OPTICAL LIQUID-LEVEL SENSOR

LV170 Series

Compact—Fits Interstitial Spaces
Unaffected by Vapors, Even at High Concentrations
Easily Removed, Cleaned, and Reinstalled
No Moving Parts

The LV170 optical liquid sensor accurately detects the presence of liquid in fiberglass double-wall tanks, containment sumps, and double-wall pipes. Built-in electronic switching ensures dependability throughout its long service life. This reusable sensor easily fits small, interstitial spaces and senses liquid hydrocarbons or water. The unit is unaffected by hydrocarbon vapors, thereby greatly reducing the risk of false alarms. The LV170 sensor is easy to remove, clean, and reinstall after an alarm condition is triggered, or for maintenance.

The LV170 electro-optical sensor contains an infrared LED and a light receiver. Continuous light from the LED is directed into a prism that forms the tip of the sensor. If no liquid is present, light from the LED is reflected within the prism to the receiver. When rising liquid immerses the prism, the light is refracted out into the liquid, leaving little or no light to reach the receiver. Sensing this change, the receiver actuates electronic switching within the unit to operate an external alarm or control circuit.

Note: The LV170 sensor is a non-voltage-producing device and does not contain energy storing components. However, because primary use is in hazardous locations, an appropriate intrinsically safe interface device is required for its use.
VMAX ≥ VOC (Barrier)
IMAX ≥ ISC (Barrier)
CI + Ccable ≤ C (Barrier)
LI + L cable ≤ L (Barrier)

Definitions:
VOC = Maximum Open Circuit Voltage
ISC = Maximum Short Circuit Current
CI = Internal Capacitance
LI = Internal Inductance

SPECIFICATIONS
Wetted Materials:
Polysulfone, PVC, epoxy
Operating Temperature:
-17.8 to 80°C (0 to 176°F)
Current Consumption:
Approximately 18 mA
Output: TTL/CMOS compatible; may sink up to 40 mA
Cable: 3-conductor PVC jacketed [7.6 m (25') extended]
Approvals: UL for Class I, Group D Hazardous Locations
Weight: 340 g (0.75 lb)
Maximum Pressure: 150 psig

To Order
Model No. | Output Conditions
--- | ---
LV171 | Wet probe = current sink
LV172 | Dry probe = current sink

Comes complete with 7.6 m (25'), 3-conductor PVC jacketed cable and operator’s manual.

Ordering Example: LV171, wet probe sensor.

Electrical Parameters
Entity Parameters for 10 to 28 Vdc Input

<table>
<thead>
<tr>
<th>Terminal</th>
<th>VMAX</th>
<th>I_MAX</th>
<th>C</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red/Black</td>
<td>38V</td>
<td>150 mA</td>
<td>0.052 µf</td>
<td>0</td>
</tr>
<tr>
<td>White/Black</td>
<td>38V</td>
<td>150 mA</td>
<td>0.052 µf</td>
<td>0</td>
</tr>
</tbody>
</table>

V_MAX ≥ V_OC (Barrier)
I_MAX ≥ I_OC (Barrier)
C_I + C_cable ≤ C (Barrier)
L_I + L_cable ≤ L (Barrier)

VOC = Maximum Open Circuit Voltage
I_OC = Maximum Short Circuit Current
C_I = Internal Capacitance
L_I = Internal Inductance

Typical Wiring Diagram

Zener Barrier*
DC Power Supply
Output
Red
Earth Ground
Black

* Source voltage not greater than 250 Vac. Zener barriers must be installed in accordance with barrier manufacturer’s instructions.