

# DATA SHEET

## Liquid Level Switches

### Optomax Digital 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



<b>Housing/ Mounting</b> <ul style="list-style-type: none"><li>M10x1</li><li>M12x1</li><li>1/4" NPT</li><li>1/2"-20 UNF</li></ul>	<b>Output Type / Logic</b> <ul style="list-style-type: none"><li>PUSH PULL</li><li>HIGH IN AIR (1/0)</li><li>LOW IN AIR (0/1)</li><li>PWM</li></ul>	<b>Supply Voltage</b> <ul style="list-style-type: none"><li>4.5 - 15.4 V VOLTAGE</li></ul>	<b>Output Current</b> <ul style="list-style-type: none"><li>UP TO 100mA CURRENT</li></ul>	<b>Temp</b> <ul style="list-style-type: none"><li>-25°C to +80°C TEMPERATURE</li><li>-40°C to +125°C TEMPERATURE</li></ul>
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#### BENEFITS

- Low power
- Low cost
- Compact design

#### TECHNICAL SPECIFICATIONS

Supply voltage (Vs)	4.5V <sub>DC</sub> to 15.4V <sub>DC</sub> or 4.5V <sub>DC</sub> to 5.5V <sub>DC</sub> (PWM output)
Supply current (Is)	2.5mA max. (Vs = 15.4V <sub>DC</sub> )
Output sink and source current (Iout)	100mA
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 <sup>a, b</sup>	Polysulfone or Trogamid®
Sensor termination	24AWG, 250mm PTFE wires, 8mm tinned

#### OUTPUT VALUES

**Output Voltage<sup>c</sup> (Vout):** Iout = 100mA  
Output High Vout = Vs - 1.5V max  
Output Low Vout = 0V + 0.5V max

**PWM**  
Duty cycle in air 25% ± 10%  
Duty cycle in liquid 75% ± 10%  
Frequency 2kHz ± 10%

Other sensor options available on request, email: [technical@sstsensing.com](mailto:technical@sstsensing.com)

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

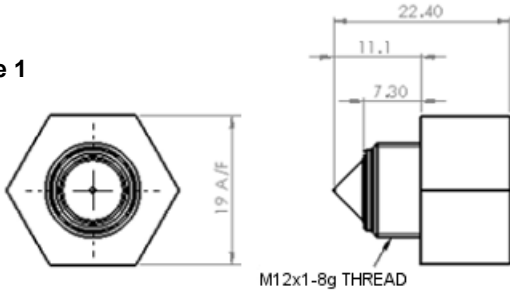


- Above +85°C, Trogamid is suitable for use in water based liquids. Oil based liquids can cause deformation of the sensing tip and must be tested for compatibility.
- Before use check that the fluid in which you wish to use these devices is compatible either with Polysulfone or Trogamid®.
- Voltages applicable to output value stated.

## OUTLINE DRAWING

All dimensions shown in mm. Tolerances =  $\pm 1$ mm.

**Type 1**



**Type 2**



**Type 3**



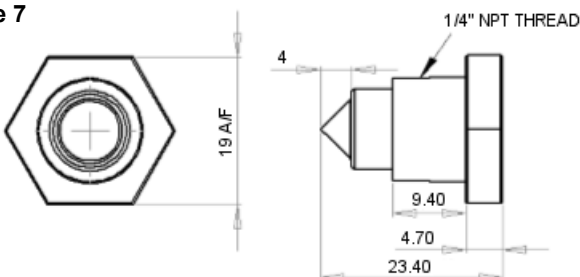
**Type 5**



**Type 6**



**Type 7**

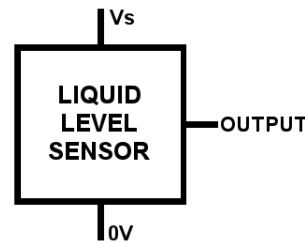


## HOUSING SPECIFICATIONS

	Housing Series		
	Type 1	Type 2	Type 3
Thread	M12x1-8g <sup>d</sup>		
Pressure <sup>g</sup>	7 bar / 101 psi maximum		
Tightening Torque	1.5 Nm / 13.26 in-lbs maximum		

	Housing Series		
	Type 5	Type 6	Type 7
Thread	M10x1	1/2"-20 UNF <sup>e</sup>	1/4" NPT <sup>f</sup>
Pressure <sup>g</sup>	20 bar / 209 psi max.	7 bar / 101 psi maximum	
Tightening Torque	1.5 Nm / 13.26 in-lbs maximum		

## ELECTRICAL INTERFACE



Wire	Designation
Red	Vs
Green	Output
Blue	0V



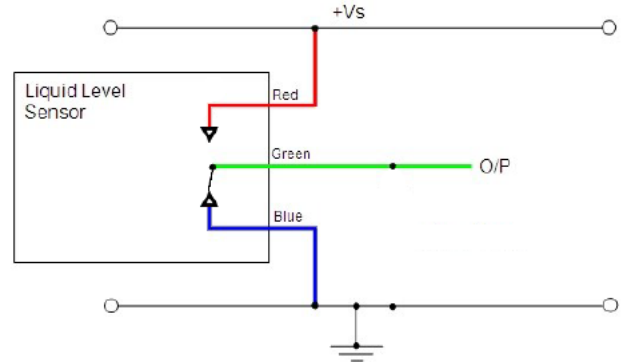
- d) Types 1, 2 and 3 can be sealed with washers and locknuts.
- e) Type 6 should be sealed with Parker 3-905 type o-ring.
- f) Type 7 should be sealed with PTFE tape.
- g) When correctly sealed.

In order to suit any application, these sensors have been designed with various output circuit configurations.

**Digital Output High in Air**



**Digital Output Low in Air**



**CAUTION:** Take care when connecting loads.

The minimum load impedance should not exceed  $V_s/\text{max output current}$ .

**Note:** Shorting the output to  $V_s$  or  $0V$  will result in irreparable damage to the sensor.

 **ORDER INFORMATION**

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

**Sensor mounted from inside vessel**

L L X X X 0 D 3 X

Housing Material	Housing Type	Operating Temp.	Output Logic
<b>C</b> Polysulfone	<b>3</b> Type 3 M12x1-8g	<b>0</b> -25 °C to +80°C	<b>Blank</b> Output High in air
<b>T</b> Trogamid®	<b>5</b> Type 5 M10x1	<b>1</b> -40 °C to +125°C	<b>L</b> Output Low in air
			<b>P</b> PWM output

**Sensor mounted from outside vessel**

L L X X X 0 D 3 X S H

Housing Material	Housing Type	Operating Temp.	Output Logic
<b>C</b> Polysulfone	<b>1</b> Type 1 M12x1-8g	<b>0</b> -25 °C to +80°C	<b>Blank</b> Output High in air
<b>T</b> Trogamid®	<b>2</b> Type 2 M12x1-8g	<b>1</b> -40 °C to +125°C	<b>L</b> Output Low in air
	<b>6</b> Type 6 1/2"-20 UNF		<b>P</b> PWM output
	<b>7</b> Type 7 1/4" NPT		

**Notes:**

- Type 3 and Type 5 sensors are mounted internally.
- Types 1, 2, 6 & 7 sensors are mounted externally.
- SH suffix applicable to Types 1, 2, 6 & 7 sensors only; omit from Type 3 and Type 5 sensor part numbers.

Please contact SST Sensing for details; email: [technical@sstsensing.com](mailto:technical@sstsensing.com)