

EAL580-SC - EtherCAT

Solid shaft with clamping flange

Optical multiturn encoders 18 bit ST / 16 bit MT, EtherCAT

Overview

- Absolute encoder multiturn
- Optical sensing method
- Max. resolution: singleturn 18 bit, multiturn 16 bit
- Clamping flange
- LED status display
- EtherCAT
- Maximum resistant against magnetic fields



Technical data

Technical data - electrical ratings

Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤100 mA (24 VDC)
Interface	EtherCAT
Function	Multiturn
Steps per revolution	≤262144 / 18 bit (adjustable)
Number of revolutions	≤65536 / 16 bit (adjustable)
Total resolution	≤ 31 bit
Absolute accuracy	±0,01 ° (ST 18 bit / MT 13 bit) ±0,025 ° (ST 13 bit / MT 16 bit)
Sensing method	Optical
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-4
Status indicator	4x LED integrated in housing
Approval	UL approval / E63076

Technical data - mechanical design

Size (flange)	ø58 mm
Shaft type	ø10 x 20 mm, solid shaft with flat
Flange	Clamping flange
Protection EN 60529	IP 54 IP 65 IP 67

Technical data - mechanical design

Operating speed	≤10000 rpm (mechanical) ≤6000 rpm (electric)
Starting acceleration	≤1000 U/s ²
Starting torque	≤0,03 Nm (+25 °C, IP 65/IP 67) ≤0,015 Nm (+25 °C, IP 54)
Rotor moment of inertia	20 gcm ²
Admitted shaft load	≤20 N axial ≤40 N radial
Material	Housing: zinc diecast Flange: aluminium
Operating temperature	-40...+85 °C (see general information)
Relative humidity	95 % non-condensing
Resistance	EN 60068-2-6 Vibration ±0.75 mm - 10-58 Hz 10 g - 58-2000 Hz EN 60068-2-27 Shock 100 g, 2 ms
Weight approx.	500 g
Connection	Flange connector 3 x M12

Optional

- Button for Preset

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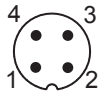
General information

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 4 K (IP 54 protection) respectively 6 K (IP 65 / IP 67 protection) per 1000 rpm. Operating the encoder close to the maximum limits requires measuring the real prevailing temperature at the encoder flange.

Terminal assignment

Voltage supply

Pin	Assigned	Significance
1	UB	Voltage supply
2	d.u.	Do not connect
3	GND	Ground
4	d.u.	Do not connect



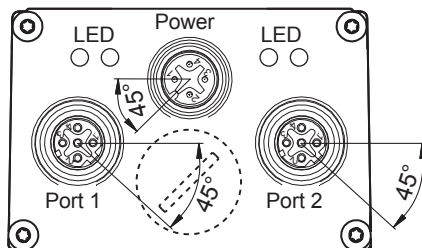
1 x flange connector M12 (male), A-coded

EtherCAT (data line)

Pin	Assigned	Significance
1	TxD+	Transmission data+
2	RxD+	Receiving data+
3	TxD-	Transmission data-
4	RxD-	Receiving data-



