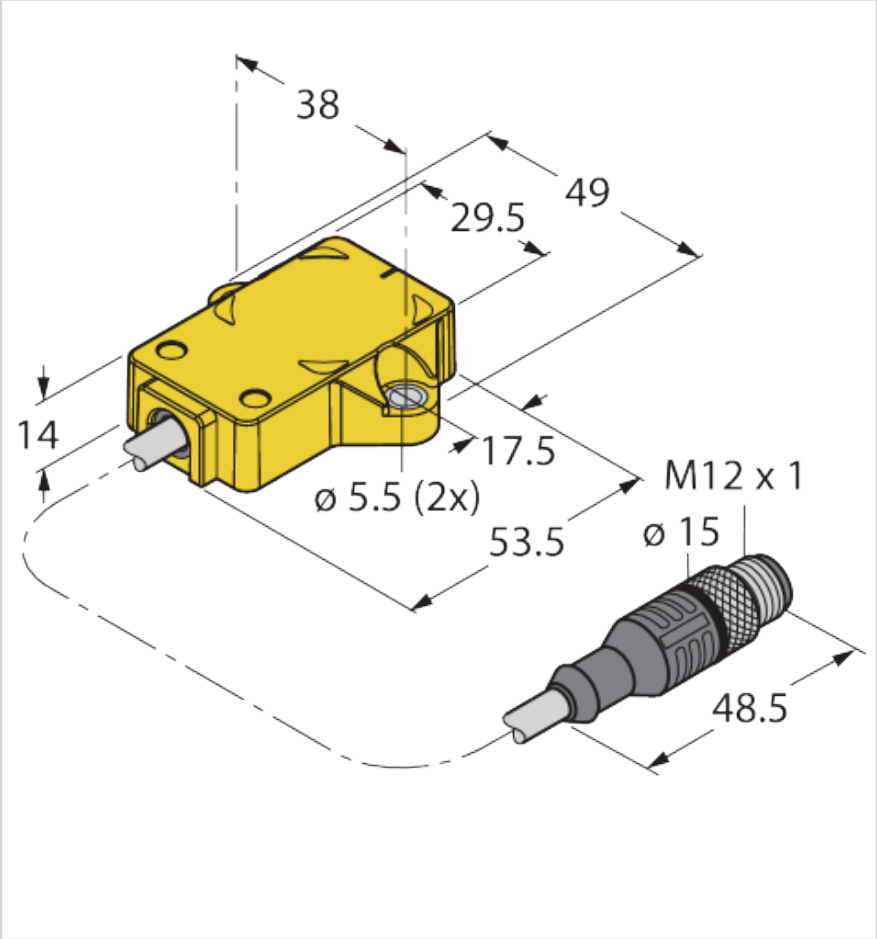


RI360P1-QR14-ELIU5X2-0.3-RS5

**Miniature Encoder
With Analog Output
Premium Line**



Type designation	RI360P1-QR14-ELIU5X2-0.3-RS5
Ident-No.	1590854

Technical data

General data	
Encoder line	Premium-Line
Measuring principle	Inductive
Output type	Absolute singleturn
Starting torque shaft load (radial / axial)	Not applicable because of contactless measuring principle
Technology	Contactless

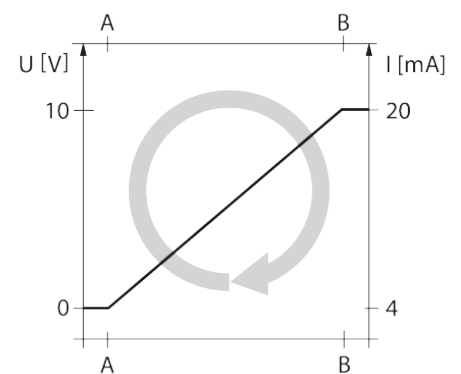
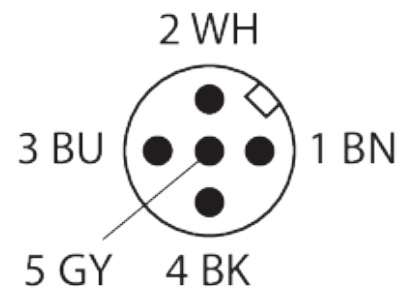
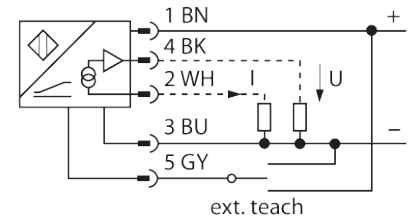
Features

