

DATA SHEET

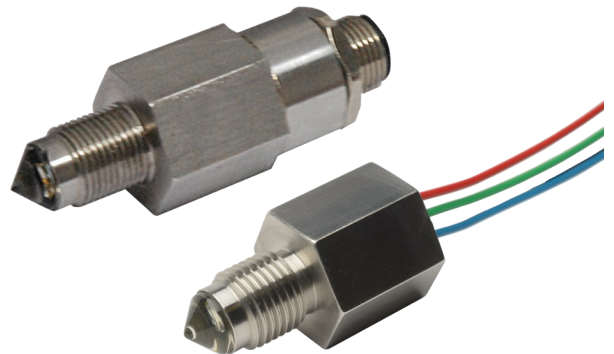
Liquid Level Switches

Optomax Industrial Glass Series



FEATURES

- Liquid level switches that can detect the presence or absence of oil or water based liquids
- Corrosion resistant, 316L stainless steel housing with hardened glass tip; suitable for harsh environments
- Compact size, wide operating temperature and pressure, choice of mounting threads and terminal connections



| | | | | |
|---|--|---|--|---|
| Housing / Mounting STAINLESS STEEL 316 M12x1 1/4" NPT GLASS TIP 1/2" NPT 1/2"-20 UNF | Output Type / Logic N-TYPE P-TYPE PUSH PULL 1 0 HIGH IN AIR 0 1 LOW IN AIR | Supply Voltage 4.5 - 15.4 V VOLTAGE 8 - 30 V VOLTAGE | Output Current UP TO 1A CURRENT | Temp. / Pressure -40°C to +125°C TEMPERATURE 0 - 600bar |
|---|--|---|--|---|

BENEFITS

- Direct high current switching
- Industrial supply voltages
- Direct load drive design
- High pressure
- High temperature

APPLICATIONS

- Tank level control; fill/empty
- Leak detection
- Pump control
- Sump level switching
- Overfill protection

OUTPUT VALUES

| | |
|--|--|
| Output Voltage (Vout): Vs = 4.5—15.4V_{DC} Output High Output Low | Iout = 1A Vout = Vs - 1.5V max Vout = 0V + 0.5V max |
| Output Voltage (Vout): Vs = 8—30V_{DC} Output High Output Low | Iout = 1A Vout = Vs - 1.8V max Vout = 0V + 0.7V max |

TECHNICAL SPECIFICATIONS

| | |
|---------------------------------------|--|
| Supply voltage (Vs) | 4.5V _{DC} to 15.4V _{DC} or 8V _{DC} to 30V _{DC} |
| Supply current (Is) | 2.5mA max. (Vs = 15.4V _{DC}) or 7.5mA max. (Vs = 30V _{DC}) |
| Output sink and source current (Iout) | Up to 1A |
| Operating temperature ^a | -40°C to +125°C (-40°F to +257°F) |
| Storage temperature | -40°C to +125°C (-40°F to +257°F) |
| Operating pressure | 0 to 600bar (0 to 8700psi) |
| Housing material | 316L Stainless steel with glass tip |
| Switch termination | 20AWG, 250mm PVDF wires, or 22AWG PVC cable or M12 connector |

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"

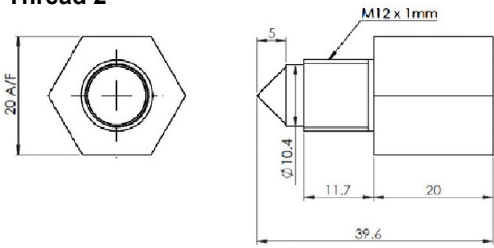


a) Not suitable for use in freezing liquid or high condensing environments such as steam.

