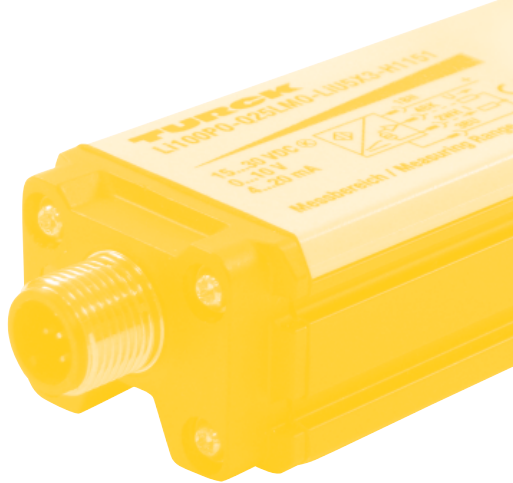


**TURCK**

Industrial  
Automation

**INDUCTIVE  
LINEAR  
POSITION  
SENSORS**



***Sense it! Connect it! Bus it! Solve it!***

# The Company

TURCK is worldwide one of the leading companies in the field of industrial automation. With more than 2,500 employees in 27 countries as well as sales partners in further 60 countries, the sensor, fieldbus, connection and interface specialist is internationally well-placed.



With superior products and tailor-made solutions for factory and process automation TURCK has been setting new standards continuously for over 40 years.

The international orientation of the company started as early as 1975 with the foundation of TURCK Inc. in Minneapolis, USA. With state-of-the-art production facilities in Germany, Switzerland, the USA, Mexico and China, TURCK is able to adapt itself worldwide to local market conditions. Despite the company's international activities, the core competences and central production facilities stay in Germany and will remain here in the future.



# The Program

**TURCK**

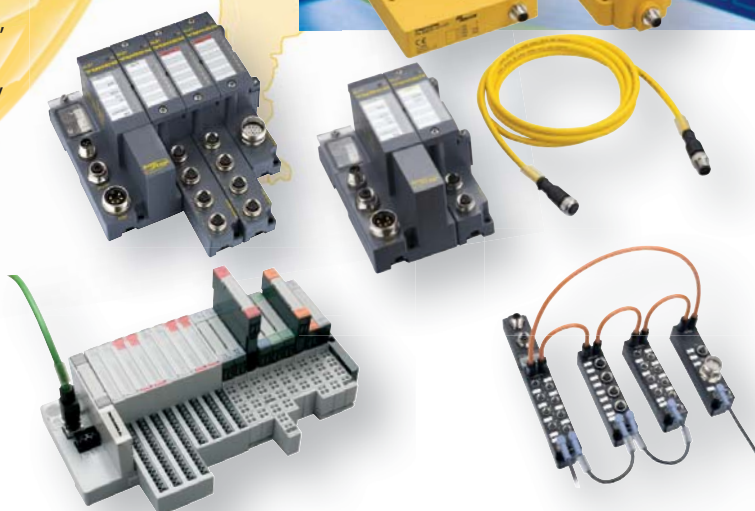
Industrial  
Automation



With over 15,000 products covering the fields of sensor, interface, connection and fieldbus technology, TURCK offers the full range of solutions for factory and process automation.

Examples for the company's innovative leadership are the inductive factor 1 sensors *uprox*<sup>®</sup>+, the modular IP67 I/O system BL67 as well as *excom*<sup>®</sup>, the compact remote I/O system for the Ex-area.

Whether for machine & system engineering, the automotive sector, transport & handling, food & beverage or for chemical and pharmaceutical industries: TURCK products enhance the availability of your systems, using absolutely reliable technologies. Our products help you to lower the costs for purchase, storage, installation and operational safety through effective standardization.



# Inductive linear position sensors – Breaking new grounds

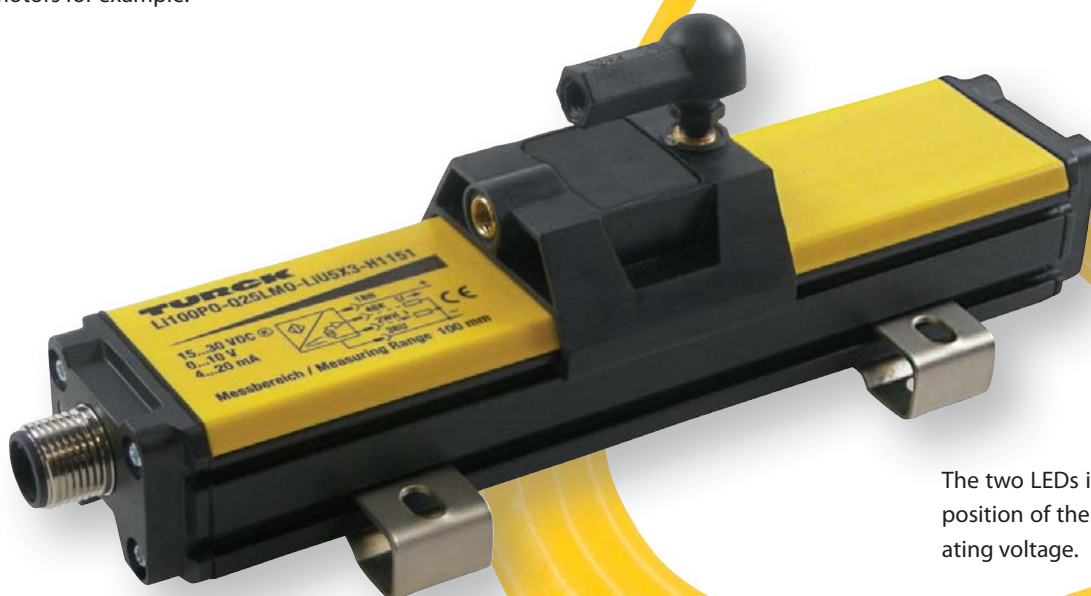
Industrial applications increasingly use analog position sensing. The user is thus able to optimize production processes, simplify quality assurance and to reduce production costs and failure rates.

Position sensing systems are available in most varying designs and applications; from potentiometers, over magnetostrictive sensors up to high-resolution glass scales.



The new inductive linear position sensor by TURCK operates on the basis of a completely new, revolutionary measuring principle. The positive features of standard measuring systems are combined and systematically developed further. The position is not detected via a positioning magnet but via an inductive oscillating circuit. The sensor is thus completely immune to magnetic fields which are generated by large motors for example.

The inductive linear position sensor works wear-free, has short blind zones and excellent EMC qualities. Devices are available in lengths of 100mm and more (100...1000mm etc). The measuring range is adjustable via DIP switch or teach wire. Thanks to the extreme short blind zones, the sensor is very compact.



The two LEDs indicate the signal status, the position of the element as well as the operating voltage.

The choice between different outputs types (0...10 V, 4...20 mA, IO-Link, SSI) and field-bus connections as well as the large range of available mounting accessories increase the versatility of the new inductive linear position sensors even more.

## — Inductive linear position sensors Li-Q25L

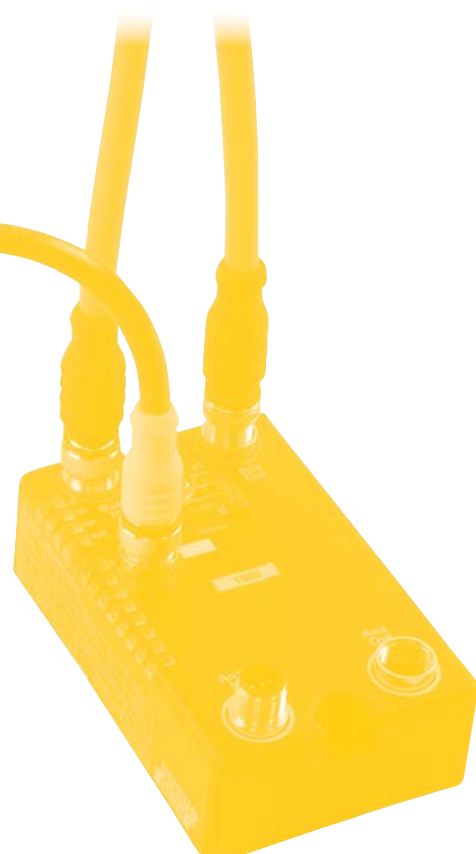
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Technical features	8
Cost optimization	10

## — Connection technology - types and features

Standard series with analog output (U/I)	12
High-end E-series with enhanced resolution and SSI interface	14
High-end E-series with enhanced resolution and with programmable analog/digital output (U/I, PNP), IO-Link compatible	16

## — Accessories

Fieldbus connection	18
Connection technology	20
Function tools	21
Mounting hardware	22



