# Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

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Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China
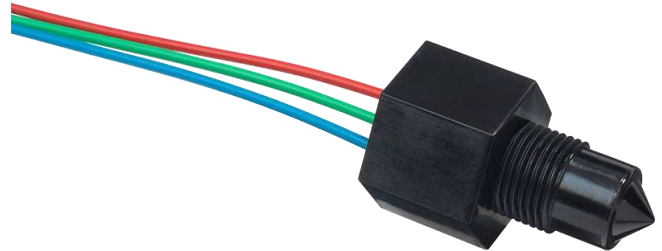
# DATA SHEET
# Liquid Level Switches
## *Optomax* Industrial Series

**SST**
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 | Output Type / Logic | | | Supply Voltage | Output Current | Temp |
|---|---|---|---|---|---|---|
| M12x1 | N-TYPE | P-TYPE | PUSH PULL | 4.5 - 15.4 V VOLTAGE | UP TO 1A CURRENT | -25°C to +80°C TEMPERATURE |
| 1/4" NPT | 1 / 0 HIGH IN AIR | 0 / 1 LOW IN AIR | | 8 - 30 V VOLTAGE | | -40°C to +125°C TEMPERATURE |
| 1/2" SAE | | | | | | |

## BENEFITS

- High power
- Industrial supply voltage
- Direct load drive design

## 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) | 1A |
| 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[1, 2] | Polysulfone or Trogamid® |
| Sensor termination | 20AWG, 250mm PTFE wires, 8mm tinned |

## OUTPUT VALUES

**Output Voltage[3] (Vout):     Iout = 1A**
**Vs = 4.5—$15.4V_{DC}$**

| | |
|---|---|
| Output High | Vout = Vs - 1.5V max |
| Output Low | Vout = 0V + 0.5V max |

**Output Voltage (Vout):     Iout = 1A**
**Vs = 8—$30V_{DC}$**

| | |
|---|---|
| Output High | Vout = Vs - 1.8V max |
| Output Low | Vout = 0V + 0.7V max |

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

1) Above +85°C, Trogamid is suitable for 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®.
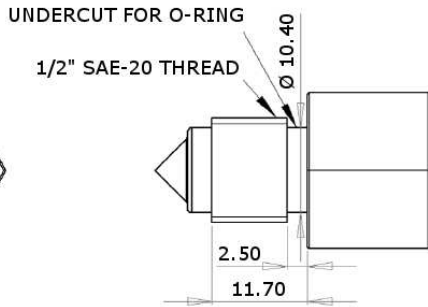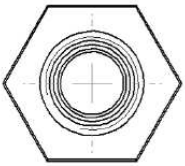3) Voltages applicable to output value stated.

# OUTLINE DRAWING

All dimensions shown in mm. Tolerances = ±1mm.
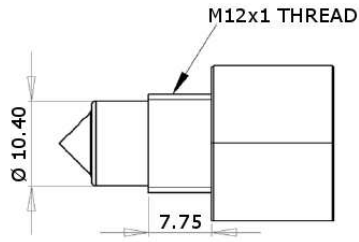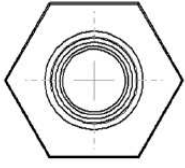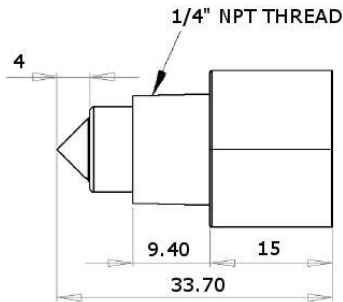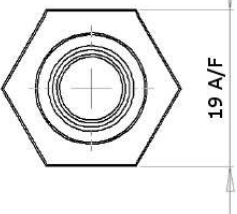
## HOUSING SPECIFICATIONS

**LLx2x0 Series**

M12x1 THREAD

Ø 10.40

7.75

| | Housing Series | | |
|---|---|---|---|
| | 2x0 | 6x0 | 7x0 |
| Thread | M12x1x8g with hex nut[1] | 1/2" SAE with O-ring[1] | 1/4" NPT[2] |
| Pressure[3] | 7 bar /101 psi maximum | | |
| Tightening Torque | 1.5 Nm / 13.26 in-lbs maximum | | |

**LLx6x0 Series**

UNDERCUT FOR O-RING

1/2" SAE-20 THREAD

Ø 10.40

2.50

11.70

## ELECTRICAL INTERFACE

Vs

LIQUID LEVEL SENSOR — OUTPUT

0V
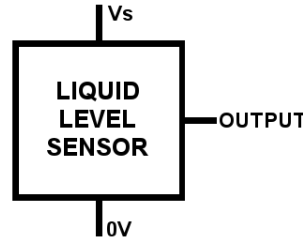
| Wire | Designation |
|---|---|
| Red | Vs |
| Green | Output |
| Blue | 0V |

