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ITALSENSOR S.R.L.

Company with Quality
System Certified
according to UNI EN
ISO 9001:2015



Installation and operating instructions

INSTRUCTIONS FOR USE OF INCREMENTAL AND ABSOLUTE ENCODER

All the incremental and absolute encoders produced by ITALSENSOR are designed to satisfy the most severe conditions of use in the industrial field. However, since the encoders contain delicate electromechanical components the user must be very careful when carrying out the transport and the assembling operations.

TERMS OF WARRANTY

1. Our incremental and absolute encoders are guaranteed for a period of one year from the date of purchase invoice. Warranty claims do not mean exemption from payment obligations.
2. Warranty includes the replacement or the repair free of charge of the encoders in case of manufacturing faults or of defective material or components. The encoders will be checked and/or repaired exclusively at our premises.
3. The transport costs and risks to and from our company will be at customers' charge. We will not accept any material sent with an unpaid shipment. The return of material must be previously agreed with our after-sales service: we will not accept material returned without the proper authorization number.
4. Warranty does not include the external case, the damages caused by negligence, by incorrect or improper use and installation or by other causes not depending on the normal operation of the transducer.
5. Warranty is no longer valid if: the encoder has been tampered with or repaired by unauthorized personnel or if the serial number has been altered or cancelled or if the ITALSENSOR trademark has been eliminated.
6. Transducer replacement and warranty extension in case of damage are excluded.
7. Compensation for direct or indirect damages occurred to people or things due to use or lack of use of the transducer is excluded.
8. Our encoders are equipped with solid state light sources. If within 5 years from delivery date, a failure should occur on these components, ITALSENSOR guarantees the replacement of the parts free of charge. Please send the encoders (shipment at customer's charge) at the following address:

ITALSENSOR S.r.l. - Via Ferrua, 1 - Pinerolo 10064 (TO) - ITALY

DISPOSAL AND RECYCLING

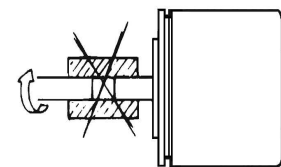


The product at the end of its useful life cannot be conferred to the environment as urban waste, but must be collected separately from other waste. When the device has to be disposed is the responsibility of the end user to deal with the provision of the same at appropriate recycling centres for electronic, electrical, electromechanical products or return it to the producer when you proceed to the purchase of a new device.

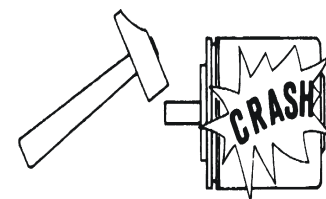
| Index | Date | Revision |
|-------|------------|-----------------------------------|
| 0 | 27/07/2010 | First issue |
| 1 | 24/01/2012 | Company address change |
| 2 | 30/10/2013 | Disposal and Recycling |
| 3 | 25/02/2019 | Changed reference to ISO9001:2015 |

INAPPROPRIATE MECHANICAL OPERATIONS

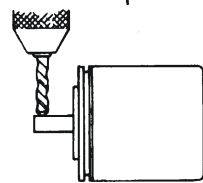
- 1° Do not open the encoder. The incorrect opening of the cover may cause the breaking of the cables that connect the electronic plate to the output cable / connector thus compromising the correct operation of the transducer. Furthermore foreign particles may deposit on the surface of the reading disk compromising the reliability of the output signals. The opening of the cover without ITALSENSOR authorization implies the immediate loss of warranty and assistance. The repairs can be accepted only if previously agreed with our sales office and the defective units must be sent AT CUSTOMER'S CHARGE to ITALSENSOR.



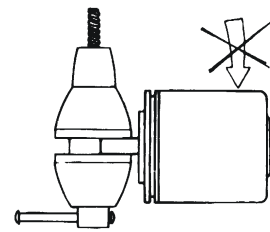
- 2° Do not connect the encoder shaft to machine components in motion by using stiff couplings. In the long run this would cause a progressive damaging of the bearings compromising the reliability of the transducer. Any connection between the shaft transducer and the measuring shaft has to be performed only by using flexible couplings which can be requested to ITALSENSOR when ordering the encoder. Concerning the hollow shaft encoders it is necessary to always use an anti-rotation slot or to fix anti-rotation springs to the installation. An incorrect assembling reduces the life of the bearings and causes the loss of warranty.



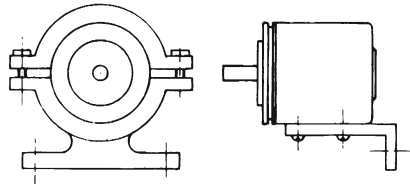
- 3° Do not subject the encoder to any shock: this may cause the breaking of the internal components (bearings / reading disk in case of high resolutions) and consequently the loss of the warranty.



