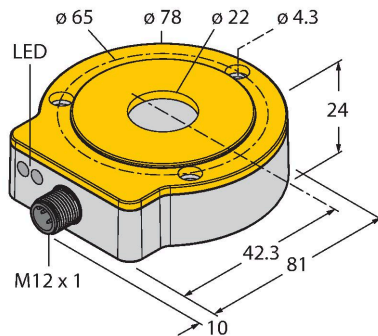


RI360P0-QR24M0-IOLX2-H1141/3GD

Contactless Encoder with ATEX Certificate – IO-Link, 3GD, Zone 2 (22)

Premium Line



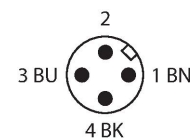
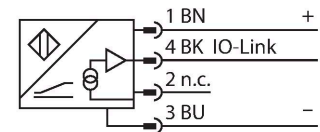
Features

- Compact, rugged housing
- Many mounting possibilities
- 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
- ATEX category II 3 G, Ex zone 2
- ATEX category II 3 D, Ex zone 22

Technical data

Type	RI360P0-QR24M0-IOLX2-H1141/3GD
Ident. no.	100003122
Measuring principle	Inductive
Max. Rotational Speed	800 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
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
Ambient temperature	-25...+85 °C
Operating voltage	15...30 VDC
Residual ripple	≤ 10 % U _{ss}
Isolation test voltage	≤ 0.5 kV
Wire breakage/Reverse polarity protection	yes (voltage supply)
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

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 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

Technical data

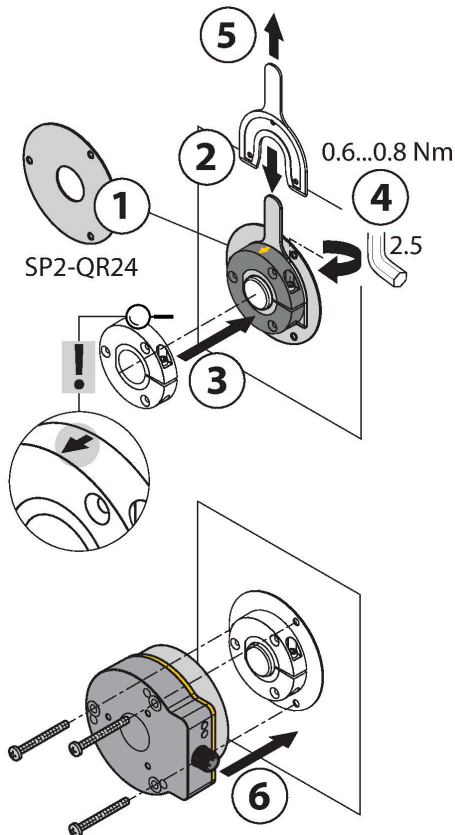
innovative technology ensures high immunity to electromagnetic DC and AC fields.

Communication protocol	IO-Link
Sample rate	1000 Hz
Current consumption	< 50 mA
Approval acc. to	ATEX declaration of conformity
Device marking	II 3 G Ex ec IIA T4 Gc II 3 D Ex tc IIIC T100°C Dc
IO-Link specification	Specified acc. to version 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
Design	QR24
Dimensions	81 x 78 x 24 mm
Flange type	Flange without mounting element
Shaft Type	Hollow shaft
Shaft diameter D [mm]	6 6.35 9.525 10 12 12.7 14 15.875 19.05 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

