

LI100P0-Q25LM0-ESG25X3-H1181  
Inductive Linear Position Sensor



Technical data

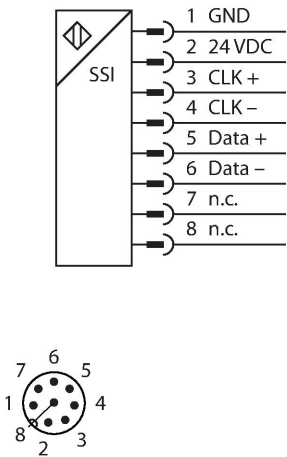
|                                        |                                                                                                                                                                                                                                                                 |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                                   | LI100P0-Q25LM0-ESG25X3-H1181                                                                                                                                                                                                                                    |
| ID                                     | 1590009                                                                                                                                                                                                                                                         |
| Measuring principle                    | Inductive                                                                                                                                                                                                                                                       |
| General data                           |                                                                                                                                                                                                                                                                 |
| Measuring range                        | 100 mm                                                                                                                                                                                                                                                          |
| Resolution                             | 0.001 mm                                                                                                                                                                                                                                                        |
| Nominal distance                       | 1.5 mm                                                                                                                                                                                                                                                          |
| Blind zone a                           | 29 mm                                                                                                                                                                                                                                                           |
| Blind zone b                           | 29 mm                                                                                                                                                                                                                                                           |
| Reproducibility                        | ≤ 18 µm                                                                                                                                                                                                                                                         |
| Linearity deviation                    | ≤ 0.12 % f.s.                                                                                                                                                                                                                                                   |
| Temperature drift                      | ≤ ± 0.0001 %/K                                                                                                                                                                                                                                                  |
| Hysteresis                             | not applied                                                                                                                                                                                                                                                     |
| Electrical data                        |                                                                                                                                                                                                                                                                 |
| Operating voltage U <sub>B</sub>       | 15...30 VDC                                                                                                                                                                                                                                                     |
| Ripple U <sub>ss</sub>                 | ≤ 10 % U <sub>Bmax</sub>                                                                                                                                                                                                                                        |
| Isolation test voltage                 | 0.5 kV                                                                                                                                                                                                                                                          |
| Short-circuit protection               | yes                                                                                                                                                                                                                                                             |
| Wire break/reverse polarity protection | yes/yes (voltage supply)                                                                                                                                                                                                                                        |
| Communication protocol                 | SSi                                                                                                                                                                                                                                                             |
| Output function                        | 8-pin, 25 Bit, Gray coded                                                                                                                                                                                                                                       |
| Process data area                      | Bit 0 ... Bit 19                                                                                                                                                                                                                                                |
| Diagnostic bits                        | Bit 21: Positioning element left the measuring range and is outside the detectable area.<br>Bit 22: Positioning element is in the measuring range, lower signal quality (e.g. distance too large)<br>Bit 23: Positioning element is outside the measuring range |



Features

- Rectangular, aluminium / plastic
- Versatile mounting possibilities
- Measuring range indicated via LED
- Immune to electromagnetic interferences.
- Extremely short blind zones
- Resolution 0,001 mm
- 15...30 VDC
- Male M12 x 1, 8-pin
- SSI output
- 25 bit, Gray-coded
- SSI clock rate: 62.5 kHz ... 1 MHz

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

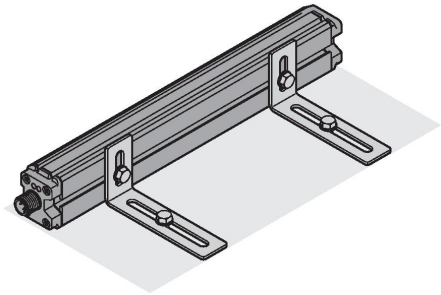
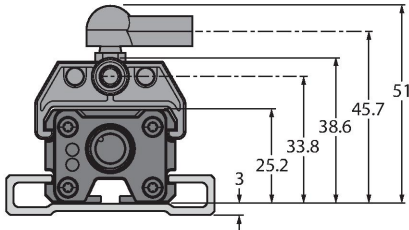
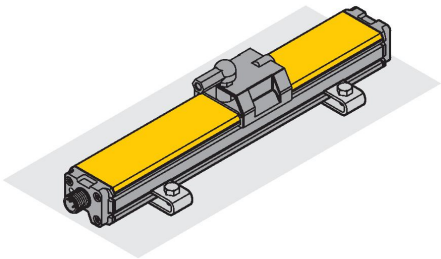
Technical data

|                          |                                                   |
|--------------------------|---------------------------------------------------|
| Sample rate              | 1000 Hz                                           |
| Current consumption      | < 50 mA                                           |
| Mechanical data          |                                                   |
| Design                   | Profile, Q25L                                     |
| Dimensions               | 158 x 35 x 25 mm                                  |
| Housing material         | Aluminum/plastic, PA6-GF30, Anodized              |
| Active area material     | Plastic, PA6-GF30                                 |
| Electrical connection    | Connector, M12 × 1                                |
| 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, yellow, yellow flashing |

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.

