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HIGH ACCURACY MAGNETOSTRICTIVE LEVEL TRANSMITTER

AccuTrak™
Model AT100

FEATURES

- High Accuracy: .01% of Full Scale
- Simple Calibration: Pushbutton or HART Protocol
- Never Requires Re-Calibration: Set It & Forget It
- Dual Compartment Housing with Separate Field Terminal Compartment
- No Drift Due To:
 - Dielectric Constant Changes
 - Vapor Composition Changes
 - Temperature Changes
 - Pressure Changes
- Loop Powered to 75' (22M) Probe Length
- Total and/or Interface Level Measurement
- Pressure to 3000psig (207 bar), Std. 1800 psig (124.1 bar)
- Temperature Range: -320 to 800° F (-196 to 427°C) with options
- Field Replaceable Module
- Built In RFI / EMI Filter



OPTIONS

- Local Indication with Scrolling LCD Display
- Two Level Outputs
- Temperature Output
- HART Protocol Output
- Foundation Fieldbus Output
- Honeywell DE Output
- Glass Viewing Window
- 316L Stainless Steel Enclosure
- 20 Segment Strapping Table

SPECIFICATIONS

Electronic Transmitter

Housing type	Explosion Proof Powdered Coated Cast Aluminum or Stainless Steel, Dual Compartment
Electrical Connection	1/2" FNPT
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
Loop Supply Voltage	13.5 to 36 VDC
Polarity Protection	Diode in series with loop
Output	Standard 4-20 mAdc Manual field calibration via pushbuttons HART protocol (optional) Foundation Fieldbus (optional) ITK4.01 Compliant Honeywell DE (optional)
Dampening	Field adjustable by means of pushbuttons. Range: 0.1 to 36 seconds
Burnout	Jumper selectable upscale (21 mAdc) or downscale (3.6mAdc)
Temperature	-40 to 170°F (-40 to 77°C) Ambient
Humidity	0 to 100% R.H., non-condensing



SPECIFICATIONS (continued)

Sensor tube

Material	316L Stainless Steel standard. Alloy 20, Hastelloy C-276, Teflon Jacketed 316L SS & Electro-Polish optional
Operating Temperature	-40 to 250°F (-40 to 121°C) Standard. Options available for temperatures up to 800°F (427°C) or as low as -320°F (-195°C)
Maximum Pressure	1800 psig @ 300°F (126.5 kg/cm ² @ 149°C); 3000 psig (210 kg/cm ²) with options
Measuring Range	1 to 75 feet (may require Flexible Probe option, maximum probe length 75 ft/ 2m)
Mounting	3/4": MNPT compression fitting standard; Refer to ordering information for options

Approvals



FM Factory Mutual Research Corp and CSA Canadian Standards Association Hazardous Locations:



XP / I / 1 / ABCD / T6; DIP / II, III / 1 / EFG / T6 (excludes Probe F1)
 IS / I / 1 / CD / T4 —ELE0001 / A [excludes RI (secondary analog output) & Honeywell DE option]
 NI / I / 2 / ABCD / T4
TYPE 4X



ATEX:



Flameproof: EEx d IIC T6 (excludes Probe F1)

0539
0036

Intrinsically Safe: EEX ia IIB T6 [excludes RI (secondary analog output) & Honeywell DE option]

Ingress protection classification: IP67



China National Supervision and Inspection Centre

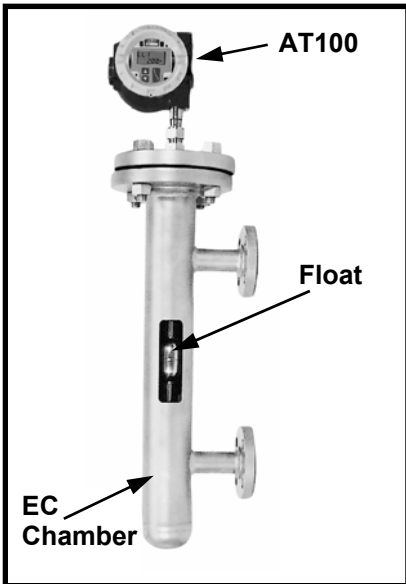
XP EX d IIC T6; GB 3836.1-2000, GB3836.2-2000

