

# 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 and terminal connections



#### Housing/ Mounting

M10x1

M12x1

1/4"  
NPT

1/2"  
SAE

#### Output Type / Logic



#### Supply Voltage

4.5 - 15.4 V  
VOLTAGE

#### Output Current

UP TO 100mA  
CURRENT

#### Temp

-25°C to  
+80°C  
TEMPERATURE

-40°C to  
+125°C  
TEMPERATURE

#### 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>1, 2</sup>	Polysulfone or Trogamid®
Sensor termination	24AWG, 250mm PTFE wires, 8mm tinned

#### OUTPUT VALUES

<b>Output Voltage<sup>3</sup> (Vout):</b>	<b>Iout = 100mA</b>
Output High	Vout = Vs - 1.5V max
Output Low	Vout = 0V + 0.5V max

<b>PWM</b>	
Duty cycle in air	25% ± 10%
Duty cycle in liquid	75% ± 10%
Frequency	2kHz ± 10%

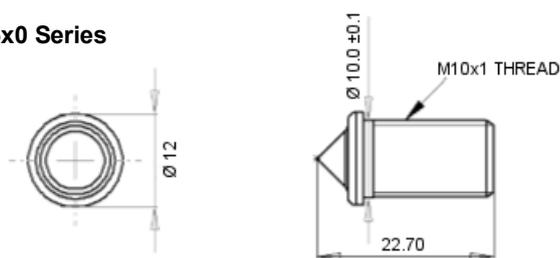


- 1) Above +85°C, Trogamid is suitable for use in water based liquids. Oil based liquids can cause deformation of the sensing tip and must be tested for compatibility.
- 2) Before use check that the fluid in which you wish to use these devices is compatible either with Polysulfone or Trogamid®.
- 3)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

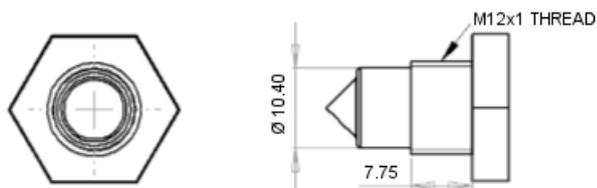
## OUTLINE DRAWING

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

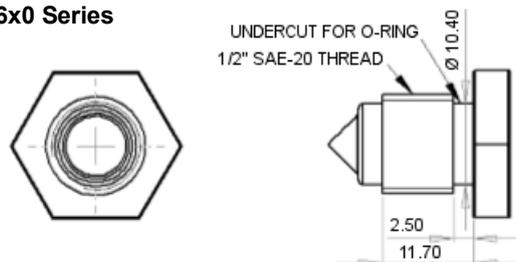
### LLx5x0 Series



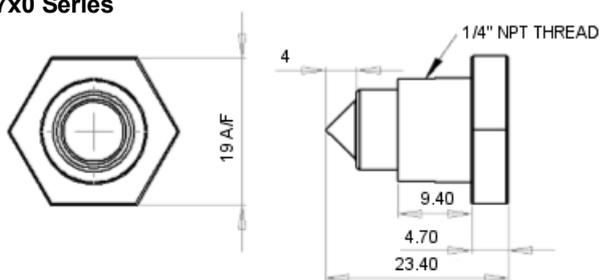
### LLx2x0 Series



### LLx6x0 Series



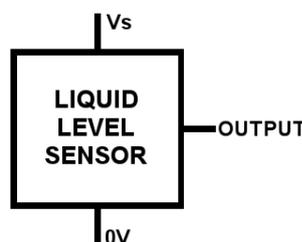
### LLx7x0 Series



## HOUSING SPECIFICATIONS

	Housing Series			
	5x0	2x0	6x0	7x0
Thread	M10x1	M12x1x8g with hex nut <sup>1</sup>	1/2" SAE with O-ring <sup>1</sup>	1/4" NPT <sup>2</sup>
Pressure <sup>3</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

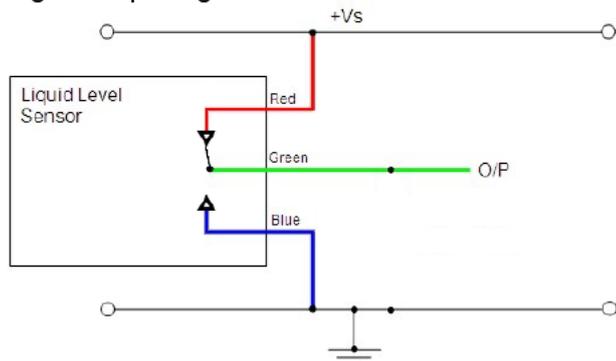


- 1) Hex nut and O-ring sold separately; email:
- 2) NPT version can be sealed with PTFE tape.
- 3) When correctly sealed.

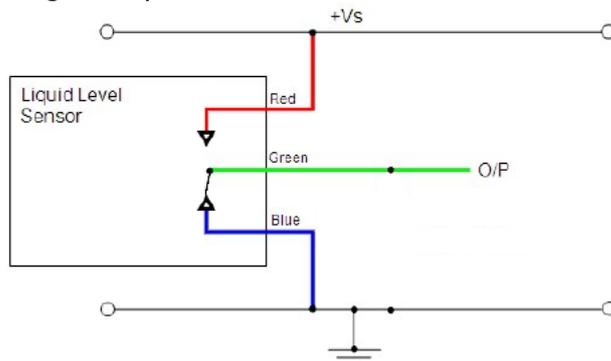
**CIRCUIT DIAGRAMS**

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** 5 **X** 0 D 3 **X**

Housing Material	Operating Temp.	Output Logic
<b>C</b> Polysulfone	<b>0</b> -25 °C to +80°C	<b>Blank</b> Output High in air
<b>T</b> Trogamid®	<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>2</b> 2x0 SH series M12x1	<b>0</b> -25 °C to +80°C	<b>Blank</b> Output High in air
<b>T</b> Trogamid®	<b>6</b> 6x0 SH series 1/2" SAE	<b>1</b> -40 °C to +125°C	<b>L</b> Output Low in air
	<b>7</b> 7x0 SH series 1/4" NPT		<b>P</b> PWM output

**Notes:**

- 5x0 series sensors are mounted internally
- 2x0, 6x0 & 7x0 series sensors are mounted externally
- SH suffix applicable to 2x0, 6x0 & 7x0 series sensors only; omit from 5x0 series sensor part number

