ESP Capacitive Proximity Sensor

ESP Capacitive Proximity Sensors are 2-wire, capacitive sensors that can detect most liquids through non-metallic tanks. For Installation, Wiring and Calibration, refer to these instructions.

Installation

1. Securely mount ESP directly against the plastic tank wall (maximum of 1" [25mm] thick). Ensure you have access for calibration on opposite side.
   - ESP will not detect objects through metal tank walls. Do not mount within 2" (50mm) of any metal object.
   - ESP Nuts Maximum Torque Limits - 5.5ft.lbs (7.5Nm)
2. Connect ESP to a load that is within the Output max load and min load limits. See ESP Specifications table for details.
3. Continue to page 2.

Caution

Do not connect ESP directly to power or to any load outside the min and max load limits; this will cause malfunction or irreparable damage.

ESP Specifications

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Capacitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Rating</td>
<td>IP67 Nema 3,4,6</td>
</tr>
<tr>
<td>Ambient Operating Temp*</td>
<td>-25° to +80°C, -13° to +176°F</td>
</tr>
<tr>
<td>Ambient Temp Drift</td>
<td>≤10% Variation</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Adjustable</td>
</tr>
<tr>
<td>Housing Diameter</td>
<td>30mm (1.18&quot;)</td>
</tr>
<tr>
<td>Effective Max Detecting Distance (std. target)</td>
<td>4–25mm (0.16–0.98&quot;)</td>
</tr>
<tr>
<td>Detectable Object Type</td>
<td>Metallic/ Non-metallic</td>
</tr>
<tr>
<td>Hysteresis Detecting Distance</td>
<td>4–20%</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>20–250VAC, 50–60Hz C/DC</td>
</tr>
<tr>
<td>Current Consumption</td>
<td>≤2.5mA max @ 240VAC</td>
</tr>
</tbody>
</table>

Output (Control Action N/O or N/C, Field Selectable)

<table>
<thead>
<tr>
<th>max load</th>
<th>350mA AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>min load</td>
<td>250mA DC</td>
</tr>
<tr>
<td>max leakage current</td>
<td>≤ 2.5mA@ 240VAC</td>
</tr>
<tr>
<td>max on-state voltage drop</td>
<td>≤ 10VAC @ ≥ 20mA</td>
</tr>
</tbody>
</table>

Operating Frequency 25Hz

Output Short Circuit Protection Not Provided

Immunity

- Weld Field Provided
- RFI Provided
- Red LED

Housing Materials Polyester

Mounting Block Acetal

Cable Jacket Vinyl

Mounting Bracket Included

Connections Prewired 2m (6.5 ft), two conductor cable

Approx. Weight (w/cable) 150g (4.5oz)

*ESP must be cooled if the surrounding temperature exceeds 176°F (80°C).

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6. Fill the tank with liquid so that the level is at least \(\frac{1}{2}\)" above the bottom of the sensor face. LED should turn on.

7. Rotate sensitivity adjustment screw counterclockwise until LED turns off.

8. Slowly turn the sensitivity adjustment screw clockwise until LED turns on again. Then, rotate the screw \(\frac{1}{2}\) turn further clockwise.

9. Remove liquid from in front of the sensor face. LED should turn off at this point. If not, consult factory. Do not operate ESP if switching operation is not stable. Ideally, sensitivity screw will have 1½ complete revolutions between switch states (normally open-to-closed, or normally closed-to-open). This setting provides a buffer for sensitivity drift due to environmental factors. Periodic testing/calibration is recommended for proper operation.

Surge Protection
ESP circuitry is EMI and surge resistant.
- In cases where very large EMI or surge conditions exist, additional protection may be required.
- If power lines are routed with ESP sensor wires, install either shielded sensor wire or metallic conduit to prevent inductive coupling.
- ESP and its associated circuitry installation must be in accordance with the National Electric Code and other pertinent local codes or industry standards. Failure in compliance can result in hazardous conditions to life.

Contact Information
U.S./Canada: (800) 621-1998
7010 Lindsay Dr.
Mentor, OH 44060 U.S.A.
Phone: (440) 974-1300
Fax: (440) 974-9561

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