



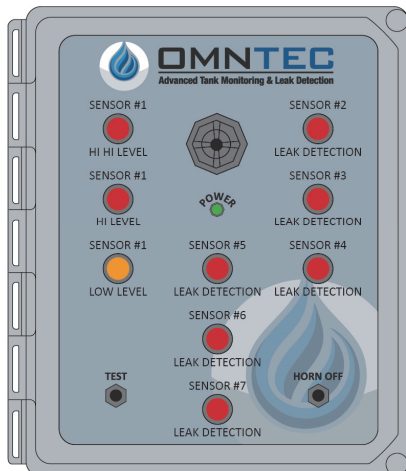
OMNTEC
Advanced Tank Monitoring & Leak Detection



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

LU9-LF-HHLO6L

INSTALLATION GUIDE



NINE CHANNEL ALARM PANEL

Revision 2548

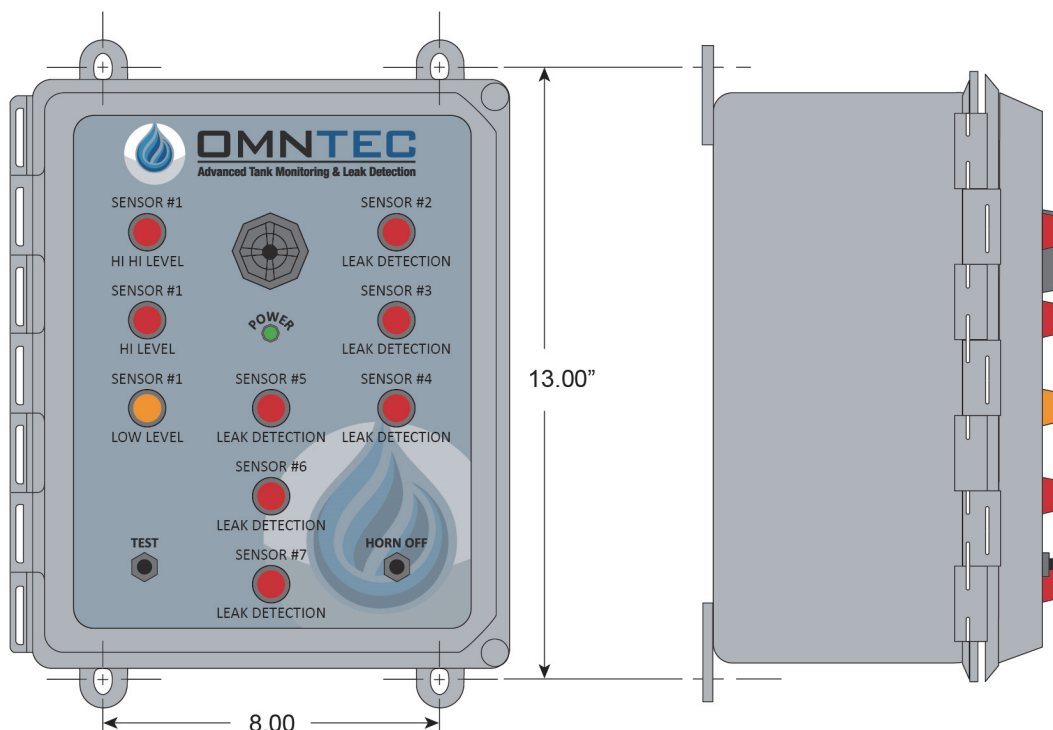
Document No. LU9-LF-HHLO6L

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LU9-LF-HHLO6L

NINE CHANNEL ALARM PANEL



LU9-LF-HHLO6L SPECIFICATIONS

POWER INPUT

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

POWER TO SENSORS

2 VDC @ 13 mA

RELAY OUTPUT

SPST normally open dry contacts 0.5 AMPS, 120 AC
switches when an alarm condition occurs

WEIGHT

6 LBS.

DIMENSIONS

(W) 10.875" x (H) 12.25"

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 leak alarm, hi hi level alarm and hi level alarm

AMBER LIGHT - Indicates lo level alarm

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 High level sensor

LS-ASC Liquid sensor

LWF Double wall liquid sensor

LF-3-SS Three-point stainless steel float sensor, normally closed

OPTIONAL ACCESSORIES

RA Series Remote annunciator

RLY-RA Series Relay (consult factory)

