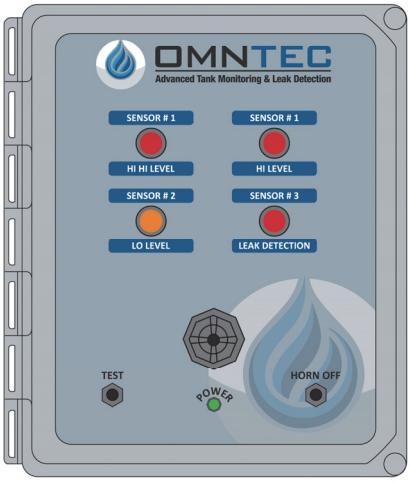
OMNTEC
Advanced Tank Monitoring & Leak Detection

1. Open the camera app
2. Focus the camera on the QR code by gently tapping the code
3. Follow the instructions on the screen to view PDF file

LU4-1HH1LOL INSTALLATION GUIDE



FOUR CHANNEL ALARM PANEL

Revision 2607

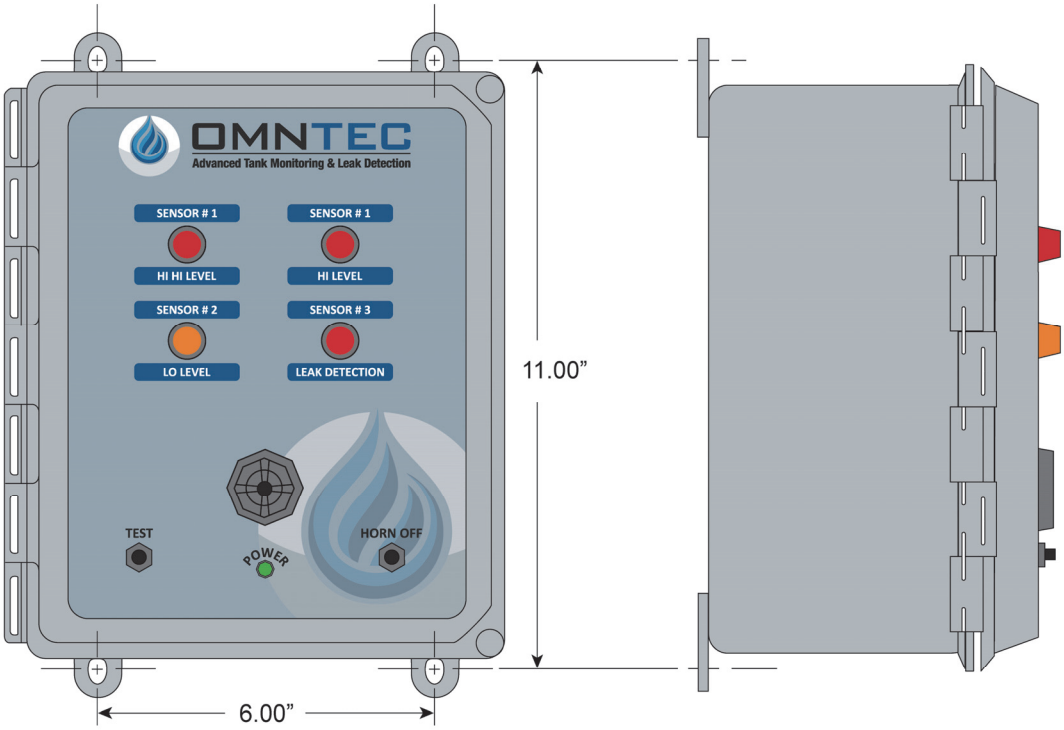
Document No. LU4-1HH1LOL

OMNTEC® Mfg., Inc. | 2420 Pond Road | Ronkonkoma | NY 11779 | (631) 981-2001 | OMNTEC@OMNTEC.com | www.OMNTEC.com

TABLE OF CONTENTS

LU4-1HH1LOL

FOUR CHANNEL ALARM PANEL



LU4-1HH1LOL SPECIFICATIONS

POWER INPUT
100-240 VAC, 50-60 Hz
16 Watts maximum

POWER TO SENSORS
2 VDC @ 13 mA

RELAY OUTPUT
(2) 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

AUDIO/VISUAL CONSOLE
AUDIBLE ALARM - 95 dB pulsing horn with 30 second timeout
RED LIGHT - Indicates Hi Hi / Hi Level from L-2 sensor and Leak alarm from LS-ASC sensor
AMBER LIGHT - Indicates Lo Level alarm from L-1 sensor
TEST BUTTON - When pressed will test system lights and horn
GREEN LIGHT - Indicates the power is on
HORN OFF BUTTON - Silences the audible alarm when pressed

