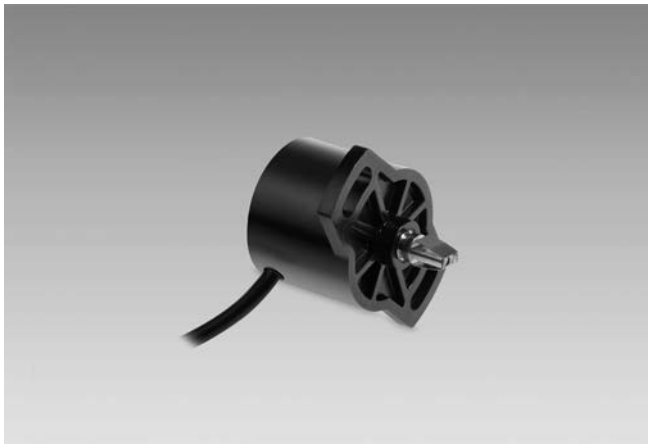
Absolute encoders - bus interfaces

Solid shaft

Magnetic singleturn encoders 14 bit, CANopen®

EAM280 - CANopen®



EAM280 - solid shaft CANopen®

Features

- **Encoder singleturn / CANopen®**
- **Contactless measuring method**
- **Robust magnetic sensing**
- **Simple mouting, long service life**
- **Designed for harsh environmental conditions**
- **Operating temperature -40...+85 °C**
- **Resolution 14 bit**
- **Redundant version available**
- **Protection IP 65 or IP 67**

Optional

- **DEUTSCH or AMP connector on cable end on request**

Technical data - electrical ratings

Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption typ.	14 mA (24 VDC, w/o load)
Initializing time	≤15 ms after power on
Interface	CANopen®
Update time	20 ms
Function	Singleturn
Profile conformity	CANopen® CiA communication profile DS 301, LSS profile DSP 305, device profile DS 406
Measuring range	0...360°
Steps per revolution	≤16384 / 14 bit
Linearity	±0.25 % FS
Absolute accuracy	±1 ° (+25 °C)
Sensing method	Magnetic
Code sequence	CW: ascending values with clockwise sense of rotation; looking at flange
Output stages	CAN-Bus, LV (3.3 V) compatible ISO 11898
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3

Technical data - mechanical design

Size (flange)	ø48 mm, housing 28.6 mm
Shaft type	ø6 mm, solid shaft with flat Push-on coupling
Protection DIN EN 60529	IP 65, IP 67
Operating speed	≤3000 rpm
Starting torque	≤0.5 Nm (+25 °C)
Admitted shaft load	≤10 N axial ≤10 N radial
Materials	Housing: plastic (reinforced) Shaft: stainless steel
Operating temperature	-40...+85 °C
Service life	≥20 million revolutions
Relative humidity	95 %
Resistance	DIN EN 60068-2-6 Vibration 20 g, 10-2000 Hz DIN EN 60068-2-27 Shock 50 g, 11 ms
Temperature changes	EN60068-2-14, -40…+85 °C, 5 cycles
Weight approx.	30 g
Connection	Cable 0.3 m, radial Cable 0.3 m with connector M12

EAM280 - CANopen®

Part number

EAM280-SF		.				14	000.	A

Operating temperature
- A -40...+85 °C

Resolution singleturn
- 14 14 bit

Voltage supply / signals
- C5 10...30 VDC / CANopen® (DS406) redundant sensing
- C6 10...30 VDC / CANopen® (DS406)

Connection
- M Cable 0.3 m, radial
- S Cable 0.3 m with connector M12, 5-pin

Protection
- 5 IP 65
- 7 IP 67

Solid shaft
- 1 ø6 x 12.3 mm, with flat 1 mm
- 9 ø6 x 12.3 mm, with flat 9 mm
- P Push-on coupling

Other shaft types on request.
Other cable lengths with assembled DEUTSCH or AMP connector on request.

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Data transfer

PDO Mapping

ID10 / PDO 1

LSB	...	...	MSB
Byte 0	1	2	3

Channel 1 (inclination angle) = 0 → 3600_{dec}

Angle increasing in size and value

PDO Mapping (redundant sensing)

ID10 / PDO 1

LSB	...	...	MSB
Byte 0	1	2	3

Channel 1 (inclination angle) = 0 → 3600_{dec}

Angle increasing in size and value

ID10 / PDO 2

LSB	...	...	MSB
Byte 0	1	2	3

Channel 2 (inclination angle) = (3600_{dec} → 0)

Angle increasing in size and decreasing in value

CANopen® features

Bus protocol	CANopen®
Device profile	CANopen® - CiA DS 406
Operating modes	- Event-Time - Synchronously triggered (Sync) - Timer-driven (Async)
Node Monitoring	Heartbeat (default: disabled)
Programmable parameters	Operating modes Rotating direction Scaling Zero position
Default	Baud rate 250 kbit/s Node ID 10 (0Ah) Timer-driven (Async) 100 ms

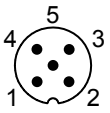
Terminal assignment

Cable

Core color	Signal	Description
White	0 V	Voltage supply
Brown	+Vs	Voltage supply
Green	CAN_H	Bus (dominant HIGH)
Yellow	CAN_L	Bus (dominant LOW)
Grey	CAN_GND	CAN ground
Cable data: 5 x 0,25 mm^2		

Cable with flange connector M12, male, 5-pin, A-coded

Pin	Signal	Description
1	CAN_GND	CAN ground
2	+Vs	Voltage supply
3	0 V	Voltage supply
4	CAN_H	Bus (dominant HIGH)
5	CAN_L	Bus (dominant LOW)

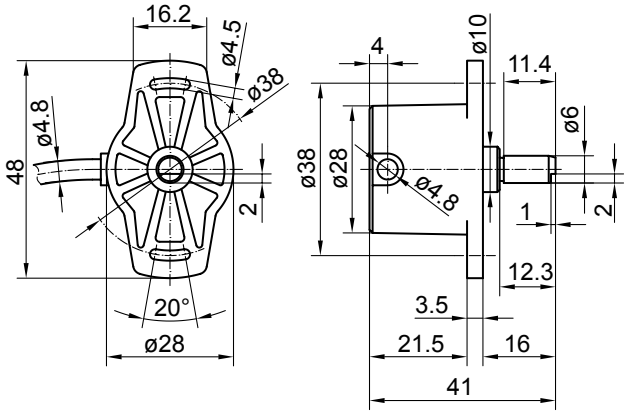


Terminals 0 V and GAN_GND are internally connected and identical in their functions.

