

AT500

Magnetostrictive Level Transmitter

Compact magnetostrictive
liquid level transmitter for direct
insertion

K-TEK Products



Features

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

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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 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
Enclosure Rating	IP67

Sensor Tube

Material	316/316L Stainless Steel, 5/8" OD
Operating Temperature	-40 to 170°F / -40 to 77°C Standard Up to 250°F / 121°C with 10" extension (H1)
Max Pressure	1800 psig @ 250°F Standard 124.1 bar @ 121°C Standard
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)



**AT500 Sample Applications
Total and Interface Measure-
ment**

Approvals



Factory Mutual Research Corporation:

XP/II/1/ABCD/T6 Ta=77°C; I/1/AEx d IIC/T6 Ta=77°C;

DIP / II ,III / 1 / EFG / T6 Ta=77°C

IS/II/1/ABCD/T4 Ta=77°C; I/0/AEx ia IIC/T4 Ta=77°C-ELE 0035/NC; Entity;

NI/II/2/ABCD/T4 Ta=77°C; S/II,III/2/FG/T5 Ta=77°C; NEMA 4X



CSA International:

Hazardous Locations

Class I, Div. 1, Grps A,B,C,D; Class II, Div. 1, Grps E,F,G; Class III;

Class I, Zone 1, Ex d, IIC T6:



Intrinsically Safe Entity - For Hazardous Locations:

Class I, Div. 1, Grps A,B,C,D, Temp. Code T4;

Class I, Zone 0, Ex ia IIC T4 when installed per drawing ELE0035,

Max. operating temp. 77°C, Encl. Type 4X.



ATEX:

Flameproof: EX II 1/2 GD T85C EEx d IIC T6

Intrinsically Safe: EX II 1 GD T85C EEX ia IIC T6



AAR Association of American Railroad Certification with FM Approval:

E069022

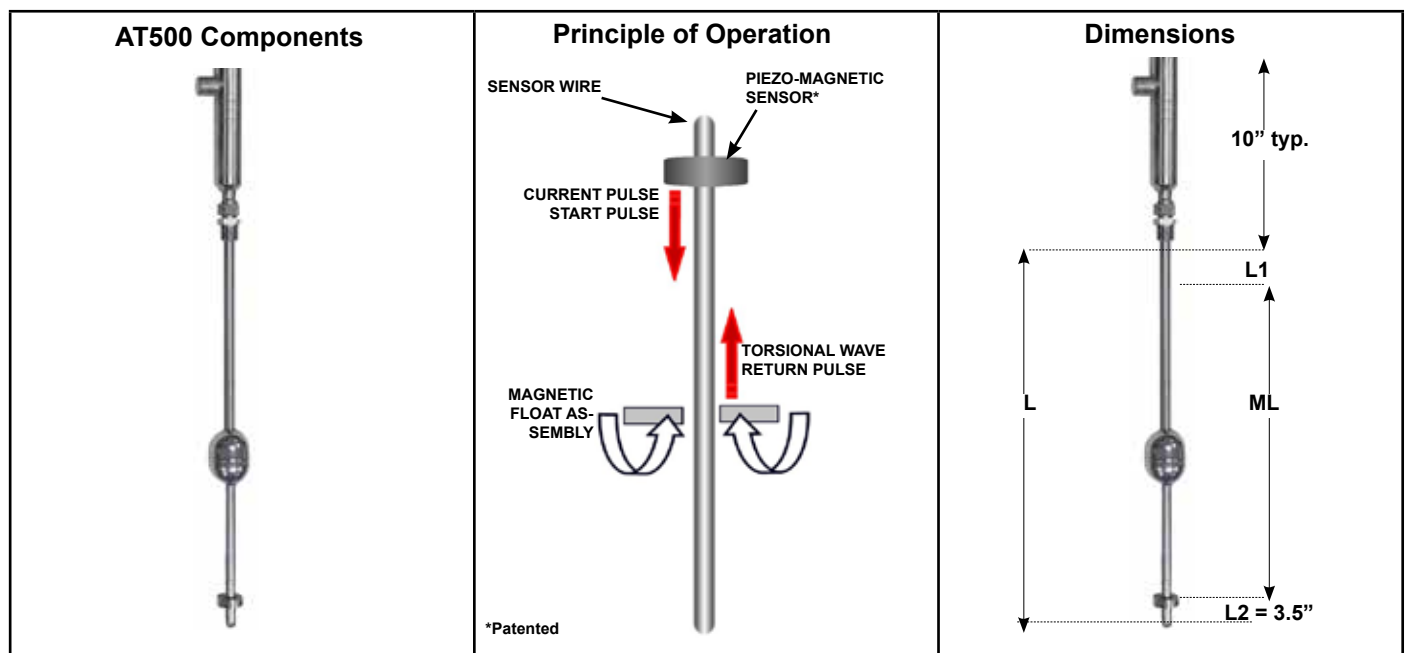
Safety



Third Party Safety Integrity Level (SIL) data (FMEDA analysis) for Safety Instrument Systems engineering is available.

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.



ORDERING INFORMATION

AT500/a/b/c/d/e/f/g/h/i/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./ 4.87m maximum probe length) **Standard**
SW1 1/2" OD Probe for Insertion into 5/8" OD x 0.049" Wall Sensor Well
Note: Specify and order sensor well separately.
SW2 5/8" OD Probe for Insertion into 3/4" Sch. 40 or Sch. 80 Sensor Well
Note: Specify and order sensor well separately.
- /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**
- /g Approvals**
FM Factory Mutual and CSA Canadian Standard Association
CEI ATEX Intrinsically Safe
CEX ATEX Flameproof
AAR AAR Association of American Railroad Certification with FM Approval
M2 M20 Connection
RF RFI Filter with 1/2 in. MNPT connection and flying leads



/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 Flange Selection chart (SLG-0001-1).
/i	Float Type	
	Fnn	Selection from Standard Float Chart (SLG-0003-1) 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

Available Accessories

CD	Centering Disk: specify stilling well inside diameter
M20 ISO FITTING	M20 Connection
CONHEA4F	3 pin female cable connector with weatherproof cap rated for general purpose & intrinsically applications only.
CONHEA4M	3 pin male cable connector with weatherproof cap rated for customers cable at loading station. General purpose & intrinsically safe applications only.

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