

ifm electronic



Installation instructions
for encoders

efector 400[®]

RM3xxx

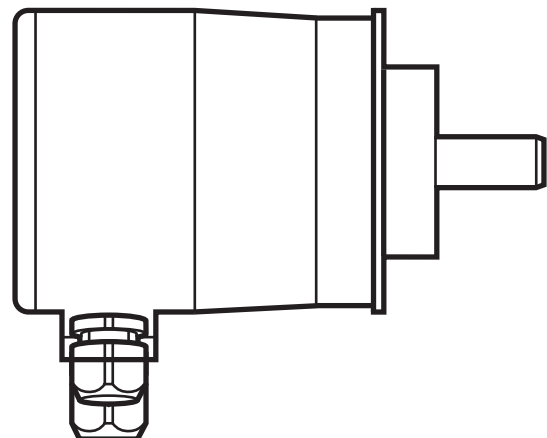
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80001597/02 08/2015



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1 Preliminary note

1.1 Notes on this document

This document applies to encoders with the following interfaces:

- Profibus
- ProfiNet
- CANopen
- DeviceNet

It is part of the device and contains information about the correct handling of the product.

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This document is intended for qualified electricians. These specialists are people who are qualified by their training and their experience to recognise and to avoid possible hazards that may be caused during operation of the device.

- ▶ Read this document before using the device.
- ▶ Keep this document during the service life of the device.

1.2 Symbols used

- ▶ Instructions
- > Reaction, result
- [...] Designation of keys, buttons or indications
- Cross-reference



Important note

Non-compliance may result in malfunction or interference.



Information

Supplementary note

2 Safety instructions

2.1 General

- ▶ Observe these operating instructions.
- ▶ Adhere to the warning notes on the product.

Non-observance of the instructions, operation which is not in accordance with use as prescribed below, wrong installation or incorrect handling can affect the safety of operators and machinery.

2.2 Installation and connection

The device must only be installed, connected and put into operation by a qualified electrician as the safe function of the device and machinery is only guaranteed when installation is correctly carried out.

The installation and connection must comply with the applicable national and international standards. Responsibility lies with the person installing the unit.

Attention: This product complies with the standard EN61000-6-4. The unit may cause radio interference in domestic areas. The user must take appropriate measures to avoid this interference, if necessary.

3 Functions and features

The encoder converts rotary movements into digital numerical values. Each revolution and each angular position of the revolutions is provided as a numerical value.

These values allow angular movements to be measured and positions and number of revolutions to be determined.



Products from ifm electronic gmbh are usually individual components of larger installations. These applications require tests of the entire installation and do not only depend on the specification of these components. The notes in these instructions apply only to the product from ifm electronic and not to the entire installation. If the product is used in a non-intended way, this will be at your own risk.

4 Installation

- ▶ Disconnect power.
- ▶ Ensure that the machine stands still.
- ▶ The drive must not be started during installation.

- Do not hit the shaft; do not use a file or similar tool on the shaft: risk of destruction!



This product is a precision measuring device. Therefore it has to be handled with care by trained staff. The following warnings apply to influences outside the limit values indicated in the product data sheet.

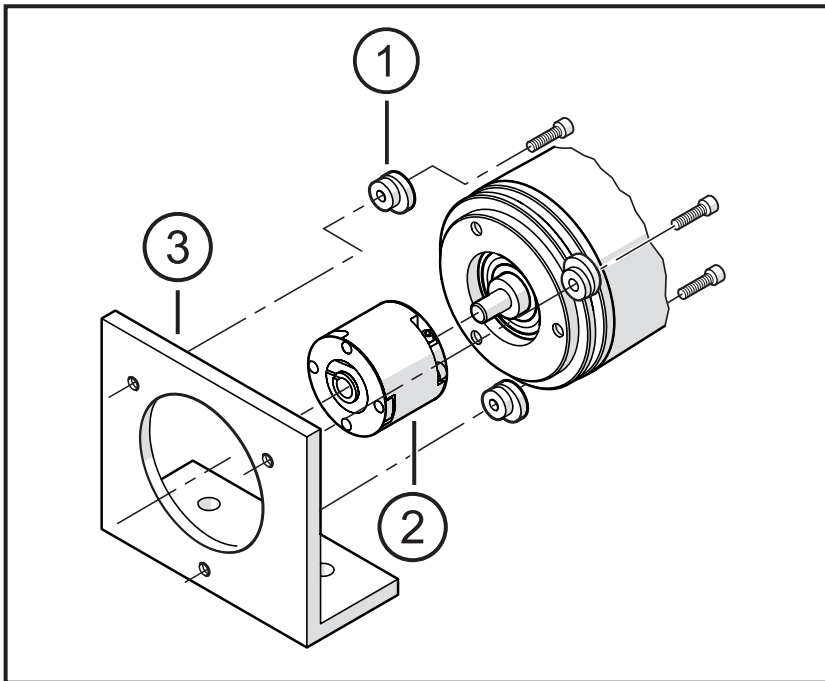
Damage to the product can be caused by:

