

LI200P1-Q17LM1-LIU5X2-0.3-RS5 Inductive Linear Position Sensor



Technical data

ID1590728Measuring principleInductiveGeneral dataMeasuring range200 mmResolution $0.049 \text{ mm}/12 \text{ bit}$ Nominal distance 1.5 mm Blind zone a22 mmBlind zone b9 mmRepeat accuracy $\leq 0.03 \%$ of full scaleLinearity deviation $\leq 0.5 \%$ f.s.Temperature drift $\leq \pm 0.01 \% / K$ Hysteresisnot appliedElectrical data $Operating voltage$ Operating voltage 1530 VDC Residual ripple $\leq 10 \% U_{sa}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k\Omega}$ Load resistance current output $\leq 0.4 \text{ k\Omega}$	Туре	LI200P1-Q17LM1-LIU5X2-0.3-RS5
General dataMeasuring range200 mmResolution $0.049 \text{ mm}/12 \text{ bit}$ Nominal distance 1.5 mm Blind zone a 22 mm Blind zone b 9 mm Repeat accuracy $\leq 0.03 \% \text{ of full scale}$ Linearity deviation $\leq 0.5 \% \text{ f.s.}$ Temperature drift $\leq \pm 0.01 \% / \text{K}$ Hysteresisnot appliedElectrical data $Operating voltage$ Operating voltage 1530 VDC Residual ripple $\leq 10 \% U_x$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	ID	1590728
Measuring range200 mmResolution $0.049 \text{ mm}/12 \text{ bit}$ Nominal distance 1.5 mm Blind zone a 22 mm Blind zone b 9 mm Repeat accuracy $\leq 0.03 \% \text{ of full scale}$ Linearity deviation $\leq 0.5 \% \text{ f.s.}$ Temperature drift $\leq \pm 0.01 \% / \text{K}$ Hysteresisnot appliedElectrical data $Operating voltage$ Operating voltage 1530 VDC Residual ripple $\leq 10 \% \text{ U}_{as}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Measuring principle	Inductive
Resolution $0.049 \text{ mm}/12 \text{ bit}$ Nominal distance 1.5 mm Blind zone a 22 mm Blind zone b 9 mm Repeat accuracy $\leq 0.03 \% \text{ of full scale}$ Linearity deviation $\leq 0.5 \% \text{ f.s.}$ Temperature drift $\leq \pm 0.01 \% / \text{K}$ Hysteresisnot appliedElectrical data $Operating voltage$ Operating voltage 1530 VDC Residual ripple $\leq 10 \% \text{ U}_{ss}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	General data	
Nominal distance1.5 mmBlind zone a22 mmBlind zone b9 mmRepeat accuracy $\leq 0.03 \%$ of full scaleLinearity deviation $\leq 0.5 \%$ f.s.Temperature drift $\leq \pm 0.01 \% / K$ Hysteresisnot appliedElectrical data $Operating voltage$ Operating voltage $1530 VDC$ Residual ripple $\leq 10 \% U_{sa}$ Isolation test voltage $\leq 0.5 kV$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output $010 V$ Current output $420 mA$ Load resistance voltage output $\geq 4.7 k\Omega$	Measuring range	200 mm
Blind zone a22 mmBlind zone b9 mmRepeat accuracy $\leq 0.03 \%$ of full scaleLinearity deviation $\leq 0.5 \%$ f.s.Temperature drift $\leq \pm 0.01 \% / K$ Hysteresisnot appliedElectrical data $Operating voltage$ Operating voltage $1530 VDC$ Residual ripple $\leq 10 \% U_{ss}$ Isolation test voltage $\leq 0.5 kV$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output $010 V$ Current output $420 mA$ Load resistance voltage output $\geq 4.7 k\Omega$	Resolution	0.049 mm/12 bit
Blind zone b9 mmRepeat accuracy $\leq 0.03 \%$ of full scaleLinearity deviation $\leq 0.5 \%$ f.s.Temperature drift $\leq \pm 0.01 \% / K$ Hysteresisnot appliedElectrical data 0 Operating voltage 1530 VDC Residual ripple $\leq 10 \% U_{ss}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Nominal distance	1.5 mm
Repeat accuracy $\leq 0.03 \%$ of full scaleLinearity deviation $\leq 0.5 \%$ f.s.Temperature drift $\leq \pm 0.01 \% / K$ Hysteresisnot appliedElectrical data \bigcirc Operating voltage 1530 VDC Residual ripple $\leq 10 \% \text{ U}_{ss}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Blind zone a	22 mm
