

# Cable pull rotary encoder

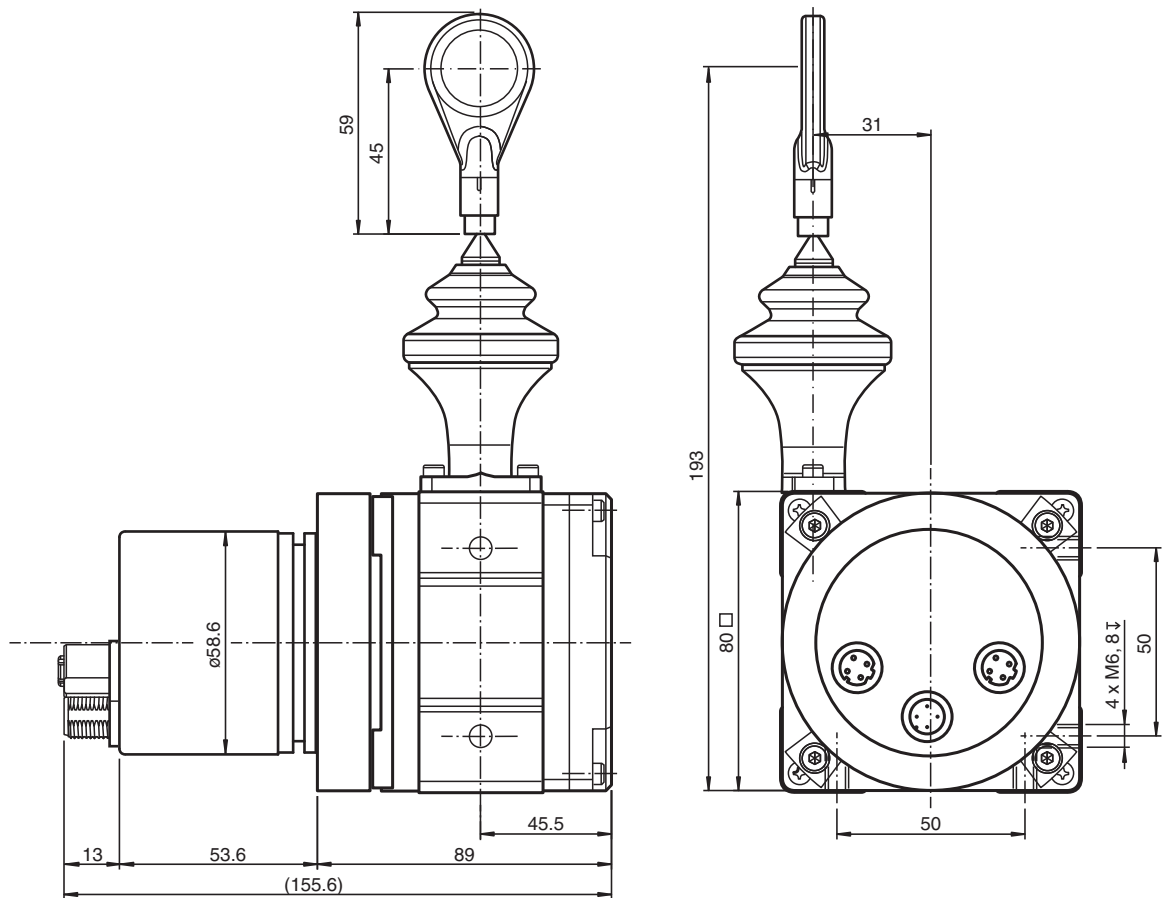
## ECA21IL-02A1A-B17BP:NN

- Robust aluminum drum housing
- Bellows with steel tip
- Rust and acid-resistant measuring cable
- Resolution: 13 singleturn, 12 bit multiturn

Cable pull rotary encoder with PROFINET IO interface



### Dimensions



### Technical Data

#### General specifications

|                   |   |
|-------------------|---|
| Detection type    | magnetic sampling   |
| Device type       | Cable pull rotary encoder with PROFINET IO interface                            |
| Measuring range   | 2000 mm   |
| Construction type | 80 mm   |
| Resolution        | Cable pull:<br>Design 80 mm: 0.024 mm<br>Encoder:<br>25 Bit (13 Bit/revolution) |