Mounting instructions

Mounting instructions/Description



Extensive mounting accessories provide various options for installation. The measuring principle of RLC coupling makes the sensor immune to magnetized metal splinters and other interference fields.

- LED indicates measuring range
- Green:  
Positioning element is in the measuring range
- Yellow:  
Positioning element is in the measuring range, signal low (e.g. distance too large), see status bit 22
- Yellow flashing:  
Positioning element is outside the coverage, see status bit 23
- LED OFF:  
Positioning element is outside the programmed range (only with teachable versions)

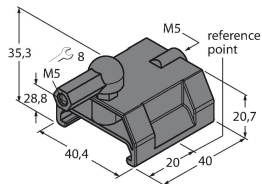
Note: Pin 8 should be kept potential-free

## Accessories

### P1-LI-Q25L

6901041

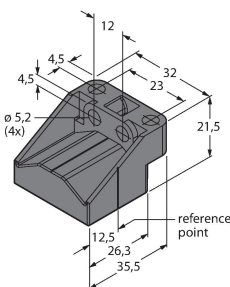
Guided positioning element for linear position sensors LI-Q25L, inserted in the groove of the sensor



### P2-LI-Q25L

6901042

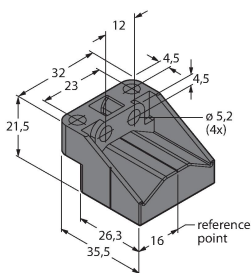
Floating positioning element for linear position sensors LI-Q25L; the nominal distance to the sensor is 1.5 mm; pairing with the linear position sensor at a distance of up to 5 mm or misalignment tolerance of up to 4 mm.



### P3-LI-Q25L

6901044

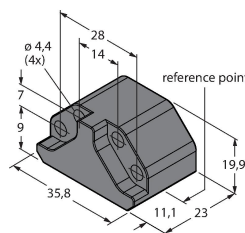
Floating positioning element for LI-Q25L linear position sensors; operational at an offset of 90°; nominal distance to sensor 1.5 mm; pairing with linear position sensor at a distance of up to 5 mm; misalignment tolerance of up to 4 mm



### P6-LI-Q25L

6901069

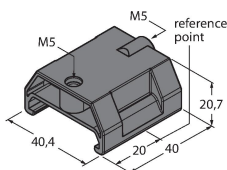
Floating positioning element for linear position sensors LI-Q25L; the nominal distance to the sensor is 1.5 mm; pairing with the linear position sensor at a distance of up to 5 mm or misalignment tolerance of up to 4 mm.



### P7-LI-Q25L

6901087

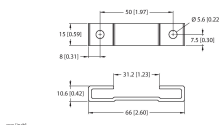
Guided positioning element for linear position sensors LI-Q25L, without ball joint



### M1-Q25L

6901045

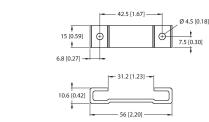
Mounting foot for linear position sensors LI-Q25L; material: aluminum; 2 pcs. per bag



### M2-Q25L

6901046

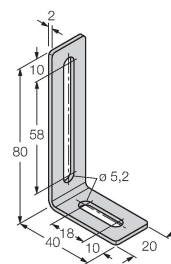
Mounting foot for linear position sensors LI-Q25L; material: aluminum; 2 pcs. per bag



### M4-Q25L

6901048

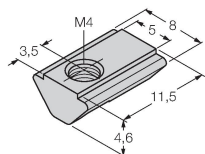
Mounting bracket and sliding block for linear position sensors LI-Q25L; material: Stainless steel; 2 pcs. per bag



### MN-M4-Q25

6901025

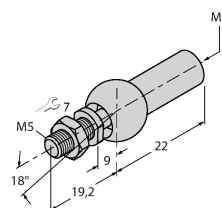
Sliding block with M4 thread for the backside profile of the LI-Q25L; material: galvanized steel; 10 pcs. per bag



### AB-M5

6901057

Axial Joint for Guided Positioning Elements



ABVA-M5

6901058

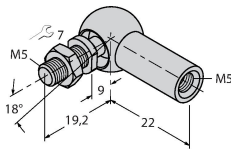
Axial joint for guided positioning  
element, stainless steel



RBVA-M5

6901059

Angle joint for guided positioning  
element, stainless steel



Accessories

| Dimension drawing | Type           | ID      |  |
|-------------------|----------------|---------|--|
|                   | E-RKC 8T-264-2 | U-04781 |  |



Connection cable, female M12, straight,  
8-pin (twisted pairs), shielded, cable  
length: 2 m, sheath material: PVC,  
black; cULus approval; other cable  
lengths and qualities available, see  
[www.turck.com](http://www.turck.com)