

EAM300-S - CANopen®

Solid shaft with synchro flange

Magnetic single- or multiturn encoders 14 bit ST / 18 bit MT

Overview

- Encoder single- or multiturn / CANopen®
- Precise magnetic sensing
- Angular accuracy up to $\pm 0.15^\circ$
- High protection up to IP 67
- High resistance to shock and vibrations
- Electronic gear function
- Radial or axial plug and cable connection



Technical data

Technical data - electrical ratings

Voltage supply	10...30 VDC
Consumption typ.	20 mA (24 VDC, w/o load)
Initializing time	≤ 170 ms after power on
Data currency	< 1 ms
Interface	CANopen® CANopen®-Lift
Function	Multiturn Singleturn
Profile conformity	CANopen® CiA communication profile DS 301, LSS profile DSP 305, device profile DS 406, DS 417
Steps per revolution	≤ 16384 / 14 bit
Number of revolutions	≤ 262144 / 18 bit
Absolute accuracy	$\pm 0.15^\circ$ (+20 $\pm 15^\circ$ C) $\pm 0.25^\circ$ (-40...+85 $^\circ$ 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 (cable length < 30 m, no connection to DC network) EN 61000-6-4
Approval	UL approval / E217823

Technical data - mechanical design

Size (flange)	$\varnothing 30$ mm
Shaft type	$\varnothing 5 \times 12$ mm solid shaft $\varnothing 6 \times 12$ mm solid shaft $\varnothing 8 \times 12$ mm solid shaft
Flange	Synchro flange
Protection EN 60529	IP 65 (without shaft seal) IP 67 (with shaft seal)
Operating speed	≤ 6000 rpm
Starting torque	≤ 0.75 Ncm (+20 $^\circ$ C, IP 65) ≤ 1.1 Ncm (+20 $^\circ$ C, IP 67)
Moment of inertia	0.98 gcm ²
Admitted shaft load	≤ 10 N axial ≤ 10 N radial
Material	Housing: steel zinc-coated Flange: aluminium Shaft: stainless steel
Operating temperature	-40...+85 $^\circ$ C (see general information)
Relative humidity	95 %
Resistance	EN 60068-2-6 Vibration 30 g, 10-2000 Hz EN 60068-2-27 Shock 500 g, 1 ms
Weight approx.	150 g
Connection	Flange connector M12, 5-pin Cable 2 m

Optional

- Terminating resistor

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General information

Self-heating interrelated to speed, protection, attachment method and ambient conditions as well electronics and supply voltage must be considered for precise thermal dimensioning. Self-heating is supposed to approximate 6 K (standstill) and additionally for movement 1.5 K per 1000 rpm (IP 65) or 3.5 K per 1000 rpm (IP 67). Operating the encoder close to the maximum limits requires measuring the real prevailing temperature at the encoder flange.

Terminal assignment

Cable

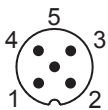
for connection reference **-L** and **-U**

Core colour	Signal
brown	+Vs
white	0 V
green	CAN_H
yellow	CAN_L
grey	CAN_GND
pink	n.c.
blue	n.c.
red	n.c.
Screen: connected to housing	
Cable data: 8 x 0.09 mm ²	

Flange connector M12, 5-pin

for connection reference **-N** and **-V**

Pin	Signal
1	CAN_GND
2	+Vs
3	0 V
4	CAN_H
5	CAN_L
Screen: connected to housing	



CANopen® features

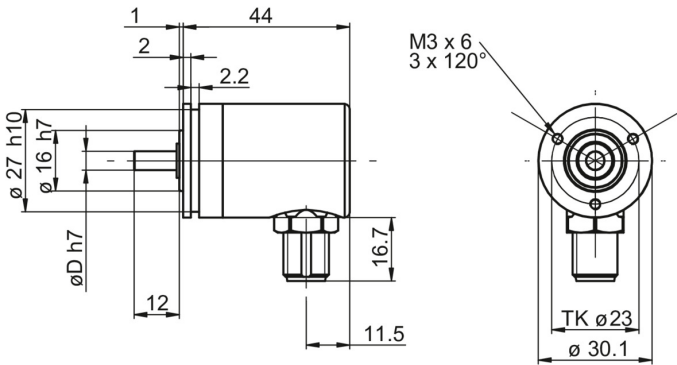
Operating modes	Timer-driven (Event-Time) Synchronously triggered (Sync)
Node Monitoring	Heartbeat Node guarding
Programmable parameters	Operating modes Total resolution Scaling Electronic gear function
Diagnosis	Multiturn sensing Position error Temperature exceeding Speed exceeding
Default	50 kbit/s, Node ID 1 (DS406) 250 kbit/s, Node ID 4 (DS417)

