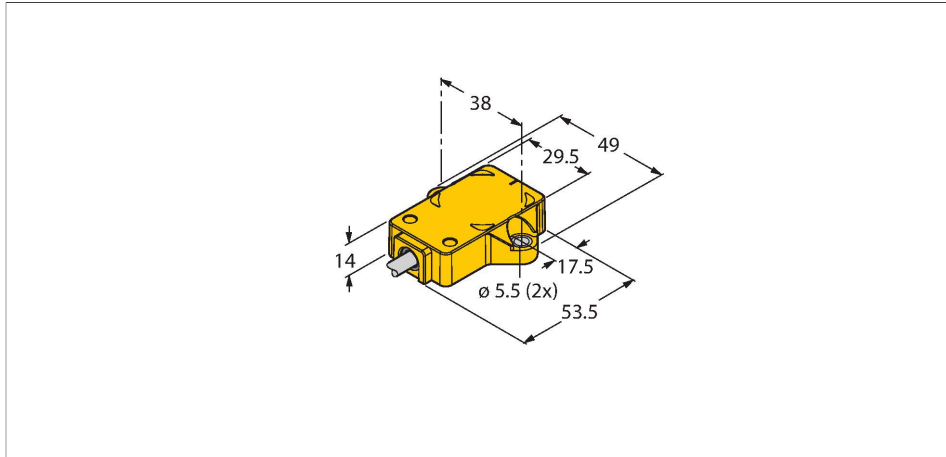


# RI360P1-QR14-ELIU5X2

## Inductive Angle Sensor – With Analog Output

### Premium Line



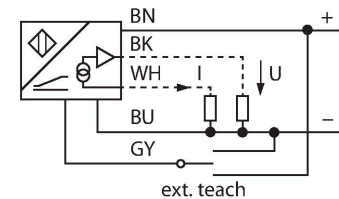
### Features

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

### Technical data

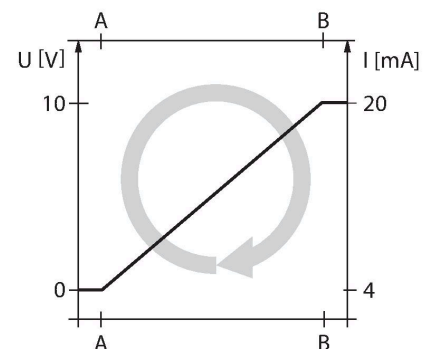
Type	RI360P1-QR14-ELIU5X2
Ident. no.	1590853
Measuring principle	Inductive
Starting torque shaft load (radial / axial)	Not applicable because of contactless measuring principle
Resolution	0.09°
Measuring range	0...360°
Nominal distance	1.5 mm
Repeat accuracy	≤ 0.025 % of full scale
Linearity deviation	≤ 0.3 %f.s.
Temperature drift	≤ ± 0.01 % / K
Ambient temperature	-25...+70 °C
Operating voltage	15...30 VDC
Residual ripple	≤ 10 % U <sub>ss</sub>
Isolation test voltage	≤ 0.5 kV
Short-circuit protection	yes
Wire breakage/Reverse polarity protection	yes / yes (voltage supply)
Output type	absolute singleturn
Output function	4-wire, Analog output
Voltage output	0...10 V
Current output	4...20 mA
Load resistance voltage output	≥ 4.7 kΩ
Load resistance, current output	≤ 0.4 kΩ

### 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.



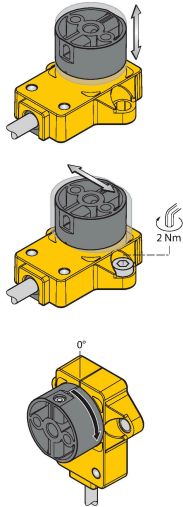
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## Technical data

