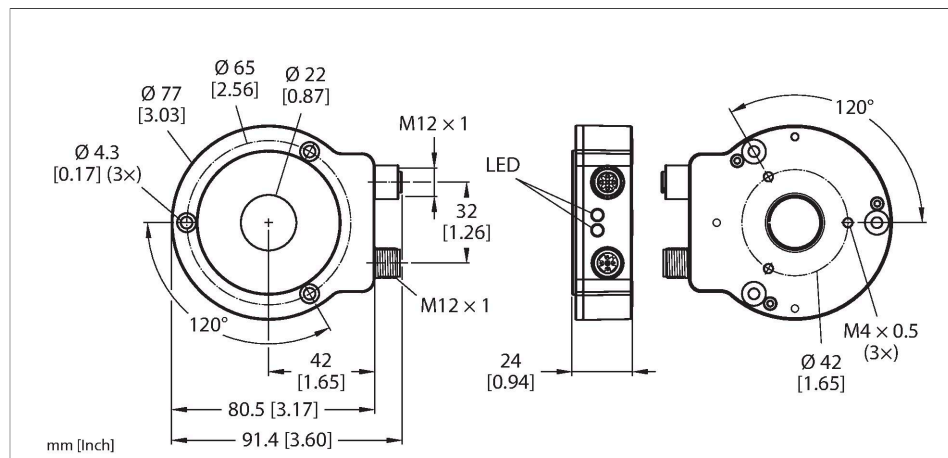


# RI360P0-QR24M0-CNX4-2H1150

## Contactless Encoder – CANopen

### Premium Line



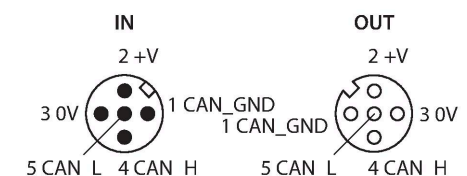
#### Technical data

Type	RI360P0-QR24M0-CNX4-2H1150
ID	1590914
Measuring principle	Inductive
<b>General data</b>	
Max. rotational speed	2000 rpm
Starting torque shaft load (radial / axial)	Determined with standardized construction, with a steel shaft Ø 20 mm, L = 50 mm and reducer Ø 20 mm
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 singleturn
Resolution singleturn	16 Bit
<b>Electrical data</b>	
Operating voltage U <sub>B</sub>	10...30 VDC
Ripple U <sub>ss</sub>	≤ 10 % U <sub>Bmax</sub>
Isolation test voltage	0.5 kV
Wire break/reverse polarity protection	yes (voltage supply)
Communication protocol	CANopen

#### Features

- Compact, rugged housing
- Many mounting possibilities
- Status displayed via LED
- Positioning element and aluminium ring not incl.
- CANopen interface
- Baud rate 10 kbps up to 1 Mbps; Factory setting: 125 kbps
- Node address 1 to 127; Factory setting 3
- Terminating resistor switched in via CANopen device access
- Immune to electromagnetic interference
- 10 ... 30 VDC
- M12 x 1 male, 5-pin, CAN in, CAN out
- Acc. to CiA DS-301, CiA 305, CiA 406

