

## EAL580-B - EtherNet/IP

Blind hollow shaft

Optical multiturn encoders max. 18 bit ST / 16 bit MT, EtherNet/IP

### Overview

- Absolute encoder multiturn
- Optical sensing method
- Max. resolution: singleturn 18 bit, multiturn 16 bit
- Blind hollow shaft
- LED status display
- EtherNet/IP
- Maximum resistant against magnetic fields
- Button for Preset/Reset
- Rotary coding switch for IP address



### Technical data

#### Technical data - electrical ratings

|                             |   |
|-----------------------------|---|
| Voltage supply              | 10...30 VDC   |
| Reverse polarity protection | Yes   |
| Consumption w/o load        | ≤100 mA (24 VDC)  |
| Interface                   | EtherNet/IP   |
| 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)<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                           |
| Shaft type    | ø10...15 mm (blind hollow shaft) |

#### Technical data - mechanical design

|                         |   |
|-------------------------|---|
| Protection EN 60529     | IP 54<br>IP 65<br>IP 67   |
| Operating speed         | ≤6000 rpm (mechanical)<br>≤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>   |
| 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 3 x M12  |

## 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 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 |



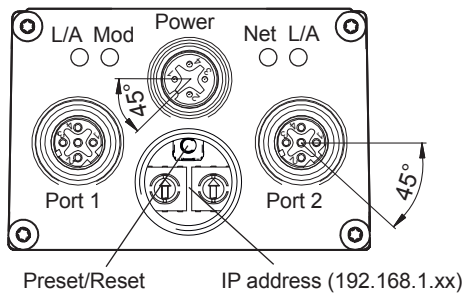
1 x flange connector M12 (male), A-coded

### EtherNet/IP (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



## EtherNet/IP features

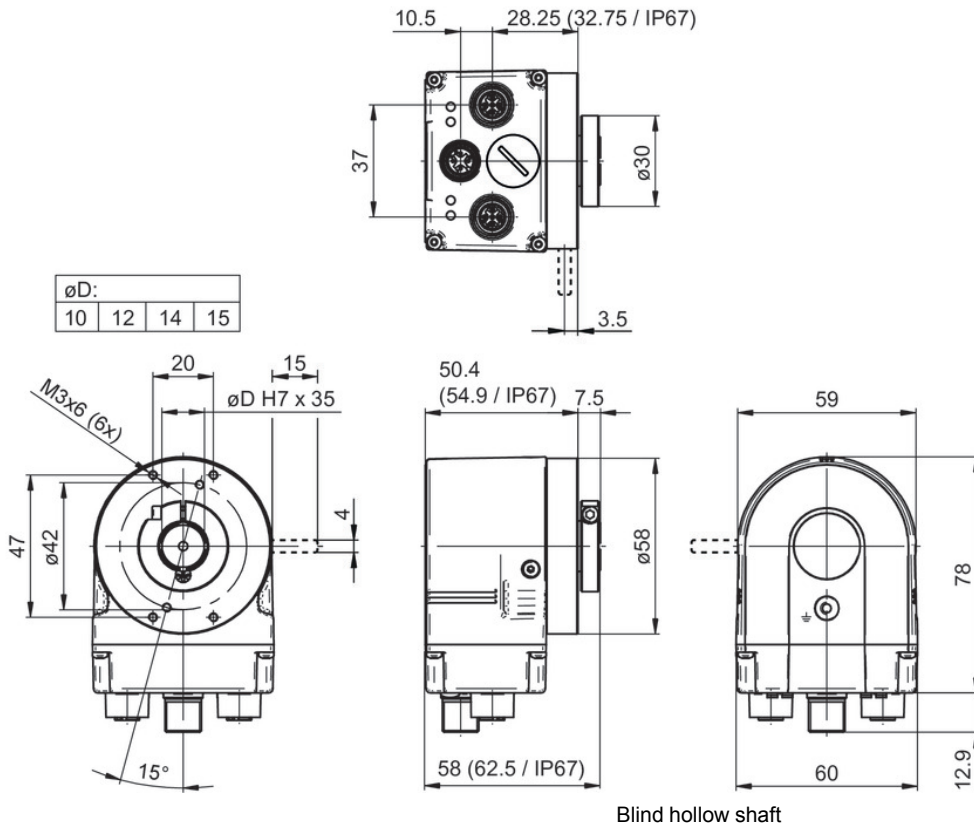
|                      |   |
|----------------------|---|
| Bus protocol         | EtherNet/IP   |
| Device profile       | CIP Nov 2016, 22 <sub>hex</sub> Encoder   |
| Cycle time           | 1 ms  |
| Features             | <ul style="list-style-type: none"> <li>- Gear factor (round shaft) and endless loop mode</li> <li>- Plausibility check of the adjustable parameters</li> <li>- Comprehensive diagnostic functions</li> <li>- Address Conflict Detection</li> <li>- Device Level Ring</li> <li>- Multiple simultaneous IO connections</li> </ul> |
| LED status indicator | 2x Link/Activity, Module Status, Network Status   |

