

# At a glance

## Linear position sensors



### Linear position sensors - Inductive or magnetic position detection

Position measuring systems are available in most varying designs and for many different applications; from potentiometric position sensors, over magnetostrictive systems up to high-resolution glass scales. The increasing trend towards analog measurement aims at optimizing production processes, simplifying quality assurance and reducing production costs and failure rates.

High repeatability and linearity, simple installation, a rugged design and wear-free measurement, last but not least a large measuring range and short blind zones are the features which an industrial-suited position detection system should have.

The new LI series of inductive linear position sensors can replace expensive magnetostrictive position detection systems as well as cheap but susceptible potentiometers. Thanks to a new revolutionary measuring principle, position is not detected via a positioning magnet but via an inductive oscillating circuit. The sensors are thus completely immune to magnetic fields such as generated by large motors for example.

Injection moulding or metal processing are typical applications for LI sensors. Metal chips or external magnetic fields, both impair the functionality of positioning magnets heavily.

The LI series comprises three device types with different outputs: Current/voltage, high-end IO-Link and SSI. No matter the combination of sensor size and positioning element, the user always gets the optimum solution for short ranges of 100 mm as well as long ranges of up to 1000 mm.

The WIM-Q25L sensors are magnetically actuated and feature measuring ranges of up to 200 mm. Working on the basis of the Hall principle, they achieve high linearity and repeatability and have extremely short blind zones. The magnet of WIM type sensors is axially magnetized, allowing the sensors to be mounted directly on pneumatic cylinders, flow meters or lift valves.

# Our strengths - Your advantages



## Inductive linear position sensors

The new Li...-Q25L inductive linear position sensors operate on the basis of a completely new, revolutionary measuring principle, combining the positive features of standard measuring systems. Position is not detected via a positioning magnet but via an inductive oscillating circuit, making the devices completely

immune to magnetic fields, such as generated by large motors for example. The sensors operate wear-free, feature short blind zones and excellent EMC properties. The measuring range is adjusted via pushbutton. Thanks to the extremely short blind zones, the sensors are very compactly shaped.



## Rugged and leakproof housing

The aluminium cast housing and the high-quality plastic inlay provide high mechanical stability. Moreover, the sensors are perfectly resistant to most chemicals and oils and can be mounted in many ways. In combination with the extensive

range of accessories, they are safely, flexibly and easily mounted in your system. The housing is of course available in the proven quality and features protection class IP67.



## Short blind zones

Very short blind zones provide highest mounting flexibility for many different applications. Even when mounted in confined spaces, the entire measuring range is covered. The measuring range of the

devices with analog output is either pre-programmed or set via teach adapter within seconds. The teach-in process is comfortably controlled via LED at the sensor.

# advantages



### Flexible process connection

Different output types such as analog current or voltage but also SSI enable connection to the higher level control system. The signal is thus easily coupled to different fieldbuses via the TURCK re-

mote I/O systems for example. A standard M12 x 1 plug connection makes the use of other special connectors redundant. In addition, we also offer IO-Link operable devices.



### Highest accuracy

The standard version already achieves a very high degree of linearity and repeatability, sufficient for most applications. If the standard version should not comply with your demands in this respect, the high-end series does. Frequency converters, large motors, ferritic metals or permanent magnets are no problem at all. In-

ductive RLC coupling makes the sensors immune to magnetic fields and provides excellent EMC properties. Mechanical interferences are also hold off. The distance between sensor and positioning element as well as vibration and roughness in the guidance have no effect on the output signal.



