



OMNTEC
Advanced Tank Monitoring & Leak Detection



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L1PD2

WITH (1) L-1 (1) L-2 (1) LS-ASC SENSORS

INSTALLATION GUIDE



THREE CHANNEL ALARM PANEL

Revision 2536

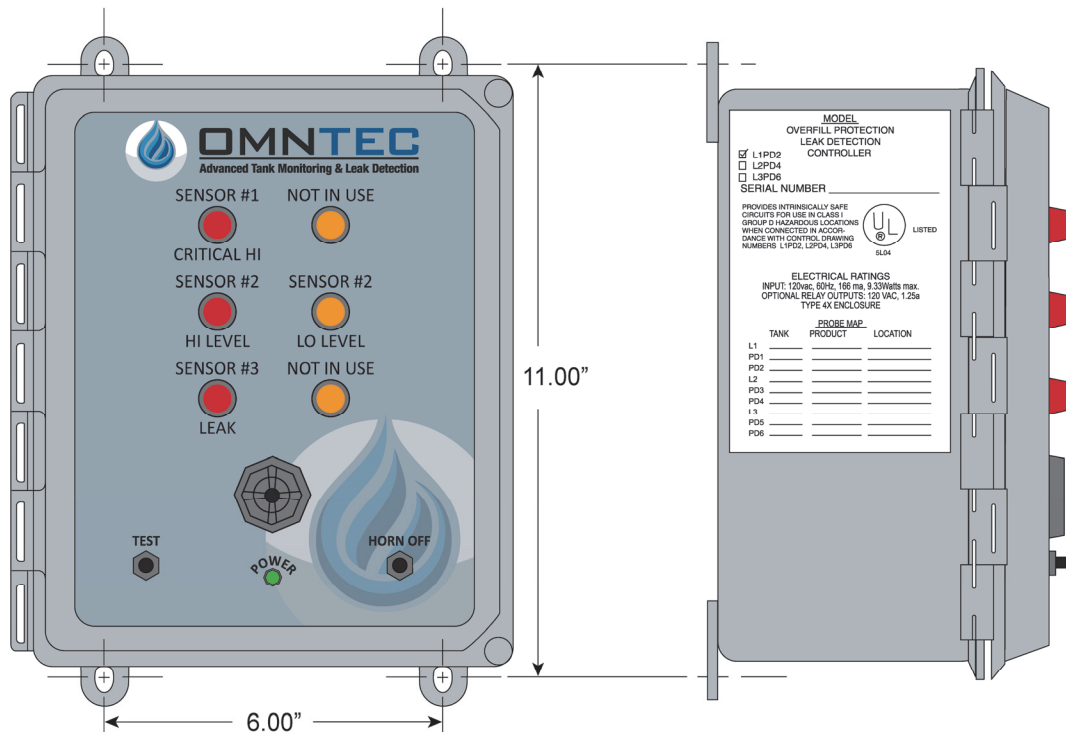
Document No. L1PD2 with (1) L-1 (1) L-2 (1) LS-ASC Sensors

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L1PD2 WITH (1) L-1 (1) L-2 (1) LS-ASC SENSORS

THREE CHANNEL ALARM PANEL



L1PD2 WITH (1) L-1 (1) L-2 (1) LS-ASC SENSORS SPECIFICATIONS

POWER INPUT

85-125 VAC, 47-440 Hz
16 Watts maximum

POWER TO SENSORS

2 VDC @ 13 mA

RELAY OUTPUT

(3) SPST normally open dry contacts 0.5 AMPS,
120 AC/DC switches when an alarm condition occurs

WEIGHT

6 LBS.

DIMENSIONS

(W) 9" x (H) 10.5"

SENSOR CABLE

Shielded 22 AWG UL-E118830 CM
Maximum length 2000 feet

ENCLOSURE

NEMA 4X

OPERATING TEMPERATURE

-40° to 140° F

UL LISTED

Intrinsically safe circuits for use in class I group D hazardous locations when connected in accordance with control drawings L1PD2

AUDIO/VISUAL CONSOLE

AUDIBLE ALARM - 95 dB pulsing horn with 30 second timeout

RED LIGHT - Indicates Critical Hi Level, Hi Level, and Leak alarm for L Series sensors

AMBER LIGHT - Indicates Low Level alarm for L Series sensors

TEST BUTTON - When pressed will test all lights and horn

GREEN LIGHT - Indicates the power is on

HORN OFF BUTTON - Silences the audible alarm when pressed

SENSORS

L-1 High level optic sensor
L-2 Dual level high/low liquid optic sensor
LS-ASC Liquid optic sensor

