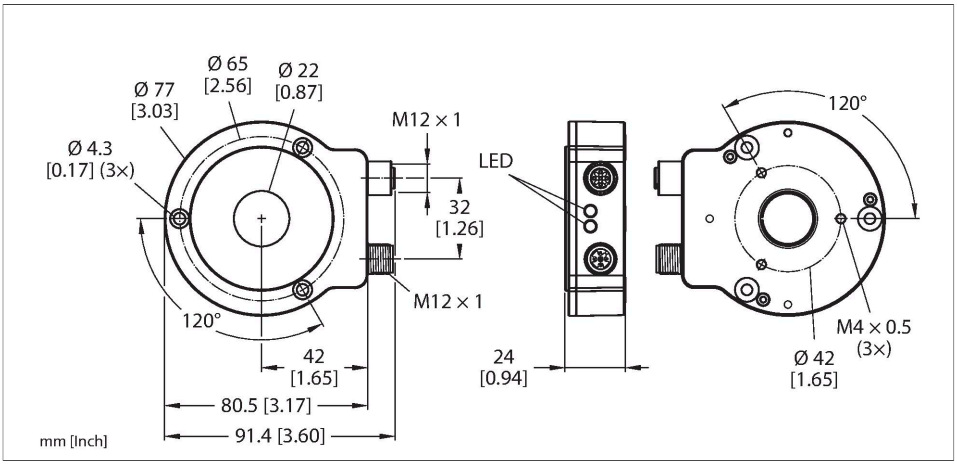
RI360P0-QR24M0-CNX4-2H1150
Contactless Encoder – CANopen
Premium Line



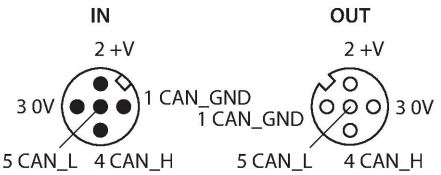
Technical data

Type	RI360P0-QR24M0-CNX4-2H1150
ID	1590914
Measuring principle	Inductive
General data	
Max. Rotational Speed	2000 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 singleturn
Resolution singleturn	16 Bit
Electrical data	
Operating voltage	10…30 VDC
Residual ripple	≤ 10 % U_{ss}
Isolation test voltage	≤ 0.5 kV
Wire breakage/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

Technical data

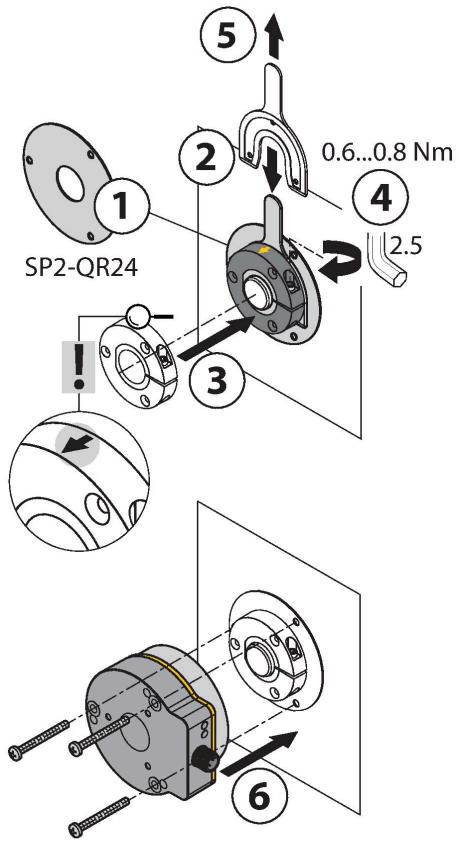
Interface	CANopen, DS406 device profile, LSS DS 305
Node ID	1…127; Werkseinstellung: 3
Baud rate	10/20/50/125/250/500/1000 kbps, factory setting 125 kbps
Sample rate	800 Hz
Current consumption	< 60 mA
Mechanical data	
Design	QR24
Dimensions	81 x 78 x 24 mm
Flange type	Flange without mounting element
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
Environmental conditions	
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

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.

