

BABBITT INTERNATIONAL

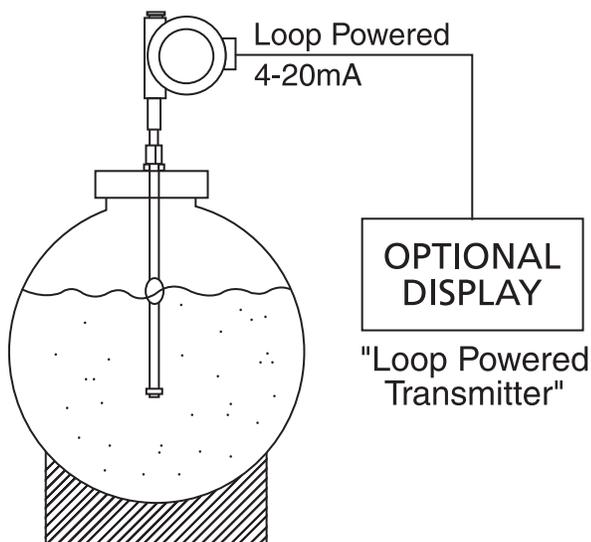
Magnetostrictive Level Transmitters



Next-Generation Design

Babbitt introduces the world's smartest magnetostrictive level transmitter – the LTM-350. The LTM-350 series has a similar look and feel to the 2nd generation model LTM-300, but is packed with many new innovative enhancements – from HART 7 to error preventive configuration. In addition, the LTM-350 features modular

electronics and multiple output options including 4/20 mA, HART (6 or 7) and wireless HART. The LTM 350 may be externally mounted to any Babbitt LG Series magnetic gauge, or used as a direct insertion level probe. This feature-packed instrument is the perfect solution to many of the industry's most difficult level measurement applications.



Can be inserted directly into a vessel or mounted external to the process on a Magnetic By-Pass Gage

FEATURES

- Dynamic RoC filter
- Simple configuration
- Auto detect configuration errors
- Power optimization software
- Factory set threshold – fit and forget
- Outputs include 4-20mA, HART 6 or 7

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Description

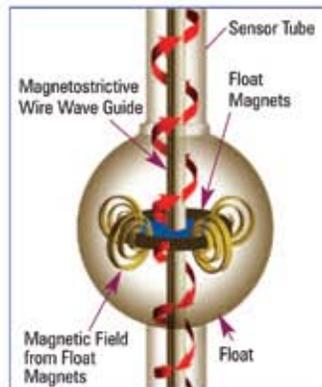
LTM Series magnetostrictive level transmitters offer highly accurate, and precise liquid level measurement with a variety of configuration options. The LTM may be utilized as a direct insertion transmitter or externally mounted to a magnetic level gauge for non-invasive level control.

The LTM sensor probe with magnetic float(s) is inserted directly into a tank. As the float rises or falls with the fluid, the transmitter provides level output. LTM transmitters are available with two-wire loop powered 4-20 mA signal output and HART.

LTM Series level transmitter operation is based on the principle of magnetostrictive technology. To explain briefly, the sensor consists of an alloy wire with specific magnetic characteristics called the wave guide. The wave guide is housed within a stainless steel tube, creating the probe assembly. The transmitter electronically generates a high current pulse which is transmitted down the wave guide, producing a circular magnetic field as it travels down the wire. Another magnetic field is generated on the

wave guide by the permanent magnet in the float along the length of the probe. When the pulse field interferes with the float magnetic field, a torsional force is produced, twisting the wire and producing a torsional wave. The time of flight of the torsional wave is measured and the distance to the float magnet is easily calculated.

Other configurations include remote-mount electronics for easy access or high temperature applications. Sensor probes are available in a variety of materials including stainless steel and exotic alloys (Monel, Hastelloy, etc.). Sensor probes may also be electropolished for sanitary applications. All LTM transmitters feature explosion-proof, dual compartment enclosures with integral displays.



Magnetostrictive Principle

The "plug-and-play" electronics allow easy upgrades from HART to Fieldbus without replacing the sensor probe. LTM transmitters offer the latest and most advanced software features on the market, introducing the only registered HART DD compliant to IEC 61804-2 and compliance certified to HART 7.



INDUSTRIES	
■ Marine	■ Pharmaceutical
■ Coatings	■ Power Industries
■ Oil and Gas	■ Food and Beverage
■ Petrochemicals	

APPLICATIONS	
■ Position Sensing	■ Underground Tanks
■ Sanitary Service	■ Primary Level/Interface
■ Valve Positioning	■ Process Temperature and Level
■ Inventory Control	
■ Corrosive Process	
■ Batching Processes	

Advantages

RoC filter

- Integral filter to suppress noise
- Ignores momentary external noise

Simple 4/20 mA configuration and reranging

- Simply change LRV or URV in units
- No recalibration required

Field-reversible mounting

- Gauge mount units are convertible to bottom mount or top mount with a few simple steps

One point calibration

- Unit may be calibrated by using one reference point; process shutdown not required