OPTIONAL ACCESSORIES

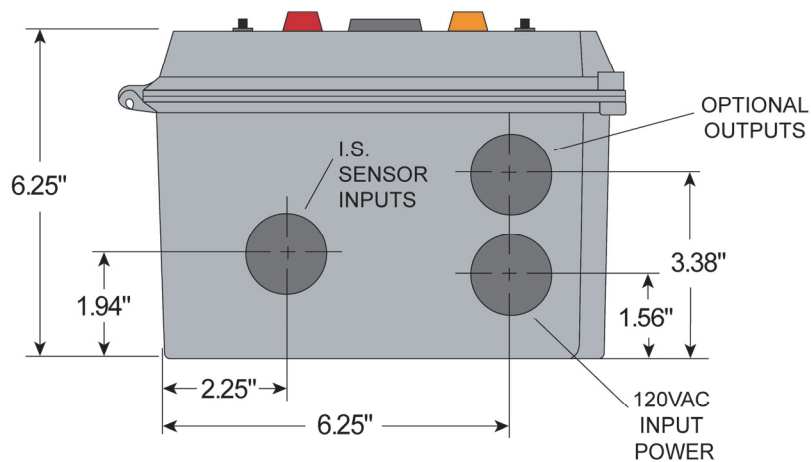
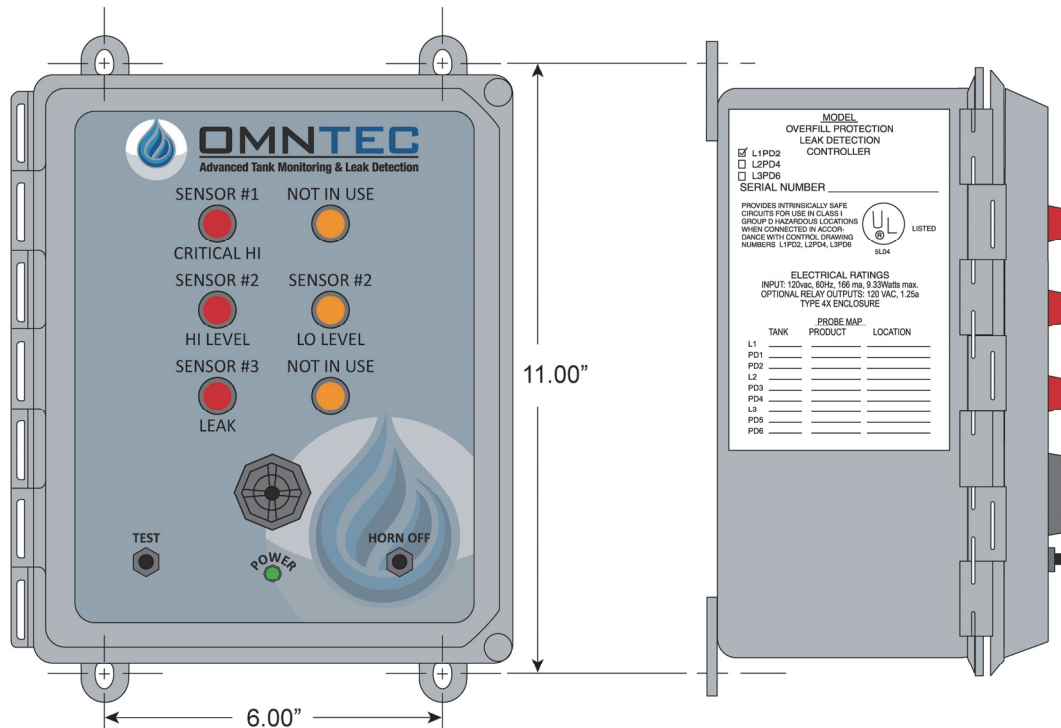
RA-Series Audio/visual remote annunciator
RLY-RA External relay box series

LABELS

Provided with controller

L1PD2 WITH (1) L-1 (1) L-2 (1) LS-ASC SENSORS

DIMENSIONS FOR MOUNTING AND KNOCKOUTS



LPD-SERIES INSTALLATION INSTRUCTIONS

1. CONTROL UNIT

The control unit (see pg. 3) should be mounted in a manned area. Route sensor control cable through conduit from the junction box to the control unit. Sensor control cables enter the control unit through the output port only. The cables are wired as shown in the appropriate drawing (see pg. 6). The control unit accepts any possible combination of L-Series sensors.

