





























# ROTARY ENCODERS

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*Incremental & absolute encoders since 1976*



























# INCREMENTAL ENCODERS / *solid shaft*

|  |   |   |   |   |   |  |  |   |
|--|---|---|---|---|---|--|--|---|
|  |    |    |                              |                          |    | <p><b>Programmable</b></p>    |   |    |
| <b>Model</b>   | <b>TTM25</b>  | <b>TK15/<br/>TK38</b>   | <b>TK25/<br/>TS44</b>   | <b>TS52</b>   | <b>TS58</b>   | <b>TISP58<br/>PROGRAMMABLE</b>   | <b>TK45/TK50/<br/>TK60/TK50FRE</b>   | <b>TK90/<br/>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<br>Up to 20,000 on demand  | From 1 up to 65536 ppr<br>Freely programmable  | Max. 10000<br>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.



















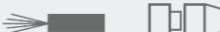



Italsensor offers customization by adding new features and functionality to the new products, developing personalized high efficient solutions that perfectly fit needs of the final customer. For any information you may require, contact us at [info@italsensor.com](mailto:info@italsensor.com)

# INCREMENTAL ENCODERS / hollow shaft / hollow through shaft






















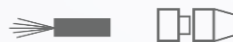
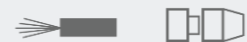



|  |                   |   | <b>Programmable</b><br>  |                                    |                     |   |    |    |
|--|--|--|--|---|--|--|---|---|
| Model  | TKW315   | TSW365/<br>TSW58   | TISPW58<br>programmable  | TKW615C   | TSW58HS  | TS58HS   | TSW80   | TSW80P  |
|  | Compact optical incremental encoder<br>Hollow shaft  | Low-cost optical incremental encoder<br>Hollow shaft   | Programmable optical incremental encoder<br>(up to 65536 ppr)<br>Hollow shaft  | Optical incremental encoder<br>Hollow shaft   | Optical incremental encoder<br>Hollow through shaft  | Heavy-duty incremental optical encoder<br>Hollow through shaft   | Rugged optical incremental encoder<br>Hollow through shaft  | Optical incremental encoder<br>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><br><br> | 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<br>Other resolutions on demand  | From 1 up to 65536 ppr<br>Freely programmable  | Max. 5000<br>Other resolutions on demand  | Max. 10000<br>Other resolutions on demand  | Max. 10000   | Max. 2500   | 1024, 2048<br>(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*














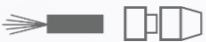
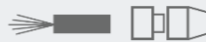

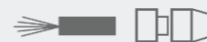

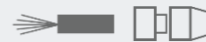
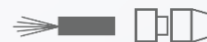
|  |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|
|  |    |   |    |    |    |    |    |
| <b>Model</b>   | <b>TKC38</b>  | <b>TKTE<br/>TKTC</b>  | <b>TKE45</b>  | <b>TKC50/TKC60</b>  | <b>TKC100</b>   | <b>TKE615</b>   | <b>TSTMW42<br/>Sin/cos</b>  |
|  | <b>Miniature magnetic absolute 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<br/>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*