LABELS

Provided with controller

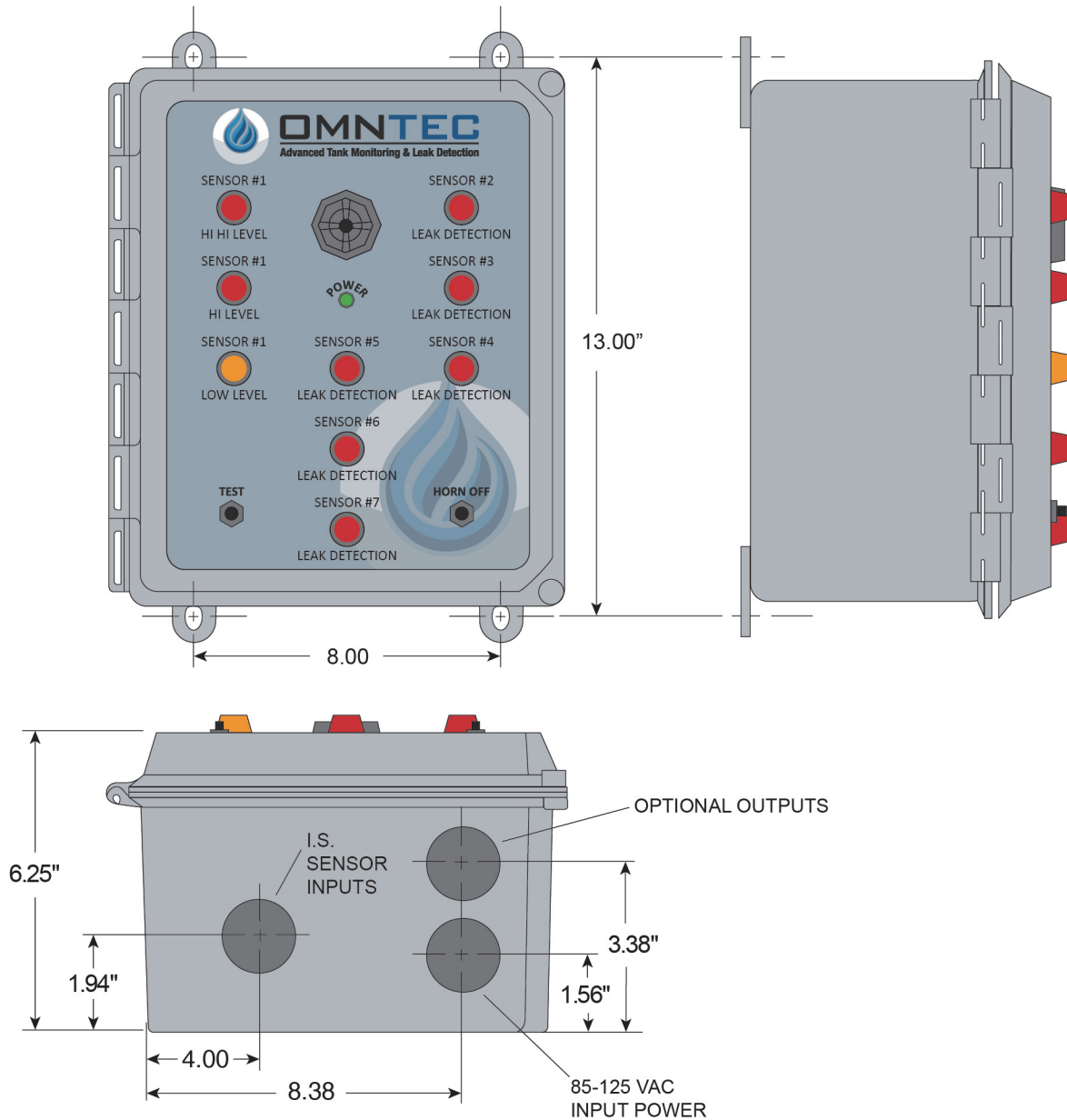


OMNTEC

Advanced Tank Monitoring & Leak Detection

LU9-LF-HHLO6L

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.

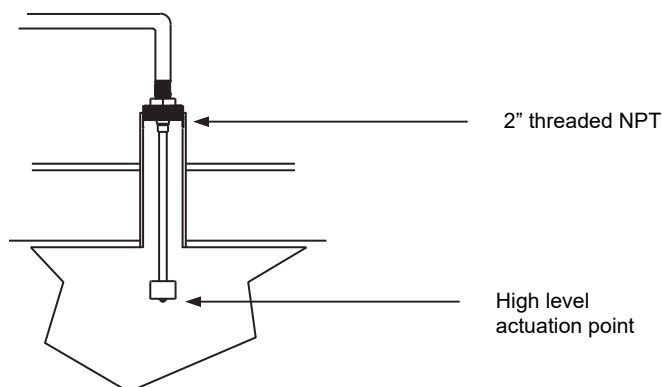
* For waste oil applications consult factory *

1. L-SERIES SENSOR

1. L-1 SENSOR

The L-1 sensor (see pg. 13) 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).

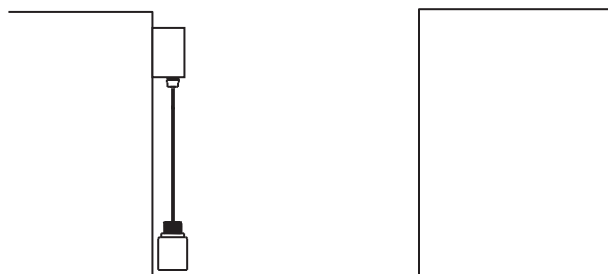


Connection of the sensor to the control unit cable is made in a junction box. For detailed wiring scheme refer to appropriate drawing (see pg. 9). These connections must be made using supplied SK-4 connector sealing kit.