- Rectangular, plastic
- Many mounting possibilities
- P1-Ri-QR14 included in delivery
- Measuring range displayed via LED
- Immune to electromagnetic interference
- Resolution, 12-bit
- 15...30 VDC
- Analog output
- Programmable measuring range
- 0...10 V and 4...20 mA
- Cable with male connector, M12 × 1

Technical data

Detection area/measuring range	
Nominal distance	1,5 mm
Measuring range	0...360 °
Power supply	
Operating voltage U_B	15...30 VDC
Electrical data	
Output function	5-pin, Analog output
Short-circuit protection	yes
Wire break/reverse polarity protection	yes/yes (voltage supply)
Current consumption	< 50 mA
Isolation test voltage	≤ 0,5 kV
Residual ripple	≤ 10 % U_{SS}
Sample rate	800 Hz
Outputs	
Current output	4...20 mA
Voltage output	0...10 V
Load resistance current output	≤ 0,4 kΩ
Load resistance voltage output	≥ 4,7 kΩ
Accuracy/deviation	
Resolution	0.09°
Linearity deviation	0,3 % f.s.
Repeat accuracy	≤ 0,025 % v. E.
Temperature drift	≤ ±0,01 %/K
Mechanical data	
Design	Rectangular, QR14
Construction type designation	QR14
Dimensions	53,5 mm x 49 mm x 14 mm
Flange type	Flange without mounting element
Shaft Type	Blind hole shaft
Shaft diameter D [mm]	6 mm, 6.35 mm
Housing material	Plastic, PBT-GF30-V0
Electrical connection	Cable with connector, M12 x 1
Cable	
Cable length	0,3 m
Cable jacket	Black
Core cross-section	5 x 0,25 mm ²
Cable type	LifYY

Wiring diagram



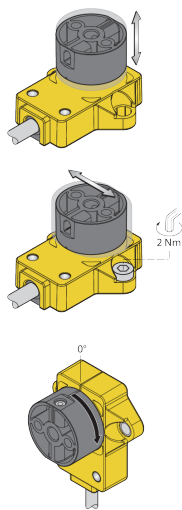
Functional principle

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 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.

Technical data

External Diameter of the Cable	Ø 5,2 mm
Cable Jacket Material	PVC
Ambient conditions	
Ambient temperature	-25...+70 °C
Pollution degree	3
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
Vibration resistance (EN 60068-2-6)	20 g; 10...3000 Hz; 50 cycles; 3 axes
Vibration resistance	55 Hz (1 mm)
Salt spray test (EN 60068-2-52)	Severity degree 5 (4 test cycles)
Protection class	IP68 IP69K
Tests/approvals	
UL registration number	E210608
MTTF	138 Years acc. to SN 29500 (Ed. 99) 40 °C
Displays/controls	
Measuring range display	multifunction LED, green green flashing
Power-on indication	LED, Green
Comments	
Included in delivery	Positioning element P1-Ri-QR14; for technical details see data sheet

