

EAM280 - CANopen®

Solid shaft

Magnetic singleturn encoders 14 bit, CANopen®

Overview

- Encoder singleturn / CANopen®
- Contactless measuring method, compact design
- Robust magnetic sensing
- Simple mounting, long service life
- Designed for harsh environmental conditions
- Operating temperature -40...+85 °C
- Rapid temperature changes protection
- Redundant version available
- Protection IP 65 or IP 67
- Connection cable or cable with M12



Technical data

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	EN 61000-6-2
Emitted interference	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 EN 60529	IP 65 IP 67
Operating speed	≤3000 rpm
Starting torque	≤0.5 Nm (+25 °C, variations may occur at other temperatures)
Admitted shaft load	≤10 N axial ≤10 N radial
Material	Housing: plastic (reinforced) Shaft: stainless steel
Operating temperature	-40...+85 °C
Service life	≥20 million revolutions (depends on the type of shaft load)
Relative humidity	95 %
Resistance	EN 60068-2-6 Vibration 20 g, 10-2000 Hz EN 60068-2-27 Shock 50 g, 11 ms
Temperature changes	EN 60068-2-14, -40...+85 °C, 5 cycles
Weight approx.	30 g
Connection	Cable 0.3 m, radial Cable 0.3 m with connector M12

Optional

- DEUTSCH or AMP connector on cable end on request

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.

CANopen® features

Device profile	Communication profile DS 301 V4.2 Encoder profile DS 406 V4.0.2 LSS service profile DS 305 V3.0
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 Timer-driven (Async) 100 ms Channel 1: Node ID 10 (0Ah) / PDO1 Channel 2: Node ID 10 (0Ah) / PDO2

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)

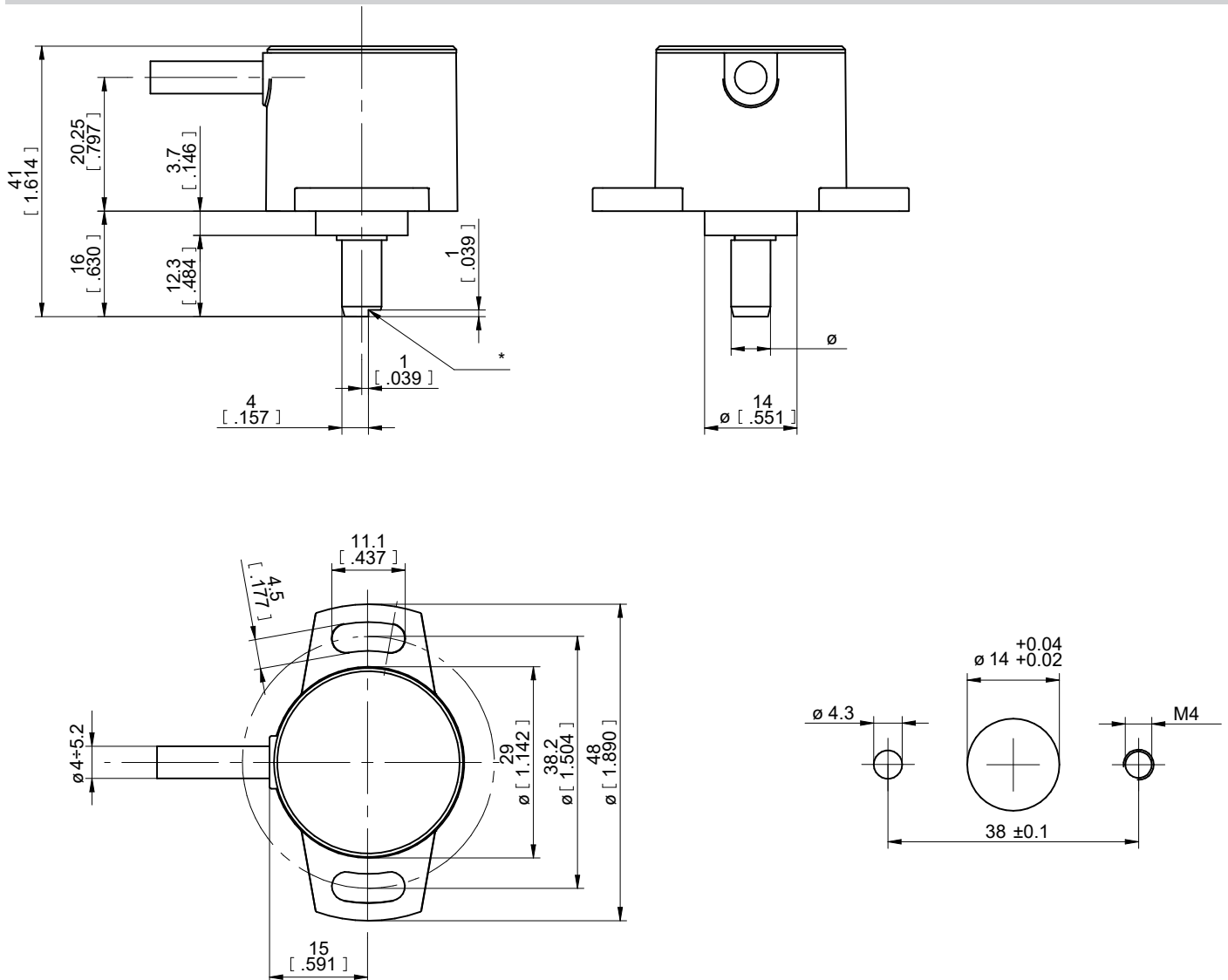
ID10 / PDO 1			
LSB	...	...	MSB
Byte 0	1	2	3
Channel 1 (inclination angle) = 0 → 3600 _{dec} Angle increasing in size and value			
ID10 / PDO 2			
LSB	...	...	MSB
Byte 0	1	2	3
Channel 2 (inclination angle) = (3600 _{dec} → 0) Angle increasing in size and decreasing in value			

