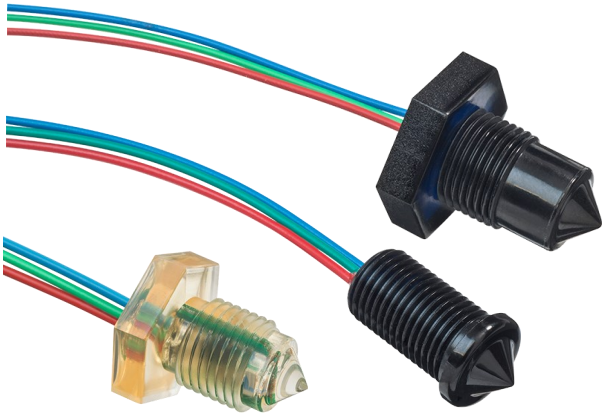
DATA SHEET

Liquid Level Switches

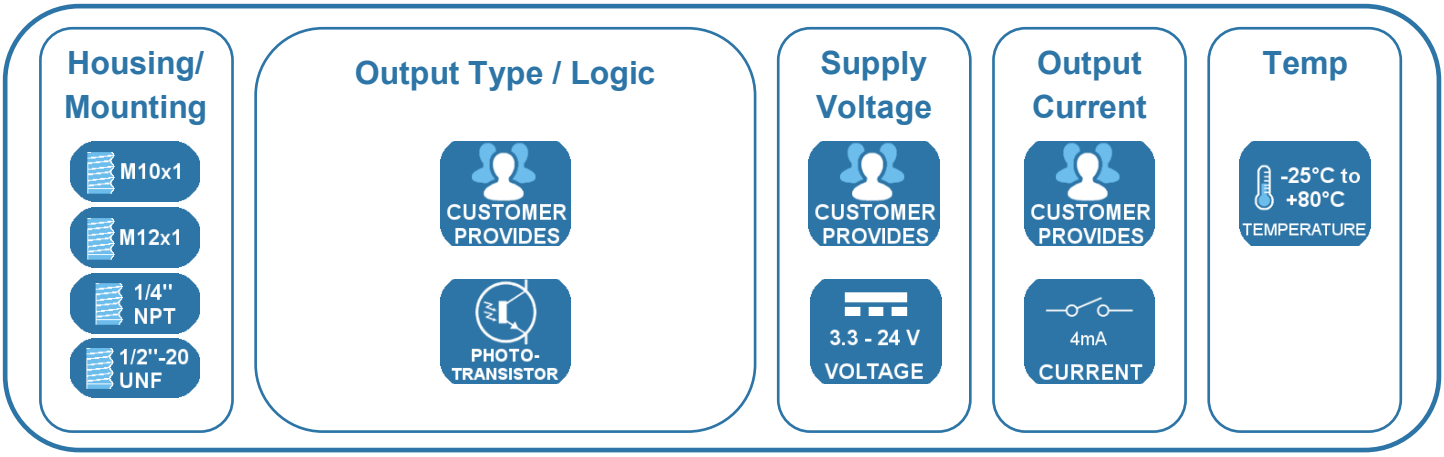
Optomax Basic Series

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 and terminal connections



BENEFITS

- OEM optics only solution[a]
- Low cost
- Compact design

OUTPUT VALUES

Refer to Circuit Diagram section on page 3 for details.

TECHNICAL SPECIFICATIONS

Supply voltage (Vs)	Any with suitable LED current limiting resistor
LED forward current (If)	10mA recommended
Output signal	Phototransistor open collector. Refer to Circuit Diagram section on page 3
Operating temperatures	Standard: -25°C to +80°C
Storage temperatures	Standard: -30°C to +85°C
Housing material[b]	Polysulfone or Trogamid®
Sensor termination	24AWG, 250mm PVDF wires, 10mm tinned

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

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

NOTES

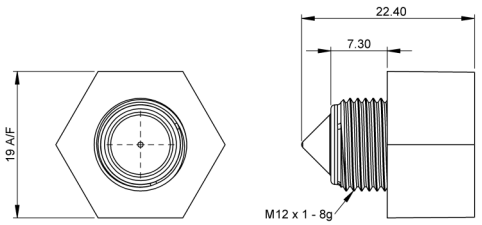
a) Minimum order quantity may apply

b) 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).