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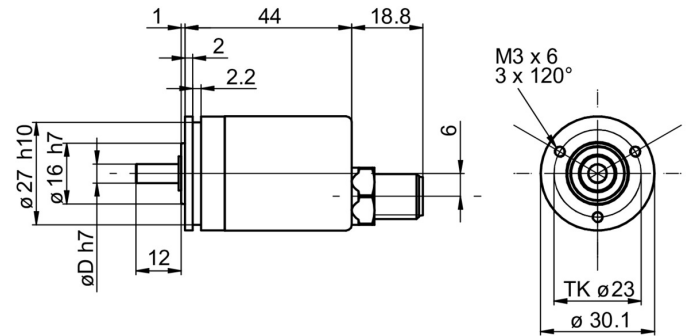
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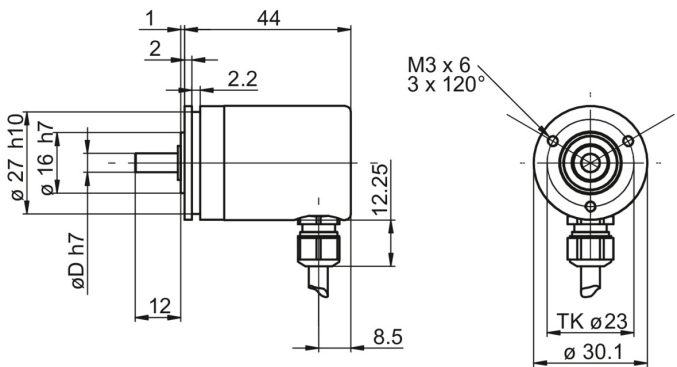
Dimensions



