


### General Description

The ELS-1150XP Explosion Proof Electro-Optic Liquid Level Detector is designed for the detection of a broad spectrum of liquid. It is especially suitable for use in environments that require high temperature and/or pressures. The ELS-1150XP features a fused glass prism Nickel-Plated Carbon Steel or Stainless Steel housing. The unit is suitable to high, low or intermediate liquid level detection in practically any tank large or small. Installation is simple through the tank top, side or bottom.

### Principle of Operation

The ELS-1150XP is a microcontroller based Electro-Optic level detector that contains an Infrared LED and an Infrared Light Detector. Light from the LED is directed into the glass prism; with no liquid present on the prism, the light from the LED is reflected within the prism to the detector. When liquid is present on the prism, the light is refracted into the liquid, leaving little or not light to reach the detector.

### Specifications

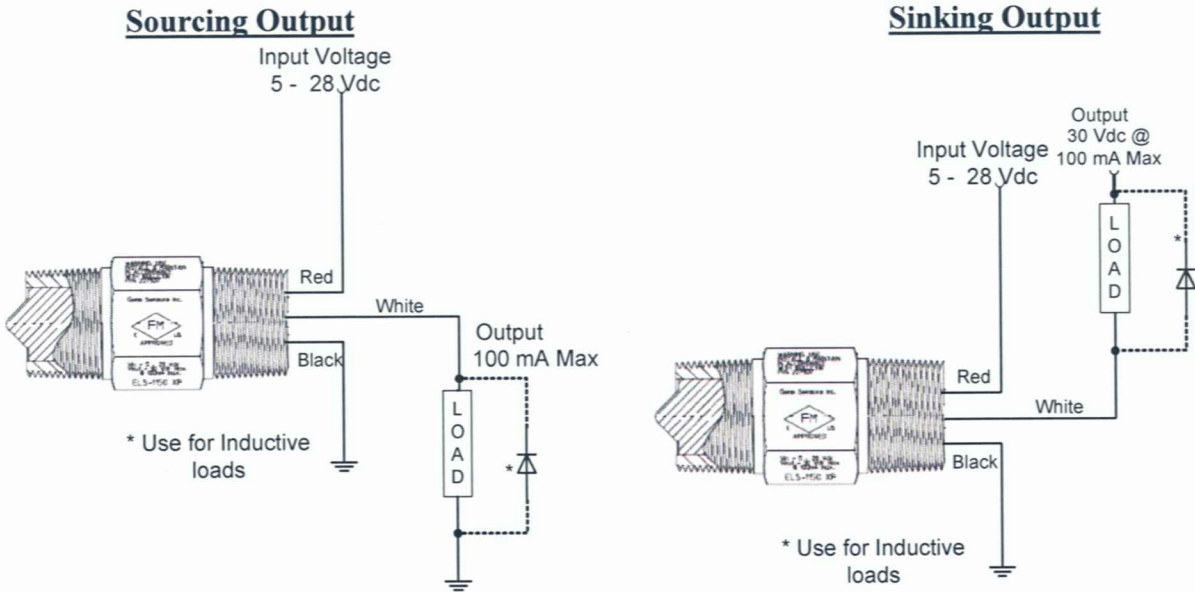
<b>Wetted Materials</b>	Housing (½”-14 NPT): Nickel Plated Carbon Steel Stainless Steel Prism: Fused Soda Lime Glass
<b>Operating Pressure</b>	0 to 5000 PSI (0 to 344.8 bar) Maximum
<b>Operating Temperature</b>	-40°F to + 257°F (-40°C to 125°C)
<b>Input Voltage</b>	5 Vdc to 28 Vdc
<b>Current Consumption</b>	~ 1mA no load
<b>Output</b>	Open Collector: Maximum sink current of 100mA @ 30Vdc Maximum Source current of 100mA
<b>Repeatability</b>	±1mm
<b>Approval Authority</b>	 <ul style="list-style-type: none"> <li>• <b>FM Approved Explosion Proof for:</b> Class 1 Division 1, Groups A, B, C and D</li> <li>• <b>Dust Ignition Proof for:</b> Class II / III Groups E, F, and G FM standards according to class number 3600,3615,and 3810</li> <li>• <b>EMI Specifications</b> Meets CE immunity standards per EN 61326</li> </ul>
<b>Ingress Protection</b>	IP 67
<b>Wiring Protection</b>	Reverse polarity protection on input terminals
<b>Electrical Termination</b>	Polyester lead wires, #18 AWG, 6ft standard
<b>Weight</b>	TBD

# Nomenclature



These Electro-optic devices are engineered to meet Class I Division 1 Explosion proof protection for use and installation in hazardous environments.