IS EX ia IIB T4; GB 3836.1-2000, GB3836.4-2000

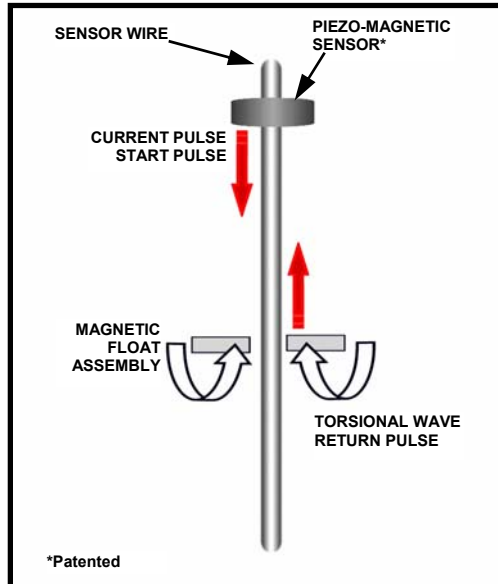
PRINCIPLE OF OPERATION:

The AT100 is based upon the magnetostrictive principle. The sensing tube contains a wire which is pulsed at fixed time intervals and the interaction of the current pulse with the magnetic field created by the magnetic float. This 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.

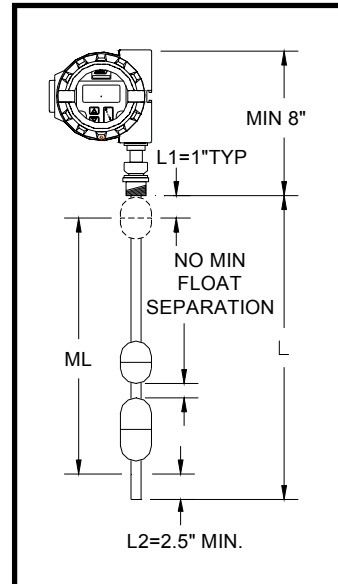
AT100/DISPLACER REPLACER



PRINCIPLE OF OPERATION



AT100 DIMENSIONS



ORDERING INFORMATION:

AT100/a/b/c/d/e/f/g/h/l/j/k

/a Probe Material

/S6	316L Stainless Steel Standard
/A2	Alloy 20
/HC	Hastelloy C-276
/TF	PFA Jacket (1/16" thick) over 316L SS (Max 350°F & 50 psig / 177°C & 3.5 kg/cm ²)

/b Transmitter Configuration

/L	Standard Local Transmitter
/LW	Standard Local Transmitter with Window Cover
/T	Local Transmitter with Top Access or Readout
/TW	Local Transmitter with Top Access or Readout and Window Cover
/C	Offset Transmitter with Vapor Seal for Service Below Ambient
/CW	Offset Transmitter with Vapor Seal for Service Below Ambient and Window Cover

/c Transmitter Housing

/A	Standard Dual Compartment Aluminum Housing
/S	Dual Compartment 316L Stainless Steel Housing

/d Probe Type

/R1	Standard Rigid Probe, 5/8" OD (30 ft. / 9.14 m), 1400 psig (96.5 bar) max pressure @ 800°F / 427°C, 1600 psig @ 700°F / 371°C, 1800 psig @ 300°F / 149°C,
/F1	Flexible Teflon Sensor Inserted into 1" OD Segmented Sensor Well (Max 170°F & 300 psig / 77°C & 21 kg/cm ²) Notes: <ol style="list-style-type: none">1. Only available with /S6, /A2, /HC options.2. 75 ft./22.3 m maximum probe length.3. Specify maximum segment length, 20ft / 3.05m standard.4. Not suitable for explosion proof service.5. Suitable for intrinsically safe installation.6. Not suitable for cryogenic applications.
/HP	High Pressure, 3000 psig / 210.9 kg/cm ² Notes: <ol style="list-style-type: none">1. Not available with /TF probe material option.2. 30 ft. / 9.1 m maximum probe length.3. Not available with /H3 Process Temperature Option.
/SW1	1/2" OD Probe for Insertion Into 5/8" OD x 0.049" Wall Sensor Well Notes: <ol style="list-style-type: none">1. Specify and order sensor well separately.2. 20 ft. / 6.1m maximum probe length.3. Not available with /H3 Process Temperature Option.
/SW2	5/8" OD Probe for Insertion into 3/4" Sch. 40 or Sch. 80 Sensor Well Notes: <ol style="list-style-type: none">1. Specify and order sensor well separately.2. 30 ft. / 9.1 m maximum probe length.
/SW3	1/2" OD Flexible Probe for insertion into 5/8" OD x 0.49" wall Sensor Well Notes: <ol style="list-style-type: none">1. Max 300°F / 149°C @ 1 hour Clean.2. 15 ft. / 4.5 m maximum probe length.3. Available with /S6 probe material only.4. Not suitable for explosion proof service.5. Probe is not hermetically sealed. For use in conditioned (non-condensing) indoor locations only.6. Not available with H3 process temperature option.