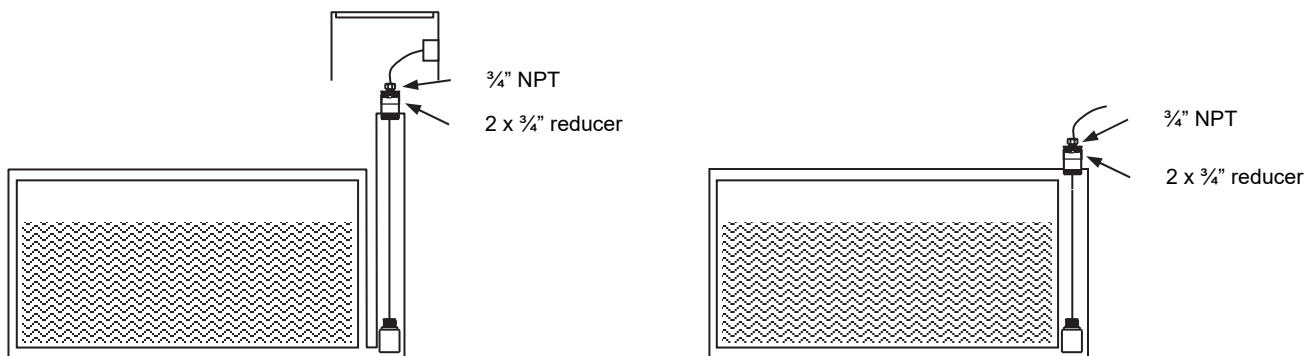
2. LS-ASC SENSOR

The LS-ASC sensor (see pg. 12) 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 $\frac{1}{4}$ " clearance between the sensor end and the bottom of the containment area. For detailed wiring scheme refer to appropriate drawing (see pg. 9). Connect sensor cables to control unit cables in junction box using supplied SK-4 connector sealing kit.



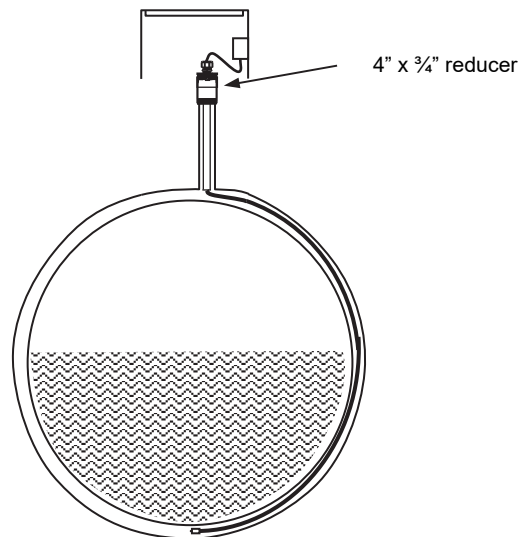
2. To install the LS-ASC as a doublewall tank sensor remove the oiltight from the sensor cable. Feed the cable through the appropriate bushing required to adapt the interstitial port to $\frac{3}{4}$ " NPT (oiltight). Feed wires through oiltight, leaving it loose. Gently lower sensor down interstitial 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.



3. LWF-* SENSOR

The LWF-* sensor (see pg. 14) is designed to detect liquid in the interstitial space of a double wall fiberglass tank.

1. The LWF-* sensor is installed through the interstitial port. If the tank is pitched, locate the interstitial sensor at lowest elevation of tank. Insert sensor into the interstitial port and push down around outside of inner tank. When PVC handle contacts the inner tank the sensor should be located at the bottom of interstitial space. Reduce the riser to 3/4" NPT and install the supplied oiltight fitting. The oiltight fitting must be installed to prevent liquids from entering the interstitial space. Run conduit from interstitial manhole to the central junction box, located in the manway. Install a second oiltight on the sensor cable and pull sensor cable through conduit. Connect oiltight to conduit and tighten. For detailed wiring scheme refer to appropriate control drawing (see pg. 9). Connect sensor wires in central junction box to control unit cable(s) and use SK-4 connector sealing 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. 9). The control unit accepts any possible combination of L-series sensors.

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.