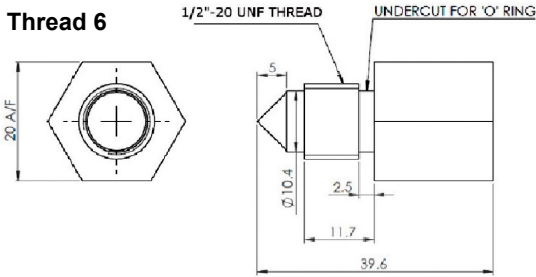
OUTLINE DRAWING

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

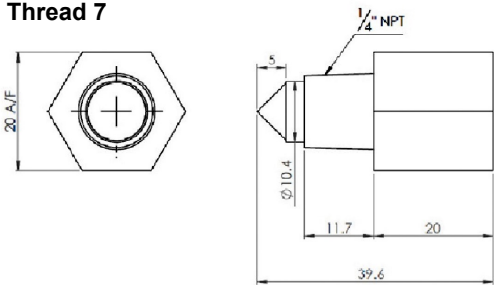
Thread 2



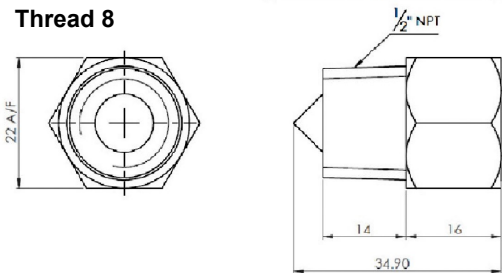
Thread 6



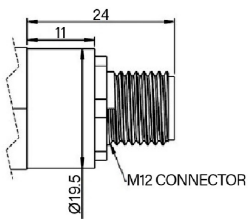
Thread 7



Thread 8



M12 Connector Dimensions



HOUSING SPECIFICATIONS

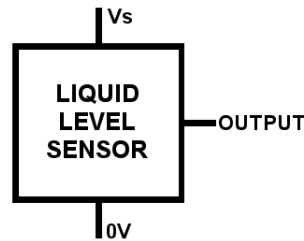
Installation drawings and 3D (.step) files available on [the product webpage](#).

| Housing Series | | |
|--------------------------------|----------------------------|-------------------------|
| | Thread 2 | Thread 6 |
| Thread ^{bc} | M12x1 with hex nut | 1/2"-20 UNF with O-ring |
| Pressure ^d | 100 bar / 1450 psi maximum | |
| Tightening Torque ^e | 3 Nm / 26.5 in-lbs maximum | |

| Housing Series | | |
|--------------------------------|----------------------------|----------------------------|
| | Thread 7 | Thread 8 |
| Thread ^{bc} | 1/4" NPT | 1/2" NPT |
| Pressure ^d | 100 bar / 1450 psi maximum | 600 bar / 8702 psi maximum |
| Tightening Torque ^e | 3 Nm / 26.5 in-lbs maximum | |

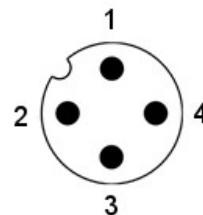
ELECTRICAL INTERFACE OPTIONS

Flying Leads



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

M12 Connector



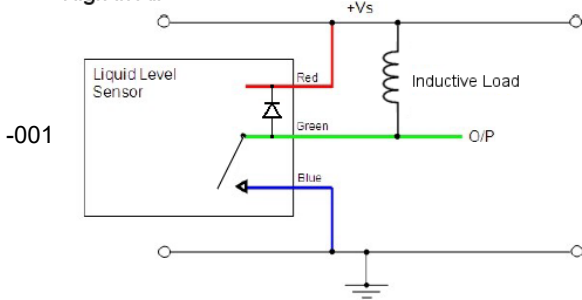
| Pin | Designation |
|-----|---------------|
| 1 | Vs |
| 2 | Not connected |
| 3 | 0V |
| 4 | Output |



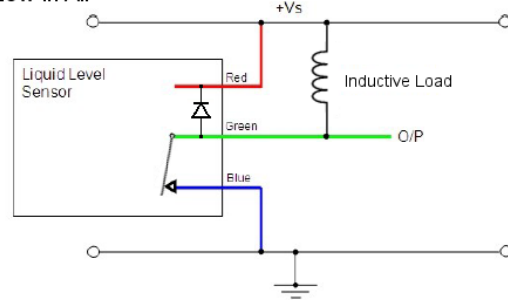
- b) Recommended nuts and sealing accessories outlined within the [Accessory Table](#)
- c) Refer to mounting information on [page 4](#).
- d) When correctly sealed.
- e) Do NOT over-tighten as this can permanently damage the switch.

