

Magnetostrictive level transmitter

For bypass level indicators

Model BLM

WIKA data sheet LM 10.05



for further approvals
see page 2 and 3



Applications

- Transmitters for the continuous level measurement of liquids in bypass level indicators
- Chemical and petrochemical industries, offshore
- 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

Description

Level transmitters 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 principle. The level transmitters 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

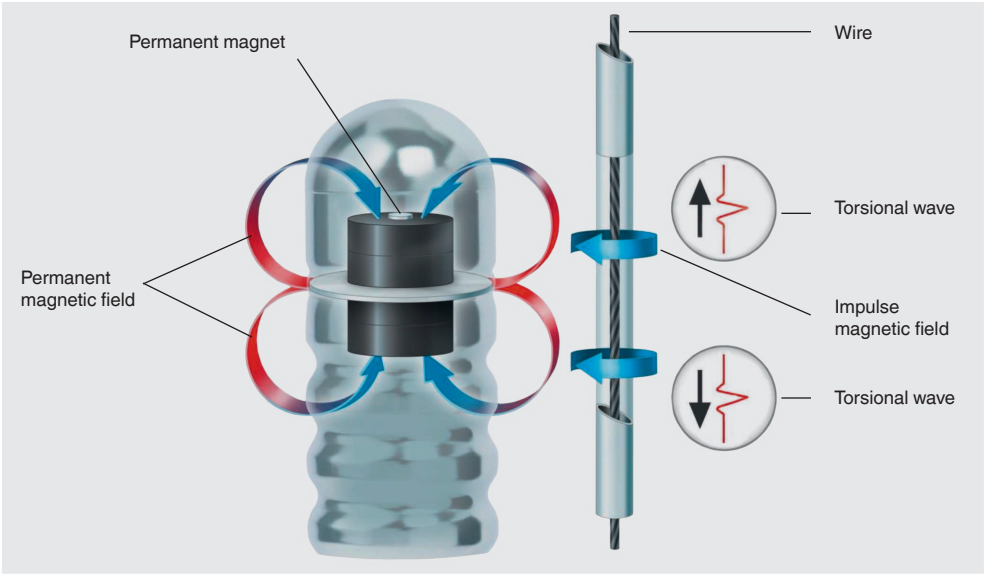
angles to the impulse magnetic field. This magnetic field of the float tensions the wire. The superposition of these two magnetic fields triggers a mechanical wave in the wire. This is converted into an electrical signal at the end of the wire in the sensor housing by a piezoceramic pick-up.

The measured propagation delay enables the origination point of the mechanical torsional wave, and thus the float position, to be determined with high accuracy.



Magnetostrictive level transmitter, model BLM

Illustration of the principle



Model overview

- Model BLM-T...: Compact version
- Model BLM-TAI (FFG-BT): Compact version, intrinsically safe (Ex i)

Approvals

■ Model BLM

Logo	Description	Country
	EU declaration of conformity ■ EMC directive ■ RoHS directive	European Union
	EAC (option) EMC directive No. RU -DE.A301.B.00820	Eurasian Economic Community
	KazInMetr (option) Metrology, measurement technology No. 13947	Kazakhstan
	UkrSEPRO (option) Metrology, measurement technology No. UA-MI/2-4988-2015	Ukraine
	Uzstandard (option) Metrology, measurement technology No. 02.6649	Uzbekistan

■ Model BLM-TAI

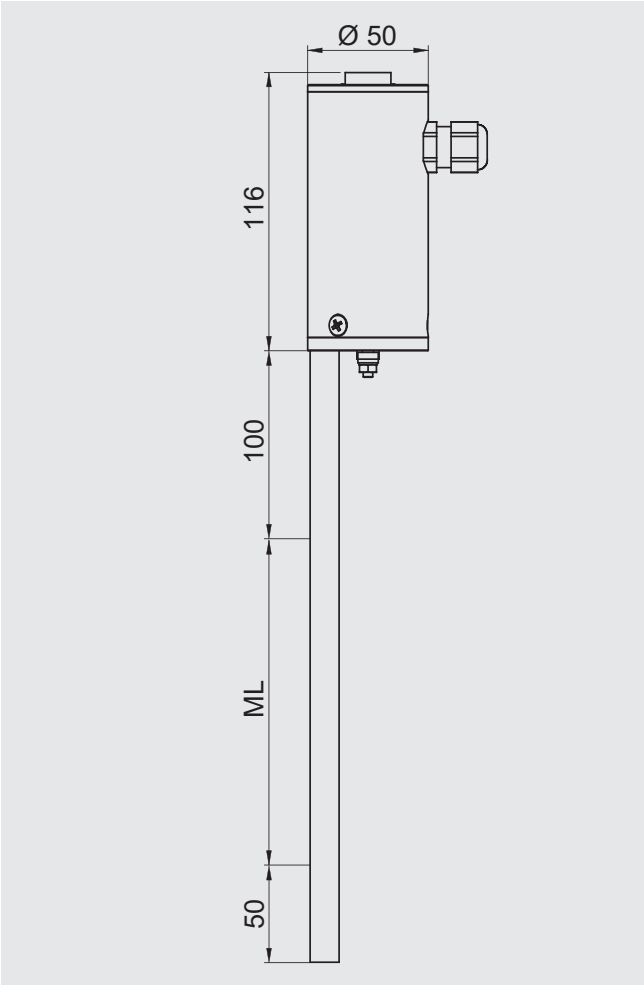
Logo	Description	Country
	ATEX directive (option), model BLM-TAI Hazardous areas ■ Model BLM-TAI - Ex i Zone 1 II 2 G Ex ia IIC T6 ... T4 Gb No. TÜV 18 ATEX 225120 X	European Union
 	IECEx (option), model BLM-TAI Hazardous areas - Ex i Ex ia IIC T6 ... T4 Ga Ex ia IIC T6 ... T4 Ga/Gb Ex ia IIC T6 ... T4 Gb Ex ia IIIC T160 °C Da No. IECEx TUN 20.0011X	International
	EAC (option) Hazardous areas No. RU C-DE.ГБ08.B.01489	Eurasian Economic Community