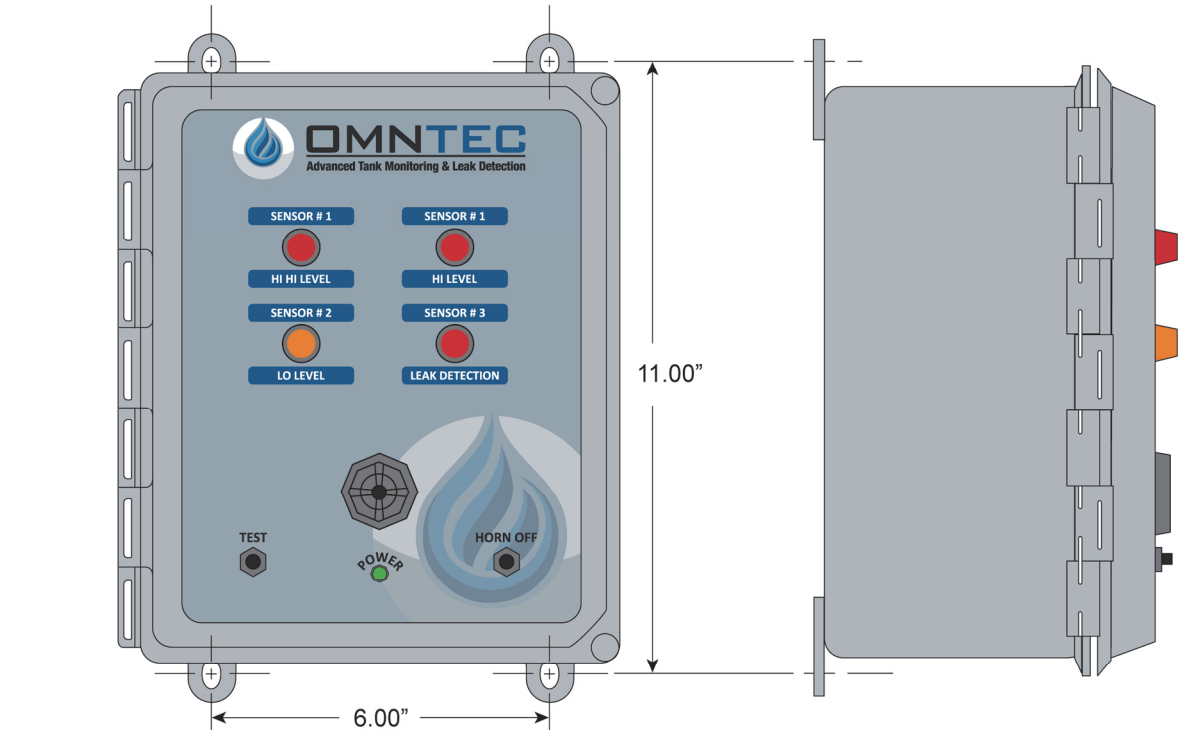
SENSORS
L-1 Single point level sensor
L-2 Dual point level sensor
LS-ASC Liquid sensor

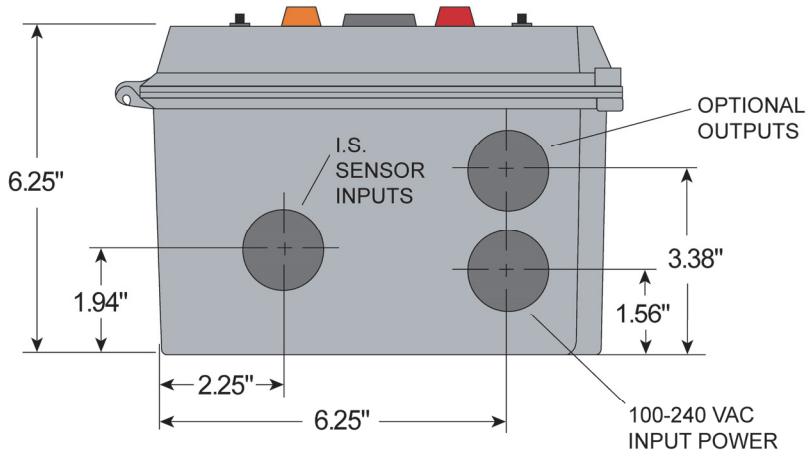
OPTIONAL ACCESSORIES
RA-1 Audio/visual remote annunciator
RLY-RA Relay (consult factory)
RA-1-NYS Remote annunciator with strobe (consult factory)