Sample rate	800 Hz
Current consumption	< 50 mA
<b>Design</b>	Rectangular, QR14
Dimensions	53.5 x 49 x 14 mm
Flange type	Flange without mounting element
Shaft Type	Blind hole shaft
Shaft diameter D [mm]	6 6.35
Housing material	Plastic, PBT-GF30-V0
Electrical connection	Cable
Cable quality	Ø 5.2 mm, Lif9YH-11YH, PUR, 2 m Flame retardant acc. to VDE 0472, part 804B
Core cross-section	5 x 0.34 mm <sup>2</sup>
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 sinus; each 3x; 3 axes
Continuous shock resistance (EN 60068-2-29)	40 g; 6 ms ½ sinus; each 4000 x; 3 axes
Salt spray test (EN 60068-2-52)	severity degree 5 (4 test cycles)
Protection class	IP68 / IP69K
MTTF	138 years acc. to SN 29500 (Ed. 99) 40 °C
<b>Power-on indication</b>	LED,Green
Measuring range display	multifunction LED, green green flashing
Included in delivery	positioning element P1-Ri-QR14; for technical details see data sheet

## Mounting instructions

### Mounting instructions/Description



#### Adapter pins provide more flexibility

Extensive range of mounting accessories for easy adaptation to many different shaft diameters.

#### LED function

##### Operating voltage

**Green:**Power on

##### Measuring range

**Green:**Positioning element is in the measuring range

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

**LED OFF:**Positioning element is outside the detection range

#### Functional safety through inductive measuring principle

Based on the functional principle of RLC coupling, the sensor operates absolutely wear-free and is immune to magnetized metal splinters and other interferences.

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 can be up to 5 mm, whereby the nominal distance is 1.5mm.

#### Individual (teaching with positioning element)

Jumper between teach input Pin 5 (GY)	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	LED
2 seconds	start value	end value	status LED flashes, after 2 s steady
10 seconds	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 seconds	-	default setting (360°, CW)	after 15 s power and status LED alternate

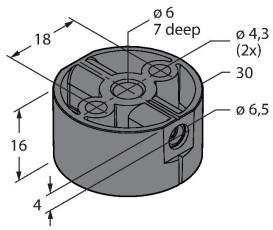
#### Preset – Mode (teaching without positioning element)

Jumper between teach input Pin 5 (GY)	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	LED
2 seconds	activate preset mode	activate preset mode	status LED steady, 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 status LED flashes fast for 2 s
15 seconds	-	default setting (360°, CW)	after 15 s power and status LED alternate
Angular range	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	status LED
30°	press once	-	1 x flashing
45°	press twice	-	2 x flashing
60°	press three times	-	3 x flashing
90°	-	press once	1 x flashing
180°	-	press twice	2 x flashing
270°	-	press three times	3 x flashing
360°	-	press four times	4 x flashing

## Accessories

### P1-RI-QR14

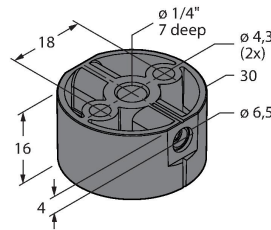
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Positioning element for angle sensors RI-QR14

### P2-RI-QR14

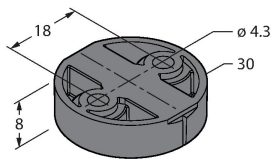
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Positioning element for angle sensors RI-QR14

### P3-RI-QR14

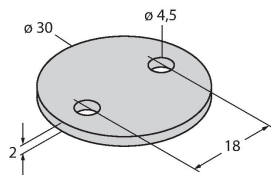
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Positioning element for angle sensors RI-QR14, flat design, using shield plate SP1-QR14 is recommended

### SP1-QR14

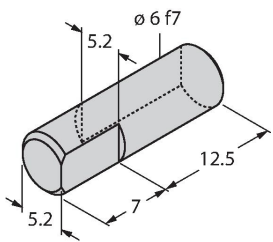
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Shield plate Ø 30 mm, aluminium

### HSA-M6-QR14

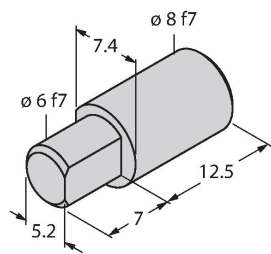
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Adapter for RI-QR14 specific positioning elements, hollow on solid shaft, Ø 6 mm

### HSA-M8-QR14

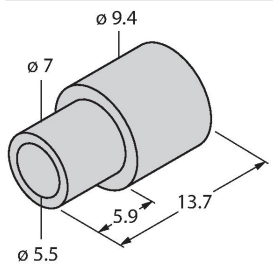
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Adapter for RI-QR14 specific positioning elements, hollow on solid shaft, Ø 8 mm

### DS-RI-QR14

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