Error-proof calibration

- Auto-detects calibration errors

Factory default settings

- Reverts back to factory settings
- Holds three additional configurations

LTM Series Transmitter Options

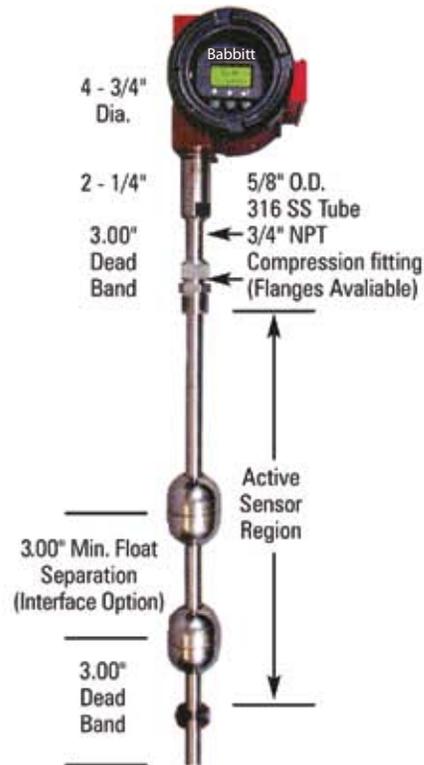
AMS
Suite



LTM 250
(4/20mA)



LTM 350
(HART)



Electronic Specifications

Supply Voltage:	13 to 36 VDC
Repeatability:	.005% of full scale or .010 in., whichever is greater
Non-Linearity:	.01% of full scale or .030 in., whichever is greater
Level Sensor Accuracy:	.01% of full scale or .020 in., whichever is greater
Analog Output:	(1) 4/20 mA primary level
Resolution:	.025% of full scale
Output:	Primary level, (1) 4/20 mA optional digital outputs via HART for temperature or interface detection
Calibration:	Zero and span field adjust with push buttons or HART; secondary level is auto-detect; temperature is configured via HART or AMS only
Diagnostics:	On-board diagnostics for troubleshooting
Dampening:	1 to 25 seconds (field adjustable via DISPLAY)
Operating Temperature (electronics):	-58 to 185° F (-50°C to 85°C)
Housing:	Explosion proof, dual compartment, 1/2-in NPT, epoxy coated aluminum; stainless steel optional

Polarity	
Protection:	Diode in series with the loop
Approvals:	CSA-USA Exp (Explosion-proof): Cl. I, Div 1. Grp. B,C,D,E,F,G
Humidity Limits:	SAMA PMC 31.1-5.2
Vibration Limits:	SAMA PMC 31.1-5.3
RFI Limits:	SAMA PMC 31.1-20 to 1,000 MHz up to 30V/m

Transmitter Sensor Tube

Material:	316 ss standard, optional Hastelloy, Monel, Kynar sleeve
Operating Temperature:	-50 to 300° F (-50 to 150° C)
Max. Pressure:	2000 psig @ 300° F
Range:	12 in. to 30 ft.

Specifications subject to change without notice.

LTM Approvals

Approvals	LTM - 250	LTM - 350
CSA-US EXP 	Class I, Div. I and II; Groups B,C,D Class II, Div. I; Groups E,F,G Class III, NEMA 4X, IP66	Class I, Div. I and II; Groups B,C,D Class II, Div. I; Groups E,F,G Class III, NEMA 4X, IP66



Top-mounted LTM Transmitter on LG Series Magnetic Gauge



Bottom-mounted LTM Transmitter on LG Series Magnetic Gauge



Remote-mounted LTM Transmitter for High-temperature Applications

LTM Order Information

Insertion Type

Model # (Example): LTM 350S - 3 - 3 - 0.64 - 150F - 300 - 30.00 - RM10

250 Single Output Analog, Alum. Housing
251 Single Output Analog, SST Housing
350 HART* (3 Variables), Alum. Housing
351 HART* (3 Variables), SST Housing

Probe Material

3 = 316 SS
K = Kynar Sleeve
O = Other (Specify)

Mounting Connection

3 = 3/4" NPT (Standard)
O = Other (Specify)

Min. Oper. S.G.

Max. Oper. Temp.

(°F or °C)

Max. Oper. Press. (psig)

Measuring Length (inches, 2 decimal places)

Options

- * Temp = Temp output (Digital)
- * Dual = Dual Level Outputs
- INT = Interface (Specify both S.G.'s)
- SW = Stilling Well (Specify size; Required over 10 Ft)
- 3A = 3A Sanitary Application
- RM = Remote Electronics (Specify cable length, in ft.)

*Available on LTM 350 HART version only
All units are CSA-US approved standard

Gauge Mount (Gauge dimensions may vary)

Model # (Example): LTM 250G - 30.00 - RM10

250 Single Output Analog, Alum. Housing
251 Single Output Analog, SST Housing
350 HART* (3 Variables), Alum. Housing
351 HART* (3 Variables), SST Housing

Measuring Length

Options

RM = Remote Mount Electronics (Specify cable length, in ft.)
(Mounting elbow standard)

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