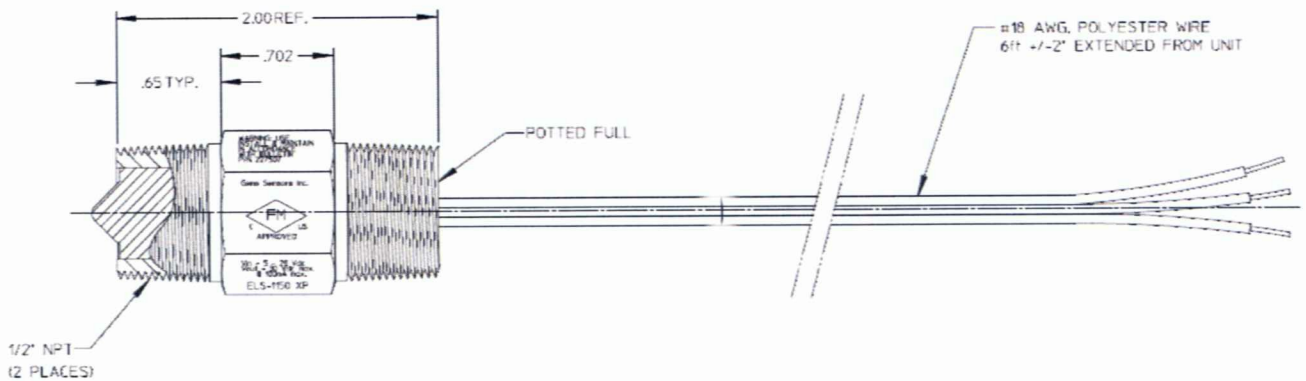
# Wiring Diagram



**Note: Must maintain suitable ground through metallic housing or equipment inter connection.**

**WARNING: In a hazardous environment, never open housing cover or connect power leads without first disconnecting electrical power at the source.**

# Dimensions



## **Installation**

1. Apply curing type thread sealant (such as Loctite® #565 with primer “N”), which is compatible with the liquid media. Teflon™ (TFE) tape or Permatex™ #80725 plastic pipe sealant may be used for the conduit connection. Tighten one- to - two turns (Max.) from hand-tight engagement.

**Note: Ground integrity of the sensor must be maintained at all times to meet the Explosion Proof requirements. After installation of the sensor, perform a continuity measurement between the sensor housing and system ground, <math><1\Omega</math> resistance must be maintained.**

2. Thread into properly sized fitting. Thread to a hand-tight engagement. Torque unit one-to-two turns maximum past the hand-tight engagement.

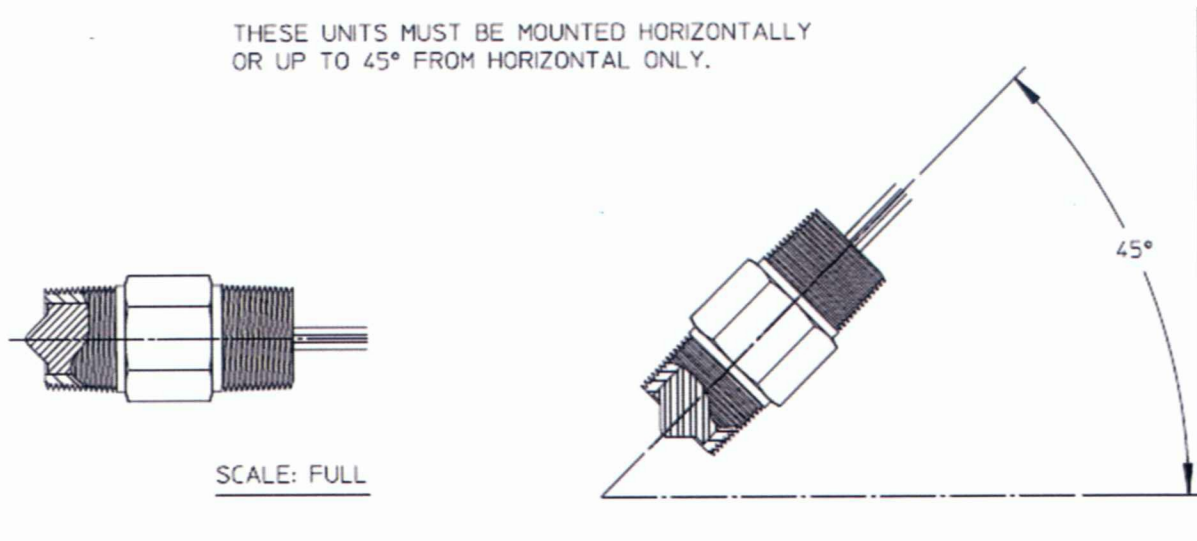
3. Sensor may be installed horizontally or up to 45° from horizontal for optimal operation.

4. Do not install sensor close to infrared light sources.

5. Prism surface must be at least 2” away from any reflective surface.

**NOTE: Make sure all wiring, conduit and electrical fittings conform to local Electrical Codes for location selected.**

## **Mounting Attitude**



## **Maintenance**

Electronics are constructed with solid-state components and epoxy-potted in the housing. Prisms may require periodic cleaning of the prism surface. A mild detergent may be used to clean prism surface.

## **Warning**

Product must be maintained and installed in strict accordance with the National Electrical Code and the applicable GEMS SENSORS technical bulletin and instruction bulletin. Failure to observe this warning could result in serious injuries or damage



### **Return Policy**

Returns are accepted in stock items up to 30 days from date of order. You must contact Gems Sensors returns department for a Return Authorization (RA) number. Return the goods-freight prepaid- in the original container and include original packing slip.

C.O.D. returns are not accepted. Gems Sensors reserves the right to apply restocking charges.

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This product complies with EN61326 Electrical Equipment for Measurement, Control and Laboratory use. EMC Requirements for Minimum Requirements and Industrial locations. Special caution should be taken to meet EN61000-4-5 Surge immunity if any of the following conditions apply to the installation: The product is installed outside; the cable is greater than 30 meters in length.

In order to meet the Surge immunity requirements, the following conditions must be followed during installation:

1. Shielded cable must be used, and the shield must be tied to earth ground (not power ground) on at least one end of the cable shield/drain wire. The shield must be maintained all the way from sensor to the power supply.
2. If unshielded cable is used, an earth ground metal conduit can be used to replace the shielded cable.
3. For the sensor with metal body or enclosure the body/enclosure must be grounded to earth. If a protective metal housing is used, the metal housing should be grounded to earth.
4. If a protective plastic housing is used, the housing must be able to withstand at least 2kV from housing to earth ground.



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