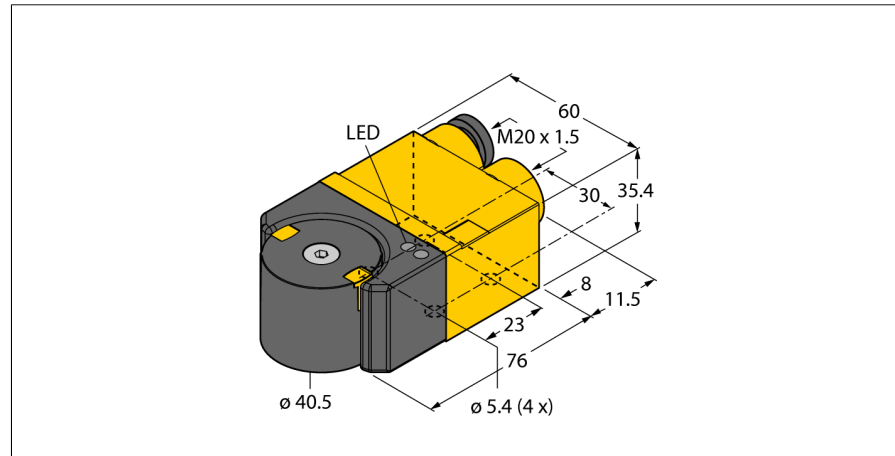


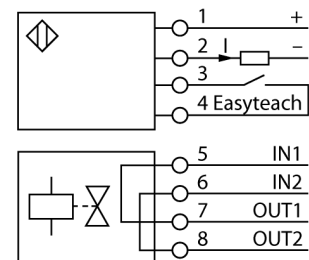
**Inductive angle sensor
with analog output
Ri360P1-DSU35TC-ELi-Exi**



- ATEX category II 2 G, Ex Zone 1
- ATEX category II 2 D, Ex Zone 21
- Rectangular, housing DSU35
- Plastic, PP-GF30-VO
- Detection of angular range 0° to 360°
- P1-Ri-QR14 positioning element included in delivery
- Measuring range programmable via switch in the Terminal chamber
- Immune to electromagnetic interference
- Resolution, 12-bit
- 2-wire, 14...30 VDC
- Analog output
- 4 ... 20 mA
- Terminal chamber

Type code	Ri360P1-DSU35TC-ELi-Exi
Ident no.	1593015
Measuring principle	inductive
Resolution	12 bit
Measuring range	0...360°
Nominal distance	1 mm
Repeatability	≤ 0.025 % of full scale
Linearity deviation	≤ 0.3 % f.s.
Temperature drift	≤ ± 0.02 % / K
Ambient temperature	-25...+70 °C in the explosion hazardous area see instruction leaflet
Operating voltage	14... 30VDC at the connection point of the sensor
Residual ripple	≤ 10 % U _s
Rated insulation voltage	≤ 0.5 kV
Short-circuit protection	yes
Wire breakage / Reverse polarity protection	yes/ complete
Output function	2-wire, Analog output
Current output	4...20mA 22 mA loop current during teach
Load resistance current output	≤ [(U _e - 14 V) / 20 mA] kΩ
Sample rate	500 Hz
Valve control	Exi (max. 30 V)
Approval acc. to	KEMA 03 ATEX 1122 X Issue no. 2
Internal capacitance (C _i) / inductance (L _i)	0 nF / 0 μH
Device designation	Ⓢ II 2 G Ex ia IIC T6 Gb / II 2 D Ex ia IIIC T85 °C Db (max. U _i = 30 V, I _i = 120 mA, P _i = 600 mW)
Dimensions	71 x 60 x 35.4 mm
Housing material	Plastic, PP-GF30
Housing material, positioning element	plastic, PA66 + PA6I/6T-GF40
Connection	terminal chamber
Vibration resistance	55 Hz (1 mm)
Shock resistance (EN 60068-2-27)	30 g
Protection class	IP67
MTTF	138 years acc. to SN 29500 (Ed. 99) 40 °C
Included in delivery	Positioning element P1-Ri-DSU35, countersunk screw M6 x 25, 2 cylinder screw M5 x 12, 2 lock washers A5

Wiring Diagram



Functional principle

Inductive measuring principle provides more safety

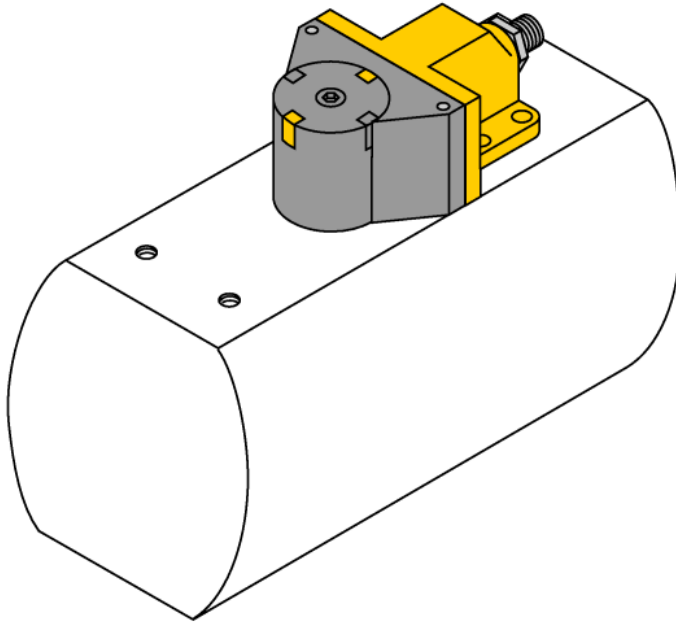
Based on the functional principle of RLC coupling, the sensor operates absolutely wear-free and is immune to magnetized metal splinters and other interference fields.

