

DATA SHEET

Liquid Level Switches

Optomax Digital Series



DESIGN • MANUFACTURE • CUSTOMISE • CONFIGURE

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



Housing/ Mounting

M10x1

M12x1

1/4"
NPT

1/2"-20
UNF

Output Type / Logic



PUSH PULL



HIGH IN AIR



LOW IN AIR



PWM

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

OUTPUT VALUES

Output Voltage^c (Vout):

Output High

Output Low

I_{out} = 100mA

V_{out} = V_s - 1.5V max

V_{out} = 0V + 0.5V max

PWM

Duty cycle in air

Duty cycle in liquid

Frequency

25% ± 10%

75% ± 10%

2kHz ± 10%

TECHNICAL SPECIFICATIONS

Supply voltage (Vs)	4.5V _{DC} to 15.4V _{DC}
or	4.5V _{DC} to 5.5V _{DC} (PWM output)
Supply current (Is)	2.5mA max. (Vs = 15.4V _{DC})
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 ^{a, b}	Polysulfone or Trogamid®
Sensor termination	24AWG, 250mm PTFE wires, 8mm tinned

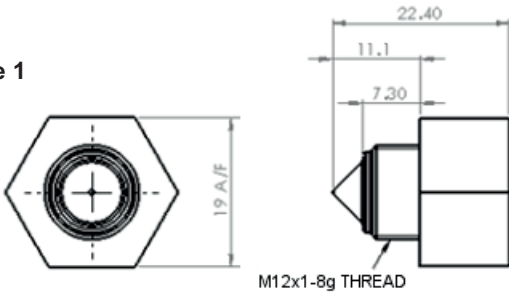


- Above +85°C, Trogamid is suitable for use in water based liquids. Oil based liquids can cause deformation of the sensing tip and must be tested for compatibility.
- Before use check that the fluid in which you wish to use these devices is compatible either with Polysulfone or Trogamid®.
- Voltages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

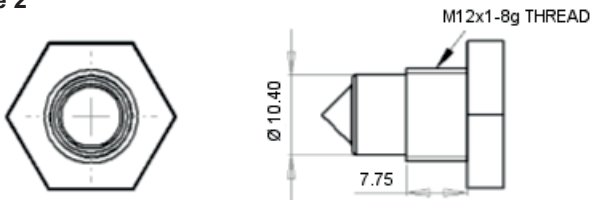
OUTLINE DRAWING

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

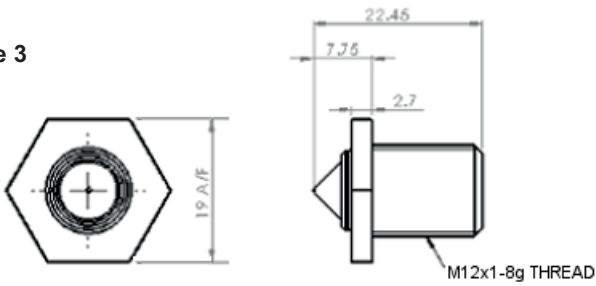
Type 1



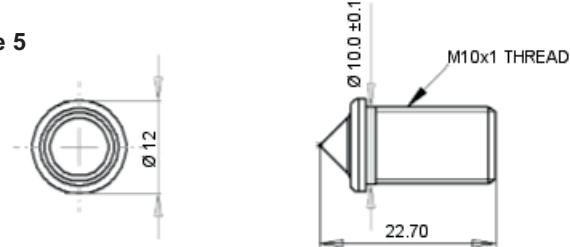
Type 2



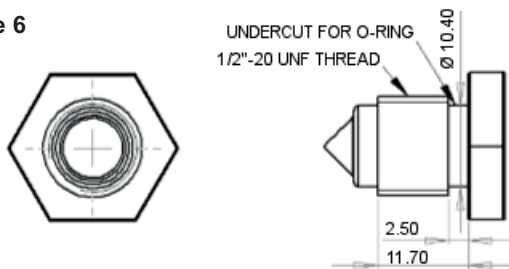
Type 3



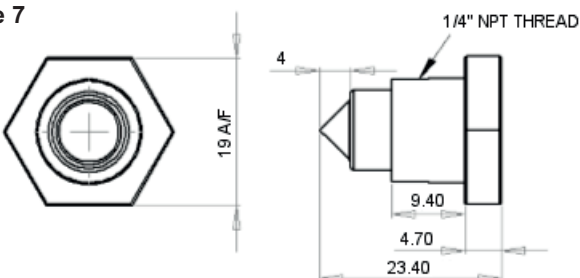
Type 5



Type 6



Type 7

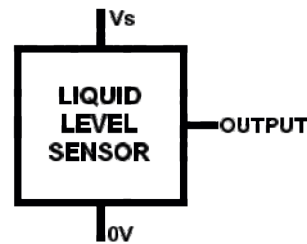


HOUSING SPECIFICATIONS

	Housing Series		
	Type 1	Type 2	Type 3
Thread	M12x1-8g ^d		
Pressure ^g	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 ^e	1/4" NPT ^f
Pressure ^g	20 bar / 209 psi max.	7 bar / 101 psi maximum	
Tightening Torque	1.5 Nm / 13.26 in-lbs maximum		

ELECTRICAL INTERFACE



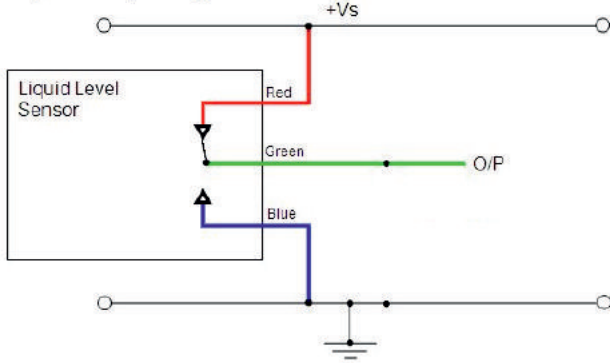
Wire	Designation
Red	Vs
Green	Output
Blue	0V



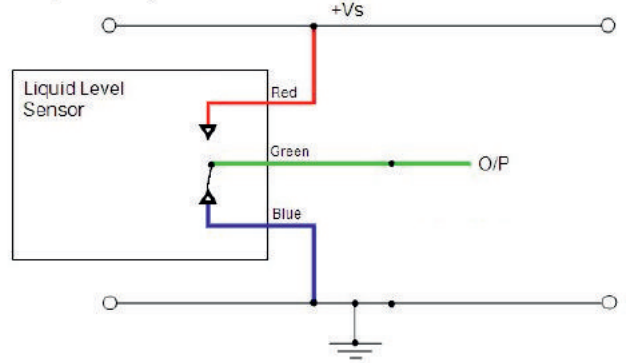
- d) Types 1, 2 and 3 can be sealed with washers and locknuts.
 e) Type 6 should be sealed with Parker 3-905 type o-ring.
 f) Type 7 should be sealed with PTFE tape.
 g) When correctly sealed.

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
C Polysulfone	3 Type 3 M12x1-8g	0 -25 °C to +80°C	Blank Output High in air
T Trogamid®	5 Type 5 M10x1	1 -40 °C to +125°C	L Output Low in air
			P 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
C Polysulfone	1 Type 1 M12x1-8g	0 -25 °C to +80°C	Blank Output High in air
T Trogamid®	2 Type 2 M12x1-8g	1 -40 °C to +125°C	L Output Low in air
	6 Type 6 1/2"-20 UNF		P PWM output
	7 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.

 **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®.

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.