

**Overview**

- Parameterizable incremental encoder (HTL)
- Simple position and speed detection via IO-Link
- Speed monitor function via switching output
- Bearingless magnetic sensing
- Maximum resolution 4096 steps per revolution
- Magnetic rotor not included in delivery



Picture similar

**Technical data**

**Technical data - electrical ratings**

|                             |  |
|-----------------------------|--|
| Voltage supply              | 8...30 VDC                             |
| Reverse polarity protection | Yes, to 0 V                            |
| Short-circuit proof         | Yes                                    |
| Consumption w/o load        | ≤25 mA (24 VDC)                        |
| Initializing time typ.      | 150 ms after power on                  |
| Pulses per revolution       | 64 ... 1024<br>32 ... 512              |
| Interface                   | IO-Link                                |
| Interpolation               | 8-fold (parameterizable up to 16-fold) |
| Output signals              | A+ / IO-Link, B+                       |
| Output stages               | HTL/push-pull<br>IO-Link               |
| Output frequency            | ≤160 kHz                               |
| System accuracy             | Typ. ±0.5° (+20 °C, EBS.R-FN032/064)   |
| Sensing method              | Magnetic                               |
| Interference immunity       | EN 61000-6-2                           |
| Emitted interference        | EN 61000-6-3                           |
| Approval                    | CE<br>UL approval / E217823            |

**Technical data - electrical ratings (IO-Link)**

|                        |  |
|------------------------|--|
| IO-Link version        | 1.1  |
| Device profile         | Smart Sensor Profile 1.0 2nd Edition   |
| IO-Link port type      | Class A  |
| Baud rate              | 38.4 kBaud (COM 2)   |
| Cycle time             | ≥ 5 ms   |
| Process data length    | 72 Bit   |
| Process data structure | Bit 0 = SSC1 (speed monitor)<br>Bit 1 = SSC2 (direction monitor)<br>Bit 3 = alarm<br>Bit 4 = SSC3 (standstill monitor)<br>Bit 8-39 = 32 Bit Position<br>Bit 40-71 = 32 Bit Speed |

**Technical data - electrical ratings (IO-Link)**

|                       |   |
|-----------------------|---|
| Additional data       | Device status<br>Device temperature<br>Operating time<br>Revolutions count  |
| Adjustable parameters | Interpolation<br>Direction<br>Poles per revolution<br>Speed unit<br>Speed filter<br>Preset position<br>Temperature alarm settings<br>Switching point<br>Switching mode<br>Switching logic<br>Switching hysteresis<br>Output function<br>Output logic<br>Output startup settings |

**Technical data - mechanical design**

|                       |  |
|-----------------------|--|
| Shaft type            | ø8...48 mm (through hollow shaft)  |
| Dimensions W x H x L  | 12 x 16 x 48 mm  |
| Protection EN 60529   | IP 65<br>IP 67   |
| Operating speed       | ≤6000 rpm  |
| Working distance      | 0.1 ... 1.0 mm (radial air gap)<br>± 1.0 mm (axial misalignment)<br>± 1.0 mm (tangential misalignment) |
| Material              | Housing: polyamide<br>Cable sheath: PVC black  |
| Operating temperature | -40...+85 °C   |
| Relative humidity     | 95 %   |
| Resistance            | EN 60068-2-6 Vibration 30 g, 10-2000 Hz<br>EN 60068-2-27 Shock 500 g, 1 ms                             |
| Weight approx.        | 230 g  |
| Connection            | Cable 5 m  |
| Admitted cable length | 20 m   |

**General information**

EB200E.IR-FN sensors are compatible with EBS.R-FN magnetic rotors, which needs to be ordered separately. The number of pulses per revolution results from the number of poles of the magnetic rotor multiplied by the interpolation of the sensor (PPR = Number of poles x Interpolation).