LABELS
Provided with controller

LU4-1HH1LOL

DIMENSIONS FOR MOUNTING AND KNOCKOUTS





LU-SERIES INSTALLATION INSTRUCTIONS

READ ALL INSTRUCTIONS PRIOR TO SYSTEM INSTALLATION. ALL WIRING IS TO BE DONE IN ACCORDANCE WITH ALL NATIONAL AND LOCAL ELECTRICAL CODES. POWER IS TO BE OFF DURING ANY WIRING. WIRE AND TEST ENTIRE SYSTEM BEFORE UTILIZING SK-4 CONNECTOR SEALING KITS. STANDARD EQUIPMENT IS COMPATIBLE WITH MOST PETROLEUM PRODUCTS. SOME CHEMICAL AND SOLVENTS REQUIRE SPECIFIC MATERIALS OF CONSTRUCTION. IF UNSURE OF COMPATIBLE CONTACT MANUFACTURER.

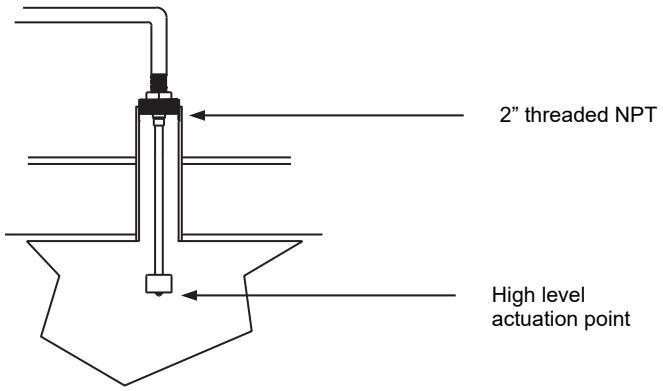
* For waste oil applications consult factory *

1. L-SERIES SENSOR

1. L-1 SENSOR

The L-1 sensor (see pg. 12) is primarily used to detect a liquid level inside the tank. The sensor detects a single liquid level and is typically used for overfill protection at 90% tank capacity. Standard sensor part numbers are L-1-S (12”), L-1-L (20”), L-1-D (custom length).

The L-1 sensor is installed into the tank via the 2” bushing which is an integral part of the sensor. This sensor screws directly into a 2” female threaded NPT (use a reducer bushing if necessary).

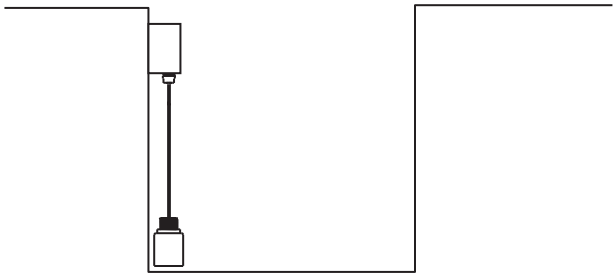


Connection of the sensor to the control unit cable is made in a junction box. For detailed wiring scheme refer to appropriate drawing (see pg. 8 and 10). These connections must be made using supplied SK-4 connector sealing kit.