1. INPUT POWER HOOKUP

Input power requirements are:

85 – 125 VAC

16 Watts max

47 – 440 Hz

Input power cable should be wired in accordance with all pertinent electrical codes. This cable should enter the control unit through the input power port only. The power is hooked up to the power supply and wired as per control drawing.

NOTE: EARTH GROUND TERMINAL MUST BE CONNECTED.

2. REMOTE ANNUNCIATOR OPTION

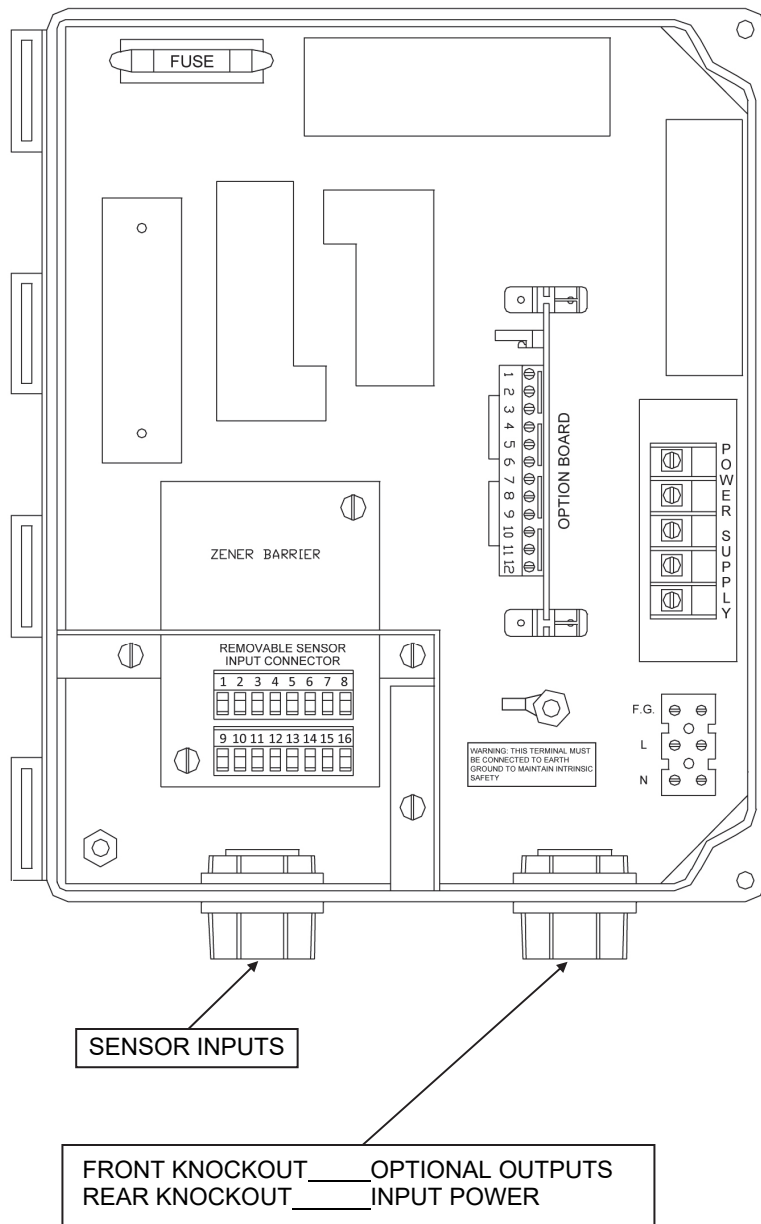
Mount remote annunciator (see pg. 9) within audio / visual range of the filling operator. NOTE: the remote must be outside of the HAZARDOUS AREA. Pull appropriate low voltage wire from the remote to the control unit. See appropriate drawing for wiring details. Run wires through output port. Connect color coded nuts.

3. SK-4 CONNECTOR SEALING KIT

Make all splices using SK-4 connector kit (supplied).