**Terminal assignment**

**Cable**

| Core colour | Assignment   | Description        |
|-------------|--------------|--------------------|
| brown       | +Vs          | Voltage supply     |
| white       | B+           | Output B           |
| blue        | 0 V          | Voltage supply     |
| black       | A+ / IO-Link | Output A / IO-Link |

Cable data: PVC 4 x 0.25 mm<sup>2</sup>, unshielded

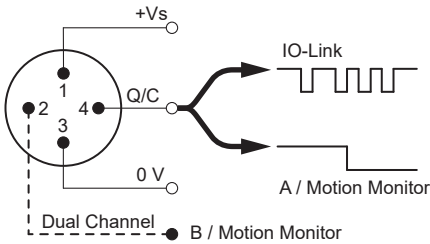
Bending radius: >60 mm

Outer diameter: 5.8 mm

**Output signals**

**Output A**

Output A is IO-Link capable and the following functions are parametrizable (SIO): Encoder Channel A (default), Speed-, Standstill- or Direction Monitor:



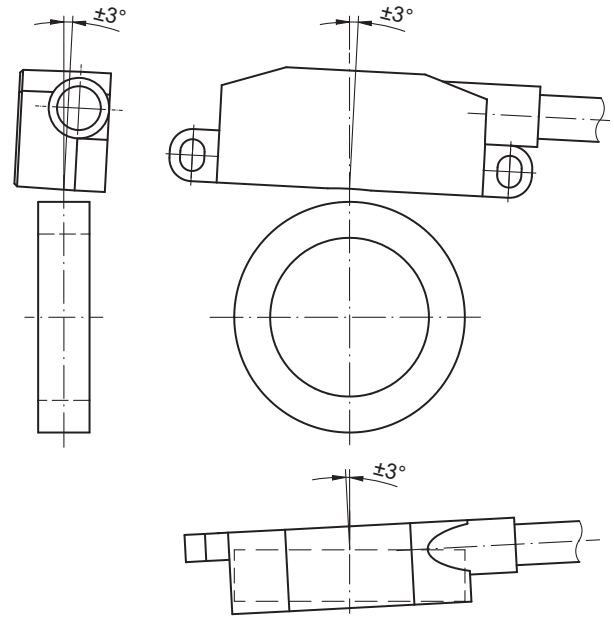
**Output B**

Parametrizable functions: Encoder Channel B (default), Speed-, Standstill- or Direction Monitor

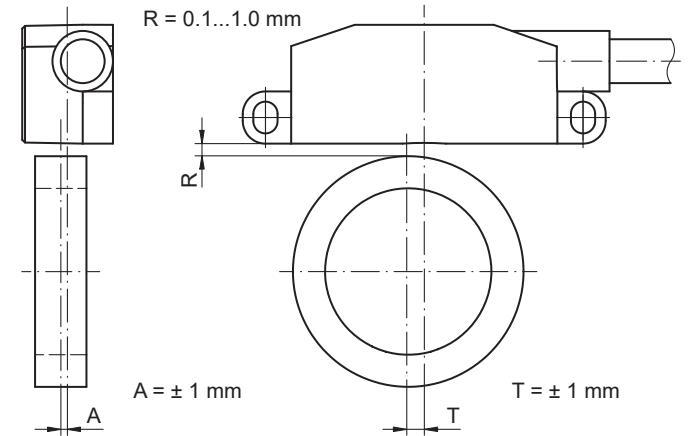
**Trigger level**

| Outputs           | Push-pull short-circuit proof |
|-------------------|-------------------------------|
| Output level High | ≥18.3 V (+Vs = 24 VDC)        |
| Output level Low  | ≤5.3 V (+Vs = 24 VDC)         |
| Load              | ≤30 mA                        |

**Angular misalignment**

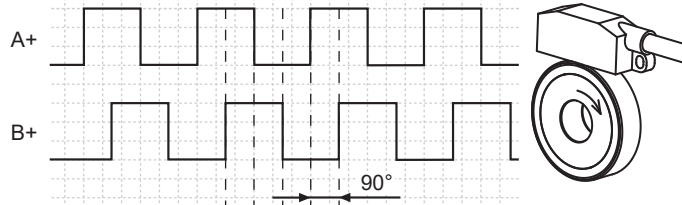


**Working distance**



**Output Functions**

**Output function: Incremental Encoder (HTL)**

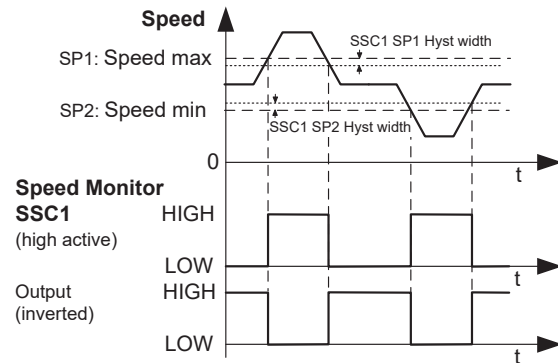


Channel A is leading B by 90° when rotating CW

**Parameters:**

- Interpolation
- Direction
- Output function
- For more details, please refer to the IODD.