#### 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

RI360P0-QR24M0-CNX4-2H1150 | 02/21/2025 14:55 | technical changes reserved

## Technical data

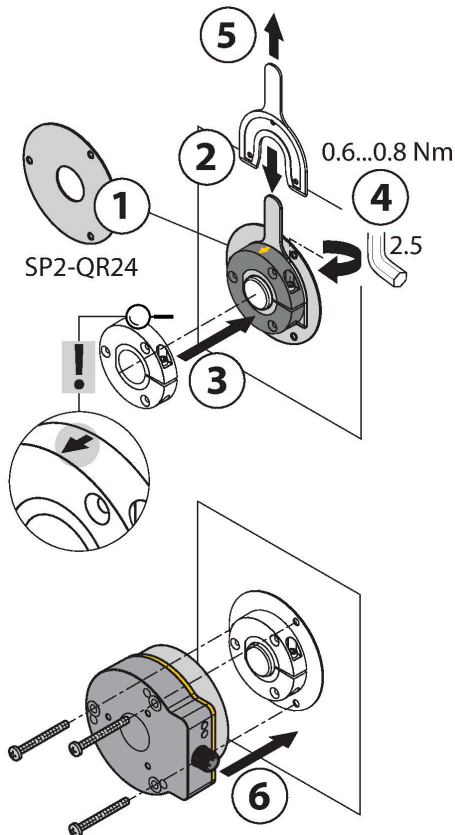
maintenance-free, thanks to the contactless operating principle. They convince through their excellent repeatability, resolution and linearity within a broad temperature range. The innovative technology ensures a high immunity to electromagnetic DC and AC fields.

Interface	CANopen, DS406 device profile, LSS DS 305
Node ID	1...127; Werkseinstellung: 3
Baud rate	10/20/50/125/250/500/1000 kbps, factory setting 125 kbps
Sample rate	800 Hz
Current consumption	< 60 mA
<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
Status CANopen	Green/red
Measuring range display	LED, yellow, yellow flashing
Included in delivery	Mounting aid MT-QR24, closure cap VZ 3
UL certificate	E210608

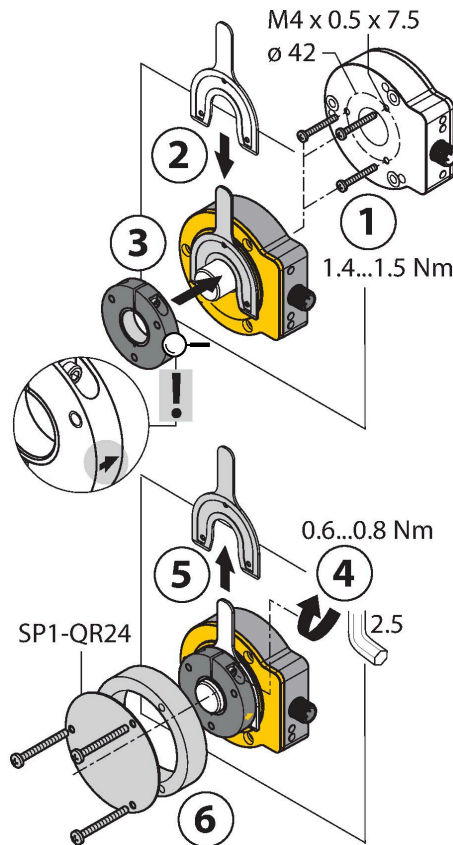
# Mounting instructions

## Mounting instructions/Description

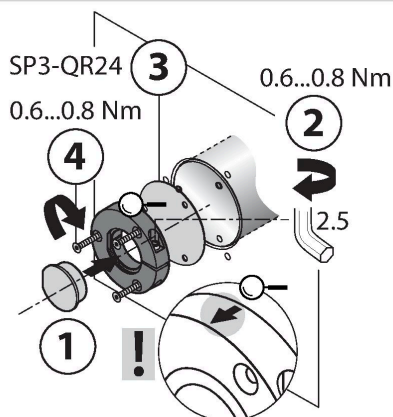
**A**



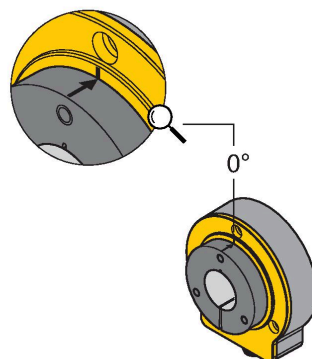
**B**



**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 encoder is immune to magnetized metal splinters and other interferences.

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

Mounting option A:

First, interconnect positioning element and rotatable shaft with the bracket. 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 screwed on a rotating machine part and not to a shaft, you must first put on the dummy plug RA8-QR24. Then tie up the bracket. Screw on the encoder via the three bores.

