

The LLC1 Series is a single probe conductive liquid level control designed for OEM equipment and commercial appliances. This unit may be ordered with selectable or fixed fill or drain operation. A time delay (1-60s) prevents rapid cycling of the output relay. On adjustable units, the sensitivity adjustment allows accurate level sensing while ignoring foaming agents and floating debris. Isolated AC voltage is provided at the probe to prevent electrolysis. A trickle current of less than 1mA determines the presence or absence of liquid between the probe and common. The LLC1 Series printed circuit board is conformal coated to resist moisture and corrosion.

For more information see:
 Appendix B, page 167, Figure 26 for dimensional drawing.
 Appendix C, page 170, Figure 23 for connection diagram.

Operation

Drain (Pump-Down Mode): When the liquid level rises and touches the probe, a fixed time delay begins. This time delay prevents rapid cycling of the output relay and its load. At the end of the time delay, the output relay energizes and remains energized until the liquid level falls below the probe. The output relay then de-energizes and remains de-energized until the liquid again touches the probe.

Fill (Pump-Up Mode): When the liquid level falls below the probe, a fixed time delay begins. This time delay prevents rapid cycling of the output relay and its load. At the end of the time delay, the output relay energizes and remains energized until the liquid level rises and touches the probe. The output relay then de-energizes and remains de-energized until the liquid level again falls below the probe.

Features:

- Single probe level control for conductive liquids
- Isolated AC voltage on the probes
- Adjustable or fixed sensing up to 250KΩ
- Fill or drain operation available
- 24, 120, or 230VAC models are available
- Isolated, 10A, SPDT & non-isolated, SPST output contacts

Approvals:   

Auxiliary Products:

- **Quick connect to screw adaptor:**
P/N: P1015-18
- **Electrode:** P/N: PHST-38QTN
- **Threaded probe (24"):** P/N: LLP-24
- **Female quick connect:**
P/N: P1015-13 (AWG 10/12)
P/N: P1015-64 (AWG 14/16)
P/N: P1015-14 (AWG 18/22)

Available Models:

LLC14A1AX	LLC14B60AX
LLC14A5AX	LLC16A25AX
LLC14A7AX	LLC16A3AX
LLC14B15AX	LLC16B60A
LLC14B1AX	

If desired part number is not listed, please call us to see if it is technically possible to build.

Order Table:

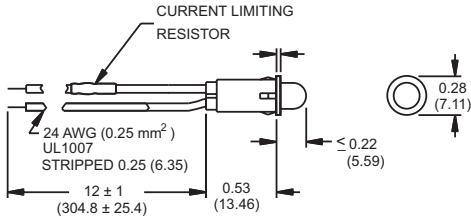
<u>LLC1</u>	<input checked="" type="checkbox"/> Input	<input checked="" type="checkbox"/> Operation	<input checked="" type="checkbox"/> Time Delay	<input checked="" type="checkbox"/> Sense Resistance	<input checked="" type="checkbox"/> Mounting
	-2 - 24VAC	-A - Drain	Fixed: Specify 1-60s in 1s increments	-A - Adjustable	-Blank - Surface mount
	-4 - 120VAC	-B - Fill		-F - Fixed (Specify fixed resistance (1-250) in 1KΩ increments.)	-X - 0.5 in. nylon standoffs (three)
	-6 - 230VAC				

Specifications

Control	Type ON/OFF (single level) resistance sensor with built-in time delay to prevent rapid cycling	Protection	Surge IEEE C62.41-1991 Level A
Sense Voltage	Low voltage AC between probe & common. Isolated from input & output.	Isolation Voltage	≥ 1500V RMS between input, output & probe
Sense Resistance	Fixed or adjustable to 250KΩ	Mechanical	
Sense Resistance Tolerance	Adjustable - guaranteed range Factory fixed ±10%	Mounting	Surface mount to probe common with two #6 (M3.5 x 0.6) screws or 0.50 in. (12.7 mm) nylon standoffs with three #6 (M3.5 x 0.6) screws (use Terminal 5 for probe common)
Time Delay		Termination	0.25 in. (6.35 mm) male quick connect terminals
Range	Fixed 1 - 60s in 1s increments	Dimensions (Open Board)	3.5 x 2.75 x 2 in. (88.9 x 69.9 x 50.8 mm)
Input		Environmental	
Voltage	24, 120, or 230VAC	Operating / Storage Temperature	-20° to 55°C / -40° to 80°C
Tolerance	24VAC -15% - 20%	Coating	Printed circuit board is conformal coated to resist moisture and corrosion
	120 & 230VAC -20% - 10%	Weight	≅ 8.7 oz (247 g)
AC Line Frequency	50/60 Hz		
Output			
Type	Electromechanical relay		
Form	Non-isolated, SPST & Isolated, SPDT contacts		
Rating	10A resistive @ 120/240VAC & 28VDC; 1/3 hp @ 120/240VAC		
Life	Mechanical - 1 x 10 ⁷ ; Electrical - 1 x 10 ⁵		