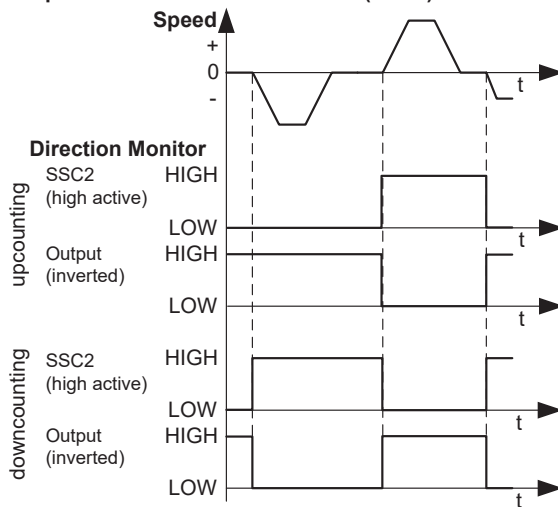
**Output function: Speed Monitor (SSC1)**



**Parameters:**

- Switching points (Speed limit max, Speed limit min)
- Switching logic (high active, low active)
- Switching mode (Speed limit, Speed Window)
- Switching hysteresis (Setpoint 1, Setpoint 2)
- Output function
- Output logic
- Output startup settings
- For more details, please refer to the IODD.

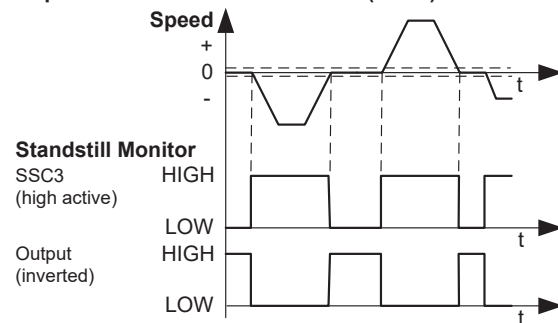
**Output function: Direction Monitor (SSC2)**



**Parameters:**

- Switching point (Monitoring Direction)
- Switching logic (high active, low active)
- Switching hysteresis
- Output function
- Output logic
- Output startup settings
- For more details, please refer to the IODD.

**Output function: Standstill Monitor (SSC3)**



**Parameters:**

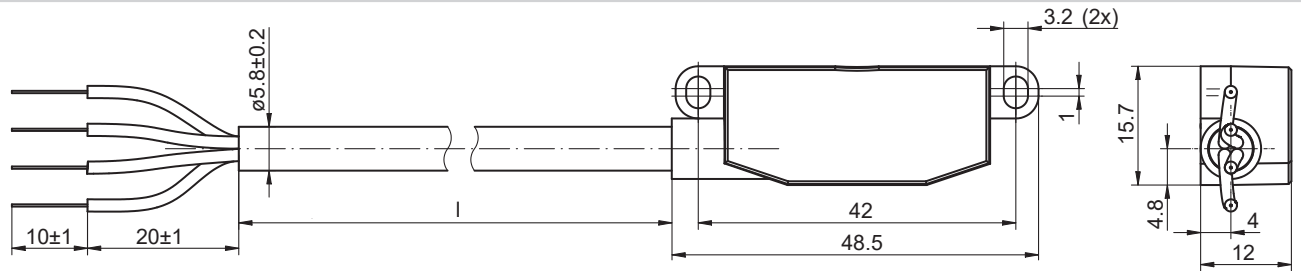
- Switching point (Standstill threshold)
- Switching logic (high active, low active)
- Switching hysteresis (Standstill threshold)
- Output function
- Output logic
- Output startup settings
- For more details, please refer to the IODD.

