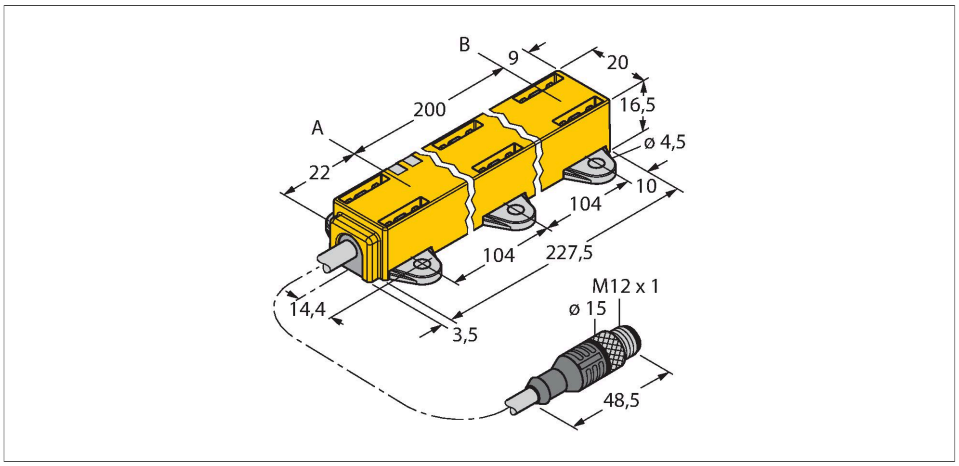
LI200P1-Q17LM1-LIU5X2-0.3-RS5/3GD
Inductive Linear Position Sensor with ATEX Certificate – 3GD, Zone 2 (22)



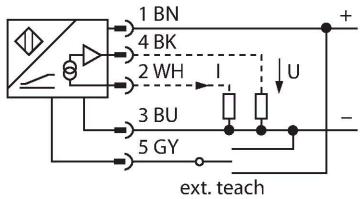
Technical data

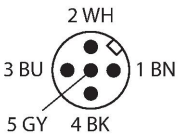
Type	LI200P1-Q17LM1-LIU5X2-0.3-RS5/3GD
Ident. no.	100004404
Remark to product	Reduced temperature range (max 50 °C)
Measuring principle	Inductive
Measuring range	200 mm
Resolution	0,049 mm/12 bit
Nominal distance	1.5 mm
Blind zone a	22 mm
Blind zone b	9 mm
Repeat accuracy	≤ 0.03 % of full scale
Linearity deviation	≤ 0.5 %f.s.
Temperature drift	≤ ± 0.01 % / K
Hysteresis	not applied
Ambient temperature	-25…+50 °C
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
- Positioning element P1-Li-QR14/Q17L, mounting aids M1.1-Q17L and M1.2-Q17L included in delivery
- LED indicates measuring range
- Immune to electromagnetic interference
- Extremely short blind zones
- Resolution, 12-bit
- 4-wire, 15…30 VDC
- Analog output
- Programmable measuring range
- 0…10 V and 4…20 mA
- Cable with male end M12 x 1
- ATEX category II 3 G, Ex zone 2
- ATEX category II 3 D, Ex zone 22

Wiring diagram



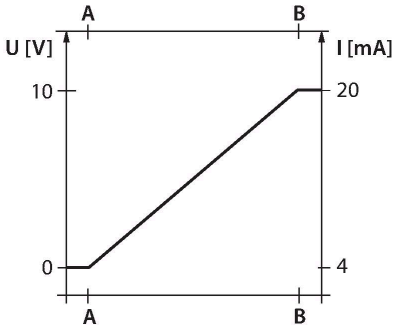


Functional principle

The measuring principle of linear position sensors is based on RLC coupling between the positioning element and the sensor, whereby an output signal is provided proportional to the position of the positioning element. The rugged sensors are wear and tear-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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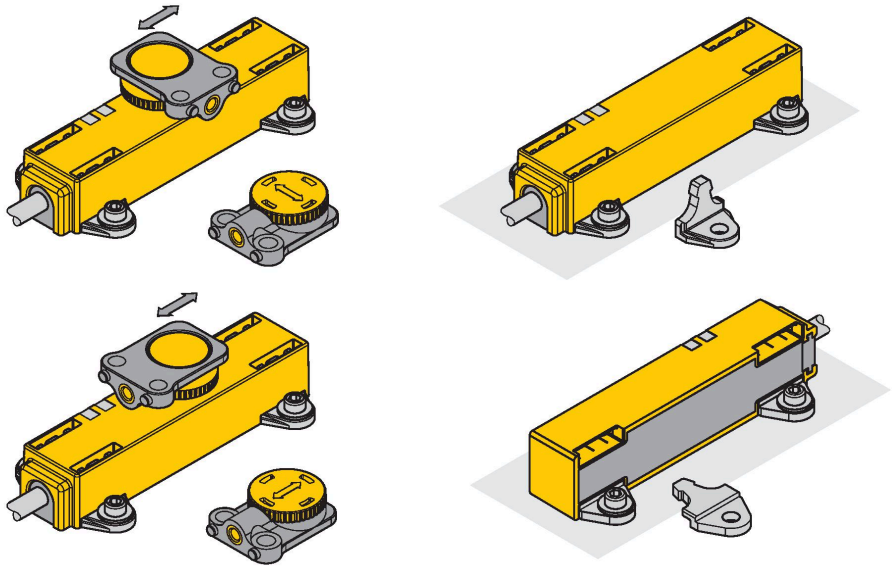
Technical data



