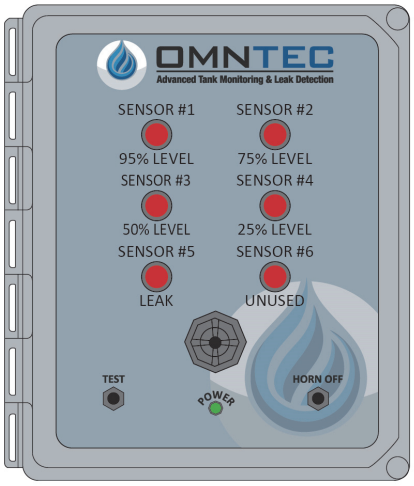
OMNTEC
Advanced Tank Monitoring & Leak Detection

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

LU6-BF-4H2L INSTALLATION GUIDE



SIX CHANNEL ALARM PANEL

Revision 2322

Document No. LU6-BF-4H2L rev2322

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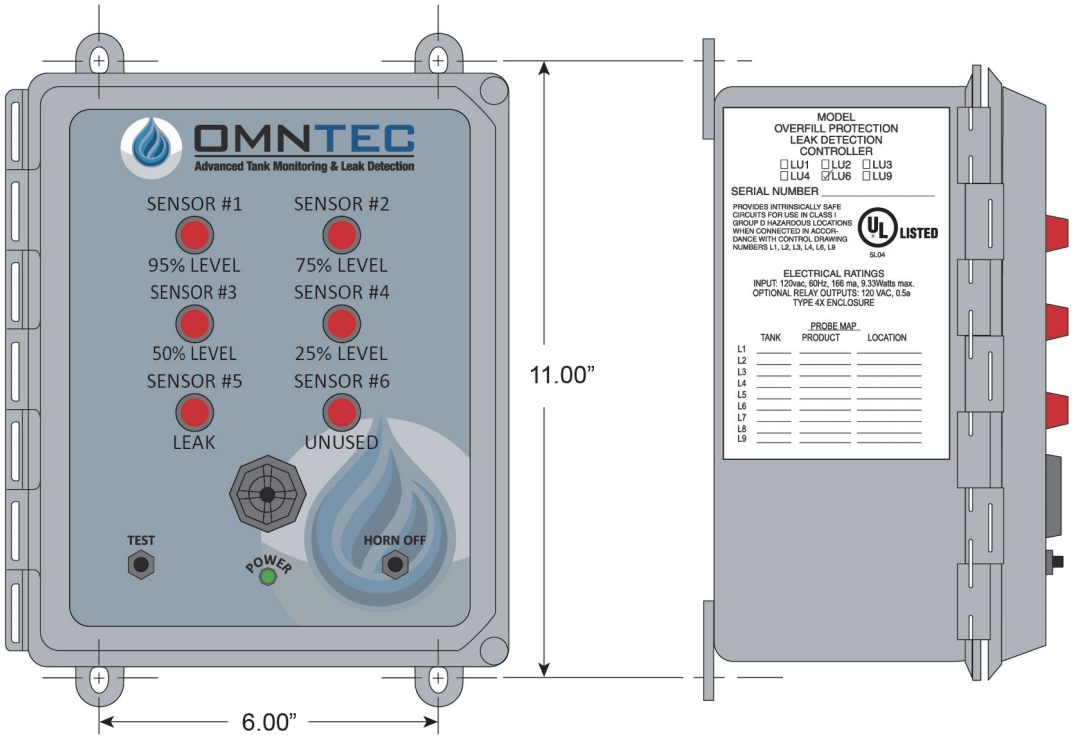
SIX CHANNEL ALARM PANEL



LU6-BF-4H2L 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) 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 L6

AUDIO/VISUAL CONSOLE
Audible Alarm - 95 dB pulsing horn with 30 second timeout
Red Light - Indicates level alarm for OWI-BF-1 sensors and leak sensors
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