2 x flange connector M12 (female), D-coded



EtherCAT features

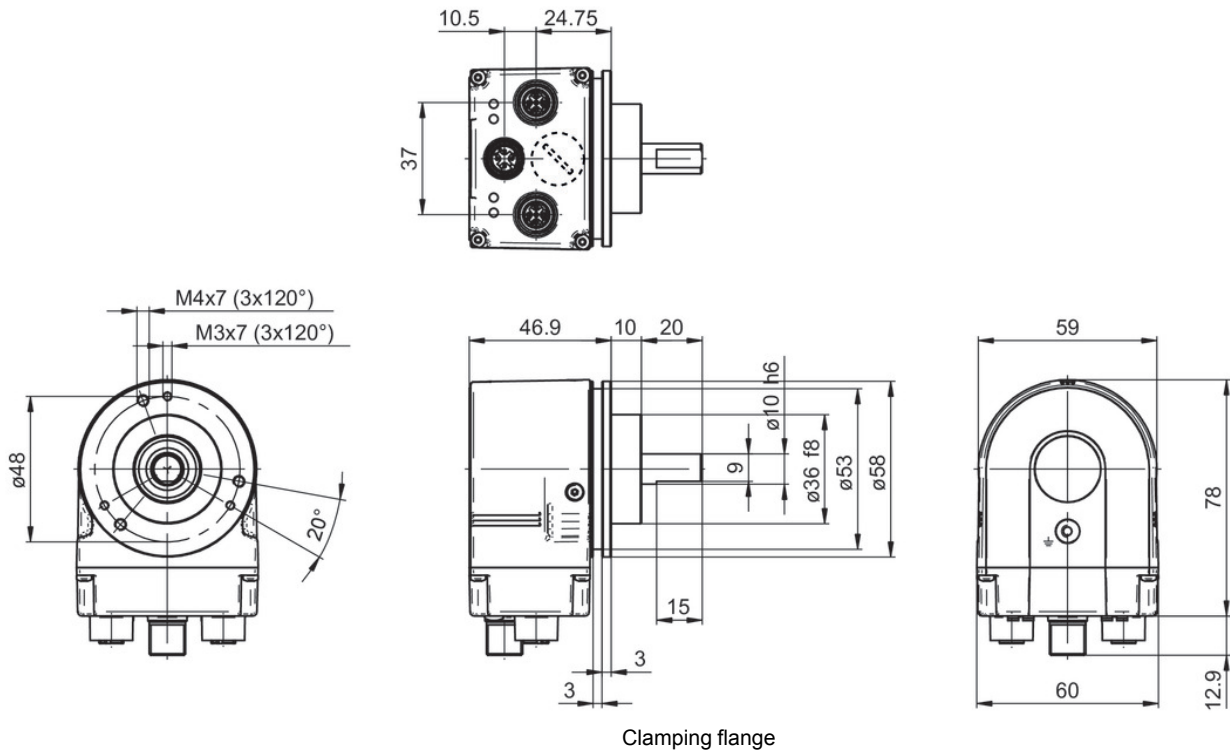
Bus protocol	EtherCAT
Device profile	Encoder-Profil CANopen® CiA 406 Vers. 4.0.2 from 18.08.2016
Operating modes	Free Run, Synchronous with SM3 Event, DC Mode (Distributed Clocks)
Cycle time	Min. 62.5 µs
Features	- Gear factor (round shaft) and endless loop mode - Time stamp (time of position data acquisition) - Plausibility check of the configurable parameters - Comprehensive diagnostic functions - Preset button for position - File Access over EtherCAT (FoE)
Process data	- Position value 32 bits input data with/without speed 32 bits - Extensive process data mapping
LED status indicator	2x Link/Activity, RUN, ERR

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Dimensions



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Ordering reference

	EAL580	-	S	C	0	.	#	W	EC	.	##	##	0	.	A
Product	EAL580														
Shaft type															
Solid shaft				S											
Flange (shaft)															
Clamping flange, centering collar Ø36 x 10 mm, pitch circle diameter 48 mm - 3xM3/3xM4				C											
Shaft															
Ø10 x 20 mm, with flat					0										
Protection class															
IP 54								4							
IP 65								5							
IP 67								7							
Connection															
Flange socket radial, 2 x M12, 4-pin, female contacts, D-coded, 1 x M12, 4-pin, male contacts, A-coded									W						
Voltage supply / interface															
10...30 VDC, EtherCAT									EC						
Resolution Singleturn															
13 Bit												13			
18 Bit												18			
Resolution Multiturn															
13 Bit													13		
16 Bit														16	
Resolution supplement															
No option														0	
Operating temperature															A
-40...+85 °C															

Accessories

Mounting accessories

10117669	Eccentric fixing, single (Z 119.006)
11177167	Self-tapping grounding screw (Z 119.100)
10141132	Spring washer coupling D1=6 / D2=10 (Z 121.C01)
10141133	Spring washer coupling D1=10 / D2=10 (Z 121.C03)

Connectors and cables

11034355	Cable connector M12, 4-pin, on both sides, D-coded, 5 m cable (Z 185.E05)
11174046	Cable connector M12, 4-pin, straight, D-coded, without cable (Z 185.S01)
11174047	Cable connector M12, 4-pin, angled, D-coded, without cable (Z 185.S02)
11034356	Female connector M12, 5-pin, A-coded, 5 m cable (Z 185.P05)
11212237	Female connector M12, 5-pin, A-coded, 10 m cable (Z 185.P10)