OPERATING INSTRUCTIONS

DGS80

Incremental encoders

SICK
Sensor Intelligence.

Described product

DGS80

Manufacturer

SICK AG
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Legal information

Original document

This document is an original document of SICK AG.

For use in NFPA 79 applications only.
Interconnection cables and accessories are available from SICK.
Certifications not valid for all types. See type label on the product or product data sheet on www.sick.com.

1 About this document

1.1 Generally applicable notes

Precise alignment and centering of the encoder during installation reduces shaft misalignment and side-loading which decreases the stress on the encoder bearings and stator coupling.

To avoid straining the tether assembly, always mount the encoder stator coupling assembly first and then tighten the hollow shaft clamping ring on the encoder.

In the case of encoders with a cable outlet, the braided screen is connected to the housing.

EMC considerations make it mandatory to connect the device housing or cable screen to ground. This is achieved by connecting the cable's braided screen to ground. The braided screen should be connected over a large area.

Please obey the maximum ambient temperature in the application. The product has a maximum ambient temperature rating of +85 °C / +185 °F.

CAUTION
Encoder cleaning practices (pressure, distance, temperature) must not exceed the IP rating of the device.

2 Safety information

2.1 Safety notes

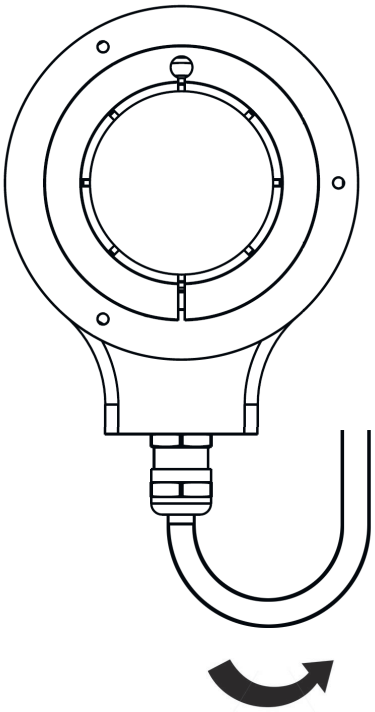
NOTICE

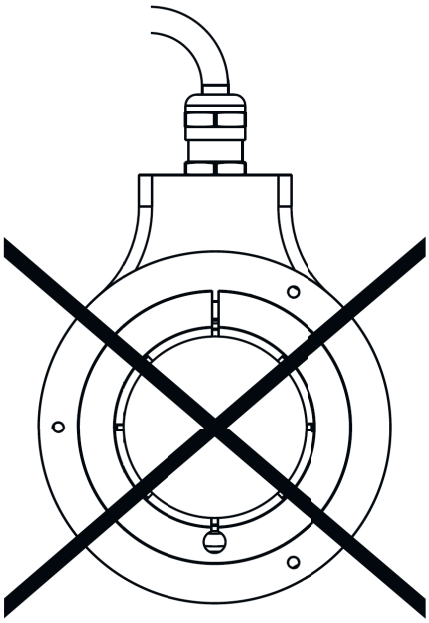
- The encoders should only be mounted by a specialist with electrical engineering knowledge.
- The encoder may only be used for the purpose for which it was intended.
- Observe the relevant national work safety regulations as specified by trade associations.
- During mounting, disconnect all applicable devices, machinery, and systems from the supply voltage.
- Never modify electrical connections while the encoder is powered on as this may damage the equipment.
- Avoid shocks or impacts to the encoder shaft to prevent ball bearing damage.
- Provide cables with strain relief, otherwise the encoder and cables could become damaged.
- Keep the area around the encoder clear to avoid collisions with objects as these can damage the encoder.
- To ensure the encoders function properly, they must be connected to an EMC screen (fitted on both sides). encoder.
- The device is intended to be powered by an industrial SELV or PELV power supply.
- The sensors have been qualified up to a maximum cable length of 30 meters according to standard EN 62000-6-2. Larger cable lengths are technically possible, but were not assessed under EMC aspects.