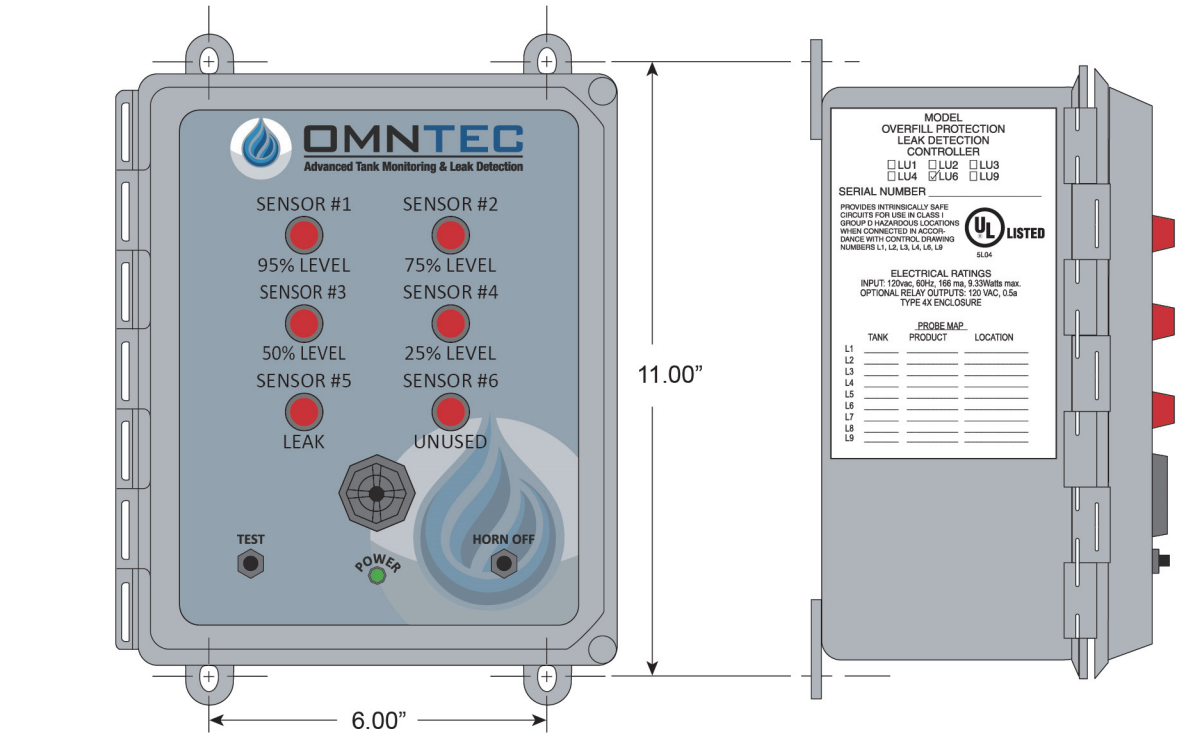
SENSORS
(4) **OWI-BF-1** Ball float level sensor
(2) **L-Series** Leak sensor

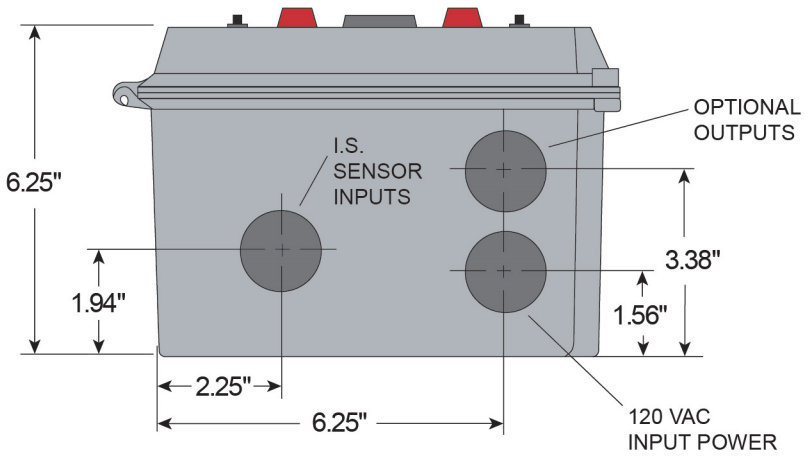
OPTIONAL ACCESSORIES
RA Series Remote annunciator
RLY-RA Series Relay (consult factory)

LABELS
Provided with controller

LU6-BF-4H2L

DIMENSIONS FOR MOUNTING AND KNOCKOUTS





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.

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.