# The technology - from the measuring principle to the housing

## The measuring principle

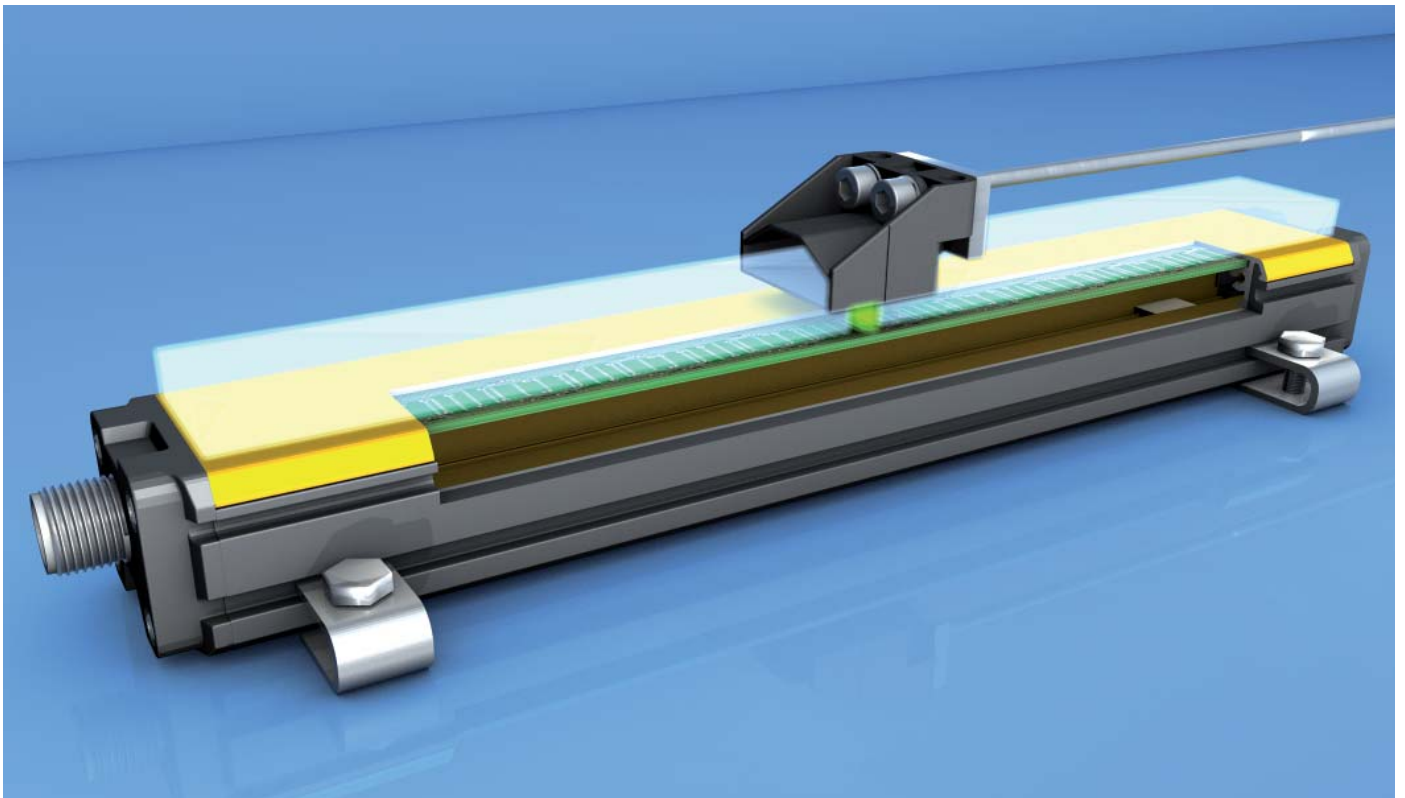
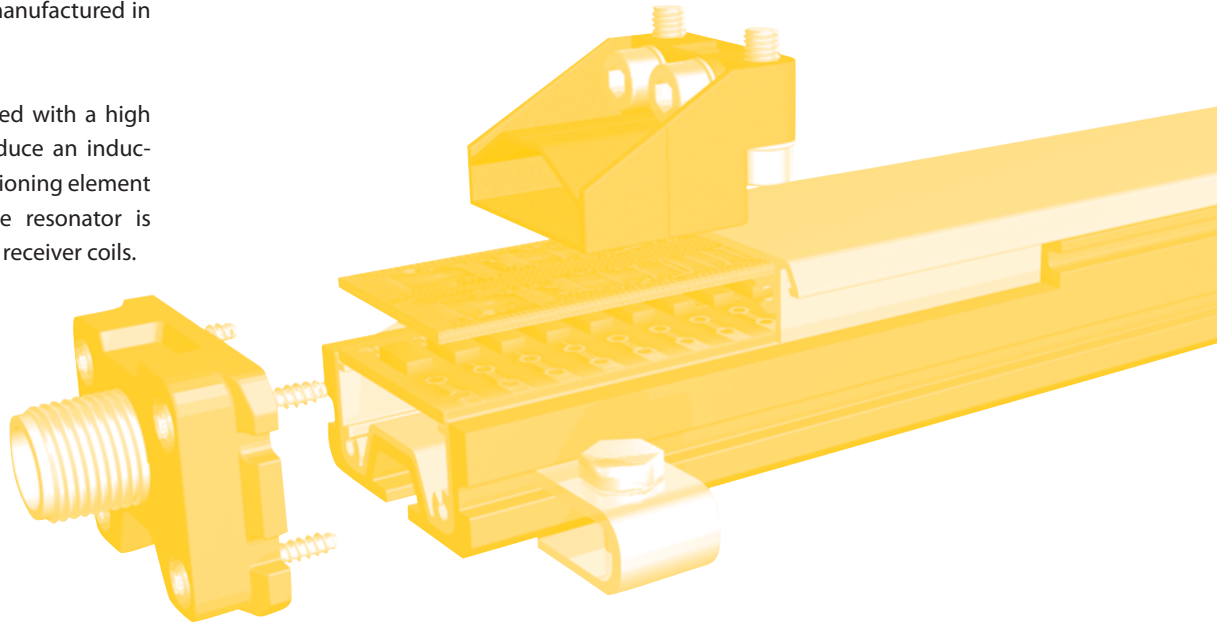
The measuring principle of the new linear position sensors is based on RLC coupling, a revolutionary inductive method. Unlike the potentiometric or the magnetostrictive measurement principle, this method provides considerable advantages.

The sensor incorporates emitter and receiver coil systems very precisely manufactured in form of printed coils.

The emitter coils are activated with a high frequency AC field and produce an inductive RLC circuit with the positioning element (resonator). As a result, the resonator is inductively coupled with the receiver coils.

The receiver coils are arranged such that different voltages are induced in the coils depending on the position of the resonator. These voltages serve as a measure for the sensor signal.

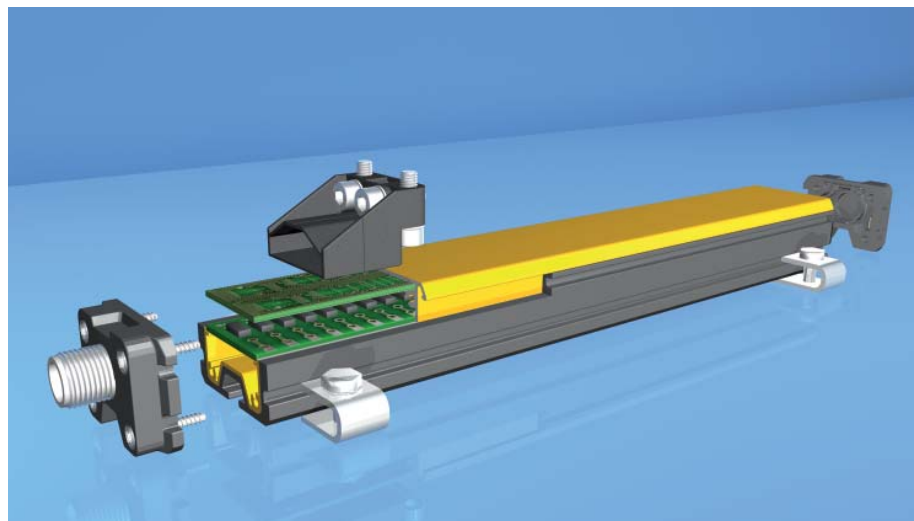
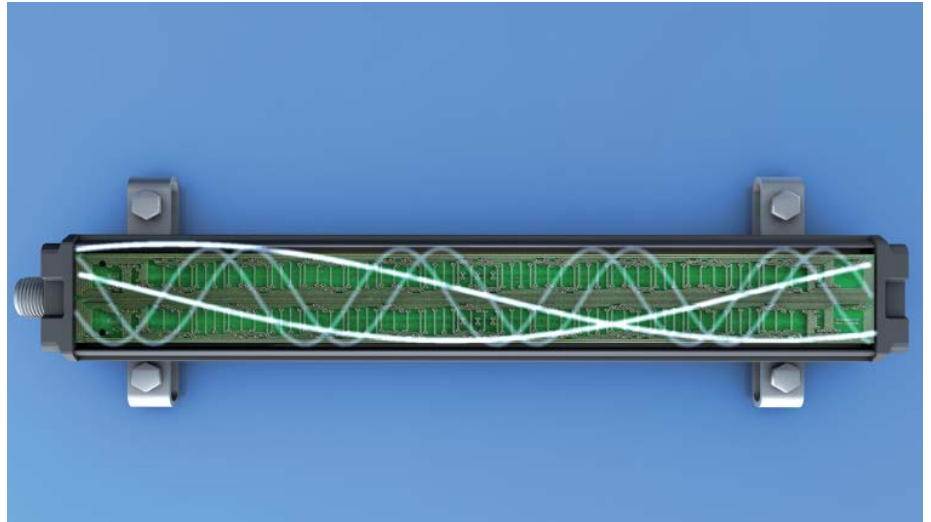
To increase the flexibility and speed of measurement, the sensor features a roughly and a precisely measuring coil system. The former detects the position of the resonator roughly while the latter detects the precise position.



### Electronics and coil geometry

A special arrangement of the coils ensures a stable RLC circuit at a defined range (between 0 and 4 mm) and a stable sensor signal even with vertical or lateral movements. The signals are processed and transmitted to the output by the incorporated 16 bit processor in high resolution quality.

The electronics is located on two circuit boards. The first circuit board carrying the sensor element is located directly below the active face. The second one with the electronics for signal processing instead is located below the first one. Thanks to this arrangement, extremely short blind zones are achieved.



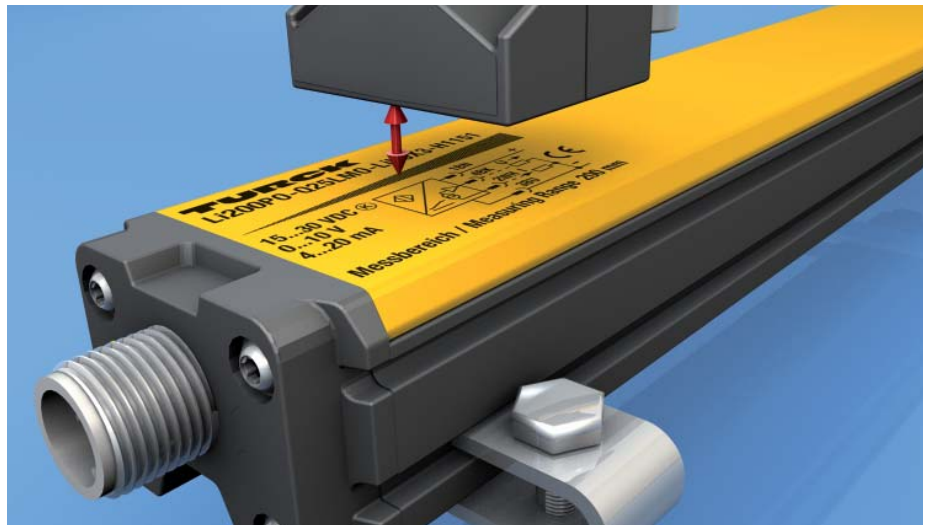
### Housing

The sensor housing is also composed of two parts. The basic housing is made of robust cast aluminium and guarantees mechanical stability and reliable mounting. The active face of the sensor which detects the position of the resonator, is protected by a robust plastic inlay resistant to numerous aggressive media.