# EB200E.IR-FN.8L2C5.008L

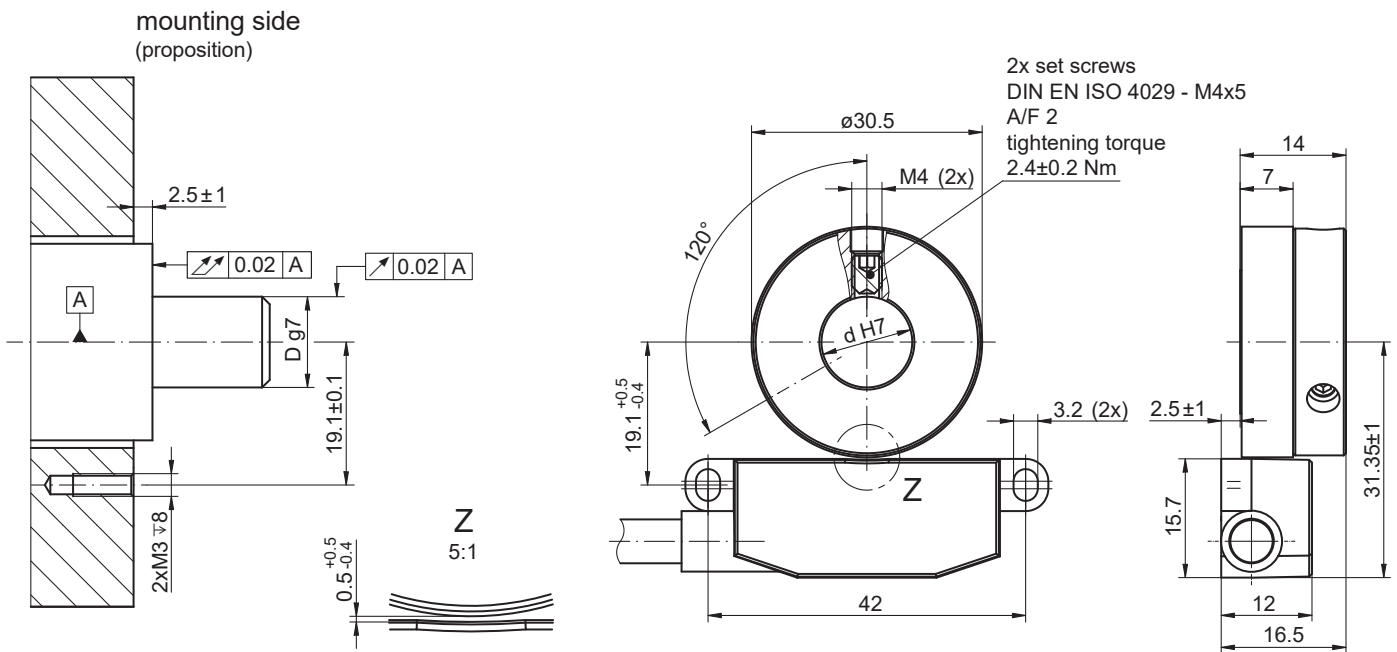
32...1024 pulses per revolution

Article number: 11705077

