

## Magnetostrictive Level Transmitter LMT200

### Our Product Introduction

#### Basic Information

- Brand Name: ABB
- Model Number: LMT200



#### Product Specification

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## Product Description

High accuracy non-intrusive liquid level and interface level detection

The LMT Series of level transmitters is a modular range of field mounted, advanced microprocessor-based electronic transmitters, utilizing multiple sensor technologies. Accurate and reliable measurement of liquid level and interface are provided in even the most difficult and hazardous industrial environments.

### Overview

**The LMT200 is based upon the magnetostrictive 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 level of the float.

### Features:

- Calibrated from the factory
- High Accuracy: .01% of Full Scale or +/- 1.27mm
- Never Requires Re-Calibration: Set It & Forget It
- Easy setup with waveform display
- Not affected by agitation, foam or emulsion layers
- No oscilloscope required
- Designed to Mount Externally to K-TEK KM26 or other Magnetic Level Gauge
- Superior Sensor (Patent #5,473,245)
- Local Indication with HMI Display
- Dual Compartment Housing with Separate Field Terminal Compartment
- Loop Powered to 15.24m (50ft) Probe Length
- Total and/or Interface Level Measurement
- Temperature Range: -195.5 to 426.6°C (-320 to 800°F) with options
- Field Replaceable / Upgradable Electronics Module
- Built-in RFI / EMI Filter
- Digital Communications
- Online Self-verification

### Options:

- Two Level Indications
- Glass Viewing Window
- 316 Stainless Steel Enclosure
- Built-in surge protection

## Data

### ELECTRONIC TRANSMITTER

**Repeatability:**  $\pm 0.005\%$  of Full Scale or 0.305 mm (0.012 in), whichever is greater

**Non-linearity:**  $\pm 0.01\%$  of Full Scale or 0.864 mm (0.034in), whichever is greater

**Measuring accuracy:**  $\pm 0.01\%$  of Full Scale or 1.27 mm (0.050 in), whichever is greater<sup>1</sup>

**Supply voltage:** 12 to 42 Vdc - 4-20mA HART loop powered

**Output/Communications:** 4-20mA HART7®

**User Interface:** Interactive display, DTM, EDDL with NE107 messaging

**Power consumption:**

4-20mA: at 36.0 Vdc - 3.6mA 0.13 watts; 21mA 0.76 watts

at 12.0 Vdc - 3.6mA 0.043 watts; 21mA 0.25 watts

HART mode (4.0mA): at 36.0 Vdc 0.144 watts

at 12.0 Vdc 0.048 watts

**Maximum line resistance:**

4-20mA: at 36.0 Vdc and 21mA, 1142 ohms\*

at 24.0 Vdc and 21mA, 571 ohms

at 12 Vdc and 21mA, < 72 ohms\*\*

\*Maximum allowable with HART® communication is 700 ohms

\*\*See the current/resistance chart

HART mode (4.0mA): < 650 to 700 ohms

**Polarity protection:** 4-20mA, Diode in series with loop, FOUNDATION Fieldbus and Profibus PA, polarity insensitive

**Update rate:** 10 measurements per second

**Minimum measuring span:** 76.2 mm (3.0 in), consult factory if smaller span is required

**Damping:** Field Adjustable, Range: 0.1 to 60 seconds

**Alarm output:** NE43, Software or Hardware selectable. Upscale (21 mA) or Downscale (3.6 mA)

**Surge Suppression** Integral surge suppression available with option code S1

**Ambient temperature:** -40 to 85°C (-40 to 185°F) Ambient<sup>2</sup>

**Humidity:** 0 to 100% RH

**Linearization:** 21 Point Table Available

**Enclosure:** Dual Compartment

**Enclosure material:** Cast Low Copper Aluminum with Powder Coat or 316 Stainless Steel

**Device tag material:** AISI 316 Stainless Steel

**Electrical connection:** Two M20 x 1.5 or two 1/2in. FNPT, adapters and bus connectors also available

**Ingress protection:** IP66, NEMA 4X

### SENSOR TUBE

**Material:**

Standard: 316/L Stainless Steel

Options: Alloy 20, Hastelloy® C-276, FEP-TEFLON® jacketed, electropolished 316/316L Stainless Steel, others on request

**Standard probe length:** 304.8mm to 15.24 m (1 to 50 ft); 90 degree probes (SEH Option) 304.8mm to 7.62m (1 to 25 ft)

**Probe length tolerance:**

$\pm 3.2\text{mm}$  (0.125in) up to 3.0m (10ft);  $\pm 6.4\text{mm}$  (0.25in) up to 6.0m (20ft);

$\pm 9.0\text{mm}$  (0.35in) up to 9.0m (29.5ft);  $\pm 25.4\text{mm}$  (1.0in) up to 15.24m (50ft)

**Mounting:** Stainless Steel Clamps for KM26 Magnetic Level Gauge Chamber Included; Optional Vibration Isolation Mounts

**Notes:**

1 Measurement accuracy is recorded at factory ambient conditions (23.88 °F  $\pm$  5.6 °C (75 °F  $\pm$  10 °F)) using a calibration magnet. Accuracy may be further influenced by

other factors such as float hysteresis, installation, process conditions and ambient conditions.

2 Some agency approvals may differ.

HART® is a registered trademark of the FieldComm Group



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