|  |   |   |   |   |   |
|--|---|---|---|---|---|
| <b>Model</b>   | TSM60P-SSI/<br>TSMW60P-SSI  | TSM60P-PRDP-<br>PDNET/<br>TSMW60P-PRDP-<br>PDNET  | TSM58P-PRNET-IO/<br>TSMW58P-PRNET-IO  | TSM58P-ETHCAT/<br>TSMW58P-ETHCAT  | TSM58P-ETHNET-IP/<br>TSMW58P-ETHNET-<br>IP  |
|  | <b>Optical absolute multiturn encoder (SSI)<br/>Solid/hollow shaft</b>  | <b>Optical absolute multiturn encoder (PRDP/PDNET)<br/>Solid/hollow shaft</b>   | <b>Optical absolute multiturn encoder (Profinet IO)<br/>Solid/hollow shaft</b>  | <b>Optical absolute multiturn encoder (EtherCAT)<br/>Solid/hollow shaft</b>   | <b>Optical absolute multiturn encoder (EtherNet/IP)<br/>Solid/hollow shaft</b>  |
| <b>Main features</b>   | Compact multiturn programmable absolute encoder with SSI for industrial application.  | Multiturn programmable absolute encoder with Profibus for industrial application.   | Multiturn programmable absolute encoder with Profinet for general and heavy-duty industrial application.  | Multiturn programmable absolute encoder with EtherCat Technology for general and heavy-duty industrial application.   | Multiturn programmable absolute encoder with EtherNet/ IP Technology for general and heavy-duty industrial application  |
| <b>Body diameter (mm)</b>  | 58  | 65  | 58  | 58  | 58/63,5   |
| <b>Shaft (mm)</b>  | Solid shaft 6,10<br>Hollow shaft 12   | Solid shaft 6,10<br>Hollow shaft 8, 10, 11, 12, 14  | Solid shaft 6,10<br>Hollow shaft 10, 12, 14, 15   | Solid shaft 6,10<br>Hollow shaft 10, 12, 14, 15   | Solid shaft 6,10<br>Hollow shaft 10, 12, 14, 15   |
| <b>Flange</b>  |    |   |    |    |    |
| <b>Resolution (ppr)</b>  | Max 8192/4096 programmable  | Max 8192/4096 programmable  | Singleturn – up to 16 bit<br>Number of turn – up to 12 bit<br>Total resolution – 28 bit programmable  | Singleturn – up to 16 bit<br>Number of turn – up to 12 bit<br>Total resolution – 28 bit programmable  | Singleturn – up to 16 bit<br>Number of turn – up to 16 bit<br>Total resolution – 32 bit programmable  |
| <b>Code</b>  | Gray/binary   | Gray/binary   | Binary  | Binary  | Binary  |
| <b>Interface (output)</b>  |    |   |    |    |    |
| <b>Operating temperature (C)</b>   | -20 °C...+70°C  | -20 °C...+70°C  | -40 °C...+80°C  | -40 °C...+80°C  | -40 °C...+80°C  |
| <b>Protection degree</b>   | IP65  | IP65  | IP65/IP67   | IP65/IP67   | IP65  |
| <b>Connection</b>  |    |   |    |    |    |

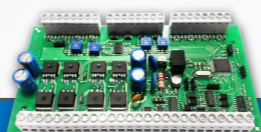
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# SPECIAL ENCODERS / bicoder / metric wheel / tachogenerator / centrifugal relay

|  |   |  |   |   |   |   |  |
|--|---|--|---|---|---|---|--|
|  |                                      |    |                                    |    |    |    |   |
| <b>Model</b>   | TKM73/<br>TKM38   | TI70   | TDT50/<br>TDT100  | TK250-TK260   | TGR38   | RM200/<br>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.<br/>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<br>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.<br><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<br><br>Italsensor offers custom connections solutions by means of standard connectors and custom sealing products. | Flexible metal and plastic couplings for incremental and absolute encoders<br><br>Different input/output diameters (ex. 8/10-9.52/10 etc)<br><br>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.<br><br>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>                |   |   |   |  |  |  |   |

# ENCODERS FOR INDUSTRIES: *metalworking*



For years Italsensor's encoders have successfully used on machines for molding and in particular on hydraulic, pneumatic and electric presses. The design of devices provides for the adoption of solutions that make the encoder suitable to work in mechanically hostile environments especially as regards vibrations and mechanical shock. Particularly suitable for these applications are the encoders with **magnetic technology** and versions of optical encoder capable of withstanding the difficult working conditions of the plant, guaranteeing maximum performance and efficiency in time.

The metallurgical industry requires extremely robust and reliable devices both from the mechanical and environmental point of view, high mechanical vibration, high temperatures, dust and liquids. Materials and components used by Italsensor provide high reliability and the maximum degree of environmental protection to dust and liquids alongside with a high operating temperature range over 100 ° C.