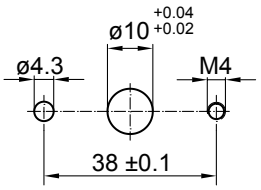
EAM280 - CANopen®

Dimensions

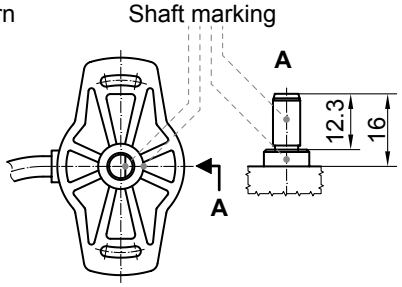
Shaft ø6 x 12.3 mm with flat 1 mm



Recommended hole pattern
2x 4.3 or 2x M4

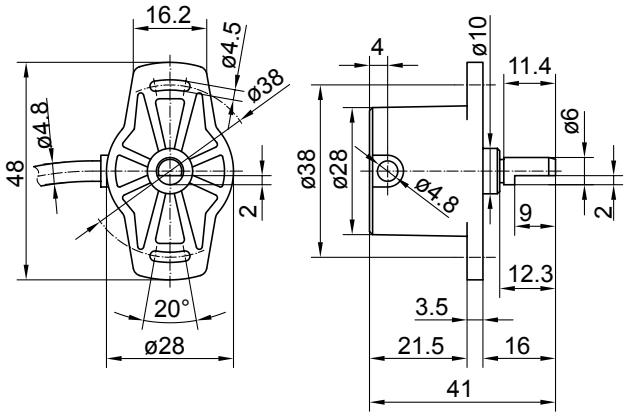


Shaft marking

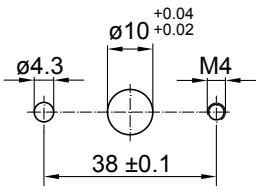


When the shaft marking points opposite to the cable outlet, the sensor is in zero degree position.

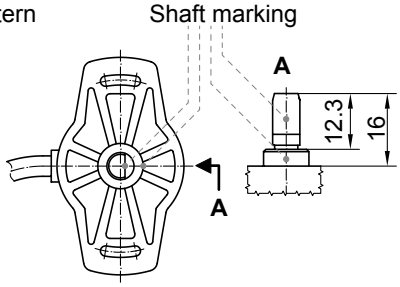
Shaft ø6 x 12.3 mm with flat 9 mm



Recommended hole pattern
2x 4.3 or 2x M4

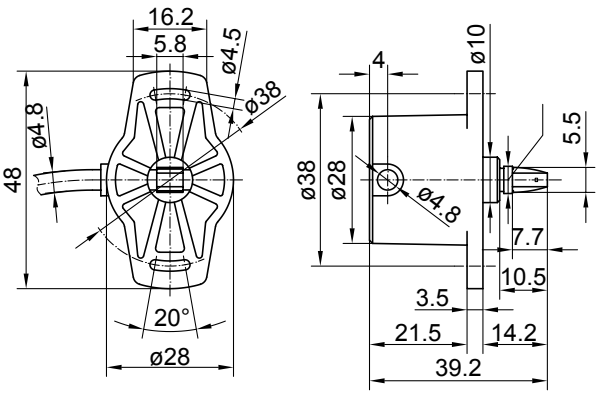


Shaft marking

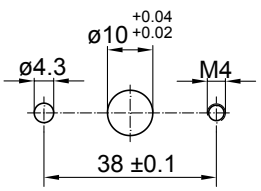


When the shaft marking points opposite to the cable outlet, the sensor is in zero degree position.

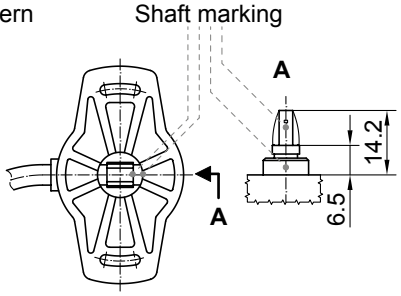
Shaft ø6 with push-on coupling



Recommended hole pattern
2x 4.3 or 2x M4

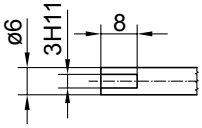


Shaft marking



When the shaft marking points opposite to the cable outlet, the sensor is in zero degree position.

Recommended dimension of driving shaft
Parallel offset >0.05 mm



Absolute encoders - bus interfaces

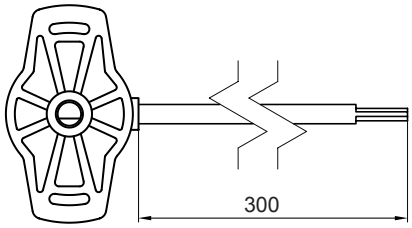
Solid shaft

Magnetic singleturn encoders 14 bit, CANopen®

EAM280 - CANopen®

Dimensions

Cable



Câble with connector M12