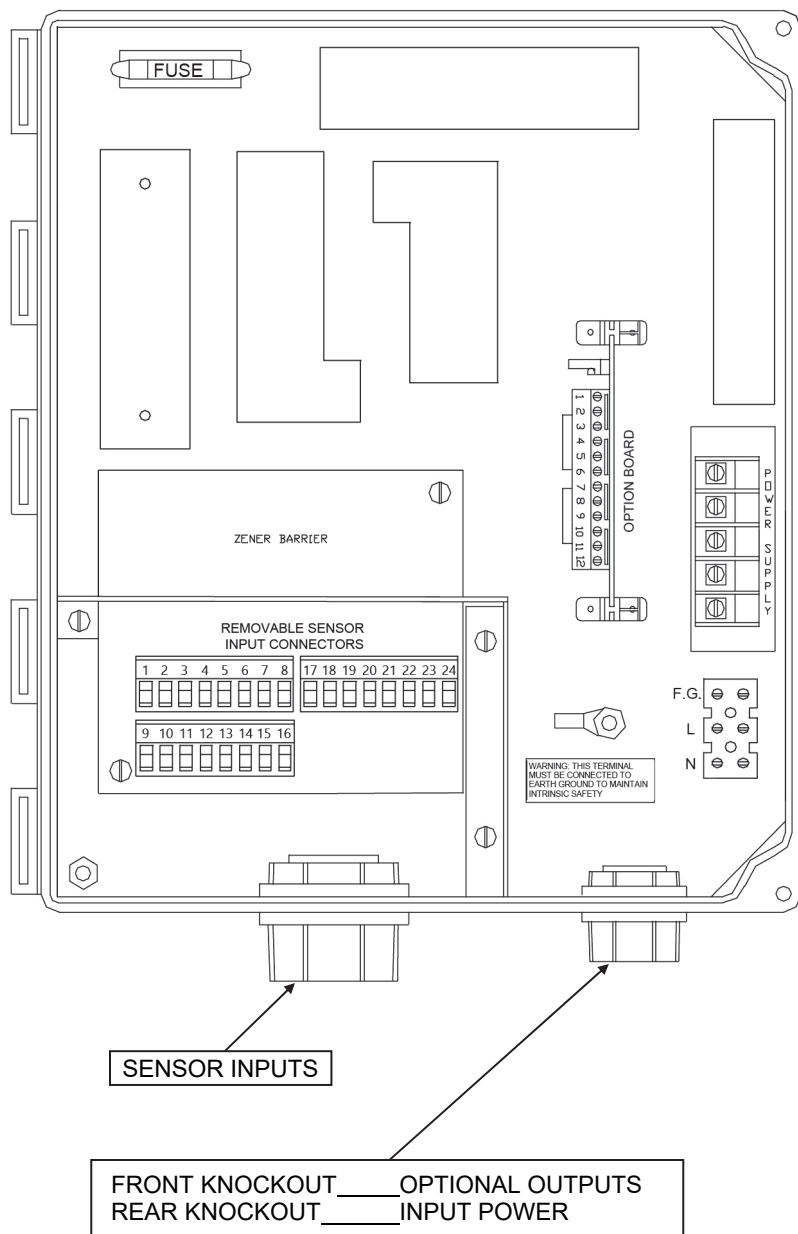
4. REMOTE ANNUNCIATOR OPTION

Mount remote annunciator (see pg. 15) 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.

5. SK-4 CONNECTOR SEALING KIT

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

LU9-LF-HHLO6L CONTROLLER CONNECTION DIAGRAM



COLOR CODE

CABLES FROM SENSORS TO REMOVABLE SENSOR INPUT CONNECTORS

1	UNUSED	SENSOR #1 HI HI LEVEL
2	ORANGE	SENSOR #1 HI HI LEVEL
3	UNUSED	SENSOR #1 HI LEVEL
4	GREEN	SENSOR #1 HI LEVEL
5	UNUSED	SENSOR #1 LO LEVEL
6	RED	SENSOR #1 LO LEVEL
7	BLACK	SENSOR #1
8	SHIELD DRAIN	SENSOR #1
9	BLACK	SENSOR #2-#4
10	SHIELD DRAIN	SENSOR #2-#4
11	RED	SENSOR #2
12	WHITE	LEAK DETECTION
13	RED	SENSOR #3
14	WHITE	LEAK DETECTION
15	RED	SENSOR #4
16	WHITE	LEAK DETECTION
17	RED	SENSOR #5
18	WHITE	LEAK DETECTION
19	RED	SENSOR #6
20	WHITE	LEAK DETECTION
21	RED	SENSOR #7
22	WHITE	LEAK DETECTION
23	BLACK	SENSOR #5 - #7
24	SHIELD DRAIN	SENSOR #5 - #7

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 #1 LOW LEVEL
7	BROWN	SENSOR #2 LEAK DETECTION
8	YELLOW	SENSOR #3 LEAK DETECTION
9	PURPLE	SENSOR #4 LEAK DETECTION
10	SLATE	SENSOR #5 LEAK DETECTION
11	PINK	SENSOR #6 LEAK DETECTION
12	TAN	SENSOR #7 LEAK DETECTION

120 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.

LF-SERIES SENSOR

LIQUID LEVEL FLOAT SENSORS

FEATURES

- Stainless Steel or Brass Mountings
- 1 to 6 Actuation Levels
- Lengths to over 11 feet
- UL Recognized, CSA Listed

Stainless Steel or Brass Mountings

1 to 6 Actuation Levels

Lengths to over 11 feet

U.L. Recognized, CSA Listed

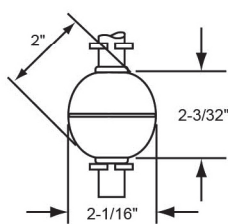
LF series float sensors have multiple options including material of construction, mountings and float sizes. This allows for the LF sensor to be extremely versatile in a wide range of applications such as water, oils, chemicals and corrosive liquid.

