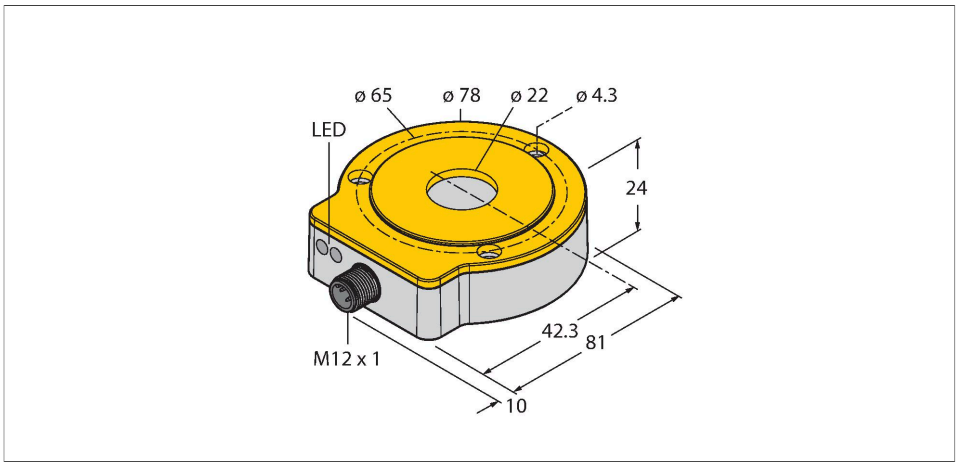
# RI360P0-QR24M0-0100X2-H1181
# Contactless Encoder – Incremental: 100 ppr
# Premium Line



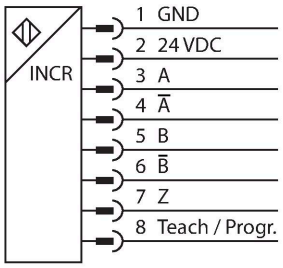

## Technical data

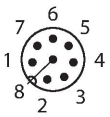
| | |
|---|---|
| Type | RI360P0-QR24M0-0100X2-H1181 |
| Ident. no. | 1593108 |
| Measuring principle | Inductive |
| Max. Rotational Speed | 10000 rpm |
| | Determined with standardized construction, with a steel shaft Ø 20 mm, L = 50 mm and reducer Ø 20 mm |
| Starting torque shaft load (radial / axial) | not applicable, because of contactless measuring principle |
| Nominal distance | 1.5 mm |
| Repeat accuracy | ≤ 0.01 % of full scale |
| Linearity deviation | ≤ 0.05 %f.s. |
| Temperature drift | ≤ ± 0.003 % / K |
| Ambient temperature | -25…+85 °C |
| Operating voltage | 10…30 VDC |
| Residual ripple | ≤ 10 % $U_{ss}$ |
| Isolation test voltage | ≤ 0.5 kV |
| Short-circuit protection | yes / Cyclic |
| Wire breakage/Reverse polarity protection | yes / yes (voltage supply) |
| Output type | Incremental |
| Resolution, incremental | 100 ppr |
| Pulse frequency max. | 200 kHz |
| Signal level high | min. $U_B$ - 2 V |
| Signal level low | max. 2.0 V |

## Features

- Compact, rugged housing
- Many mounting possibilities
- Status displayed via LED
- Immune to electromagnetic interference
- Position of z-track can be set via Easy-Teach
- Burst function, absolute angular position output incrementally via Easy-Teach pulse
- 10…30 VDC
- Male M12 x 1, 8-pin
- Push-pull A, B, Z, A (inverse), B (inverse)

## Wiring diagram




## Functional principle

The measuring principle of inductive angle sensors 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. The rugged sensors are wear and maintenance-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 a high immunity to electromagnetic DC and AC fields.