Linearity deviation $\leq 0.5 \%$ f.s.Temperature drift $\leq \pm 0.01 \% / K$ Hysteresisnot appliedElectrical data 0 Operating voltage 1530 VDC Residual ripple $\leq 10 \% U_{ss}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Blind zone b	9 mm
Temperature drift $\leq \pm 0.01 \% / K$ Hysteresisnot appliedElectrical data 0 Operating voltage 1530 VDC Residual ripple $\leq 10 \% U_{ss}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function 5 -pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Repeat accuracy	≤ 0.03 % of full scale
Hysteresisnot appliedElectrical data 1530 VDC Qperating voltage 1530 VDC Residual ripple $\leq 10 \% U_{ss}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function5-pin, Analog outputVoltage output010 VCurrent output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Linearity deviation	≤ 0.5 % f.s.
Electrical dataOperating voltage 1530 VDC Residual ripple $\leq 10 \% U_{ss}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function5-pin, Analog outputVoltage output010 VCurrent output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Temperature drift	≤ ± 0.01 % / K
Operating voltage1530 VDCResidual ripple $\leq 10 \% U_{ss}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes (voltage supply)Output function5-pin, Analog outputVoltage output010 VCurrent output420 mALoad resistance voltage output $\geq 4.7 \text{ k}\Omega$	Hysteresis	not applied
Residual ripple $\leq 10 \% U_{ss}$ Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function5-pin, Analog outputVoltage output010 VCurrent output420 mALoad resistance voltage output $\geq 4.7 \text{ k}\Omega$	Electrical data	
Isolation test voltage $\leq 0.5 \text{ kV}$ Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function5-pin, Analog outputVoltage output010 VCurrent output420 mALoad resistance voltage output $\geq 4.7 \text{ k}\Omega$	Operating voltage	1530 VDC
Short-circuit protectionyesWire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function5-pin, Analog outputVoltage output010 VCurrent output420 mALoad resistance voltage output $\geq 4.7 \text{ k}\Omega$	Residual ripple	≤ 10 % U _{ss}
Wire breakage/Reverse polarity protectionyes / yes (voltage supply)Output function5-pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Isolation test voltage	≤ 0.5 kV
Output function5-pin, Analog outputVoltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Short-circuit protection	yes
Voltage output 010 V Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Wire breakage/Reverse polarity protection	yes / yes (voltage supply)
Current output 420 mA Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Output function	5-pin, Analog output
Load resistance voltage output $\geq 4.7 \text{ k}\Omega$	Voltage output	010 V
	Current output	420 mA
Load resistance current output $\leq 0.4 \text{ k}\Omega$	Load resistance voltage output	≥ 4.7 kΩ
	Load resistance current output	≤ 0.4 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

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.



Technical data

Sample rate	700 Hz
Current consumption	< 50 mA
Mechanical data	
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, Black, LifYY, PVC, 0.3 m
Core cross-section	5 x 0.25 mm ²
Environmental conditions	
Ambient temperature	-25+70 °C
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, signal low (e.g. distance too large)
LED OFF:
Positioning element is outside the coverage
Teaching
The start and end point of the measuring range are set by pressing the button at the teach

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





M1.2-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

1590750

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



RMT-Q17L

1590749

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

1590755

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