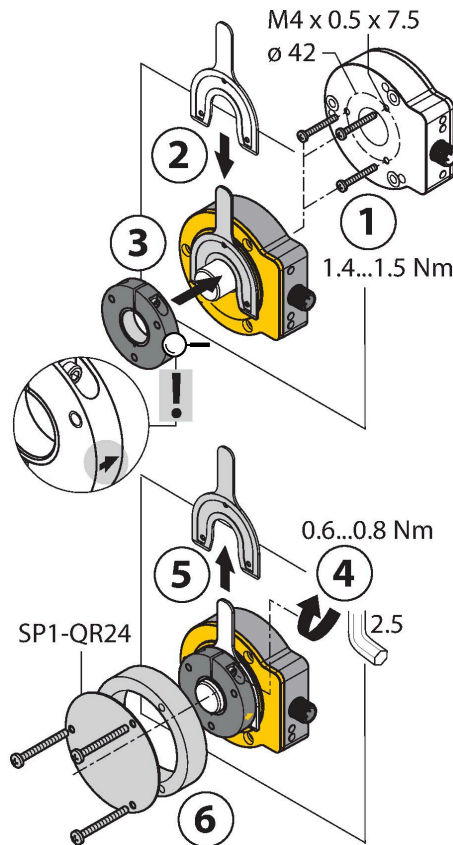
Mounting instructions

Mounting instructions/Description

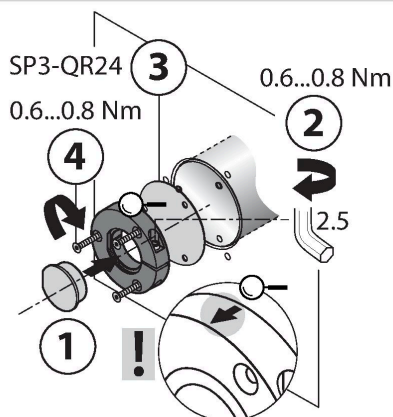
A



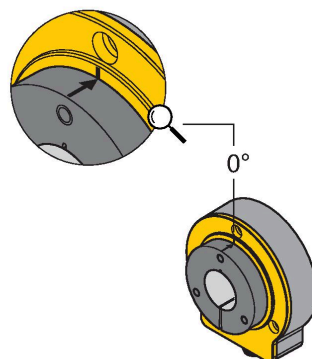
B



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 side 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.

