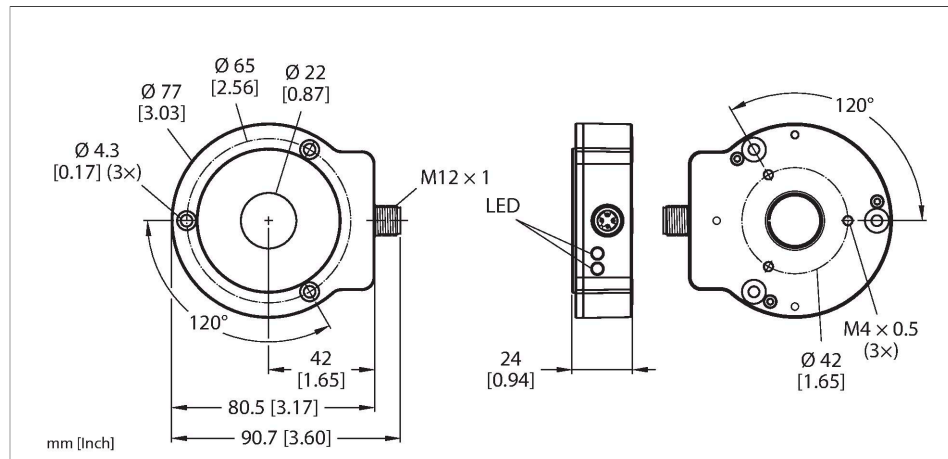


# RI360P0-QR24M0-IOLX2-H1141

## Contactless Encoder – IO-Link

### Premium Line



#### Technical data

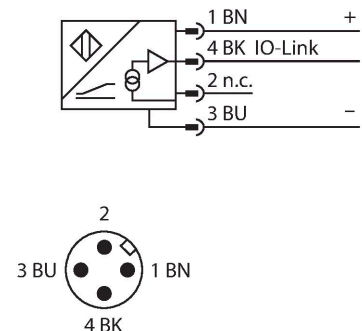
Type	RI360P0-QR24M0-IOLX2-H1141
ID	1590975
Measuring principle	Inductive
<b>General data</b>	
Max. rotational speed	800 rpm
	Determined with standardized construction, with a steel shaft Ø 20 mm, L = 50 mm and reducer Ø 20 mm.
Starting torque shaft load (radial / axial)	not applicable, because of contactless 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
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)



#### Features

- Compact and robust housing
- Versatile mounting options
- 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

## Technical data

Communication protocol	IO-Link
Sample rate	1000 Hz
Current consumption	< 50 mA
<b>IO-Link</b>	
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
<b>Mechanical data</b>	
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
<b>Environmental conditions</b>	
Ambient temperature	-25...+85 °C
	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 IP69K
MTTF	138 years acc. to SN 29500 (Ed. 99) 40 °C
Power-on indication	LED, Green
Measuring range display	LED, yellow, yellow flashing

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

## Technical data

Included in delivery	MT-QR24 mounting aid
UL certificate	E210608

## Mounting instructions

Mounting instructions/Description	
<p><b>A</b></p> <p>SP2-QR24</p> <p>0.6...0.8 Nm</p> <p>1.4...1.5 Nm</p>	<p><b>B</b></p> <p>SP1-QR24</p> <p>0.6...0.8 Nm</p> <p>1.4...1.5 Nm</p>
<p><b>C</b></p> <p>SP3-QR24</p> <p>0.6...0.8 Nm</p> <p>1.4...1.5 Nm</p>	<p><b>Default: 0°</b></p> <p>0°</p>

The extensive range of mounting accessories enables easy adaptation to many different shaft diameters. Due to the measuring principle, which is based on the functional principle of an RLC coupling, the encoder is immune to magnetized ferrous chips and other interferences. As a result, there are few possible causes of error during mounting. The adjacent figures show the simple installation of the two separate units: the sensor element and the positioning element:

**Mounting option A:**  
First, connect the positioning element to the rotatable shaft using the bracket. Then place the encoder with the aluminum ring above the rotating part in such a way that you get a closed and protected unit.

**Mounting option B:**  
Slide the encoder backward onto the shaft and fasten it to the machine. Then fasten the positioning element to the shaft using the bracket.

**Mounting option C:**  
If the positioning element is screwed onto a rotating machine part rather than being put on a shaft, you must first insert the dummy plug RA8-QR24. Then tighten the bracket. Next, mount the encoder via the three bores.

Due to the separate installation of positioning element and sensor, no electrical currents or harmful mechanical forces are transmitted to the sensor via the shaft. The encoder also offers a high degree of protection throughout its service life and stays permanently sealed. During commissioning, the accessories included in the delivery help to mount the encoder and the positioning element at an optimal distance from each other. In addition, LEDs indicate the status. Optionally, you can use the shield plates included in the accessories to increase the permitted distance between the positioning element and the sensor.