L1PD2 CONTROLLER CONNECTION DIAGRAM

WITH (1) L-1 (1) L-2 (1) LS-ASC SENSORS



COLOR CODE

CABLES FROM SENSORS TO REMOVABLE SENSOR INPUT CONNECTORS

1	RED	SENSOR #1 L-1 (L.E.D.)
2	WHITE	SENSOR #1 L-1 (CRITICAL HI)
3	RED	SENSOR #2 L-2 (L.E.D.)
4	WHITE	SENSOR #2 L-2 (HI LEVEL)
5	GREEN	SENSOR #2 L-2 (LOW LEVEL)
6	RED	SENSOR #3 LS-ASC LEAK
7	WHITE	
8	UNUSED	
9	BLACK	FROM SENSORS #1 - #3
10	SHIELD DRAIN	
11	UNUSED	
12	UNUSED	
13	UNUSED	
14	UNUSED	
15	UNUSED	
16	UNUSED	

WIRES TO OPTION BOARD

WIRES FROM REMOTE

1	GREEN	- HORN
2	RED	+ HORN
3	BLACK	GROUND
4	WHITE	SENSOR #1 CRITICAL HI
5	ORANGE	SENSOR #2 HI LEVEL
6	BLUE	SENSOR #3 LEAK

WIRES FROM RELAY OUTPUTS

7	COMMON	SENSOR #3 LEAK
8	NORMALLY OPEN	
9	COMMON	SENSOR #2 HI LEVEL
10	NORMALLY OPEN	
11	COMMON	SENSOR #1 CRITICAL HI
12	NORMALLY OPEN	

120VAC

WIRES TO POWERSUPPLY

F.G.	FIELD GROUND
L	LINE
N	NEUTRAL

NOTE: To maintain proper shielding, BLACK sensor wires and SHIELD DRAINS should **not** be connected together at sensors.