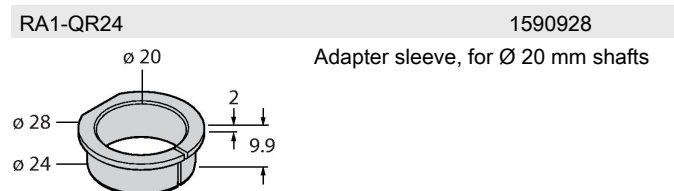
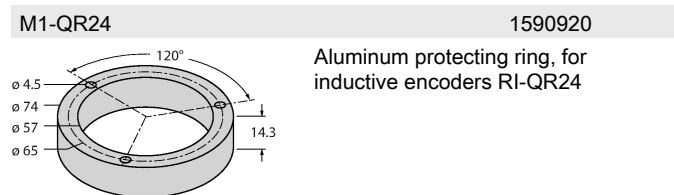
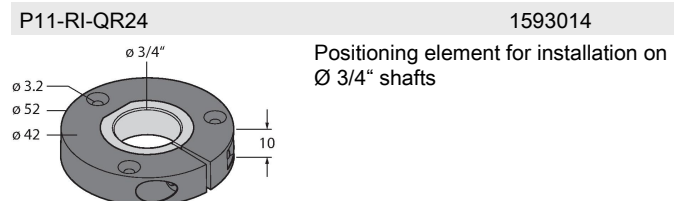
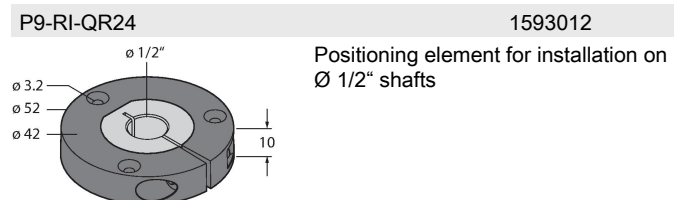
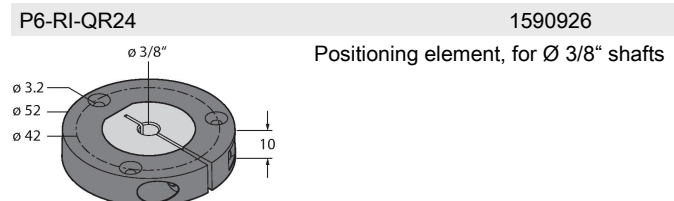
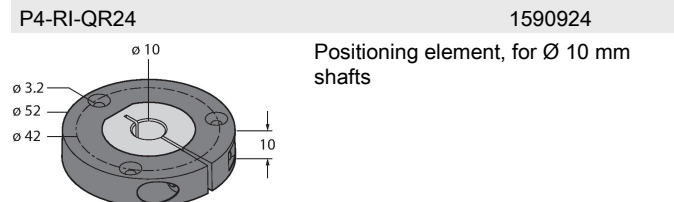
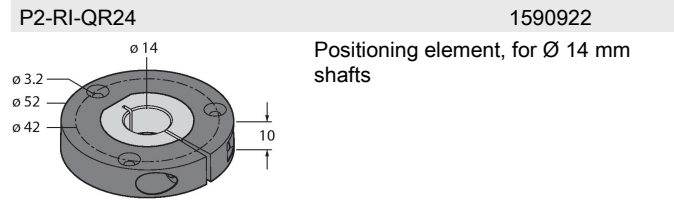
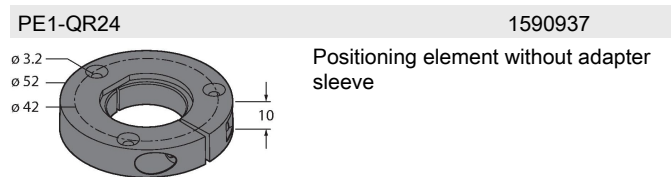
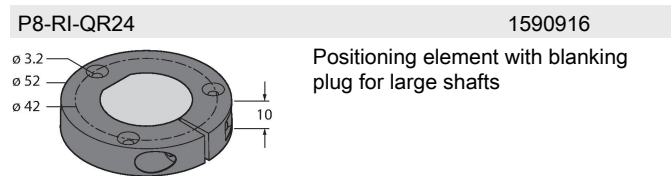
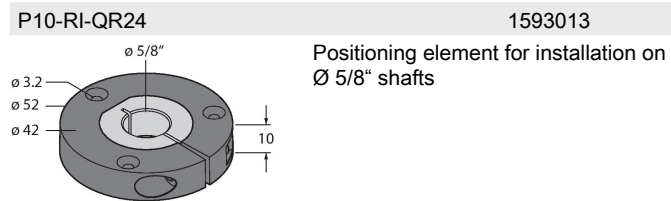
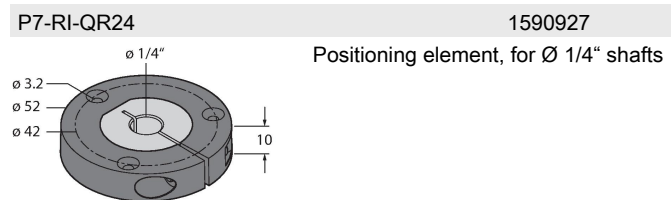
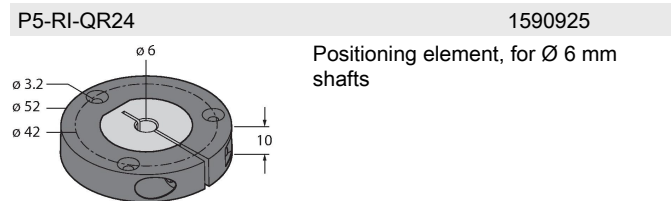
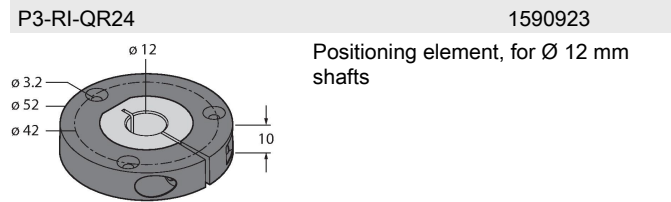
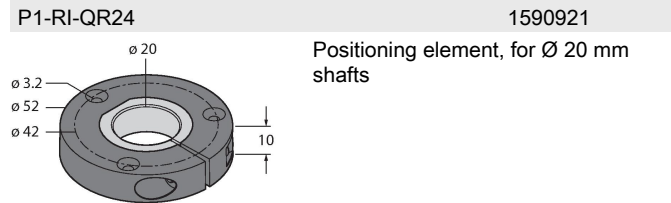
yellow flashing:

Positioning element is outside the measuring range.

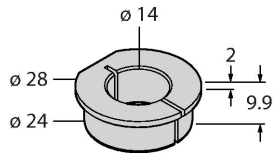
off:

Positioning element is in the measuring range.