In order to suit any application, these switches have been designed with various output circuit configurations. They are identified by the 3-digit output type code in the part number as shown in [Order Information](#).

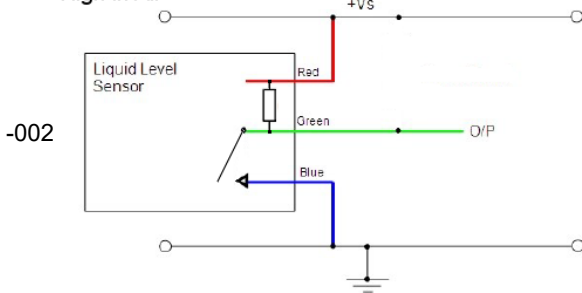
**N-Type with Flyback Protection Diode
High in Air**



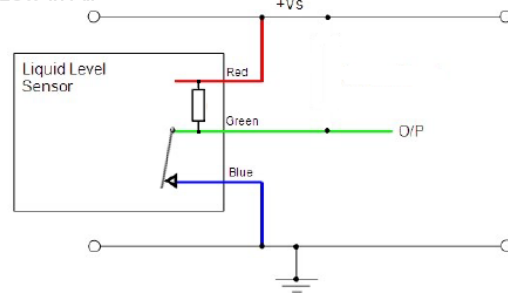
**N-Type with Flyback Protection Diode
Low in Air**



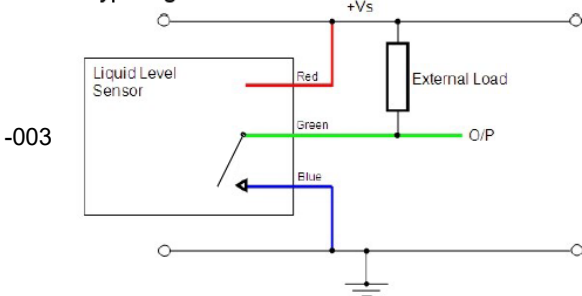
**N-Type with Internal 10kΩ Pull-Up Resistor
High in Air**



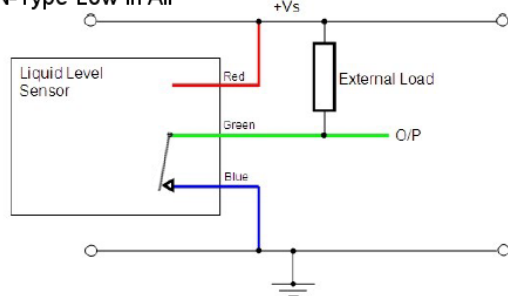
**N-Type with Internal 10kΩ Pull-Up Resistor
Low in Air**



