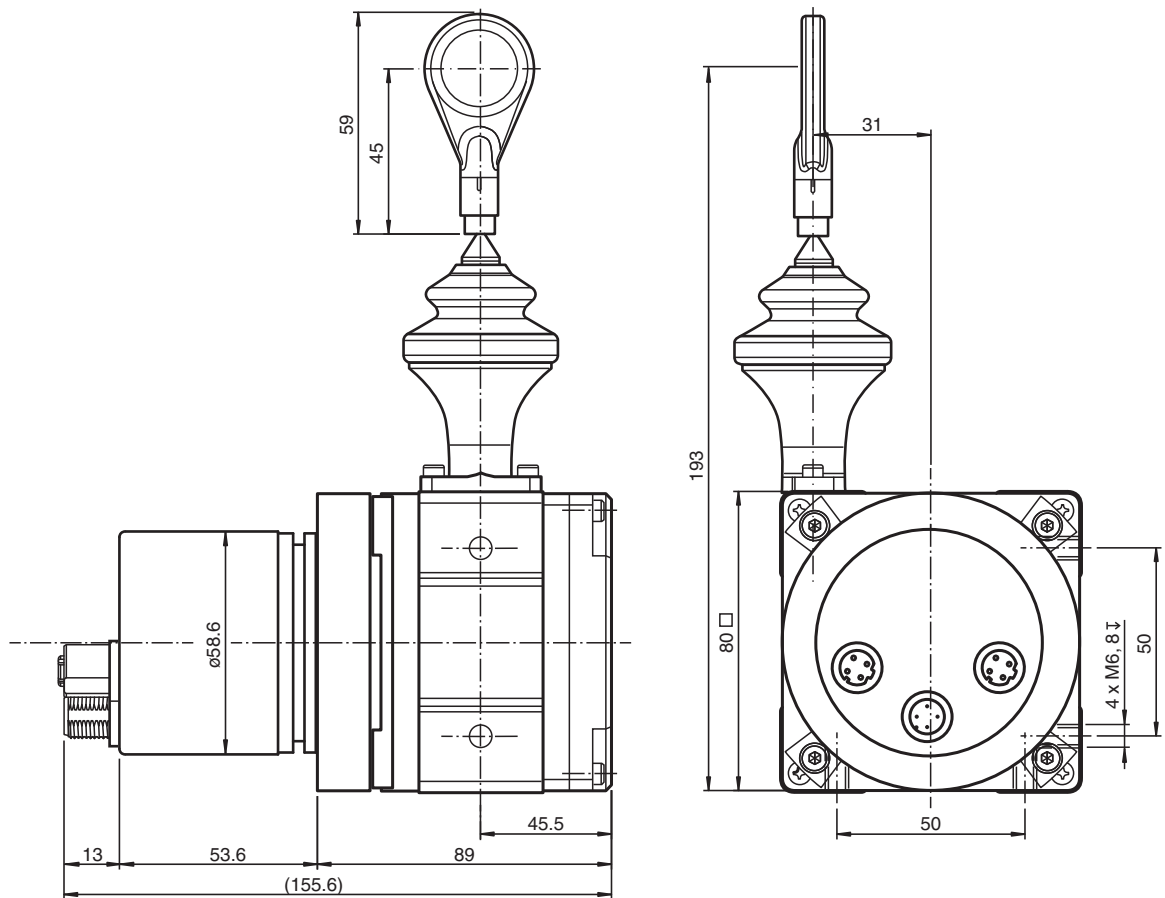# Cable pull rotary encoder

# ECA21IL-03A1A-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 | 3000 mm |
| Construction type | 80 mm |
| Resolution | Cable pull:<br>Design 80 mm: 0.024 mm<br>Encoder:<br>25 Bit (13 Bit/revolution) |

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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## Technical Data

**Electrical specifications**

| | | |
|---|---|---|
| Operating voltage | $U_B$ | 10 ... 30 V DC |
| No-load supply current | $I_0$ | ≥ 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 | ≥ 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 ... 70 °C (-22 ... 158 °F) |
| Storage temperature | -30 ... 70 °C (-22 ... 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 | 15 ... 21 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 |

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## Connection

| Pin | Male connector M12 x 1, 4-pin, A-coded | Female connector M12 x 1, 4-pin, D-coded |
|---|---|---|
| 1 | Supply voltage +$U_B$ | Tx + |
| 2 | - | Rx + |
| 3 | 0 V | Tx - |
| 4 | - | Rx - |

## 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
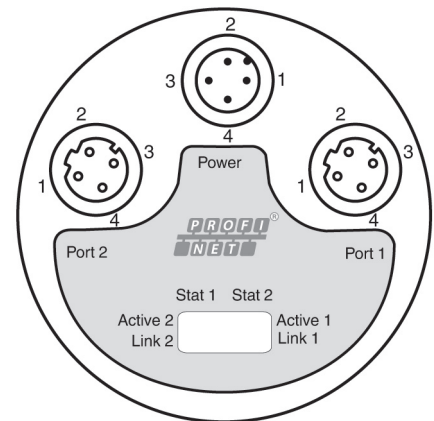
| Stat1 (green) | Stat2 (red) bus failure | Meaning | Cause |
|---|---|---|---|
| off | off | No power | |
| on | on | No connection to another device<br><br>Criteria: no data exchange | • bus disconnected<br><br>• Master not available / switched off |
| on | flashes [1] | Parameterization fault, no data exchange<br><br>Criteria: data exchange correct.<br><br>However, the slave did not switch to the data exchange mode. | • Slave not configured yet or wrong configuration<br><br>• Wrong station address assigned (but not outside the permitted range)<br><br>• Actual configuration of the slave differs from the nominal configuration |
| on | off | Data exchange.<br><br>Slave and operation ok. | |

1) flashing frequency 0.5 Hz for at least 3 seconds

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