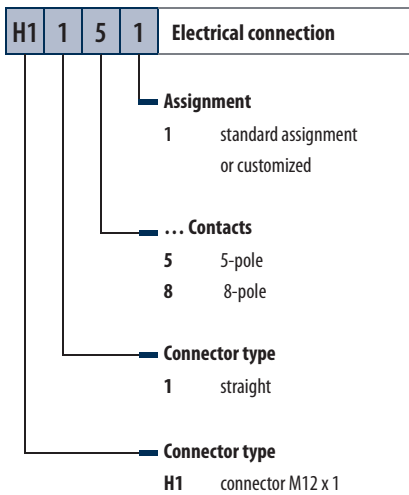
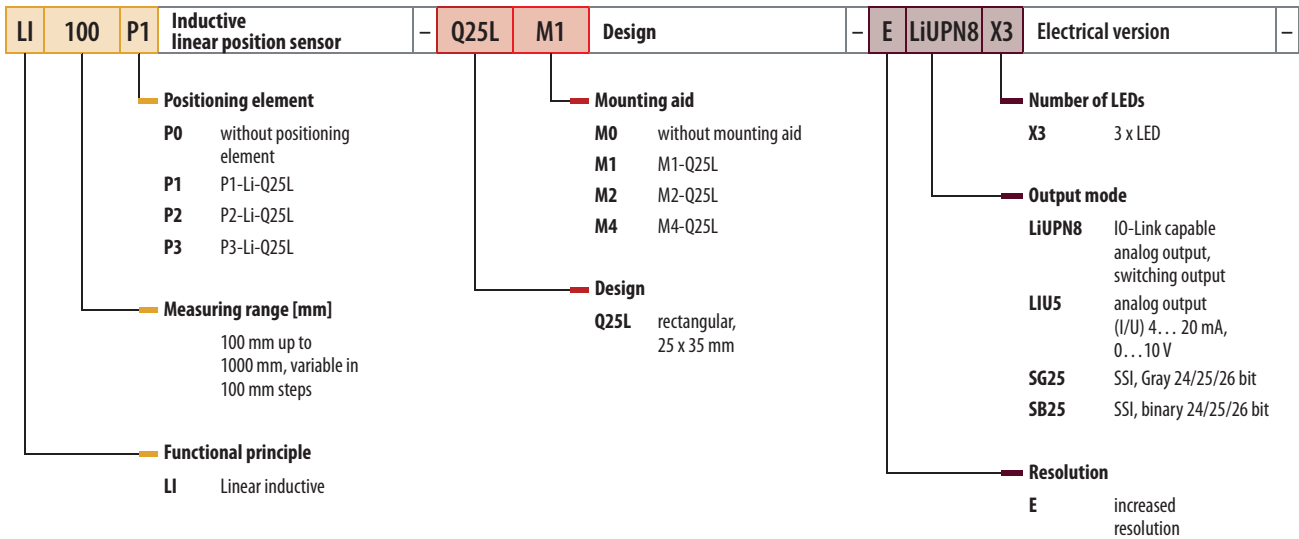
### Magnetic linear position sensors

The WIM-Q25L series of magnetically actuated linear position sensors features measuring ranges of up to 200 mm. Working on the basis of the Hall principle, they achieve high linearity and repeatability and have extremely short blind zones.

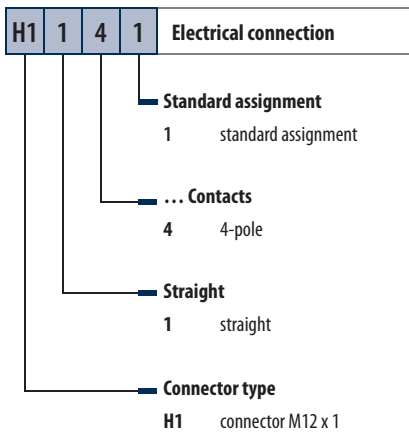
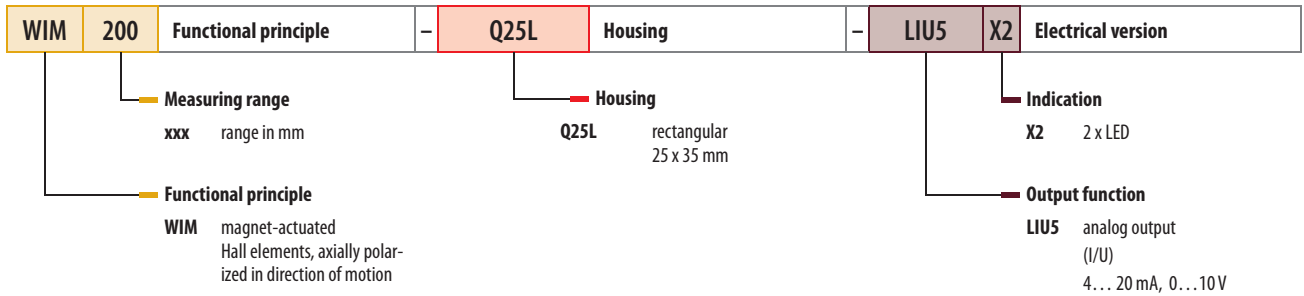
The Q25L sensor family is thus perfectly suited for applications requiring precise signal transmission over long distances, such as in pneumatic pumps, slides, blanking or moulding systems.