LF-* switches are U.L. Approved for Class I, Division 2, Groups A, B, C, D hazardous locations. FM Approved explosion proof junction box must be installed for Class I, Division I, Group D hazardous locations.



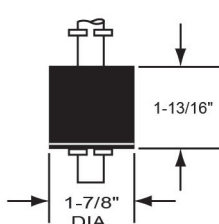
SPECIFICATIONS

	BUNA N	Stainless Steel
Operating Temperature	Water: to 180 F Oil: -40 F to +230 F	40 F to +300 F
Stem & Mounting Material	Brass	316 Stainless Steel
Max Length (Lo)	120" (305 cm)	
Float Stops*	Beryllium Copper	316 Stainless Steel
Compatible Controllers	Consult factory	
Approvals	U.L. Recognized, CSA Listed	



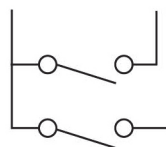
Stainless Steel Float

Consult factory for materials other than stainless steel and BUNA N.

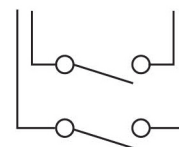


BUNA N Float

Group 1
Switch (N.O. or N.C.):
SPST: 50 VA

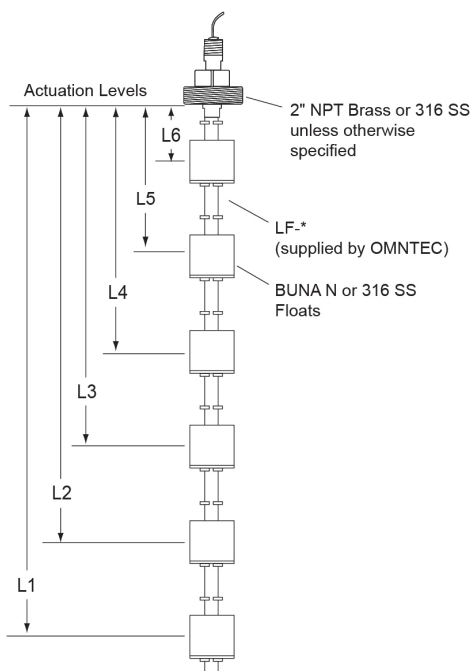


Group 2
Switch (N.O. or N.C.):
SPST: 50 VA



- For clarity, only two actuation levels are shown in each group diagram
- Standard setup is Group 2 unless otherwise specified.

LF-SERIES SENSOR



Switch actuation levels are determined following the guidelines below:

All units 72" or less overall unit length with Stainless Steel or BUNA N floats.

A = 1-1/2" (38.1mm) minimum distance to highest level (2" (50.8mm), Type 5 only)

B = 2" (50.8mm) minimum distance from end of unit to lowest level

C = 3" (76.2mm) minimum distance between levels

D = 1/4" (6.3mm) minimum distance between actuation levels
(Note: One float for two levels can be used only when low level is N.C. dry and high level is N.O. dry)

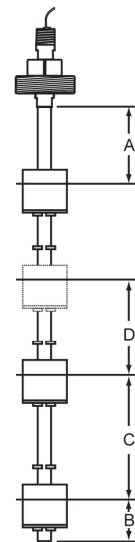
* Actuation level distances and L₀ (overall unit length) are measured from inner surfaces of mounting plug or flange.

** Length Overall L₀ = L₁ + Dimension B.

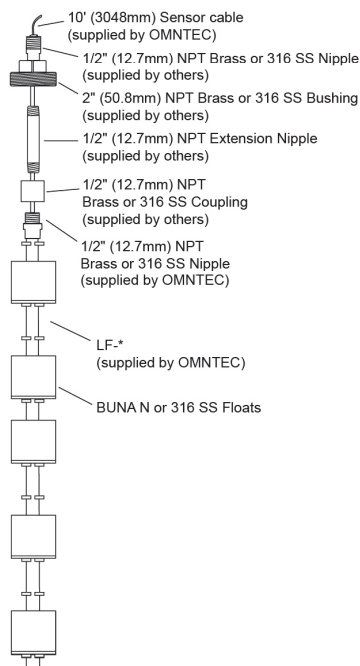
See mounting Types for Maximum Length values.

Notes:

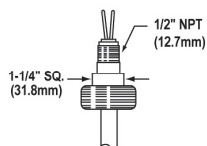
1. A, B and C dimensions based on a liquid specific gravity of 1.0.
2. One float for two levels can be used only when 20VA switch is used.
3. Actuation levels are calibrated on descending fluid level, with water as the calibrating fluid, unless otherwise specified.
4. Tolerance on actuation levels is +/- 1/8" (3.2mm).