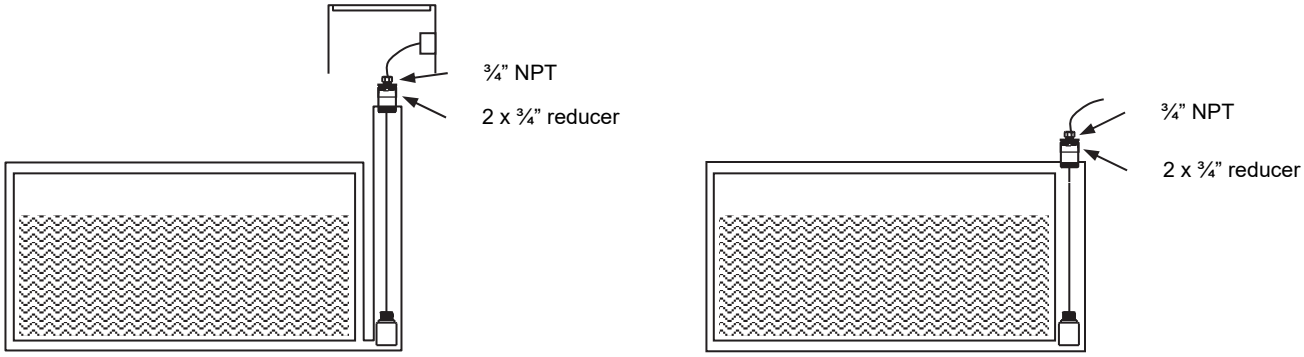
2. LS-ASC SENSOR

The LS-ASC sensor (see pg. 9) is designed to detect liquid in sumps or containment areas and steel interstitial spaces for above ground and underground tanks.

1. To install the LS-ASC sensor as an above ground sump sensor mount a junction box between 2 and 3 feet above bottom of containment area. Attach sensor to junction box via conduit or cable clamp, leaving a ¼" clearance between the sensor end and the bottom of the containment area. For detailed wiring scheme refer to appropriate drawing (see pg. 8 and 9). Connect sensor cables to control unit cables in junction box using supplied SK-4 connector sealing kit.



2. To install the LS-ASC as a doublewall tank sensor remove the oiltight from the sensor cable. Feed the cable through the appropriate bushing required to adapt the interstitial port to 3/4" NPT (oiltight). Feed wires through oiltight, leaving it loose. Gently lower sensor down interstitial port until it rests on the bottom. Install oiltight into the bushing. Pull sensor up by the cable until it just comes off the bottom. Maintain this position and tighten the oiltight fitting. This is required to seal the interstitial port. All connections are made using the supplied SK-4 connector kit.



2. 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. 8). The control unit accepts any possible combination of L-series sensors.

INPUT POWER HOOKUP

Input power requirements are:
100-240 VAC
16 Watts max
50-60 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.