# Technical features

## Non-contact position detection

The new measuring system works non-contact and wear-free. Important features such as accuracy, linearity and tightness are conserved a lifetime and guarantee faultless operation at any time.



## Robust and leak-proof housing

The aluminium cast housing and the high-quality plastic inlay provide high mechanical stability. The sensor is moreover perfectly resistant to most chemicals and oils. The aluminium cast housing is robust and can be mounted in many ways. In combination with the extensive range of accessories, the sensor is thus mounted safely, flexibly and easily in your system. The housing is of course available in the proven TURCK quality and features protection class IP67.



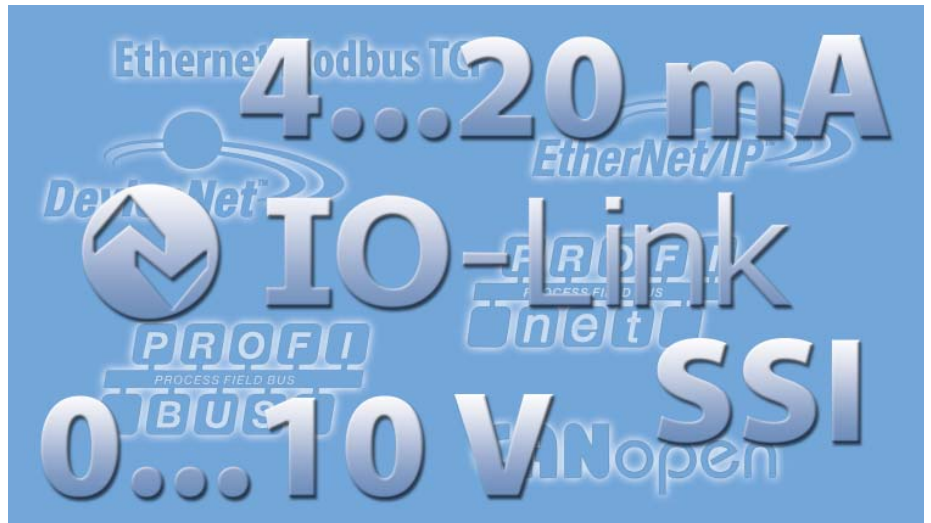
## Short blind zones

Extremely 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 set within seconds by using the teach wire or optional the teach adaptor. The status LED at the sensor helps to control the teach-in process.



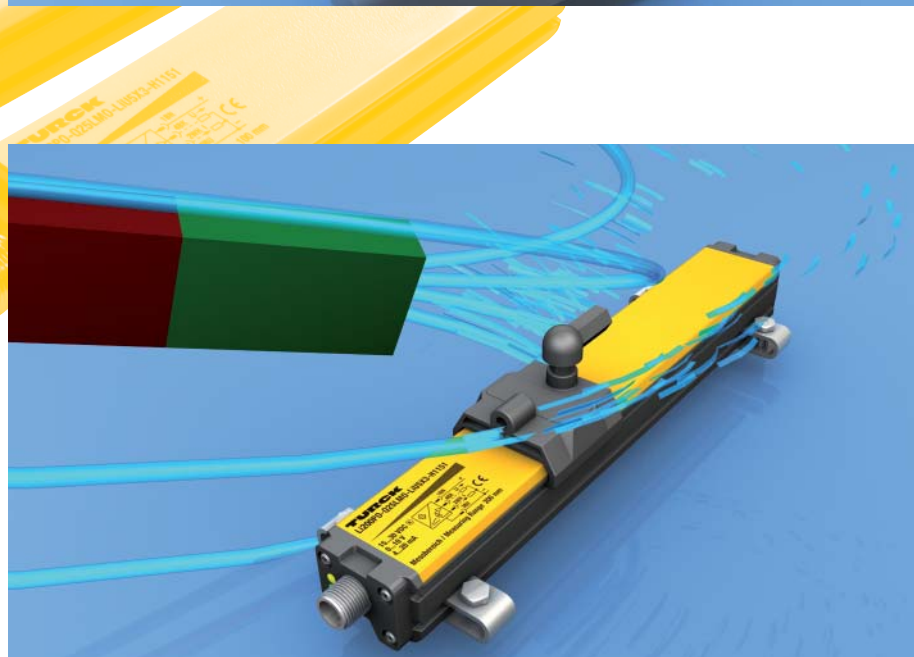
**Flexible process connection**

Different output types such as analog current or voltage but also SSI enable a connection to the higher level control. Thus the signal can be coupled easily via the TURCK remote I/O systems for example to different bus systems. The connection is always established via M12 x 1 standard connectors, special connectors are not required. Some versions can also be operated in IO-Link mode.



**Highest accuracy**

The measuring principle and the system resolution of the new inductive linear position sensors made by TURCK provide highly precise measured signals. The standard versions already achieve a very high linearity and repeatability, sufficient for most applications. If the standard versions should not comply with the requirements in terms of linearity and repeatability, the high-end series does. Highest accuracy thanks to improved signal processing and communication are the core features of this series, perfect for highest demands.



**High interference immunity**

Frequency converters, large motors, ferritic metals or permanent magnets are no problem at all: The new inductive linear position sensor made by TURCK operates with an RLC circuit, is thus insensitive to interference caused by magnetic fields and features excellent EMC properties. Mechanical strains are hold off by the revolutionary work principle: The distance between sensor and positioning element has no influence on the output signal. Vibration and roughness in the guidance of the target have no influence on the output signal either.

# Cost optimization achieved through...

## Process reliability

The new linear position sensor works reliably even in demanding ambient conditions. The sensor features protection class IP67 and always provides exact results, even if exposed to dust or water.

Vibration, lateral or vertical shifts of the positioning element have no impact on the output signal at all. Magnetic fields such as produced by large electric motors for example, have no influence on the operability of the linear position sensor. Thanks to the new resonance measuring principle, the sensor features excellent EMC properties. Consistently implemented, latest technology guarantees less down times.



## Process flexibility

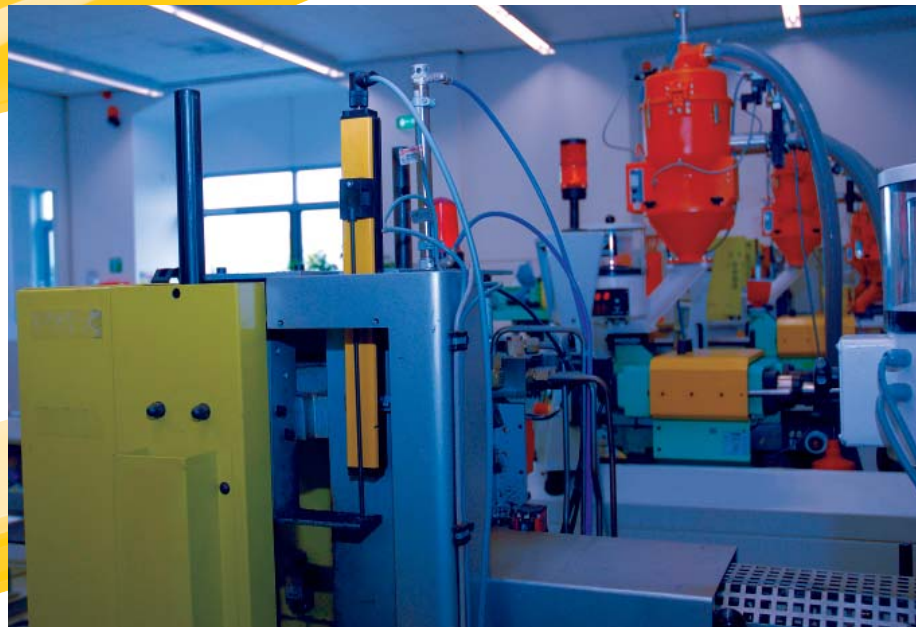
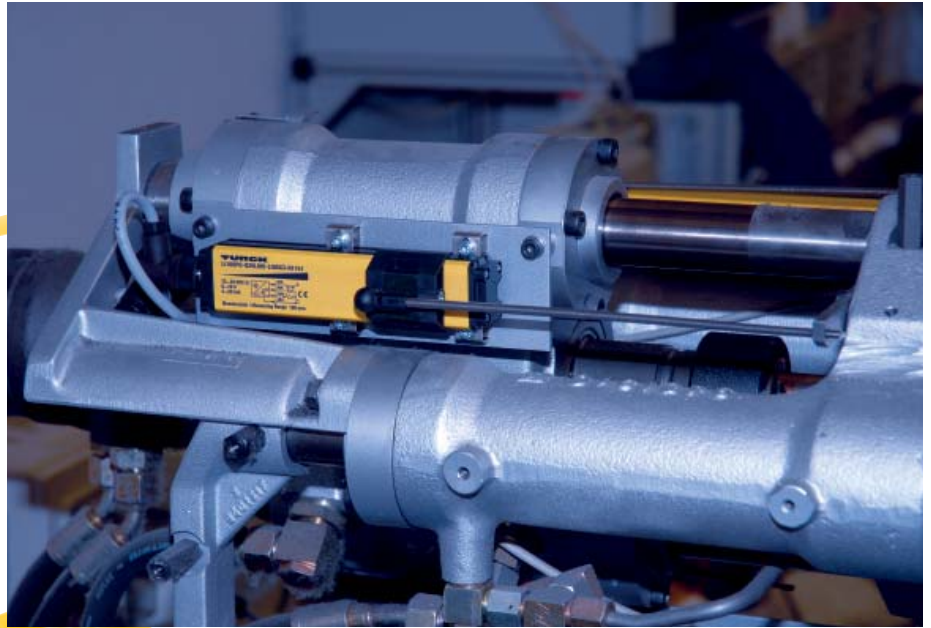
As a system provider TURCK not only offers the sensors but also the matching connection technology to the higher level control systems. The new inductive linear position sensors feature different output types and can be connected to all standard fieldbus systems (e.g. to the TURCK fieldbus systems BL20, BL67, piconet® and BL compact).

