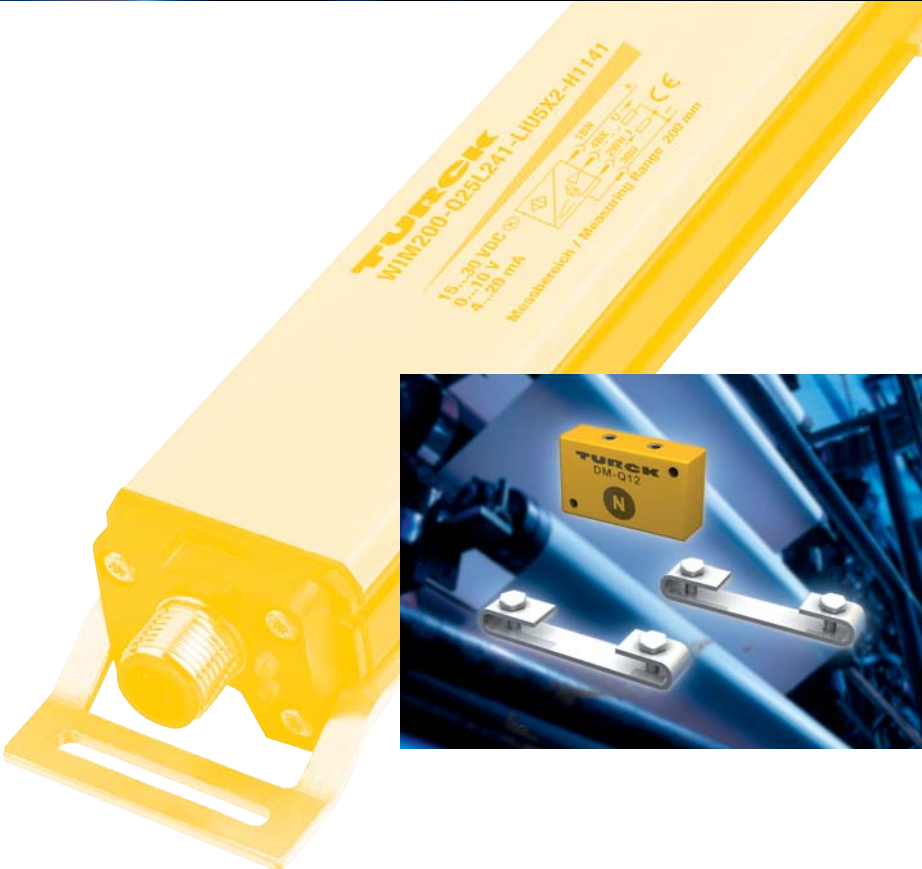
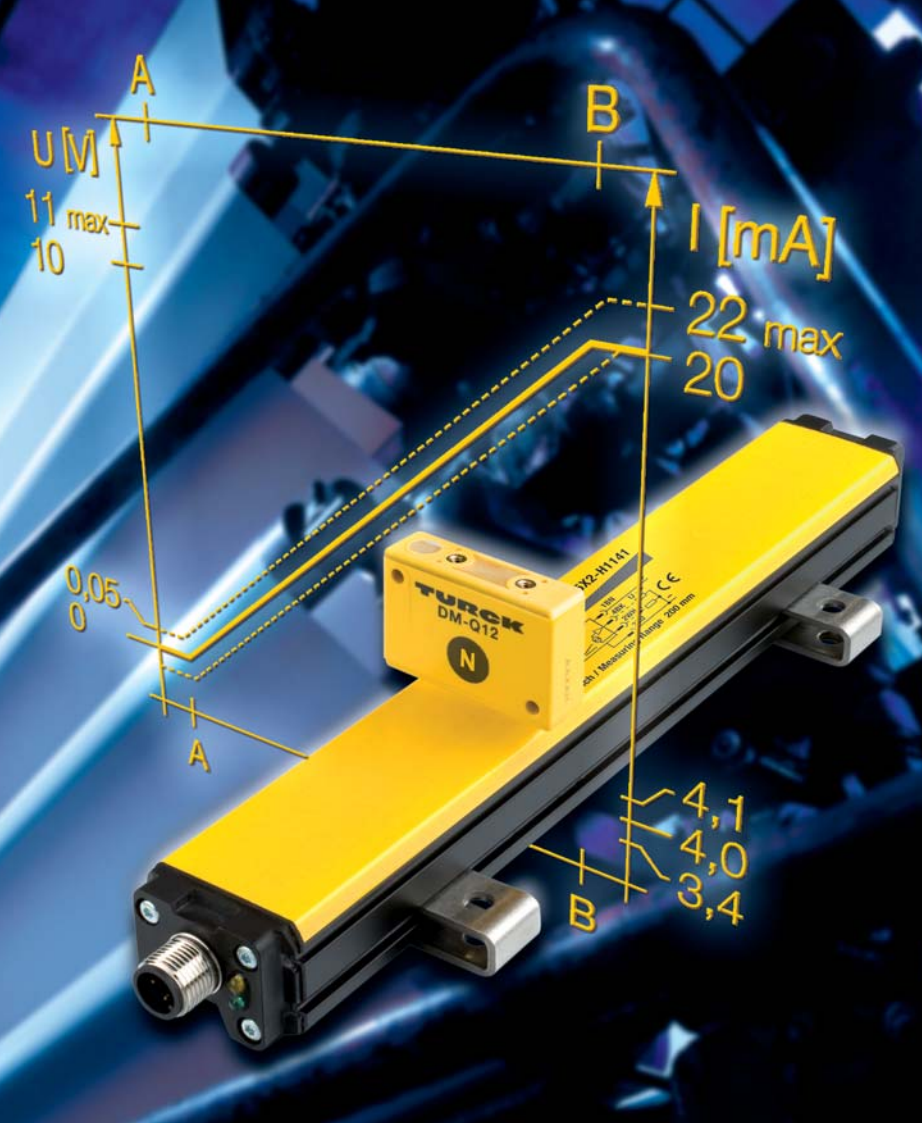