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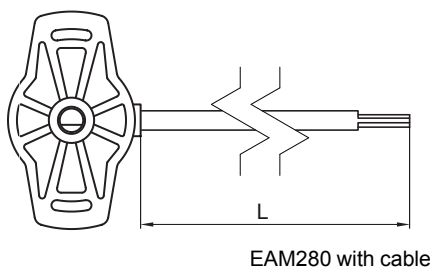
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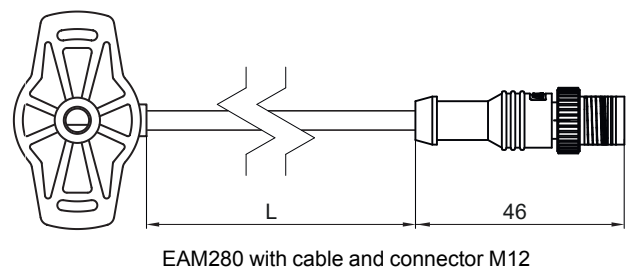
Dimensions



* When the shaft marking points opposite to the cable outlet, the sensor is in zero degree position
EAM280 - shaft $\phi 6 \times 12.3$ with flat 1 mm



EAM280 with cable



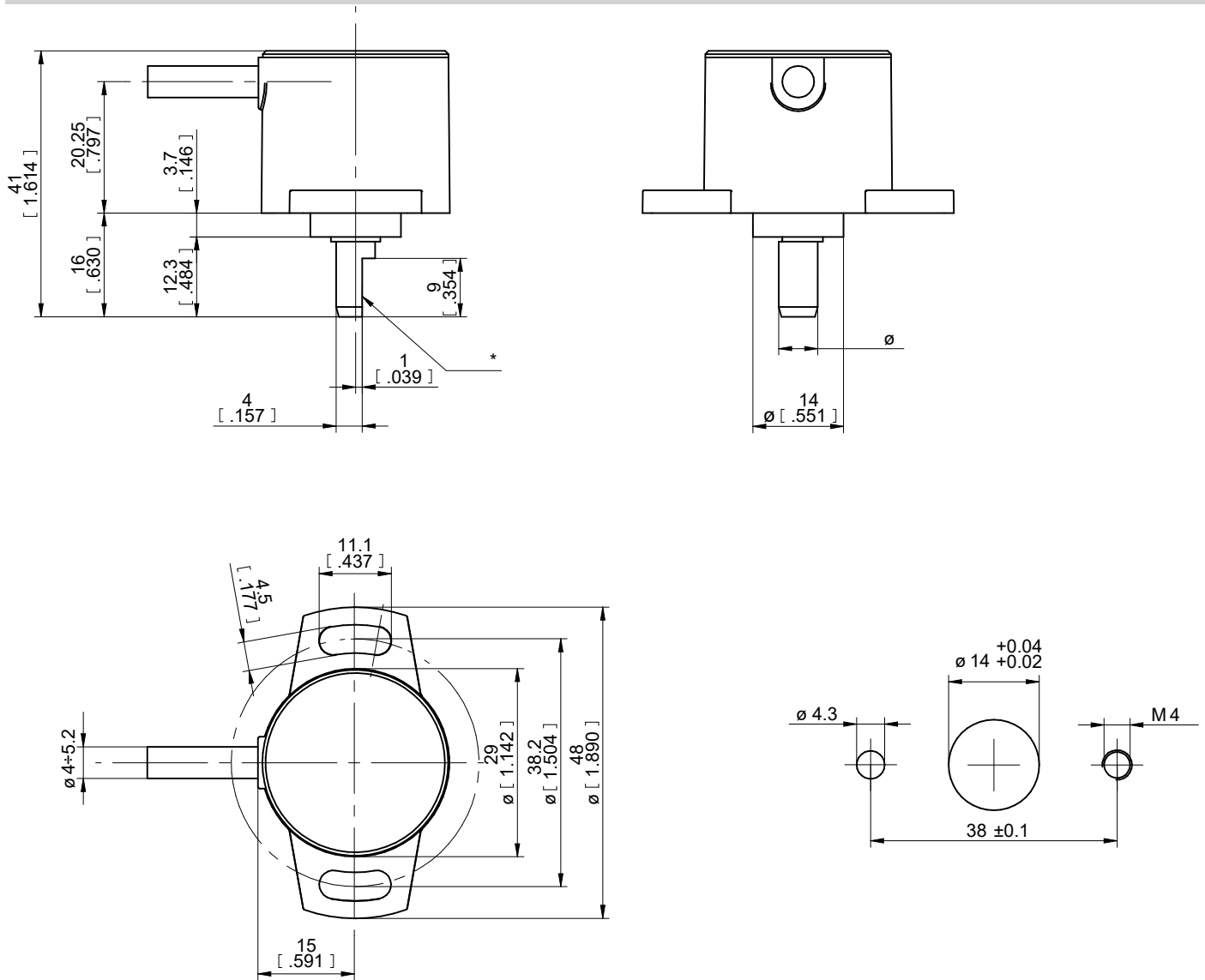
EAM280 with cable and connector M12

EAM280 - CANopen®

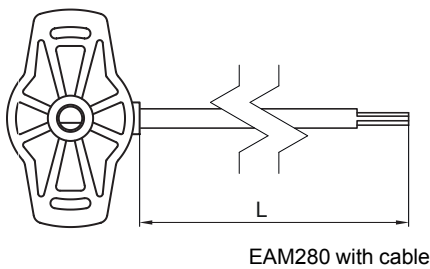
Solid shaft

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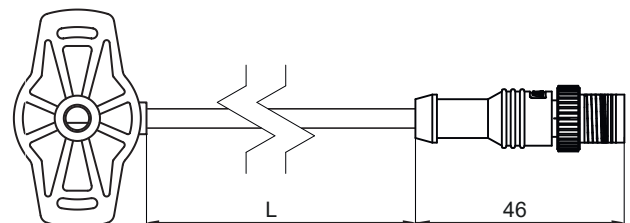
Dimensions



* When the shaft marking points opposite to the cable outlet, the sensor is in zero degree position
EAM280 - shaft $\varnothing 6 \times 12.3$ with flat 9 mm