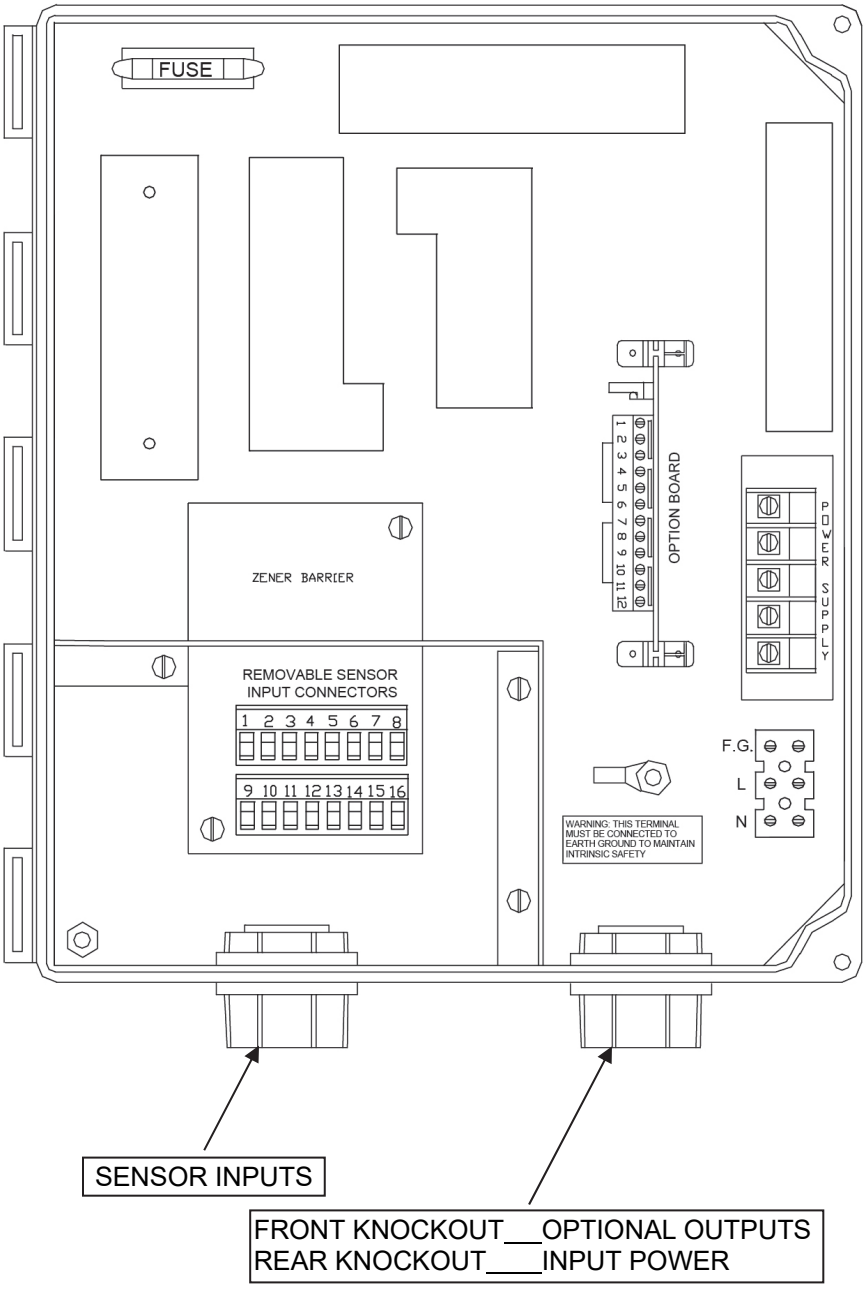
3. REMOTE ANNUNCIATOR OPTION

Mount remote annunciator (see pg. 12) 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.

4. SK-4 CONNECTOR SEALING KIT

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

LU4-1HH1LOL CONTROLLER CONNECTION DIAGRAM



COLOR CODE

CABLES FROM SENSORS TO REMOVABLE SENSOR INPUT CONNECTORS

1	RED	SENSOR #1 L-2 (HI HI / HI LELVEL)
2	WHITE	
3	UNUSED	
4	GREEN	
5	RED	SENSOR #2 L-1 (LO LEVEL)
6	WHITE	
7	BLACK	GROUND FROM SENSOR #1 & #2
8	SHIELD DRAIN	
9	BLACK	GROUND FROM SENSOR #3
10	SHIELD DRAIN	
11	RED	SENSOR #3 LEAK
12	WHITE	
13	UNUSED	
14	UNUSED	
15	UNUSED	
16	UNUSED	

WIRES TO OPTION BOARD

WIRES FROM RA-SERIES REMOTE

1	GREEN	-HORN
2	RED	+HORN
3	BLACK	GROUND
4	WHITE	SENSOR #1 HI HI LEVEL
5	ORANGE	SENSOR #1 HI LEVEL
6	BLUE	SENSOR #2 LO LEVEL
7	BROWN	SENSOR #3 LEAK
8	UNUSED	

WIRES FROM RELAY OUTPUTS

9	COMMON	SENSOR #1 HI LEVEL
10	NORMALLY OPEN	
11	COMMON	SENSOR #1 HI HI LEVEL
12	NORMALLY OPEN	

100-240 VAC

WIRES TO POWER SUPPLY

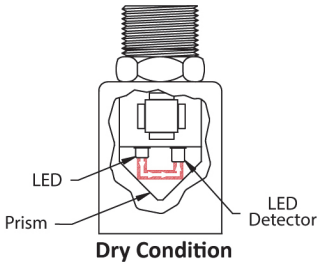
F.G.	FIELD GROUND
L	LINE
N	NEUTRAL

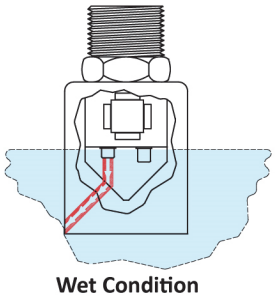
NOTE: To maintain proper shielding, BLACK **sensor** wires and SHIELD DRAINS should **not** be connected together at sensors.