When mounting, ensure that the positioning element is correctly aligned towards the sensor's active face. For correct fitting see arrow on the edge of the positioning element. (Arrow must point in direction of sensor)

Due to the separate installation of positioning element and sensor no electrical currents or harmful mechanical forces are transmitted via the shaft to the sensor. The encoder also offers a high degree of protection for life and stays permanently sealed.

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 shield plates which are included in the accessories to increase the allowed distance between positioning element and sensor.

Status / Power LED:

Green:

Sensor is properly supplied, positioning element in the coverage

Yellow:

Positioning element is in the measuring range, signal low (e.g. distance too large)

Yellow flashing:

Positioning element is outside the coverage

Status CAN

Green / Red: CAN communication active / not active

Red / Green alternating: LSS services active

Green flashing: Pre-operational state

Green 1 x flashing: CAN communication stopped

Red 2 x flashing: Error control event

Red 3 x flashing: Sync Error

## Accessories

### P1-RI-QR24 1590921



Positioning element, for Ø 20 mm shafts

### P3-RI-QR24 1590923



Positioning element, for Ø 12 mm shafts

### P5-RI-QR24 1590925



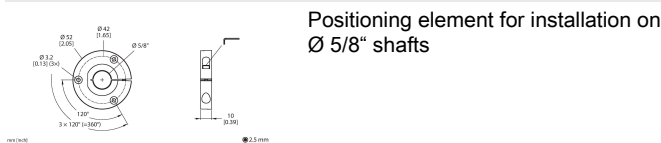
Positioning element, for Ø 6 mm shafts

### P7-RI-QR24 1590927



Positioning element, for Ø 1/4" shafts

### P10-RI-QR24 1593013



Positioning element for installation on Ø 5/8" shafts

### P8-RI-QR24 1590916



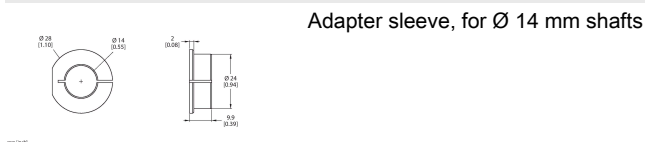
Positioning element with blanking plug for large shafts

### PE1-QR24 1590937



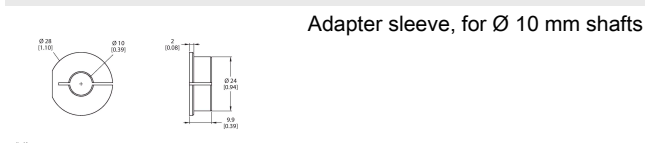
Positioning element without adapter sleeve

### RA2-QR24 1590929



Adapter sleeve, for Ø 14 mm shafts

### RA4-QR24 1590931



Adapter sleeve, for Ø 10 mm shafts

### P2-RI-QR24 1590922



Positioning element, for Ø 14 mm shafts

### P4-RI-QR24 1590924



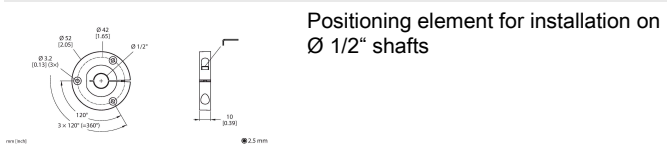
Positioning element, for Ø 10 mm shafts

### P6-RI-QR24 1590926



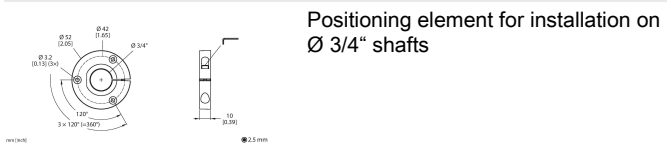
Positioning element, for Ø 3/8" shafts

### P9-RI-QR24 1593012



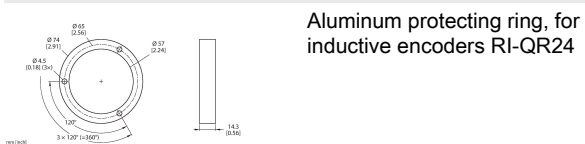
Positioning element for installation on Ø 1/2" shafts

