Discriminating Liquid Sensor for Interstitial Applications

- Three distinct outputs: Dry, Water Present, Fuel Present
- Compact — fits interstitial spaces
- Unaffected by vapors; even at high concentrations
- Easy removal and re-installation for cleaning
- No moving parts — long life

Gems combines proven electro-optic and conductive technologies together to deliver advanced capabilities in the ECS-1100-IS discriminating liquid sensor. Internal logic discriminates between water- and hydrocarbon-based liquids. No moving parts and solid-state switching encased in a rugged housing ensures dependable, long service.

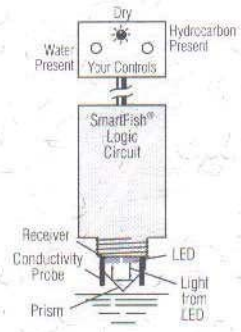
A slim, compact form allows easy installation into interstitial areas of double-wall pipes and tanks using an integral pull ring to "snake" into place. Remove the pull ring and the ECS-1100-IS installs into any tank or reservoir via 1/4 FNPT fittings for high, low or intermediate level detection.

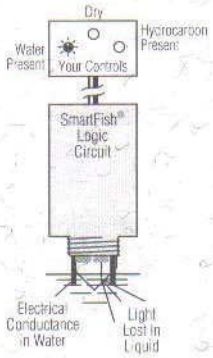
The ECS-1100-IS sensor is easy to remove, clean and reinstall after an alarm condition is triggered, or for maintenance. Available in either 5 VDC or 10-28 VDC input versions.

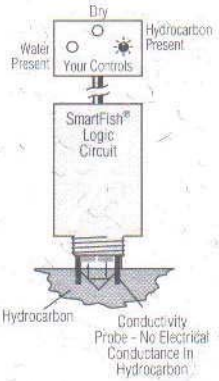
Simple, Reliable Operation

The electro-optical/conductivity sensor contains an infrared LED and a light receiver. Continuous light from the LED is directed into a prism which forms the tip of the sensor. Two probes extend from the prism to measure conductivity.

With no liquid present, light from the LED is reflected within the prism to the receiver. When rising liquid immerses the prism, the light is refracted out into the liquid, leaving little or no light to reach the receiver. Simultaneously, the conductivity probes determine if the liquid is conductive (water-based) or non-conductive (hydrocarbon-based). Sensing the change in light intensity and measuring the liquid's conductivity level, the receiver actuates electronic switching within the unit. A logic circuit built into the sensor housing evaluates the two inputs and gives one of three output signals: Dry, Water Present, or Hydrocarbon Present.



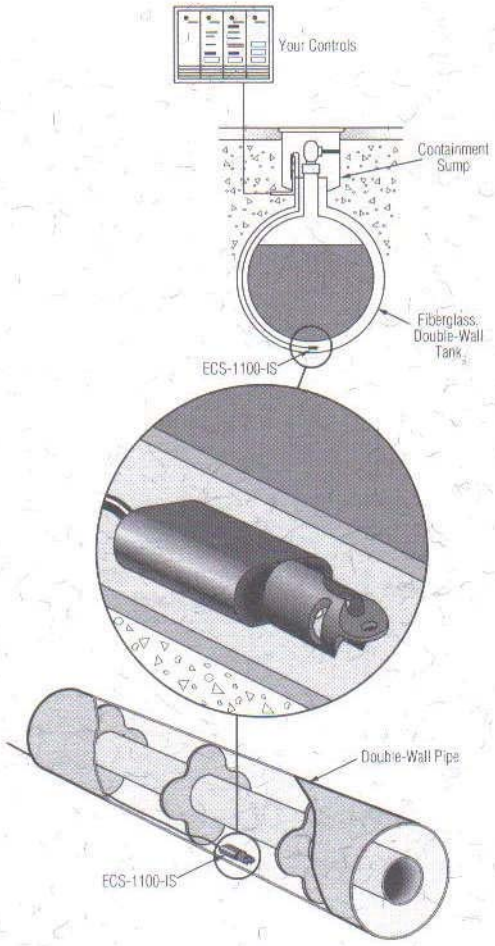




Application

Interstitial Monitoring (Dry)

- Double-Wall Tanks
- Containment Sumps
- Double-Wall Pipes



PN / 148797

Specifications

Wetted Materials	Polysulfone, PVC, Stainless Steel, Epoxy
Operating Temperature	32°F to 158°F (0°C to 70°C)
Current Consumption	17 mA, Approximately
Output	TTL/CMOS Compatible. May sink up to 40 mA
Cable	Four (4) Conductor PVC Jacketed (25 ft. Extended)
Approvals	UL Classified for Class I, Group D Hazardous Locations

Note: ECS-1100-IS sensors are non-voltage producing devices and do not contain energy storing components. However, since primary use is in hazardous locations, an appropriate intrinsically safe interface device is required for its use.