TURCK

Industrial
Automation

**MAGNETIC
LINEAR
POSITION
SENSORS**



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

Magnetic linear position sensors – exact position detection up to 200 mm

Sensor family Q25L – magnetically actuated linear position sensors

Position measurement systems are used in different applications. The requirements on these devices are equally high for all applications: High accuracy and linearity, easy installation and a robust design, multiple functions and – last but not least – a large measuring range.

TURCK offers magnetically actuated linear position sensors with measuring ranges of up to 200 mm. The sensors are based on the Hall principle which is also applied in compact magnetic field sensors WIM45 with analog output. Typical features are high accuracy and linearity and also extreme short blind zones. The Q25L sensor family is thus perfectly suited for applications which require precise signal transmission over long measuring distances. Typical applications are for example pneumatic pump units, slides, blanking or moulding systems.

With a broad range of accessories, straight forward mounting and installation without compromise is guaranteed by TURCK. Mounting is not only easier but also more reliable with the tailor-made accessories.



Highest accuracy:

With a repeatability of 0.1 % of the measuring range the Q25L series is the right solution for applications that require high precision.



EMC immunity

The magnetic linear position sensors go beyond the strict demands of the currently valid standard EN 609947-5-2 and are compliant with the new draft version in terms of the higher demands (for tests compliant to EN 61000-4-6, conducted interference“).



Clear advantages for all applications

The new sensor family Q25L is a cost-saving alternative to other linear position sensors which may be oversized for certain applications. Systems that still work with binary sensors, can now be equipped with cost-saving analog alternatives. Thus switch points can be set flexibly via PLC for the entire measuring range. The

advantages for productivity are obvious: Control tasks are implemented quicker and the flexibility of systems is improved. Not forgetting the reduced changeover times, if for example different parts are produced or processed with one machine.

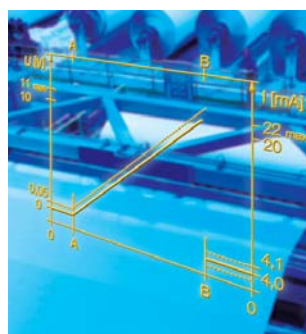
The new linear position measuring principle of the Q25L series is now also available as intrinsically safe 2-wire version with analog current output (4...20 mA). Analog detection of tracks in explosion-protected areas (zones 1/21) is thus possible. The system offers the same performance data as the well-known version with current/voltage output.

