

Optical Liquid Level Switches

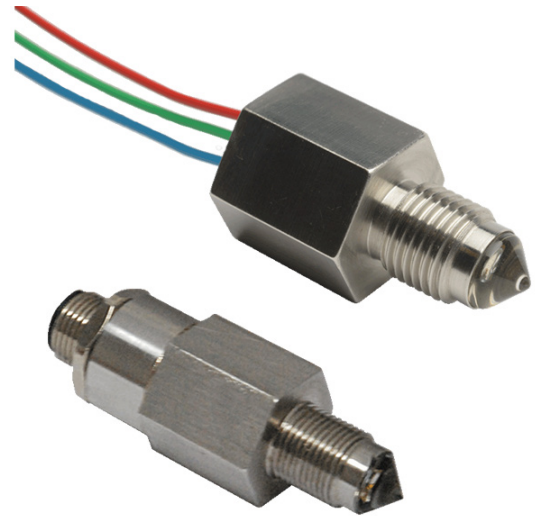
Optomax Industrial Glass Series

- Reverse polarity, ESD and transient over-voltage protected
- N and P type output configurations, capable of sinking or sourcing up to 1A, can directly drive small loads
- Corrosion resistant, 316 stainless steel housing with hardened glass tip; suitable for harsh environments
- Choice of threads

Description

SST's Optomax Industrial Glass Sensors are robust, intelligent liquid level switches designed for harsh conditions. Operating from standard industrial supply voltages, they feature a FET output which can directly drive loads up to 1A.

These solid-state, optical liquid level sensors feature a stainless steel housing and a glass sensing tip, enabling operation under high pressure, high temperature, and chemically aggressive conditions. ^a



Specifications

Technical Specifications	
Supply voltage (Vs)	4.5...15.4V _{DC} or 8...30V _{DC}
Supply current (Is)	2.5mA max. (Vs = 15.4V _{DC}) or 7.5mA max. (Vs = 30V _{DC})
Operating temperature ^b	-40...+125°C (-40...+257°F)
Storage temperature	-40...+125°C (-40...+257°F)
Operating pressure (static)	0...100barg (0...1450psig)
Housing material	316 Stainless steel with glass tip
Switch termination	20AWG, 250mm PVDF wires, or 22AWG PVC cable or M12 connector
Output Values	
Output current (Iout) = 1A max ^c	
Output Voltage (Vout) when Vs = 4.5...15.4V _{DC}	
Output high	Vout = Vs - 1.5V max
Output low	Vout = 0V + 0.5V max
Output Voltage (Vout) when Vs = 8...30V _{DC}	
Output high	Vout = Vs - 1.8V max
Output low	Vout = 0V + 0.7V max

Core Applications

- Valve / pump control
- Leak detection
- Clean environments
- Tank level control; fill/empty
- Overfill protection
- Sump level switching

^a Avoid reflective surfaces within 50mm of the sensing tip, see SST's Liquid Level Switches – Installation, Operation and Compatibility Guide.

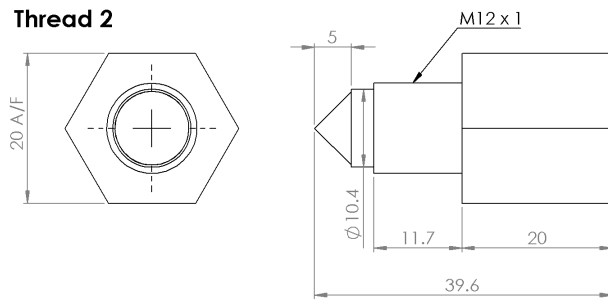
^b Not suitable for use in freezing liquid or high condensing environments such as steam.

^c Except on N-type with a 10k Ω internal resistor (-002).

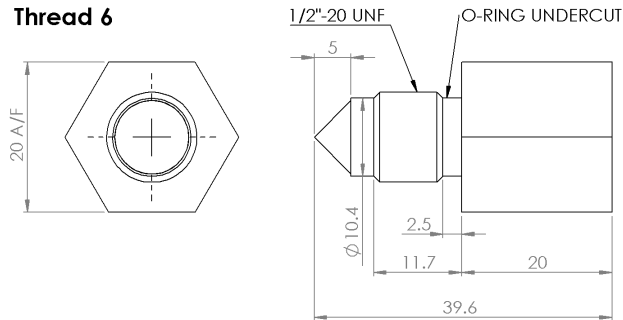
Outline Drawing

All dimensions shown in mm. Tolerances = $\pm 0.5\text{mm}$.