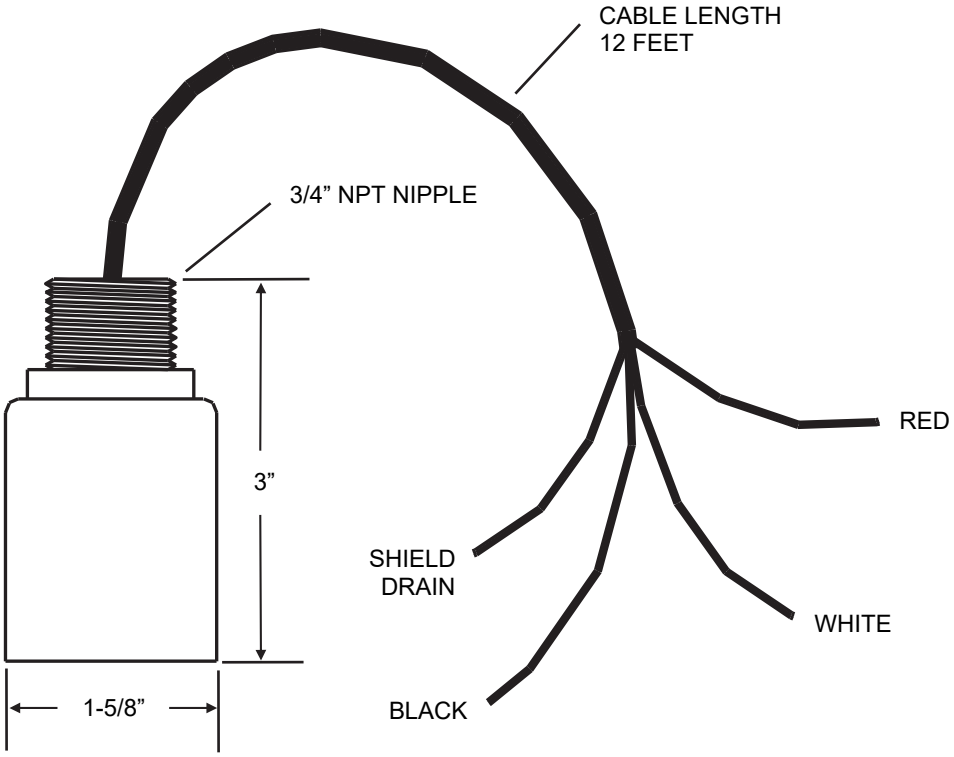
LS-ASC SENSOR

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

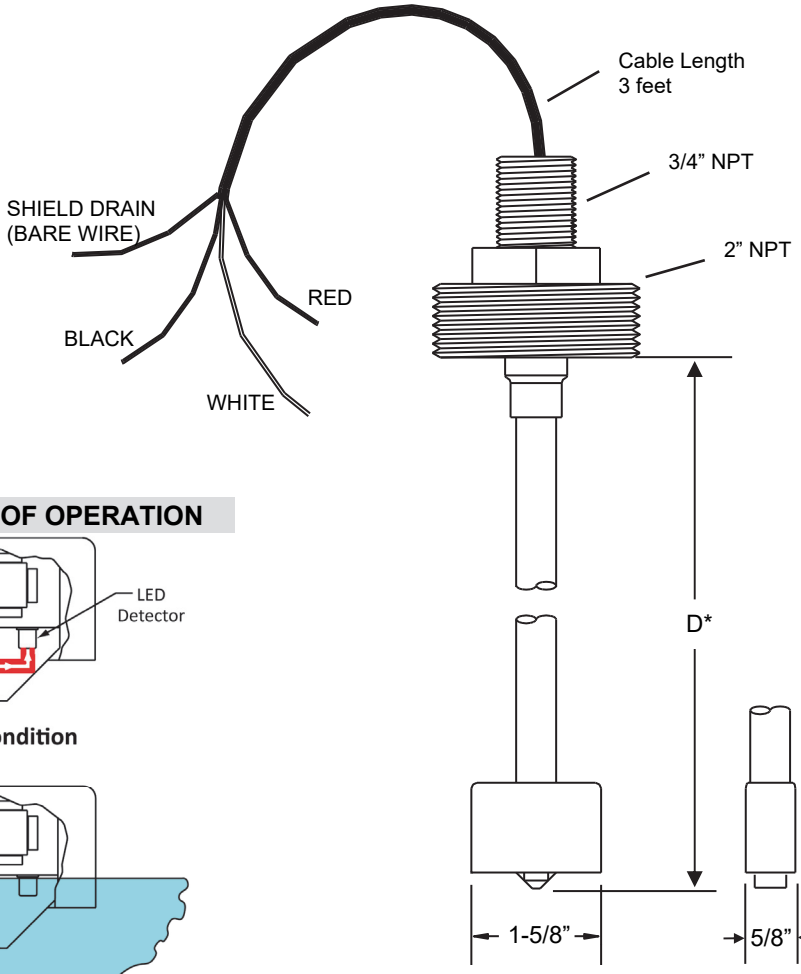
PRINCIPLES OF OPERATION
LIQUIDS (ex: fuel, water) – Photo optic
DRY CONDITION – Normally closed light beam
ALARM CONDITION – Opens (refracts) normally closed light beam

