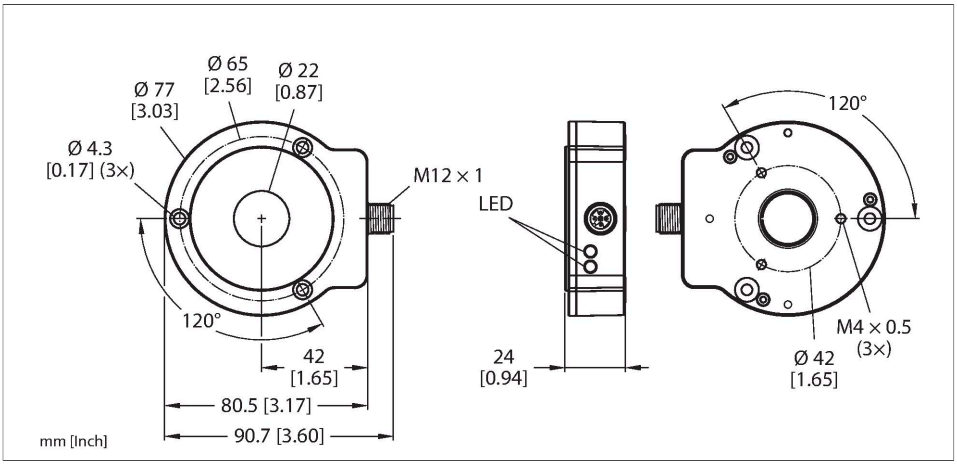
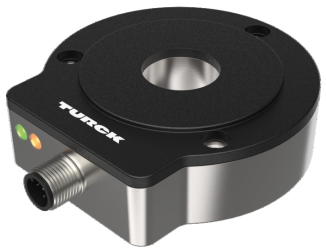
RI360P0-EQR24M0-ELIU5X2-H1151
Contactless Encoder with Stainless Steel Housing – Analog Premium Line





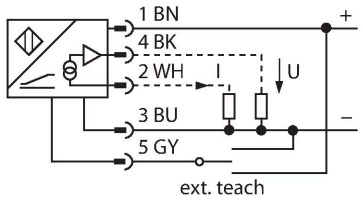
Technical data

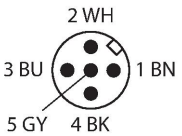
Type	RI360P0-EQR24M0-ELIU5X2-H1151
ID	1590977
Measuring principle	Inductive
General data	
Max. rotational speed	12,000 rpm
	Determined with standardized construction, with a steel shaft Ø 20 mm, L = 50 mm and reducer Ø 20 mm
Starting torque shaft load (radial / axial)	not applicable, because of contactless measuring principle
Resolution	16 bit
Measuring range	0…360 °
Nominal distance	1.5 mm
Repeat accuracy	≤ 0.01 % of full scale
Linearity deviation	≤ 0.05 % f.s.
Temperature drift	≤ ± 0.004 %/K
Output type	Absolute singleturn
Resolution singleturn	16 Bit
Electrical data	
Operating voltage U_B	15…30 VDC
Ripple U_{ss}	≤ 10 % U_{Bmax}
Isolation test voltage	0.5 kV
Short-circuit protection	yes
Wire break/reverse polarity protection	yes/yes (voltage supply)

Features

- Compact, rugged housing
- Active face, plastic PA12-GF30
- Housing, stainless steel V4A (1.4404)
- Status displayed via LED
- Measuring range indicated via LED
- Immune to electromagnetic interference
- Measuring range programmable via Easy Teach
- Output signal programmable via Easy Teach
- Resolution, 16-bit
- 15…30 VDC
- 0…10 V and 4…20 mA
- Male M12 x 1, 5-pin