/e Process Temperature Options

/H0	170°F / 77°C Maximum; Top of transmitter is 8" / 20 cm above tank nozzle
/H1	250°F / 121°C Maximum; Top of transmitter is 16" / 40.6 cm above tank nozzle
/H2	450°F / 232°C Maximum; Top of transmitter is 26" / 66 cm above tank nozzle
/H3	800°F / 427°C Maximum; Top of transmitter is 26" / 66 cm above tank nozzle Note: 15 ft. / 4.5 m maximum probe length

ORDERING INFORMATION:

/f Electronic Module With 1 ea. Analog Output:

- /X None
- /M1 One level
- /M2 One level, LCD indicator
Add "S" suffix to module option for 20 Segment Strapping Table
- /M3 One level, HART Protocol
- /M4A One level, LCD indicator, HART, Honeywell DE Protocol, or Foundation Fieldbus
Default is HART
Add "D" suffix to module option for Honeywell DE (class 0 support)
Add "F" suffix to module option for Foundation Fieldbus ITK 4.01 compliant
Add "S" suffix to module option for 20 Segment Strapping Table (not available with "D" suffix)
- /M4B Two levels, LCD indicator, HART or Honeywell DE Protocol
Default is HART
Add "D" suffix to module option for Honeywell DE (class 0 support)
Add "F" suffix to module option for Foundation Fieldbus ITK 4.01 compliant
Add "S" suffix to module option for 20 Segment Strapping Table (not available with "D" suffix)
- /M5A One level, one temperature point, LCD indicator, HART Protocol
Note: Not available with HP, H3, SW1 or SW3 options.
- /M5B Two levels, one temperature point, LCD indicator, HART Protocol
Note: Not available with HP, H3, SW1 or SW3 options.



/g Second Analog Output (Hart protocol only)

- /X None
- /RI Second electronic module with 1 ea. Analog output and LCD indicator
Notes: 1. M1, M2 & M3 not available
2. Analog output field selectable to any of the two levels or temperature
3. Housing type will be same as primary transmitter housing (/c above).

/h Approvals:

- /FM Factory Mutual and Canadian Standard Association (CSA)
- /CEX ATEX Flameproof, NEPSI
- /CEI ATEX I.S., NEPSI



/i Process Connection

- /X None; use with /SW1, /SW2 and /SW3 probe types
- /CF Standard adjustable compression 3/4" MNPT
Note: 1. 1" MNPT with /F1 and /F2 probe types.
- /FL Loose flange or plug for use with compression fitting (specify type, material & rating from FLNG-0202-1 Flange Designation Chart)
- /WP Welded process connection (specify type, material and rating from FLNG-0202-1 Flange Designation Chart)



/j Float Type

- /X None
Note: 1. Use this selection with /SW1, /SW2, & /SW3 probe types
- /Fnn Selection from Standard Float Chart (FLT-0202-1) or specify /FXX for custom float

/k Length

- /L Specify inserted length from top of tank nozzle in inches or millimeters or meters
Consult factory for ML, L1 & L2. There is an unusable range of 2.5 inches minimum (12" for /F1) at the bottom of the sensing tube (which can be reduced depending upon float dimensions). The unusable range at the top is affected by the float dimensions.

NOTE: Consult factory for special application requirements.

Available Accessories:

M20 ISO FITTING: M20 Female Electrical Connection