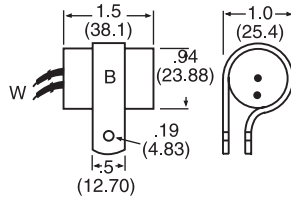
Appendix B - Dimensional Drawings

FIGURE 24



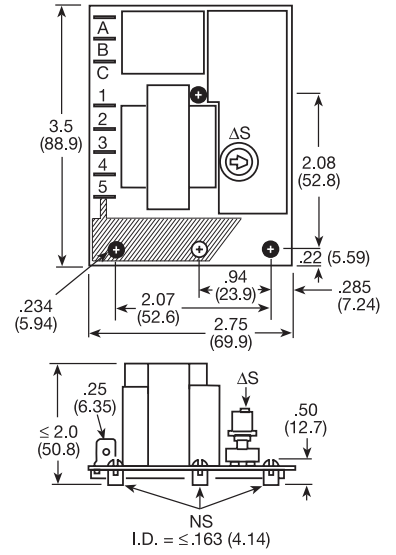
LPM

FIGURE 25



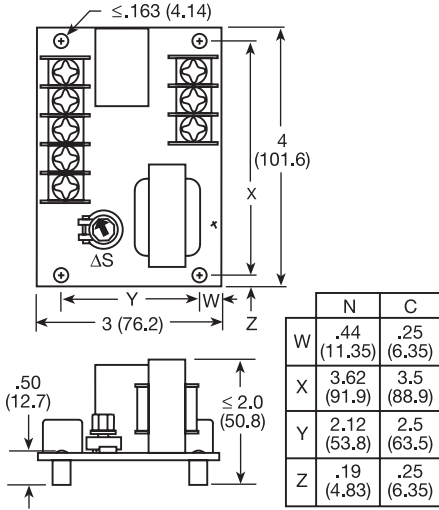
MSM

FIGURE 26



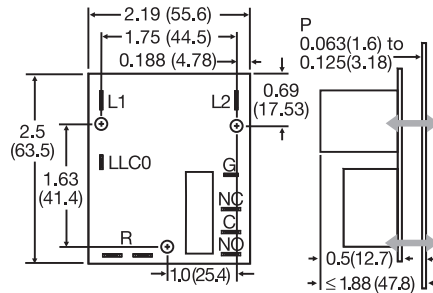
LLC1

FIGURE 27



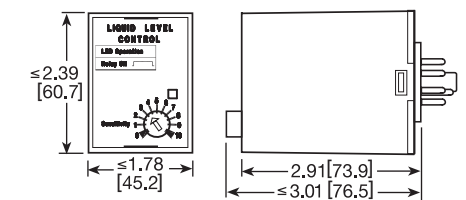
LLC2

FIGURE 28



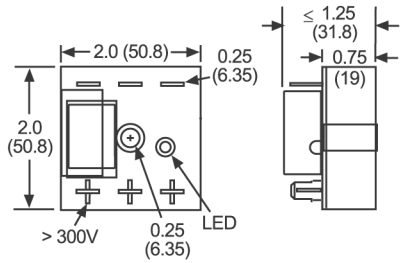
LLC8

FIGURE 29



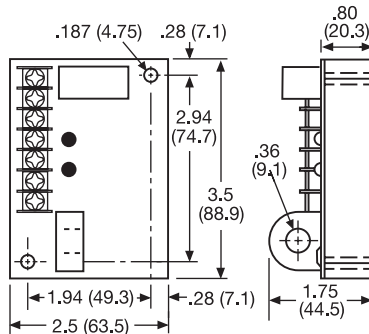
LLC5

FIGURE 30



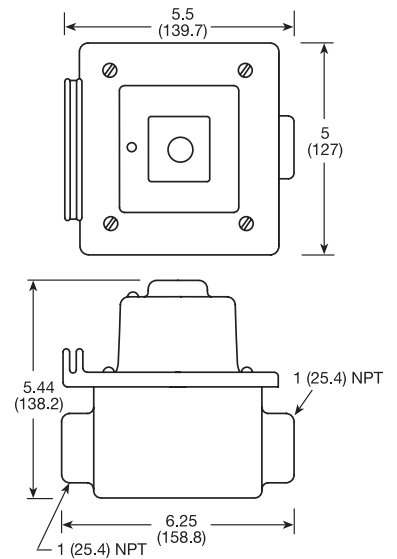
TVM; TVW

FIGURE 32



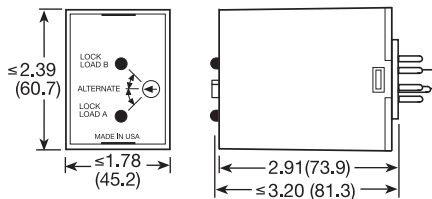
FB; SCR

FIGURE 33



PCR

FIGURE 31

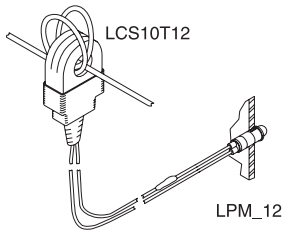


ARP

inches (millimeters)

