High accuracy
liquid level and interface
level detection
K-TEK Level Products

Measurement made easy
### Specifications

**Electronic transmitter:**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeatability</td>
<td>0.005% of Full Scale or +/- 0.015&quot; (0.381mm), whichever is greater</td>
</tr>
<tr>
<td>Non-linearity</td>
<td>0.01% of Full Scale or +/- 0.035&quot; (0.889), whichever is greater</td>
</tr>
<tr>
<td>Measuring accuracy</td>
<td>0.01% of Full Scale or +/- 0.050&quot; (1.27mm), whichever is greater¹</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>13.5 to 36 Vdc - 4-20mA HART loop powered</td>
</tr>
<tr>
<td></td>
<td>9 to 32 Vdc - FOUNDATION Fieldbus</td>
</tr>
<tr>
<td>Output/Communications</td>
<td>4-20 mA HART</td>
</tr>
<tr>
<td></td>
<td>- Certified SIL 2/3 Capable IEC 61508</td>
</tr>
<tr>
<td></td>
<td>- NE43</td>
</tr>
<tr>
<td></td>
<td>- FOUNDATION Fieldbus</td>
</tr>
<tr>
<td></td>
<td>- ITK 5.1.0 Compliant</td>
</tr>
<tr>
<td></td>
<td>- 5 AI and 1 PID blocks</td>
</tr>
<tr>
<td></td>
<td>- 15.8 mA Quiescent Current Draw</td>
</tr>
<tr>
<td></td>
<td>- LAS Capable</td>
</tr>
<tr>
<td>Power consumption</td>
<td>4-20mA at 36.0 Vdc - 3.6mA 0.13 watts; 21mA 0.76 watts</td>
</tr>
<tr>
<td></td>
<td>at 13.5 Vdc - 3.6mA 0.046 watts; 21mA 0.28 watts</td>
</tr>
<tr>
<td></td>
<td>HART mode (4.0mA) at 36.0 Vdc 0.144 watts</td>
</tr>
<tr>
<td></td>
<td>at 13.5 Vdc 0.054 watts</td>
</tr>
<tr>
<td></td>
<td>FOUNDATION Fieldbus 0.5 watts maximum</td>
</tr>
<tr>
<td>Maximum line resistance</td>
<td>4-20mA at 36.0 Vdc and 21mA, 1740 ohms*</td>
</tr>
<tr>
<td></td>
<td>*Maximum with HART communication is 700 ohms at 13.5 Vdc and 21mA, 645 ohms</td>
</tr>
<tr>
<td></td>
<td>HART mode (4.0mA) &lt; 650 to 700 ohms</td>
</tr>
<tr>
<td></td>
<td>FOUNDATION Fieldbus 43.6 ohms/km @ 20°C</td>
</tr>
<tr>
<td>Reverse polarity protection</td>
<td>Diode in series with loop</td>
</tr>
<tr>
<td>Update rate</td>
<td>10 measurements per second</td>
</tr>
<tr>
<td>Damping</td>
<td>Field Adjustable, Range: 0.1 to 36 seconds</td>
</tr>
<tr>
<td>Alarm output</td>
<td>NE43, Jumper Selectable Upscale (21 mA) or Downscale (3.6 mA)</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-40 to 170°F (-40 to 76.6°C) Ambient²</td>
</tr>
<tr>
<td>Humidity</td>
<td>0 to 100% RH, Non-Condensing</td>
</tr>
<tr>
<td>Linearization</td>
<td>20 Point Strapping Table Available</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Dual Compartment</td>
</tr>
<tr>
<td>Enclosure material</td>
<td>Cast Low Copper Aluminum with Polyester Powder Coat or 316 Stainless Steel</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>1/2&quot; FNPT, M20 Adapter and Bus Connectors Available</td>
</tr>
<tr>
<td>Ingress protection</td>
<td>IP66, NEMA 4X</td>
</tr>
<tr>
<td>Sensor tube:</td>
<td>316L Stainless Steel</td>
</tr>
<tr>
<td>Standard probe length</td>
<td>1 to 50 feet (304.8mm to 15.24m); 90 degree probes 1 to 25 feet (304.8mm to 7.62m)</td>
</tr>
<tr>
<td>Mounting</td>
<td>Stainless Steel Clamps for KM26 Magnetic Level Gauge Chamber Included; Optional Vibration Isolation Mounts</td>
</tr>
</tbody>
</table>

¹ Measurement accuracy is recorded at factory ambient conditions (75°F +/-10°) using a calibration magnet. Accuracy may be further influenced by other factors such as float hysteresis, installation, process conditions and ambient conditions.

