LMT series magnetostrictive level transmitters

Easy to apply, Powerful results.

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Introducing ABB’s LMT Series
Next generation magnetostrictive level transmitters
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Next Generation Magnetostrictive Transmitter

Why LMT Series?

The LMT’s principle of operation and simple setup ensure customer process is always measured reliably and accurately. This allows them to maximize their process efficiency, uptime and profits.

LMT is available as an insertion style “wetted” transmitter (LMT100) or as an externally mounted, non-intrusive design (LMT200) for use with the market leading KM26 magnetic level gauge or with any other float and level chamber.
Magnetostrictive level measurement

Technology

Operating principle

1. The device electronics generates a low energy current pulse at fixed intervals.
2. The electrical pulses create a magnetic field which travels down a specialized wire inside the sensor tube.
3. The interaction of the magnetic field around the wire and the magnetic float causes a torsional stress wave to be induced in the wire. This torsion propagates along the wire at a known velocity, from the position of the magnetic float and toward both ends of the wire.
4. A patented sensing element placed in the transmitter assembly converts the received mechanical torsion into an electrical return pulse.
5. The microprocessor-based electronics measures the elapsed time between the start and return pulses (Time of Flight) and converts it into a position measurement which is proportional to the position (level) of the float.
Key features and functionalities
ABB’s LMT Series magnetostrictive level transmitters
LMT Series magnetostrictive transmitters

Features & functionality

**Proven sensor design**
- Patented piezo ceramic torsional wave sensor
- High temperature and vibration applications
- Proven and industry leader with more than 100,000 installations

**Integrated Interactive Waveform**
- Easy for commissioning and/or troubleshooting
- Powerful features with advanced tools for best-in-industry asset optimization
- Threshold, blocking distance, signal polarity and pulse gain adjustments

**Adaptable and flexible design to meet any installation challenges**
- Elbow design allowing late configuration in mounting orientation
- Rotatable housing and display
- Aluminum or SS dual compartment for increased safety
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Features & functionality

3-in-1 measurement technology
– Single device measures level, interface and temperature
– Most accurate technology for interface measurement
– Wide range of float selection depending on application – no batteries in the float

Meeting NAMUR recommendations
– NE131 NAMUR Standard device - user roles and easy setup
– NE 43 NAMUR Standardization of the signal level
– NE 107 NAMUR Self-monitoring and diagnosis

Digital communications
– DTM, EDDL, FDI and TTG Display - Flexible calibration and verification methods
– HART 7, Foundation Fieldbus* and Profibus* including 4..20mA analog output

* Refer LMT roadmap for details
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Features & functionality

Solution for every application
- Direct insertion vs gauge mounted- calibrated and assembled completely from factory
- Wide range probe options and process connection materials
- Works without display, dual compartment Aluminum or SS housing, built-in EMI filter

Common platform across instrumentation
- Common TopWorks platform across instrumentation products
- Simplified operation, maintenance and training – a common user experience!
- First magnetostrictive transmitter with TTG (Through The Glass) technology

Faster measurement when every drop counts
- MCU and FPGA in the sensor board resulting in improved response time
- Improved measuring algorithms and detection techniques
- Advanced semiconductor platform with faster update rate, built-in surge protection option
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Features & functionality

**Advanced on-line verification and diagnostics**
- Sensor hardware check including internal connections check and sensor memory failure
- Internal electronics check including user configuration check and operating conditions
- Menu, FDI and DTM based verification

**Process Safety**
- Secondary process seal for increased safety
- Glass to metal seal tested for more than 2000 psi pressure.
- All probes hydro tested to 1.5 times application pressure

**A higher level of measurement confidence**
- Hazardous approvals – cFMus, ATEX/IECEx, NEPSI, CRN
- Safety integrity Level 2(SIL2) and Systematic Capability 3 (SC3) according to IEC61508
- Can be used in applications up to SIL2(HFT=0) resp. SIL3 (HFT=1)