Equally wide-ranging is the set of brackets available. They perfectly complement the range of accessories and make mounting of the compact linear position sensors easier.

## Standardization

Thanks to the new technology the measuring range is individually adjustable. A shorter measuring range is adjusted by using a teach wire or optional teaching adaptor. As a result, the number of required devices is reduced and a higher level of standardization is achieved: Compared to conventional potentiometric or magnetostrictive measuring systems, notably fewer device types are needed.

Standardization ensures a high stock availability. TURCK reacts on demands within a few days, allowing the customer to reduce the stock to a minimum. This service is offered around the globe by our TURCK subsidiaries and representations. The customer thus benefits from the TURCK expertise anywhere.



## Service-friendliness

Unlike potentiometers which require re-adjustment when exposed to permanent mechanical strain, the new linear displacement sensors work on the non-contact principle and are wear and maintenance-free. LEDs indicate the system status clearly, even from a distance. The measuring range is easily adjusted to new tasks by teaching.

# Inductive linear position sensors Li-Q25L – Standard series with analog output (U/I)

## Product features

- Standard resolution 12 bit
- Current and voltage output integrated in one device (4-wire, 15...30 VDC)
- Standard connector  
M12 x 1, 5-pole
- Extreme short blind zones
- Programmable measuring range
- Robust Al-continuous casting
- Watertight polycarbonate insert

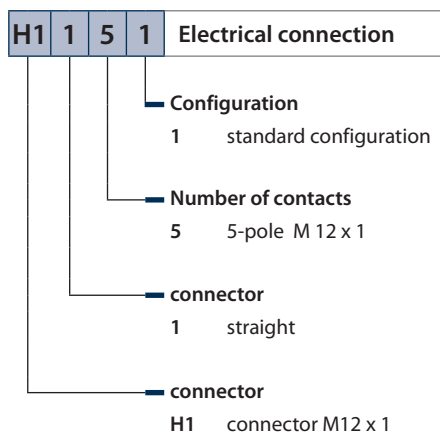
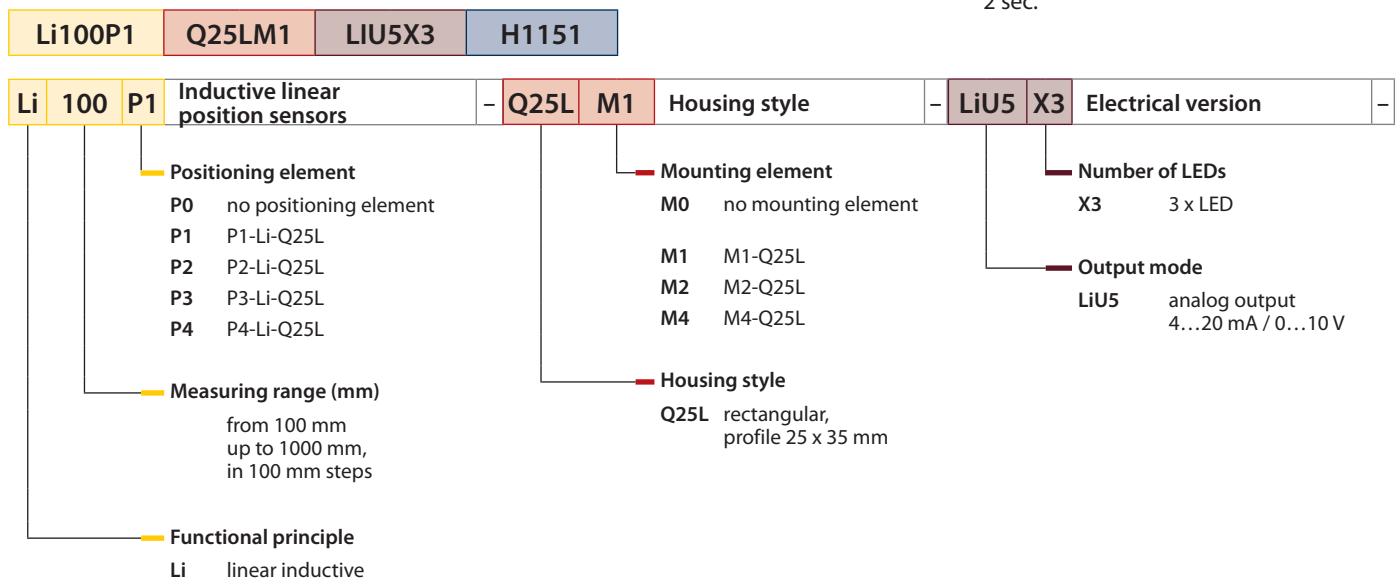
## Measuring range indicated via LED

- green:**  
The positioning element is in the measuring range.
- green/yellow:**  
The positioning element is in the measuring range with a lower signal quality (e.g. distance too long)
- yellow flashing:**  
The positioning element is outside the measuring range (max. range)
- off:**  
The positioning element is outside the programmed range but inside the total, non-programmed measuring length.

## Setting the measuring range

The initial and final value of the measuring range are set at the push of a button, either via teach adapter or programming line (pin 5). Furthermore, the output curve can be inverted.

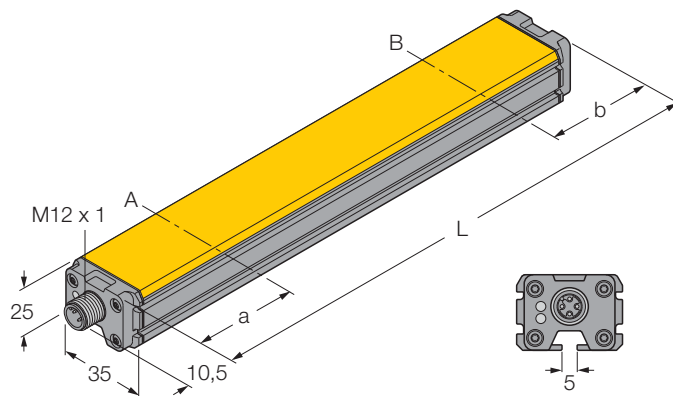
- Jumper pin 5 and pin 1 for 10 sec.:  
Factory setting (0 V/4 mA at the connector end)
- Jumper pin 5 and pin 3 for 10 sec.:  
Factory setting inverted
- Setting the initial value:  
Move positioning element to desired position and jumper pin 5 and pin 3 for 2 sec.
- Setting the final value:  
Move positioning element to desired position and jumper pin 5 and pin 1 for 2 sec.



# Standard series with analog output (U/I) – Technical data

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## Measuring range specifications

Sensor lengths	100, 200, ... 1000 mm
Blind zone a	29 mm
Blind zone b	29 mm

## System

Resolution	12 bit
Repeatability/accuracy	0.025 %
Linearity deviation	≤ 0.1 % of full scale
Temperature drift	≤ ± 0.002 %/K
Ambient temperature	-25...+ 70 °C

## Electrical data

Operating voltage	15...30 VDC
Residual ripple	≤ 10 % U <sub>pp</sub>
No-load current	≤ 50 mA
Rated insulation voltage	≤ 0.5 kV
Short-circuit protection	yes
Wire breakage / reverse polarity protection	yes/fully
Output function	5-wire, analog output
Voltage output	0...10 V
Current output	4...20 mA
Load resistance of voltage output	≥ 4.7 kΩ
Load resistance of current output	≤ 0.4 kΩ
Sampling rate	500 Hz
Current consumption	≤ 100 mA

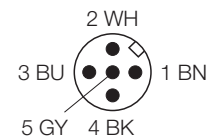
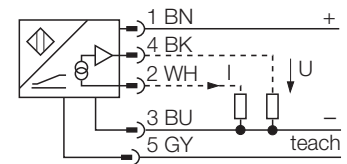
## Housing style

Housing style	rectangular, Q25L
Dimensions	profile 35 x 25 mm, length = meas. length + 58mm
Housing material	aluminium
Material active face	plastic, PC-GF20
Connection	connector, M12 x 1
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Protection class (IEC 60529/EN 60529)	IP67

## LEDs

Power-on indication	LED, green
Measuring range indication	green, yellow, yellow flashing, multifunctional LED

## Wiring diagrams



## Ordering information

The linear position sensors are available in different lengths of 100, 200, ... up to 1000 mm, in 100 mm steps. The sensors, mounting accessories and positioning elements are individually available or as a kit.