## TKTE/TKTC/ TTMA50

Heavy-duty absolute  
singleturn encoders  
up to 13 bit

**Diam.** 50 mm  
Available in programmable  
version and RS232 output  
interface  
**Gray code**  
**High protection degree** IP66  
**Interfaces:** NPN; PNP; Push  
Pull; SSI, RS232



## TK100

Rugged incremental  
encoder for heavy  
duty industrial  
application

**Diam.** 80 mm  
**Resolution** up to 10.000 ppr  
Different types of flanges:  
square, servo-clip, FRE  
**Protection degree** IP66  
**Interface:** LD;LD2; PP2;  
NPN;PNP  
Cable and connector outputs



## TSMW58P - ETHCAT

Rugged absolute  
multiturn encoder  
with EtherCAT  
Up to 16 bit

**Diam.** 58 mm  
Available in programmable  
version.  
**Resolution singleturn:** 16 bit  
**Number of revolutions:** 12  
bit  
**High protection degree** IP67



## TDT50

Heavy-duty encoder  
with integrated  
tachogenerator

**Diam.** 63,5 mm  
**Resolution** up to 9000 ppr  
Different types of flanges:  
square, servo-clip, FRE  
**High protection degree**  
IP66  
**Interfaces:** NPN; PNP; Push-  
Pull; Line driver



Contact us for more  
information and support

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# ENCODERS FOR INDUSTRIES: *woodworking*

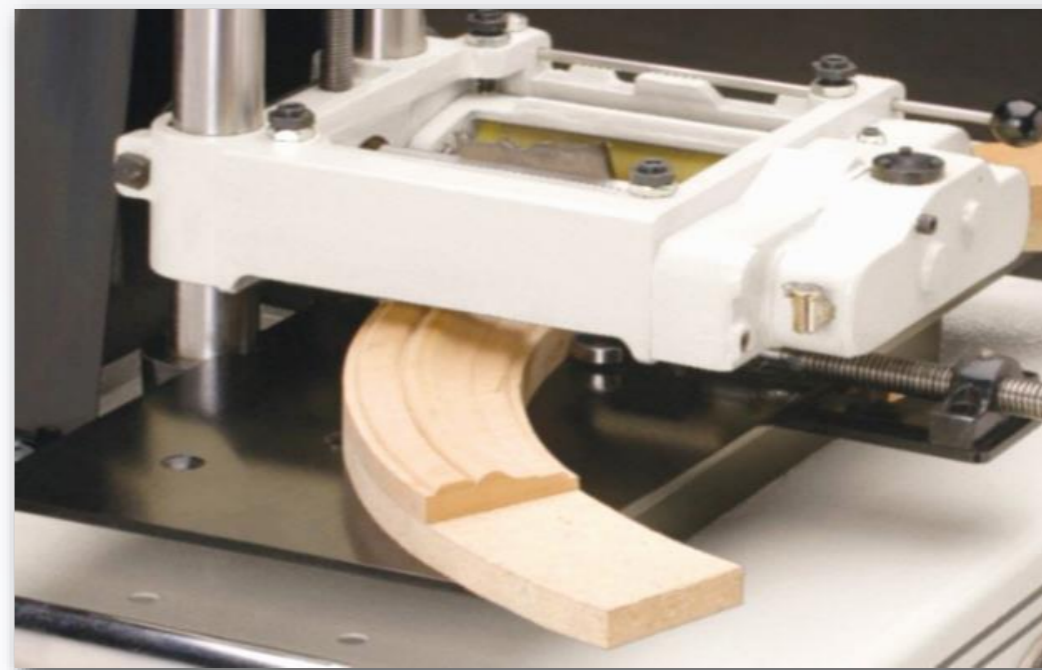
The increasing demand has led to the development of complex machineries and plants that can perform multiple operations on raw wood (cutting, milling, planing, engraving). The development of special machines requires the adoption of transducers that are able to work in hostile environments from the mechanical point of view for the presence of vibrations and the presence of dust and liquids that may invest the transducer.