**Status display via LED**  
Green:  
Sensor is being supplied properly  
Yellow:  
Positioning element is within the measuring range, low signal quality (e.g. distance too great)  
Yellow flashing:  
Positioning element is outside the detection range  
Off:  
Positioning element is within the measuring range

## Accessories

### P1-RI-QR24 1590921



### P2-RI-QR24 1590922



### P3-RI-QR24 1590923



### P4-RI-QR24 1590924



### P5-RI-QR24 1590925



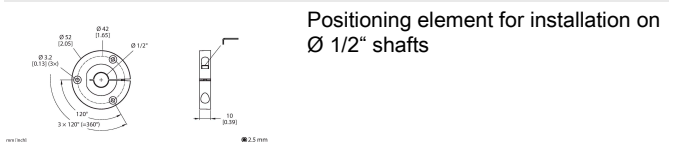
### P6-RI-QR24 1590926



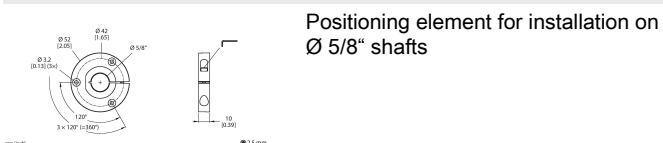
### P7-RI-QR24 1590927



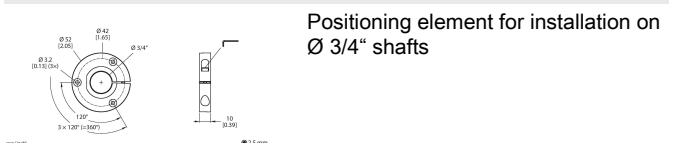
### P9-RI-QR24 1593012



### P10-RI-QR24 1593013



### P11-RI-QR24 1593014



### P8-RI-QR24 1590916



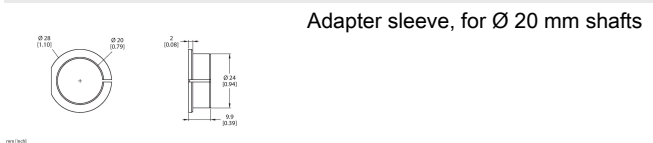
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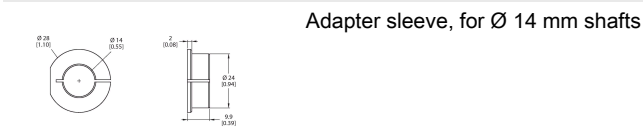
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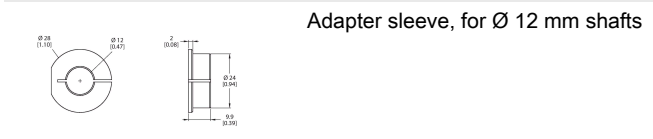
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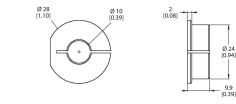
### RA2-QR24 1590929



### RA3-QR24 1590930

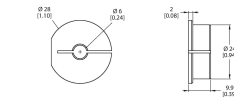


## RA4-QR24 1590931 Adapter sleeve, for Ø 10 mm shafts



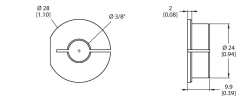
1590931

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



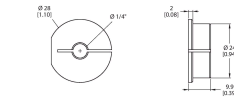
1590932

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



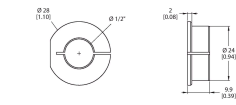
1590933

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



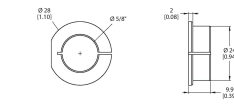
1590934

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



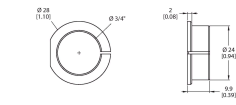
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## RA10-QR24 1590961 Adapter sleeve, for Ø 5/8" shafts



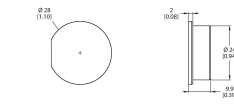
1590961

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



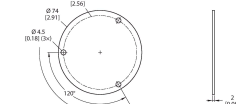
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## RA8-QR24 1590959 Plug for mounting option C



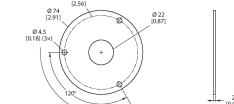
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## SP1-QR24 1590938 Shield plate Ø 74 mm, aluminium



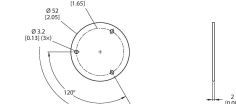
1590938

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



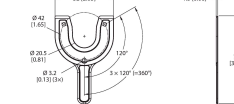
1590939

## SP3-QR24 1590958 Shield plate Ø 52 mm, aluminium



1590958

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



1590935