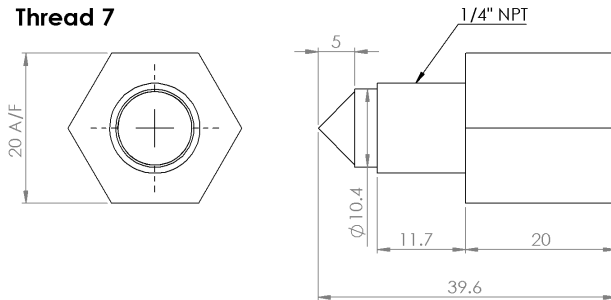
Thread 2



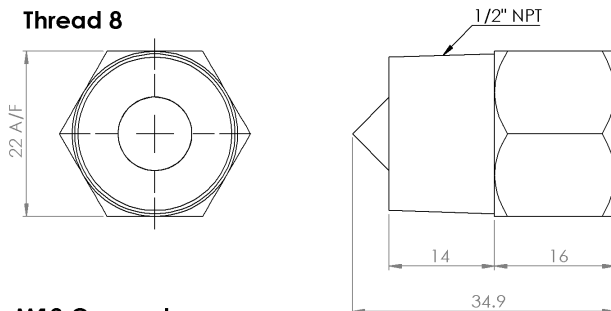
Thread 6



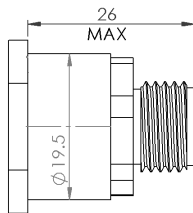
Thread 7



Thread 8



M12 Connector



Housing Specifications

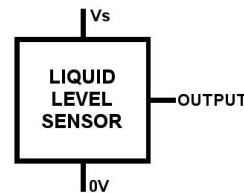
Installation drawings and 3D (.step) files available on the product webpage.

Housing Series		
	Thread 2	Thread 6
Thread ^d	M12x1 with hex nut	1/2" - 20 UNF with O-ring
Pressure (static) ^{e f}	100 barg / 1450 psig maximum	
Tightening Torque ^g	3 Nm / 26.5 in-lbs maximum	

Housing Series		
	Thread 7	Thread 8
Thread ^d	1/4" NPT	1/2" NPT
Pressure (static) ^{e f}	100 barg / 1450 psig maximum	
Tightening Torque ^g	3 Nm / 26.5 in-lbs maximum	

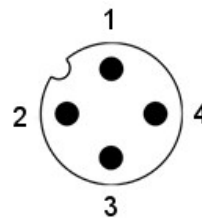
Electrical Interface

Flying Leads / Cable



Wire	Cable	Designation
Red	Red	Vs
Green	White	Output
Blue	Black	0V

M12 Connector



Pin	Designation
1	Vs
2	Not connected
3	0V
4	Output

^d Recommended nuts and sealing accessories outlined within the Accessory Table (sold separately)