With the new linear position sensors control tasks are easily and effectively implemented, such as monitoring floats at flow meters and level control via PLC. The sensor is also applied for position detection on pneumatic cylinders. Moreover, with an external magnet used as a position indicator, even more applications can be realized.



Small blind zones

Even in applications with limited space conditions, the WIM-Q25L is the perfect solution. Due to smaller blind zones of 41 mm in total, position detection is possible nearly up to the complete housing length.



Excellent linearity

The output signal (0...10 V, 4...20 mA) is linearized and independent of the magnet orientation (N/S).

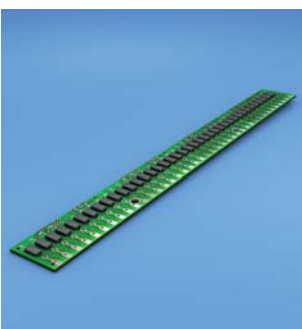
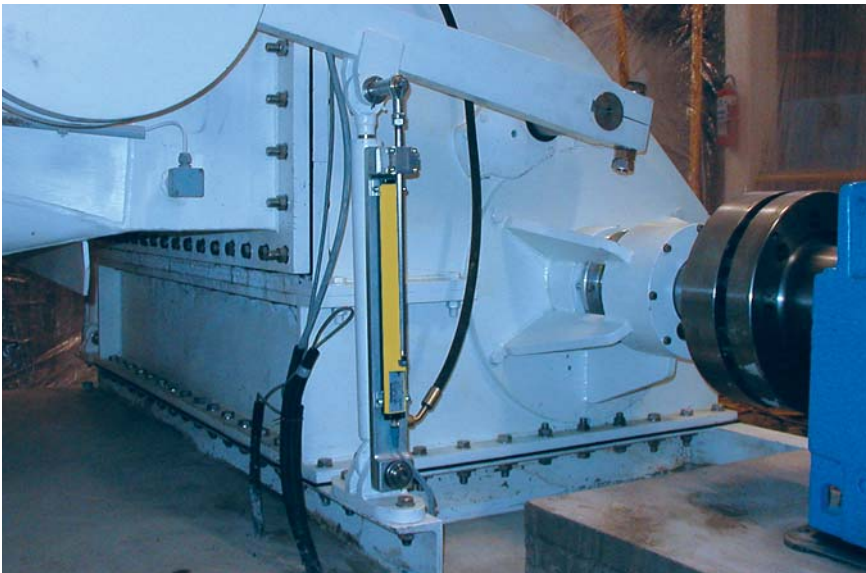


Q25L series – design and function

The sensor is composed of a chain of 50 Hall elements, the signals of which are continuously processed by a microprocessor. Interfering external magnetic fields are filtered out by permanent comparison of all 50 sensor signals and thus do not impair the operability of the sensor.

The output signal (0...10 V, 4...20 mA) is linearized and independent of the magnet orientation (N/S). The characteristic can thus be reversed from 0...10 V to 10...0 V, simply by turning the sensor.

The "in-range" function detects if the magnet is located within the measuring range and indicates in which direction it left the span. If the magnet exits the measuring range in direction of the connector, the sensor gives out a signal of 0 V/4 mA. If the magnet exits the measuring range in opposite direction, the highest output signal is indicated, 10 V/20 mA.



High-precision measuring signal

Up to 50 Hall elements create a high-precision signal, which is immune to magnetic interferences. The "in-range" function detects if the magnet is located within the measuring range, i. e. in which direction it left the measuring range.



Accessories

A comprehensive selection of accessories enables perfect mounting and installation in any application. Mounting is not only easier but also more reliable.

