Installation Instructions for
Optomax Basic Series Liquid Level Sensors

GENERAL DESCRIPTION
The LLC Basic Series liquid level sensor provides a single point detection for high volume OEM applications. The sensor contains an infra-red emitter and detector accurately positioned to ensure good optical coupling between the two when the sensor is in air. When the sensor's cone is immersed in liquid, the infra-red light escapes from the cone causing a change in the amount of light at the detector.

This configuration allows the customer to tailor the sensor electronics (supply voltage, protection etc) to their unique application

CLEANING
Proper fluids should be selected based on type of contamination to be removed. SST Sensing recommends freon and alcohol based solvents. DO NOT use chlorinated solvents such as tricholorethane as these are likely to attack the sensor material.

Liquid Media Compatibility
Before use check that the fluid in which you wish to use these devices is compatible with polysulphone.

ELECTRICAL SPECIFICATIONS

Supply voltage (Vs)	Any
Supply current	10 mA nominal
Output Type	Phototransistor (Digital)
Output Signal	See next page.
Operating temperature	-25 °C to 80 °C
Storage temperature	-30 °C to 85 °C


LLC200A3SH

MOUNTING

Catalogue Listing			
Standard temperature	LLC200A3SH LLC200A4SH	LLC500A3 LLC500A4	LLC600A3SH LLC600A4SH
Thread	M12x1x8g with hex nut *	M10x1	½" SAE with o-ring *
Tightening torque	1.5 N m/13.26 in lb max.		
Pressure (using washer available separately)	7 bar max	20 bar max	7 bar max
Mounting hole	Ø12mm	Ø10mm	Ø ½ Inch
Housing Material	Polysulphone		
Sensor Termination	24AWG, 250mm PTFE Wires, 8mm Tinned		

* Hex nut and o-ring sold separately, please contact us for details.

TYPICAL INSTALLATION
Customer has to select suitable resistors for their 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:

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

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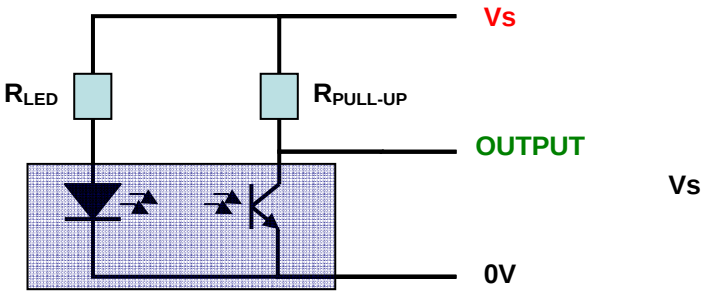
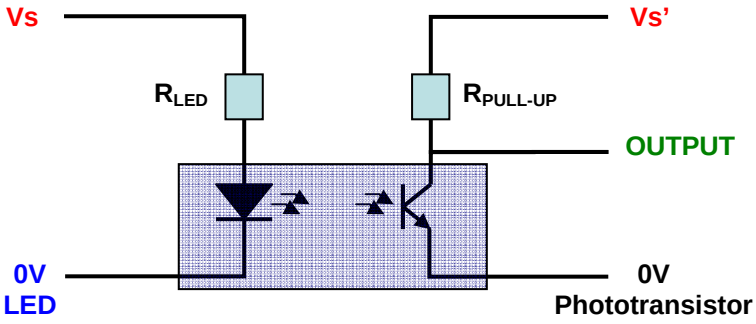
SCHEMATIC DIAGRAMS

LLC500A3/ LLC200A3SH/ LLC600A3SH



WIRE	DESIGNATION
RED	Vs
GREEN	OUTPUT
BLUE	0V

LLC500A4/ LLC200A4SH/ LLC600A4SH



WIRE	DESIGNATION
RED	Vs
GREEN	OUTPUT
BLUE	0V LED
BLACK	0V Phototransistor

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