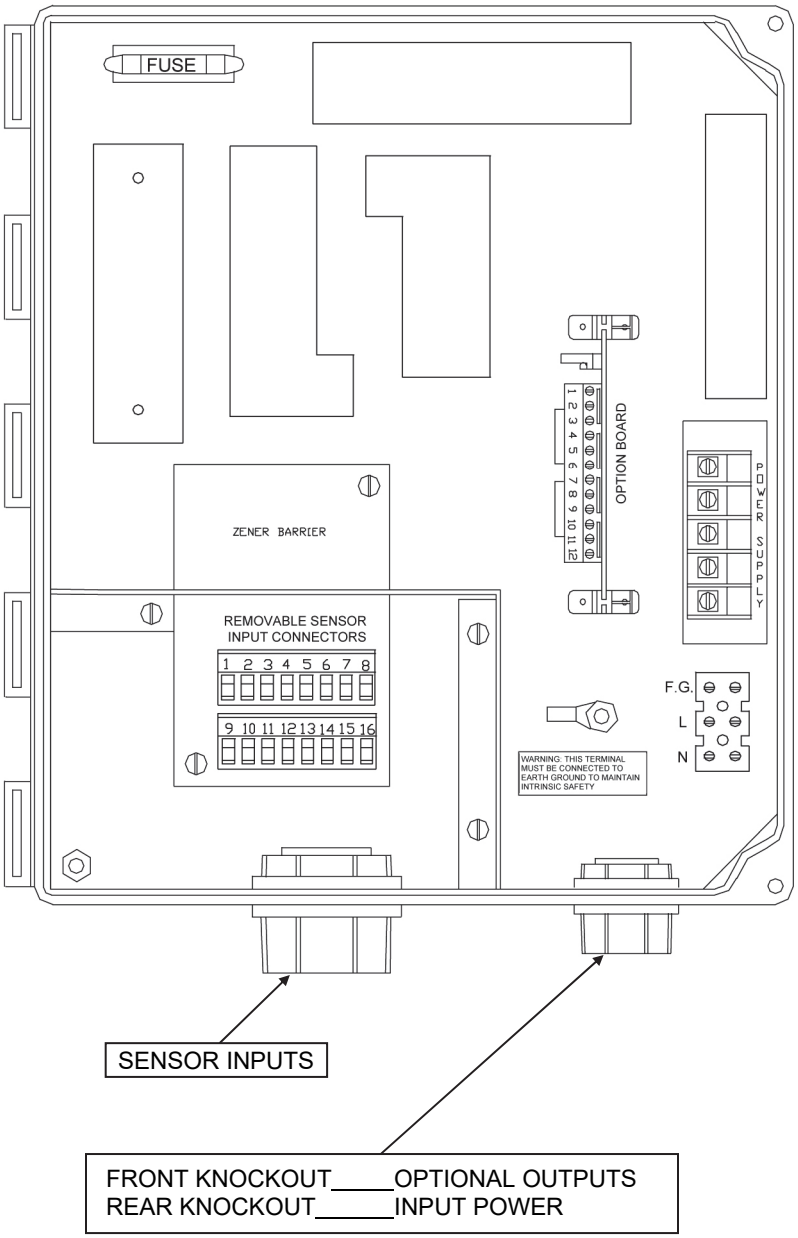
1. REMOTE ANNUNCIATOR OPTION

Mount remote annunciator (see pg. 11) 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.

2. SK-4 CONNECTOR SEALING KIT

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

LU6-BF-4H2L CONTROLLER CONNECTION DIAGRAM



COLOR CODE

CABLES FROM SENSORS TO REMOVABLE SENSOR INPUT CONNECTORS

1	UNUSED	SENSOR #1 OWI-BF-1 95% LEVEL
2	WHITE	
3	UNUSED	SENSOR #2 OWI-BF-1 75% LEVEL
4	WHITE	
5	UNUSED	SENSOR #3 OWI-BF-1 50% LEVEL
6	WHITE	
7	BLACK	FROM SENSOR #1 - #3
8	SHIELD DRAIN	
9	BLACK	FROM SENSOR #4 - #6
10	SHIELD DRAIN	
11	UNUSED	SENSOR #4 OWI-BF-1 25% LEVEL
12	WHITE	
13	RED	SENSOR #5 LEAK SENSOR
14	WHITE	
15	RED	SENSOR #6 LEAK SENSOR
16	WHITE	

WIRES TO OPTION BOARD

WIRES FROM RA-SERIES REMOTE

1	GREEN	- HORN
2	RED	+HORN
3	BLACK	GROUND
4	WHITE	SENSOR #1 95% LEVEL
5	ORANGE	SENSOR #2 75% LEVEL
6	BLUE	SNESOR #3 50% LEVEL
7	BROWN	SENSOR #4 25% LEVEL
8	YELLOW	SENSOR #5 LEAK SENSOR
9	PURPLE	SENSOR #6 LEAK SENSOR
10	UNUSED	
11	UNUSED	
12	UNSED	

120 VAC

WIRES TO POWER SUPPLY

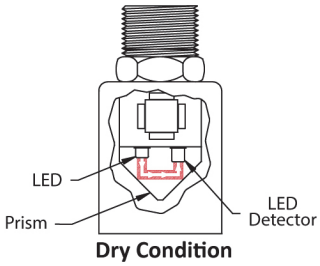
F.G.	FIELD GROUND
L	LINE
N	NEUTRAL

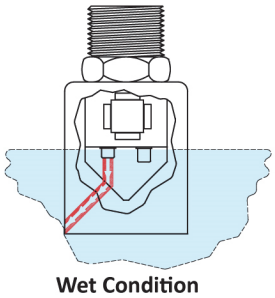
NOTE: To maintain proper shielding, BLACK **sensor** wires and SHIELD DRAINS should **not** be connected together at sensors.

