

Absolute encoders - bus interfaces

Solid shaft with clamping flange

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

EAL580-SC - EtherCAT - OptoTurn®



EAL580-SC with clamping flange

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 | DIN EN 61000-6-2 |
| Emitted interference | DIN EN 61000-6-4 |
| Status indicator | 4x LED integrated in housing |
| Approval | UL approval / E63076 |

Features

- 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

Optional

- Button for Preset

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 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 |
| 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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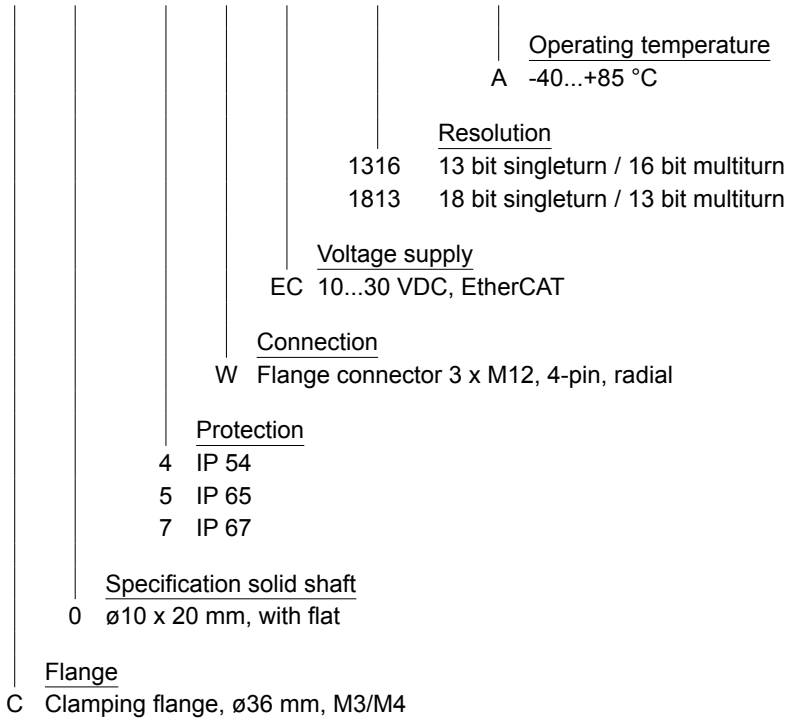
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Part number

EAL580-S

| | | | | | | | | | |
|---|---|---|--|---|----|---|--|----|---|
| C | 0 | . | | W | EC | . | | 0. | A |
|---|---|---|--|---|----|---|--|----|---|



Optional: /6104 Button for Preset

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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) |

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 | <ul style="list-style-type: none"> - 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 | <ul style="list-style-type: none"> - Position value 32 bits input data with/without speed 32 bits - Extensive process data mapping |
| LED status indicator | 2x Link/Activity, RUN, ERR |

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 |



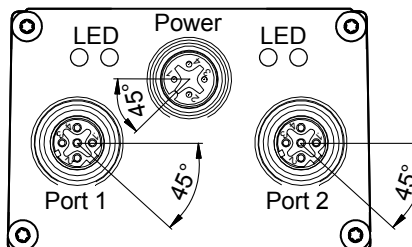
1 x flange connector M12 (male), A-coded

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



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 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