Wiring diagram



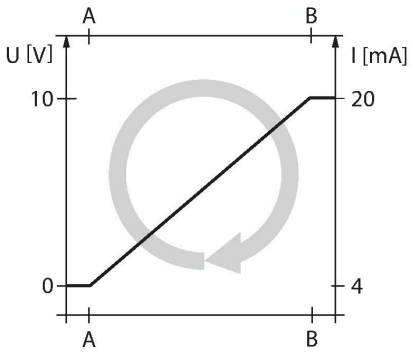


Functional principle

Technical data

Output function	5-pin, Analog output
Voltage output	0…10 V
Current output	4…20 mA
Diagnostic	Positioning element not within detection range: Output signal 24 mA or 11 V
Load resistance voltage output	≥ 4.7 kΩ
Load resistance current output	≤ 0.4 kΩ
Sample rate	5000 Hz
Current consumption	< 50 mA
Mechanical data	
Design	EQR24
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	Stainless-steel/Plastic, 1.4404 (AISI 316L)/ PA12-GF30
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
Measuring range display	LED, yellow, yellow flashing
Included in delivery	Adapter sleeve MT-QR24

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.



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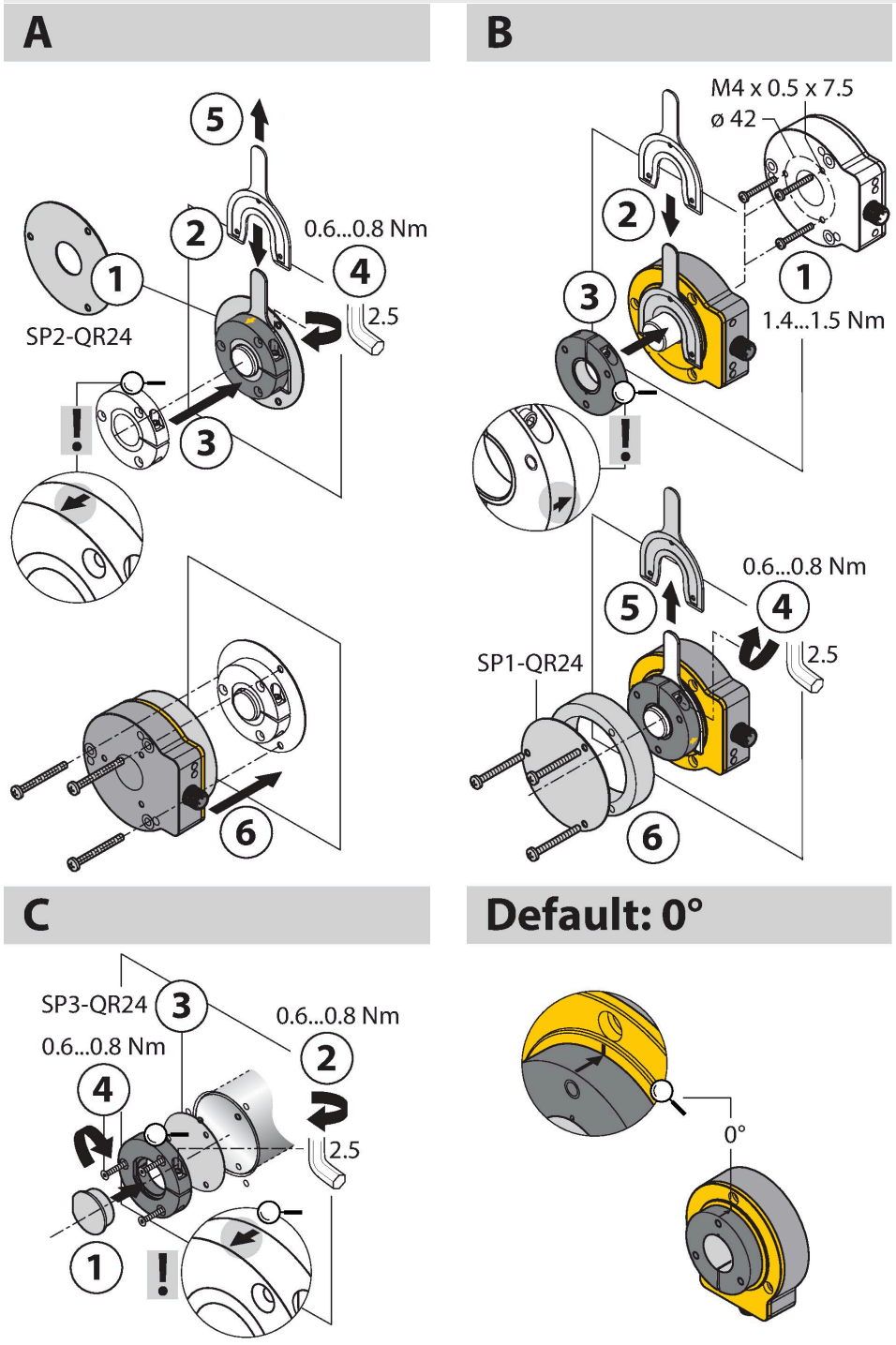
Technical data