**LLx7x0 Series**

1/4" NPT THREAD

19 A/F

4

9.40    15

33.70

## NOTES

1) Hex nut and O-ring sold separately; email: technical@sstsensing.com for details.
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. They are identified by the 3-digit code at the end of the part number as shown in Order Information.
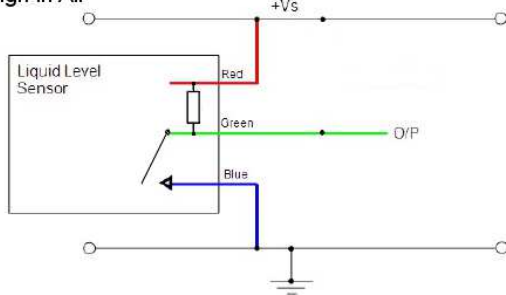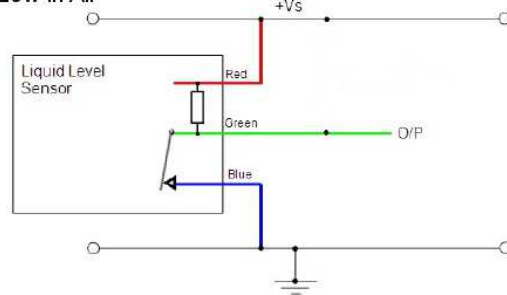
### N-Type with Flyback Protection Diode
High in Air
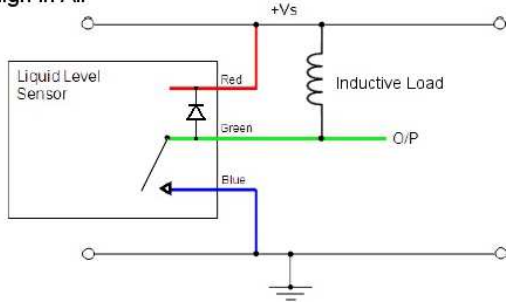


### N-Type with Flyback Protection Diode
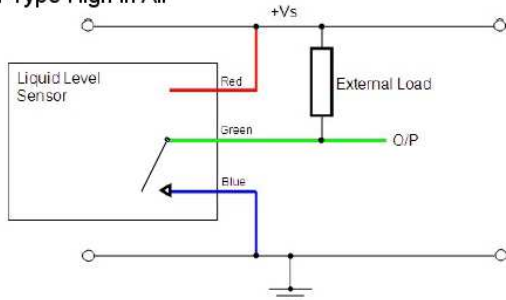Low in Air
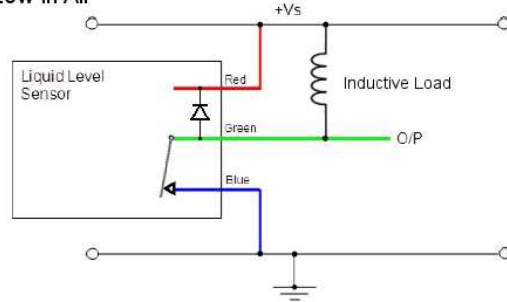

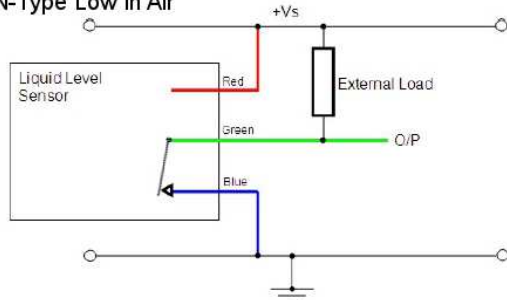
### N-Type with Internal 10kΩ Pull-Up Resistor
High in Air



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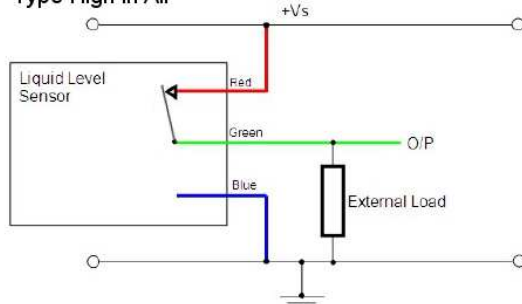Low in Air



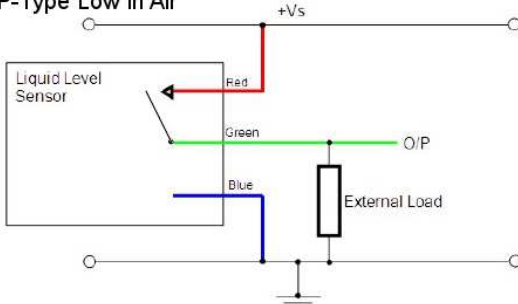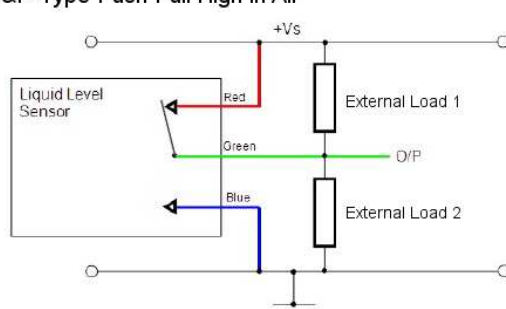### N-Type High in Air



