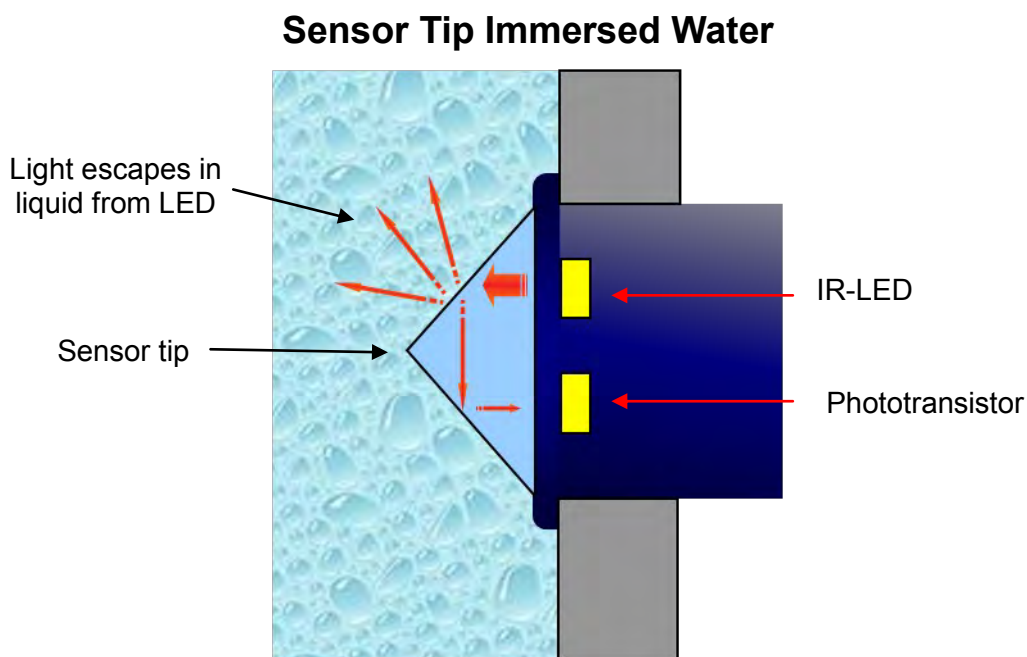
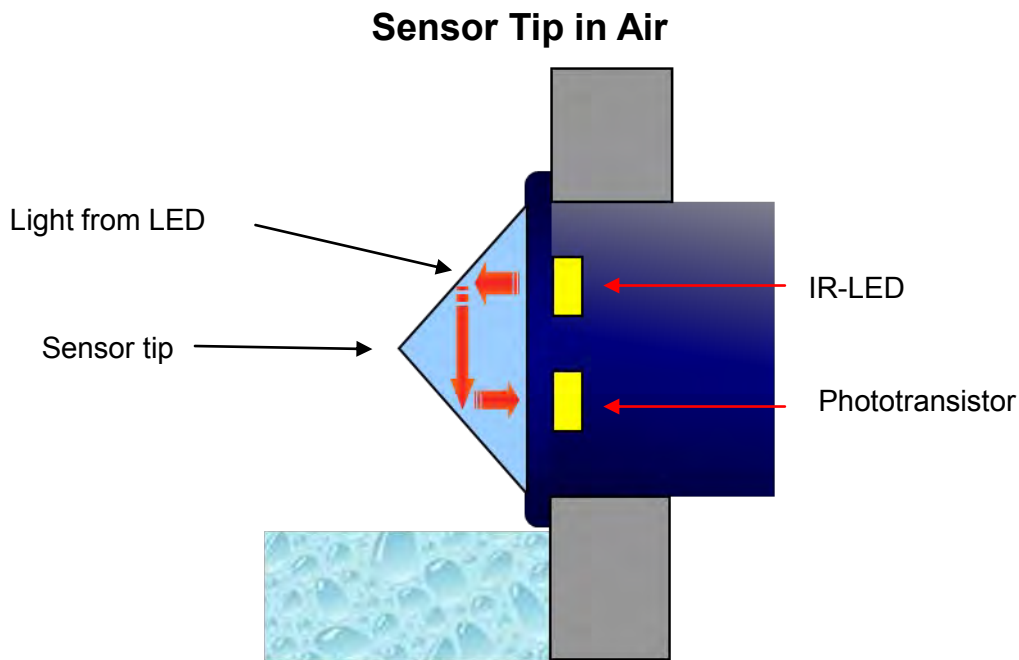


## Application Note

# Optical Liquid Level Sensor Operating Principle

An optical liquid level sensor uses an infra-red LED and phototransistor accurately positioned at the base of the sensor's tip. When the tip is air, infra-red light reflects internally round the tip to the phototransistor providing good optical coupling between the two. When the sensor's tip is immersed in liquid, the infra-red light escapes from the tip causing a change in the amount of light at the phototransistor which makes the output change state.



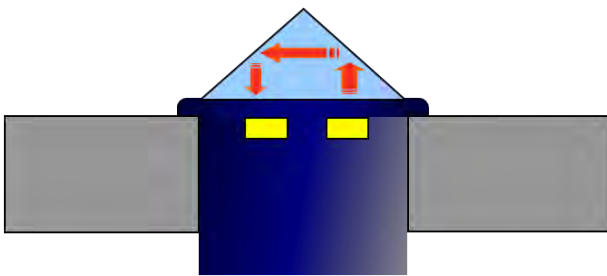
## Application Note

# Optical Liquid Level Sensor Mounting Guide

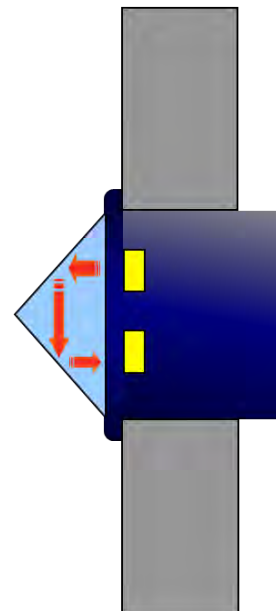
Optical liquid level sensors must be mounted from the side or from the bottom for proper use. Mounting sensors from the top down must be avoided to stop false readings caused by liquid droplets holding to the sensing tip.

