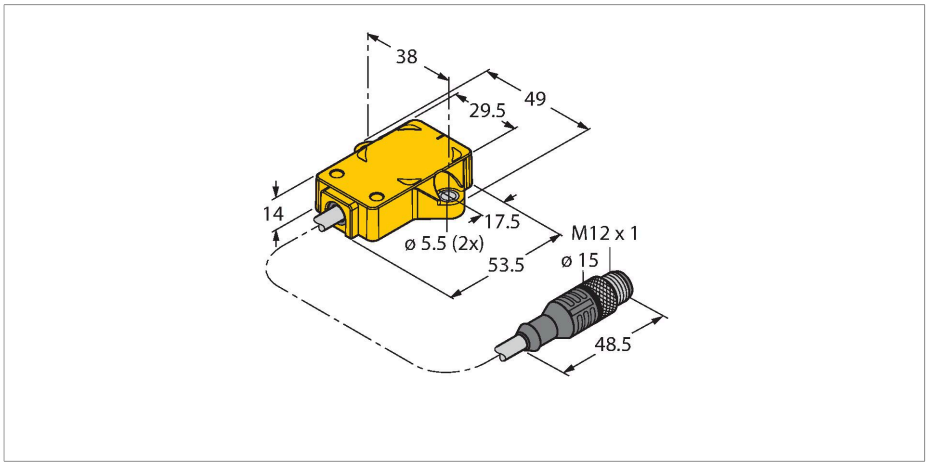
RI360P1-QR14-ELU4X2-0.3-RS5/S97
Inductive Angle Sensor – With Analog Output For Use in Vehicle Board Nets
Premium Line



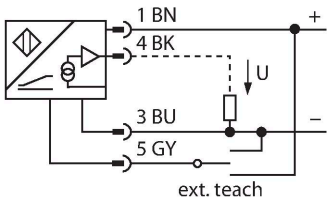
Technical data

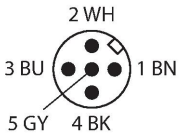
Type	RI360P1-QR14-ELU4X2-0.3-RS5/S97
ID	1590856
Measuring principle	Inductive
General data	
Starting torque shaft load (radial / axial)	Not applicable because of contactless measuring principle
Resolution	12 bit
Measuring range	0…360 °
Nominal distance	1.5 mm
Linearity deviation	≤ 0.3 % f.s.
Temperature drift	≤ ± 0.01 %/K
Output type	Absolute singleturn
Electrical data	
Operating voltage U_B	8…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)
Output function	5-pin, Analog output
Voltage output	0.5…4.5 V
Load resistance voltage output	≥ 4.7 kΩ
Sample rate	800 Hz
Load-dump protection (DIN ISO 7637-2)	Severity degree IV/Level 4
Current consumption	< 50 mA

Features

- Rectangular, plastic
- Many mounting possibilities
- P1-Ri-QR14 included in delivery
- For vehicle board nets, 12 V and 24 V
- Increased interference immunity 30V/m following the e1 type approval
- Immune to conducted interference acc. to DIN ISO 7637-2 (SAE J 113-11)
- Extended temperature range
- High protection class IP68/IP69K
- Protection against salt spray and rapid temperature change
- Measuring range displayed via LED
- Immune to electromagnetic interference
- Resolution, 12-bit
- 8…30 VDC
- Analog output
- Programmable measuring range
- 0.5…4.5 V
- Cable with connector

Wiring diagram





Functional principle

Highest reliability even under the most extreme conditions - this is guaranteed by our sensors for mobile applications. Our inductive sensors for extremely hostile industrial environments not only meet, but even exceed the requirements of the protection classes IP68 and IP69K.
Thanks to their excellent resistance to constant vibration and shock, they are the optimum choice for road construction and agricultural machinery.

Technical data

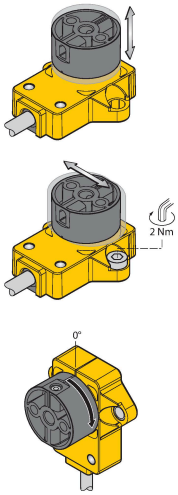
Mechanical data	
Design	Rectangular, QR14
Dimensions	53.5 x 49 x 14 mm
Flange type	Flange without mounting element
Shaft Type	Blind hole shaft
Shaft diameter D (mm)	6 6.35
Housing material	Plastic, PBT-GF30-V0
Electrical connection	Cable with connector, M12 × 1
Cable quality	Ø 5 mm, Lif32Y32Y, TPE, 0.3 m
	Low temp. flexible and E-chain capable
Core cross-section	4 x 0.34 mm^2
Environmental conditions	
Ambient temperature	-40…+85 °C
Temperature changes (EN60068-2-14)	-40… +85 °C; 20 cycles
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	222 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 P1-Ri-QR14; for technical details see data sheet

12 V Bordnet						
Impulse	1	2	3a	3b	4	5
Severity level	IV	IV	IV	IV	IV	IV
Failure criterion	C	B	A	A	C	A

24 V Bordnet						
Impulse	1	2	3a	3b	4	5
Severity level	IV	IV	IV	IV	IV	IV
Failure criterion	C	B	A	A	A	A

Mounting instructions

Mounting instructions/Description



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

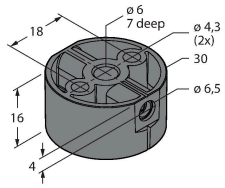
Preset – Mode (teaching without positioning element)

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

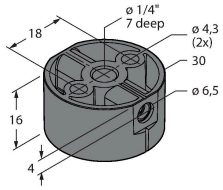
P1-RI-QR14	1590812

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



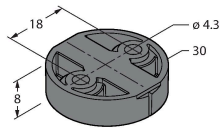
P2-RI-QR14	1590819

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



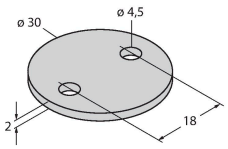
P3-RI-QR14	1590865

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



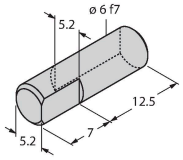
SP1-QR14	1590873

Shield plate Ø 30 mm, aluminium



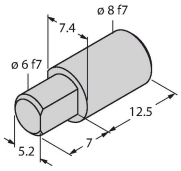
HSA-M6-QR14	6901051

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



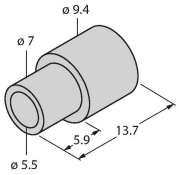
HSA-M8-QR14	6901052

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

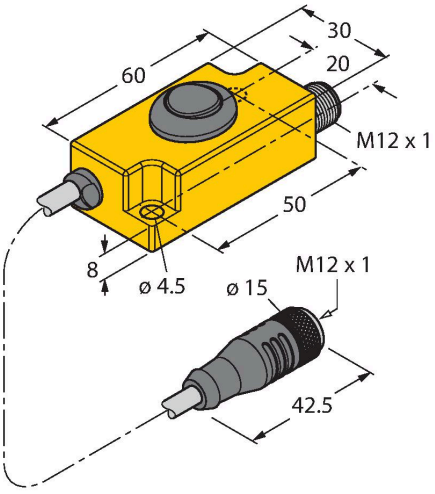


DS-RI-QR14	1590814

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



Accessories

Dimension drawing	Type	ID	
	TX1-Q20L60	6967114	Teach adapter for inductive encoders, linear position, angle, ultrasonic and capacitive sensors