turn – up to 12 bit Total resolution – 28 bit programmable
Code	Gray/binary	Gray/binary	Binary	Binary
Interface (output)				
Operating temperature (C)	-20 °C...+70°C	-20 °C...+70°C	-40 °C...+80°C	-40 °C...+80°C
Protection degree	IP65	IP65	IP65/IP67	IP65/IP67
Connection				

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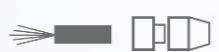

# SPECIAL ENCODERS / bicoder / metric wheel / tachogenerator / centrifugal relay

							
<b>Model</b>	TKM73/ TKM38	TI70	TDT50/ TDT100	TK250-TK260	TGR38	RM200/ RS500	SG60
	<b>Heavy-duty incremental encoder with integrated coupling</b>	<b>Rugged optical incremental encoder</b>	<b>Heavy duty encoder with integrated tachogenerator</b>	<b>Bicoder (incremental-absolute)</b>	<b>Handwheel electronic incremental encoder</b>	<b>Metric wheel 200mm/500mm</b>	<b>Wire actuated transducer SG60</b>
<b>Main features</b>	<p>Heavy duty incremental encoder with integrated coupling and mounting bell for generic industrial applications.</p>	<p>Rugged optical incremental encoder for heavy duty application. The model TI70 is developed and manufactured according to <b>ATEX rules</b> - ATEX EEx d IIB T6 (CEI EN 60079-0/60079-1 U1203 C22.2), but it is supplied without ATEX certification.</p>	<p>Heavy duty incremental encoder with integrated coupling and mounting bell for generic industrial applications.</p>	<p>The Bicoder® are an encoder family with a monolithic structure equipped with two discs, two electronics, two reading systems completely different from each other, operating on the same shaft. The bicoders can be either incremental or incremental/absolute. Size and body dimensions are those typical models such as: TK50 (F, SG, FRE) and TK60H</p>	<p>Handwheel electronic incremental encoder for various industrial applications. The handwheel pulse generator is a special type of bidirectional incremental encoder through which it is possible to change manually the axis movement on a numeric control machine.</p>	<p>The metric wheels RM series suitable for applications where linear motion reading is requested, ex. cutting of plates, wood, textile, glass etc., assuring high performance and reliability in heavy-duty applications as well. All wheels are assembled with on the encoder shaft with a collet for assuring perfectly concentric rotation.</p>	<p>Wire actuated transducer SG60 with measurement <b>lengths up to 6000 mm</b>. Wire actuated transducer of max. 6000mm, rugged, precise and reliable wire guide, suitable for different applications with many types of encoders flange standards – <a href="#">mod TS58</a> and <a href="#">mod TK60</a></p>
<b>Body diameter (mm)</b>	38/63,5	70/115 (FRE)	63,5/115 (FRE)	63,5/115 (FRE)	Diameter encoder 38 Diameter handwheel 60	50/58	58
<b>Shaft (mm)</b>	6, 8, 9.52, 10	10, 11	9.52, 10,11	6,10	6		
<b>Flange</b>							
<b>Resolution (ppr)</b>	Max. 3600	Max. 9000	Max 10000	Max. 9000	25/100	Max. 3600/Max. 5000	Up to 0,01 mm
<b>Interface (output)</b>	S; P; OC; OP; PP2; LD; LD2	LD, LD2, PP2, NPN, PNP	LD, LD2, PP2, NPN, PNP, S	LD, LD2, PP2, NPN, PNP	LD, LD2, PP2, NPN, PNP	LD,LD2,PP2,NPN,PNP	LD,LD2,PP2,NPN,PNP
<b>Operating temperature (C)</b>	-10°C ...+70°C	-20°C ...+70°C	-10°C ...+70°C	-10°C ...+70°C	-10°C ...+70°C	-10°C ...+70°C	
<b>Protection degree</b>	IP64	IP64	IP66	IP66	IP55	IP64/IP66	IP66
<b>Connection</b>							

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# OTHER PRODUCTS/ACCESSORIES



Model	TRC100	Protection module MPR01	Electronic card	Connectors	Couplings	Proximity sensors	Programming cable
	<b>Encoder with centrifugal relay</b>	<b>Protection module MPR01</b>	<b>Electronic card Custom design</b>	<b>Connectors</b>	<b>Flexible metal and plastic couplings for incremental and absolute encoders</b>	<b>Inductive proximity sensors (Flush/ non flush)</b>	<b>Programming cable TISP581PRGCBL.20 for incremental programmable encoder TISP58/TISPW58</b>
<b>Main features</b>	Encoder with centrifugal relay for monitoring speed of axis and ensuring safety for industrial applications. <b>Setting speed</b> 780÷6000 RPM	Protection module for three channel incremental encoder. The power supply line and the signals line are protected against supply voltage transient and induced noise by means of a passive system, composed by thermal resistor and Transient Voltage Suppressor (fast acting voltage suppressor). Guide DIN rail mounting.	Custom design of electronic modules, hardware and software upon customer's specifications. Italsensor is able to design and develop customized solutions that bring numerous benefits to the customers, minimizing costs and increasing efficiency and can be applied in industrial automation, automotive, domotics, green energy etc.	Wide range of flying military connectors (male/female) 5/7/10/12/23/26/32 poles  Italsensor offers custom connections solutions by means of standard connectors and custom sealing products.	Flexible metal and plastic couplings for incremental and absolute encoders  Different input/output diameters (ex. 8/10-9.52/10 etc)  Flexible coupling Paguflex for incremental and absolute encoders.	Proximity sensor for general automation applications for detection of metallic objects. Detection distance from <b>1 up to 25 mm.</b>	Programming cable with connector for USB type A and 12-pin female flying connector, directly usable with standard set for programmable encoder TISP58.  This programming cable is used to power and program programmable incremental encoder TISP58 directly through USB port of a laptop or desktop PC. The total length of the cable is 2 mt.
<b>Dimension (mm)</b>		90,5x79x25					
<b>Resolution (ppr)</b>	Max 10000						
<b>Interface (output)</b>	LD, LD2, PP2, NPN, PNP	PP2				NPN, PNP; two wire systems	
<b>Operating temperature (C)</b>	-10 °C...+70°C	-40 °C...+100°C				-25 °C...+75°C	
<b>Protection degree</b>	IP64	IP20				IP67	
<b>Connection</b>							



# Contact us



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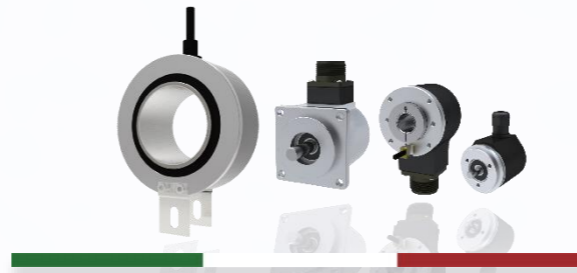
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