## Ordering example

<b>Li</b>	<b>100</b>	<b>P1</b>	<b>-</b>	<b>Q25L</b>	<b>M1</b>	<b>-</b>	<b>LiU5</b>	<b>X3</b>	<b>-</b>	<b>H1151</b>
inductive linear position sensor	measuring range 100 mm	with guided pos. element P1-Li-Q25L		rectangular style Q25L	with mounting element M1-Q25L		analog output 4...20 mA and 0...10 V	3 LEDs		M12 x 1 connector, 5-pole

# Inductive linear position sensors Li-Q25L – High-end E-series with enhanced resolution and SSI interface

## Product features

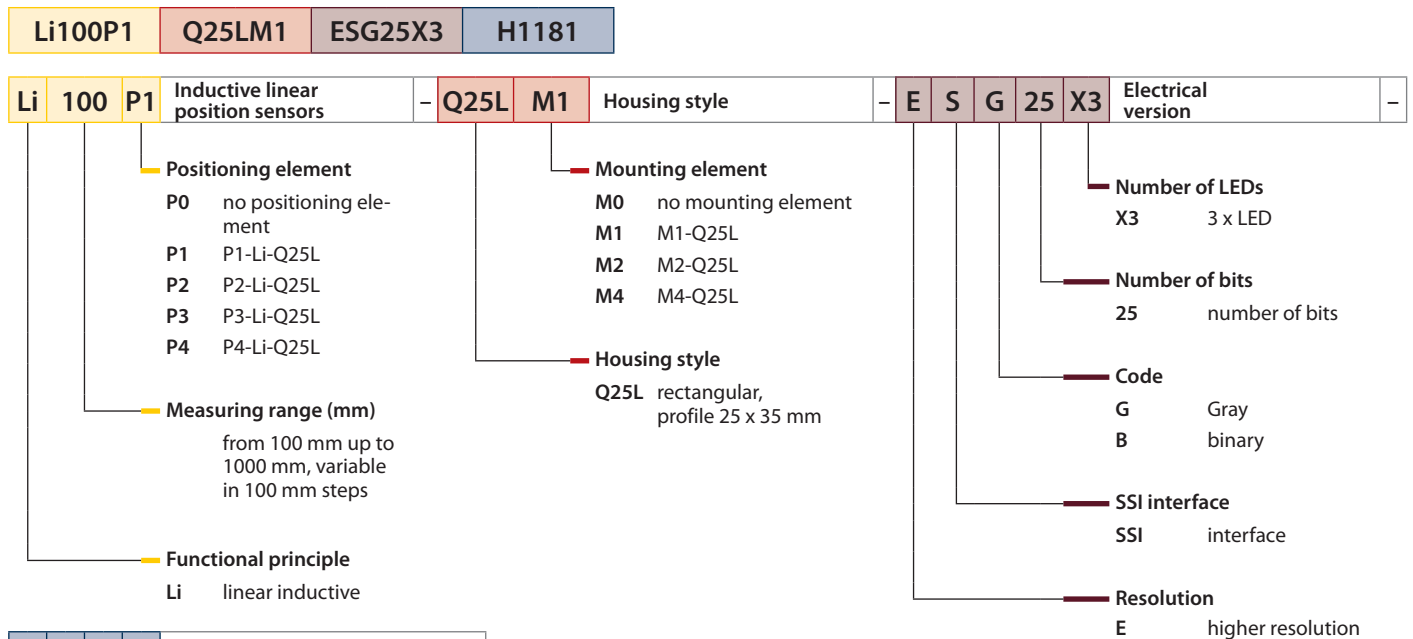
- Enhanced resolution, up to 20 bit, depending on sensor length
- Excellent temperature stability and linearity through direct digital signal transmission
- Standardized SSI interface
- Standard connector M12 x 1, 8-pole
- Extreme short blind zones
- Robust Al-continuous casting
- Watertight polycarbonate insert

## Measuring range indicated via LED

- green:**  
The positioning element is in the measuring range.
- green/yellow:**  
The positioning element is in the measuring range with a lower signal quality (e.g. distance too long)
- yellow flashing:**  
The positioning element outside the measuring range (max. range)

## High-precision digital SSI output

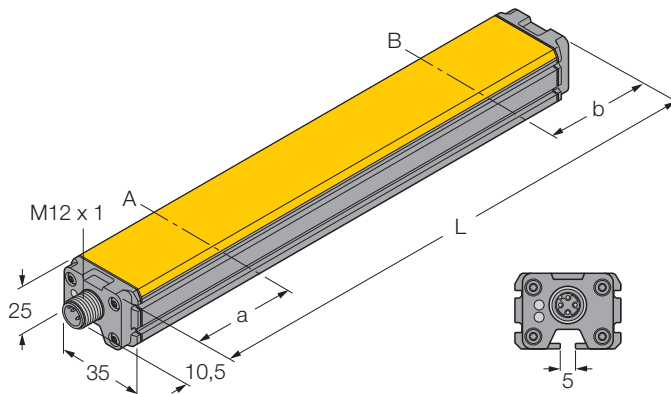
The high-precision SSI output is applied to transmit digital measured values to the control unit, either directly without transducing losses or via remote I/O fieldbus stations (see page 19). The preferred coding of the Li-Q25L sensor series is Gray 25 bit. The coding is adjusted in the control system or in the fieldbus module. Other codings for LiQ25 sensors on request.



# High-end E-series with enhanced resolution and SSI interface – Technical data

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## Measuring range specifications

Sensor lengths	100, 200, ... 1000 mm
Blind zone a	29 mm
Blind zone b	29 mm

## System

Resolution	0.001 mm
Repeatability/accuracy	10 $\mu$
Linearity deviation	$\leq 0.1\%$ of full scale
Temperature drift	$\leq \pm 0.0001\%$ /K
Ambient temperature	-25...+70 °C

## Electrical data

Operating voltage	15...30 VDC
Residual ripple	$\leq 10\%$ $U_{pp}$
No-Load current	$\leq 50$ mA
Rated insulation voltage	$\leq 0.5$ kV
Short-circuit protection	yes
Wire breakage / reverse polarity protection	yes/yes (voltage supply)
Output function	8-wire, SSI, 25 bit Gray coding
Sampling rate	500 Hz
Current consumption	< 100 mA

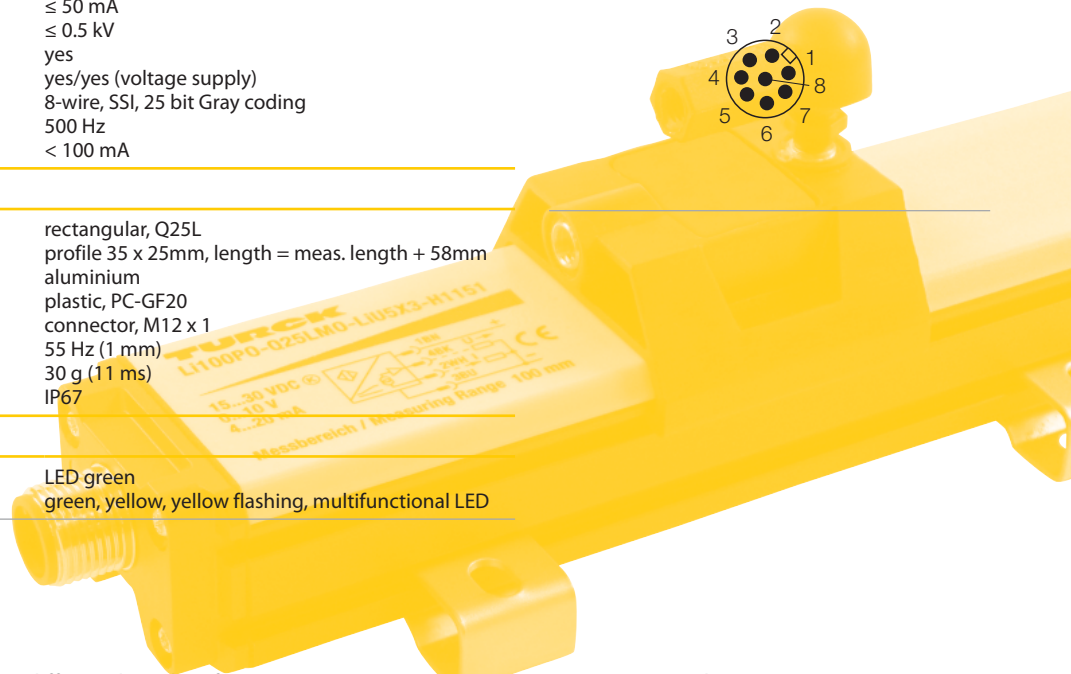
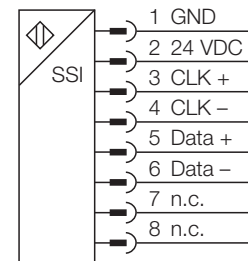
## Housing style

Housing style	rectangular, Q25L
Dimensions	profile 35 x 25mm, length = meas. length + 58mm
Housing material	aluminium
Material active face	plastic, PC-GF20
Connection	connector, M12 x 1
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Protection class (IEC 60529/EN 60529)	IP67

## LEDs

Power-on indication	LED green
Measuring range indication	green, yellow, yellow flashing, multifunctional LED

## Wiring diagrams



## Ordering information

The linear position sensors are available in different lengths of 100, 200, ... up to 1000 mm, in 100 mm steps. The sensors, mounting accessories and positioning elements are individually available or as a kit.

## Ordering example

<b>Li</b>	<b>100</b>	<b>P1</b>	<b>-</b>	<b>Q25L</b>	<b>M1</b>	<b>-</b>	<b>E</b>	<b>SG25</b>	<b>X3</b>	<b>-</b>	<b>H1181</b>
inductive linear position sensor	measuring range 100 mm	with guided pos. element P1-Li-Q25L		rectangular style Q25L	with mounting element M1-Q25L		higher resolution	SSI output, Gray coding 25 bit	3 LEDs		M12 x 1 connector, 8-pole