EAM280 with cable



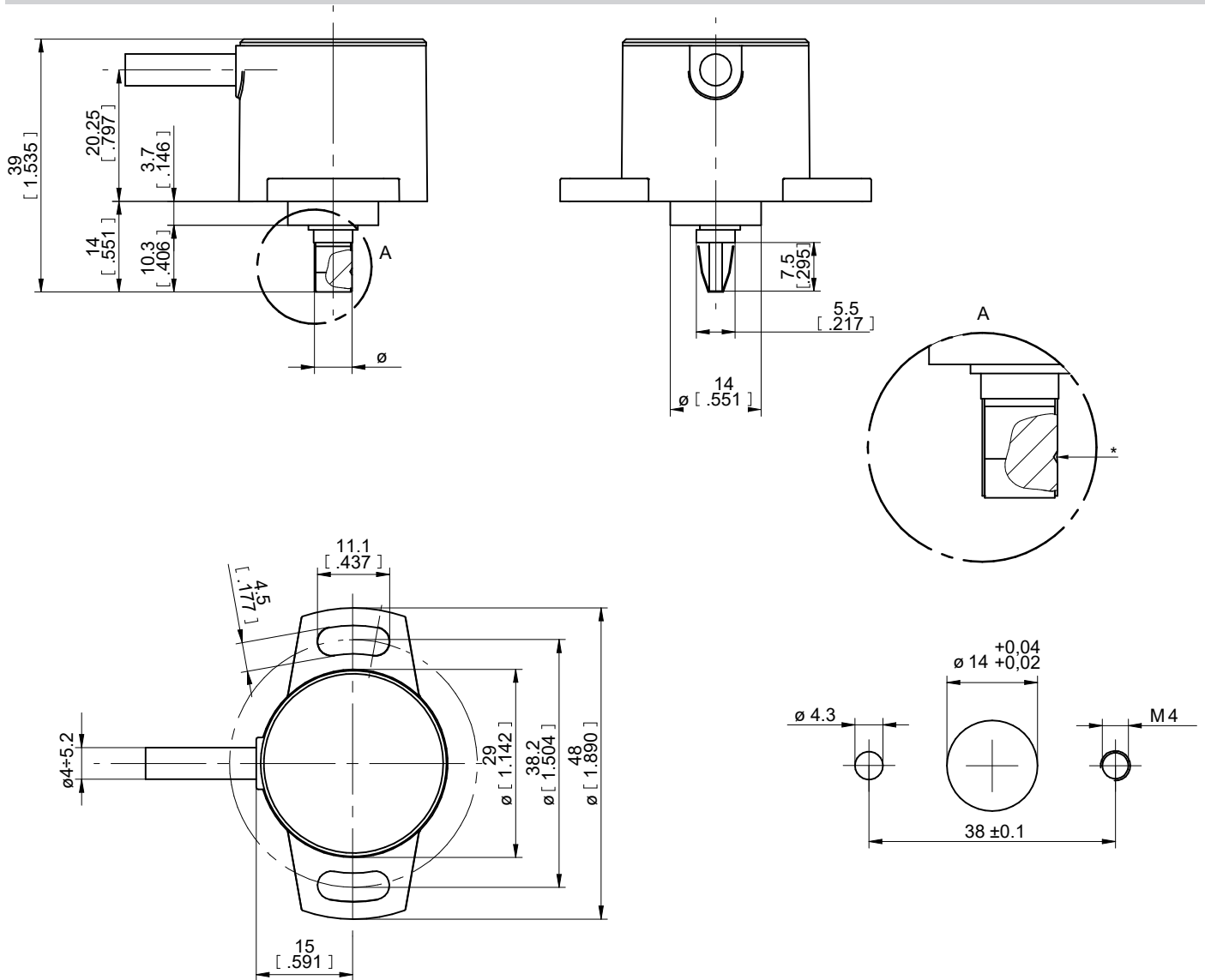
EAM280 with cable and connector M12

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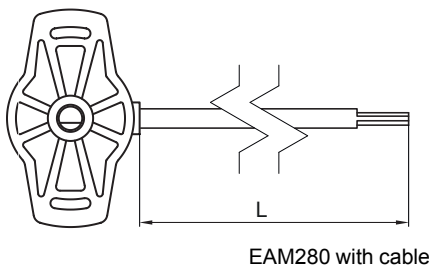
Solid shaft

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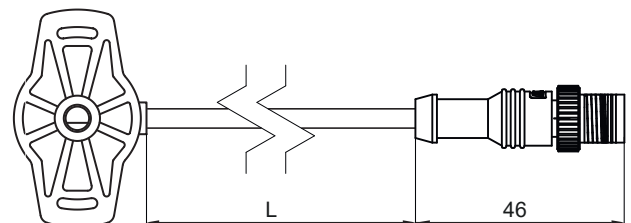
Dimensions



* When the shaft marking points opposite to the cable outlet, the sensor is in zero degree position
EAM280 - shaft $\varnothing 6 \times 12.3$ with push-on coupling



EAM280 with cable



EAM280 with cable and connector M12

Ordering reference											
			EAM280	-	S	F	##	.	#	##	##
Product			EAM280								
Shaft type			Solid shaft		S						
Flange (shaft)			Flat mounting flange, ø48 mm		F						
Shaft			Push-on coupling		P						
			ø6 x 12.3 mm, with flat 1 mm		1						
			ø6 x 12.3 mm, with flat 9 mm		9						
Protection class			IP 65		5						
			IP 67		7						
Connection			Cable radial, 0.3 m		M						
			Cable 0.3 m with connector M12, 5-pin, A-coded		S						
Voltage supply / interface			10...30 VDC / CANopen (DS406) redundant (Dual-sensor design)		C5						
			10...30 VDC / CANopen (DS 406)		C6						
Resolution Singleturn			14 Bit		14000						
Operating temperature			-40...+85 °C		A						