**ITALSENSOR** is able to provide solutions using materials and degrees of protection suitable for use in wood industry, ensuring high standards of quality and reliability to the final customer with the security of a constant operation, without interruption in the production and maintenance of the quality of the product.

The models of encoders used may be of the incremental type for controlling the drive speed of the laminate, or the absolute type for the realization of cuts and machining on the rough wooden planks.

In order to facilitate the installation and instrumentation in the measurement axes, Italsensor encoders can be equipped with wheels metrics sizes and different materials according to the type of material on which the measurement must be carried.

The use of the metric wheel allows to detect in a continuous and precise position or the scrolling speed of the raw material directly in the point of interest.



Contact us for more information and support

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### **TKW616C** Optical incremental encoder

**Diam.** 63,5 mm  
**Resolution** up to 10.000 ppr  
**High protection degree** IP64  
**Interface:** LD; LD2; PP2; NPN;  
PNP  
Cable and connector outputs



### **TK50** Rugged incremental encoder for heavy duty industrial application

**Diam.** 63,5 mm  
**Resolution** up to 10.000 ppr  
**High protection degree** IP66  
Different types of flanges: square,  
servo, servo-clip, FRE  
Cable and connector outputs



### **RM200** Electronic metric wheel for length measurement

Assembled with encoder and  
metric wheel support arm.  
Various wheel set-up according to  
applications.  
**Metric wheel** 200 mm/500 mm  
**Resolution:** up to 3600 ppr  
**Interface:** LD; LD2; PP2; NPN;  
PNP

# ENCODERS FOR INDUSTRIES: *packaging, bottling, food*



With the increase of economic development and commercial transactions the packaging industry has undergone a significant boost in recent years. The demand for devices that can meet the most varied requirements brought Italsensor to develop **customized solutions** for various clients alongside traditional solutions. The quality of products and the guarantee of a manufacturing controlled at 100% from the beginning of production process until shipment to the customer (finished product) ensures the highest reliability, an important factor for systems that must run interruptedly twenty four hours a day for the whole year.

The conditions of using the incremental and absolute encoders in the food industry, with particular attention to hygienic conditions, require the use of materials and degrees of protection suitable and in compliance with current regulations. Italsensor is able to produce transducers in accordance with these specifications, and in particular can customize in a relatively short time very specific solutions for the final customer.

Italsensor transducers have lifetimes of **over 10 years**, contributing to reduce the time associated with downtime.



## TKTE/TKTC Heavy-duty absolute singleturn encoder up to 13 bit

Available in programmable  
version (RS232).

**Diam.** 50 mm

**Gray code**

**High protection degree**  
IP66

**Interface:** NPN; PNP; Push  
Pull; SSI, RS232



## TK15/TK38 Low-cost incremental encoder for general application

**Diam.** 38 mm

**Resolution** up to 3600 ppr

**Protection degree** IP55

**Interface:** LD; LD2; PP2;

NPN; PNP

Cable output



## TS58/TSW58 Incremental encoder for general industrial application

**Diam.** 58 mm

**Resolution** up to 5.000 ppr

Different types of mounting

**Protection degree** up to IP  
66

**Interface:** LD; LD2; PP2;NPN;  
PNP

Cable and connector outputs



## TISP58/TISPW58 Incremental encoder programmable by user up to 65.536 ppr

**Diam.** 58 mm

Different types of flanges:

square, servo-clip, FRE

**High protection degree** IP66

**Interface:** NPN; PNP; Push-  
Pull; Line driver

Cable and connector outputs.



Contact us for more  
information and support

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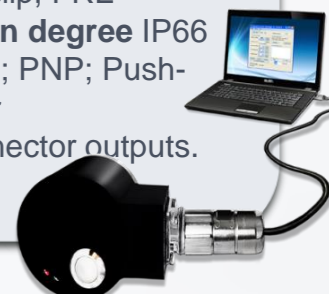
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# ENCODERS FOR INDUSTRIES: *printing, textile etc.*

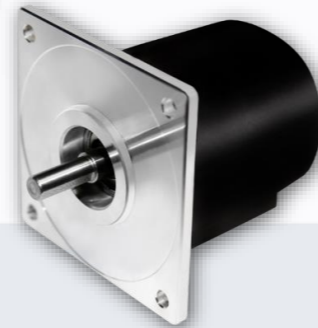


The reliability of the raw materials in the case of the machinery used for printing and, in particular, for presses must be maintained at a level to minimize the stops planting. The transducers developed by **ITALSENSOR** have been used for decades in the automation of rotary printing presses for major newspapers in the world that shows high reliability of the products..

