**DATA SHEET**

**Liquid Level Switches**

**Optomax Industrial Series**

**FEATURES**
- Liquid level switches that can detect almost any liquid type; oil or water based
- Choice of material; Polysulfone (standard) or Trogamid®
- Choice of threads
- Switch when wet or dry options available
- Protected against damage from transient and reverse polarity voltages

### TECHNICAL SPECIFICATIONS

- **Supply voltage (Vs)**
  - 4.5VDC to 15.4VDC
  - 8VDC to 30VDC
- **Supply current (Is)**
  - 2.5mA max. (Vs = 15.4VDC)
  - 7.5mA max. (Vs = 30VDC)
- **Operating temperatures**
  - Standard: -25°C to +80°C
  - Extended: -40°C to +125°C
- **Storage temperatures**
  - Standard: -30°C to +85°C
  - Extended: -40°C to +125°C
- **Housing material**
  - Polysulfone or Trogamid®
- **Switch termination**
  - 20AWG, 250mm PVDF wires, or 22AWG PVC cable.

### BENEFITS
- High Power
- Industrial Supply Voltage
- Direct load driven design
- Intelligent switching
- High Temperature

### APPLICATIONS
- Valve / Pump control
- Leak detection
- Tank level control; fill/empty
- Overfill protection
- Sump level switching

### OUTPUT VALUES
- **Output Voltage (Vout):**
  - lout = 1A
  - Vs = 4.5—15.4VDC
  - Output High
  - Vout = Vs - 1.5V max
  - Output Low
  - Vout = 0V + 0.5V max
- **Output Voltage (Vout):**
  - lout = 1A
  - Vs = 8—30VDC
  - Output High
  - Vout = Vs - 1.8V max
  - Output Low
  - Vout = 0V + 0.7V max
- **Output Current (Iout):**
  - 1A max<sup>6</sup>

### NOTES

- Before use check that the fluid in which you wish to use these devices is compatible either with Polysulfone or Trogamid®. Some common fluids and compatibility can be found in SST’s Liquid Level Switches – Installation, Operation and Compatibility Guide (AN 0041).
- When using Trogamid® above +85°C some oil based liquids can cause deformation of the sensing tip, and must be tested for compatibility.
- Except on N-type with a 10kΩ internal resistor (-002).

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- **Output Current (Iout):**
  - 1A max<sup>6</sup>

Other sensor options available on request, email: technical@sstsensing.com

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Need help? Ask the expert
Tel: + 44 (0)1236 459 020
and ask for “Technical”
**OUTLINE DRAWING**

All dimensions shown in mm. Tolerances = ±1mm.

**HOUSING SPECIFICATIONS**

Installation drawings and 3D (.step) files available on the product webpage.

<table>
<thead>
<tr>
<th>Housing Type</th>
<th>Type 2</th>
<th>Type 6</th>
<th>Type 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thread</strong></td>
<td>M12x1x 8g</td>
<td>1/2&quot;-20 UNF&lt;sup&gt;e&lt;/sup&gt;</td>
<td>1/4&quot; NPT&lt;sup&gt;f&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Pressure</strong></td>
<td>20bar / 290 psi maximum</td>
<td>1.5 Nm / 13.26 in-lbs maximum</td>
<td></td>
</tr>
</tbody>
</table>

**ELECTRICAL INTERFACE**

<table>
<thead>
<tr>
<th>Wire</th>
<th>Cable</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red</td>
<td>Vs</td>
</tr>
<tr>
<td>Green</td>
<td>White</td>
<td>Output</td>
</tr>
<tr>
<td>Blue</td>
<td>Black</td>
<td>0V</td>
</tr>
</tbody>
</table>

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d) Recommended nuts and sealing accessories outlined within the Accessory Table.
e) Suitable for SAE-5 straight threaded port. Refer to SAE Standard J1926-1 (ISO 11926-1) for more information.
f) NPT version can be sealed with PTFE tape.
g) SST supplied M12 seal washer only suitable for low pressure environments (<7 bar). For higher pressure applications O-rings, PTFE tape or other sealing compounds are recommended. Customers should test in their application as required.
In order to suit any application, these sensors have been designed with various output circuit configurations. They are identified by the 3-digit code at the end of the part number as shown in Order Information.

![Circuit Diagrams]

**CAUTION:** Take care when connecting loads. The minimum load impedance should not be less than Vs/max output current.  
**Note:** Shorting the output to Vs or 0V will result in irreparable damage to the sensor.  
**Note:** Colours shown are for 3-wire version. See electrical interface table on page 2 for equivalent cable colours.
ORDER INFORMATION

Generate your specific part number using the convention shown below. Use only those letters and numbers that correspond to the sensor and output options you require — omit those you do not.

```
L L X X X 0 D 3 X X X - X X X - X X
```

**ACCESSORY TABLE**

<table>
<thead>
<tr>
<th>Thread</th>
<th>Housing Type</th>
<th>Accessory</th>
<th>Material</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td>2x0</td>
<td>Seal Washer</td>
<td>Nitrile</td>
<td>41000190-002</td>
</tr>
<tr>
<td>M12</td>
<td>2x0</td>
<td>Seal Washer</td>
<td>EPDM</td>
<td>41000190-003</td>
</tr>
<tr>
<td>M12</td>
<td>2x0</td>
<td>Seal Washer</td>
<td>VAMAC</td>
<td>41000190-004</td>
</tr>
<tr>
<td>M12</td>
<td>2x0</td>
<td>‘O’ Ring</td>
<td>As Required</td>
<td>Not Sold by SST</td>
</tr>
<tr>
<td>M12</td>
<td>2x0</td>
<td>Nut</td>
<td>Zinc-Plated Brass</td>
<td>LL-NUT-ZNC</td>
</tr>
<tr>
<td>M12</td>
<td>2x0</td>
<td>Nut</td>
<td>Stainless Steel</td>
<td>LL-NUT-STS</td>
</tr>
<tr>
<td>1/2” - 20 UNF</td>
<td>6x0</td>
<td>‘O’ Ring</td>
<td>As Required - See SAE J1926-1</td>
<td>Not Sold by SST</td>
</tr>
<tr>
<td>1/4” NPT</td>
<td>7x0</td>
<td>Sealing Tape</td>
<td>PTFE</td>
<td>Not Sold By SST</td>
</tr>
<tr>
<td>1/4” NPT</td>
<td>7x0</td>
<td>Sealing Compound</td>
<td>Sealing Compound must be compatible with housing material</td>
<td>Not Sold By SST</td>
</tr>
</tbody>
</table>

**CAUTION**

Do not exceed maximum ratings and ensure sensor(s) are operated in accordance with their requirements.

Carefully follow all wiring instructions. Incorrect wiring can cause permanent damage to the device.

SST Sensing Ltd recommend using alcohol based cleaning agents. Do NOT use chlorinated solvents such as trichloroethane as these are likely to attack the sensor material.

Failure to comply with these instructions may result in product damage.

**INFORMATION**

As customer applications are outside of SST Sensing Ltd.’s control, the information provided is given without legal responsibility. Customers should test under their own conditions to ensure that the equipment is suitable for their intended application. Before use, check that the fluid in which you wish to use these devices is compatible with Polysulfone or Trogamid®

For technical assistance or advice, please email: technical@sstsensing.com

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General Note: SST Sensing Ltd. reserves the right to make changes to product specifications without notice or liability. All information is subject to SST Sensing Ltd.’s own data and considered accurate at time of going to print.