- electrostatic discharge while touching the electronics
- too high forces on the shaft
- humidity and chemical liquids (do not connect any cables oriented upwards)
- extreme temperatures
- too high vibrations and shocks
- short circuit or too high an operating voltage
- impact, shock or any other physical forces

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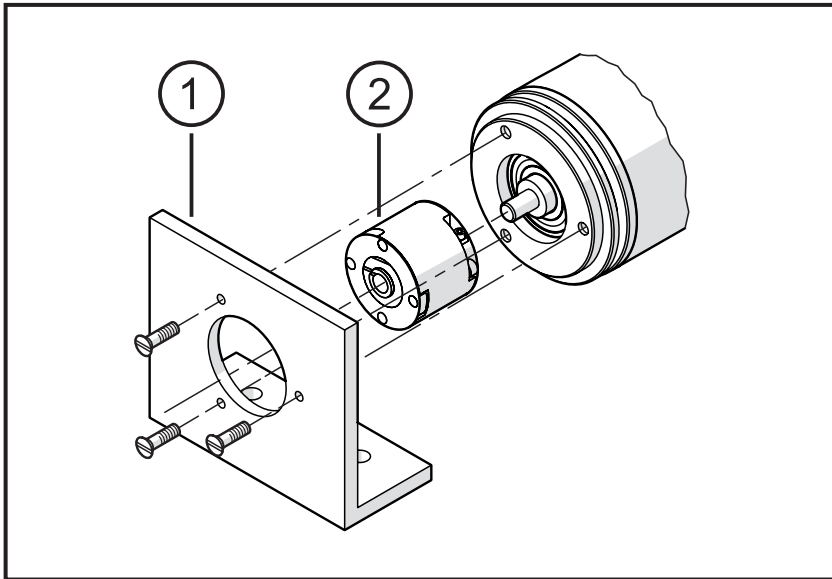
4.1 Mounting drawings

4.1.1 Type with synchro flange



- 1: fastening clamp (3 pieces) E60041
2: coupling E60063
3: angle bracket E60034

