

# Absolute encoders - bus interfaces

Blind or through hollow shaft

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

## EAL580 - hollow shaft PROFINET - *OptoTurn*<sup>®</sup>



EAL580 with hollow shaft

### Features

- Absolute encoder multiturn
- Optical sensing method
- Max. resolution: singleturn 18 bit, multiturn 16 bit
- Blind or through hollow shaft
- LED status indicator
- PROFINET IO
- Maximum resistant against magnetic fields

### Optional

- B-side clamping
- 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
Protection DIN EN 60529	IP 54, IP 65, IP 67
Operating speed	≤6000 rpm (mechanical) ≤6000 rpm (electric)
Starting acceleration	≤1000 U/s <sup>2</sup>
Starting torque	≤0.04 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 100 g, 2 ms
Weight approx.	500 g
Connection	Flange connector 3 x M12
<b>EAL580-B</b>	
Shaft type	ø10...15 mm (blind hollow shaft)
<b>EAL580-T</b>	
Shaft type	ø10...14 mm (through hollow shaft)

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### Part number

#### Blind hollow shaft

EAL580- B . . . W PT . 0. A

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

Resolution  
1316 13 bit singleturn / 16 bit multiturn  
1813 18 bit singleturn / 13 bit multiturn

Voltage supply  
PT 10...30 VDC, PROFINET IO

Connection  
W Flange connector 3 x M12, 4-pin, radial

Protection  
4 IP 54  
5 IP 65  
7 IP 67

Specification hollow shaft  
A ø10 mm, clamping ring at A side  
C ø12 mm, clamping ring at A side  
E ø14 mm, clamping ring at A side  
F ø15 mm, clamping ring at A side

Flange  
N Without stator coupling  
B Torque pin ø4 x 15 mm, radial

Shaft type  
B Blind hollow shaft

Optional: /6105 Button for Preset/Reset

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Blind or through hollow shaft

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## EAL580 - hollow shaft PROFINET - *OptoTurn*<sup>®</sup>

### Part number

Through hollow shaft

EAL580- T . . . W PT . 0. A

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

Resolution  
1316 13 bit singleturn / 16 bit multiturn  
1813 18 bit singleturn / 13 bit multiturn

Voltage supply  
PT 10...30 VDC, PROFINET IO

Connection  
W Flange connector 3 x M12, 4-pin, radial

Protection  
4 IP 54  
5 IP 65  
7 IP 67 (only clamping ring at A-side)

Specification hollow shaft  
A ø10 mm, clamping ring at A side  
C ø12 mm, clamping ring at A side  
G ø12 mm, clamping ring at B side  
E ø14 mm, clamping ring at A side  
H ø14 mm, clamping ring at B side

Flange  
N Without stator coupling  
B Torque pin ø4 x 15 mm, radial

Shaft type  
T Through hollow shaft

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)

#### Mounting accessories

10139345	Torque support by rubber buffer for encoders with 15 mm pin (Z 119.041)
10147837	Spring coupling for one-side attachment, length 35 mm (Z 119.050)
10165157	Spring coupling for encoders with ø58 mm housing, hole distance 73 mm (Z 119.072)
11034121	Spring coupling for encoders with ø58 mm housing, hole distance 68 mm (Z 119.073)
11034123	Spring coupling for one-side attachment, length 115 mm (Z 119.076)
11003562	Spring coupling for encoders with ø58 mm housing, hole distance 63 mm (Z 119.082)
11177167	Self-tapping grounding screw (Z 119.100)

### 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



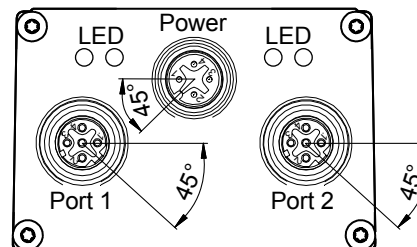
1 x flange connector M12 (male), A-coded

