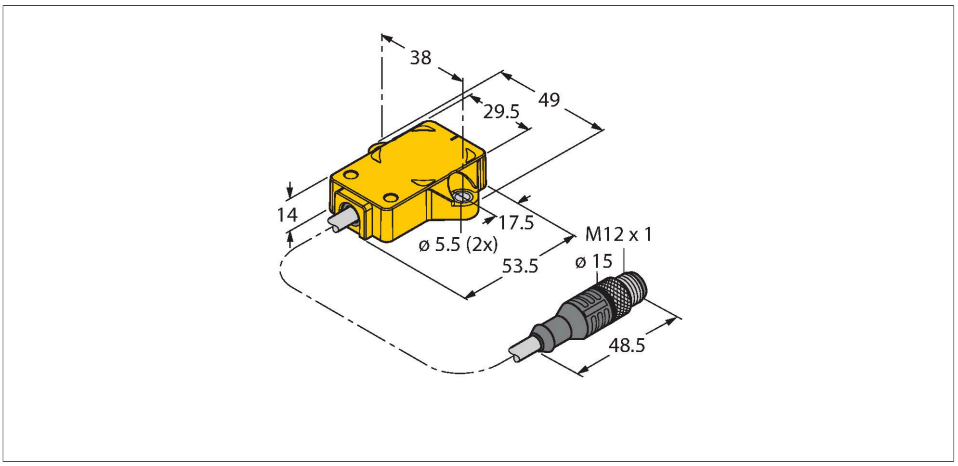
RI360P2-QR14-ELIU5X2-0.3-RS5
Inductive Angle Sensor – With Analog Output
Premium Line



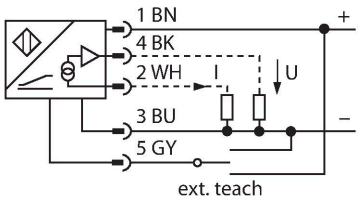
Technical data

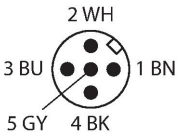
Type	RI360P2-QR14-ELIU5X2-0.3-RS5
ID	1590859
Measuring principle	Inductive
General data	
Starting torque shaft load (radial / axial)	Not applicable because of contactless measuring principle
Resolution	0.09°
Measuring range	0…360 °
Nominal distance	1.5 mm
Repeat accuracy	≤ 0.025 % of full scale
Linearity deviation	≤ 0.3 % f.s.
Temperature drift	≤ ± 0.01 % / K
Output type	Absolute singleturn
Electrical data	
Operating voltage	15…30 VDC
Residual ripple	≤ 10 % U_{ss}
Isolation test voltage	≤ 0.5 kV
Short-circuit protection	yes
Wire breakage/Reverse polarity protection	yes / yes (voltage supply)
Output function	5-pin, Analog output
Voltage output	0…10 V
Current output	4…20 mA
Load resistance voltage output	≥ 4.7 kΩ

Features

- Rectangular, plastic
- Many mounting possibilities
- P2-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

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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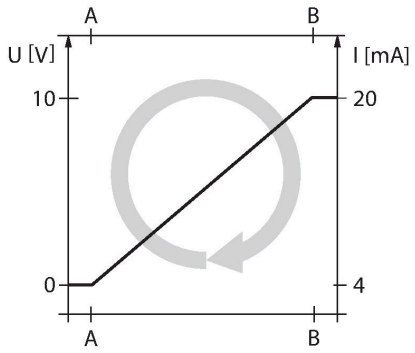

Load resistance current output	≤ 0.4 kΩ
Sample rate	800 Hz
Current consumption	< 50 mA
Mechanical data	
Design	Rectangular, QR14
Dimensions	53.5 x 49 x 14 mm
Flange type	Flange without mounting element
Shaft Type	Blind hole shaft
Shaft diameter D [mm]	6 6.35
Housing material	Plastic, PBT-GF30-V0
Electrical connection	Cable with connector, M12 × 1
Cable quality	Ø 5.2 mm, Black, LifYY, PVC, 0.3 m
Core cross-section	5 x 0.25 mm²
Environmental conditions	
Ambient temperature	-25…+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
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
Power-on indication	LED, Green
Measuring range display	multifunction LED, green green flashing
Included in delivery	positioning element P2-Ri-QR14; for technical details see data sheet