# Type code

## Inductive linear position sensors



Magnetic linear position sensors



Linear position sensors

## Inductive linear position sensors Li-Q25L

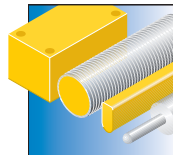


The new Li-Q25L series of linear position sensors offers devices ranging from 100 mm up to 1000 mm. They operate wear-free, feature short blind zones and excellent EMC properties. The measuring range is adjusted via pushbutton and thanks to the extremely short blind zones they are very compactly designed.

### Features

- Rugged aluminium strand cast housing
- Watertight polycarbonate inlay
- Many different mounting options
- Programmable measuring range
- Standard plug connection M12 x 1, 5-pole
- Measuring range indicated via LED
- Not affected by external magnetic fields
- Extremely short blind zones

### Properties



#### Design

Compact design, short blind zones



#### Measuring ranges

Smallest version 100 mm, largest 1000 mm



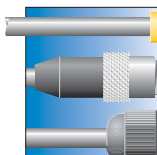
#### Materials

Aluminium strand cast housing with plastic inlay



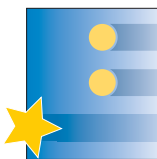
#### Electrical versions

Analog outputs 4...20 mA, 0...10 V, IO-Link, SSI interface



#### Electrical connections

M12 x 1 plug connection for simple installation



#### Special features

Teachable measuring range

## Q25L – Standard series with current and voltage output



### General data

<b>Resolution</b>	12 bit	<b>Temperature drift</b>	0.003% / K
<b>analog output</b>	4...20 mA, 0...10 V	<b>Operating voltage</b>	15...30 VDC
<b>Output function</b>	analog output	<b>Protection class</b>	IP67
<b>Electrical connection</b>	connector, M12 x 1	<b>Ambient temperature</b>	-25...+70 °C
<b>Linearity deviation</b>	0.1% of full scale	<b>Housing material</b>	aluminium

More information on positioning elements and mounting aids in chapter Accessories

### Types and data – selection table

Type	Dimensions	Measuring range	w	d
LI100P0-Q25LM0-LIU5X3-H1151	35 x 25 x 158 mm	100 mm	w131	d560
LI200P0-Q25LM0-LIU5X3-H1151	35 x 25 x 258 mm	200 mm	w131	d560
LI300P0-Q25LM0-LIU5X3-H1151	35 x 25 x 358 mm	300 mm	w131	d560
LI400P0-Q25LM0-LIU5X3-H1151	35 x 25 x 458 mm	400 mm	w131	d560
LI500P0-Q25LM0-LIU5X3-H1151	35 x 25 x 558 mm	500 mm	w131	d560
LI600P0-Q25LM0-LIU5X3-H1151	35 x 25 x 658 mm	600 mm	w131	d560
LI800P0-Q25LM0-LIU5X3-H1151	35 x 25 x 858 mm	800 mm	w131	d560
LI1000P0-Q25LM0-LIU5X3-H1151	35 x 25 x 1058 mm	1000 mm	w131	d560

## Q25L – High-end E series with SSI interface



### General data

<b>Resolution</b>	0,001 mm	<b>Operating voltage</b>	15...30 VDC
<b>Output function</b>	SSI, 25 Bit, Gray coded	<b>Protection class</b>	IP67
<b>Electrical connection</b>	connector, M12 x 1	<b>Ambient temperature</b>	-25...+70 °C
<b>Linearity deviation</b>	0.1% of full scale	<b>Housing material</b>	aluminium
<b>Temperature drift</b>	0.0001% / K		