## Dimensions



EB200E.IR-FN with cable and leads



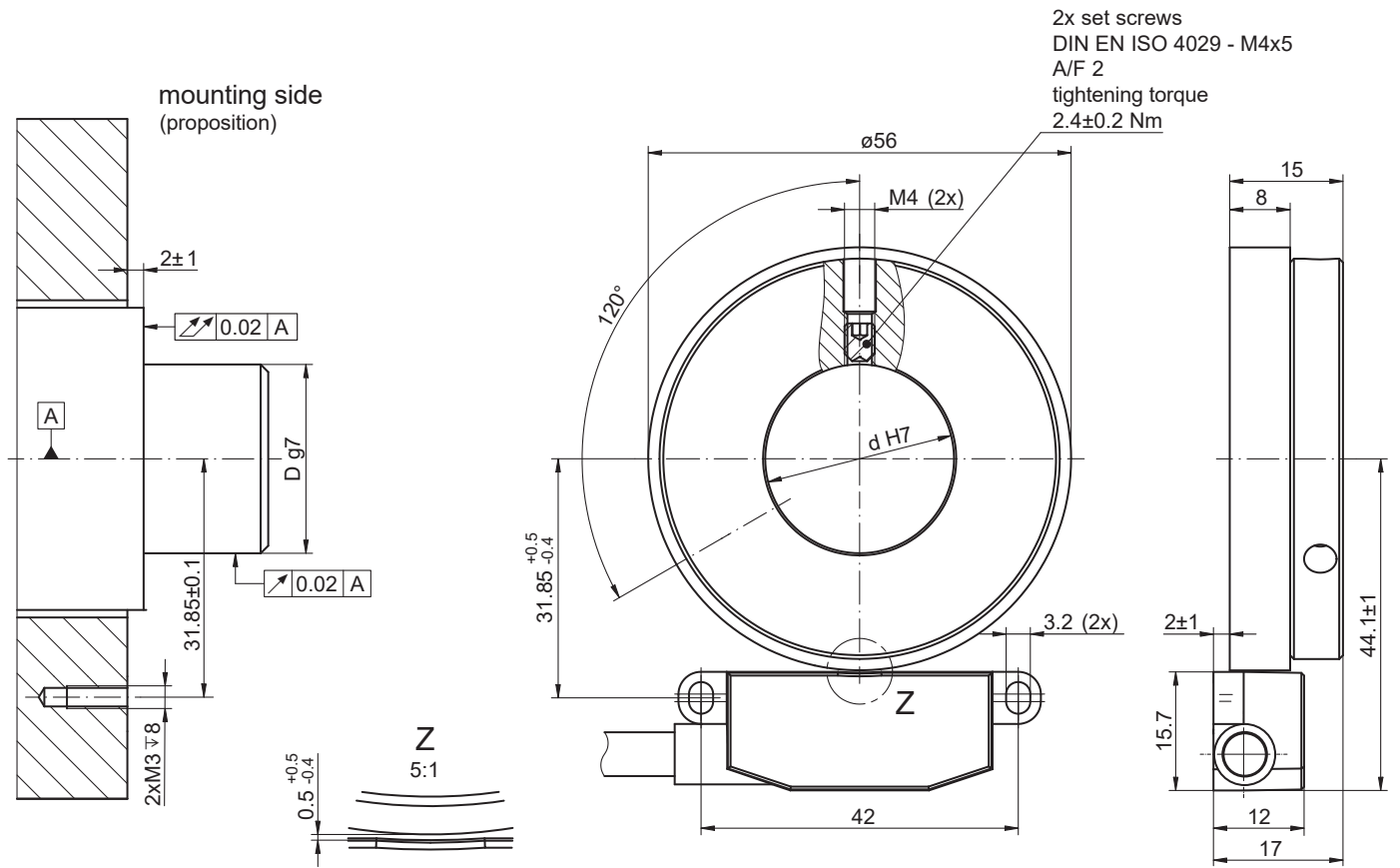
EB200E.IR-FN with EBS.R-FN032.S for screw mounting