The most commonly used transducers are of incremental type as well as equipped with special processing systems defined discriminatory way able to provide additional information than classical incremental signals.

Other solutions include the use of devices with multi-turn absolute cam bus, in this connection **Profibus, Profinet and DeviceNet encoders** are especially used to simplify the wiring of the transducers, reduce costs associated to the wires and installation, ensuring the dynamic performance of the systems.

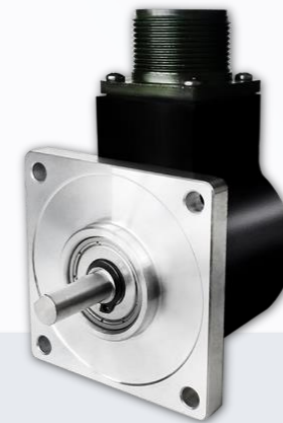
Our staff is available to suggest solutions and customizations to meet any request or desire of customers



## TK50

**Rugged incremental encoder for heavy duty industrial application**

Diam. 63,5 mm  
**Resolution** up to 10.000 ppr  
**High protection degree** IP66  
Different types of flanges: square, servo, servo-clip, FRE  
Cable and connector outputs



## TS58/TSW58

**Incremental encoder for general industrial application**

Diam. 58 mm  
**Resolution** up to 5.000 ppr  
Different types of mounting  
**Protection degree** up to IP 66  
**Interface:** LD; LD2; PP2; NPN; PNP  
Cable and connector outputs



## TSM58P-PRNET-IO

**Absolute multiturn encoder with Profinet IO Up to 16 bit**

Diam. 58 mm  
**Resolution** singleturn – 16 bit  
**Number of revolutions** - 12 bit  
**High protection degree** IP67  
**Interface:** Profinet IO  
Connector outputs



Contact us for more information and support

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# ENCODERS FOR LIFTS: *lift winch, industrial elevators, platforms, cranes*



The modern lift systems require the use of devices capable of being mounted easily on winches engine reducing the mechanical coupling. **ITALSENSOR** develops a wide range of hollow shaft transducers with standard diameters **up to 44 mm**. The adaptation to diameters of the lower type is possible for the most of the models developed through the adoption of bushes adaptation that can be inserted and removed quickly from the encoder by end user.

**ITALSENSOR** is able to develop customized solutions for larger diameters or to interconnect different systems or even for individual solutions as regards electrical and electronic systems.



**TK50FRE**  
Rugged incremental  
encoder for heavy duty  
industrial application

**Diam.** 63,5 mm  
**Resolution** up to 10.000 ppr  
**High protection degree** IP 66  
FRE flange  
**Interface:** LD, LD2, PP2, NPN,  
PNP  
Cable and connector outputs



**TSW80P**  
Incremental hollow  
through shaft encoder

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.  
**Diam.** 80 mm  
**Resolution** 1024; 2048 ppr  
**Interface** LD, LD2, PP2



**TSM60P - SSI**  
Absolute multi-turn  
programmable  
encoders up to 25 bit

Suitable for various fields of industrial application.  
**SSI user configurable.**  
**Diam.** 58 mm  
Different types of flanges: square, servo, servo-clip  
**Protection degree** IP 65



