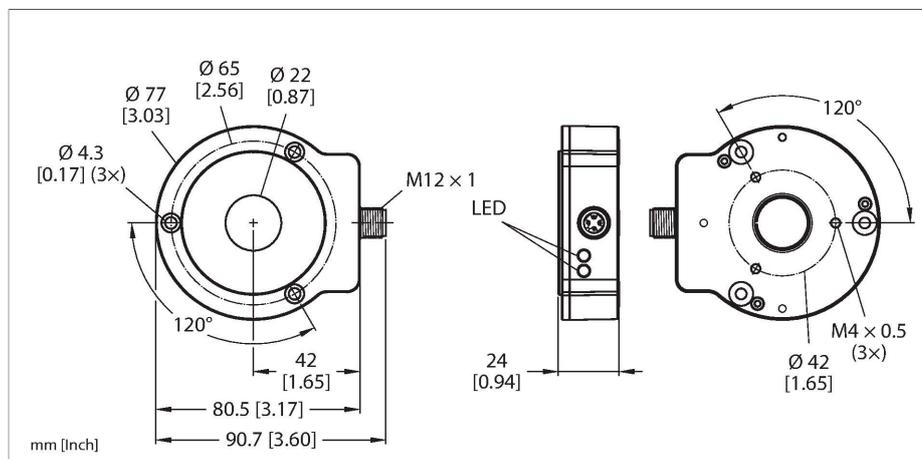


# RI360P0-EQR24M0-IOLX2-H1141

## Contactless Encoder with Stainless Steel Housing – IO-Link Premium Line



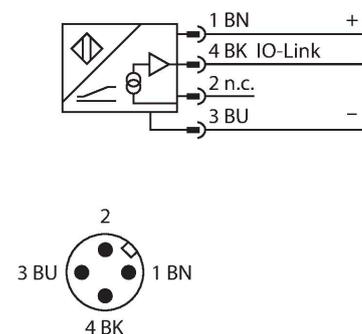
### Technical data

|                                             |                                                            |
|---------------------------------------------|------------------------------------------------------------|
| Type                                        | RI360P0-EQR24M0-IOLX2-H1141                                |
| ID                                          | 1590978                                                    |
| Measuring principle                         | Inductive                                                  |
| <b>General data</b>                         |                                                            |
| Max. rotational speed                       | 800 rpm                                                    |
| Starting torque shaft load (radial / axial) | not applicable, because of contactless measuring principle |
| Measuring range                             | 0...360 °                                                  |
| Nominal distance                            | 1.5 mm                                                     |
| Repeat accuracy                             | ≤ 0.01 % of full scale                                     |
| Linearity deviation                         | ≤ 0.05 % f.s.                                              |
| Temperature drift                           | ≤ ± 0.003 %/K                                              |
| Output type                                 | Absolute semi-multiturn                                    |
| Resolution singleturn                       | 16 bit/65,536 units per revolution                         |
| Resolution multiturn                        | 13 bit/8192 revolutions                                    |
| Number of diagnostic bits                   | 3 Bit                                                      |
| <b>Electrical data</b>                      |                                                            |
| Operating voltage $U_B$                     | 15...30 VDC                                                |
| Ripple $U_{ss}$                             | ≤ 10 % $U_{Bmax}$                                          |
| Isolation test voltage                      | 0.5 kV                                                     |
| Wire break/reverse polarity protection      | yes (voltage supply)                                       |
| Communication protocol                      | IO-Link                                                    |
| Sample rate                                 | 1000 Hz                                                    |
| Current consumption                         | < 50 mA                                                    |

### Features

- Compact, rugged housing
- Active face, plastic PA12-GF30
- Housing, stainless steel V4A (1.4404)
- Status displayed via LED
- Immune to electromagnetic interference
- 16 bits singleturn
- Process value in 32 bit IO-Link telegram
- 3 error bits
- 16 bits singleturn
- 13 bits multiturn
- 15...30 VDC
- M12 × 1 male connector, 4-pin

### Wiring diagram



### Functional principle

The measuring principle of inductive encoders is based on oscillation circuit coupling between the positioning element and the sensor, whereby an output signal is provided proportional to the angle of the positioning element. Turck refers to semi-multiturn because the multiturn process data is calculated internally from the number