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## Technical Data

| Electrical specifications        |       |   |
|----------------------------------|-------|---|
| Operating voltage                | $U_B$ | 10 ... 30 V DC  |
| No-load supply current           | $I_0$ | $\geq 350$ mA   |
| Power consumption                | $P_0$ | approx. 4 W   |
| Time delay before availability   | $t_v$ | $< 250$ ms  |
| Output code                      |       | binary code   |
| Code course (counting direction) |       | programmable,<br>cw ascending (clockwise rotation, code course ascending)<br>cw descending (clockwise rotation, code course descending) |
| Interface                        |       |   |
| Interface type                   |       | PROFINET IO   |
| Resolution                       |       |   |
| Single turn                      |       | 13 Bit  |
| Multiturn                        |       | 12 Bit  |
| Overall resolution               |       | 25 Bit  |
| Transfer rate                    |       | max. 100 MBit/s   |
| Cycle time                       |       | $\geq 1$ ms   |
| Connection                       |       |   |
| Connector                        |       | Ethernet: 2 sockets M12 x 1, 4-pin, D-coded<br>Supply: 1 plug M12 x 1, 4-pin, A-coded   |
| Standard conformity              |       |   |
| Degree of protection             |       | acc. DIN EN 60529   |
| Connection side                  |       | Encoder: IP65<br>Cable pull: IP64   |
| Climatic testing                 |       | DIN EN 60068-2-3, no moisture condensation  |
| Emitted interference             |       | EN 61000-6-4:2007   |
| Noise immunity                   |       | EN 61000-6-2:2005   |
| Ambient conditions               |       |   |
| Ambient temperature              |       | $-30 \dots 70$ °C ( $-22 \dots 158$ °F)   |
| Storage temperature              |       | $-30 \dots 70$ °C ( $-22 \dots 158$ °F)   |
| Relative humidity                |       | 98 % , no moisture condensation   |
| Mechanical specifications        |       |   |
| Rope diameter                    |       | 0.55 mm   |
| Drum perimeter                   |       | 230 mm  |
| Retraction speed                 |       | 4 m/s   |
| Spring retraction force          |       | 8 ... 14 N  |
| Material                         |       |   |
| Housing                          |       | aluminum, coated  |
| Cable pull                       |       | anodized aluminum   |
| Flange                           |       | anodized aluminum   |
| Rope                             |       | Stainless steel 1.4401/316  |
| Mass                             |       | 1400 g  |
| Life span                        |       | up to $10^6$ Cycles   |

**Connection**

| Pin | Male connector M12 x 1, 4-pin, A-coded | Female connector M12 x 1, 4-pin, D-coded |
|-----|--|--|
| 1   | Supply voltage +U <sub>B</sub>         | Tx +                                     |
| 2   | -                                      | Rx +                                     |
| 3   | 0 V                                    | Tx -                                     |
| 4   | -                                      | Rx -                                     |

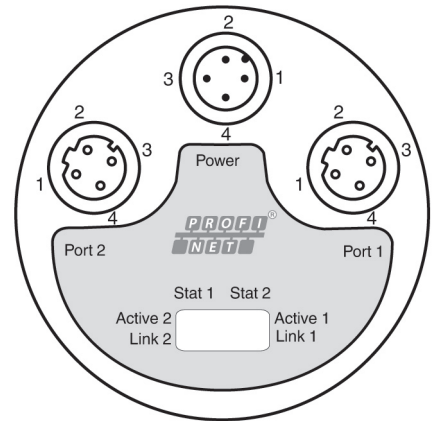
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**Indication**

**Diagnostic LEDs**

| LED     | Color  | Description for LED = ON                       |
|---------|--------|--|
| Active1 | Yellow | Incoming and outgoing data traffic for port 1  |
| Link1*  | Green  | Connection to other Ethernet devices on port 1 |
| Active2 | Yellow | Incoming and outgoing data traffic for port 2  |
| Link2*  | Green  | Connection to other Ethernet devices on port 2 |
| Stat1   | Green  | Status 1, details see table below              |
| Stat2   | Red    | Status 2, details see table below              |

\* flashes with 2 Hz if engineering identification call is activated and link connection is available



| Stat1 (green) | Stat2 (red) bus failure | Meaning  | Cause   |
|---------------|-------------------------|--|---|
| off           | off                     | No power   |   |
| on            | on                      | No connection to another device<br>Criteria: no data exchange  | <ul style="list-style-type: none"> <li>• bus disconnected</li> <li>• Master not available / switched off</li> </ul>   |
| on            | flashes <sup>1)</sup>   | Parameterization fault, no data exchange<br>Criteria: data exchange correct.<br>However, the slave did not switch to the data exchange mode. | <ul style="list-style-type: none"> <li>• Slave not configured yet or wrong configuration</li> <li>• Wrong station address assigned (but not outside the permitted range)</li> <li>• Actual configuration of the slave differs from the nominal configuration</li> </ul> |
| on            | off                     | Data exchange.<br>Slave and operation ok.  |   |

1) flashing frequency 0.5 Hz for at least 3 seconds

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