Contact us for more  
information and support

**Italsensor s.r.l.**

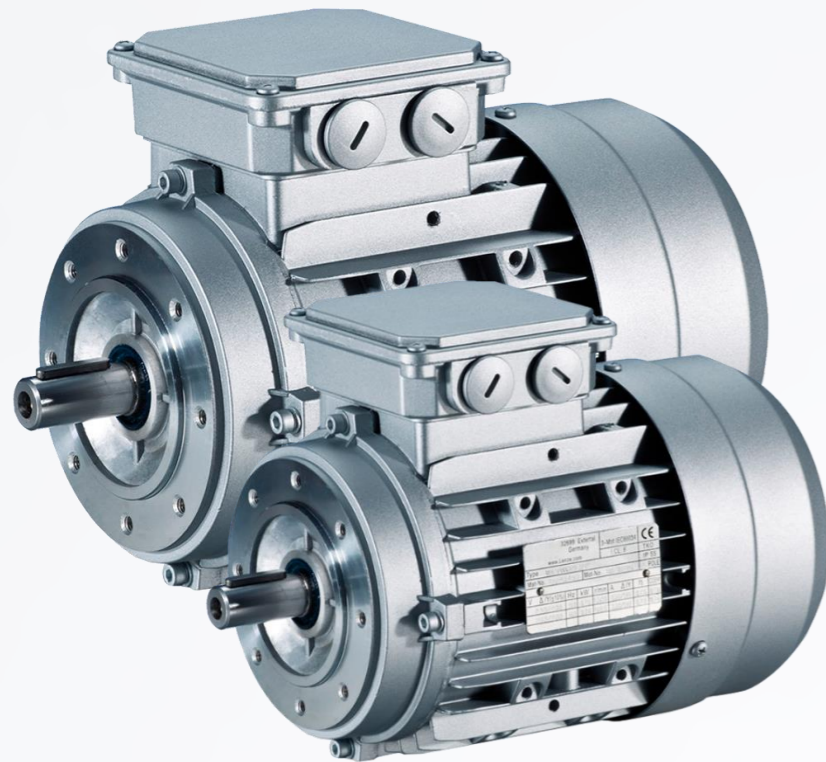
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# ENCODERS FOR MOTORFEEDBACK



Patented clamping systems ensure a stable coupling between the motor shaft and the shaft encoder reducing the run out of the device and then the possible measurement errors associated with vibrations present on the transducer resulting from a not perfect mechanical coupling. A particular serie of **incremental encoders TS58HS** has been developed specifically for applications of electric motors and has a hollow shaft coupling with two contact zones unlike the traditional locking system which ensures the coupling spindle only in the area of the clamping collar. High operating temperature range, rear lock and patented mechanical clamping system combined with the versatility of the use of reducing bushes to make it compatible with various shaft diameters currently available, makes it suitable for mounting directly in the engine compartment.

Another solution proposed by **ITALSENSOR**, oriented mainly for the market of electric motors and in particular, for the realization of low cost final solutions is represented by the series of encoders **TSW80P**. Its structure entirely made of insulating material interrupts the circulation of eddy current components that can be established between the motor shaft, and the mechanical group consisting of shaft and bearings of the encoder itself through the earth circuit. In fact, this is one of the main causes that lead to bearing failure and subsequent damage to the transducer EDM. The insulated body and the dual-bearing mechanical structure printed in the body ensures the accuracy in reading as in the conventional encoder at the same time obviating the problems described above and thus contributing to increase the efficiency and overall reliability of the system.



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## **TS58HS** Rugged incremental encoder for heavy duty industrial application

Particularly suitable applications of electric motors and for use at high temperatures.

**Diam.** 58 mm

**Resolution** up to 5000 ppr

**High protection degree** IP 65

Cable output



## **TSW80P** Incremental hollow through shaft encoder

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 .

**Diam.** 80 mm

**Resolution** 1024; 2048 ppr

**Interface:** LD, LD2, PP2



## **TSWP58** Incremental encoder with integrated coupling

Compact incremental encoder with locking collet and integrated coupling for mounting clearance compensation.