Manufacturer's information and certificates

Logo	Description
	SIL 2 Functional safety
-	China RoHS directive

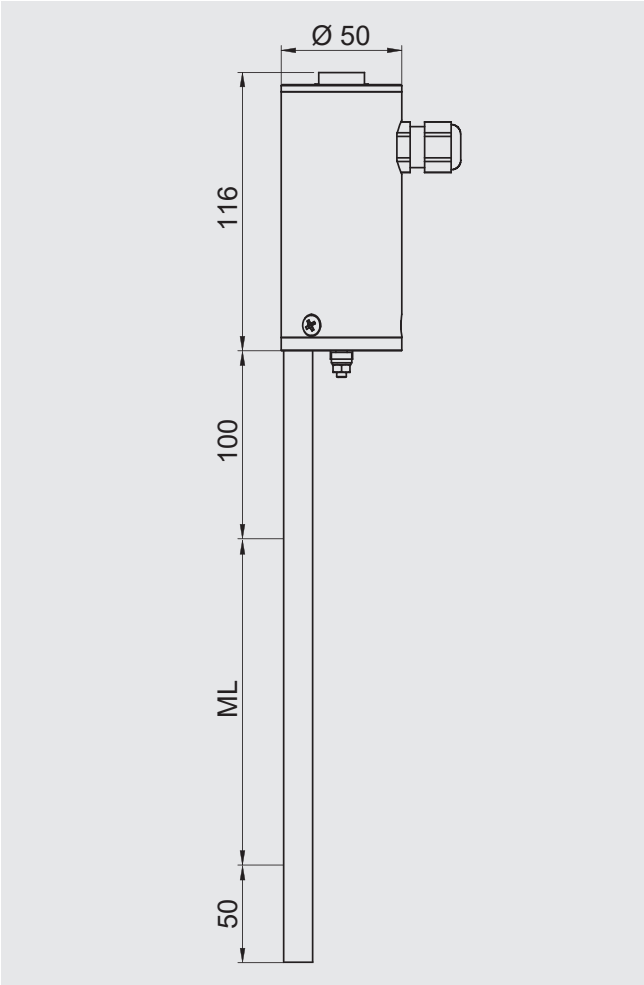
Approvals and certificates, see website

Compact version, model BLM-T...



Specifications	
Connection housing (sensor housing)	■ Stainless steel 1.4305 ■ Stainless steel 1.4404
Sensor tube	
Material	■ Stainless steel 1.4571 ■ Stainless steel 1.4404
Tube diameter	12 mm
Tube length L	Max. 6,000 mm
Medium temperature	
Standard	-40 ... +150 °C
Low-temperature version	-90 ... +125 °C
High-temperature version	-45 ... +250 °C -45 ... +450 °C
Ambient temperature	-40 ... +85 °C
Output signal	4 ... 20 mA, HART®
Power supply	DC 8 ... 30 V
Measurement accuracy	< ±0.5 mm
Resolution	< 0.1 mm
Ingress protection	■ IPx6 ■ IP68

Compact version, intrinsically safe (Ex i), model BLM-TAI



Specifications	
Connection housing (sensor housing)	■ Stainless steel 1.4305 ■ Stainless steel 1.4404
Sensor tube	
Material	■ Stainless steel 1.4571 ■ Stainless steel 1.4404
Tube diameter	12 mm
Tube length L	Max. 6,000 mm
Medium temperature	
Standard	-40 ... +150 °C
High-temperature version	-45 ... +250 °C -45 ... +450 °C
Ambient temperature	Category 2G or equipment protection level Gb (complete level transmitter installed in zone 1) T6: I _i ≤ 100 mA: -40 ... +40 °C I _i ≤ 200 mA: -40 ... +25 °C T5: I _i ≤ 100 mA: -40 ... +55 °C I _i ≤ 200 mA: -40 ... +40 °C T4 ... T1: I _i ≤ 100 mA: -40 ... +85 °C I _i ≤ 200 mA: -40 ... +70 °C
Output signal	4 ... 20 mA, HART®
Power supply	DC 10 ... 30 V
Measurement accuracy	< ±0.5 mm
Resolution	< 0.1 mm
Ingress protection	■ IPx6 ■ IP68

Ordering information

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

Alternatively:

Model / Electrical connection / Sensor tube (material and overall length) / Measuring range / Approval

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WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
info@wika.de
www.wika.de