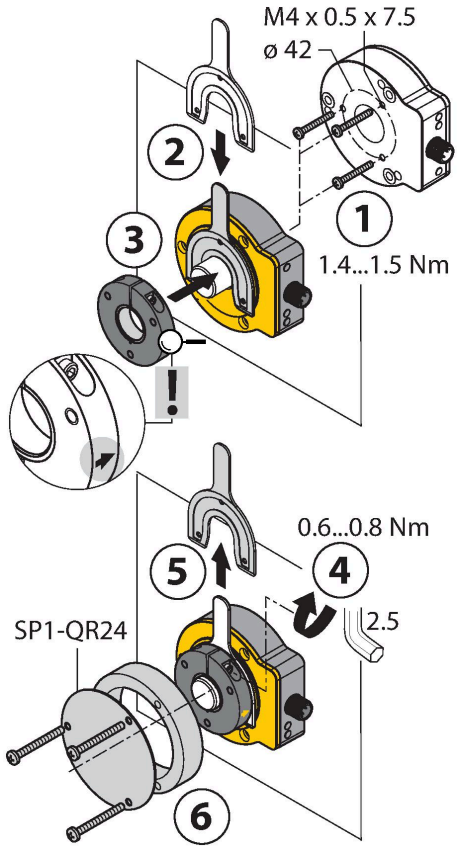
Mounting instructions

Mounting instructions/Description

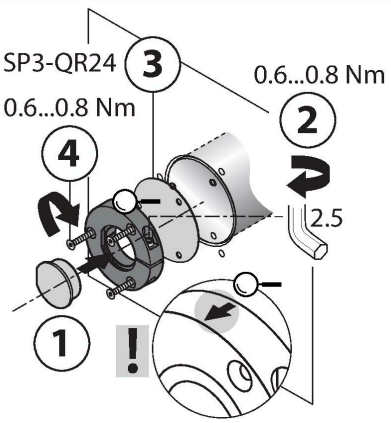
A



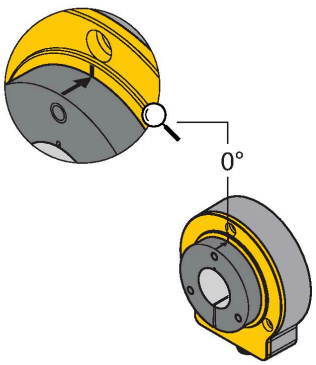
B



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.

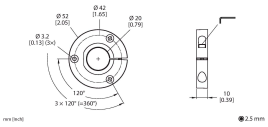
When mounting, ensure that the positioning element is correctly aligned towards the sensor's active face. For correct fitting see arrow on the edge of the positioning element. (Arrow must point in direction of sensor)

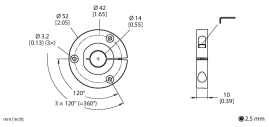
Due to the separate installation of positioning element and sensor no electrical currents or harmful mechanical forces are transmitted via the shaft to the sensor. The encoder also offers a high degree of protection for life and stays permanently sealed.
The accessories enclosed in the delivery help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

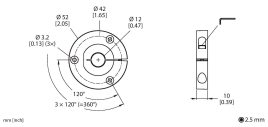
Status / Power LED:
Green:
Sensor is properly supplied, positioning element in the coverage
Yellow:
Positioning element is in the measuring range, signal low (e.g. distance too large)
Yellow flashing:
Positioning element is outside the coverage

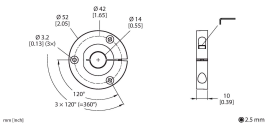
Status CAN
Green / Red:CAN communication active / not active
Red / Green alternating:LSS services active
Green flashing Pre-operational state
Green 1 x flashing:CAN communication stopped
Red 2 x flashing:Error control event
Red 3 x flashing:Sync Error

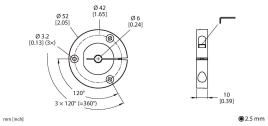
Accessories

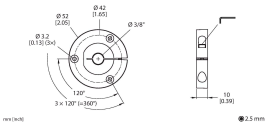
P1-RI-QR24	1590921
	Positioning element, for Ø 20 mm shafts