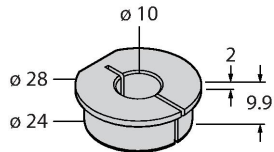
Accessories



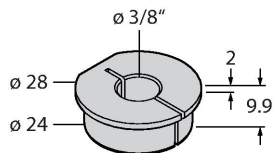
RA2-QR24 1590929
Adapter sleeve, for Ø 14 mm shafts



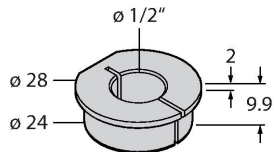
RA4-QR24 1590931
Adapter sleeve, for Ø 10 mm shafts



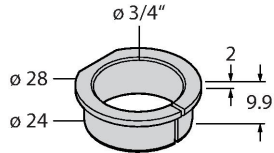
RA6-QR24 1590933
Adapter sleeve, for Ø 3/8" shafts



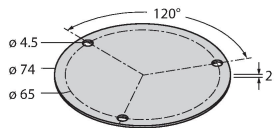
RA9-QR24 1590960
Adapter sleeve, for Ø 1/2" shafts



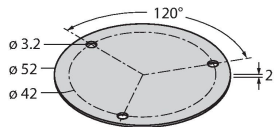
RA11-QR24 1590962
Adapter sleeve, for Ø 3/4" shafts



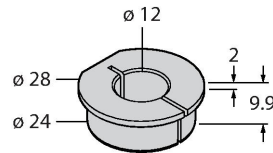
SP1-QR24 1590938
Shield plate Ø 74 mm, aluminium



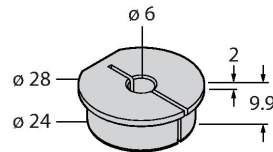
SP3-QR24 1590958
Shield plate Ø 52 mm, aluminium



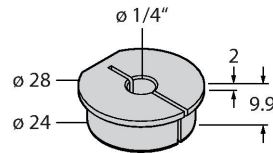
RA3-QR24 1590930
Adapter sleeve, for Ø 12 mm shafts



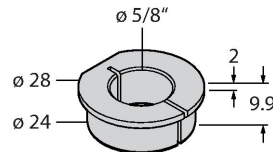
RA5-QR24 1590932
Adapter sleeve, for Ø 6 mm shafts



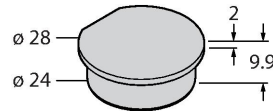
RA7-QR24 1590934
Adapter sleeve, for Ø 1/4" shafts



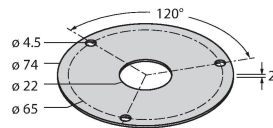
RA10-QR24 1590961
Adapter sleeve, for Ø 5/8" shafts



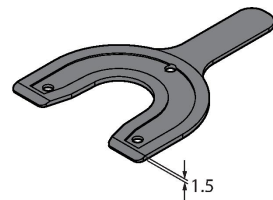
RA8-QR24 1590959
Plug for mounting option C



SP2-QR24 1590939
Shield plate Ø 74 mm, aluminium, with borehole for shaft feedthrough



MT-QR24 1590935
Mounting aid for optimal alignment of positioning element



Operating Instructions

Intended use

In order to ensure correct operation to the intended purpose it is required to observe the national regulations and directives.

For use in explosion hazardous areas conform to classification

II 3 G and II 3 D (Group II, Category 3 G, electrical equipment for gaseous atmospheres and category 3 D, electrical equipment for dust atmospheres).

Installation/Commissioning

These devices may only be installed, connected and operated by trained and qualified staff. Qualified staff must have knowledge of protection classes, directives and regulations concerning electrical equipment designed for use in explosion hazardous areas. Please verify that the classification and the marking on the device comply with the actual application conditions.

Installation and mounting instructions

Avoid static charging of cables and plastic devices. Please only clean the device with a damp cloth. Do not install the device in a dust flow and avoid build-up of dust deposits on the device. If the devices and the cable could be subject to mechanical damage, they must be protected accordingly. They must also be shielded against strong electro-magnetic fields. The pin configuration and the electrical specifications can be taken from the device marking or the technical data sheet. In order to avoid contamination of the device, please remove possible blanking plugs of the cable glands or connectors only shortly before inserting the cable or opening the cable socket.

Special conditions for safe operation

Devices with terminal chamber (cable glands) have a weaker strain relief. Sufficient strain relief must be ensured or the cable must be stationary-mounted. Do not disconnect the plug-in connection or cable under voltage. Please attach a warning label permanently in an appropriate fashion in close proximity to the plug-in connection with the following inscription: Nicht unter Spannung trennen / Do not separate when energized.

Service/Maintenance

Repairs are not possible. The approval expires if the device is repaired or modified by a person other than the manufacturer. The most important data from the approval are listed.