Optional Alternative Mounting for 1/2" NPT



2" (50.8mm) NPT



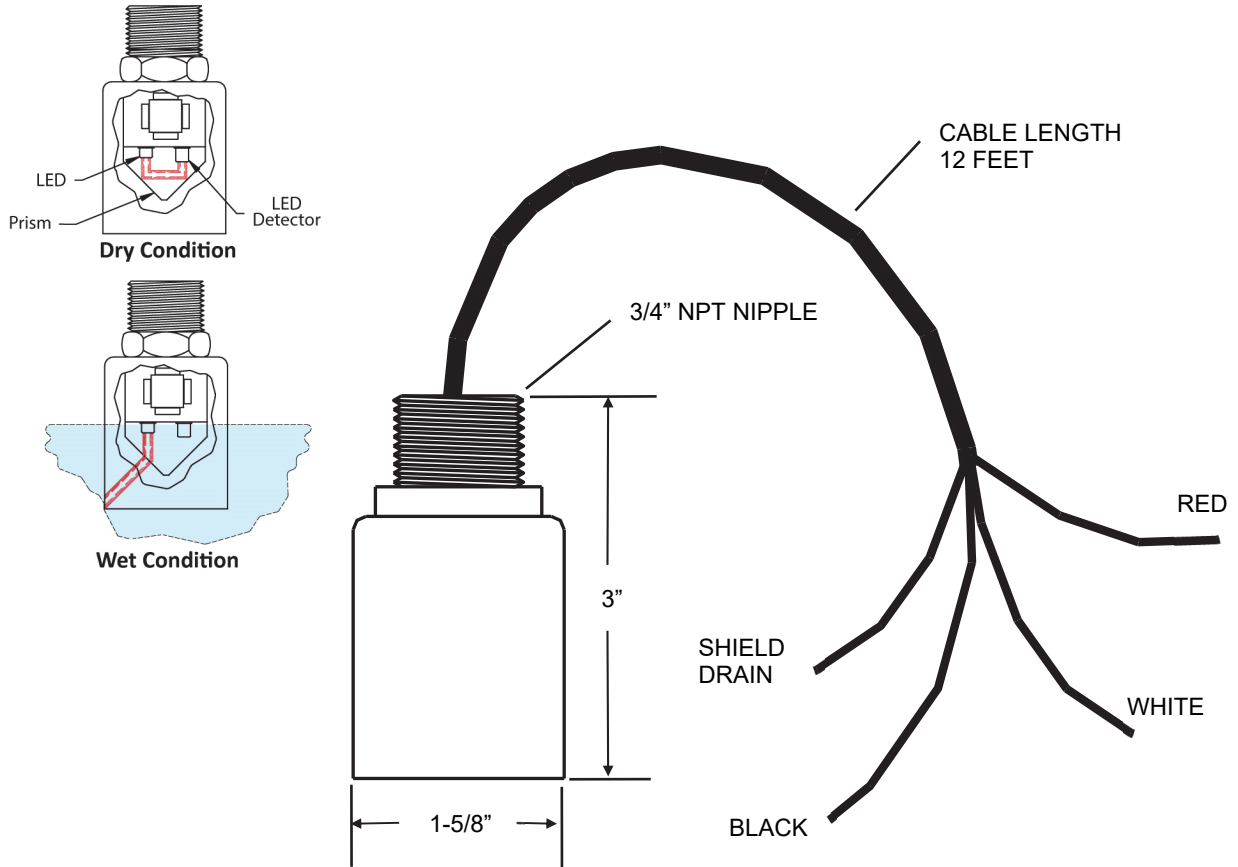
Stem & Mounting Material	Brass or 316 Stainless Steel
Max Length	140" (355.6 cm)
Mounting Position	Vertical 30° Inclination
Float Stops*	Brass Units: Beryllium Copper Grip Rings, Stainless Steel Units: S.S. ARMCO PH-15-7MO Grip Rings

* Units greater than 72" (1828mm) overall length are supplied with collars with setscrews (made of same material as stem and mounting) in place of float-stop rings. Collars are optional on units less than 72" (1828mm) overall length. Units requiring 316 SS float stops must be special ordered with 316 SS collars instead of grip rings. In some instances, the use of concentration of chlorine and other corrosive compounds in the media require the use of collar type float stops. Consult factory for details.

