



# COMPACT MAGNETOSTRICTIVE LIQUID LEVEL TRANSMITTER FOR DIRECT INSERTION

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## Model AT500

### FEATURES:

- Mounts from Top of Tank
- High Resolution 4-20 mA DC Output
- Simple Mounting and installation
- Very Compact Design
- Calibrates Without Opening Enclosure
- Stainless Steel Enclosure
- Custom Floats Available
- Measurement of Total or Interface Level

### SPECIFICATIONS:

#### Electronic Transmitter:

Repeatability:	.01% of full scale or 0.030", whichever is greater
Non-linearity:	.02% of full scale or .07", whichever is greater
Accuracy:	.02% of full scale or .10", whichever is greater
Loop Supply Voltage:	13.5 to 36 VDC
Housing Type:	Explosion proof 316L SS with 1/2" FNPT Electrical Connection
Polarity Protection:	Diode in series with loop
Output:	Standard 4-20 mA DC Calibration via magnets
Failsafe:	Field Selectable: Upscale or Downscale
Operating Temperature:	Electronics -40 to 170°F (-40 to 77°C) Ambient
Humidity:	0-100% R.H. non-condensing
Electrical Connection	1/2" FNPT Standard; M20 Optional

#### Sensor Tube:

Material:	316/316L Stainless Steel, 5/8" OD
Operating Temperature:	-40 to 170°F / -40 to 77°C <b>Standard</b> Up to 250°F / 121°C with 10" extension (H1)
Max Pressure:	950 psig @ 250°F <b>Standard</b> 65.5 kPa @ 121°C <b>Standard</b>
Measuring Range:	1 to 16 ft. / 0.3 to 4.8 m
Mounting:	Standard 3/4" MNPT compression fitting (refer to ordering information for options)

#### Approvals:



**Factory Mutual Research Corp.**  
**CSA Canadian Standards Association (pending)**  
 XP / I / 1 / ABCD / T6  
 DIP / II , III / 1 / EFG / T6  
 IS / I / 1 / ABCD / T4  
 NI / 1 / 2 / ABCD / T4


**Cenelec (pending)**  
 Flameproof: EEX d IIC T6  
 Intrinsically Safe: EEX ia IIB T6



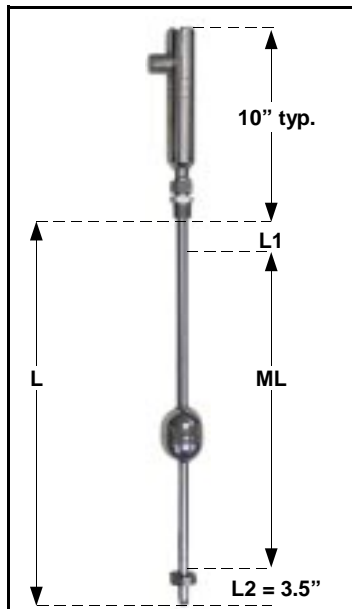
**AT500 Sample Applications  
Total and Interface Measurement**

**ORDERING INFORMATION:**

**AT500/a/b/c/d/e/f/g/h/l/j:**

- /a Probe Material**  
/S6 316L Stainless Steel **Standard**
- /b Transmitter configuration**  
/L Local Transmitter **Standard**
- /c Transmitter Housing**  
/S 316L Stainless Steel Housing **Standard**
- /d Probe Type**  
/R1 Rigid Probe 5/8 in. O.D. (16 ft./ 9.1m maximum probe length) **Standard**
- /e Process Temperature Options**  
/H0 170°F / 77°C Maximum **Standard**  
/H1 250°F / 121°C. Maximum (Top of transmitter is 17 in. / 43 cm above tank nozzle)
- /f Electrical Connection**  
/F5 1/2 in. FNPT **Standard**  
/M2 M20 Connection  
/RF RFI Filter with 1/2 in. MNPT connection and flying leads
- /g Approvals**  
/FM Factory Mutual and CSA Canadian Standard Association (Pending)   
/CE Cenelec (Pending)  
/AAR AAR Association of American Railroad Certification with FM Approval (Pending)
- /h Process Connection**  
/CF 3/4 in. MNPT x adjustable compression fitting **Standard**  
/FL Flange with 3/4 in. NPT tap shipped loose; Specify from chart FLNG-0202-2.
- /i Float Type**  
/Fnn Selection from Standard Float Chart (FLT-0202-2) F1B, F2B, F17B, F15B **Standard**  
or specify /FXX for custom float
- /j Length**  
/L Standard lengths:  
15.5 in. / 394 mm      27.5 in. / 698 mm      39.5 in. / 1003 mm  
51.5 in. / 1308 mm      63.5 in. / 1613 mm      75.5 in. / 1918 mm  
87.5 in. / 2222 mm      99.5 in. / 2527 mm      111.5 in. / 2832 mm  
123.5 in. / 3137 mm      135.5 in / 3442 mm      147.5 in. / 3746 mm

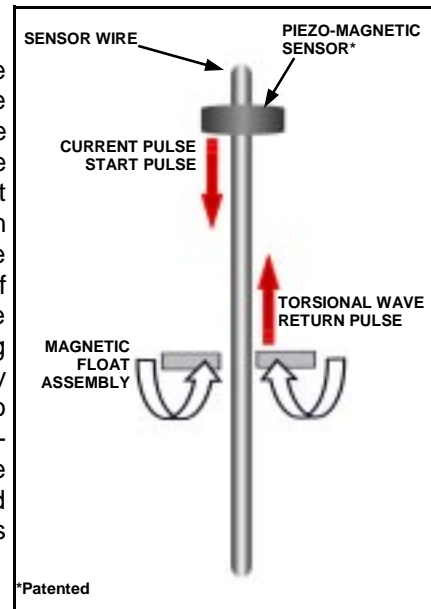
Custom Lengths to 16 ft. / 4876 mm specified in inches or millimeters



**DIMENSIONS**

**PRINCIPLE OF OPERATION:**

The AT500 is based upon the magnetostrictive principle. The sensing tube contains a wire which is pulsed at fixed time intervals. The interaction of the current pulse with the magnetic field created by 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. A patented piezo-magnetic sensing element placed in the transmitter assembly converts the received mechanical torsion into an electrical return pulse. The microprocessor-based electronics measures the elapsed time between the start and return pulses and converts it into a 4-20 mA output which is proportional to the level being measured.



**PRINCIPLE OF OPERATION**