# EB200E.IR-FN.8L2C5.008L

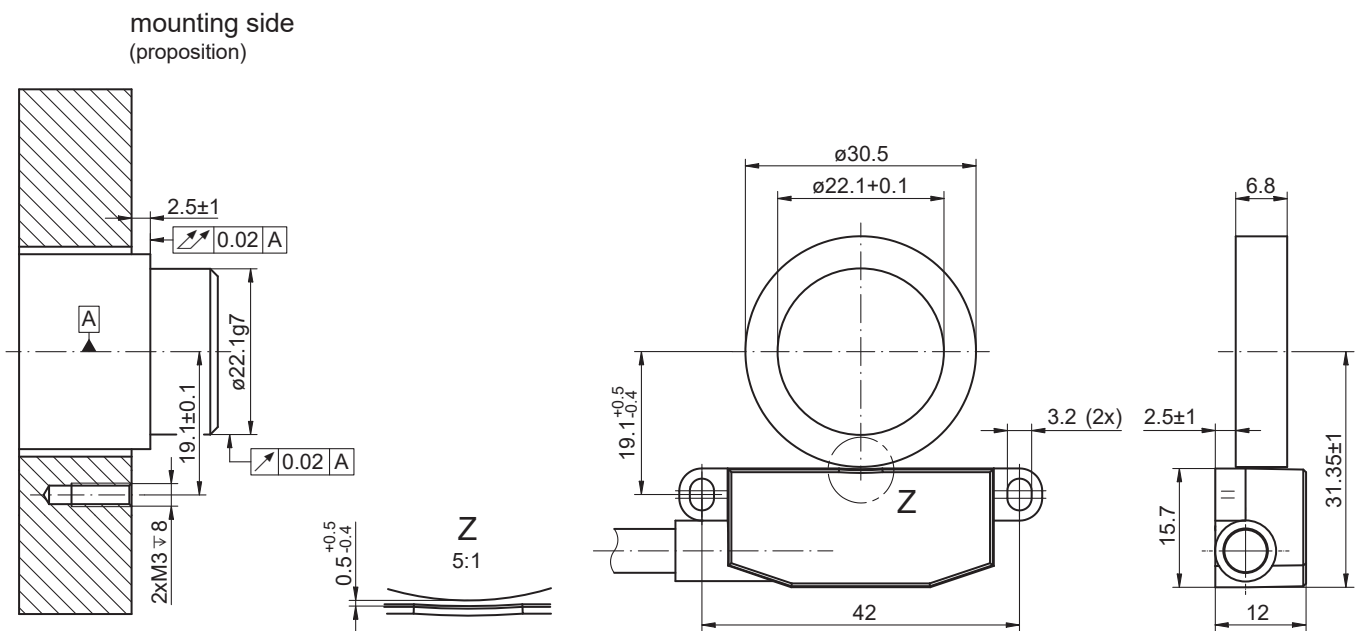
32...1024 pulses per revolution

Article number: 11705077

## Dimensions

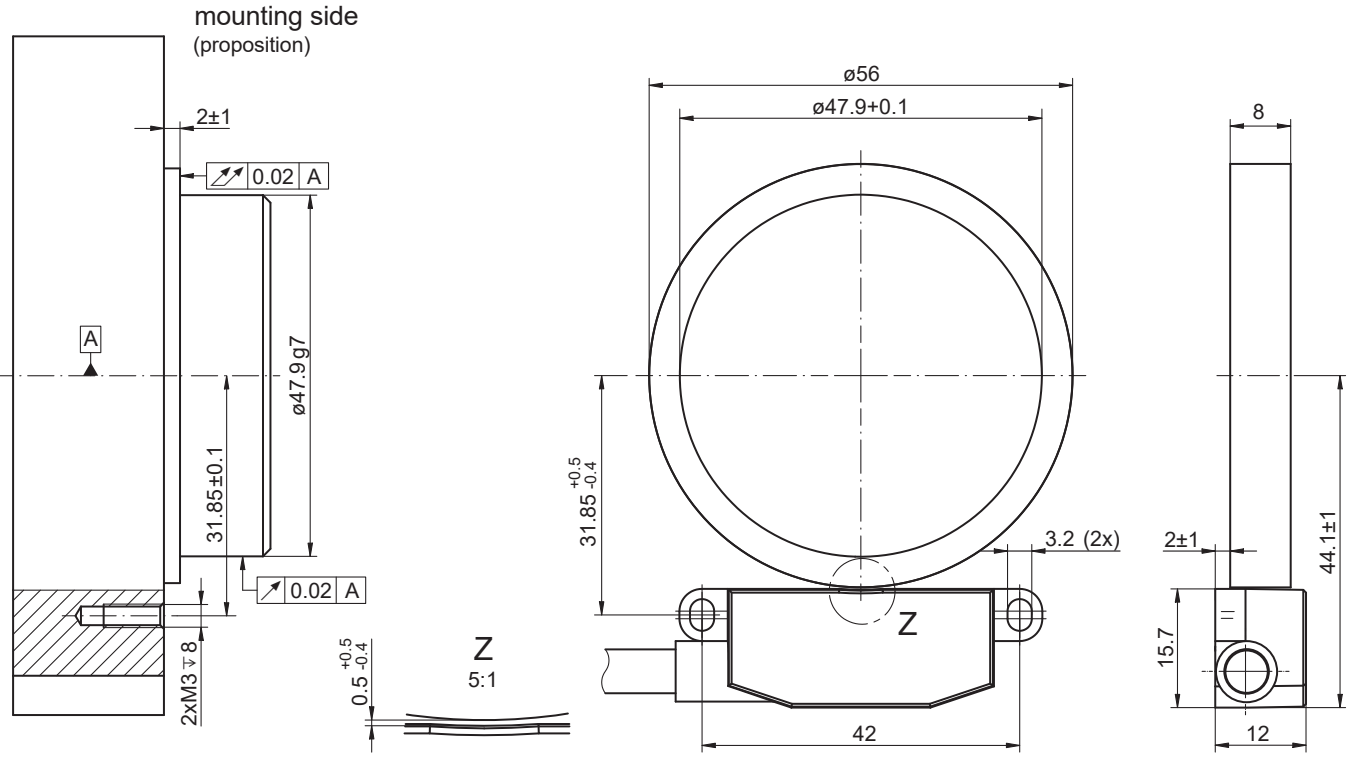


EB200E.IR-FN with EBS.R-FN064.S for screw mounting



EB200E.IR-FN with EBS.R-FN032.B for bonding

**Dimensions**



# EB200E.IR-FN.8L2C5.008L

32...1024 pulses per revolution

Article number: 11705077

## Article number

### Sensor

| Article number | Typecode                | Description                            |
|----------------|-------------------------|--|
| 11705003       | EB200E.IR-FN.8L2C2.008L | Cable 2 m                              |
| 11705077       | EB200E.IR-FN.8L2C5.008L | Cable 5 m                              |
| 11705449       | EB200E.IR-FN.8L2GN.008L | Connector M12 after 0.3 m cable outlet |
| 11266072       | EB200E.IR-FN.8L2E0.008L | Connector M8 on housing                |

### Magnetic rotor (accessory, needs to be ordered separately)

| Article number | Typecode                        | Description  |
|----------------|---------------------------------|--|
| 11706601       | EBS.R-FN032.S008.A14.P0031      | 32 poles, screw mounting, ID=8 mm, OD=31 mm            |
| 11721558       | EBS.R-FN032.S010.A14.P0031      | 32 poles, screw mounting, ID=10 mm, OD=31 mm           |
| 11704973       | EBS.R-FN032.S012.A14.P0031      | 32 poles, screw mounting, ID=12 mm, OD=31 mm           |
| 11704974       | EBS.R-FN032.S014.A14.P0031      | 32 poles, screw mounting, ID=14 mm, OD=31 mm           |
| 11704975       | EBS.R-FN064.S025.A15.P0056      | 64 poles, screw mounting, ID=25 mm, OD=56 mm           |
| 11729187       | EBS.R-FN064.S1Z0.A15.P0056      | 64 poles, screw mounting, ID=25.4 mm, OD=56 mm         |