### P11-RI-QR24 1593014



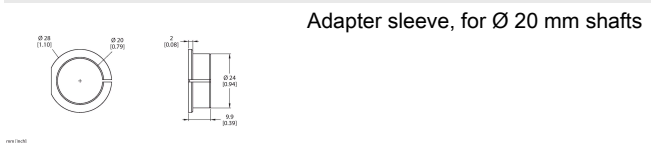
Positioning element for installation on Ø 3/4" shafts

### M1-QR24 1590920



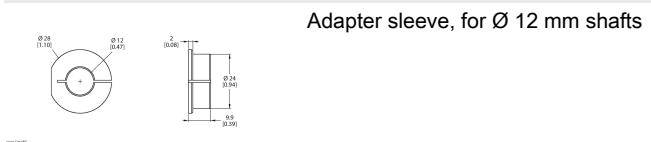
Aluminum protecting ring, for inductive encoders RI-QR24

### RA1-QR24 1590928



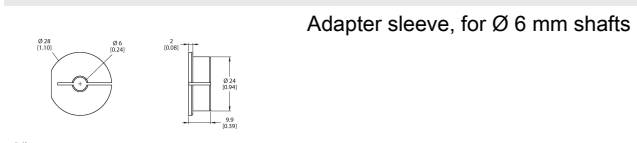
Adapter sleeve, for Ø 20 mm shafts

### RA3-QR24 1590930



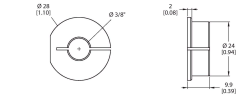
Adapter sleeve, for Ø 12 mm shafts

### RA5-QR24 1590932

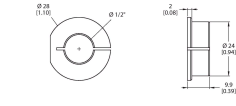


Adapter sleeve, for Ø 6 mm shafts

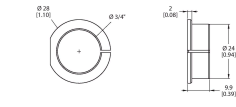
**RA6-QR24** **1590933**  
Adapter sleeve, for Ø 3/8" shafts



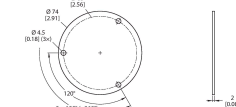
**RA9-QR24** **1590960**  
Adapter sleeve, for Ø 1/2" shafts



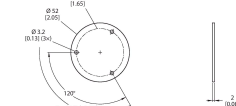
**RA11-QR24** **1590962**  
Adapter sleeve, for Ø 3/4" shafts



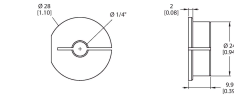
**SP1-QR24** **1590938**  
Shield plate Ø 74 mm, aluminium



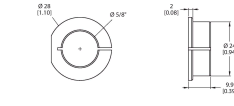
**SP3-QR24** **1590958**  
Shield plate Ø 52 mm, aluminium



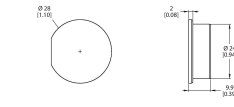
**RA7-QR24** **1590934**  
Adapter sleeve, for Ø 1/4" shafts



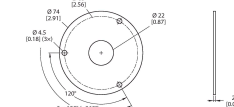
**RA10-QR24** **1590961**  
Adapter sleeve, for Ø 5/8" shafts



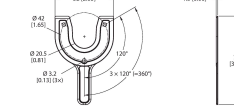
**RA8-QR24** **1590959**  
Plug for mounting option C



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

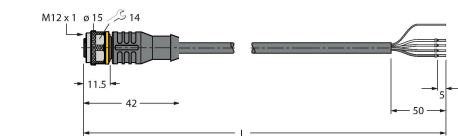


**MT-QR24** **1590935**  
Mounting aid for optimal alignment of positioning element



## Wiring accessories

Dimension drawing	Type	ID
	RKC5701-5M	6931034



Bus cable for CAN (DeviceNet, - CANopen), M12 female connector, straight, cable length: 5 m, jacket material: PUR, anthracite; cULus approval