Magnetic linear position sensors

Type overview

Dimensions	Type	(A – B) = measuring range	L = length
	WIM100-Q25L-LIU5X2-H1141 Ident-No. 1536630	100 mm	141 mm
	WIM125-Q25L-LIU5X2-H1141 Ident-No. 1536631	125 mm	166 mm
	WIM160-Q25L-LIU5X2-H1141 Ident-No. 1536632	160 mm	201 mm
	WIM200-Q25L-LIU5X2-H1141 Ident-No. 1536633	200 mm	241 mm

Technical data

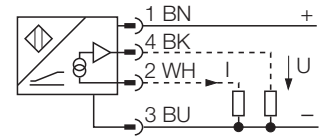
Repeat accuracy	≤ 0.1 % of measuring range
Linearity deviation	≤ 1 % of full scale
Temperature drift	≤ ± 0.006 % / K
Ambient temperature	-25...+ 70 °C

Operating voltage	15...30 VDC
Residual ripple	≤ 10 % U _{pp}
No-load current I ₀	≤ 15 mA
Rated insulation voltage	≤ 0.5 kV
Short-circuit protection	yes
Wire breakage/Reverse polarity protection	yes/complete
Output function	4-wire, analog output
Voltage output	0...10 V
Current output	4...20 mA
Load resistance voltage output	≥ 4.7 kΩ
Load resistance current output	≤ 0.4 kΩ
Output recovery time	≤ 15 ms

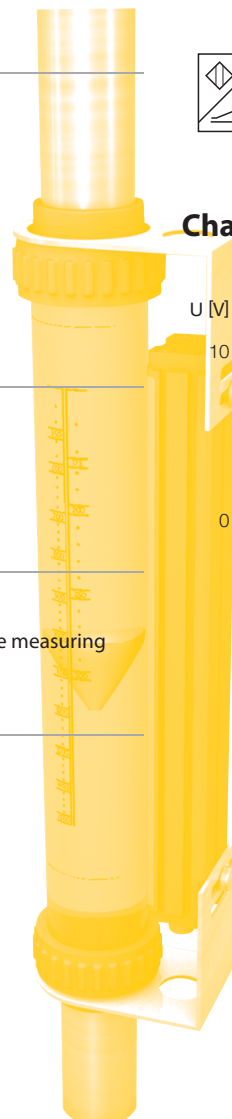
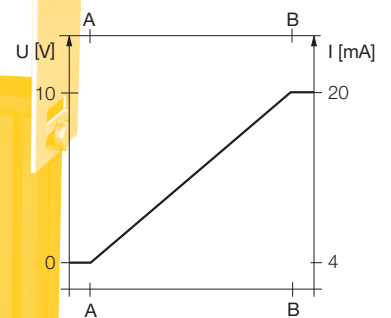
Housing	rectangular, Q25L
Housing material	metal, aluminium
Material active face	plastic, PC-GF20
Connectivity	connector, M12 x 1
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Degree of protection	IP67

LED indications	2 x LED
- green	voltage supply
- yellow flashing	no positioning magnet within the measuring range after power reset
- yellow	positioning magnet within the measuring range

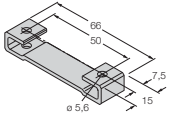
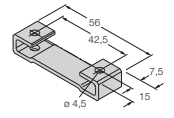
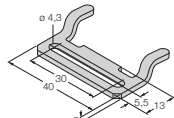
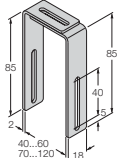
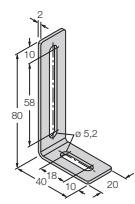
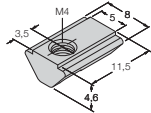
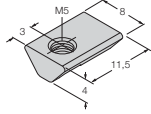
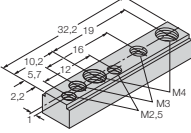
Wiring diagram



Characteristic

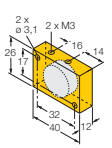
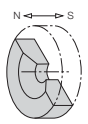