| 11705452       | EBS.R-FN032.B022.N0A.P0031      | 32 poles, for bonding, ID=22.1 mm, OD=31 mm            |
| 11705527       | EBS.R-FN032.B022.N0A.P0031_9503 | 32 poles, for bonding, ID=22.1 mm, OD=31 mm, 36 pieces |
| 11705453       | EBS.R-FN064.B048.N08.P0056      | 64 poles, for bonding, ID=47.9 mm, OD=56 mm            |
| 11705528       | EBS.R-FN064.B048.N08.P0056_9502 | 64 poles, for bonding, ID=47.9 mm, OD=56 mm, 48 pieces |

## Possible pulse numbers

| Sensor EB200E.IR<br>Parameterizable interpolation | Magnetic rotor (32 poles)<br>EBS.R-FN032 | Magnetic rotor (64 poles)<br>EBS.R-FN064 |
|---|--|--|
| 1-fold  | 32                                       | 64                                       |
| 2-fold  | 64                                       | 128                                      |
| 3-fold  | 96                                       | 192                                      |
| 4-fold  | 128                                      | 256                                      |
| 5-fold  | 160                                      | 320                                      |
| 8-fold  | 256                                      | 512                                      |
| 10-fold   | 320                                      | 640                                      |
| 12-fold   | 384                                      | 768                                      |
| 16-fold   | 512                                      | 1024                                     |

## Accessories

### Mounting accessories

11250175 Mounting kit EB200E

### Programming accessories

11214576 SensControl

11234828 USB-C IO-Link Master