3 Mounting

3.1 Cable Routing

- Align cable outlet / connector downwards to avoid moisture/liquid ingress into connector.
- Loop the cable back upwards to create a drip loop to carry liquids away from the encoder connection.
- Mind the permissible bending radius of the cable, 51mm.





3.2 Mounting the encoder

- Lock the shaft the encoder is to be mounted on (1) to prevent rotation.
- Loosen the M4 x 16 UNI5931 screw (2) on the clamping ring (3).
- If required, insert the collet (4) into the encoder shaft (5), check the diameter of the drive shaft (1).
- Check the shaft length on which the encoder is to be mounted (1).
- Slide the encoder (6) onto the drive shaft (1).
- Ensure that the encoder shaft (5) or the collet (4) does not touch the customer application.
- If required, mount stator coupling accessories (see figure 3 and figure 4) to the encoder housing using the M3 x 5 DIN7500 screws, tighten M3 screws.
  Tightening torque = 1.1Nm
- Ensure that stator coupling is attached to the application in such a way that it is not possible for the encoder to rotate.
- Ensure that the stator coupling is not pre-stressed.
- Tighten the M4 screw (2) slightly on the clamping ring (3) (**tightening torque 0.2 Nm**), then tighten fully.
  Tightening torque = 2.5 Nm
- With the power disconnected/switched off, connect encoder signals to application.
- Switch on the power and check encoder functionality.

