



# LEVEL TRANSMITTERS

# LTM

## LTM IntelliGage™ Series Magnetostrictive



LTM-350 IntelliGage™

### Next-Generation Design

Magtech introduces the world's smartest magnetostrictive level transmitter– the LTM 350. The LTM 350 series is packed with many innovative features – from HART 7 to error preventive configuration. In addition, the LTM 350 features modular electronics and multiple output options, including

4–20mA, HART 7 and wireless HART. The LTM350 may be externally mounted to any Magtech 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.

### DESCRIPTION

Magtech's 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 noninvasive 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.

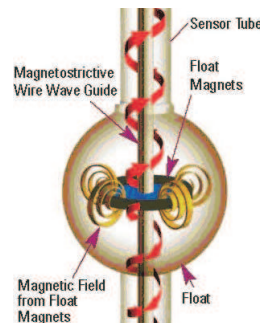
Other configurations include remote-mount electronics for easy access or high temperature and vibration applications. Sensor probes are available in a variety of materials including stainless steel and exotic alloys (Monel, Hastelloy, etc.). Sensor probes may also be electropolished for sanitary applications.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

The "plugandplay" electronics allow easy upgrades 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 618042 and compliance certified to HART 7.



### FEATURES

- ★ Dynamic RoC filter
- ★ Simple configuration
- ★ Auto detect configuration errors
- ★ Power optimization software
- ★ Factory set threshold – fit and forget
- ★ Outputs include 4 20mA, HART 7
- ★ LTM 350/250 Series has field reversible mounting



Magnetostrictive Principle

### INDUSTRIES

- |                  |                      |
|------------------|----------------------|
| ★ Marine         | ★ Pharmaceutical     |
| ★ Coatings       | ★ Power Industries   |
| ★ Oil and Gas    | ★ Food and Beverage  |
| ★ Petrochemicals | ★ Water / Wastewater |

### APPLICATIONS

- |                     |                         |
|---------------------|-------------------------|
| ★ Position Sensing  | ★ Underground Tanks     |
| ★ Sanitary Service  | ★ Primary Level / Inter |
| ★ Valve Positioning | ★ Process Temperature   |
| ★ Inventory Control | ★ and Level             |
| ★ Corrosive Process | ★ Batching Processes    |



Redundancy Radar Packages

## LTM IntelliGage™ Transmitter Options

**HART**  
REGISTERED

**AMS**  
Suite



LTM 350  
(4–20 mA) (HART)

LTM 250  
(4–20 mA)

## Electronic Specifications

|  |   |
|--|---|
| <b>Supply Voltage</b>                      | 13 to 36 VDC  |
| <b>Repeatability</b>                       | 0.005% of full scale or .010 in., whichever is greater  |
| <b>NonLinearity</b>                        | 0.01% of full scale or .030 in., whichever is greater   |
| <b>Level Sensor Accuracy</b>               | 0.01% of full scale or .030 in., whichever is greater   |
| <b>Analog Output</b>                       | (1) 4–20 mA primary level   |
| <b>Resolution</b>                          | 0.025% of full scale  |
| <b>Output</b>                              | Primary level, (1) 4–20 mA optional digital outputs via HART for temperature or interface detection |
| <b>Calibration</b>                         | Zero and span field adjustable with push buttons, HART and AMS                                      |
| <b>Advanced Diagnostics</b>                | With HART or AMS for troubleshooting  |
| <b>Dampening</b>                           | 1 to 25 seconds (field adjustable via DISPLAY)  |
| <b>Operating Temperature (Electronics)</b> | –58 to 185° F (–50°C to 85°C)   |
| <b>Housing</b>                             | Explosion proof, dual compartment, 1/2 in NPT, epoxy coated aluminum; stainless steel optional      |
| <b>Polarity Protection</b>                 | Diode in series with the loop   |
| <b>Humidity Limits</b>                     | SAMA PMC 31.1-5.2   |
| <b>Vibration Limits</b>                    | SAMA PMC 31.1-5.3   |
| <b>RFI Limits</b>                          | SAMA PMC 31.1-20 to 1,000MHz up to 30V/m  |
| <b>Material</b>                            | 316 ss standard, optional Hastelloy, Monel, Kynar sleeve  |
| <b>Operating Temperature</b>               | Gauge type up to 750°F (399°C) Insertion type –50 to 300° F (–45 to 149° C)                         |
| <b>Max. Pressure</b>                       | 2000 psig @ 300° F  |
| <b>Range</b>                               | 12 in. to 30 ft.  |

## 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

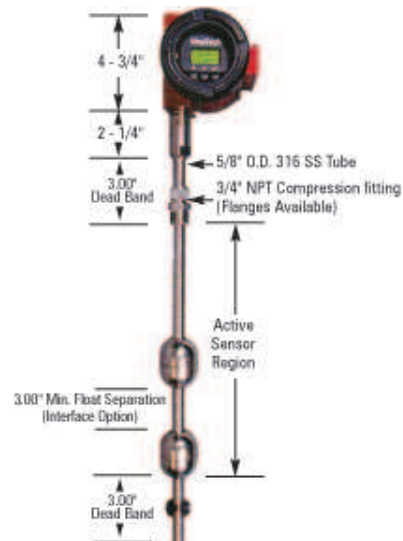
### Error-proof calibration

- Auto-detects calibration errors


### Factory default settings

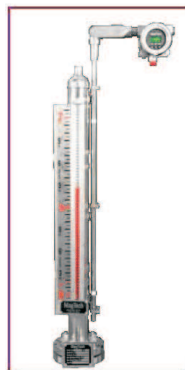
- Reverts back to factory settings
- Holds three additional configurations

## Transmitter Sensor Tube

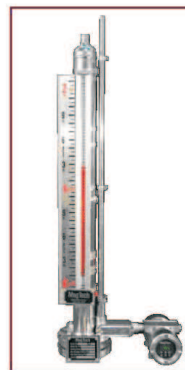


## LTM IntelliGage™ Approvals

| 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, NEMA 7, IP:66     |                                 |



Top-mounted  
LTM-SST Model  
Transmitter on  
LG Series  
Magnetic Gauge



Bottom-mounted  
LTM-SST Model  
Transmitter on  
LG Series  
Magnetic Gauge



Remote-mounted  
LTM-SST Model  
Transmitter for  
High-temperature  
Applications