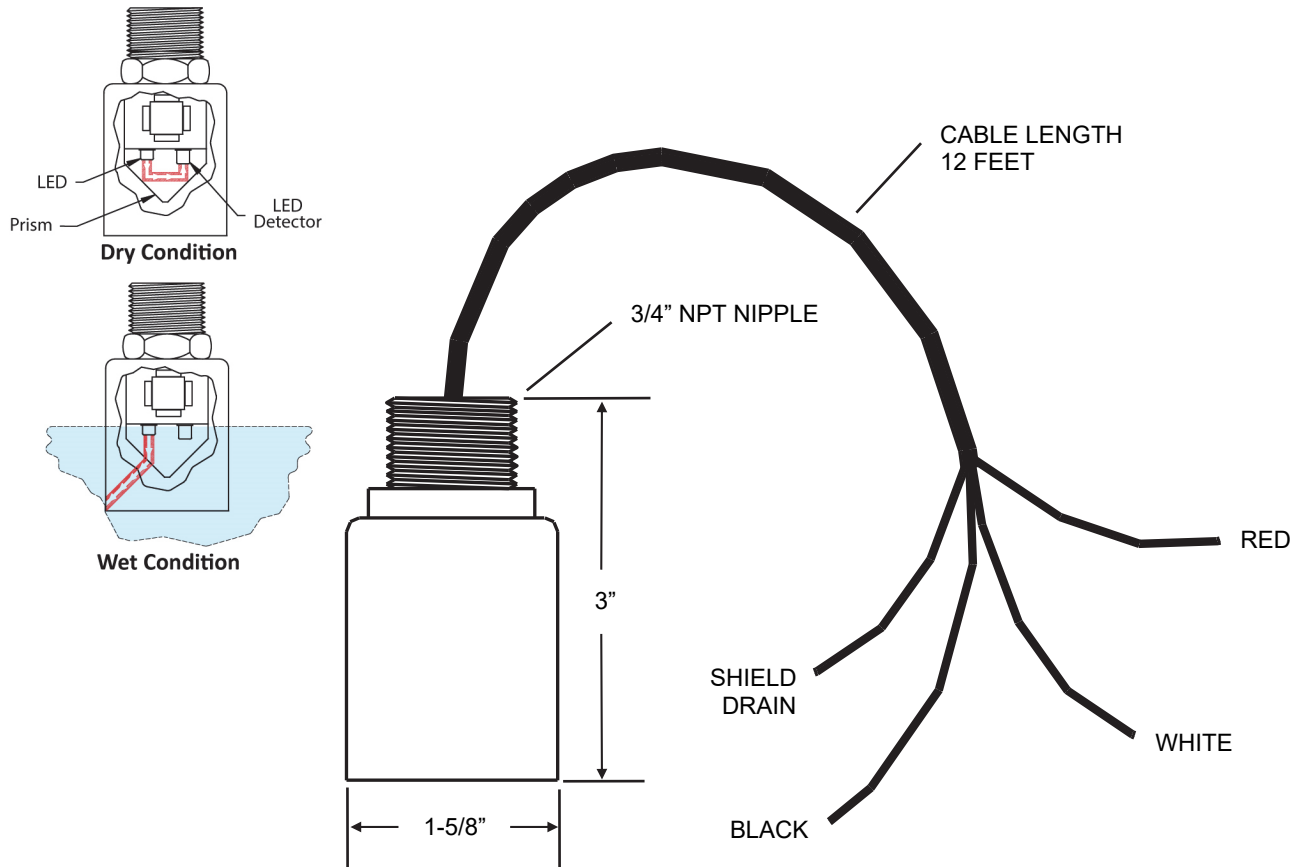
OMNTEC

Advanced Tank Monitoring & Leak Detection

LS-ASC SENSOR

NON-PRODUCT DISTINGUISHING OPTIC SENSOR

PRINCIPLES OF OPERATION



LS-ASC SPECIFICATIONS

U.L. LISTED 5L04

Intrinsically safe Class I, Group D Hazardous Locations when connected in accordance with control drawing nos. L1, L2, L3, L4, L6, L9

OPERATING TEMPERATURE

-40 TO +140 F

POWER

2 VDC @ 13 mA

WEIGHT

1/2 pound

PRINCIPLES OF OPERATION

LIQUIDS (ex: fuel, water) – Photo optic

DRY CONDITION – Normally closed light beam

ALARM CONDITION – Opens (refracts) normally closed light beam

SENSOR CABLE

Shielded 22 AWG UL-E118830 CM

Maximum length 2000 feet

RESPONSE TIME

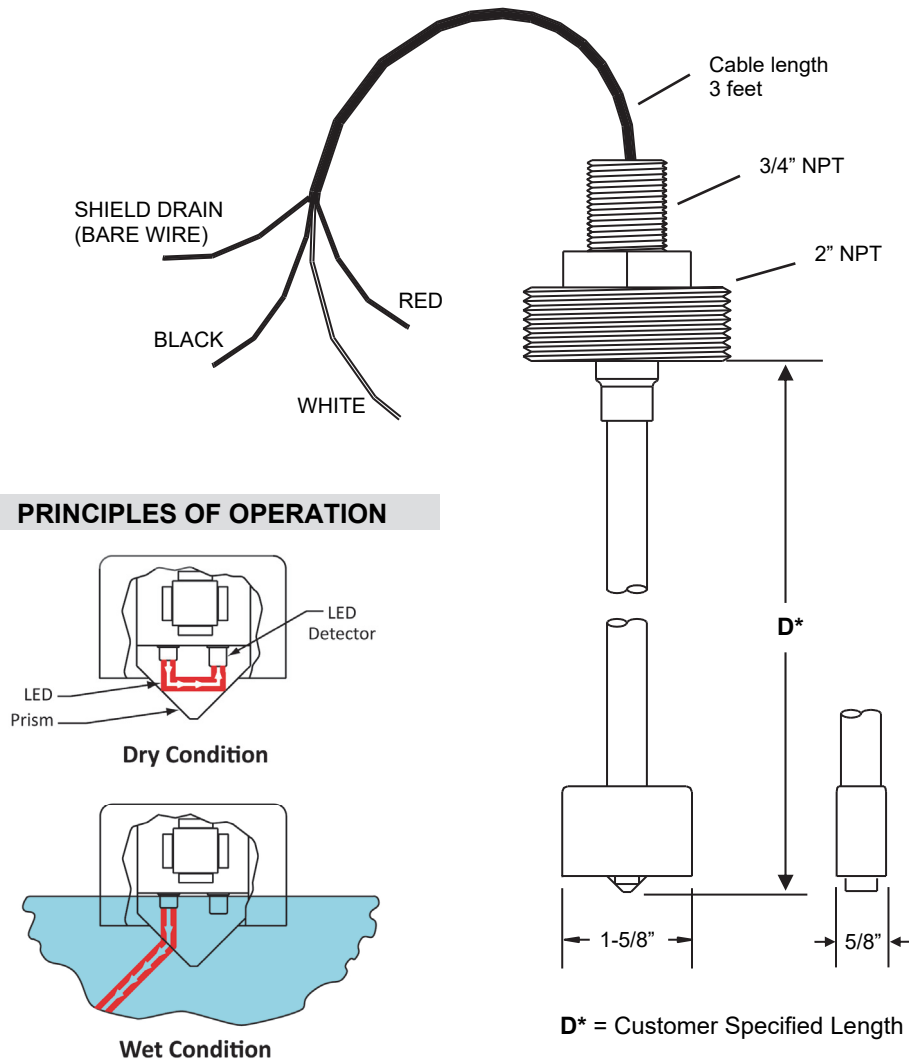
Immediate



OMNTEC

Advanced Tank Monitoring & Leak Detection

L-1 SENSOR LIQUID LEVEL OPTIC SENSOR



L-1 SPECIFICATIONS

U.L. LISTED 5L04

Intrinsically safe Class I, Group D Hazardous Locations when connected in accordance with Control Drawing nos. L1, L2, L3, L4, L6, L9

