

AT200 Magnetostrictive Level Transmitter

External mounted
magnetostrictive level transmitter
K-TEK Products



Features

- SIL2 Certified IEC 61508*
- Designed to mount externally to K-TEK KM26 or other Magnetic Level Gauge
- High accuracy: .01% of full scale
- Superior piezo ceramic sensor (Patent # 5,473,245)
- Local indication with LCD display
- Simple calibration
- Never requires recalibration: set it & forget it
- Dual compartment housing with separate field terminal compartment
- Total and/or interface level measurement
- Process temperature range -320° F to 800° F (-196 to 427°C) with options
- Field replaceable module
- Built in RFI / EMI filter
- Digital communication

Options

- Two level indications
- Honeywell DE output
- Foundation Fieldbus output
- Glass viewing window
- 316L SS enclosure
- 20 point strapping table

SPECIFICATIONS

Electronic Transmitter

Housing Type	Explosion Proof Powder Coated Cast Aluminum or Stainless Steel Dual Compartment
Electrical Connection	1/2" FNPT or M20
Repeatability	.005% of full scale or 0.015", whichever is greater
Non-Linearity	.01% of full scale or .035", whichever is greater
Accuracy	.01% of full scale or 0.050", whichever is greater
Supply Voltage	13.5 to 36 VDC - Loop Powered ; 9 to 32 VDC - Foundation Fieldbus
Reverse Polarity Protection	Diode in series with loop
Output	Standard 4-20 mA DC Loop HART protocol (standard) Foundation Fieldbus (optional) <ul style="list-style-type: none">• ITK 5.1.0 Compliant• 5 AI and 1 PID blocks• 12.5 mA Quiescent Current Draw• LAS Capable Honeywell DE (optional)
Dampening	Field adjustable by means of pushbuttons. Range: 0.1 to 36 seconds
Burnout	Jumper selectable upscale (21 mA) or downscale (3.6mA)
Temperature	-40 to 170°F (-40 to 77°C) ambient
Humidity	0 to 100% R.H., non-condensing

* Transmitters equipped with 4-20mA/HART module option only
* Refer to Ordering Information Section E



Sensor Tube

Material	316L SS
Process Temp.	-320 to 250°F (-196 to 121°C) ; 800°F (427°C) with options
Measuring Range	1 to 50 feet (304.8mm to 15.24m) ; 90 degree probes 1 to 25 feet (304.8mm to 7.62m)
Mounting	Stainless steel clamps for KM26 Magnetic Level Gauge chamber (included)

Approvals:



FM Factory Mutual Research Corporation

XP / I / 1 / ABCD / T6; DIP / II, III / 1 / EFG / T6
IS / I / 1 / ABCD / T4 - ELE0001 and ELE1036 ^{1,2}
NI / I / 2 / ABCD / T4
TYPE 4X



CSA Canadian Standards Association

XP / I / 1 / ABCD / T6; DIP / II, III / 1 / EFG / T6
IS / I / 1 / ABCD / T4 - ELE0001¹
NI / I / 2 / ABCD / T4
TYPE 4X



ATEX

FP: **ITS08ATEX15869X**
II 1/2 G/D Ex d IIC T6
Ex tD 20/A21 IP6X T80°C
IS: **ITS08ATEX15866X** ^{1,2}
II 1/2 GD Ex ia IIC T4 (-40°C ≤ Tamb ≤ 66°C)
Ex iaD 20/21 IP6X T80°C (-40°C ≤ Tamb ≤ 66°C)
 Ingress protection: IP66 and IP67



GOST Russia

FP: 1ExdIICT6
IS: 0ExialICT6¹
Ingress protection: IP67
Sanitary Hygienic Certificate



IEC International Electromechanical Commission

IS: **IECEX ITS 08.0032X** ^{1,2}
Ex ia IIC T4
Ex iaD 20/21 IP6X T80°C
FP: **IECEXITS 08.0035**
II 1/2G/D Ex d IIC T6
Ex tD A21 IP6X T80°C