² Some agency approvals may differ.
**Notes:**
1. If ambient temperatures are also below 32°F (0°C), then an “L” transmitter selection can be used.
2. The IW sensor is preferred for cryogenic insulated chambers. To use this option, chamber top must be dome or flat cap.
3. Cryogenic insulation recommended at these process temperatures.
4. Maximum probe length on L9 and L9C probes is 25 ft.

**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 on the wire. This torsional wave 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.
## Base Model

### AT200 External Mount Magnetostrictive Transmitter

<table>
<thead>
<tr>
<th>AT200 External Mount Magnetostrictive Transmitter</th>
<th>AT200.</th>
<th>xx(x)</th>
<th>x(xx)</th>
<th>x</th>
<th>xx</th>
<th>xxx(xxx)</th>
</tr>
</thead>
</table>

### Mounting

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

### Transmitter Configuration

- Standard Local Transmitter Housing L
  
  **Note:** Process temperatures up to 200°F (93.3°C) with no insulation. With insulation pad or chamber insulation, 500°F (260°C)

- Transmitter Housing Mounted to Extended Sensing Tube with 90°, 3 in. Radius Bend L9
  
  **Note:** 25 ft maximum probe length

- Offset Transmitter with Vapor Seal for Service Below Ambient C
  
  **Note:** 25 ft maximum probe length

- Offset Transmitter with Vapor Seal for Service Below Ambient Freezing with Tee and Extension L9C

### Transmitter Housing

- Standard Dual Compartment Aluminum Housing A
- Dual Compartment 316 Stainless Steel Housing S

### Probe Type

- Standard Rigid Probe, 5/8” OD R1
- High Temperature Probe, Process Temperatures above 500°F (260°C) H2
- Insulation Well, Allows Insertion and Removal of the Probe when Mounted to Cryogenic Insulated Level Gauge IW
  
  **Note:** This is the preferred mounting configuration for cryogenic service if there is no flange on the top of the KM26.

### Electronic module

**4-20mA HART**

- One Level, LCD Indicator, 4-20 mA HART Output M4A
- Two Levels, LCD Indicator, 4-20 mA HART Output M4B
- One Level, LCD Indicator, 4-20 mA HART Output, 20 point Strapping Table M4AS
- Two Levels, LCD Indicator, 4-20 mA HART Output, 20 point Strapping Table M4BS

**FOUNDATION Fieldbus**

- One Level, LCD Indicator, FOUNDATION Fieldbus Output M4AF
- Two Levels, LCD Indicator, FOUNDATION Fieldbus Output M4BF

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Model codes continue and option codes start on the following page.
### AT200 External Mount Magnetostrictive Transmitter Additional Option Codes

#### Accessories

**Valve Position Transmitter Option (required for positioning applications)**  
Valve actuator dimensions, size and type must be supplied with order.

**Valve Positioning Magnet Assembly with Valve Stem Bracket (required for positioning applications).**  
Custom valve positioning magnet assembly with valve stem bracket. Valve type, size, actuator type, & size, valve stem OD and stroke length must be supplied with order.

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**Example:** Installation: AT200 Valve Position Transmitter and Hydraulic Control Valve
Enclosures

Top Mount - Local

NOTE: N1, N2, N3 Approvals Require Additional .75" for plug.
Top Mount - L9 Extension (also w/H2 wire)

NOTE: N1, N2, N3 Approvals Require Additional .75" for plug.

Bottom Mount - Local

NOTE: N1, N2, N3 Approvals Require Additional .75" for plug.
Top Mount w/cryogenic w/insertion well

NOTE: N1, N2, N3 Approvals Require Additional .75" for plug.

Bottom Mount - L9 Extension (also w/H2 wire)

NOTE: N1, N2, N3 Approvals Require Additional .75" for plug.
Top Mount w/cryogenic L9C extension

Bottom Mount w/cryogenic L9C extension

NOTE: N1, N2, N3 Approvals Require Additional .75" for plug.

Note N1, N2 N3 Approvals Require Additional .75" for plug.
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