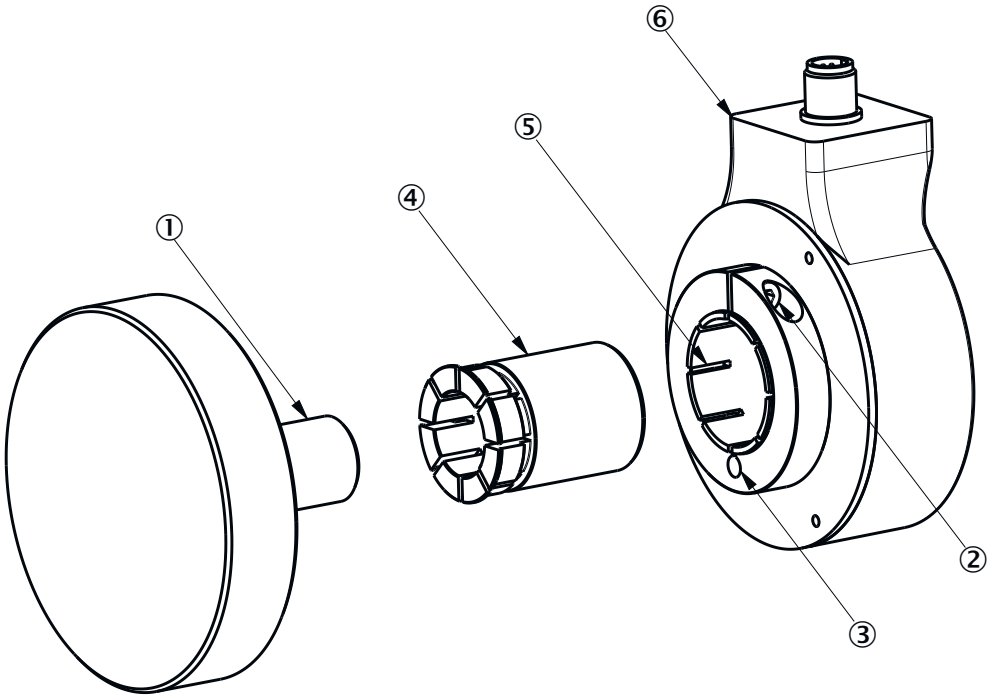


Figure 1: Encoder installation

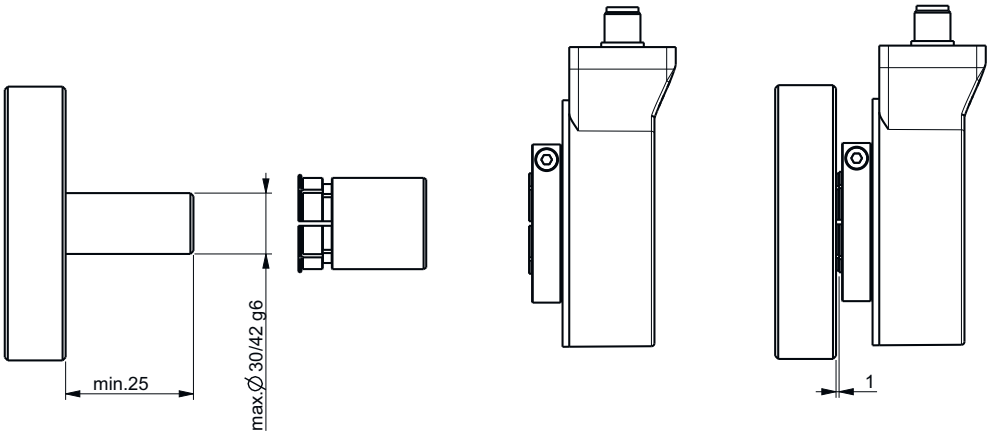


Figure 2: Mounting distances

3.3 Stator couplings

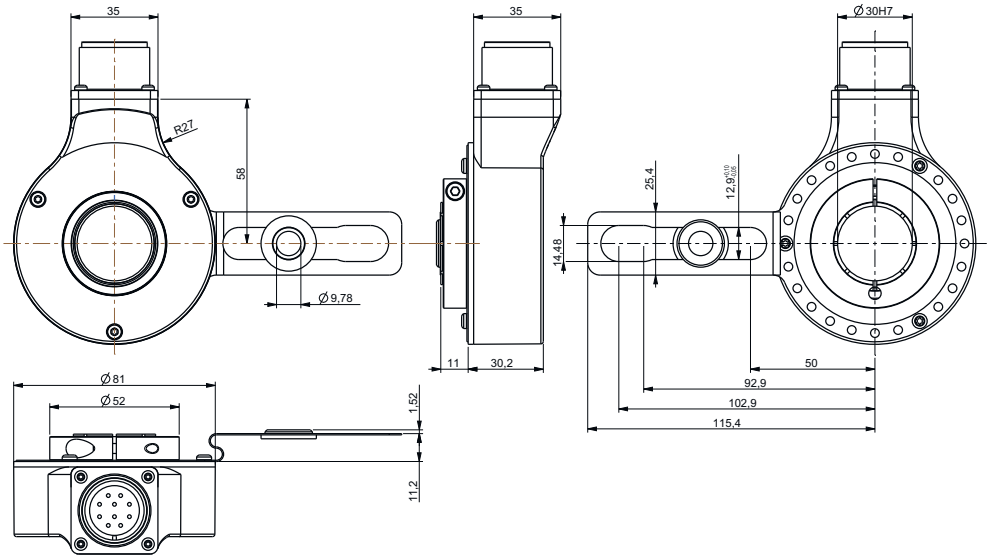


Figure 3: 8.5” C-Face stator coupling option A

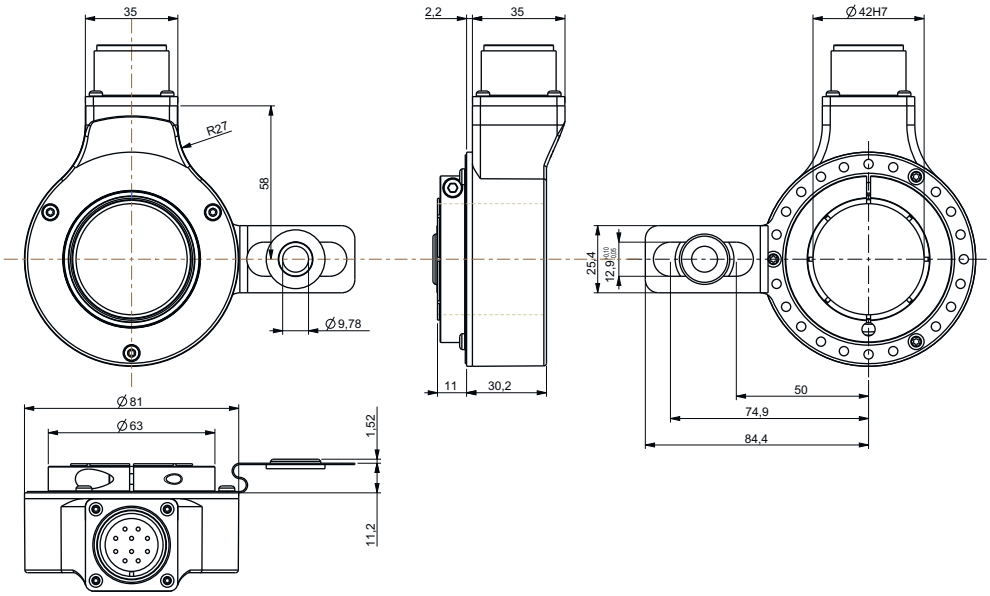


Figure 4: 4.5” C-Face stator coupling option B

4 Electrical installation

4.1 PIN and wire assignment

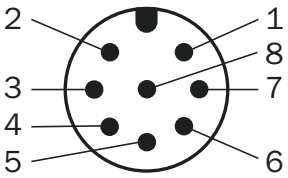


Figure 5: Male connector M12, 8-pin

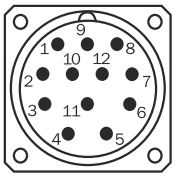


Figure 6: Male connector M23, 12-pin

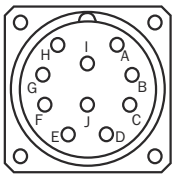


Figure 7: Male connector MS, 10-pin

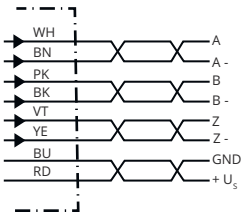


Figure 8: Cable

CAUTION
Check whether the signal quality of the encoder is sufficient depending on the output frequency and supply voltage of the encoder as well as the input wiring of the operating concept.

Table 1: PIN assignment

wire colors (cable connection)	PIN Male connector M12, 8-pin	PIN Male connector M23, 12-pin	PIN Male connector MS, 10-pin	Signal TTL / Universal 6-channel	Explanation
Brown	1	6	H	A-	Signal wire
White	2	5	A	A	Signal wire
Black	3	1	I	B-	Signal wire
Pink	4	8	B	B	Signal wire
Yellow	5	4	J	Z-	Signal wire
Purple	6	3	C	Z	Signal wire
Blue	7	10	F	GND	Ground connection of the encoder
Red	8	12	D	$+U_S$	Supply voltage
-	-	2	E	n.c.	Not connected
-	-	7	-	n.c.	Not connected
-	-	-	G	Case	Encoder housing
-	-	9	-	n.c.	Not connected
-	-	11	-	n.c.	Not connected
Shield				Shield	Shield (connected with housing on the encoder side)

DANGER
PIN assignment valid for standard encoders only. Please use the appropriate data sheet for customer-specific encoders.

- In order to achieve a high signal quality, we recommend a differential evaluation of the encoder signals.
- For encoders with connector, the unused signals must not be connected to the customer cabling.

5 Annex

5.1 Conformities and certificates

You can obtain declarations of conformity, certificates, and the current operating instructions for the product at www.sick.com. To do so, enter the product part number in the search field (part number: see the entry in the “P/N” or “Ident. no.” field on the type label).

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