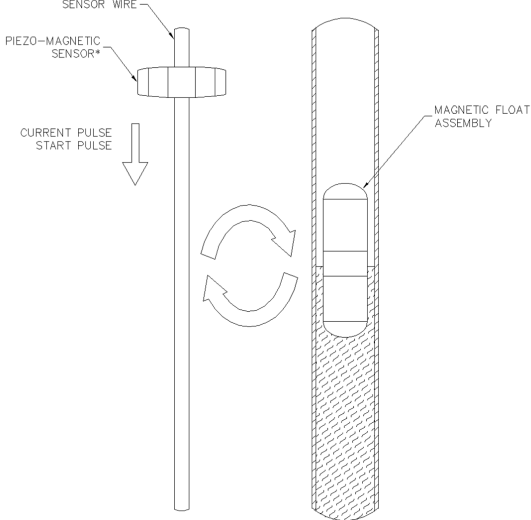
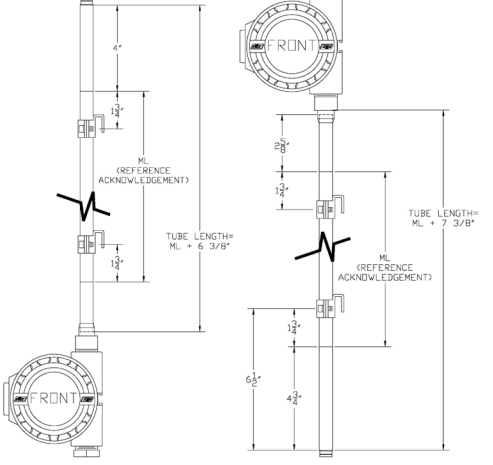
Notes: 1. Excludes RI (secondary analog output) & Honeywell DE options.
2. Fieldbus & FISCO

Safety Third Party Certified Safety Integrity Level (SIL 2) data (FMEDA analysis) for Safety Instrumented Systems engineering is available.

IEC61508 CERTIFIED

PRINCIPLE OF OPERATION:

The AT200 is based upon the magnetostrictive principle. The sensing tube contains a wire which is pulsed at fixed time intervals creating a magnetic field around the wire. 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. A patented piezo ceramic 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 position measurement which is proportional to the level of the float.

AT200 Components	Principle of Operation	AT200 Dimensions
 <p>KM26S</p> <p>AT200</p> <p>ABB</p>	 <p>SENSOR WIRE</p> <p>PIEZO-MAGNETIC SENSOR*</p> <p>CURRENT PULSE START PULSE</p> <p>MAGNETIC FLOAT ASSEMBLY</p>	 <p>4'</p> <p>12"</p> <p>ML (REFERENCE ACKNOWLEDGEMENT)</p> <p>TUBE LENGTH= ML + 6 3/8"</p> <p>FRONT</p> <p>8 1/2'</p> <p>12"</p> <p>TUBE LENGTH= ML + 7 3/8"</p> <p>ML (REFERENCE ACKNOWLEDGEMENT)</p> <p>FRONT</p> <p>6 1/2'</p> <p>4 1/2'</p>

ORDERING INFORMATION

AT200/a/b/c/d/e/f/g/h:

/a Mounting

- B** Bottom Connected Electronic Housing
- BW** Bottom Connected Electronic Housing with Window Cover
- T** Top Connected Electronic Housing
- TW** Top Connected Electronic Housing with Window Cover

/b Transmitter Configuration

- L** Standard Local Transmitter Housing

Notes:

1. For Process Temperature up to:
 - A. 200°F (93°C)
 - B. 500°F (260°C) with insulation pad or chamber insulation

- L9** Transmitter Housing Mounted to Extended Sensing Tube with 90°, 3" Radius Bend

Notes: 1. For High Process Temperature up to:

- A. 800°F (427°C) with chamber insulation (H2 required above 500°F)
- B. For Limited Space Applications:

- a. L9 without insulation suitable to 300°F
- b. L9 with insulation pad or chamber insulation suitable to 500°F

2. For Ambient Temperature above freezing and Process Temperature above ambient
3. Order insulation pad or KM26 chamber insulation separately
4. 25 ft. (7.6m) maximum measuring length
5. LCD Indicators will be visible at 90° from horizontal

- C** Offset Transmitter Housing with Vapor Seal for service below ambient. (Use with IW probe type.)