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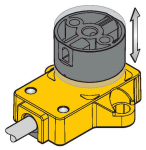
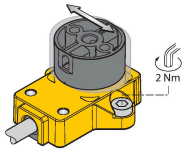
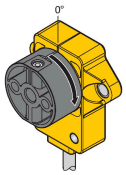
Mounting instructions

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: 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

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Variably adjustable (teaching with position sensor)

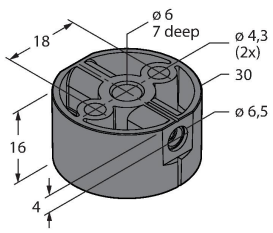
Bridge between teach input pin 5 (GY)	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	LED
2 seconds	Initial value	End value	Power LED flashes then lights steadily after 2 s
10 seconds	CCW rotation, then return to last preset value	CW rotation, then return to last preset value	After 10 s power LED flashes quickly for 2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

Preset – Mode (teach without position sensor)

Bridge between teach input pin 5 (GY)	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	LED
2 seconds	Activate preset mode	Activate preset mode	Power 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 power LED flashes quickly for 2 s
15 seconds	-	Factory settings (360°, CW)	Power and status LED alternate after 15 seconds
Angular range	Gnd Pin 3 (BU)	Ub Pin 1 (BN)	Power LED
30°	Press x 1	-	Blinking x 1
45°	Press x 2	-	Blinking x 2
60°	Press x 3	-	Blinking x 3
90°	-	Press x 1	Blinking x 1
180°	-	Press x 2	Blinking x 2
270°	-	Press x 3	Blinking x 3
360°	-	Press x 4	Blinking x 4

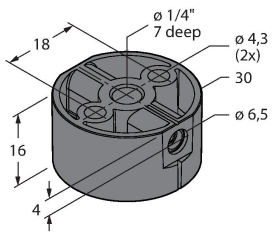
Accessories

P1-RI-QR14 1590812



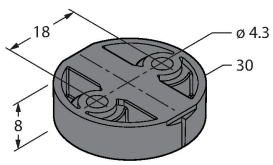
Positioning element for angle sensors RI-QR14, for Ø 6 mm shafts

P2-RI-QR14 1590819



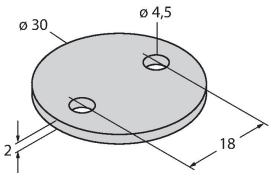
Positioning element for angle sensors RI-QR14, for Ø 6.35 mm shafts

P3-RI-QR14 1590865



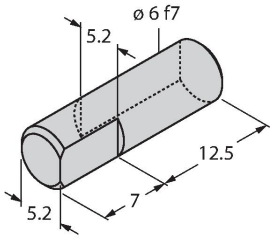
Positioning element for angle sensors RI-QR14, flat design, using shield plate SP1-QR14 is recommended

SP1-QR14 1590873



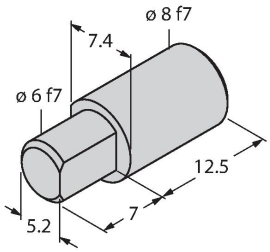
Shield plate Ø 30 mm, aluminium

HSA-M6-QR14	6901051



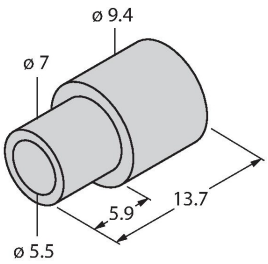
Adapter for RI-QR14 specific positioning elements, hollow on solid shaft, Ø 6 mm

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