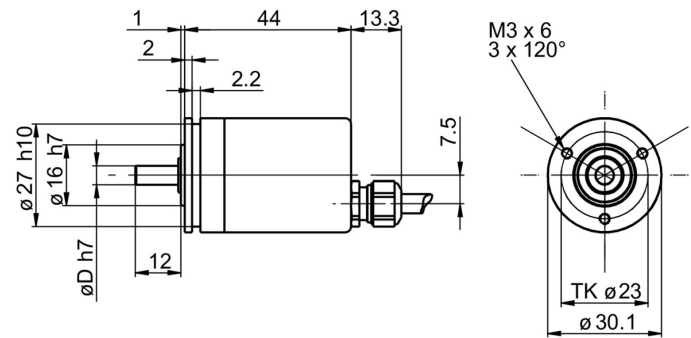
Flange connector M12, radial, IP 65



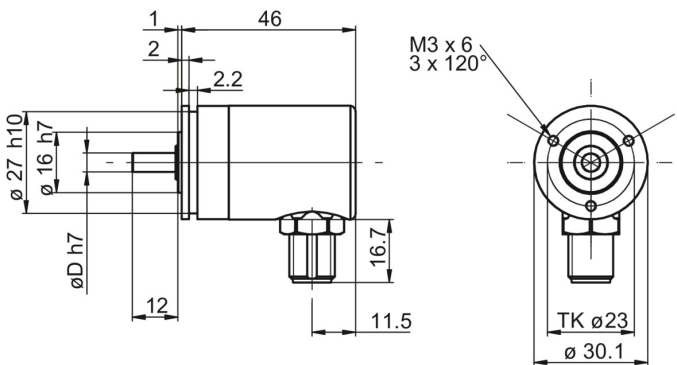
Flange connector M12, axial, IP 65



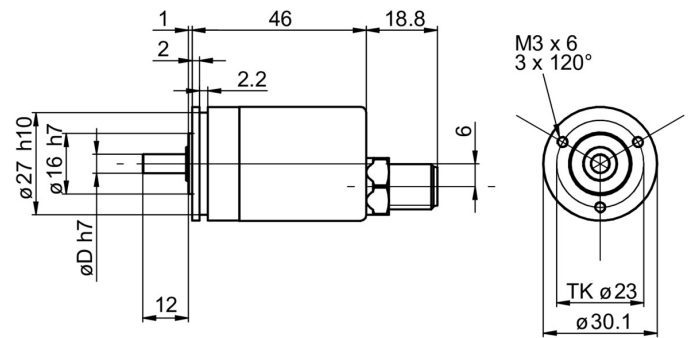
Cable, radial, IP 65



Cable, axial, IP 65



Flange connector M12, radial, IP 67



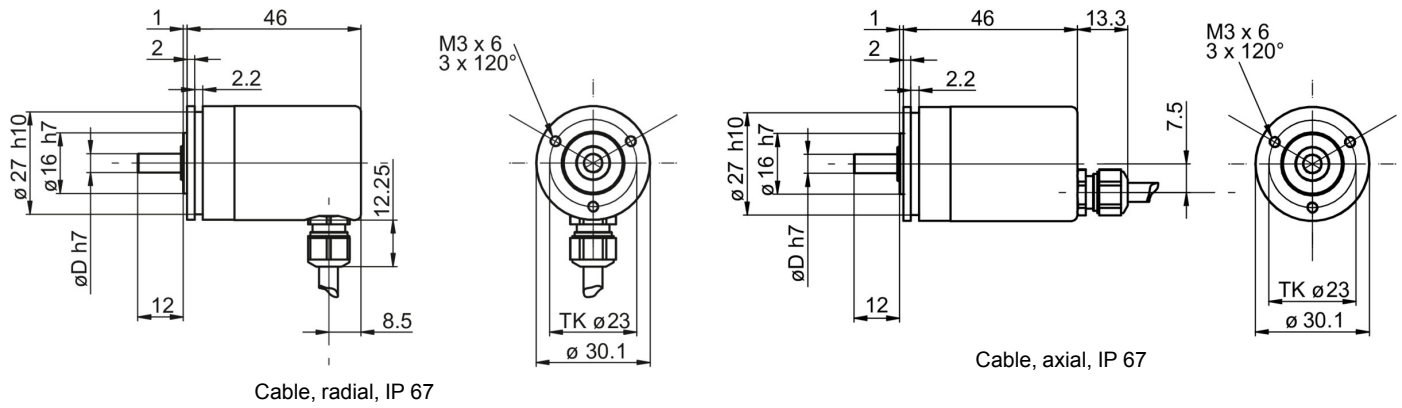
Flange connector M12, axial, IP 67

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Dimensions



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Ordering reference

	EAM300	-	S	M	#	.	#	#	##	.	14	##	0	.	A
Product	EAM300														
Shaft type															
Solid shaft				S											
Flange (shaft)															
Bride synchro, ø27mm, M3				M											
Shaft															
ø8 x 12 mm					8										
ø5 x 12 mm					5										
ø6 x 12 mm					6										
Protection class															
IP 65								5							
IP 67								7							
Connection															
Cable radial, 2 m									L						
Flange socket radial, M12, 5-pin, male contacts, A-coded									N						
Cable axial, 2 m									U						
Flange socket axial, M12, 5-pin, male contacts, A-coded									V						
Voltage supply / interface															
10...30 VDC, CANopen (DS 406)									C6						
10...30 VDC, CANopen Lift (DS 417)									C7						
Resolution Singleturn															
14 Bit											14				
Resolution Multiturn															
No option												00			
18 Bit												18			
Resolution supplement															
No option													0		
Operating temperature															A
-40...+85 °C															

Accessories

Mounting accessories

10106004 Clamp set ø10 mm

Connectors and cables

10153968	Female connector M12, 5-pin, straight, without cable
11046264	Female connector M12, 5-pin, straight, shielded, 2 m cable
11046266	Female connector M12, 5-pin, straight, shielded, 5 m cable
11144301	Cable with male/female M12, 5-pin, straight, A-coded, 0.3 m (stub line)
11201509	Cable with male/female M12, 5-pin, straight, A-coded, 2 m (ESG 34C/KSG34C)
11201520	Cable with male/female M12, 5-pin, straight, A-coded, 5 m (ESG 34C/KSG34C)
11219530	T-splitter M12x1, shielded (1 male/2 female)