OPERATING TEMPERATURE

-40 TO +140 F

POWER

2 VDC @ 13 mA

WEIGHT

2 pounds

PRINCIPLES OF OPERATION

Liquids (ex: fuel, water) - Photo optic

Dry Condition - Normally closed light beam

Alarm Condition - Opens (refracts) normally closed light beam

SENSOR CABLE

Shielded 22 AWG UL-E118830 CM

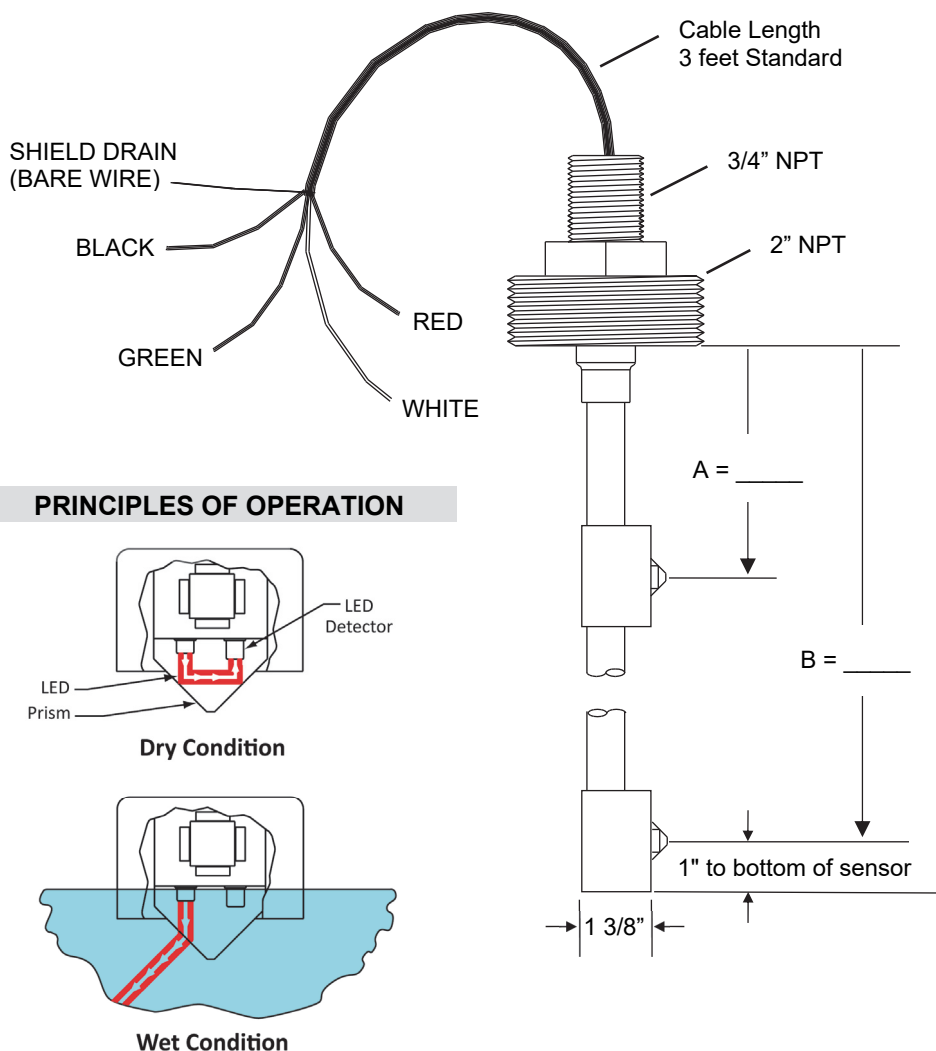
Maximum length 2000 feet

RESPONSE TIME

Immediate

L-2 SENSOR

DUAL LEVEL LIQUID OPTIC SENSOR FOR HIGH AND CAUTION LEVEL



L-2 SPECIFICATIONS

U.L. LISTED 5L04

Intrinsically safe Class I, Group D Hazardous Locations when connected in accordance with Control Drawing nos. L1, L2, L3, L4, L6, L9