## Technical data

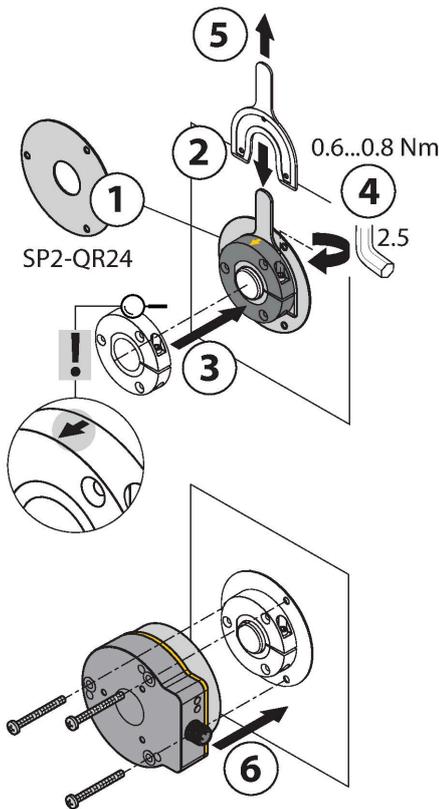
| IO-Link                                     |                                                                       |
|---------------------------------------------|-----------------------------------------------------------------------|
| IO-Link specification                       | V 1.1                                                                 |
| Programming                                 | FDT/DTM                                                               |
| Communication mode                          | COM 2 (38.4 kBaud)                                                    |
| Process data width                          | 32 bit                                                                |
| Minimum cycle time                          | 3 ms                                                                  |
| Function pin 4                              | IO-Link                                                               |
| Included in the SIDI GSDML                  | Yes                                                                   |
| Mechanical data                             |                                                                       |
| Design                                      | EQR24                                                                 |
| Dimensions                                  | 81 x 78 x 24 mm                                                       |
| Flange type                                 | Flange without mounting element                                       |
| Shaft Type                                  | Hollow shaft                                                          |
| Shaft diameter D (mm)                       | 6<br>6.35<br>9.525<br>10<br>12<br>12.7<br>14<br>15.875<br>19.05<br>20 |
| Housing material                            | Stainless-steel/Plastic, 1.4404 (AISI 316L)/PA12-GF30                 |
| Electrical connection                       | Connector                                                             |
| Environmental conditions                    |                                                                       |
| Ambient temperature                         | -25...+85 °C<br>Acc. to UL approval to +70 °C                         |
| Vibration resistance                        | 55 Hz (1 mm)                                                          |
| Vibration resistance (EN 60068-2-6)         | 20 g; 10...3000 Hz; 50 cycles; 3 axes                                 |
| Shock resistance (EN 60068-2-27)            | 100 g; 11 ms ½ sine; 3 × each; 3 axes                                 |
| Continuous shock resistance (EN 60068-2-29) | 40 g; 6 ms ½ sine; 4000 × each; 3 axes                                |
| Protection class                            | IP68<br>IP69K                                                         |
| MTTF                                        | 138 years acc. to SN 29500 (Ed. 99) 40 °C                             |
| Power-on indication                         | LED, Green                                                            |
| Measuring range display                     | LED, yellow, yellow flashing                                          |
| Included in delivery                        | Adapter sleeve MT-QR24                                                |
| UL certificate                              | E210608                                                               |

of single-turn zero passes. Because the sensor does not detect any revolutions when not supplied with power, the plausibility of the multiturn process data is indicated by a diagnostic bit. The rugged sensors are maintenance- and wear-free thanks to the contactless operating principle. They convince through their excellent repeatability, resolution and linearity within a broad temperature range. The innovative technology ensures high immunity to electromagnetic DC and AC fields.