4.1.2 Type with clamp flange

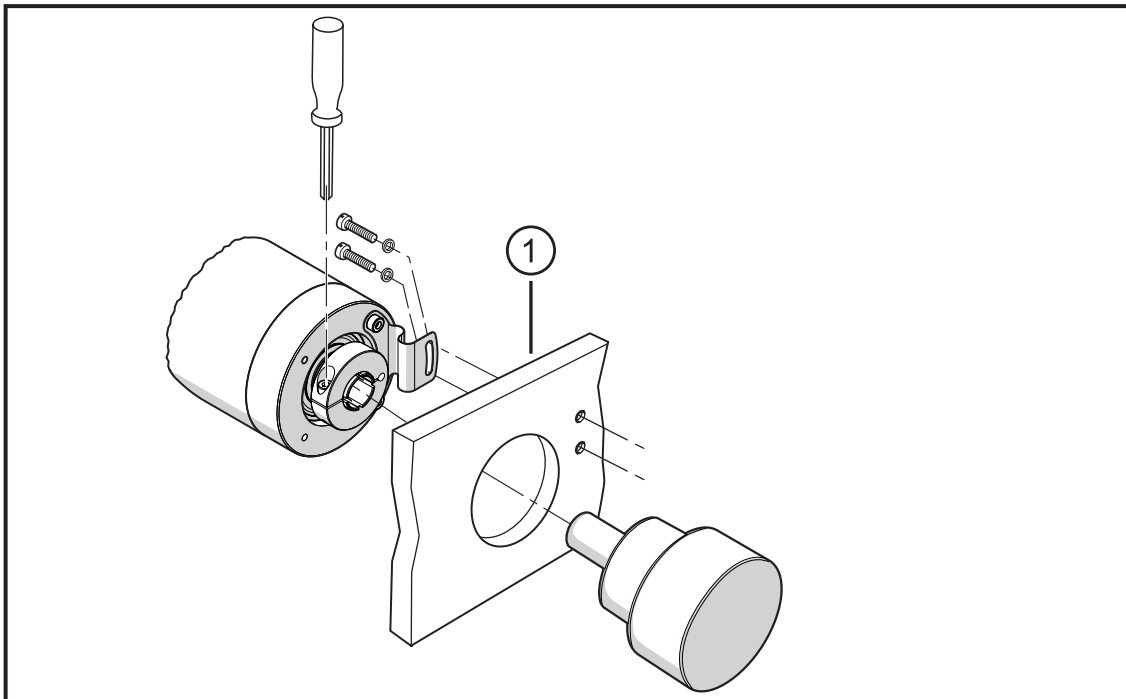


1: angle bracket

2: coupling

- ▶ Minimise the displacement between the two shafts.
- ▶ Avoid the following mistakes:
 - radial and angular displacement
 - axial movement
- ▶ To minimise the forces on the shaft use a flexible shaft coupling with guiding slot for the installation.

4.1.3 Type with hollow shaft



1: angle bracket



- ▶ Verify the radial displacement after installation and with slow rotation. The displacement must not be larger than 0.5 mm since otherwise the life cycle of the encoder may be shortened or the system accuracy impaired.

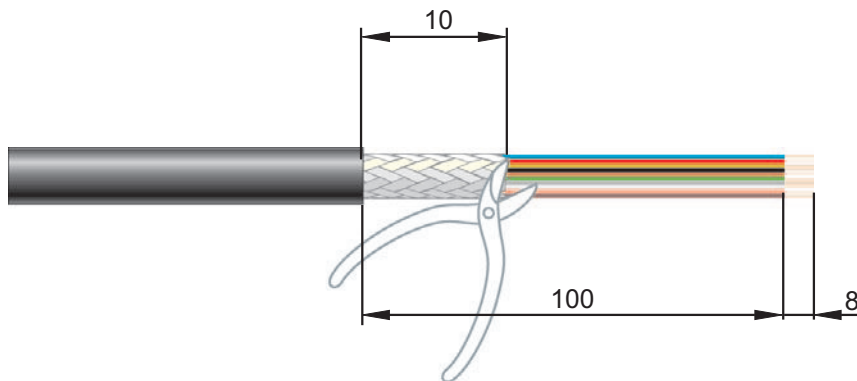
4.2 Cable installation

- ▶ Use a screened, twisted-pair cable.
- ▶ Connect the screen on both sides and ground it at one spot.
- ▶ Keep potential interfering sources (magnets, heat sources etc.) at a distance.
- ▶ Ensure that the cable length does not exceed the value indicated in the data sheet.
- ▶ Ensure that the bending radius (R) of the cable does not exceed the permissible minimum value.



Bending radius of the firmly laid cable: $R \geq 40 \text{ mm}$
Bending radius of the freely laid cable: $R \geq 100 \text{ mm}$

- ▶ Consider all wires to be live. Insulate all unused wires.



- ▶ Strip the cable according to the indications in the figure.
- ▶ Bend the cable screen backwards over the sheathing.
- ▶ Open the terminal cover and attach the cable entry by screwing.
- ▶ Put the whole cable into the cable gland and tighten the screw.

5 Electrical connection



- ▶ Disconnect power.
- ▶ Connect the unit → Device manual → www.ifm.com

Type with Profibus interface	Type with CANopen or DeviceNet interface
▶ Connect the cables according to the device manual. Insulate all unused wires. Tighten all terminal screws, also the unused ones.	

Type with ProfiNet interface			
	1: Tx + 2: Rx + 3: Tx - 4: Rx -		1: US (10...30 V DC) 2: not connected (n.c.) 3: GND (0V) 4: not connected (n.c.)
Ethernet: 4-pole socket, D-coded		Power supply: 4-pole connector, A-coded	

6 Technical data



Device manual, data sheets, accessories and approvals can be downloaded at www.ifm.com

7 Maintenance, repair and disposal

- ▶ Dispose of the sensor in accordance with the national environmental regulations.