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.

**Inductive angle sensor
with analog output
Ri360P1-DSU35TC-ELi-Exi**

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Ri-DSU35 for mounting on rotary actuators

The Ri-DSU35 angle sensor and the well-established Ni4-DSU35 inductive dual sensor are identical in construction. The user also profits from the enormous mounting flexibility of the device. The sensor can be mounted on all standard rotary actuators with a shaft diameter of max. 14 mm thanks to an extensive range of available accessories. For larger shaft diameters use the BTS-DSU35-Z02 accessories.

**Inductive angle sensor
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Ri360P1-DSU35TC-ELi-Exi**

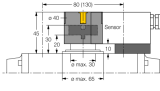
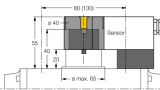
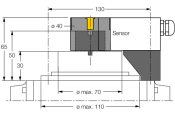
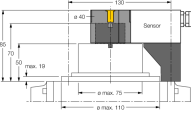
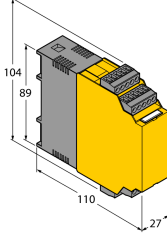
Teaching instructions

Teaching with positioning element

Teach pulse	LED 1	LED 2
approx. 3 s – start value	lights up green, easy teach starts, after completion fast flash	flashes 1 x, then stop teach pulse => start value set
approx. 5 s – end value		flashes 2 x, then stop teach pulse => end value set
approx. 8 s - change of direction		flashes 3 x, then stop teach pulse => change of direction CW/CCW
approx. 12 s – factory setting		flashes 4 x, then stop teach pulse => factory setting reset (360° measuring range, CW direction)

**Inductive angle sensor
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Ri360P1-DSU35TC-ELi-Exi**

Accessories

Type code	Ident no.	Description	
BTS-DSU35-Z01	6900229	Mounting kit dual sensors, for larger rotary actuators: Spacer plate and snap ring max. \varnothing 65 mm; hole pattern on flange surface 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height 30 mm / \varnothing max. 30 mm	
BTS-DSU35-Z02	6900230	Mounting kit dual sensors, for larger rotary actuators: \varnothing disc and snap ring max. 65 mm; hole pattern on flange surface 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height 20 (30) mm / \varnothing max. 40 mm	
BTS-DSU35-Z03	6900231	Mounting kit dual sensors, for larger rotary actuators: \varnothing disc and snap ring max. 110 mm; hole pattern on flange surface 30 x 130 mm; connection shaft (shaft extension) height 30 mm / \varnothing max. 70 mm	
BTS-DSU35-Z07	6900403	Mounting kit dual sensors, for larger rotary actuators: \varnothing disc and snap ring max. 110 mm; hole pattern on flange surface 30 x 130 mm; connection shaft (shaft extension) height 50 mm / \varnothing max. 75 mm	
IM33-14EX-CDRI	7560015	Isolating transducers; 1-port; power supply of 2-wire measuring transducers with HART® communication as well as connection of active 2-wire and passive 3-wire transmitters, SIL2 according to IEC61508	

Inductive angle sensor with analog output Ri360P1-DSU35TC-ELi-Exi

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Industrial
Automation

Operating manual

Intended use

This device fulfills the directive 94/9/EC and is suited for use in explosion hazardous areas according to EN60079-0:2012 + A11 -11:2012. In order to ensure correct operation to the intended purpose it is required to observe the national regulations and directives.

For use in explosion hazardous areas conform to classification

II 2 G and II 2 D (Group II, Category 2 G, electrical equipment for gaseous atmospheres and category 2 D, electrical equipment for dust atmospheres)

Marking (see device or technical data sheet)

Ⓔ II 2 G Ex ia IIC T6 Gb and Ⓔ II 2 D Ex ia IIIC T85 °C Db acc. to EN 60079-0, -11

Local admissible ambient temperature

-25...+66 °C

Installation / Commissioning

These devices may only be installed, connected and operated by trained and qualified staff. Qualified staff must have knowledge of protection classes, directives and regulations concerning electrical equipment designed for use in explosion hazardous areas. Please verify that the classification and the marking on the device comply with the actual application conditions.

This device is only suited for connection to approved Exi circuits compliant to EN60079-0 and -11. Please observe the maximum admissible electrical values.

After connection to other circuits the sensor may no longer be used in Exi installations. When interconnected to (associated) electrical equipment, it is required to perform the "Proof of intrinsic safety" (EN60079-14).

Installation and mounting instructions

Avoid static charging of cables and plastic devices. Please only clean the device with a damp cloth. Do not install the device in a dust flow and avoid build-up of dust deposits on the device.

If the devices and the cable could be subject to mechanical damage, they must be protected accordingly. They must also be shielded against strong electro-magnetic fields.

The pin configuration and the electrical specifications can be taken from the device marking or the technical data sheet.

In order to avoid contamination of the device, please remove possible blanking plugs of the cable glands or connectors only shortly before inserting the cable or opening the cable socket.

Special conditions for safe operation

The device must be protected against any kind of mechanical damage, avoid static charging.

service / maintenance

Repairs are not possible. The approval expires if the device is repaired or modified by a person other than the manufacturer. The most important data from the approval are listed.