OPERATING TEMPERATURE

-40 TO +140 F

POWER

2 VDC @ 13 mA

WEIGHT

2 pounds

PRINCIPLES OF OPERATION

Liquids (ex: fuel, water) - Photo optic
Dry Condition - Normally closed light beam
Alarm Condition - Opens (refracts) normally closed light beam

SENSOR CABLE

Shielded 22 AWG UL-E118830 CM
Maximum length 2000 feet

RESPONSE TIME

Immediate

LPD SERIES SYSTEM OPERATION AND TEST INSTRUCTIONS

1. On the front panel the Green "SYSTEM DETECTING" light should be on indicating that system is up and running
2. If sensors are not in alarm, all Red and Amber lights should be off (see figure 1)
 - a) Optical sensors are solid state and use a normally closed light loop in a prism for sensing. When liquid is present at sensor, the normally closed loop opens, thus sending an alarm signal back to the alarm panel. The panel responds by turning on the appropriate light and sounding an audible alarm (see figure 2). The audible alarm will signal for 30 seconds. The visual alarm will remain on until alarm condition is cleared.
 - b) PD-Series sensors contain a conductivity electrode that will send an alarm upon presence of water. In the unlikely event that the conductivity electrode does not detect water, the sensor will send a liquid alarm signal to the controller as described in 2(a).
 - c) Since OMNTEC employs electro-optic technologies and works with a normally closed beam of light. Any wire break, disconnection, or sensor malfunction will be immediately indicated at the control panel.
3. Sensors can be tested as follows:
 - a) Since sensors work with normally closed loop of light be sure sensor is not exposed to light source of any kind.
 - b) Hit the test button on alarm panel and observe panel lights (see figure 3).
 - c) If all lights illuminate and audible alarm sounds, system test is complete.
 - d) When test button is hit a signal is sent to sensor to turn its light off. What this does is put the sensor into an alarm condition simulating an actual alarm even by opening the normally closed light loop.
 - e) The sensor then responds as explained in part 2(a).
 - f) Pressing Horn OFF button will silence audible alarm.
 - g) The conductivity portion of the sensor can be tested by submerging the sensor in water.

4. System should be tested on at least a weekly basis
5. The physical location of all sensors should be checked for proper location, at a minimum, on an annual basis (ie. *high level, interstitial, sump, piping sump).
6. Every alarm, malfunction and test result should be recorded in a dated signed log

Note: If a reservoir or high/low sensor is being used follow same procedures as above to test its high level portion. To test low level sensor, it must either be lifted out of liquid, or liquid level must be lowered below sensor