### N-Type Low in Air
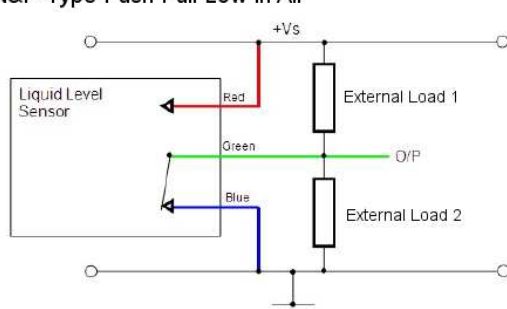


### P-Type High in Air



### 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.
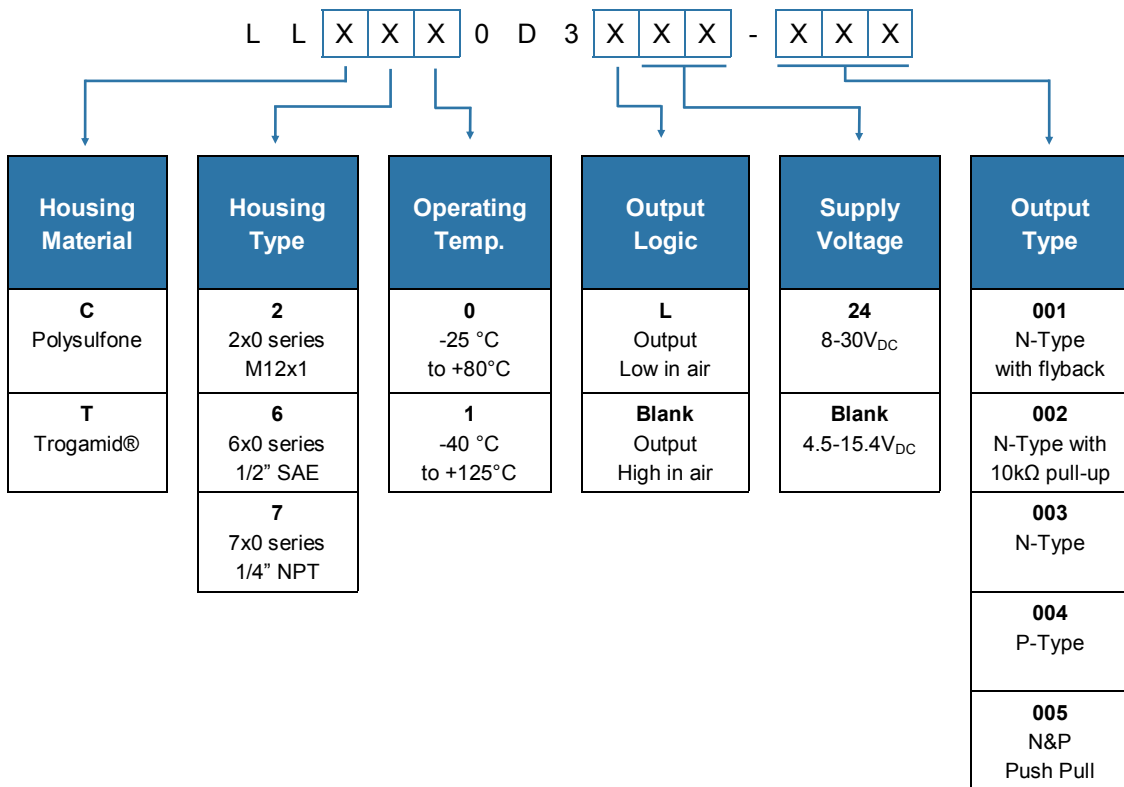The minimum load impedance should not exceed Vs/max output current.
**Note:** Shorting the output to Vs or 0V will result in irreparable damage to the sensor.

# 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.

L L X X X 0 D 3 X X X - X X X

| Housing Material | Housing Type | Operating Temp. | Output Logic | Supply Voltage | Output Type |
|---|---|---|---|---|---|
| **C** Polysulfone | **2** 2x0 series M12x1 | **0** -25 °C to +80°C | **L** Output Low in air | **24** 8-30$V_{DC}$ | **001** N-Type with flyback |
| **T** Trogamid® | **6** 6x0 series 1/2" SAE | **1** -40 °C to +125°C | **Blank** Output High in air | **Blank** 4.5-15.4$V_{DC}$ | **002** N-Type with 10kΩ pull-up |
| | **7** 7x0 series 1/4" NPT | | | | **003** N-Type |
| | | | | | **004** P-Type |
| | | | | | **005** N&P Push Pull |

## ⚠ 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.**

## ℹ 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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