Submersible Liquid Level Transmitters
Type LS-10, LH-10

Applications
- Level measurement in water and wastewater treatment plants, wells, holding tanks, wet wells, rivers

Special Features
- Ranges from 50 InWC to 400 psi
- Rated IP 68 for permanent submersion
- Hastelloy® case available for aggressive media
- 4-20 mA 2-wire output signal, others available
- Lightning protection available
- Cable supports over 220 pounds of strain

The LS-10 liquid level transmitter is designed for economical and reliable performance in a wide variety of level measurement applications. The LS-10 provides a signal output of 4-20mA and an accuracy of 0.25% of span. Standard stocked pressure ranges are assembled with any length cable for fast delivery.

The high performance Type LH-10 provides 0.125% accuracy and is available with many custom features for special requirements. LH-10 options include lightning protection, temperature measurement, special output signals, plus FEP cable and Hastelloy® construction for aggressive media.

The LH-10 is available with a low power 0.5-2.5V output signal and 5VDC supply voltage. This is ideal for solar or battery powered installations.

The LH-10 includes a dual cable entry design that prevents ingress of moisture into the electronics even if the cable is damaged. Both types feature watertight vented cable that can withstand over 220 pounds of strain. This allows the transmitter to be supported without any additional cabling.

Compensation for atmospheric pressure changes is accomplished through a vent tube in the cable. Many accessories, including cable clamps, desiccant drying cartridges, additional weights, and junction boxes are available for specific installation requirements. Both models can be equipped with the LevelGuard attachment for protection in difficult environments.
## Specifications

<table>
<thead>
<tr>
<th>Pressure ranges</th>
<th>Type LS-10 / LH-10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LS-10 or LH-10 pressure ranges</strong></td>
<td><strong>Type LS-10</strong></td>
</tr>
<tr>
<td>100 InWC</td>
<td>150 InWC</td>
</tr>
<tr>
<td>Maximum pressure*</td>
<td>30 psi</td>
</tr>
<tr>
<td>Burst pressure**</td>
<td>35 psi</td>
</tr>
<tr>
<td><strong>LH-10 pressure ranges</strong></td>
<td>50 InWC</td>
</tr>
<tr>
<td>Maximum pressure*</td>
<td>14 psi</td>
</tr>
<tr>
<td>Burst pressure**</td>
<td>29 psi</td>
</tr>
</tbody>
</table>

* Maximum range for LH-10 with FEP cable is 150 psi

### Materials

- **Body**: Stainless steel / [Hastelloy ®]
- **Pressure connection and diaphragm**: Stainless steel / [Hastelloy ®]
- **Protective cap**: PA / PA / [Stainless steel] / [Hastelloy ®]
- **Cable**: PUR (polyurethane) / PUR / [FEP, to 150 psi maximum]

### Power supply

- **Output signal**: 4 ... 20 mA, 2-wire
  - **DC V**: 10 < U_b ≤ 30
  - For battery powered operation:
    - 0 ... 20 mA, 3-wire
      - 0 ... 5 V, 3-wire
      - 0 ... 10 V, 3-wire
      - 0.5 ... 2.5 V, 3-wire
      - for battery powered operation: [Pt 100, 4-wire; IEC 60751]
  - Other signal outputs on request

### Output signal

- **Pt 100 RTD temperature sensor**
  - **I max mA**: Not available
  - **I mess mA**: Not available

### Performance

- **Maximum load**
  - **R_a**: \( < (U_b - 10V) / 0.02A - (0.043 \text{ Ohm} \times \text{cable length in feet}) \)
  - **R_a > 100 kOhm**

### Accuracy

- **% of span**: ≤ 0.25% (BFSL) / ≤ 0.125% (BFSL)
- **% of span**: ≤ 0.5% (limit point calibration) / ≤ 0.25% (limit point calibration)

### Temperature Range

- **Medium**: +14 ... +122 °F / -10 ... +50 °C
- **Storage**: -22 ... +176 °F / -30 ... +80 °C

### Temperature Coefficients (TC)

- **Mean TC of zero**: ≤ 0.2 / 10 K / (≤ 0.4 for 50 InWC)
- **Mean TC of range**: ≤ 0.2 / 10 K / (≤ 0.4 for 50 InWC)
Specifications | Type LS-10 / LH-10
---|---
CE-conformity | 2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and
Immunity (industrial locations)
Wiring protection | Protected against reverse polarity, overvoltage and short circuiting
on the instrument side
[Lightning protection EN 61000-4-5; 1.5J]
Weight | 
- Level transmitter | lb | Approx. 0.4
- Cable | oz per foot | yellow | Approx. 1.0
- Additional weight | lb | Approx. 1.1

Items in curved brackets ( ) are optional extras for additional price.

Dimensions in inches (mm) - Ingress Protection NEMA 6P (IP 68 per IEC 60 529)

<table>
<thead>
<tr>
<th>LS -10</th>
<th>LH-10 with PUR-cable</th>
<th>LH-10 with FEP-cable *)</th>
<th>LH-10 with FEP-cable **</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Immersion depth up to 325 ft /100 m)</td>
<td>(Immersion depth up to 1000 ft / 300 m)</td>
<td>(Immersion depth up to 325 ft / 100 m)</td>
<td>(Immersion depth up to 325 ft / 100 m) {Hastelloy}</td>
</tr>
</tbody>
</table>

No additional support is required for installation as the cable can withstand over 220 lbs of strain (110 lbs for FEP cable)

*) FEP-cable and lightning protection EN 61000-4-5; 1,2J on request

100 mm = 3.937 inches

Wiring

Vented PUR-cable tensile strength 220 Lbs (110 lbs with FEP-cable)

<table>
<thead>
<tr>
<th>2-wire</th>
<th>3-wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>UB+/Sig+</td>
<td>brown (1)</td>
</tr>
<tr>
<td>green (2)</td>
<td></td>
</tr>
<tr>
<td>0V/Sig- shield - blue</td>
<td></td>
</tr>
</tbody>
</table>

Pt 100 RTD temperature sensor

Legend:

- **power supply**
- UB+ power supply positive
- 0V power supply negative
- **load (e.g. display)**
- Sig- output signal negative
Specifications and dimensions given in this data sheet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.

**Vent tube filter**  Part # 7193131  
The optional Teflon® vent tube filter protects the vent opening and prevents the entry of dirt and moisture.

**Cable junction box**  Part # 2459686  
The cable junction box is rated NEMA 4 / IP 67 and is suitable for mounting outside tanks or shafts or inside dry control boxes. Can be wall or DIN rail mounted.

**Cable clamp**  Part # 2074257  
The cable clamp secures the cable without bending or kinking that can damage the cable vent tube or outer jacket.

**Additional weight**  Part # 1524399  
The additional weight replaces the protective cap and helps to stabilize the transmitter in turbulent conditions. Weight: approximately 1.1 lb, 316 SS.

**Desiccant drying cartridge**  part # 9836700  
The desiccant drying cartridge helps prevent moisture buildup inside the vent tube.

**NPT adapter**  Part # 1631322  
The 316 SS G1/2 adapter replaces the removable protective cap and converts the threads to 1/2"NPT male external, 1/4" female internal threads. Includes O-ring.

**Conduit adapter**  Part # 50476114  
316 SS 1/2" NPT male cable conduit adapter. Must be factory installed.

**LevelGuard Anti-clog attachment**  Part # 50077091  
The stainless steel LevelGuard attachment must be factory installed and calibrated.