SENSOR CABLE
Shielded 22 AWG UL-E118830 CM
Maximum length 2000 feet

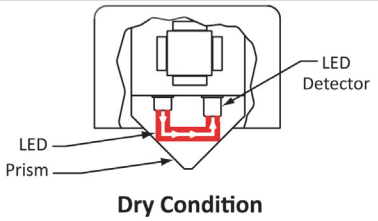
RESPONSE TIME
Immediate

L-1 SENSOR

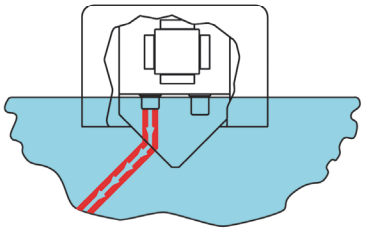
LIQUID LEVEL OPTIC SENSOR



PRINCIPLES OF OPERATION



Dry Condition



Wet Condition

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

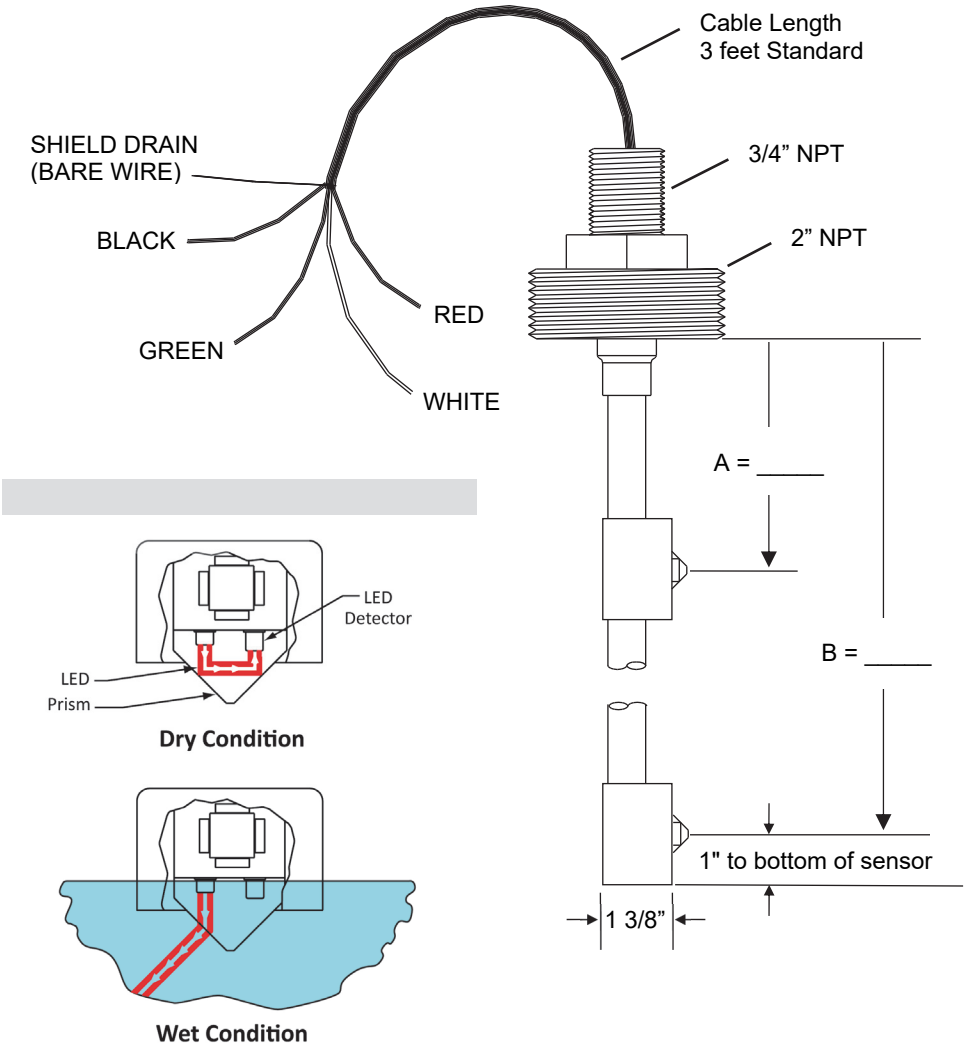
PRINCIPLES OF OPERATION
LIQUIDS (ex: fuel, water) – Photo optic
DRY CONDITION – Normally closed light beam
ALARM CONDITION – Opens (refracts) normally closed light beam