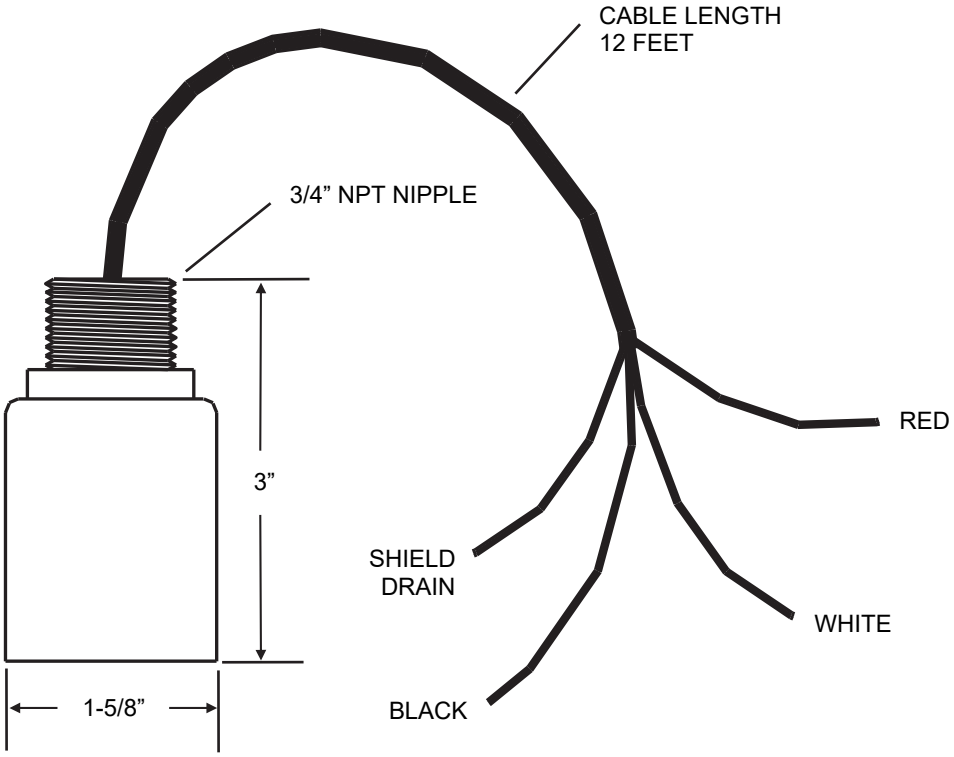
LS-ASC SENSOR

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

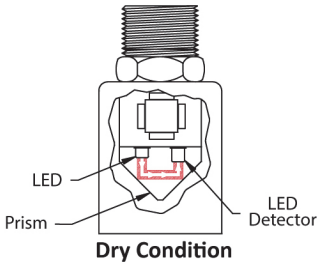
SENSOR CABLE
Shielded 22 AWG UL-E118830 CM
Maximum length 2000 feet