#### 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 approximates 7 K (IP 54 protection) respectively 8 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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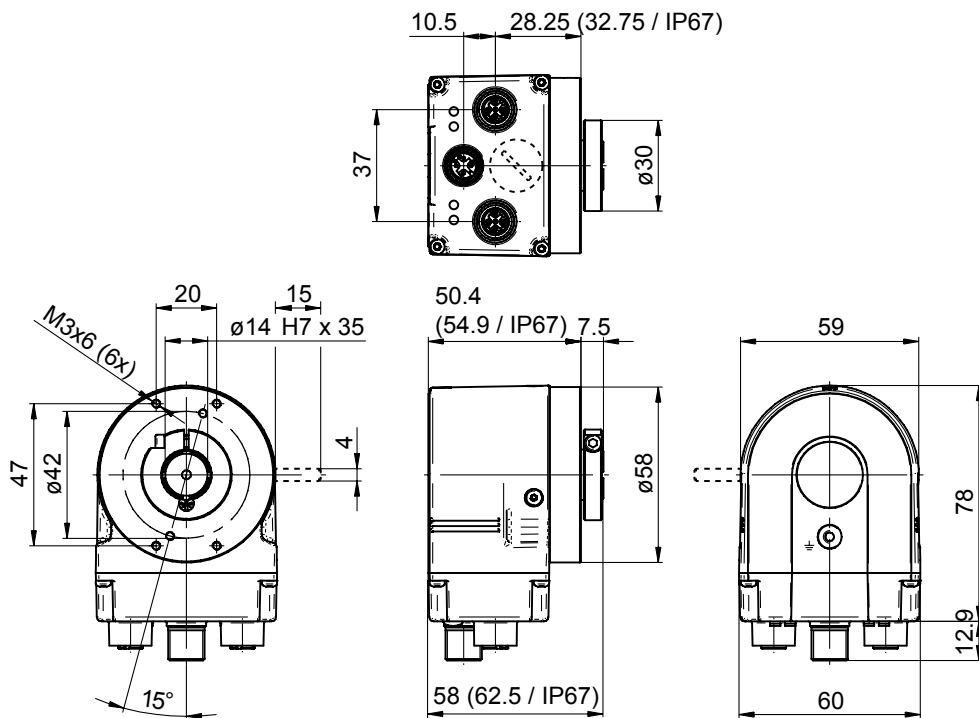
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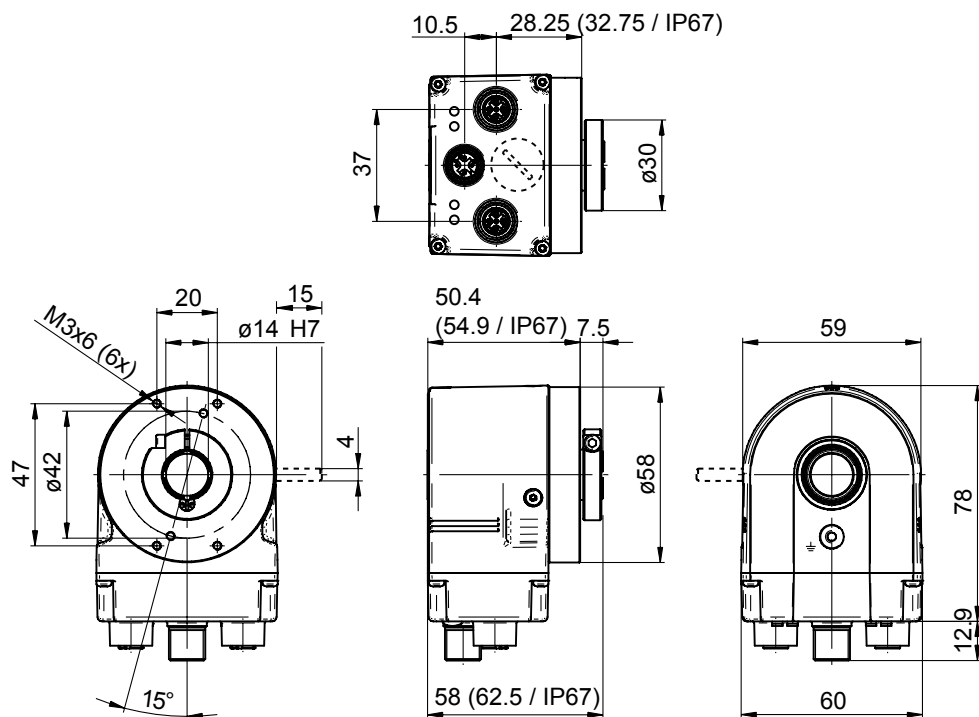
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### Dimensions

#### Blind hollow shaft



#### Through hollow shaft, clamping ring at A side



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## Dimensions

Through hollow shaft, clamping ring at B side