RI360P0-QR24M0-0100X2-H1181| 09/09/2020 17-03 | technical changes reserved

## Technical data

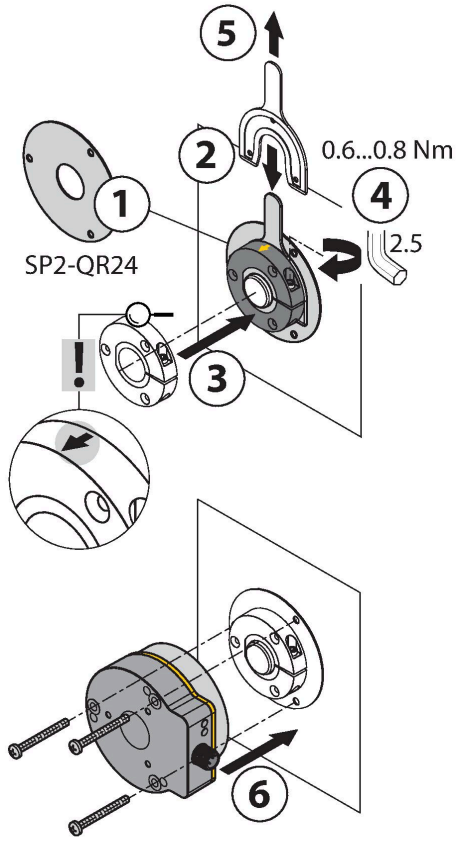
| | |
|---|---|
| Output function | 8-pin, Push-Pull/HTL |
| Sample rate | 1000 Hz |
| Current consumption | < 100 mA |
| **Design** | QR24 |
| Dimensions | 81 x 78 x 24 mm |
| Flange type | Flange without mounting element |
| Shaft Type | Hollow shaft |
| Shaft diameter D [mm] | 6<br>6.35<br>9.525<br>10<br>12<br>12.7<br>14<br>15.875<br>19.05<br>20 |
| Housing material | Metal/plastic, ZnAlCu1/PBT-GF30-V0 |
| Electrical connection | Connector, M12 × 1 |
| 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 sinus; each 3x; 3 axes |
| Continuous shock resistance (EN 60068-2-29) | 40 g; 6 ms ½ sinus; each 4000 x; 3 axes |
| Protection class | IP68 / IP69K |
| MTTF | 138 years acc. to SN 29500 (Ed. 99) 40 °C |
| **Power-on indication** | LED, Green |
| Measuring range display | LED, yellow, yellow flashing |

RI360P0-QR24M0-0100X2-H1181| 09/09/2020 17-03 | technical changes reserved

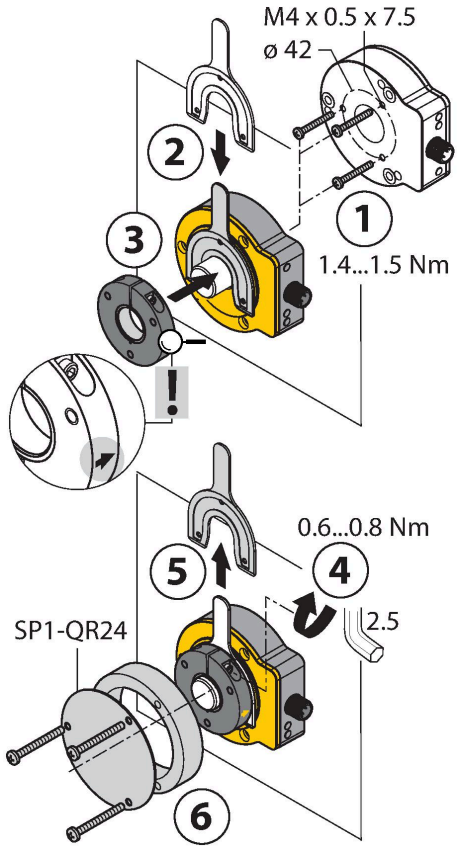
## Mounting instructions

Mounting instructions/Description

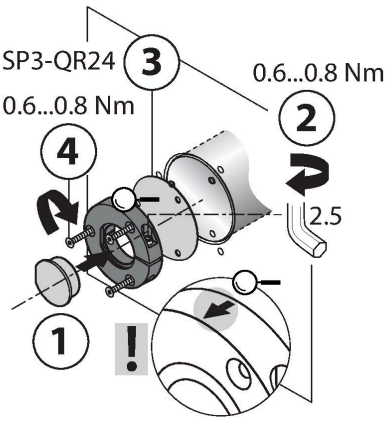
### A



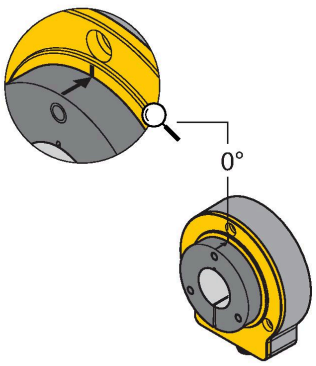

### B




### 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, use the RA0-QR24 plug which is included in the delivery. 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.

Status display via LED
green steady:
Optimal sensor supply
yellow steady:
Positioning element has reached the end of the measuring range. This is indicated by a lower signal quality.
yellow flashing:
Positioning element is outside the measuring range.
off:
Positioning element is in the measuring range.