Assembly instructions



Installation information:
Adapter pins provide more flexibility
Extensive range of mounting accessories for easy adaptation to many different shaft diameters.
LED function
Operating voltage
Green: Voltage is present
Displayed measuring range
Green: Positioning element is within the detection range
Flashing green: Positioning element is within the measuring range with reduced signal quality (e.g. the distance is too great)
Off: Positioning element is outside the sensing range
Functional safety thanks to the inductive measuring principle
The measuring principle of RLC coupling makes the sensor absolutely wear-free and immune to magnetized ferrous chips and other interference fields. Owing to the differential analysis, the output signal remains almost unchanged, even if the position of the positioning element deviates from the ideal axis of rotation. The distance between the sensor and the positioning element

Teaching instructions

Individual (teaching with positioning element)

Bridge between teach input pin 5 (GY)	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	LED
2 seconds	Start value	End value	Power LED flashes then turns steady after 2 s
10 seconds	CCW rotation, then return to last preset value	CW rotation, then return to last preset value	After 10 s power LED flashes rapidly for 2 s
15 seconds	-	Factory setting (360°, CW)	After 15 s power and status LED flash alternately

Preset mode (teaching without positioning element)

Bridge between teach input pin 5 (GY)	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	LED
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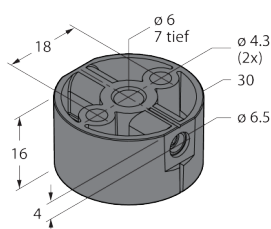
2 seconds	Enable preset mode	Enable preset mode	Power LED illuminates steadily, flashes after 2 s
10 seconds	CCW rotation, then return to last preset value	CW rotation, then return to last preset value	After 10 s power LED flashes rapidly for 2 s
15 seconds	-	Factory setting (360°, CW)	After 15 s power and status LED flash alternately
Angular range	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	Power LED
30°	1 × press	-	1 × flash
45°	2 × press	-	2 × flash
60°	3 × press	-	3 × flash
90°	-	1 × press	1 × flash
180°	-	2 × press	2 × flash
270°	-	3 × press	3 × flash
360°	-	4 × press	4 × flash

Mounting accessories

P1-RI-QR14

1590812

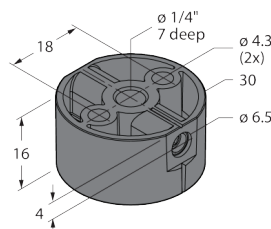
Positioning element for angle sensors RI-QR14, for Ø 6 mm shafts



P2-RI-QR14

1590819

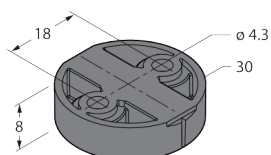
Positioning element for angle sensors RI-QR14, for Ø 6.35 mm shafts



P3-RI-QR14

1590865

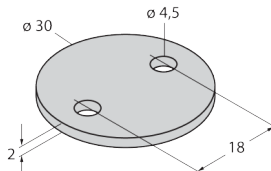
Positioning element for angle sensors RI-QR14, flat design, using shield plate SP1-QR14 is recommended



SP1-QR14

1590873

Shield plate Ø 30 mm, aluminium

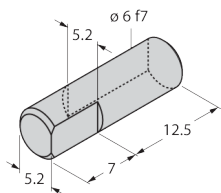


Mounting accessories

HSA-M6-QR14

6901051

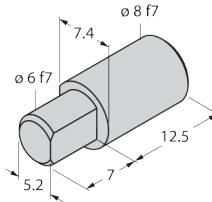
Adapter for RI-QR14 specific positioning elements, hollow on solid shaft, Ø 6 mm



HSA-M8-QR14

6901052

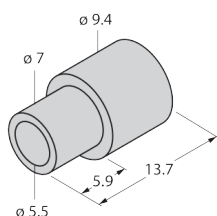
Adapter for RI-QR14 specific positioning elements, hollow on solid shaft, Ø 8 mm



DS-RI-QR14

1590814

Spacer sleeves for rear mounting of RI-QR14, 2 pcs. per bag



Functional accessories

TX1-Q20L60

6967114

Teach adapter for inductive encoders, linear position, angle, ultrasonic and capacitive sensors