# Inductive linear position sensors – Li-Q25L

## High-end E-series with enhanced resolution, IO-Link compatible

### Product features

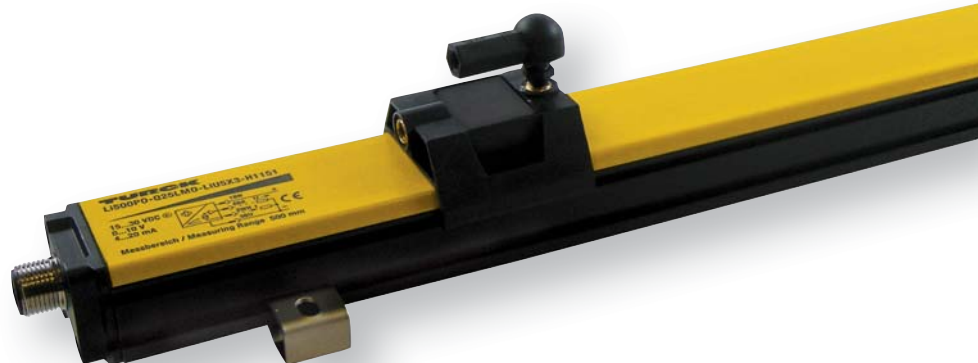
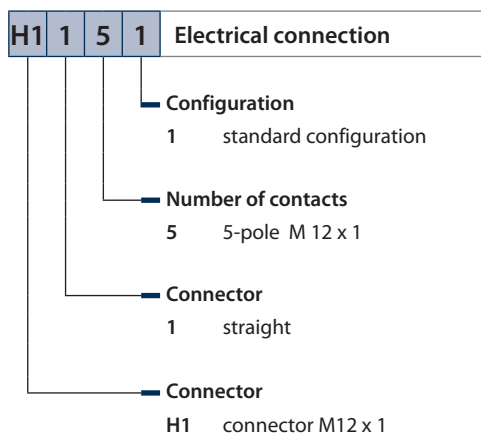
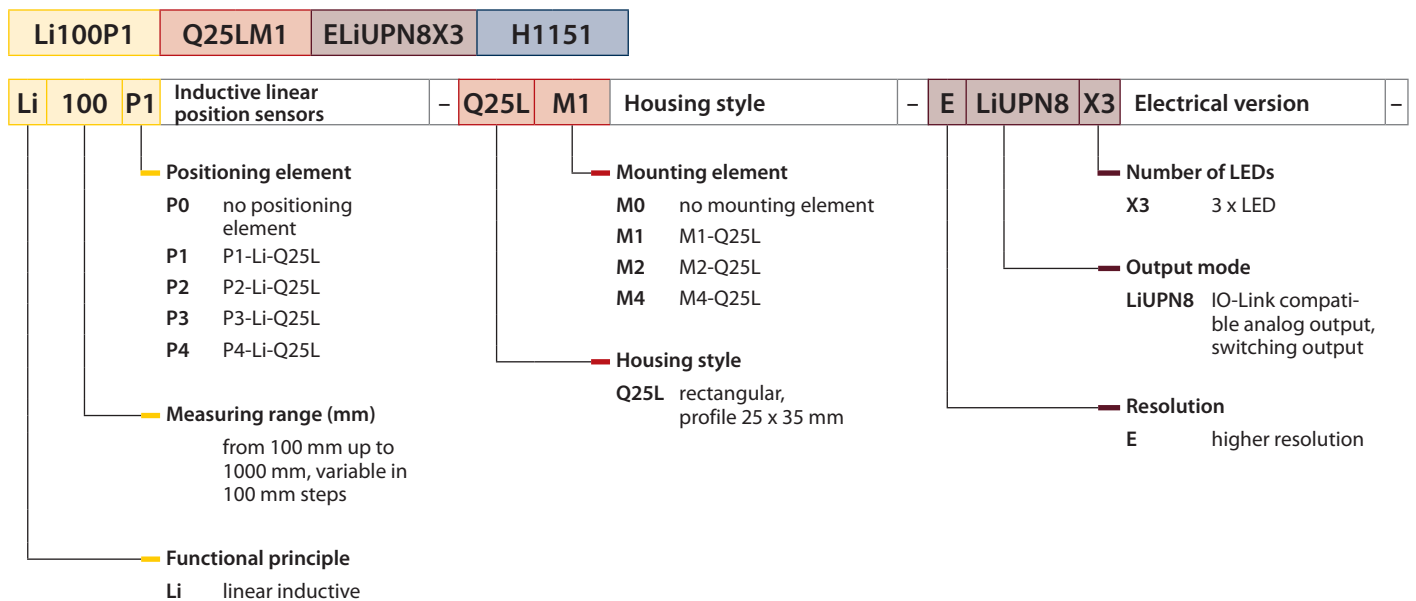
- Enhanced resolution 16 Bit
- Enhanced sample rate 1 kHz
- Improved linearity
- Two programmable outputs (analog output current or voltage, switching outputs, PWM, ...) IO-Link compatible
- Standard connector M12 x 1, 4-pole
- Extreme short blind zones
- Robust Al-continuous casting
- Watertight polycarbonate insert

### Measuring range indicated via LED

- green:**  
The positioning element is in the measuring range.
- green/yellow:**  
The positioning element is in the measuring range with a lower signal quality (e.g. distance too long)
- yellow flashing:**  
The positioning element outside the measuring range (max. range)
- off:**  
The positioning element is outside the programmed range but inside the total, non-programmed measuring length.

### Programming and IO-Link

Output functions, measuring ranges and alarm outputs are set via teach adapter or programming line (pin 5). Alternatively, the sensor can also be operated in IO-Link mode. For this purpose connect the sensor to an IO-Link compatible module. The established connection is indicated by a green flashing LED. For more information, please see the corresponding instruction manual.

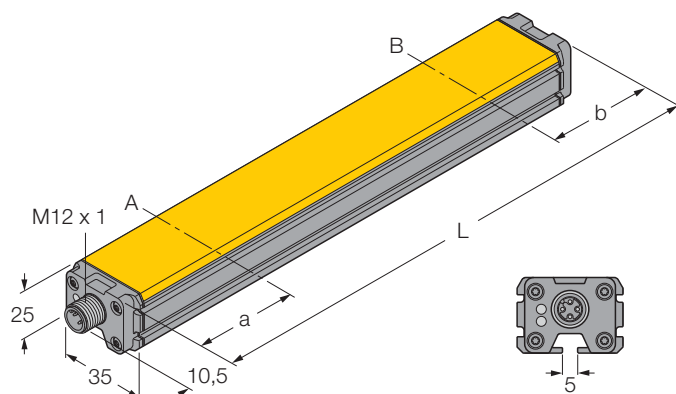




# High-end E-series with enhanced resolution, IO-Link compatible – Technical data

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## Measuring range specifications

Cable lengths:	100, 200, ... 1000 mm depending on sensor type
Blind zone a	29 mm
Blind zone b	29 mm

## System

Resolution	16 bit (D/A converter and IO-Link)
Repeatability/accuracy	0,0015 %
Linearity deviation	≤ 0.1 % of full scale
Temperature drift	≤ ± 0.001 % / K
Ambient temperature	-25...+ 70 °C

## Electrical data

Operating voltage	15 ... 30 VDC
Residual ripple	≤ 10 % U <sub>pp</sub>
No-load current	≤ 50 mA
Rated insulation voltage	≤ 0.5 kV
Short-circuit protection	yes
Wire breakage / reverse polarity protection	yes/yes (voltage supply)
Output function	two programmable outputs (analog output current or voltage, switching outputs, PWM, ...)
Sampling rate	1 kHz
Current consumption	< 100 mA

## Housing style

Housing style	rectangular, Q25L
Dimensions	profile 35 x 25 mm, length = length + 58 mm
Housing material	aluminium
Material active face	plastic, PC-GF20
Connection	connector, M12 x 1
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Protection class (IEC 60529/EN 60529)	IP67

## Miscellaneous

Power-on indication	LED green
Measuring range display	green, yellow, yellow flashing multifunctional LED

Availability planned for the end of the second quarter 2010.

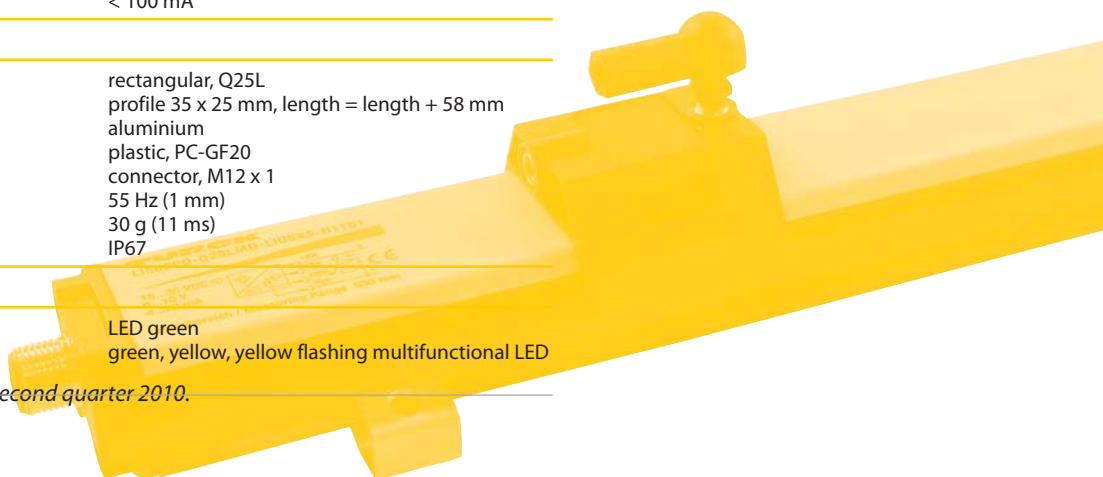
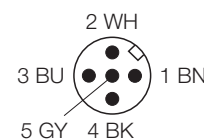
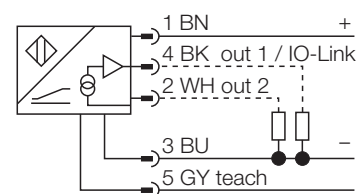
## Ordering information

The linear position sensors are available in different lengths of 100, 200, ... up to 1000 mm, in 100 mm steps. The sensors, mounting accessories and positioning elements are individually available or as a kit.

## Ordering example

<b>Li</b>	<b>100</b>	<b>P1</b>	<b>-</b>	<b>Q25L</b>	<b>M1</b>	<b>-</b>	<b>E</b>	<b>LiUPN8</b>	<b>X3</b>	<b>-</b>	<b>H1151</b>
inductive linear position sensor	100 mm measuring range	with guided positioning element P1-Li-Q25L		rectangular style Q25L	with mounting element M1-Q25L		higher resolution	IO-Link compatible, analog output, switching output	3 LEDs		M12 x 1 connector, 5-pole

## Wiring diagrams



# Accessories – Fieldbus connection

The linear position sensor with SSI interface is compatible with all fieldbus devices

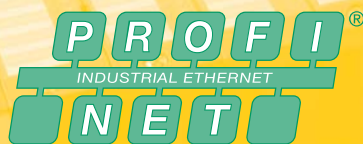
A direct connection of linear position sensors to a fieldbus communicating with the higher-level control is frequently required. Position feedback is thus transmitted directly to the respective fieldbus system such as PROFIBUS-DP, DeviceNet™, CANopen or Ethernet based protocols. Analog input modules are no longer required.

