![Baumer - Passion for Sensors]

Absolute encoder/optoTurn

# EAL580-BNC.5WPT.13160.A

Blind hollow shaft, optical multiturn encoders 13 bit ST / 16 bit MT, PROFINET IO
Article number: 11189028

## Overview

- Absolute encoder multiturn
- Optical sensing method
- Resolution: singleturn 13 bit, multiturn 16 bit
- Blind hollow shaft
- LED status display
- PROFINET IO
- 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 | PROFINET IO |
| Function | Multiturn |
| Steps per revolution | 8192 / 13 bit |
| Number of revolutions | 65536 / 16 bit |
| Total resolution | 29 bit |
| Absolute accuracy | ±0.01 ° (ST 18 bit / MT 13 bit)<br>±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 |

### Technical data - mechanical design

| | |
|---|---|
| Shaft type | ø12 mm (blind hollow shaft) |
| Protection EN 60529 | IP 65 |
| Operating speed | ≤6000 rpm (mechanical)<br>≤6000 rpm (electric) |
| Angular acceleration | ≤2500 rad/s² (UB = 0 VDC)<br>≤500000 rad/s² (UB = 10...30 VDC) |
| Starting torque | ≤0.06 Nm (+25 °C, IP 65) |
| Rotor moment of inertia | 20 gcm² |
| Material | Housing: zinc diecast<br>Flange: aluminium |
| Operating temperature | -40...+85 °C (see general information) |
| Relative humidity | 95 % non-condensing |
| Resistance | EN 60068-2-6<br>Vibration ±0.75 mm - 10-58 Hz, 10 g - 58-2000 Hz<br>EN 60068-2-27<br>Shock 100 g, 2 ms |
| Weight approx. | 500 g |
| Connection | Flange connector 3xM12 |

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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 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.

## 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
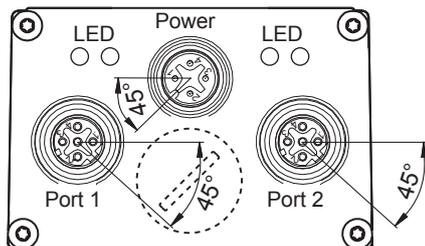


## PROFINET features

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

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## Dimensions



øD:

| 10 | 12 | 14 | 15 |

Blind hollow shaft

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