- 4° Do not machine for any reason the shaft nor the case of the encoder. This operation would cause the loss of warranty. For any special need ITALSENSOR S.r.l. is available to modify the standard products making customized versions and also to create new products by request. In this case please send all the technical specifications to our sales office.



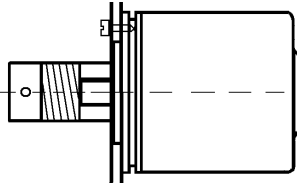
5° Do not press, bend or perform anomalous torsions on the encoder shaft. This may cause the breaking of the internal disk or the deterioration of the bearings. This operation would cause the loss of warranty..



6° Do not install the encoder using any unauthorized assembly methods. This would cause the loss of warranty.

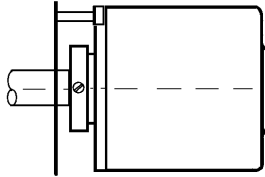
MOUNTING INSTRUCTIONS FOR SHAFT ENCODERS

1. Fix encoder to mounting bracket as shown in the picture.
2. Fix shaft by using a flexible coupling.
3. Connect the encoder following the wiring diagram described on the label.
4. Before supplying the encoder, make sure that power supply is the one indicated on the label.



MOUNTING INSTRUCTIONS FOR HOLLOW SHAFT ENCODERS

1. Fix the encoder to the shaft as shown in the picture by locking security dowel of fixing screws.
2. Fix the encoder by using an anti-rotation key or an appropriate spring.
3. Connect the encoder following the wiring diagram described on the label.
4. Before supplying the encoder, make sure that power supply of the installation is the one indicated on label.



INAPPROPRIATE ELECTRICAL OPERATIONS

- 1° Do not use supply sources that do not guarantee the galvanic insulation from the supply mains.
- 2° Do not position the output or the programming cables parallel to high-voltage lines or to power lines. Do not put the cables together in the same raceway. Remember to always observe this precaution in order to avoid problems of interference or of wrong reading of the encoder outputs.
- 3° In case some output channels of the encoder are not utilized connect the lines by using 1/4W resistors with a value going from 4.7kΩ to 10kΩ for power supplies between 5Vdc and 30Vdc. With NPN outputs connect the resistor between line and power supply. On the contrary with PNP outputs connect the 4.7kΩ 1/4W resistor between the channel and 0 Volt (not to the installation ground). With PUSH-PULL outputs connect a termination resistor between channel and power supply or to 0 Volt. With LINE-DRIVER output channels not used should be connected in a symmetric way, that means connect a 4.7kΩ 1/4W resistor between the two channels, a resistor between a channel and power supply and the last resistor between the second channel and 0 Volt.

4° If the encoder has command inputs not used, never leave them open. In programmable models this might cause not requested modifications in the encoder configuration. Basing on the type of input used (NPN or PNP) it is better to always connect the line as close as possible to the encoder, respectively by using PULL-UP and PULL-DOWN 1/4W resistors with a value going from 4.7kΩ to 10kΩ for power supplies between 5Vdc and 30Vdc.

- 5° Do not use cable longer than necessary. Cable length must be as short as possible in order to avoid electrical interferences.
- 6° Do not carry out connections, if in doubt as to their arrangement see wiring diagrams printed on the label of the encoder or refer to the data sheets of the product. Wrong wirings may cause faults to internal circuits of the encoder
- 7° Do not connect cable shield of the encoder to the 0 Volt.

The cable shield must always be connected to GROUND. The shield connection point to ground can be located on the encoder side or on user's side or on both sides. Anyway the best solution (minimum interference on user's side) will be found basing on the type of installation and must be carried out by the final user.

- 8° Do not choose NPN or PNP electronics (open collector or open emitter types) with cables longer than 6 m. In this case we suggest to use the PUSH-PULL or LINE-DRIVER interfaces that are useful also when the environment is subjected to many electromagnetic interferences (for example if the encoder is located near motors or near inverter controls).
- 9° As far as the programmable encoders are concerned, it is necessary to wait at least 10s before starting with the data collection or carrying out the programming operations. This time is necessary for the configuration of the internal electronics.



CUSTOM REALIZATIONS

For any special need ITALSENSOR S.r.l. is available to modify the standard products making customized versions and also to create new products by request. In this case please send all the technical specifications to our sales office.

PRODUCT TECHNICAL INFORMATION

For more information on the technical characteristics and the use of encoders, see the website www.italsensor.com or write to info@italsensor.com.