UL certificate	E210608

Mounting instructions

Mounting instructions/Description



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

Individual Parameterization (Teaching with Positioning Element)

Bridge between teach input Pin 5 (GY)	Gnd Pin 3 (BU)	Ub Pin1 (BN)	LED
2 s	Start value	End value	Status LED flashes then turns steady after 2 s
10 s	CCW rotation, then return to last preset value	CW rotation, then return to last preset value	After 10 s status LED flashes fast for 2 s
15 s	-	Factory setting (360°, CW)	after 15 s power and status LED alternate

To avoid unintended teaching, keep pin 5 potential-free.

Preset Parameterization (Teaching without Positioning Element)

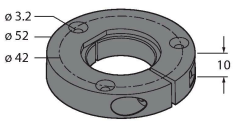
Bridge pin between teach input Pin 5 (GY)	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	LED
2 s	Activate selection mode for output signal (for 10 s)	Activate preset mode (for 10 s)	Status LED steady, flashes after 2 s
10 s	CCW rotation direction	CW rotation direction	After 10 s status LED flashes fast for 2 s
15 s		Factory setting (360°, CW)	After 15 s power and status LED flash equally fast
Output configuration	Gnd Pin 3 (BU)		Status LED
I out: 4…20 mA	Press once		1 x flashing
I out: 0…20 mA	Press twice		2 x flashing
Uout: 0…10 V	Press three times		3 x flashing
Uout: 0…5 V	Press four times		4 x flashing
Uout: 0.5 V / 4.5 V	Press five times		5 x flashing
Preset mode / Angular range		Ub Pin 1 (BN)	Status LED
45°		Press once	1 x flashing
60°		Press twice	2 x flashing
90°		Press three times	3 x flashing
180°		Press four times	4 x flashing
270°		Press five times	5 x flashing

To avoid unintended teaching, keep pin 5 potential-free.

Accessories

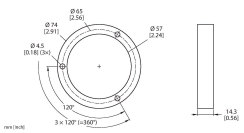
PE1-EQR24	1590966

Positioning element with stainless steel compression fitting, without adapter sleeve



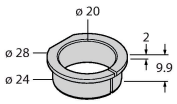
M5-QR24	1590965

Plastic protecting ring for encoders RI-EQR24



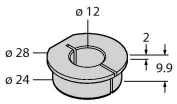
RA1-EQR24	1593019

Stainless steel adapter sleeve, for Ø 20 mm shafts



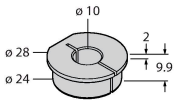
RA3-EQR24	1593020

Stainless steel adapter sleeve, for Ø 12 mm shafts



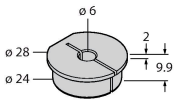
RA4-EQR24	1593023

Stainless steel adapter sleeve, for Ø 10 mm shafts



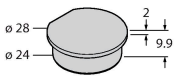
RA5-EQR24	100000375

Stainless steel adapter sleeve, for Ø 6 mm shafts



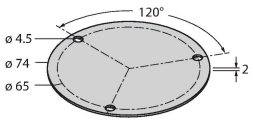
RA8-EQR24	100000289

Stainless steel plug for mounting option C



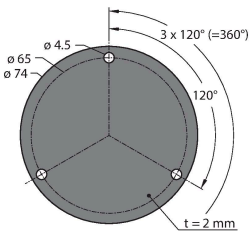
SP1-EQR24	1590979

Shield plate Ø 74 mm, stainless steel



SP5-QR24	100003689

Protective plate Ø 74 mm, plastic



Wiring accessories

Dimension drawing	Type	ID
	RKSV4.5T-5/TXL	6625397

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