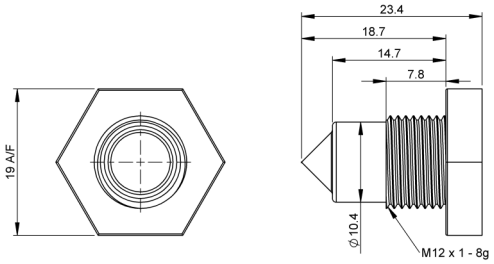
OUTLINE DRAWING

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

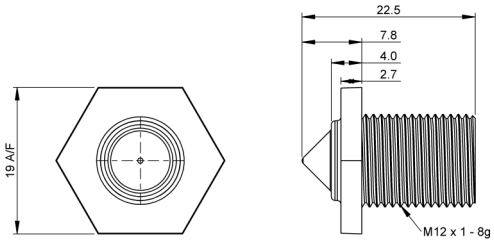
Type 1



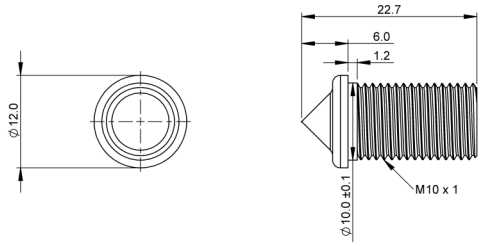
Type 2



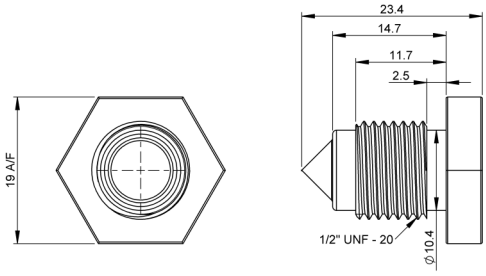
Type 3



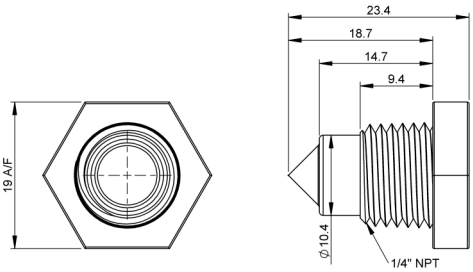
Type 5



Type 6



Type 7



HOUSING SPECIFICATIONS

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

	Housing Series		
	Type 1	Type 2	Type 3
Thread	M12x1-8g		
Pressure[d]	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[d]	20 bar / 209 psi max.	7 bar / 101 psi maximum	
Tightening Torque	1.5 Nm / 13.26 in-lbs maximum		

ELECTRICAL INTERFACE

Flying Leads—3-wire option

Wire	Designation
Red	LED_{ANODE}
Green	Output
Blue	0V

Flying Leads—4-wire option

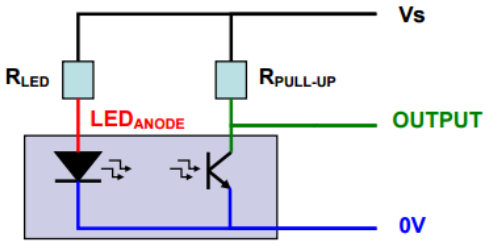
Wire	Designation
Red	LED_{ANODE}
Green	Output
Blue	0V LED
Black	0V Phototransistor

NOTES

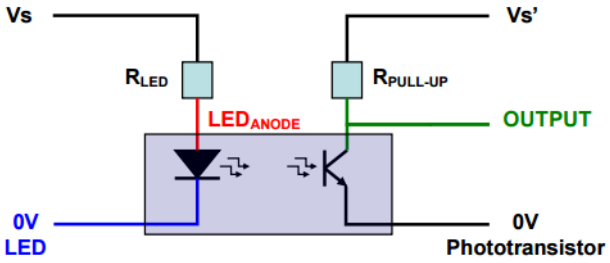
c) Recommended nuts and sealing accessories outlined within the Accessory Table
d) When correctly sealed.

CIRCUIT DIAGRAMS

Flying Leads—3-wire option



Flying Leads—4-wire option



Note: The 4-wire version provides galvanic isolation between input (IR-LED) and output (Phototransistor).

Pre-selected R_{LED} and $R_{PULL-UP}$ Value for Different Supply Voltages				
Vs	R_{LED}	$R_{PULL-UP}$	V_{OUTPUT} in Air	V_{OUTPUT} in Water
3.3V	200R	2K	< 0.75V	> 2.5V
5V	360R	2K	< 1V	> 4.25V
8V	680R	2.5K	< 1.5V	> 7.25V
12V	1K	3K	< 3V	> 11.25V
15V	1.3K	3.5K	< 3.25V	> 14.25V
24V	2.2K	4K	< 10.5V	> 22.5V

Typical installation: You must select suitable resistors for your chosen supply voltage. Forward voltage of LED is 1.3V and LED current should be 10mA (depending on application liquid). Therefore, for a supply of Vs = 5V for example:

$$R_{LED} = \frac{(V_s - 1.3)V}{10mA} = \frac{5 - 1.3}{0.01} = 370\Omega \approx 360\Omega \text{ (standard value)}$$

CAUTION: Failure to select the correct resistor values may result in 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 require.

Sensor mounted from inside vessel

L L [X] [X] 0 0 A [X]

Housing Material	Housing Type	Termination
C Polysulfone	**3** Type 3 M12x1x8g	**3** 3-wire output
T Trogamid®	**5** Type 5 M10x1	**4** 4-wire output

Sensor mounted from outside vessel

L L [X] [X] 0 0 A [X] S H

Housing Material	Housing Type	Termination
C Polysulfone	**1** Type 1 M12x1x8g	**3** 3-wire output
T Trogamid®	**2** Type 2 M12x1x8g	**4** 4-wire output
	6 Type 6 1/2" - 20 UNF	
	7 Type 7 1/4" NPT	

Notes:

- Type 3 & 5 sensors are mounted internally
- Type 1, 2, 6 & 7 series sensors are mounted externally

ACCESSORY TABLE

Thread	Housing Type	Accessory	Material	Order Code
M12	Type 2	Seal Washer	Nitrile	41000190-002
M12	Type 2	Seal Washer	EPDM	41000190-003
M12	Type 2	Seal Washer	VAMAC	41000190-004
M12	Type 2	'O' Ring	As Required	Not Sold by SST
M12	Type 2	Nut	Zinc-Plated Brass	LL-NUT-ZNC
M12	Type 2	Nut	Stainless Steel	LL-NUT-STS
M10	Type 5	Nut	Plastic (PLA)	LL-NUT-PLA
1/2" -20 UNF	Type 6	'O' Ring	As Required - See SAE J1926-1	Not Sold by SST
1/4" NPT	Type 7	Sealing Tape	PTFE	Not Sold By SST
1/4" NPT	Type 7	Sealing Compound	Sealing Compound must be compatible with housing material	Not Sold By SST

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

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.

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