**Diam.** 58 mm

**Resolution** up to 4096 ppr

**Protection degree** IP 65

# CUSTOMIZED SOLUTIONS



MRI scanner

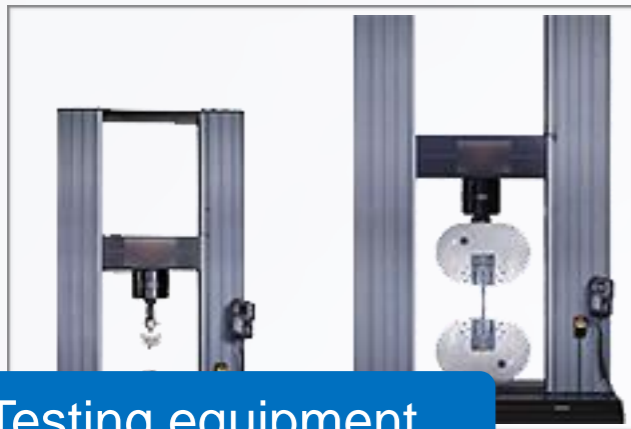
## MEDICAL

Encoder developed and manufactured for **MRI mobile bed scanner (magnetic resonance)** made of non-conductive magnetic materials to prevent any type of interaction with the main magnetic field of the MRI scanner.

Encoder body and housing are made of aluminum. It is possible to customize the encoder's size to adapt it for different applications, from the smallest size to commonly used standard size in automation industry.



TKW315



Testing equipment

## TESTING & MEASUREMENT EQUIPMENTS

Incremental or absolute encoders are used in testing machines to determine the position of the measurement head in relation to the device under test (it may concern about displacement or angle measurement). Applications can be about electronic altimeters or motorized machines for material testing or more in general for machine used for physical properties testing (e.g. pendulum impact testing machine), electronic theodolites and laser scanner the encoders are used to determine the position into the azimuth space of the measurement head. Other applications are about 3D measurements system by means of mechanical arm used from human operator, into each arm joint there is an encoder, these systems are widely used for reverse engineering or prototypes measurement or checking on final products.



TK20



Radar, antennas

## TELECOMMUNICATIONS, VISION SYSTEMS

The positioning of the radar or of the antennas requires that the transducer is capable of operating in a continuous manner. The position information of the encoder is used to define and control at any instant the positioning of the antenna or aiming system to which the encoder is connected. Therefore we understand the importance of the accuracy and repeatability that transducer must have.

**ITALSENSOR** incremental and programmable absolute encoders are normally used on position control systems of the radar mounted on boats. For our encoders we use materials and specific solutions that permit them to work in particularly aggressive environments ( eg. saline environment.)



TKC38

# CUSTOMIZED SOLUTIONS

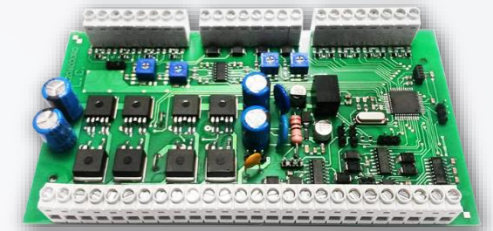


Solar energy

## SOLAR ENERGY

Increasing market demands require complex solutions to face many challenges in various fields of applications. 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.

Thus we develop and execute custom design of **electronic modules, hardware and software upon customer's specifications.**



Electronic card



Protection module

## PROTECTION MODULE

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).



Protection module



Defence

## DEFENCE

Italsensor has developed customized solutions for Nato's air defence systems. In order to meet the requirements of harsh environmental conditions, specific encoder has been designed to withstand a temperature drop, and is extremely robust against disturbance like vibrations and mechanical shocks.



# 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!**





# Contact us



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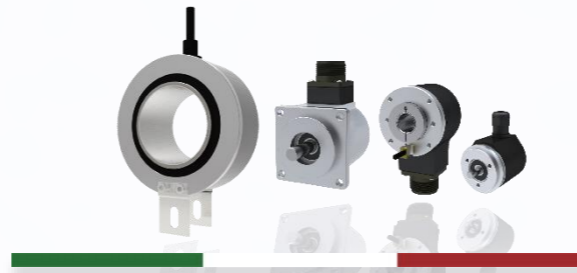
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