Load resistance, current output	≤ 0.4 kΩ
Sample rate	700 Hz
Current consumption	< 50 mA
Approval acc. to	ATEX declaration of conformity
Device marking	II 3 G Ex ec IIB T4 Gc II 3 D Ex tc IIIC T100°C Dc
Design	Profile, Q17L
Dimensions	231 x 20 x 16.5 mm
Housing material	Plastic, PC-GF10
Electrical connection	Cable with connector, M12 × 1
Cable quality	Ø 5.2 mm, Lif9YH-11YH, PUR, 0.3 m
	Halogen-free, flame-retardant acc. to VDE
Core cross-section	5 x 0.34 mm^2
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Protection class	IP67
MTTF	138 years acc. to SN 29500 (Ed. 99) 40 °C
Power-on indication	LED, Green
Measuring range display	multifunction LED, green
Included in delivery	positioning element P1-Li-QR14/Q17L, M1.1-Q17L, M1.2-Q17L

Mounting instructions

Mounting instructions/Description



Extensive mounting accessories provide various options for installation.
The positioning element can be mounted offset by 90° degrees. This provides highest mounting flexibility. The linear position sensor can also be mounted offset by 90° degrees with the two provided screw joints. The measuring principle of RLC coupling makes the sensor immune to magnetized metal splinters and other interference fields.

LED indicates status:
Green:
Sensor is supplied correctly

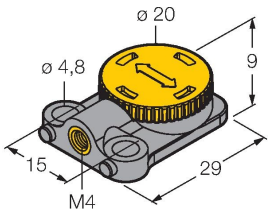
LED indicates measuring range
Green:
Positioning element is in the measuring range
Green flashing:
Positioning element is in the measuring range, signal low (e.g. distance too large)
LED OFF:
Positioning element is outside the coverage

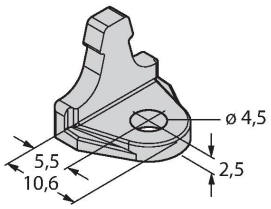
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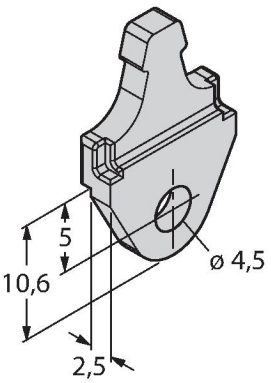
Teaching
The start and end point of the measuring range are set by pressing the button at the teach adapter. Moreover there is the possibility to invert the course of the output curve.
Bridge pin 5 and pin 1 for 10 s (UB) = factory setting
Bridge pin 5 and pin 3 for 10 s (GND) = factory setting inverted

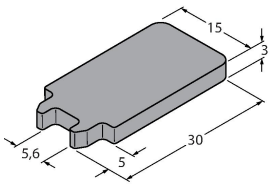
Bridge pin 5 and pin 3 for 2 s (GND) = sets start value of measuring range
Bridge pin 5 and pin 1 for 2 s (UB) = sets end value of measuring range

Accessories

P1-LI-QR14/Q17L	1590724
	Floating positioning element for linear position sensors LI-QR14 and LI-Q17L; transverse and longitudinal mounting possible; the nominal distance to the sensor is 1.5 mm; pairing with the linear position sensor at a distance of up to 3 mm or a misalignment tolerance of up to 3 mm

M1.1-Q17L	1590749
	Mounting bracket for linear position sensors LI-Q17L; material: aluminum; 3 pcs. per bag

M1.2-Q17L	1590750
	Mounting foot for linear position sensors LI-Q17L; material: aluminum; 3 pcs. per bag

RMT-Q17L	1590755
	Removal tool for mounting elements for linear position sensors LI-Q17L

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Operating Instructions

Intended use

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 3 G and II 3 D (Group II, Category 3 G, electrical equipment for gaseous atmospheres and category 3 D, electrical equipment for dust atmospheres).

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.

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

Devices with terminal chamber (cable glands) have a weaker strain relief. Sufficient strain relief must be ensured or the cable must be stationary-mounted.Do not disconnect the plug-in connection or cable under voltage.Please attach a warning label permanently in an appropriate fashion in close proximity to the plug-in connection with the following inscription: Nicht unter Spannung trennen / Do not separate when energized.

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.

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