RI360P0-QR24M0-0100X2-H1181| 09/09/2020 17-03 | technical changes reserved

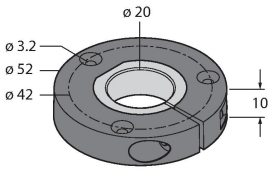
Individual Parameterization (Teaching with Positioning Element)

| Jumper between teach input Pin 8 | Gnd Pin 1 | Ub Pin 2 | LED |
|---|---|---|---|
| 2 s | Z-track zero point teaching | One-time triggering of burst function | Status LED flashes then turns steady after 2 s |
| 10 s | CCW rotation direction | CW rotation direction | After 10 s status LED flashes fast for 2 s |
| 15 s | - | Factory setting (z-track, CW) | After 15 s power and status LED alternate |

To avoid unintended teaching, keep pin 8 potential-free.

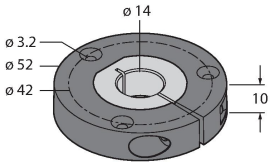
## Accessories

P1-RI-QR24 1590921



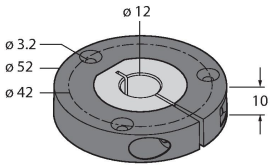

Positioning element, for Ø 20 mm shafts

P2-RI-QR24 1590922



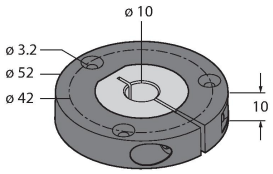

Positioning element, for Ø 14 mm shafts

P3-RI-QR24 1590923



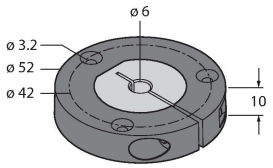

Positioning element, for Ø 12 mm shafts

P4-RI-QR24 1590924



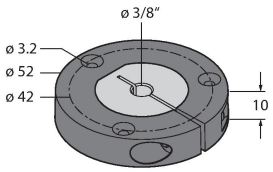

Positioning element, for Ø 10 mm shafts

P5-RI-QR24 1590925



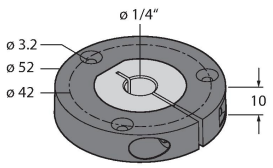

Positioning element, for Ø 6 mm shafts

P6-RI-QR24 1590926



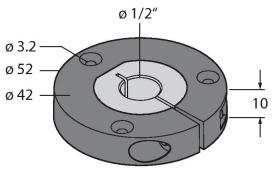

Positioning element, for Ø 3/8“ shafts

P7-RI-QR24 1590927



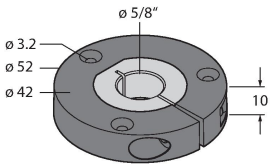

Positioning element, for Ø 1/4“ shafts

P9-RI-QR24 1593012



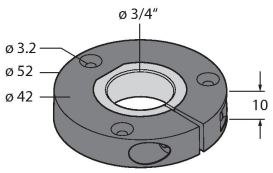

Positioning element for installation on Ø 1/2“ shafts

P10-RI-QR24 1593013



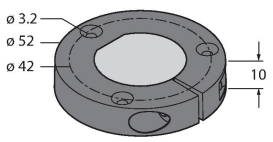

Positioning element for installation on Ø 5/8“ shafts

P11-RI-QR24 1593014



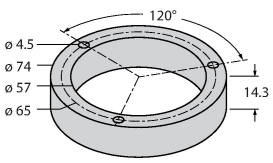

Positioning element for installation on Ø 3/4“ shafts

P8-RI-QR24 1590916




Positioning element with blanking plug for large shafts

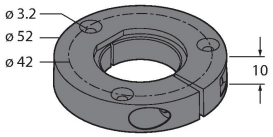
M1-QR24 1590920




Aluminum protecting ring, for inductive encoders RI-QR24

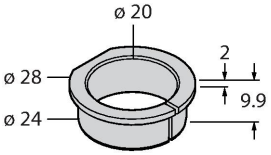
RI360P0-QR24M0-0100X2-H1181| 09/09/2020 17-03 | technical changes reserved