More information on positioning elements and mounting aids in chapter Accessories

**Types and data – selection table**

Type	Dimensions	Measuring range	w	d
LI100P0-Q25LM0-ESG25X3-H1181	35 x 25 x 158 mm	100 mm	w132	d560
LI200P0-Q25LM0-ESG25X3-H1181	35 x 25 x 258 mm	200 mm	w132	d560
LI300P0-Q25LM0-ESG25X3-H1181	35 x 25 x 358 mm	300 mm	w132	d560
LI400P0-Q25LM0-ESG25X3-H1181	35 x 25 x 458 mm	400 mm	w132	d560
LI500P0-Q25LM0-ESG25X3-H1181	35 x 25 x 558 mm	500 mm	w132	d560
LI600P0-Q25LM0-ESG25X3-H1181	35 x 25 x 658 mm	600 mm	w132	d560
LI800P0-Q25LM0-ESG25X3-H1181	35 x 25 x 858 mm	800 mm	w132	d560
LI1000P0-Q25LM0-ESG25X3-H1181	35 x 25 x 1058 mm	1000 mm	w132	d560

**w** Wiring diagrams on page 832 ff

**d** Dimension drawings on page 842 ff

**a** Accessories on page 768 ff

## Magnetic linear position sensors WIM-Q25L

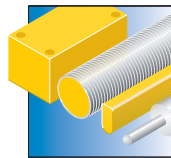


The WIM-Q25L series features magnetically actuated linear position sensors with measuring ranges of up to 200 mm. The sensors work on the basis of the Hall principle such as the compact analog magnetic field sensors WIM45. Typical features are high repeatability, linearity and extremely short blind zones. The Q25L sensor family is thus perfectly suited for applications requiring precise signal transmission over long distances, such as in pneumatic pumps, slides, blanking or moulding systems.

### Features

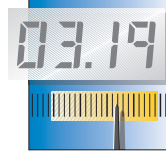
- Many different mounting options
- Measuring range indicated via LED
- Not affected by external magnetic fields
- Extremely short blind zones

### Properties



#### Design

4 lengths, compact housing, short blind zones



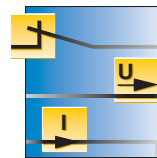
#### Measuring ranges

Smallest version 100 mm, largest 200 mm



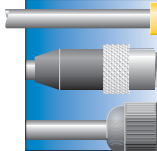
#### Materials

Strand cast aluminium with plastic inlay



#### Electrical versions

analog outputs 4...20 mA and 0...10 V



#### Electrical connections

M12 x 1 plug connection for simple installation

## Q25L



### General data

<b>Repeatability</b>	0.1% of the measurement range	<b>Temperature drift</b>	0.006% / K
<b>analog output</b>	4...20 mA, 0...10 V	<b>Operating voltage</b>	15...30 VDC
<b>Output function</b>	analog output	<b>Protection class</b>	IP67
<b>Electrical connection</b>	connector, M12 x 1	<b>Ambient temperature</b>	-25...+70 °C
<b>Linearity deviation</b>	1% of full scale	<b>Housing material</b>	aluminium

More information on actuating magnets in chapter Accessories

### Types and data – selection table

Type	Dimensions	Measuring range	<span style="background-color: #28a745; color: white; padding: 2px;">w</span>	<span style="background-color: #dc3545; color: white; padding: 2px;">d</span>
WIM100-Q25L-LIU5X2-H1141	35 x 25 x 141 mm	100 mm	w051	d561
WIM125-Q25L-LIU5X2-H1141	35 x 25 x 166 mm	125 mm	w051	d561
WIM160-Q25L-LIU5X2-H1141	35 x 25 x 201 mm	160 mm	w051	d561
WIM200-Q25L-LIU5X2-H1141	35 x 25 x 241 mm	200 mm	w051	d561