Optical liquid level sensor performance can be affected by reflective surfaces in front of the sensing tip. Contact Cynergy3 if you wish to use a sensor within 10mm of a reflective surface.

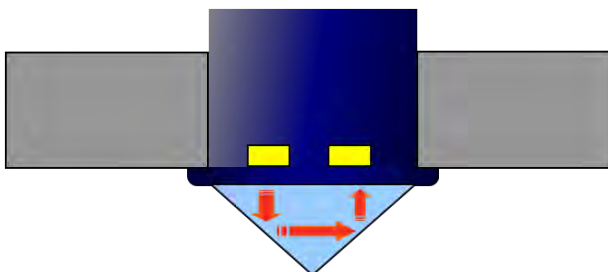
### Mounted from the bottom up



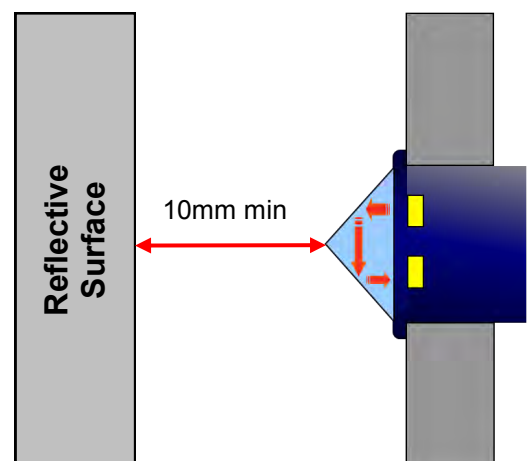
### Mounted from the side



### DO NOT mount from the top down



### Avoid reflective surfaces within 10mm of sensing tip



## Application Note

# Compatible Fluids for Polysulphone

Whilst the following list may be used as a guide and gives common industrial fluids that are typically acceptable, we recommend that before use you check that the fluid you wish to use this device in is compatible with polysulphone. See Page 4.

Acetic acid - Glacial	Glycerol
Acetic acid - 10%	Heptane
Ammonia - 88	Hydrochloric acid 10%
Ammonium Hydroxide - 10%	Hydrochloric acid conc.
Ammonium Chloride - 10%	Hydrogen Peroxide
Aviation spirit	Isopropanol
Benzene	Iso-Octane
Benzoic acid	Kerosene
Bleach	Linseed oil
Brine	Magnesium Sulphate
Butane	Methanol
Calcium Nitrate	
Calcium Hypochlorite	Motor oil
Carbon Tetrachloride	Nitric acid 10%
Chromic acid	Oils - Vegetable
Copper Sulphate	Oxalic acid
Creosote	
Cyclohexane	Petroleum Ether
Cyclohexanol	Potassium Hydroxide 10%
Detergent solutions	Potassium Hydroxide 50%
	Silicone fluids
Diethylamine	Silver Nitrate
Diethyl Ether	Soap solution
Diethyl Phthalate	Sodium Chloride
Edible fats & oils	Sodium Hydroxide 10%
Ethanol 50%	Sodium Hydroxide 50%
Ethyl Alcohol	Sulphuric acid 10%
Ethylene Glycol	Transformer oil
Ferric Chloride	Turpentine
Formaldehyde	Varnish
Formic acid	Water
	White Spirit

# Application Note

## Checking for compatibility of liquids.

The chemical compatibility lists are not exhaustive and customers often want to use our sensors with liquids that have not been approved before. In this case, the customer should perform a compatibility test using a sensor made with the material (Polysulphone) they wish to use.

The test is simple and is performed as follows:

- Submerge the sensor tip in the liquid of interest. The liquid should be heated to the maximum expected operating temperature.
- The sensor should be left in this liquid at the maximum operating temperature for 2 weeks.
- Remove the sensor and inspect it for signs of :
  - Cracking
  - Crumbling
  - Crazing
  - Melting
  - Deformation
- Assuming the sensor appears to have survived. Then it should be tested in accordance with it's operating procedure.
- If the sensor passes it's functional tests, then the liquid is deemed to be compatible with the sensor's housing material.

<p><b>WARNING</b>  <b>Personal Injury</b>          DO NOT USE these products as safety or Emergency Stop devices or in any other application Where failure of the product could result in Personal injury.  <b>Failure to comply with these instructions could Result in death or serious injury.</b></p>	<p><b>CAUTION</b>          Do not exceed maximum ratings. Although the sensor is protected against supply reversal, it is not recommended. Do not overtighten screw-in type. Do not use chlorinated solvents. Do not mount with dome pointing downwards.  <b>Failure to comply with these instructions may result in product damage.</b></p>
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**It is the customer's responsibility to ensure that this product is suitable for use in their application. For technical assistance or advice, please email us: [sales@cynergy3.com](mailto:sales@cynergy3.com)**

**General Note: Cynergy3 Components Ltd reserves the right to make changes in product specifications without notice. All information is subject to Cynergy3's own data and is considered accurate at time of going to print.**