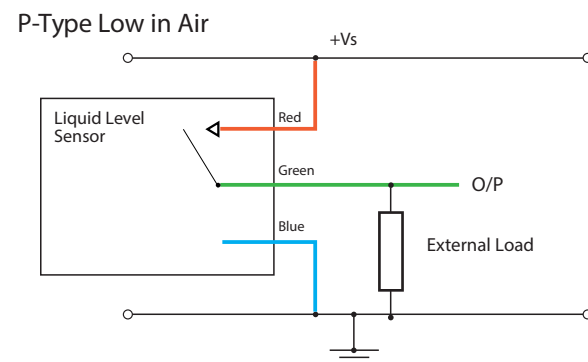
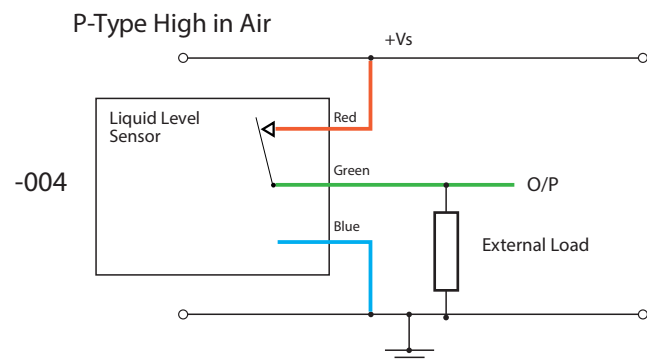
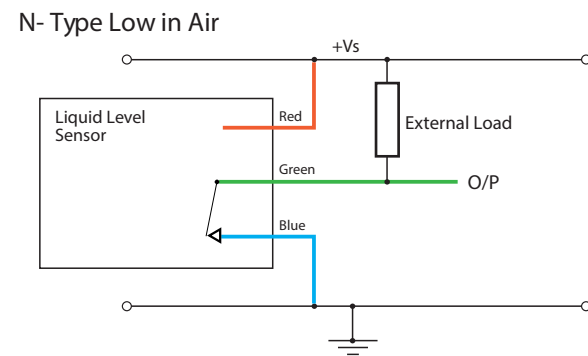
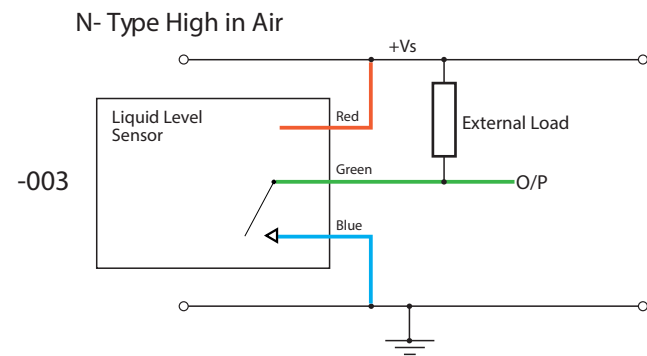
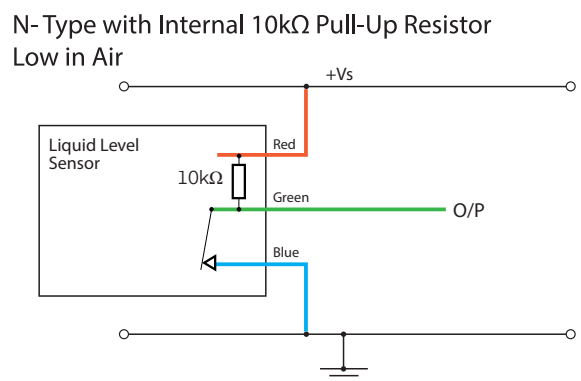
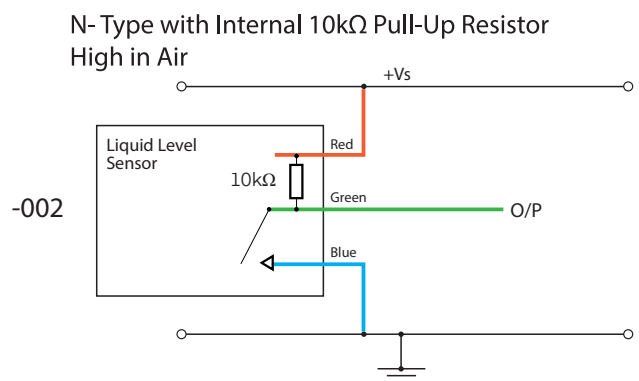
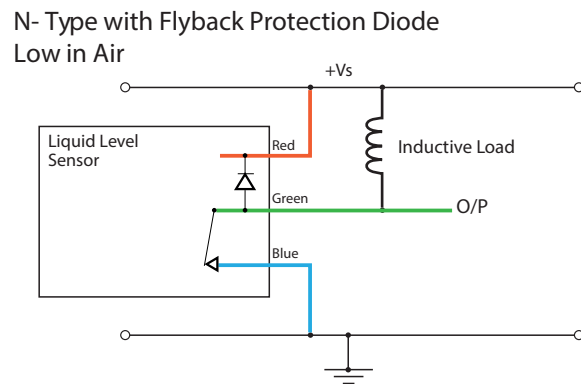
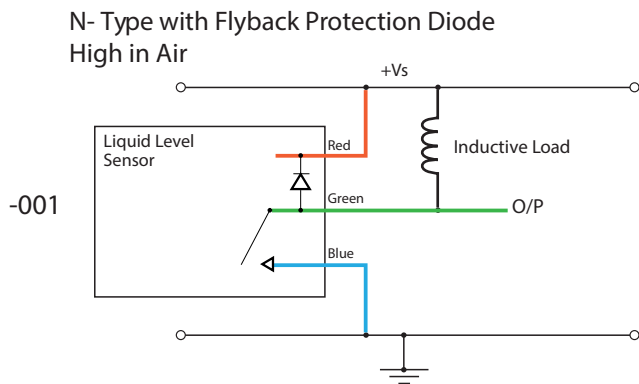
^e SST supplied M12 seal washer only suitable for low pressure environments (<7 bar). For higher pressure applications O-rings, PTFE tape or other sealing compounds are recommended. Customers should test in their application as required.