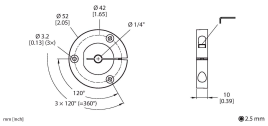
P2-RI-QR24	1590922
	Positioning element, for Ø 14 mm shafts

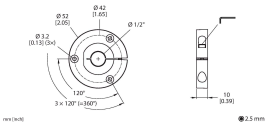
P3-RI-QR24	1590923
	Positioning element, for Ø 12 mm shafts

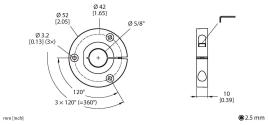
P4-RI-QR24	1590924
	Positioning element, for Ø 10 mm shafts

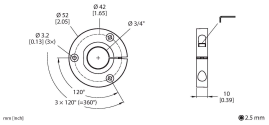
P5-RI-QR24	1590925
	Positioning element, for Ø 6 mm shafts

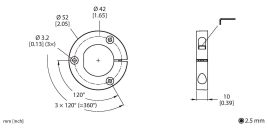
P6-RI-QR24	1590926
	Positioning element, for Ø 3/8“ shafts

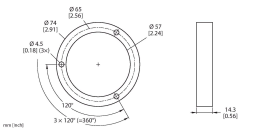
P7-RI-QR24	1590927
	Positioning element, for Ø 1/4“ shafts

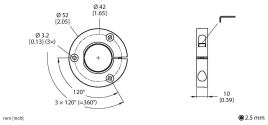
P9-RI-QR24	1593012
	Positioning element for installation on Ø 1/2“ shafts

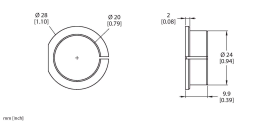
P10-RI-QR24	1593013
	Positioning element for installation on Ø 5/8“ shafts

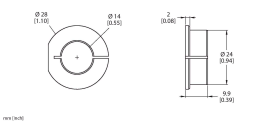
P11-RI-QR24	1593014
	Positioning element for installation on Ø 3/4“ shafts

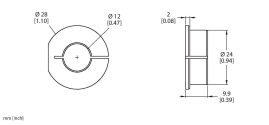
P8-RI-QR24	1590916
	Positioning element with blanking plug for large shafts

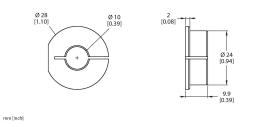
M1-QR24	1590920
	Aluminum protecting ring, for inductive encoders RI-QR24

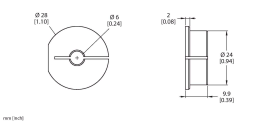
PE1-QR24	1590937
	Positioning element without adapter sleeve

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

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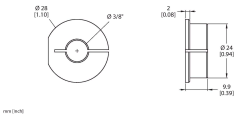
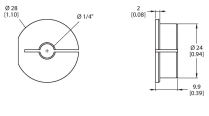
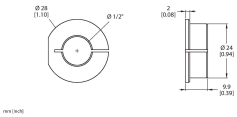
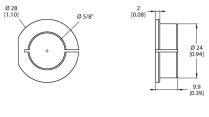
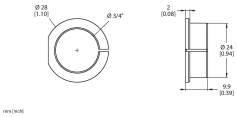
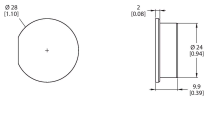
RA6-QR24	1590933
	Adapter sleeve, for Ø 3/8“ shafts

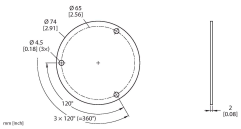
RA7-QR24	1590934
	Adapter sleeve, for Ø 1/4“ shafts

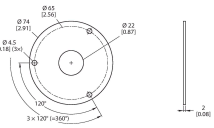
RA9-QR24	1590960
	Adapter sleeve, for Ø 1/2" shafts

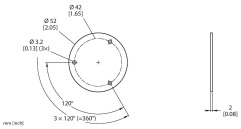
RA10-QR24	1590961
	Adapter sleeve, for Ø 5/8" shafts

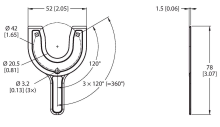
RA11-QR24	1590962
	Adapter sleeve, for Ø 3/4" shafts

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

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

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