The Probe is a short-range integrated ultrasonic level transmitter, ideal for liquids and slurries in open or closed vessels.

**Benefits**
- Easy to install, program and maintain
- Accurate and reliable
- Sanitary models available
- Patented Sonic Intelligence echo processing
- Integral temperature compensation

**Application**
The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications. The Probe is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries.

The reliability of the level data is based on the Sonic Intelligence echo processing algorithms. A filter discriminates between the true echo and false echoes from acoustic or electrical noises and agitator blades in motion. The ultrasonic pulse propagation time to the material and back is temperature-compensated and converted into distance for display, analog output and relay actuation.

- Key Applications: chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications

**Configuration**

**Parabolic mounting**

**Flat mounting and beam angle**

The Probe mounting
## Level measurement

### Continuous level measurement — Ultrasonic transmitters

#### The Probe

**Technical specifications**

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<th>Three-wire version</th>
<th>Two-wire version (standard)</th>
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<td>Ultrasonic level measurement</td>
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<td><strong>Input</strong></td>
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<td>0.25 ... 8 m (0.8 ... 26.25 ft)</td>
<td>0.25 ... 5 m (0.8 ... 16.4 ft)</td>
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<tr>
<td><strong>Output</strong></td>
<td></td>
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<tr>
<td>mA</td>
<td>4 ... 20 mA</td>
<td>4 ... 20 mA</td>
</tr>
<tr>
<td>- Span</td>
<td>Proportional/inversely proportional</td>
<td>Proportional/inversely proportional</td>
</tr>
<tr>
<td>- Max. load</td>
<td>750 Ω at 24 V DC</td>
<td>600 Ω in the loop at 24 V DC</td>
</tr>
<tr>
<td>• Relay</td>
<td>For level alarm or fault</td>
<td>No</td>
</tr>
</tbody>
</table>

**Power supply**

- **Supply voltage**: 18 ... 30 V DC, max. 0.2 A, 12 ... 28 V DC, 0.1 A surge
- **Max. power consumption**: 5 W (200 mA at 24 V DC), 0.75 W (25 mA at 24 V DC)

**Certificates and approvals**

- CE, C-TICK, CSA, FM
- CE, C-TICK, CSA, FM

**Accuracy**

- **Error in measurement**: 0.25 % of measuring range (in air)
- **Resolution**: 3 mm (0.125 inch)
- **Temperature compensation**: Built in
- **Echo processing**: Sonic Intelligence

**Rated operation conditions**

- **Beam angle**: 12°
- **Ambient temperature**
  - Standard: -40 ... +60 °C (-40 ... +140 °F)
  - Metallic mounting: -20 ... +60 °C (-4 ... +140 °F)
- **Max. static operating pressure**: Normal atmospheric pressure
- **Degree of protection**: IP65

**Design**

- **Weight**
  - Without flange adapter: 1.5 kg (3.3 lb)
  - With flange adapter: 1.7 kg (3.7 lb)
- **Material**
  - Electronics enclosure: PVC
  - Transducer: PVDF copolymer
- **Degree of protection**
  - NPT (Taper), ANSI/ASME B1.20.1: IP65
  - BSPT, EN 10226: IP65
  - ISO 228-1: IP65
  - Sanitary: IP65
- **Process connection**
  - 2" NPT (Taper), ANSI/ASME B1.20.1: R 2" (BSPT), EN 10226 or G 2" (BSPP), EN ISO 228-1
  - Universal, fits DN 65, PN 10 and 3" ASME: 4" sanitary
- **Flange adapter**
  - 3" Universal, fits DN 65, PN 10 and 3" ASME: 4" sanitary
- **Cable inlet**: 2 inlets for PG 13.5 or ¼" NPT cable glands

**Selection and Ordering data**

**Selection and Ordering data**

### Order code

| The Probe | 7ML1201-0 0 |
| Measuring range | 3 m (9.84 ft) |
| 5 m (16.40 ft) |
| 8 m (26.25 ft) |
| Transducer/Process connection | PVDF copolymer, 2" NPT [(Taper), ANSI/ASME B1.20.1] |
| | PVDF copolymer, R 2" [(BSPT), EN 10226] |
| | PVDF copolymer, G 2" [(BSPP), EN ISO 228-1] |
| | PVDF copolymer, 4" Sanitary mounting |
| Model/Approval | 3 Wire, 24 V DC, CE, C-TICK, CSA, FM |
| | 2 Wire, 24 V DC, CE, C-TICK, CSA |
| | 2 Wire, IS, ATEX, CSA, FM |

1) Not available with model option K or 8M Measurement Range

2) Available with 3M or 5M Measuring Range Only
Continuous level measurement — Ultrasonic transmitters

The Probe

Options

- Flange adapter for mating 2” NPT or 2” BSP process connections to 3” ANSI, DN 65 PN10, and JIS 10K 3B flanges
- 148.8 (5.86) bolt hole circle diameter
- 190.2 (7.49) diameter

The Probe Optional Flange Adapter, dimensions in mm (inch)

- The probe with FMS 200 mounting bracket

The Probe with Optional Mounting Bracket

Schematics

- 3 wire model (standard and sanitary models)
  - mA output: 4 ... 20 mA, non-isolated, 750 ohms max.
  - Power supply: 24V
  - Connect to protective earth
  - Relays: dry contact, closed, unpowered or alarm state

- 2 wire model (standard and sanitary models)
  - Loop instrumentation: $R_{\text{loop}} = \frac{V_{\text{supply}} - 12 \text{ V}}{20 \text{ mA}}$
  - Connection diagram formA

- Display
  - Program mode
  - Segment display
  - LOE/fault status
  - Units

- Dimensional drawings

Standard model

- 84 (3.3) max.
- 87 (3.4) Ø
- 61 (2.4) i
- 117 (4.6)
- 74 (2.9)
- 279 (11)

Sanitary model

- 84 (3.3) max.
- 87 (3.4) Ø
- 61 (2.4) i
- 117 (4.6)
- 74 (2.9)
- 279 (11)

The Probe, dimensions in mm (inch)