A high level of flexibility is moreover achieved with modular solutions provided by TURCK. In other words, linear position sensors, connection cables and fieldbus modules are separately available. TURCK sensors are thus considerably more compact in contrast to big-sized sensors with integrated fieldbus connection. Problems of space are thus avoided right from the start. The user benefits not just through extremely short blind zones, but also through the distributed connection to the fieldbus.

TURCK fieldbus modules are available as remote I/O systems, for the control cabinet as BL20 version with protection class IP20 and for harsh environments as BL67 version with protection class IP67. The devices can be programmed compliant to CoDeSys (IEC 61131) for signal pre-processing as well as for self-sufficient control solutions to reduce the load on both the bus and the higher-level control.

For applications where space is at a premium, TURCK's broad product range includes two space saving remote I/O product families for installation directly in the field. They are *piconet*® and the new *BL compact*.

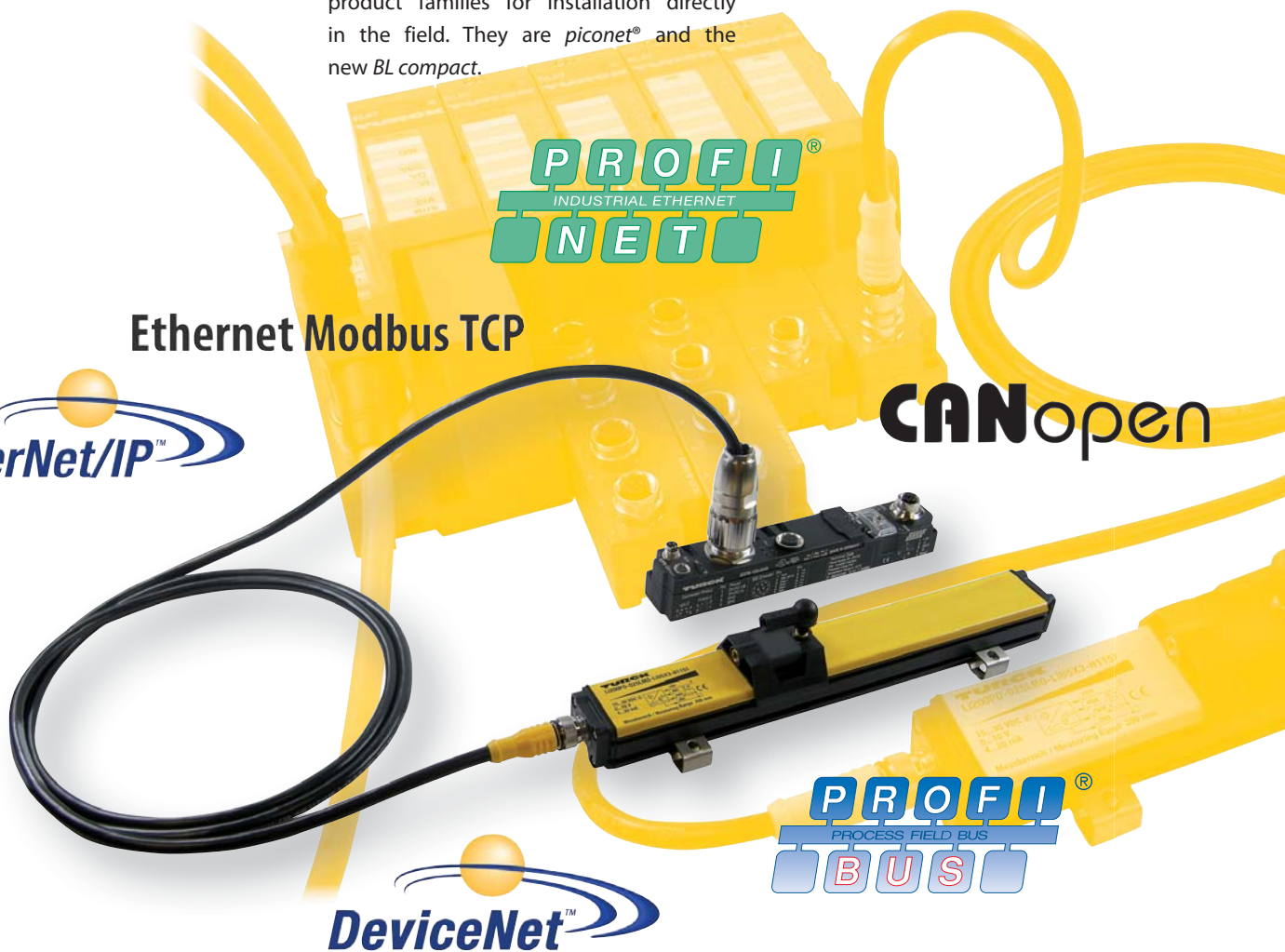
- Compatible with all standard fieldbus systems
- Fieldbus systems are easily replaced
- Modular principle
- High flexibility
- Sensor independent of fieldbus system
- Extremely space-saving
- Nearly the entire housing surface is used as measuring range.



Ethernet Modbus TCP



CANopen





Type designation	Description
<b><i>piconet</i><sup>®</sup> – protection class IP67 – extremely compact</b>	
SDPB-10S-0005	PROFIBUS-DP, M23, 12-pole
SDNB-10S-0005	DeviceNet™, M23, 12-pole
SCOB-10S-0005	CANopen, M23, 12-pole
E-RKS-8T-264-1-CSWM12/S3085	Connection cable M12, 8-pole, on M23 12-pole, 1m to connect linear position sensors with SSI output to BL67 and <i>piconet</i> <sup>®</sup> fieldbus stations.
<b><i>BL compact</i> – protection class IP67 – extremely robust</b>	
BLCDP-1M12MT-1SSI	PROFIBUS-DP, M12, 8-pole
BLCDN-1M12S-1SSI	DeviceNet™, M12, 8-pole
E-RKC-8T-264-2-RSC-8T	Connection cable M12, 8-pole, 2 m to connect linear position sensors with SSI output to BL67 and <i>BL compact</i> fieldbus stations.
<b>BL67 – Remote I/O - protection class IP67</b>	
BL67-GW-DPV1	Gateway PROFIBUS-DP
BL67-PG-DP	Gateway PROFIBUS-DP, programmable
BL67-GW-DN	Gateway DeviceNet™
BL67-GW-CO	Gateway CANopen
BL67-GW-EN	Gateway Ethernet Modbus TCP
BL67-PG-EN	Gateway Ethernet Modbus TCP, programmable
BL67-GW-EN-PN	Gateway Ethernet PROFINet IO
BL67-1SSI	Communication module
BL67-B-1M12-8	Connection module M12, 8-pole
BL67-B-1M23	Connection module M23, 12-pole
E-RKC-8T-264-2-RSC-8T	Connection cable M12, 8-pole, 2 m to connect linear position sensors with SSI output to BL67 and <i>BL compact</i> fieldbus stations.
E-RKS-8T-264-1-CSWM12/S3085	Connection cable M12, 8-pole, on M23 12-pole, 1m to connect linear position sensors with SSI output to BL67 and <i>piconet</i> <sup>®</sup> fieldbus stations.
<b>BL20 – Remote I/O - protection class IP20</b>	
BL20-GW-DPV1	Gateway PROFIBUS-DP
BL20-GWBR-DNET	Gateway DeviceNet™
BL20-GWBR-CANOPEN	Gateway CANopen
BL20-GW-EN	Gateway Ethernet Modbus TCP
BL20-PG-EN	Gateway Ethernet Modbus TCP, programmable
BL20-GW-PG-EN	Gateway Ethernet PROFINet IO
BL20-1SSI	Communication module
BL20-S4T-SBBS	Connection module, tension-spring connection
E-RKC-8T-264-2	Connection cable M12, 8-pole, 2 m cable (end open) to connect linear position sensors with SSI output to BL20 fieldbus stations.

### Sample configuration - BL20

The following components are required to connect a linear position sensor to a PROFIBUS system via a BL20 station:

1 x PROFIBUS gateway	1 x communication module	1 x connection module	1 x connection cable
BL20-GW-DPV1	BL20-1SSI	BL20-S4T-SBBS	E-RKC-8T-264-2

### Sample configuration - *piconet*<sup>®</sup>

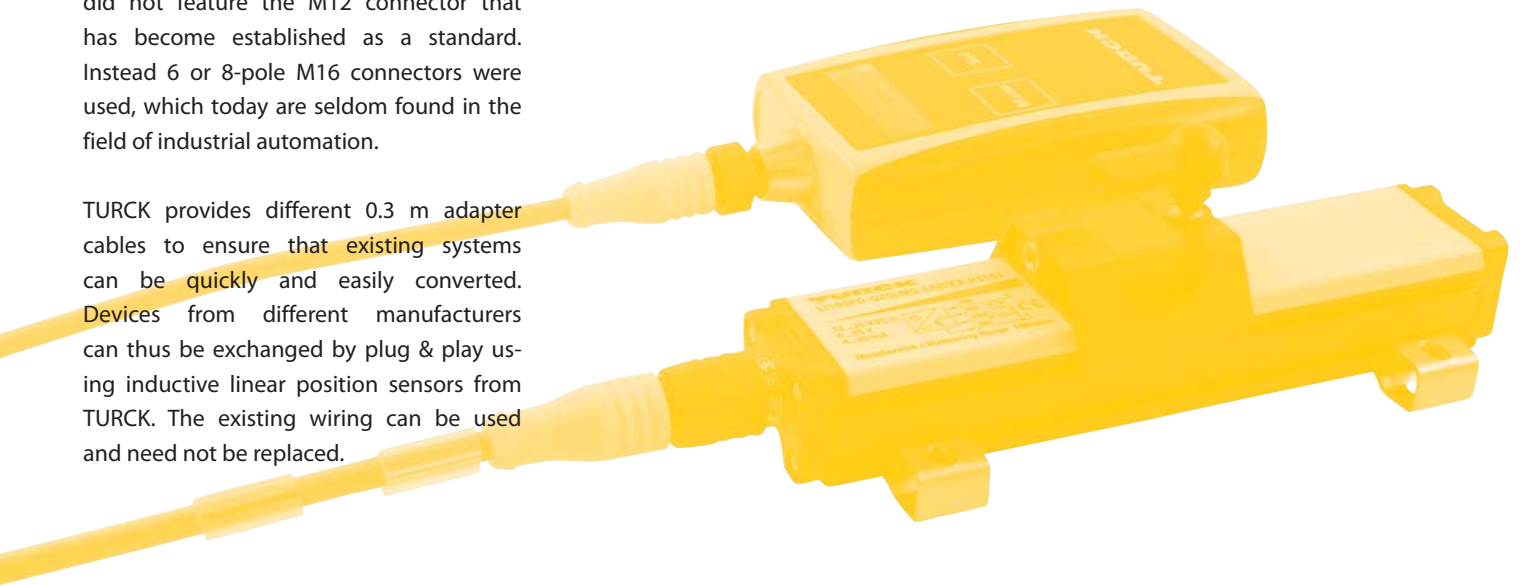
The following components are required to connect a linear position sensor to a PROFIBUS system via a *piconet*<sup>®</sup> module:

1 x PROFIBUS compact station	1 x connection cable
SDPB-10S-0005	E-RKS-8T-264-1-CSWM12/S3085

# Connection technology

Linear position sensors applied in the past did not feature the M12 connector that has become established as a standard. Instead 6 or 8-pole M16 connectors were used, which today are seldom found in the field of industrial automation.