| PE1-QR24 | 1590937 |
|---|---|



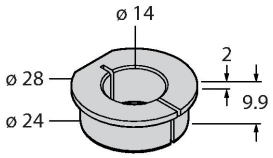

Positioning element without adapter sleeve

| RA1-QR24 | 1590928 |
|---|---|



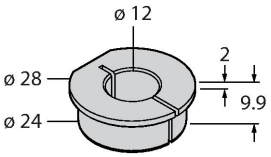

Adapter sleeve, for Ø 20 mm shafts

| RA2-QR24 | 1590929 |
|---|---|



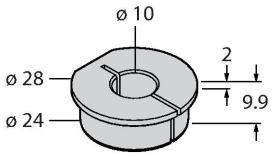

Adapter sleeve, for Ø 14 mm shafts

| RA3-QR24 | 1590930 |
|---|---|



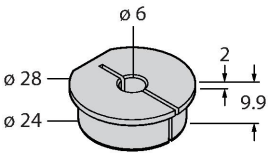

Adapter sleeve, for Ø 12 mm shafts

| RA4-QR24 | 1590931 |
|---|---|



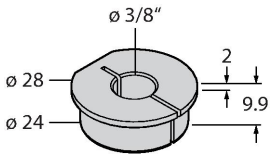

Adapter sleeve, for Ø 10 mm shafts

| RA5-QR24 | 1590932 |
|---|---|



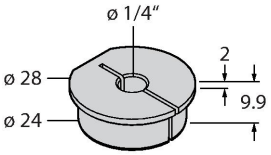

Adapter sleeve, for Ø 6 mm shafts

| RA6-QR24 | 1590933 |
|---|---|



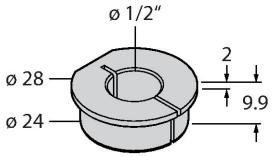

Adapter sleeve, for Ø 3/8“ shafts

| RA7-QR24 | 1590934 |
|---|---|



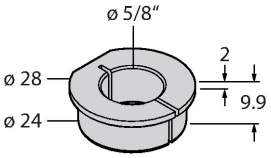

Adapter sleeve, for Ø 1/4“ shafts

| RA9-QR24 | 1590960 |
|---|---|



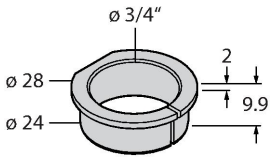

Adapter sleeve, for Ø 1/2" shafts

| RA10-QR24 | 1590961 |
|---|---|



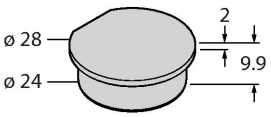

Adapter sleeve, for Ø 5/8" shafts

| RA11-QR24 | 1590962 |
|---|---|



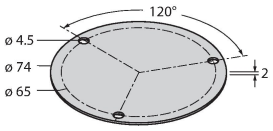

Adapter sleeve, for Ø 3/4" shafts

| RA8-QR24 | 1590959 |
|---|---|



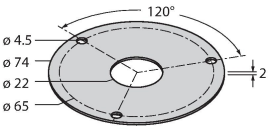

Plug for mounting option C

| SP1-QR24 | 1590938 |
|---|---|



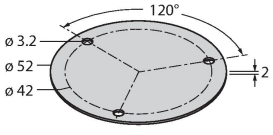

Shield plate Ø 74 mm, aluminium

| SP2-QR24 | 1590939 |
|---|---|



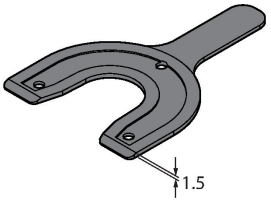

Shield plate Ø 74 mm, aluminiuim, with borehole for shaft feedthrough

| SP3-QR24 | 1590958 |
|---|---|




Shield plate Ø 52 mm, aluminium

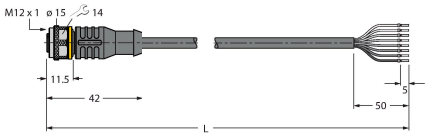
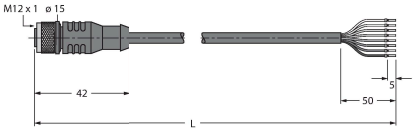
| MT-QR24 | 1590935 |
|---|---|




Mounting aid for optimal alignment of positioning element

RI360P0-QR24M0-0100X2-H1181| 09/09/2020 17-03 | technical changes reserved

## Wiring accessories

| Dimension drawing | Type | Ident. no. | |
|---|---|---|---|
|  | RKC8T-2/TXL | 6625142 | Connection cable, female M12, straight, 8-pin, cable length: 2 m, sheath material: PUR, black; cULus approval; other cable lengths and qualities available, see www.turck.com |
|  | E-RKC 8T-264-2 | U-04781 | Connection cable, female M12, straight, 8-pin (twisted pairs),shielded, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com |

RI360P0-QR24M0-0100X2-H1181| 09/09/2020 17-03 | technical changes reserved