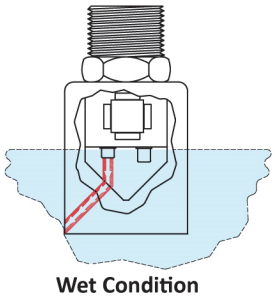
RESPONSE TIME
Immediate

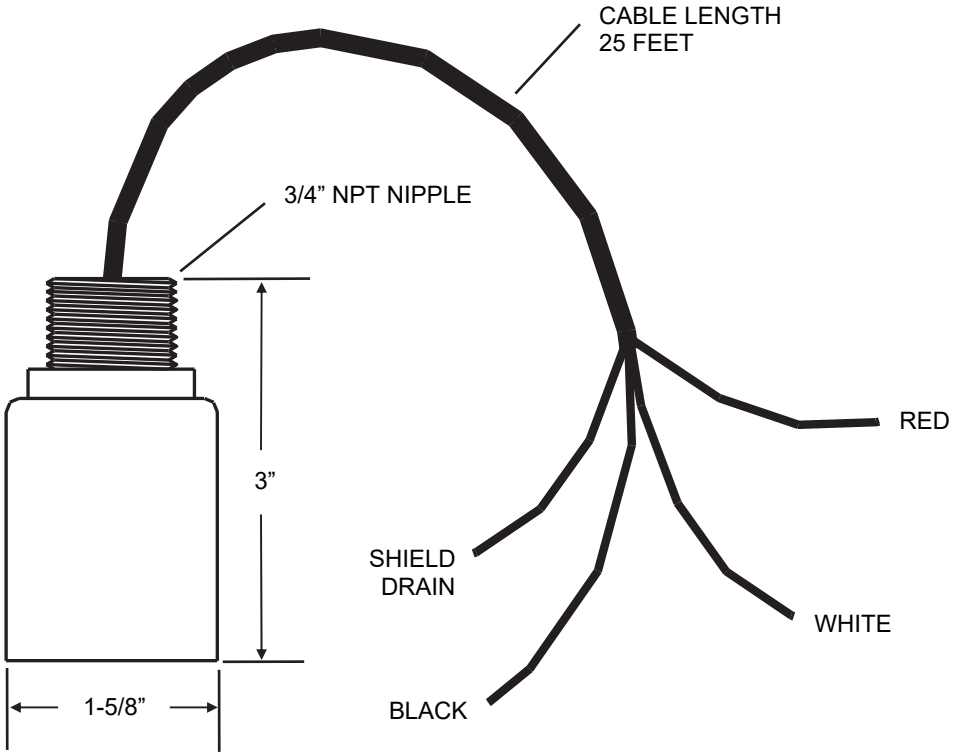
LWS SENSOR

NON-PRODUCT DISTINGUISHING DOUBLEWALL OPTIC SENSOR

PRINCIPLES OF OPERATION







LWS 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

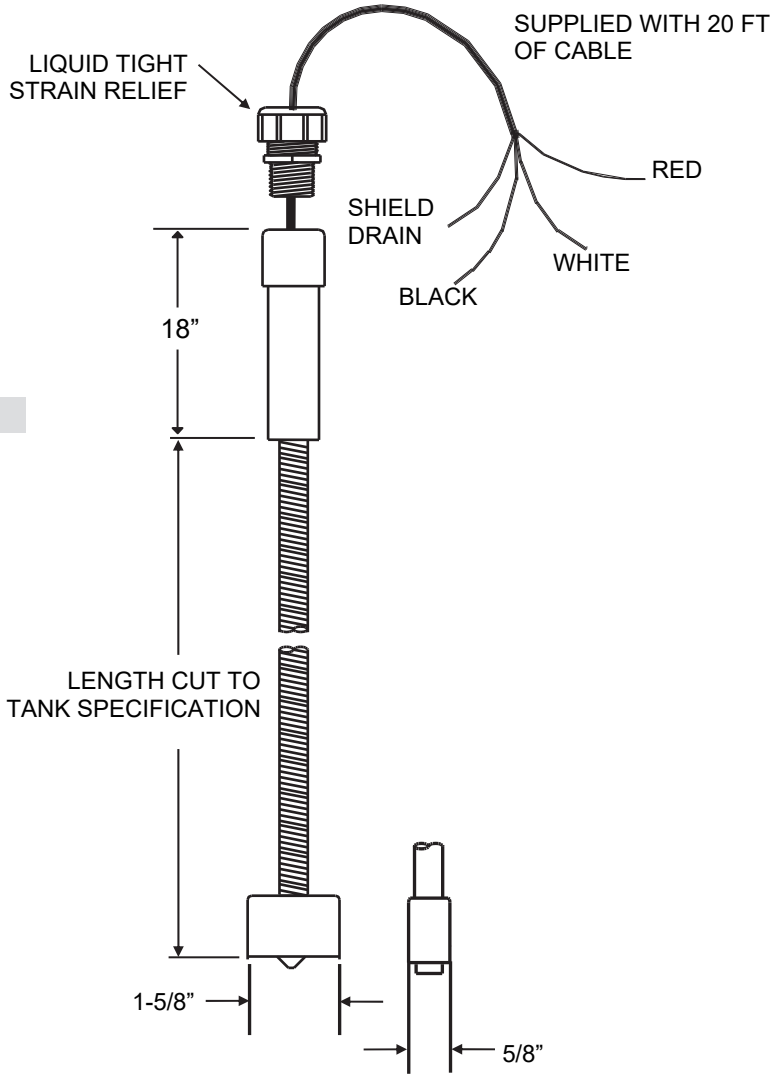
PRINCIPLES OF OPERATION
LIQUIDS (ex: fuel, water) – Photo optic
DRY CONDITION – Normally closed light beam
ALARM CONDITION – Opens (refracts) normally closed light beam

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

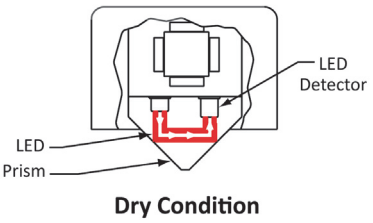
RESPONSE TIME
Immediate

LWF SENSOR

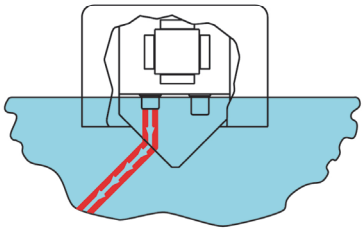
NON-PRODUCT DISTINGUISHING FIBERGLASS TANK DRY INTERSTITIAL SENSOR



PRINCIPLES OF OPERATION



Dry Condition



Wet Condition

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

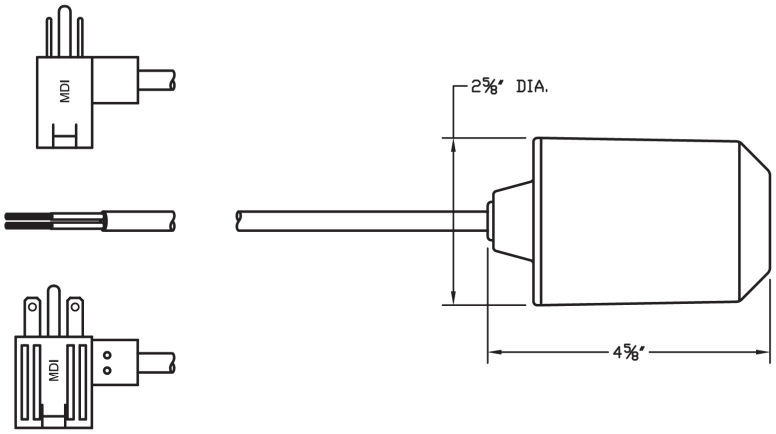
SENSOR CABLE
Shielded 22 AWG UL-E118830 CM
Maximum length 2000 feet

RESPONSE TIME
Immediate

OWI-BF-1 SENSOR

FLOAT SENSOR

designed for sewage and sanitary waste applications

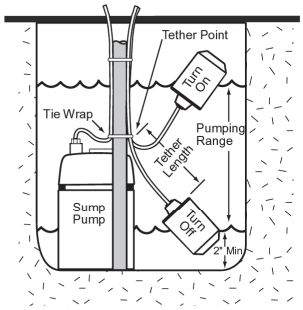


SPECIFICATIONS

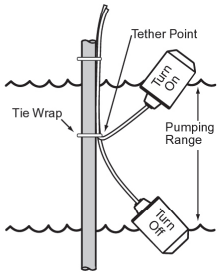
Operation Angle: 35 deg. narrow angle
Ratings: 1/4 H.P. / 10 AMP @ 120/240 VAC
Switch Types: Normally open, normally closed or double throw
Float Materials: High impact polystyrene (H.I.P.S) rated to 140 deg. F, or acrylonitrile butadiene styrene (A.B.S.) rated to 186 deg. F.
Cord: SJOW (CPE) SJTOW (PVC)
Cord Lengths: Up to 50 feet. (Lengths in even foot increments)