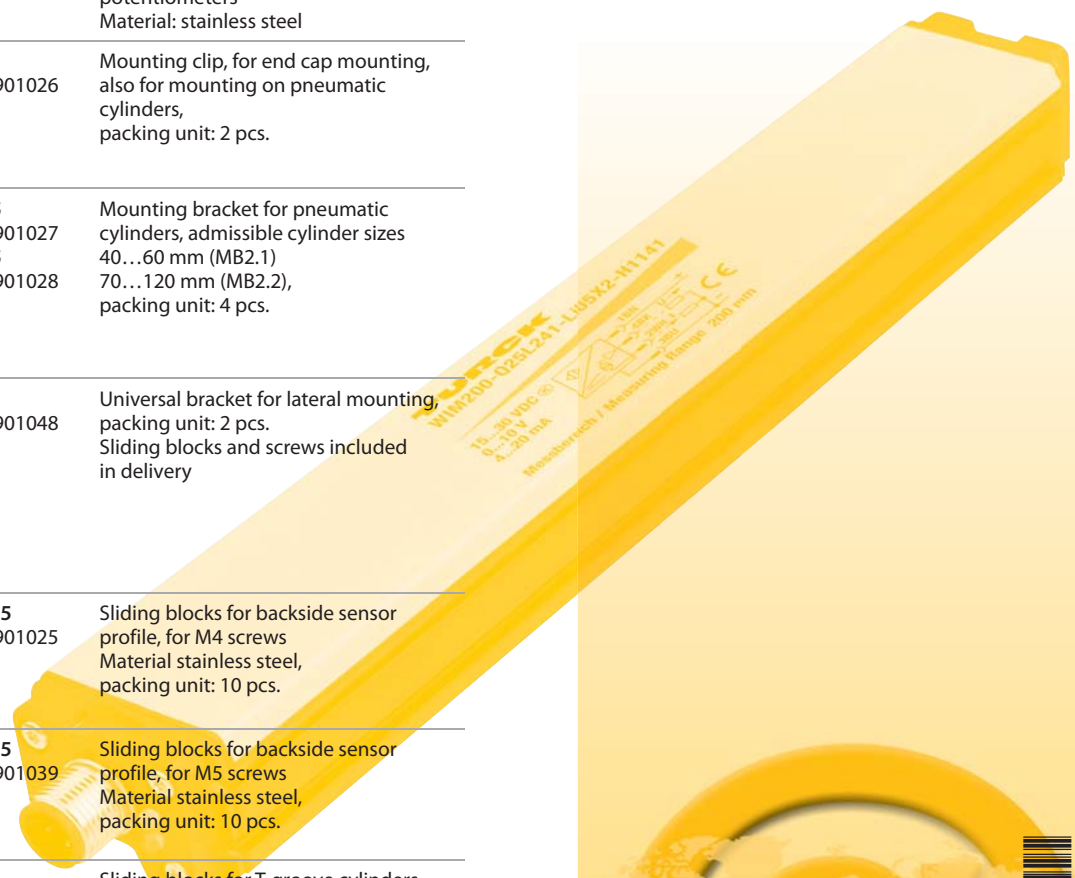
Mounting accessories

Dimensions	Type	Description
	M1-Q25L Ident no. 6901045	Accessories for standard lateral mounting, compatible with magnetostrictive sensors or linear potentiometers Material: stainless steel
	M2-Q25L Ident no. 6901046	Accessories for standard lateral mounting, compatible with magnetostrictive sensors or linear potentiometers Material: stainless steel
	MB1-Q25 Ident no. 6901026	Mounting clip, for end cap mounting, also for mounting on pneumatic cylinders, packing unit: 2 pcs.
	MB2.1-Q25 Ident no. 6901027 MB2.2-Q25 Ident no. 6901028	Mounting bracket for pneumatic cylinders, admissible cylinder sizes 40...60 mm (MB2.1) 70...120 mm (MB2.2), packing unit: 4 pcs.
	M4-Q25L Ident no. 6901048	Universal bracket for lateral mounting, packing unit: 2 pcs. Sliding blocks and screws included in delivery
	MN-M4-Q25 Ident no. 6901025	Sliding blocks for backside sensor profile, for M4 screws Material stainless steel, packing unit: 10 pcs.
	MN-M5-Q25 Ident no. 6901039	Sliding blocks for backside sensor profile, for M5 screws Material stainless steel, packing unit: 10 pcs.
	MN-C Ident no. 6901024	Sliding blocks for T-groove cylinders 5/8 mm packing unit: 1 pcs.

For more details see data sheets

Positioning magnet

Dimensions	Type	Description
	DM-Q12 Ident no. 6900367	Floating positioning magnet, Permanent magnet, Housing material: plastic, Admissible distance between sensor and magnet: 2...5 mm
	DMR15-6-3 Ident no. 6900216 DMR20-10-4 Ident no. 6900214 DMR31-15-5 Ident no. 6900215	Material: Hard ferrite, Admissible distance between sensor and magnet: 2...5 mm (2...7 mm for DMR31-15-5)



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