

Magnetostrictive sensor For bypass level indicators Model BLM

WIKA data sheet LM 10.05



Applications

- Sensor for continuous level measurement of liquids in bypass level indicators
- Chemical, petrochemical, offshore industries
- Shipbuilding, machine building
- Power generating equipment, power plants
- Pharmaceutical, food, water treatment, environmental engineering industries

Special features

- Continuous level measurement on the outside of the bypass
- 2-wire technology 4 ... 20 mA
- Measured value output via digital interface and a selectable measured value as analogue signal
- Case from stainless steel (display from glass)
- Magnetostrictive level measuring instrument with high resolution



Magnetostrictive sensor, model BLM

Description

Level sensors with a magnetostrictive, high-resolution measuring principle are used for continuous level measurement of liquids and are based on determining the position of a magnetic float following the magnetostrictive measuring principle. The sensors are mounted on the outside of a bypass level indicator.

The measuring process is triggered by a current impulse. This current produces a circular magnetic field along a wire made of magnetostrictive material, which is held under tension inside the sensor tube. At the point being measured (liquid level) there is a cylindrical float with permanent magnets acting as a position transducer, whose field lines run at right angles to the impulse magnetic field. This magnetic field of the float tensions the wire. The superposition of these two

magnetic fields triggers a mechanical wave in the wire. This is converted into an electrical signal at the end of the wire in the sensor housing by a piezoceramic pick-up.

By measuring the elapsed transit time, it is possible to determine the start point of the torsional stress wave and therefore the float position with a high degree of accuracy.

Model overview

Sensor model	Description	Approval					Temperature range (process)
		without	Ex i	Ex d	NEPSI Ex d	NEPSI nL	
BLM-S	Magnetostrictive sensor, standard	x					-60 ... +185 °C
BLM-S-Ex i	Magnetostrictive sensor, intrinsically safe version Ex i		x			x	-60 ... +185 °C
BLM-S-Ex d	Magnetostrictive sensor, explosion-protected version Ex d			x	x		-60 ... +185 °C

Level sensor model	Materials		
	Stainless steel 1.4571 (316Ti)	Stainless steel 1.4404 (316L)	Titanium 3.7035 (grade 2)
BLM-S	x	x	x
BLM-S-Ex i	x	x	x
BLM-S-Ex d	x	x	x

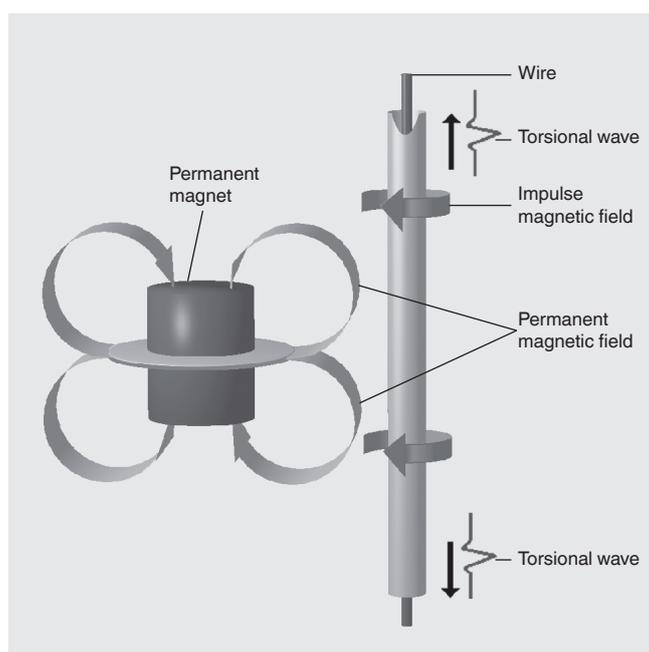
Ex approvals

Explosion protection	Ignition protection type	Model	Zone	Approval number
ATEX	Ex i	BLM-S-Ex i	Zone 1	ZELM 10 ATEX 0439 II 1/2G Ex ia IIC T3 to T6
	Ex d	BLM-S-Ex d	Zone 1	ZELM 13 ATEX 0508 X II 1/2G Ex d IIB T3 to T6 Ga Gb
NEPSI	NEPSI Ex d	BLM-S-Ex d	Zone 1	GYJ101053 Ex d II CT3-T6
	NEPSI nL	BLM-S-Ex i	Zone 1	-

Type approval

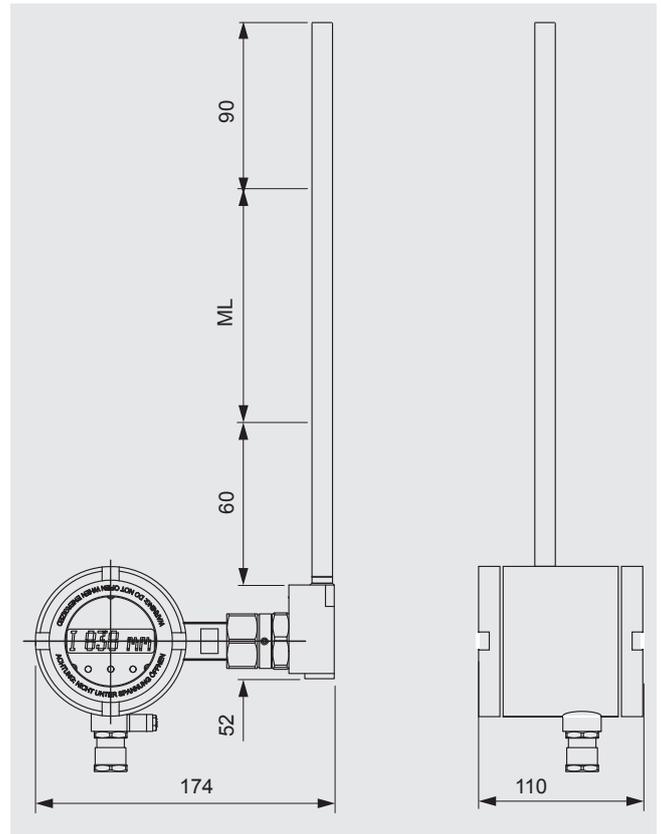
Explosion protection	Model	Approval number
GOST-R	BLM-S (FFG-BP)	0959333

Illustration of the principle



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Specifications	
Connection housing (sensor housing)	Stainless steel 1.4404 Version with or without display, with window
Sensor tube	Stainless steel 1.4571, tube Ø 12 mm, tube length L max. 5,800 mm
Temperature range	Medium temperature: -60 ... +185 °C Ambient temperature: - Version without display: -40 ... +85 °C - Version with display: -20 ... +70 °C - Version Ex i: T3/T4/T5/T6 -20 °C ... +70/+70/+70/+60 °C - Version Ex d: T3/T4/T5/T6 -40 °C ... +70/+70/+70/+60 °C
Output signal	4 ... 20 mA, HART®
Power supply	DC 10 ... 30 V
Measuring accuracy	< ±0.5 mm
Resolution	< 0.1 mm
Load	max. 900 Ω at 30 V
Mounting position	Vertical ±30°
Ingress protection	IP 67



Ordering information

To order the described product the order number (if available) is sufficient.

Alternatively:

Sensor model / Connection housing / Electrical connection / Sensor tube (material and total length) / Contact separation, head-mounted transmitter / Measuring range / Approval

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