Electrical Parameters

Entity Parameters for 5V Version

Terminal	V_{MAX}	I_{MAX}	C_i	L_i
Red/Black	10 V	766 mA	0	0
Green/Black	10 V	766 mA	0	0
White/Black	10 V	766 mA	0	0

Entity Parameters for 10-24V Version

Terminal	V_{MAX}	I_{MAX}	C_i	L_i
Red/Black	24 V	150 mA	.052 µf	0
White/Black	24 V	150 mA	.052 µf	0

$V_{MAX} \geq V_{OC}$ (barrrier)

$I_{MAX} \geq I_{SC}$ (barrier)

$C_i + {}^{C}\text{cable} \leq {}^{C}A$ (barrier)

$L_i + {}^{L}\text{cable} \leq {}^{L}A$ (barrier)

Definitions:

V_{OC} = Maximum Open Circuit Voltage

I_{SC} = Maximum Short Circuit Current

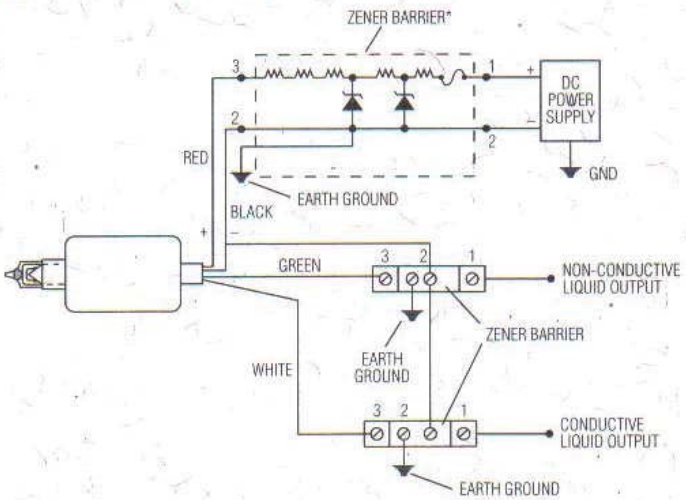
C_i = Internal Capacitance

L_i = Internal Inductance

Output Logic

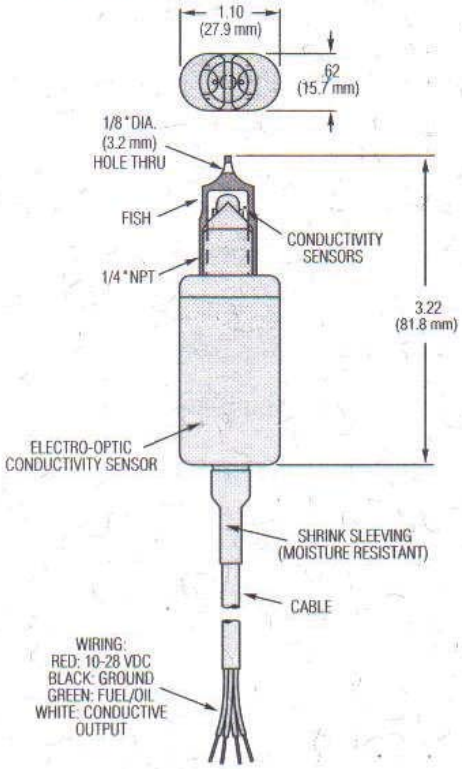
Probe Condition	Green Wire Hydrocarbon (Non-Conductive) Output (Logic State)	White Wire Water (Conductive) Output (Logic State)
Air	"0"	"1"
Water	"0"	"0"
Fuel	"1"	"1"

Typical Wiring Diagram



* Source voltage not greater than 250 VAC. Zener barriers must be installed in accordance with barrier manufacturer's instructions.

Dimensions



How to Order

Specify Part Number: **148797**

For application information call our environmental products specialists toll-free: **800-770-0505**