Installation Instructions

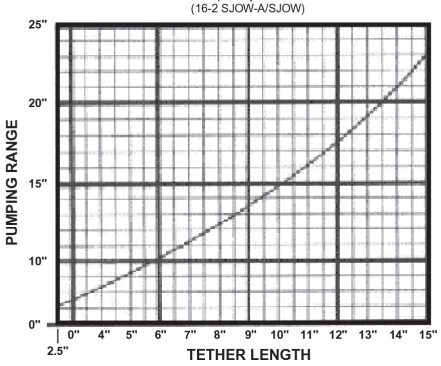
Typical Normally Open (Pump Down) Application



Typical Normally Closed (Pump Up) Application



Tether Data
For neoprene jacketed cord (16-2 SJOW-A/SJOW)



Tether weights are available. Contact factory.

1. Attach cord, using a tie-wrap, to any convenient rigid surface as illustrated. This is known as the tether point. Do not tighten until both turn-on and turn-off levels are established.
2. To adjust for greater distance between turn-on and turn-off, increase cord length between tether point and float. For less distance between turn-on and turn-off, decrease cord length.
3. Make sure the float is at least 2 inches above pump base, in the lower position, before tightening tie-wrap at the tether point.
4. Plug piggy-back switch cord (current tap) into grounded outlet, then plug pump into piggy-back switch cord, and check for proper operation.

RA-SERIES REMOTE HIGH-LEVEL ALARM

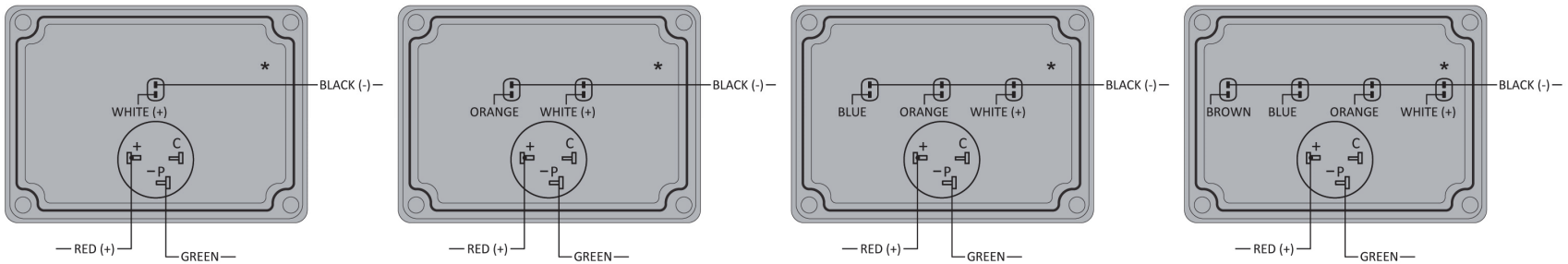
RA-1

RA-2

RA-3

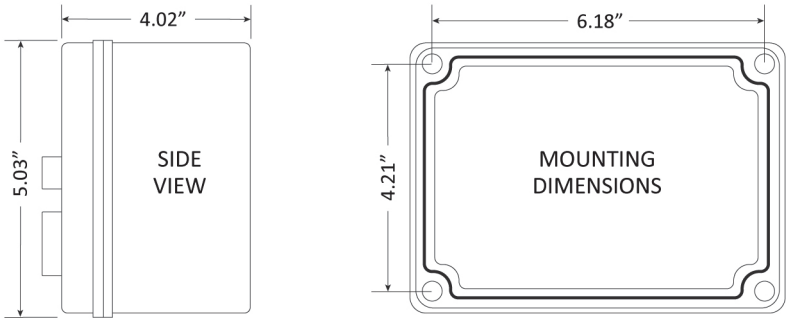
RA-4

INTERNAL WIRING COLOR CODE



*Warning Label Placed Here

WARNING: LOW VOLTAGE INPUTS ONLY



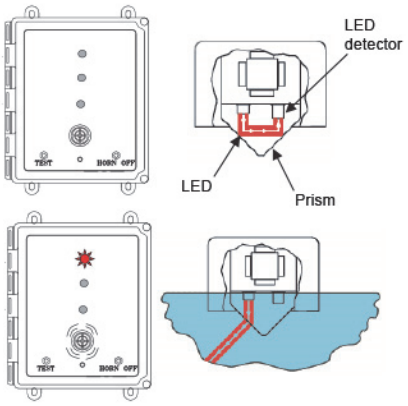
Note: It is recommended that knockouts be placed in the bottom of enclosure.

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.

