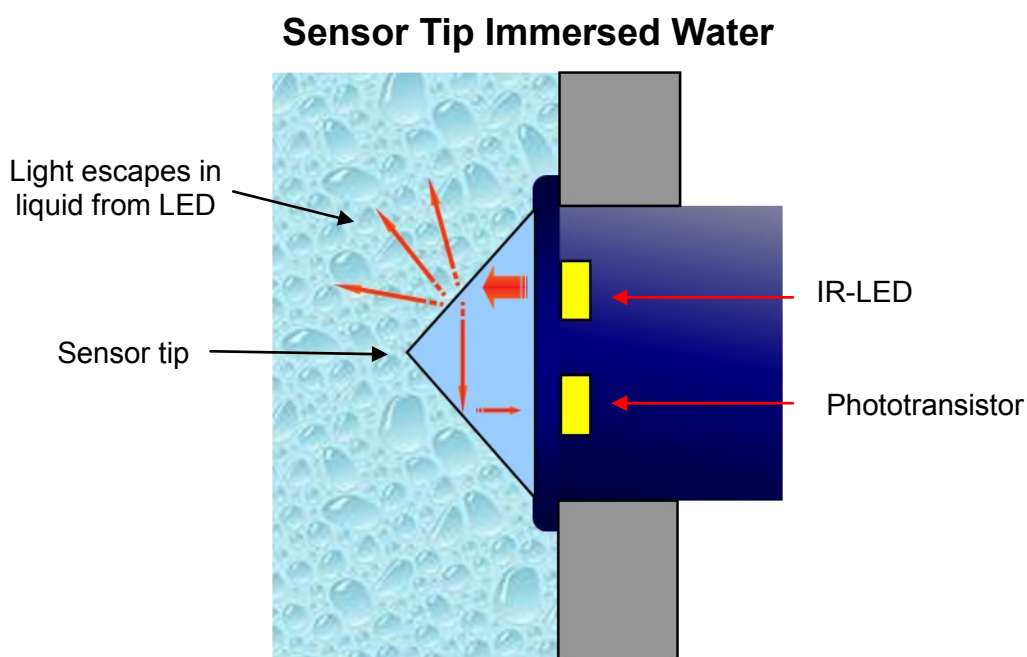
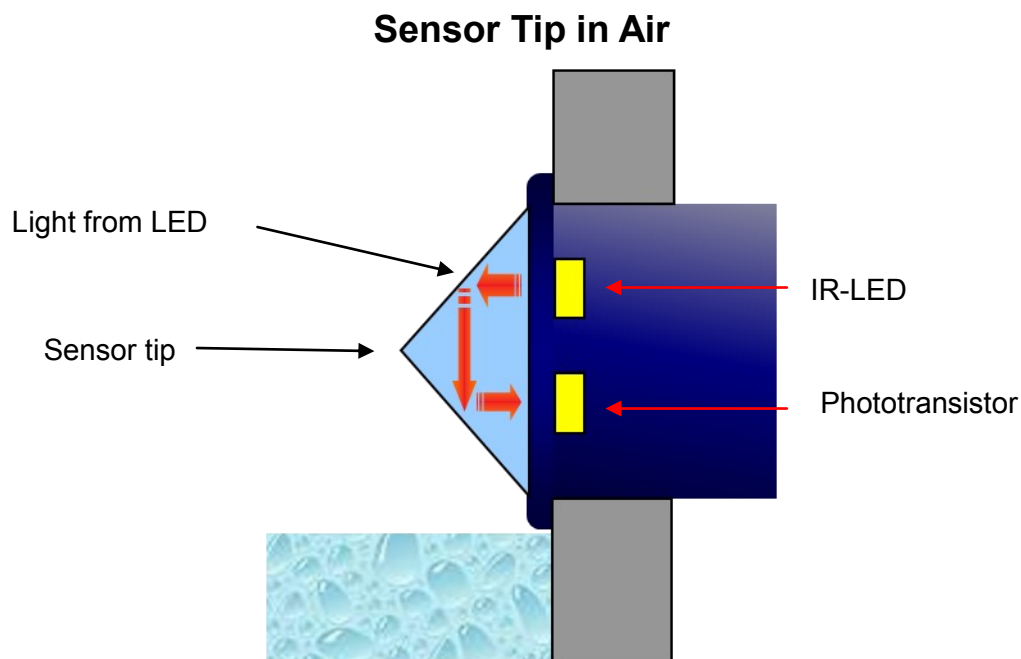


Application Note

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.



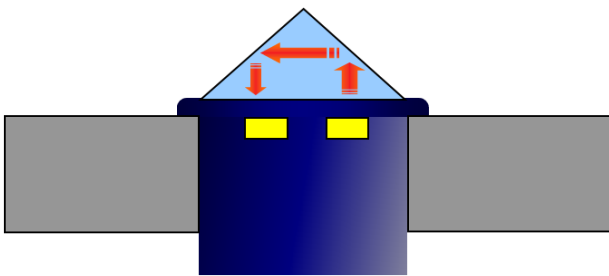
Application Note

Optical Liquid Level Sensor Mounting Guide

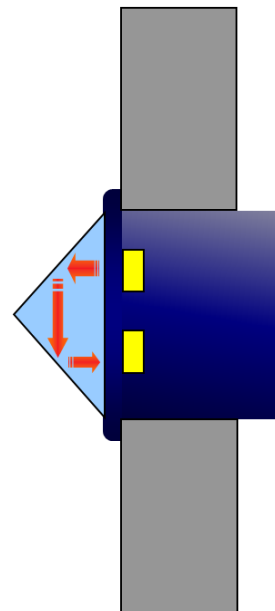
Optical liquid level sensors must be mounted from the side or from the bottom for proper use. Mounting sensors from the top down must be avoided to stop false readings caused by liquid droplets holding to the sensing tip.

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.

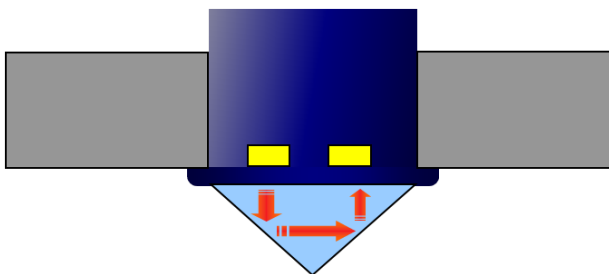
Mounted from the bottom up



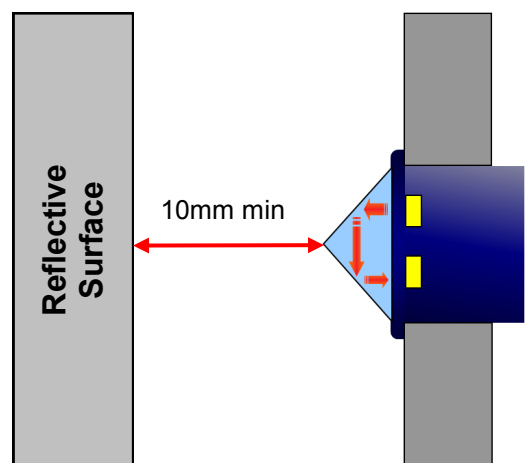
Mounted from the side



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.

WARNING

Personal Injury

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.

Failure to comply with these instructions could Result in death or serious injury.

CAUTION

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. **Failure to comply with these instructions may result in product damage.**

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

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.