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

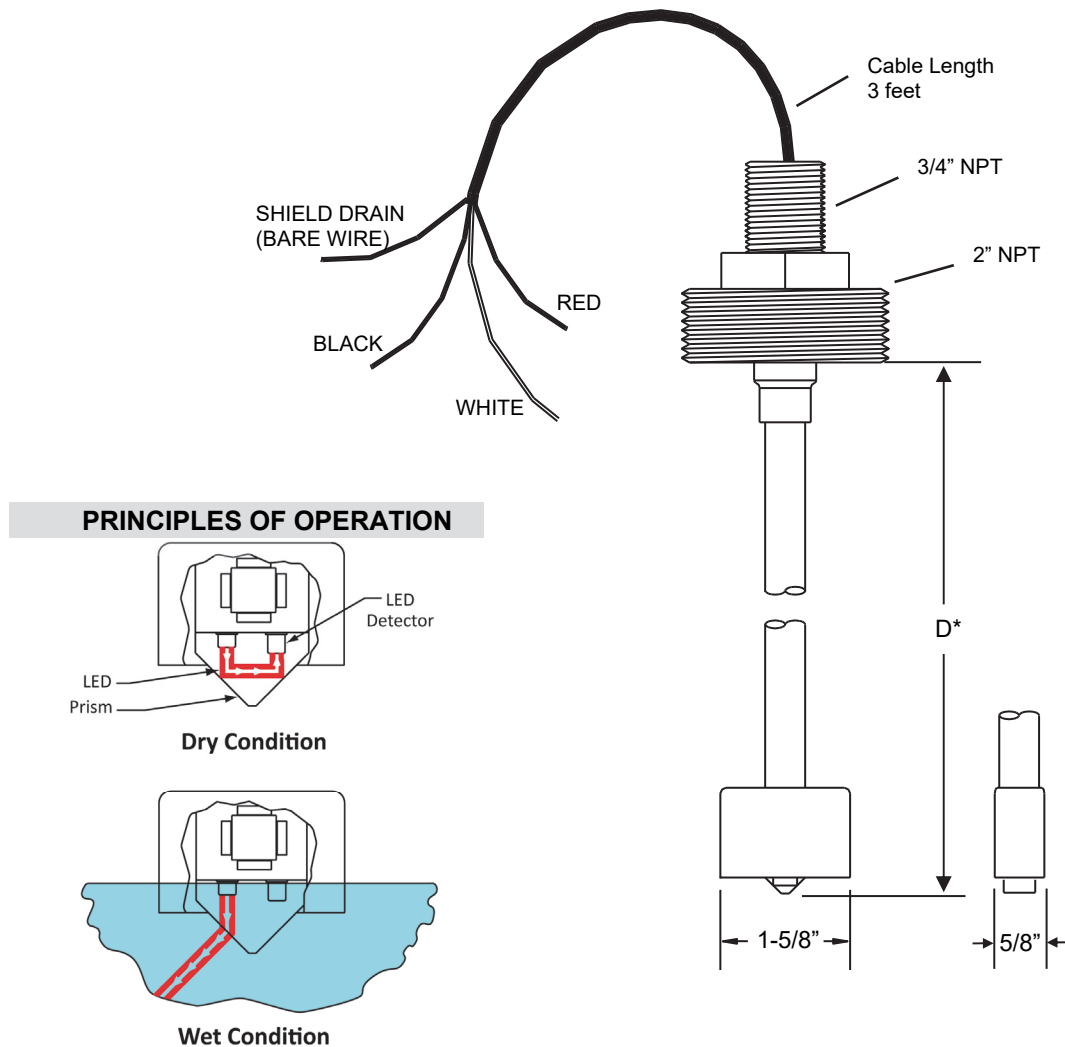
Immediate



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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