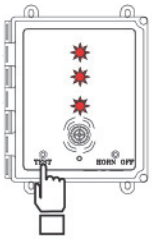
LU-SERIES SYSTEM OPERATION AND TEST INSTRUCTIONS

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.

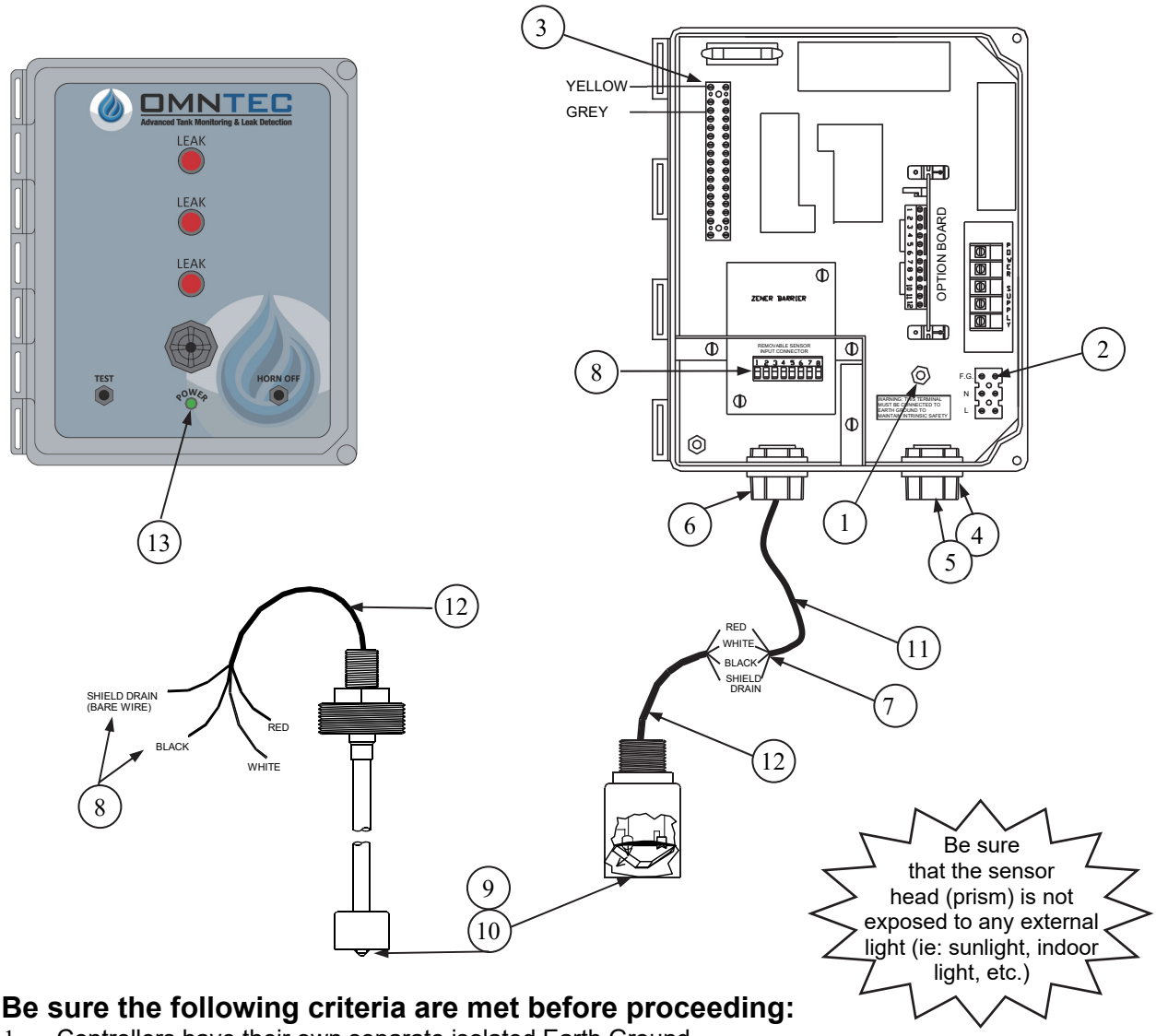
5. The physical location of all sensors should be checked for proper location, at a minimum, on an annual basis (ie. *high level, interstitial, sump, piping sump).