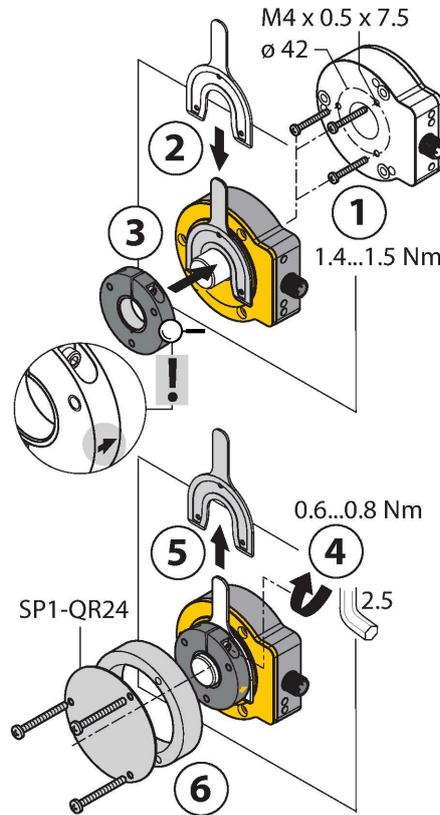
## Mounting instructions

Mounting instructions/Description

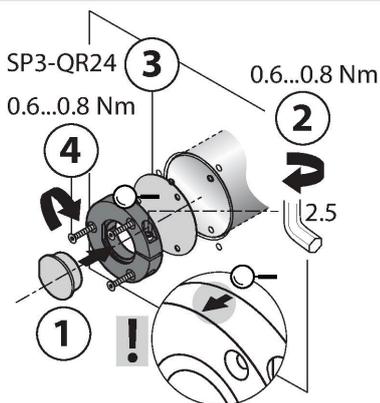
**A**



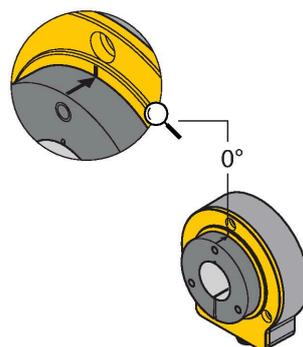
**B**



**C**



**Default: 0°**



Extensive range of mounting accessories for easy adaptation to many different shaft diameters. Based on the functional principle of RLC coupling, the sensor operates absolutely wear-free and is immune to magnetized metal splinters and other interference fields. Wrong installation is hardly possible.

The adjacent figure shows the two separate units, sensor and positioning element.

Mounting option A:

First, interconnect positioning element and rotatable shaft. Then place the encoder above the rotating part in such a way that you get a tight and protected unit.

Mounting option B:

Push the encoder on the back site of the shaft and fasten it to the machine. Then clamp the positioning element to the shaft with the bracket.

Mounting option C:

If the positioning element is to be screwed on a rotating machine part and not on a shaft, install first the dummy plug RA8-QR24. Then tie up the bracket. Screw on the encoder via the three bores.

The separately arranged sensor and positioning element inhibit that compensating currents or damaging mechanical loads are transmitted via the shaft to the sensor. In addition, the encoder remains tight and highly protected during its entire lifespan.

The accessories enclosed in the delivery help to mount encoder and positioning element at an optimal distance from each other. LEDs indicate the switching status. Optionally, you can use the shields which are included in the accessories to increase the allowed distance between positioning element and sensor.

Status display via LED

green steady:

Sensor is operative

yellow steady:

Positioning element has reached the end of the measuring range. This is indicated by a weaker signal.

yellow flashing:

Positioning element is outside the measuring range.

off:

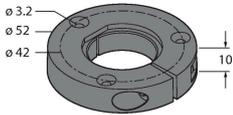
Positioning element is in the measuring range

## Accessories

PE1-EQR24

1590966

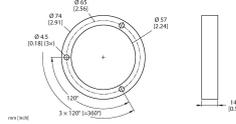
Positioning element with stainless steel compression fitting, without adapter sleeve



M5-QR24

1590965

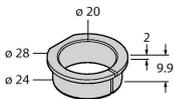
Plastic protecting ring for encoders RI-EQR24



RA1-EQR24

1593019

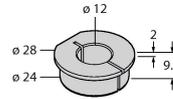
Stainless steel adapter sleeve, for Ø 20 mm shafts



RA3-EQR24

1593020

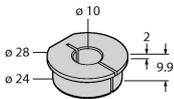
Stainless steel adapter sleeve, for Ø 12 mm shafts



RA4-EQR24

1593023

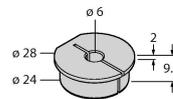
Stainless steel adapter sleeve, for Ø 10 mm shafts



RA5-EQR24

100000375

Stainless steel adapter sleeve, for Ø 6 mm shafts



RA8-EQR24

100000289

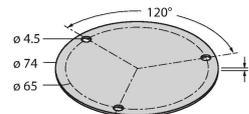
Stainless steel plug for mounting option C



SP1-EQR24

1590979

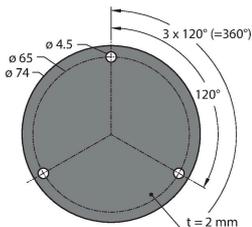
Shield plate Ø 74 mm, stainless steel



SP5-QR24

100003689

Protective plate Ø 74 mm, plastic



Accessories

| Dimension drawing | Type         | ID      |                                                                                                                                                                        |
|-------------------|--------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | RKCV4T-2/TXL | 6627934 | Connection cable, M12 female connector, straight, 3-pin, cable length: 2 m, jacket material: PUR, black; stainless steel coupling nut; cULus approval                  |
|                   | RKH4-2/TFG   | 6934384 | Connection cable, M12 female connector, straight, 3-pin, stainless steel coupling nut, cable length: 2 m, jacket material: TPE, gray; temperature range: -40...+105 °C |