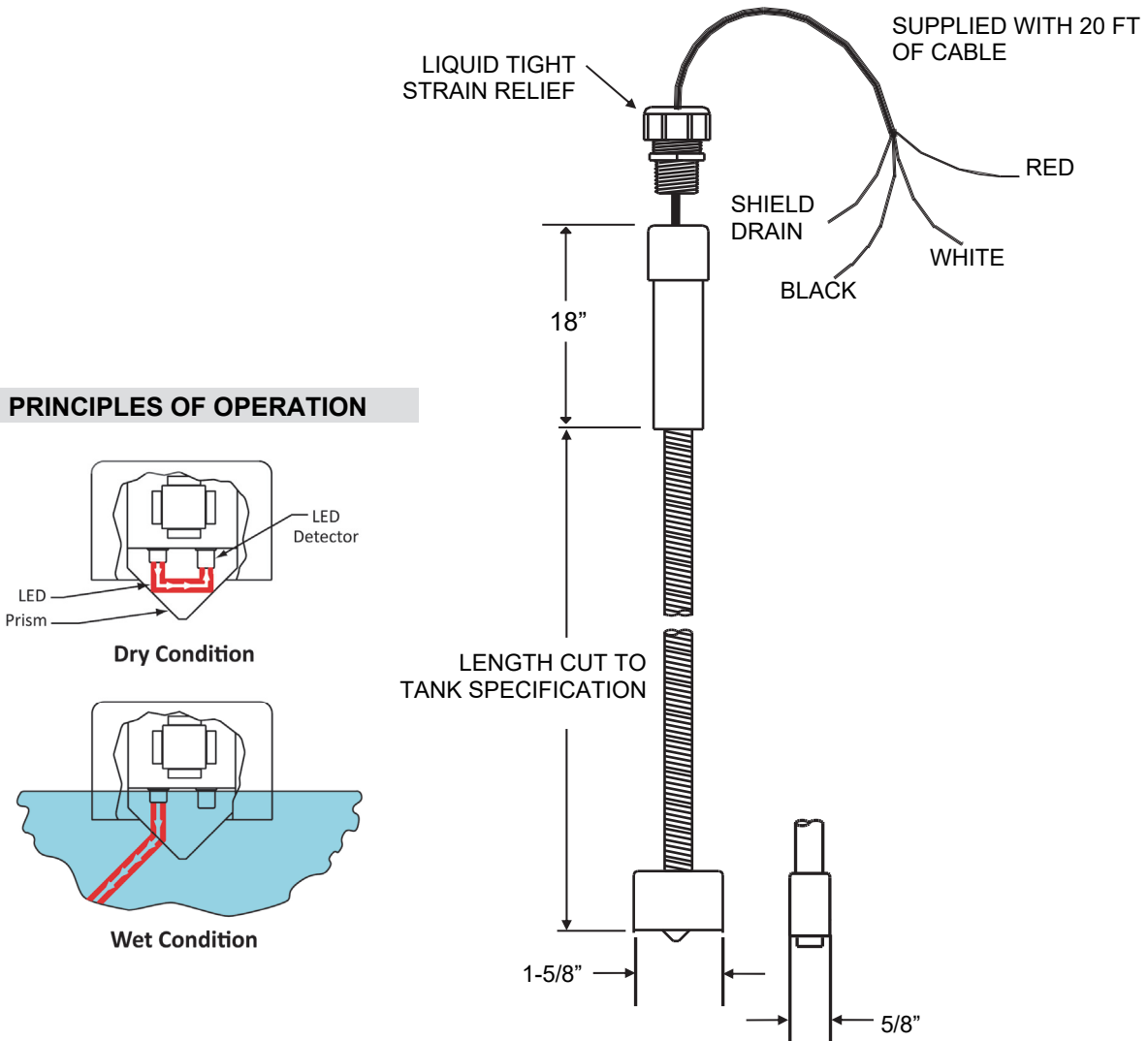


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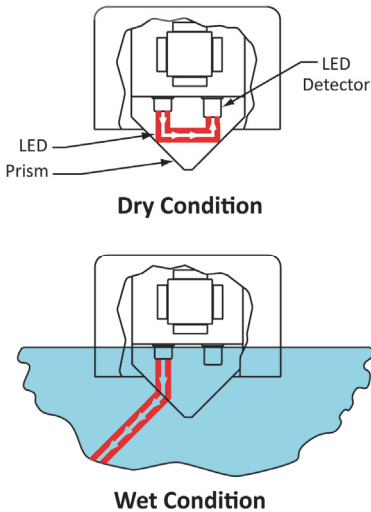
Advanced Tank Monitoring & Leak Detection

LWF SENSOR

NON-PRODUCT DISTINGUISHING FIBERGLASS TANK DRY INTERSTITIAL SENSOR



PRINCIPLES OF OPERATION



LWF SPECIFICATIONS

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



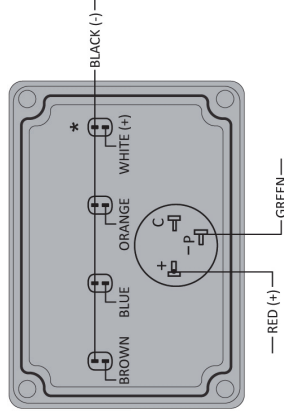
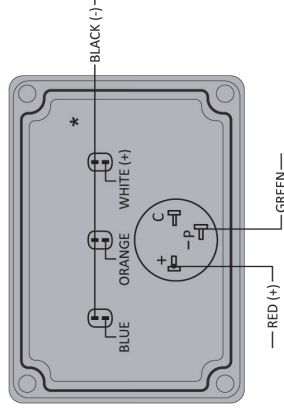
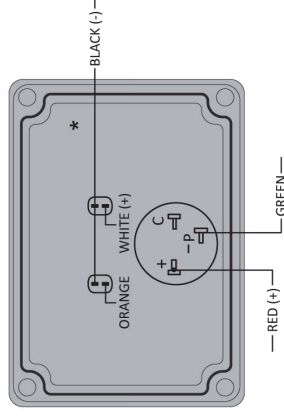
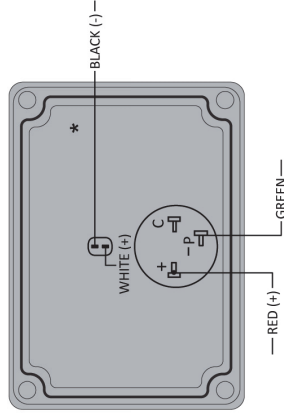
RA-3



RA-4

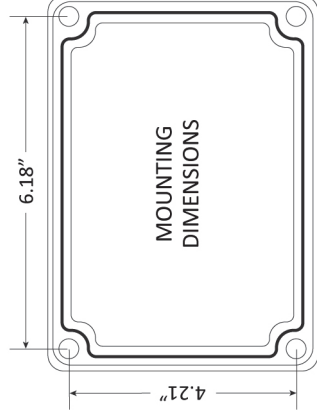
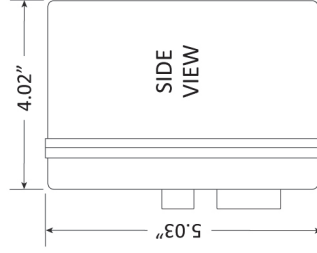


INTERNAL WIRING COLOR CODE



*Warning Label Placed Here

WARNING: LOW VOLTAGE INPUTS ONLY



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.