Questtec SOLUTIONS

The New Standard of Level

Glass-Trac Level-Trac
Steam-Trac Magne-Trac

400-01
01/16

MTLT-5000 MAGNETOSTRICTIVE

QUEST-TEC SOLUTIONS MAGNETOSTRICTIVE TRANSMITTERS FOR MAGNE-TRAC GAGES

The MTLT-5000 is based upon the magnetostrictive principle. The sensing tube contains two wires which are pulsed with the magnetic field created by the magnetic float causes a torsion stress wave to be induced in the wire. The torsion propagates along the wire at a known velocity from the position of the magnetic float and toward both ends of the wire. The microprocessor-based electronics measure the elapsed time between the start and return pulses and convert it into 4-20mA DC output which is proportional to the level being measured.

Features

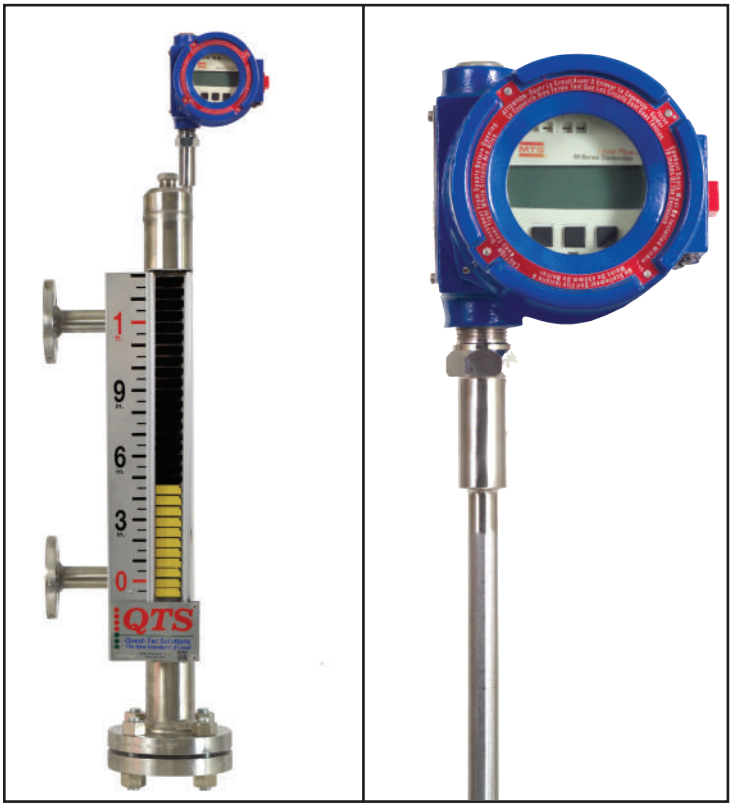
- Modular design
- High accuracy and repeatability
- Two channel output available
- Multi-drop HART communication
- Explosion-proof and / or intrinsically safe (model dependent)
- No maintenance required
- ± 2.7°F (±1.5°C) accuracy on temperature output

Applications

- Process level measurement
- Bulk storage
- Interface measurement
- Temperature measurement
- Magnetic Level Gauge Transmitter

Markets

- Pharmaceutical
- Biotech
- Semiconductor
- Specialty Chemical
- Process Chemical
- LPG



[Right Image] MTLT-5000 Transmitter with display on Style A Magne-Trac Gage [Left Image] Close up image of MTLT-5000 Transmitter with display

Level Output

Measured Variable	Product Level/Interface Level
Output	4-20mA, 2 loops with HART
Full Range	Flexible Sensors: 3050 mm (120 in.) to 12192 mm (480 in.)*** Rigid Sensors: 508 mm (20 in.) to 7620 mm (300 in.)
Non-linearity	Flexible Sensor Element: 0.35% F.S. (Independent BSL) or 0.794 mm (1/32 in.)* Rigid Sensors Element: 0.20% F.S. (Independent BSL) or 0.794 mm (1/32 in.)*
Repeatability	Flexible Sensor Element: 0.01% F.S. or 0.381 mm (0.015in.)* Rigid Sensors Element: 0.005% F.S. or 0.127 mm (0.005 in.)*
Sensor Operating Temperature	-40°C (-40°F) to 125°C (257°F)**

**Whichever is greater* ***Length dependent. Contact Quest-Tec for higher temperatures* ****Contact Quest-Tec for longer lengths & higher pressures*

MTLT-5000 MAGNETOSTRICTIVE TRANSMITTER

Gage Loop

Input Voltage Range	10.5 to 36.1 Vdc, 28 Vdc maximum for I.S. ATEX approval
Reverse Polarity Protection	Series diode
Lighting/Transient Protection	Stage 1: line-to-ground surge supressors; 2500 Amps peak (8/20 µsec.) Stage 2: line-to ground and line-to-ground transient suppressors; 1500 Watts peak (10/1000 µsec.)

Calibration

Zero Adjust Range	Anywhere within the active length
Span Adjust Range	Full Scale ≥ 152 mm (6 in.) from zero

Temperature Output

Type	4-20 mA from 1,000Ω platinum RTD at 0°C
Repeatability	±0.18 °F (0.1°C)
Accuracy	±2.7 °F (1.5 °C)
Drift	±0.9 °F (0.5°C) per year
Zero Adjust	-40 to 255 °F (-40 to 124 °C)
Span Adjust	45°F (7.2°C) minimum, full scale (maximum) = 300°F (149 °C)

Environmental

Humidity	0 to 100% R.H., non-condensing
Electronics Operating Temperature	-34°C (-30°F) to 71°C (160°F)
Vessel Pressure	Rigid pipe rated at 69 bar (1000 psi), dependent n float pressure rating (19 bar /275 psi) max-flexible outer pipe*
Materials (wetted parts)	316L stainless steel **

Field Installation

Mounting	NPT fitting (3/4 in. rigid, 1 in. flex) or flange mounting
Wiring	2- wire connection, shielded cable or twisted pair to screw terminals through a 1/2 in. NPT conduit opening NEMA Type 4X: 15ft (457 cm) pigtail integral cable or Daniel Woodhead (Part No. 70807SS) 6 - pin Male 1/4 in. -18MNPT key-way receptacle, 3/4 in. NPT conduit opening of Ex housing

Display (Optional)

Measured Variables	Level 1, Level 2, temperature
Update Rate	3 Seconds
Size	12.7mm (0.5 in)
Number of Digits	16

HART Communications

Method of Communication	Frequency Shift Keying (FSK) conforms with Bell 202 Modem Standard with respect to baud rate and digital “1” and “0” frequencies
Data Byte Structure	1 Start bit, 8 Data bits, 1 Odd Parity bit, 1 Stop bit
Digital Process Variable Rate	Poll/Response Model 2.0 per second

Agency Approvals

Canadian Standards (CSA)	Intrinsically Safe: Class I, Groups A, B, C, D Class II, Groups E, F, G Division 1, NEMA Type 4X Models: All	Explosion-proof: Class I, Groups B, C, D Class II, Groups E, F, G Division 1, NEMA Type 4X Models: Explosion-proof housing req.	Intrinsically safe: EEx ia IIB + T4 EEx ia IIA + T4 (Consult Factory for PTB/ATEX model numbers)
FM Global			
PTB/ATEX			

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13960 S. Wayside | Houston, TX 77048 | Toll Free: 866.240.9906 | Tel: 281.240.0440
Fax: 281.240.2440 | www.QTSlevel.com | Sales@QTSlevel.com