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

RA-SERIES REMOTE HIGH-LEVEL ALARM

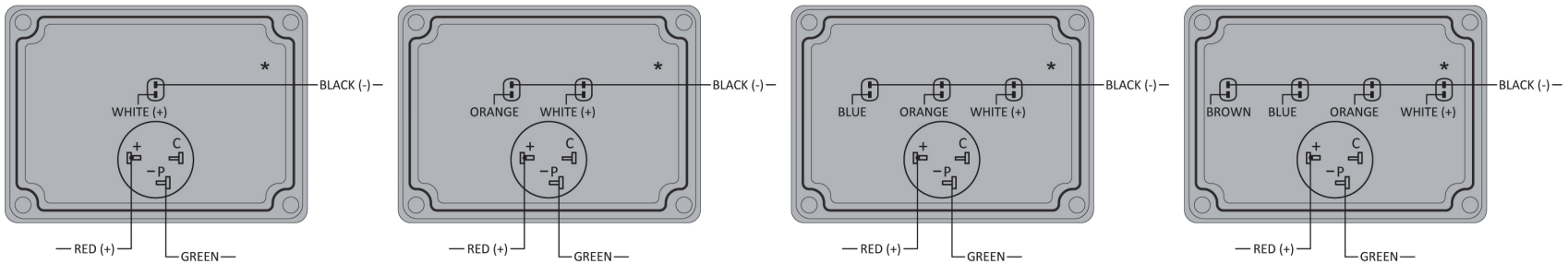
RA-1

RA-2

RA-3

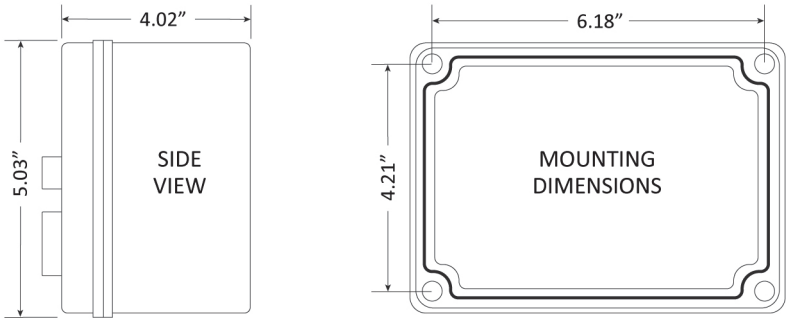
RA-4

INTERNAL WIRING COLOR CODE



*Warning Label Placed Here

WARNING: LOW VOLTAGE INPUTS ONLY



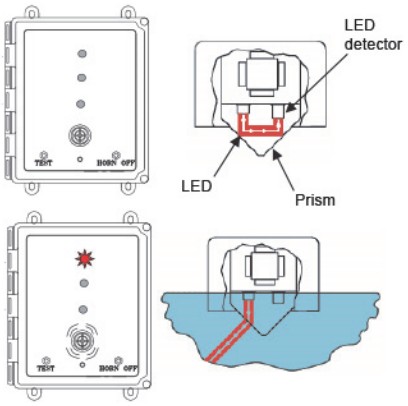
Note: It is recommended that knockouts be placed in the bottom of enclosure.

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.

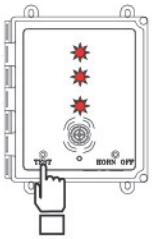
LU-SERIES SYSTEM OPERATION AND TEST INSTRUCTIONS

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 lights should be off
   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 of light is open, thus sending an alarm signal back to the alarm panel. The panel responds by turning on the appropriate light and sounding an audible alarm.
   b) Since OMNTEC employs electro-optic technologies and works off a normally closed beam of light. Any wire break, disconnection, short circuit, or sensor malfunction will be immediately indicated at the control panel.



3. Since system sensors are solid state and work with normally closed loop of light, sensors can be tested as follows:
   a) Hit the test button on alarm panel and observe panel lights.
   b) If all lights illuminate and audible alarm sounds, system test is complete.
   c) 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 by simulating an actual alarm event by opening the normally closed light loop.
   d) The sensor then responds as explained in part 2(a).



4. System should be tested, at a minimum, on 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.

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

OMNTEC
Advanced Tank Monitoring & Leak Detection

LOG SHEET

DATE	NAME	SYSTEM STATUS	SIGNATURE

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 warrantees 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 warrantees 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 warrantees 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.