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## Dimensions



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## Ordering reference

|                                   | EAL580   | - | B | # | ## | . | # | W | EN | .  | ## | ## | 0  | .  | A |
|-----------------------------------|--|---|---|---|----|---|---|---|----|----|----|----|----|----|---|
| <b>Product</b>                    | EAL580   |   |   |   |    |   |   |   |    |    |    |    |    |    |   |
| <b>Shaft type</b>                 | Blind hollow shaft   |   |   | B |    |   |   |   |    |    |    |    |    |    |   |
| <b>Flange (Hollow shaft)</b>      | Without stator coupling  |   |   | N |    |   |   |   |    |    |    |    |    |    |   |
|                                   | Pin torque support 4 mm, radial  |   |   | B |    |   |   |   |    |    |    |    |    |    |   |
| <b>Blind hollow shaft</b>         | ø10 mm, clamping ring, A-side  |   |   |   | A  |   |   |   |    |    |    |    |    |    |   |
|                                   | ø12 mm, clamping ring, A-side  |   |   |   | C  |   |   |   |    |    |    |    |    |    |   |
|                                   | ø14 mm, clamping ring, A-side  |   |   |   | E  |   |   |   |    |    |    |    |    |    |   |
|                                   | ø15 mm, clamping ring, A-side  |   |   |   | F  |   |   |   |    |    |    |    |    |    |   |
| <b>Protection class</b>           | IP 54  |   |   |   |    |   |   | 4 |    |    |    |    |    |    |   |
|                                   | IP 65  |   |   |   |    |   |   | 5 |    |    |    |    |    |    |   |
|                                   | IP 67  |   |   |   |    |   |   | 7 |    |    |    |    |    |    |   |
| <b>Connection</b>                 | Flange socket radial,<br>2 x M12, 4-pin, female contacts, D-coded,<br>1 x M12, 4-pin, male contacts, A-coded |   |   |   |    |   |   |   | W  |    |    |    |    |    |   |
| <b>Voltage supply / interface</b> | 10...30 VDC, EtherNet/IP   |   |   |   |    |   |   |   |    | EN |    |    |    |    |   |
| <b>Resolution Singleturn</b>      | 13 Bit   |   |   |   |    |   |   |   |    |    |    |    | 13 |    |   |
|                                   | 18 Bit   |   |   |   |    |   |   |   |    |    |    |    | 18 |    |   |
| <b>Resolution Multiturn</b>       | 13 Bit   |   |   |   |    |   |   |   |    |    |    |    |    | 13 |   |
|                                   | 16 Bit   |   |   |   |    |   |   |   |    |    |    |    |    | 16 |   |
| <b>Resolution supplement</b>      | No option  |   |   |   |    |   |   |   |    |    |    |    |    |    | 0 |
| <b>Operating temperature</b>      | -40...+85 °C   |   |   |   |    |   |   |   |    |    |    |    |    |    | A |

## Accessories

### Mounting accessories

|          |   |
|----------|---|
| 10139345 | Torque support by rubber buffer for encoders with 15 mm pin (Z 119.041)           |
| 11066120 | Mounting kit 056  |
| 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)  |