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.*

LU-SERIES TROUBLESHOOTING PROCEDURES

FOR LU-SERIES CONTROLLERS WHEN USED WITH ELECTRO-OPTIC SENSORS

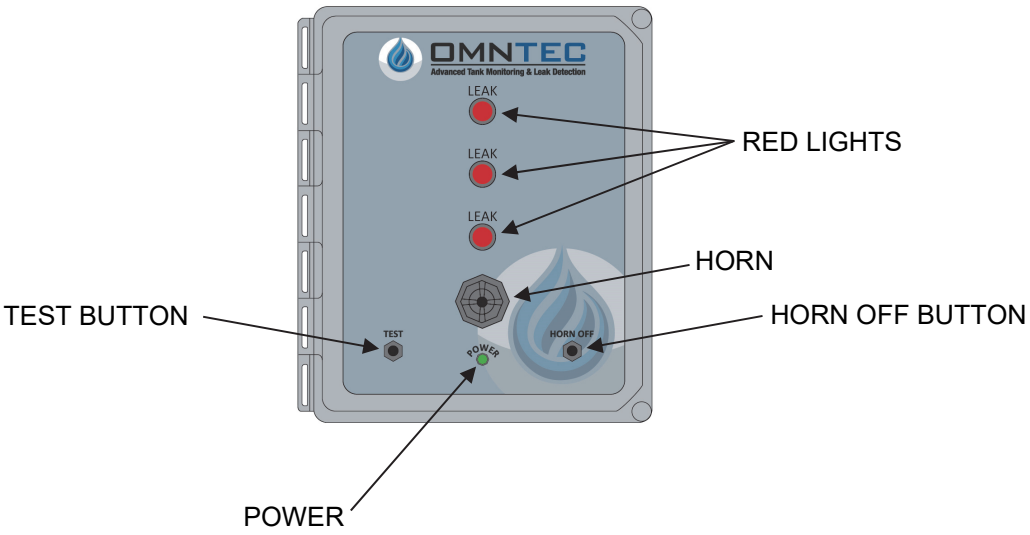


Be sure the following criteria are met before proceeding:

1. Controllers have their own separate isolated Earth Ground
2. Controllers have their own separate isolated Field Ground
3. The Controller should have 13.8 VDC on the output of the power supply (Across the yellow-positive and gray-negative wires)
4. 120VAC wires are in their own separate isolated conduit
5. Remote Annunciator wires are in their own separated isolated conduit
6. Sensor wires are in their own separate isolated conduit
7. Sensor shield drain wire is not connected to black wire at sensor splice
8. Black & shield drain are connected to ground at removable input connector
9. Sensor head (prism) is not exposed to any external light (i.e.: sunlight, indoor light, etc)
10. Sensors are free of dirt and debris
11. Sensor extension cables are minimum 3 conductor #22 AWG shielded with drain wire
12. Sensors wires do not exceed 2000 ft.
13. The “POWER” should be illuminated

TROUBLESHOOTING PROCEDURES

LU-SERIES Controller



SYMPTOM	TROUBLESHOOTING PROCEDURE	RESULT
"Red Light" does not come on when test button is pressed.	1) Unplug sensors "Removable input connector" at controller. Does the "red Light" illuminate?	(YES) controller is functioning. Proceed to step 2. (NO) controller is not functioning (consult factory).
	2) Check wiring at removable input connector. Concentrate on white, black and shield wire inputs from sensors, making sure no shorts are present. Re-plug connector and press test button. Does the "Red Light" illuminate?	(YES) system is functioning properly. (NO) Proceed to step 3.
	3) Check splice at sensor for moisture or mis-wire (concentrating on white and black wires from sensor). Correct problem and press test button. Does the "Red Light" illuminate?	(YES) problem are in the wire connections at splice (NO) sensor is not functioning properly. Proceed to step 4.
	4) Remove sensor from installation, connect at controller, shroud from light and press test button. Sensor head (prism) is not exposed to any external light (ie: sunlight, indoor light, ect.). Does the "Red Light" illuminate?	(YES) problem in wire run to sensor. System is functioning properly. (NO) The sensor failed (consult factory)

"Red Light" remains on.	1) Check if sensor is actually in alarm (submerged)	(YES) correct alarm condition. (NO) proceed to step 2.
	2) Check wiring at removable input connector concentrating on red, white, black and shield wire inputs from sensors. Make sure no open circuits are present. Re-plug the connector and press test. Does the "Red Light" stay on?	(YES) proceed to step 3. (NO) System is functioning properly. Problem was in the wire or connections.
	3) Disconnect sensor wires from removable sensor input connector. Connect a jumper from the white input to the black input at the connector. Make sure all sensor wiring is disconnected. Does the "Red Light" stay on?	(YES) Controller is not functioning properly (consult factory) (NO) Controller driver boards are functioning properly. Proceed to step 4.
	4) Check DC voltage from red input to black input. Is it 7.5 – 9V DC?	(YES) proceed to step 5 (NO) Controller is not functioning properly. Consult factory.
	5) Check splice at sensor for moisture or mis-wire. Correct problem. Does the "Red Light" stay on?	(YES) proceed to step 6. (NO) If light goes off before pressing test button and goes on after pressing test button System is functioning properly. Problem was in the connection or wire.
	6) Connect sensor directly to controller. Make sure sensor head is not exposed to light during test. Does the "Red Light" stay on?	(YES) Sensor is not functioning properly (consult factory) (NO) Problem is in the wire or connections.
Horn does not sound on controller when the "TEST" button is pressed.	1) Are any "Red Lights" illuminated on controller?	(YES) Make sure at least one input is not in alarm state. Then proceed to step 2. (NO) proceed to step 2.
	2) Shut down system for 30 seconds. Turn system back on. Does horn sound when hitting the "TEST" button?	(YES) Controller is functioning properly. (NO) Controller is not functioning properly. Proceed to step 3.
	3) While holding the "TEST" button down put a voltmeter on the positive and negative on the back of the horn. Do you get 13.8 volts +/- 1?	(YES) Your horn does not work. Replace horn. (NO) Your horn board is not working (consult factory)

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.