^f When correctly sealed.

^g Do NOT over-tighten as this can permanently damage the switch.

Circuit Diagrams

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.



Caution !

Take care when connecting loads. The minimum load impedance should not be less than $V_s/\text{max output current}$.

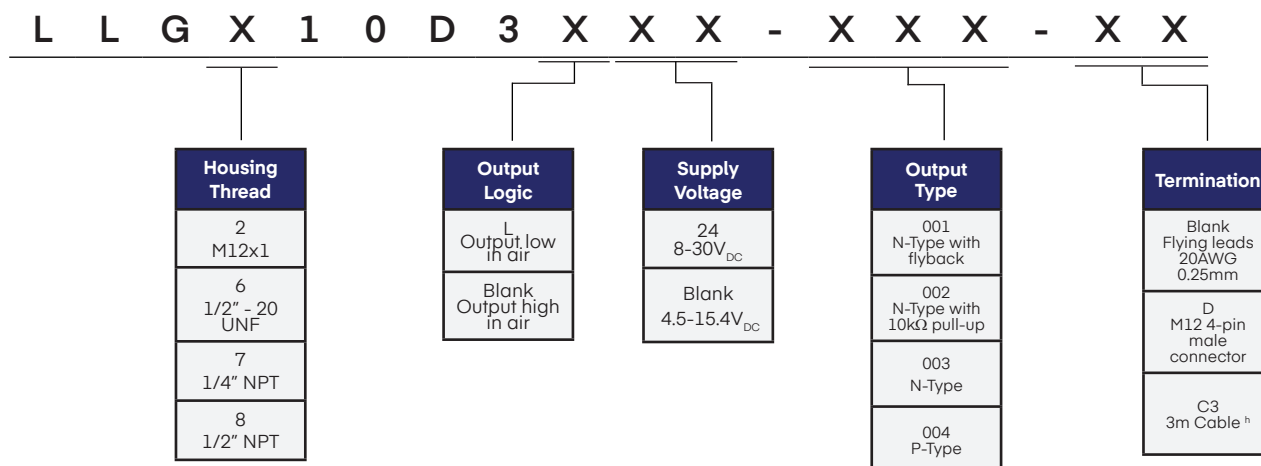
Note: Shorting the output to V_s or $0V$ will result in irreparable damage to the sensor.

Note : Colours shown are for 3-wire version. See electrical interface table on page 3 for equivalent cable colours.

Ordering Guide

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.



Accessory Table

Thread	Housing Type	Accessory	Material	Order Code
M12	2x0	Seal washer	Nitrile	41000190-002
M12	2x0	Seal washer	EPDM	41000190-003
M12	2x0	Seal washer	VAMAC	41000190-004
M12	2x0	'O' ring	As required	Not sold by SST
M12	2x0	Nut	Zinc-plated brass	LL-NUT-ZNC
M12	2x0	Nut	Stainless steel	LL-NUT-STSS
1/2" -20 UNF	6x0	'O' ring	As required - See SAE J1926-1	Not sold by SST
1/4" NPT	7x0	Sealing tape	PTFE	Not sold by SST
1/4" NPT	7x0	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®.

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.

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

^{h)} C3 cable option is limited to an ambient temperature range of -20...+80°C (-4°F...+176°F)



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