Notes:

1. If ambient temperature is below 32°F, the L9C option is required.
2. Process Temperature from -320°F to 200°F (-196°C to 93°C)

- L9C** Offset Transmitter Housing with Vapor Seal Mounted to Extended Sensing Tube with 90°, 3" Radius Bend, for service below ambient freezing

Notes: 1. Temperature considerations are the same as for L9, but suitable for freezing ambient.

2. Temperatures to -40°F/C ambient and Process from -320°F to 200°F (-190°C to 93°C)

/c Transmitter Housing Type

- A** Dual Compartment Aluminum Housing (Standard)
- S** Dual Compartment Stainless Steel Housing

/d Probe Type

- R1** Standard 5/8" OD Probe
- H2** High Temperature Sensing Tube Option for process temperature above 500°F (260°C)
(Requires KM26 chamber insulation and L9 option above 500°F)
- IW** Insulation Well to allow the insertion and removal of the probe when mounted to a cryogenic insulated level gauge
(This is the preferred configuration for cryogenic service when there is no flange on top of the KM26).

/e Electronic Module

- X** None
- HART Protocol:**
 - M4A** One Level, LCD Indicator & SIL 2 rated 4-20 mA Output
 - M4B** Two Levels, LCD Indicator & SIL 2 rated 4-20 mA Output
 - M4AS** One Level, LCD Indicator & SIL 2 rated 4-20 mA Output & 20 point Strapping Table
 - M4BS** Two Levels, LCD Indicator & SIL 2 rated 4-20 mA Output & 20 point Strapping Table
 - M5A** One Level, One temperature point, LCD indicator, and Communications
 - M5B** Two Levels, One temperature point, LCD indicator, and Communications
- Foundation Fieldbus Protocol:**
 - M4AF** One Level & LCD Indicator
 - M4BF** Two Levels & LCD Indicator
 - M4AFS** One Level & LCD Indicator & 20 point Strapping Table
 - M4BFS** One Level & LCD Indicator & 20 point Strapping Table
- Honeywell DE Protocol:**
 - M4AD** One Level & LCD Indicator
 - M4BD** Two Levels & LCD Indicator



ORDERING INFORMATION (continued)

AT200/a/b/c/d/e/f/g/h:

/f Second Analog Output (Not SIL Rated)

X None

RI Second Electronic Module with One Analog Output and LCD Indicator

- Notes:
1. Only for use with HART Protocol equipped electronics modules
 2. The RI100 is only approved as an Explosion Proof device (FM and CSA) and Flameproof (ATEX, IEC, GK, GR)
 3. Analog output field selectable to any of the two levels
 4. Housing type will be same as primary transmitter housing (/c above)

/g Approval

FM Factory Mutual

CSA Canadian Standard Association

CEX ATEX Flameproof

CEI ATEX I.S.

IEI International Electromechanical Commission I.S.

IEX International Electromechanical Commission Flameproof

GR GOST Russia

Note: Intrinsically Safe Approvals exclude RI (secondary analog output) & Honeywell DE options.



/h Measuring Length

ML Specify the measuring length in inches or mm

Available Accessories:

VI-TRANSMITTER: Vibration Isolators for use on extreme vibration applications (compressor skids, etc.)

M20 ISO FITTING: M20 Female Electrical Connection (Brass or Stainless Steel)

MM Brass

MMS Stainless Steel

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