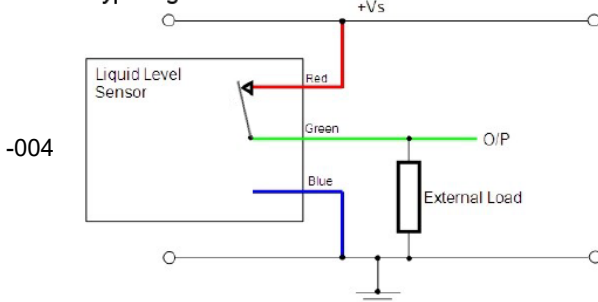
N-Type High in Air



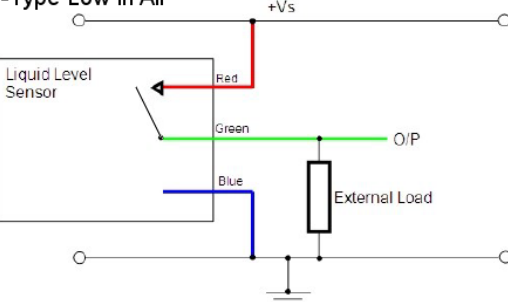
N-Type Low in Air



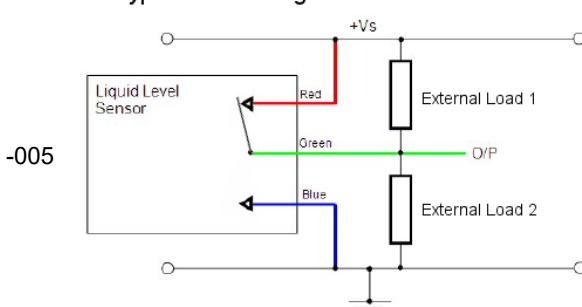
P-Type High in Air



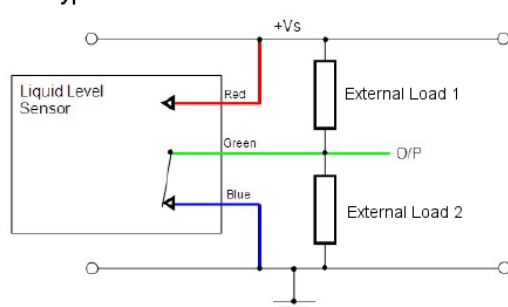
P-Type Low in Air



N&P-Type Push Pull High in Air



N&P-Type Push Pull Low in Air



CAUTION: Take care when connecting loads.

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

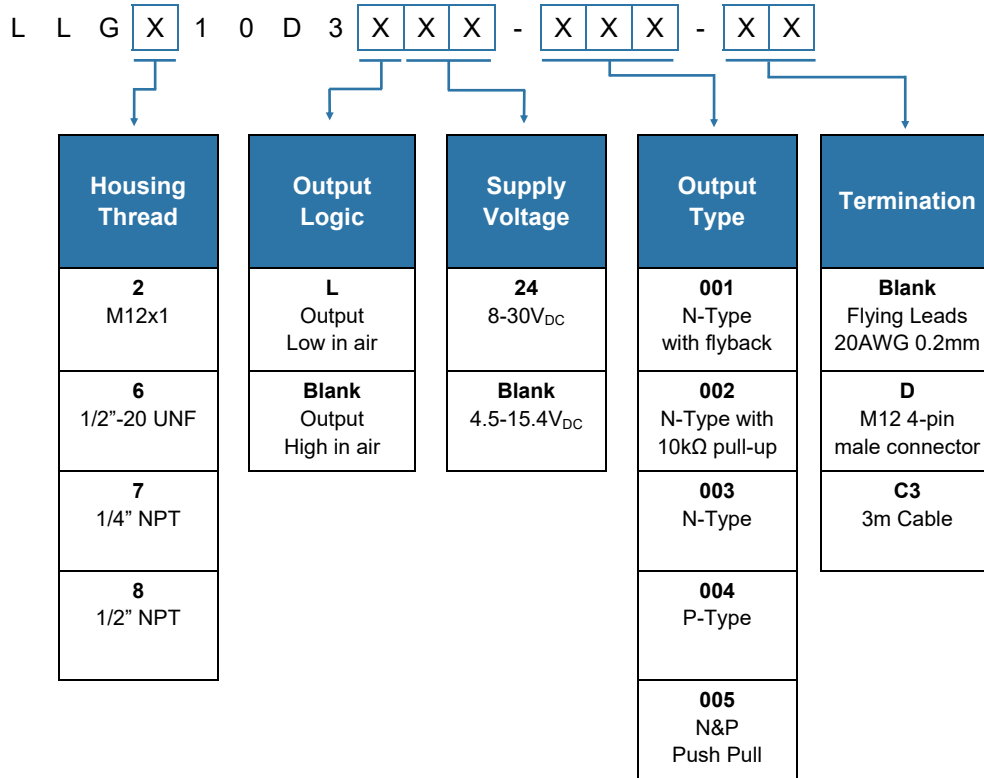
Note: Shorting the output to V_s or $0V$ will result in irreparable damage to the switch.

Note: Colours shown are for 3-wire version. See electrical interface table on [page 2](#) for equivalent cable colours.

ORDER INFORMATION

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.

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



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 Stainless Steel and glass.

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.