**L-series sensor high level to be set at no greater than 95%. Pump shutdown available when using RLY series relays.*

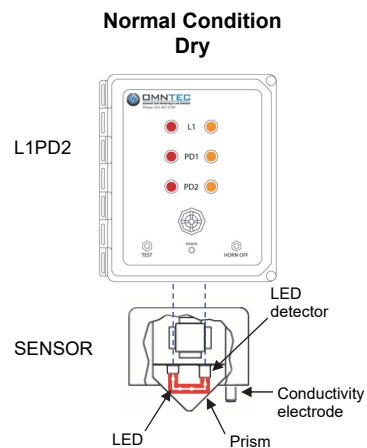


Figure 1

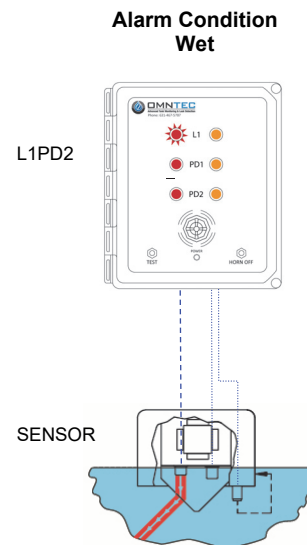


Figure 2

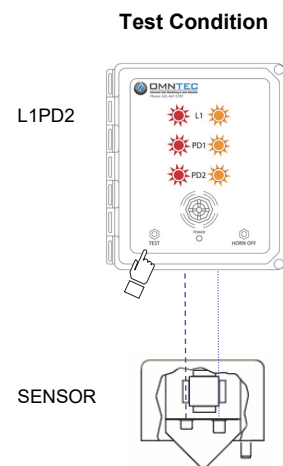


Figure 3

----- Normal signal
 Alarm signal

RA-SERIES REMOTE HIGH-LEVEL ALARM

RA-1



RA-2



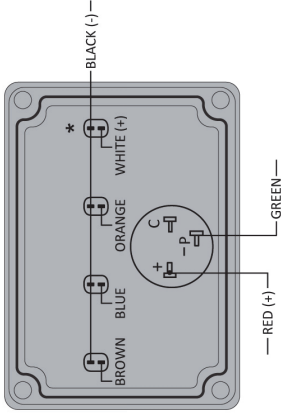
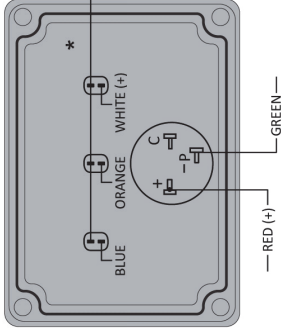
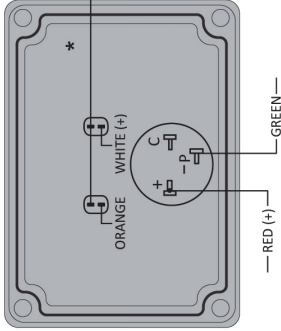
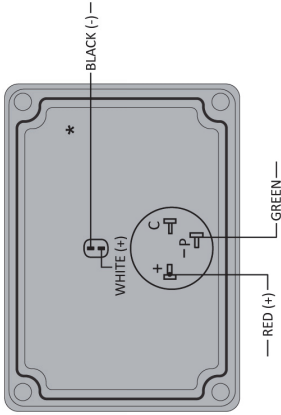
RA-3



RA-4

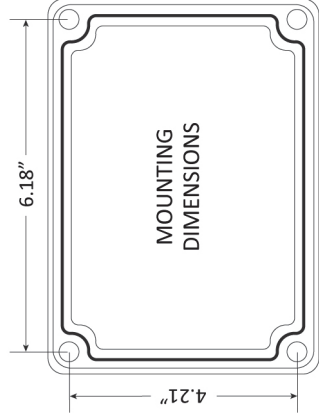
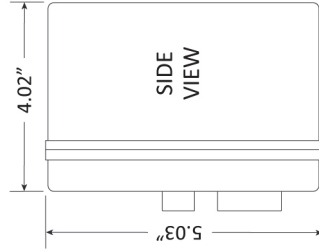


INTERNAL WIRING COLOR CODE



*Warning Label Placed Here

WARNING: LOW VOLTAGE INPUTS ONLY



SPECIFICATIONS	
Audible Alarm	95 dB pulsing horn
Red Light	Liquid-high-level alarm
Response Time	Immediate
Power Input	12VDC @200mA maximum from controller
Wire	22 AWG minimum
Weight	1 lb.

Note: It is recommended that knockouts be placed in the bottom of enclosure.



LOG SHEET

[illegible]

WARRANTY

The seller OMNTEC Mfg., Inc. warrants to buyer defects when properly installed, and maintained by user. The seller's sole obligation is to repair or replace parts found to be defective, or non-conforming for one year and only after evaluation by factory. The liability of the seller shall not exceed the price paid for the components found to be defective. The above warranty is exclusive of all other warranties whether implied or expressed. Seller assumes no obligation for special or, indirect damages incurred by user.

All standard tank gauging systems are free of defects when properly installed and maintained by user. Warranty on tank gauging systems will only be effective after proper documentation has been submitted by the buyer to OMNTEC Mfg., Inc. The seller's sole obligation is to repair or replace parts found to be defective, or non-conforming for one year and only after evaluation by factory. Technical support must be contacted for a Return Material Authorization (RMA #) prior to sending any potentially defective parts. The liability of the seller shall not exceed the price paid for the components found to be defective. The above warranty is exclusive of all other warranties whether implied or expressed. Seller assumes no obligation for special or indirect damages incurred by user.

All standard replacement parts, "add-ons", or spare parts are free of defects when properly installed and maintained by user. The seller's sole obligation is to repair or replace parts found to be defective or non-conforming for 90 days and only after evaluation by factory. The liability of the seller shall not exceed the price paid for the components found to be defective. The above warranty is exclusive of all other warranties whether implied or expressed. Seller assumes no obligation for special or indirect damages incurred by user.

Equipment not covered by this warranty includes but is not limited to: custom equipment and control systems.