TURCK provides different 0.3 m adapter cables to ensure that existing systems can be quickly and easily converted. Devices from different manufacturers can thus be exchanged by plug & play using inductive linear position sensors from TURCK. The existing wiring can be used and need not be replaced.



## Adapter cable

Type	Description
WAKS4.5-0.3-B723M16/8	Adapter cable to convert an 8-pole M16 connector to a 5-pole M12 standard connector
WAKS4.5-0.3-B723M16/6I	Adapter cable to convert a 6-pole M16 connector (current) to a 5-pole M12 standard connector
WAKS4.5-0.3-B723M16/6U	Adapter cable to convert a 6-pole M16 connector (voltage) to a 5-pole M12 standard connector

## Connection cable for standard series and high-end E-series with analog output

Type	Description
WAKS4.5-2/P00	Connection cable M12, 5-pole, shielded, 2 m (end open)

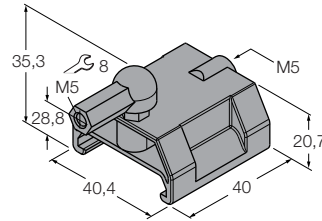
## Connection cable for high-end E-series with SSI interface

Type	Description
E-RKC-8T-264-2-RSC-8T	Connection cable M12, 8-pole, 2 m to connect linear position sensors with SSI output to BL67 and <i>BL compact</i> fieldbus stations.
E-RKC-8T-264-2	Connection cable M12, 8-pole, 2 m cable (end open) to connect linear position sensors with SSI output to BL20 fieldbus stations.
E-RKS-8T-264-1-CSWM12/S3085	Connection cable M12, 8-pole, on M23, 12-pole, 1 m to connect linear position sensors with SSI output to BL67 and <i>piconet®</i> fieldbus stations.

### Dimension drawings

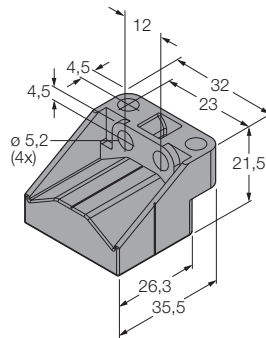
### Type

### Description



P1-Li-Q25L

Guided positioning element; laterally inserted in sensor groove; incl. rod-end bearing to mount M5 threaded rods

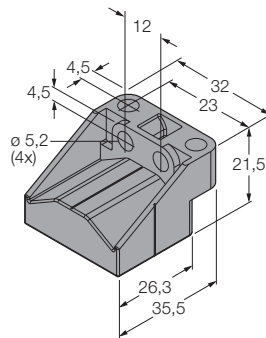


P2-Li-Q25L

Free positioning element, operates at a distance of 0...4 mm to the sensor surface

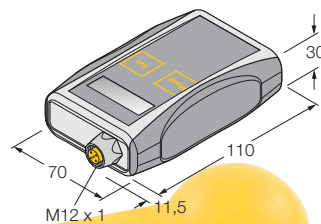
P4-Li-Q25L

Free positioning element, applied in extremely strong magnetic fields, such as welding areas; operates at a distance of 0...4 mm to the sensor surface



P3-Li-Q25L

Free positioning element; right-angle mounting; operates at a distance of 0...4 mm to the sensor surface



TB4

Analog test box; test box for sensors with analog or switching output; incl. batteries

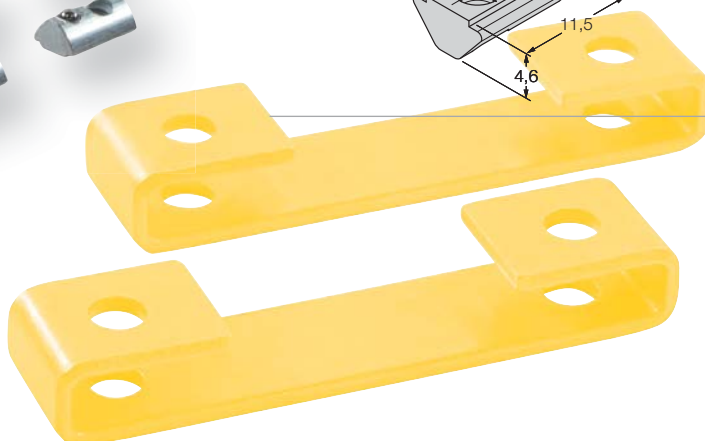
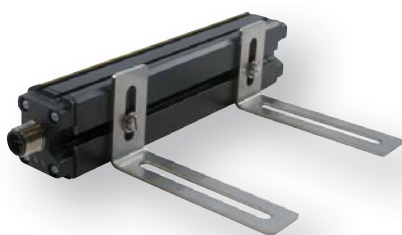
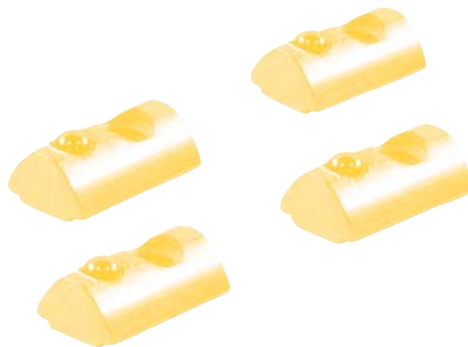


TX1-Q20L60

Teach adapter to program the measuring range of inductive linear position sensors Q25L

# Product overview – Mounting accessories

A comprehensive range of accessories is available for mounting. Sliding blocks the sensor groove and different brackets provide many mounting possibilities. Flexibility is guaranteed, as accessories are available for all borehole distances



Dimension drawing	Type	Description
	M1-Q25L	Mounting foot for inductive linear position sensors Q25L; two mounting feet should be used for devices with a measuring range of up to 500 mm; 4 for 1000 mm; material: Stainless steel; material thickness 1 mm; 2 pcs. per bag
	M2-Q25L	Mounting foot for inductive linear position sensors Q25L; two mounting feet should be used for devices with a measuring range of up to 500 mm; 4 for 1000 mm; material: Stainless steel; material thickness 1 mm; 2 pcs. per bag
	M4-Q25L	Mounting bracket for inductive linear position sensors Q25L; two mounting feet should be used for devices with a measuring range of up to 500 mm; 4 for 1000 mm; material: Stainless steel; 2 pcs. per bag
	MN-M4-Q25	Sliding blocks with M4 thread for back side groove of inductive linear position sensors Q25L; material: Brass; 10 pcs. per bag Only available separately, not as a kit with linear displacement sensors!

# Service & Support

**TURCK**

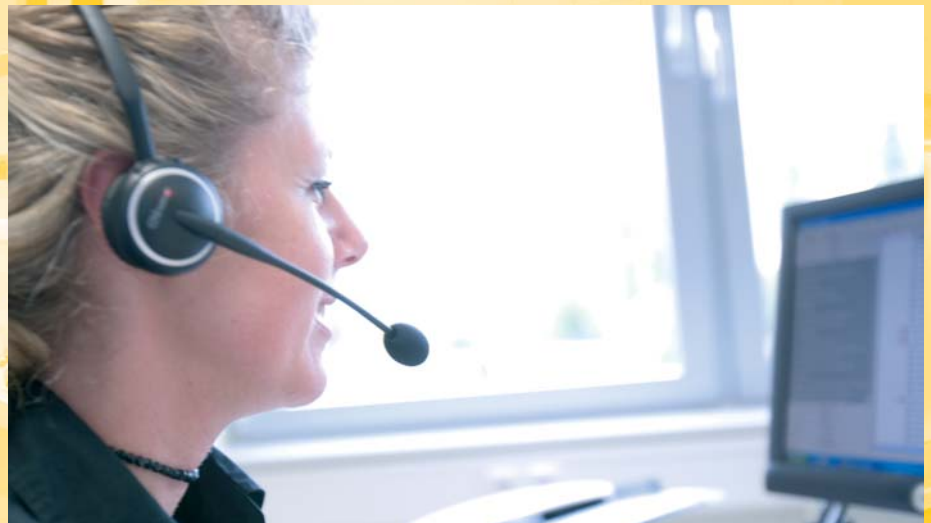
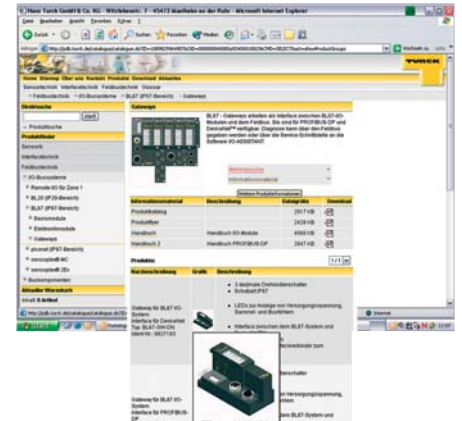
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