

# Absolute encoders - bus interfaces

Solid shaft with clamping flange

Optical multiturn encoders max. 18 bit ST / 16 bit MT, PROFINET IO

## EAL580-SC - PROFINET - *OptoTurn*<sup>®</sup>



EAL580-SC with clamping flange

### Features

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

### Optional

- Button for Preset/Reset

### Technical data - electrical ratings

Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤100 mA (24 VDC)
Interface	PROFINET IO
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	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Status indicator	4x LED integrated in housing
Approvals	UL approval / E63076, Certified by PNO

### Technical data - mechanical design

Size (flange)	ø58 mm
Shaft type	ø10 x 20 mm, solid shaft with flat
Flange	Clamping flange
Protection DIN EN 60529	IP 54, IP 65, IP 67
Operating speed	≤10000 rpm (mechanical) ≤6000 rpm (electric)
Starting acceleration	≤1000 U/s <sup>2</sup>
Starting torque	≤0.03 Nm (+25 °C, IP 65/IP 67) ≤0.015 Nm (+25 °C, IP 54)
Rotor moment of inertia	20 gcm <sup>2</sup>
Admitted shaft load	≤20 N axial ≤40 N radial
Materials	Housing: zinc diecast Flange: aluminium
Operating temperature	-40...+85 °C (see general information)
Relative humidity	95 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration ±0.75 mm - 10-58 Hz 10 g - 58-2000 Hz DIN EN 60068-2-27 Shock 200 g, 3 ms
Weight approx.	500 g
Connection	Flange connector 3 x M12

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## Part number

EAL580-S C 0 . W PT . 0. A

C	0	.	W	PT	.	0.	A
							<u>Operating temperature</u>
							A -40...+85 °C
							<u>Resolution</u>
							1316 13 bit singleturn / 16 bit multiturn
							1813 18 bit singleturn / 13 bit multiturn
							<u>Voltage supply</u>
							PT 10...30 VDC, PROFINET IO
							<u>Connection</u>
							W Flange connector 3 x M12, 4-pin, radial
							<u>Protection</u>
							4 IP 54
							5 IP 65
							7 IP 67
							<u>Specification solid shaft</u>
							0 ø10 x 20 mm, with flat
							<u>Flange</u>
							C Clamping flange, ø36 mm, M3/M4

Optional: /6105 Button for Preset/Reset

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##### Accessories

###### 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)

###### 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)

##### PROFINET features

Bus protocol	PROFINET IO
Device profile	Encoder Profil PNO 3.162 V4.1 und V3.1 PROFIdrive Profil PNO 3.172 V4.1
Real time classes	Realtime (RT) Class 1, IRT Class 3
Send clock	RT: 1 ms, 2 ms, 4 ms IRT: 250 µs, 500 µs, 1 ms, 2 ms, 4 ms
Update time	Min. 500 µs
Features	- 100 Mbaud Fast Ethernet - Device replacement without interchangeable media - Media redundancy MRP - Gear factor / Round axis
Process data	- Position value 32 bit input data with/without rotation speed 16 or 32 bit - Telegrams 81-83 of PROFIdrive profile
LED status indicator	Link/Activity, Status, Error

##### 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



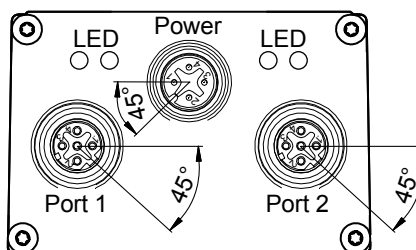
1 x flange connector M12 (male), A-coded

###### PROFINET (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



##### 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.

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## Dimensions