Appendix C - Connection Diagrams

FIGURE 22 - LCS10T12



Wire Length: 500 ft. (152.4m) max. (Customer Supplied)
CAUTION: The LCS10T12 must be connected to the LPM12 or LPMG12 before current flows to prevent damage or shock hazard. Monitored wires must be properly insulated.

FIGURE 23 - LLC1 Series

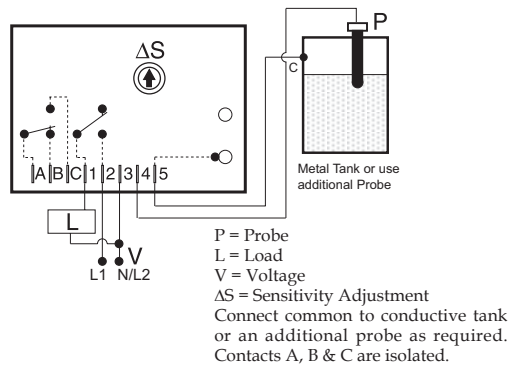


FIGURE 24 - LLC4 Series

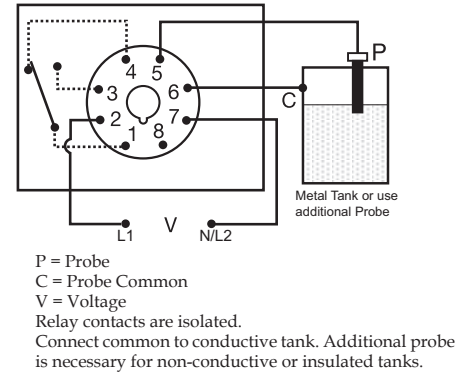


FIGURE 25 - LLC8 Series

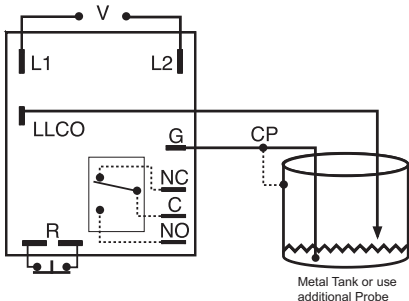


FIGURE 26 - LLC6 Series

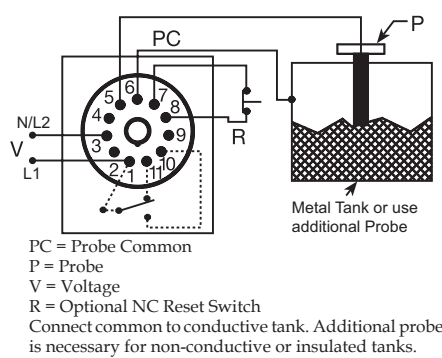


FIGURE 27 - LLC2 Series

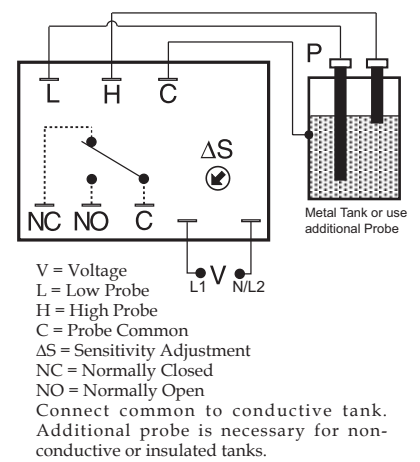


FIGURE 28 - LLC5 Series

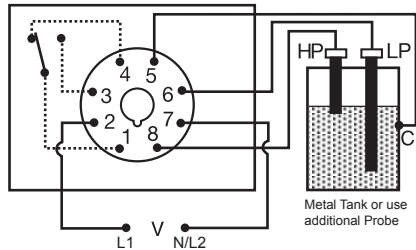
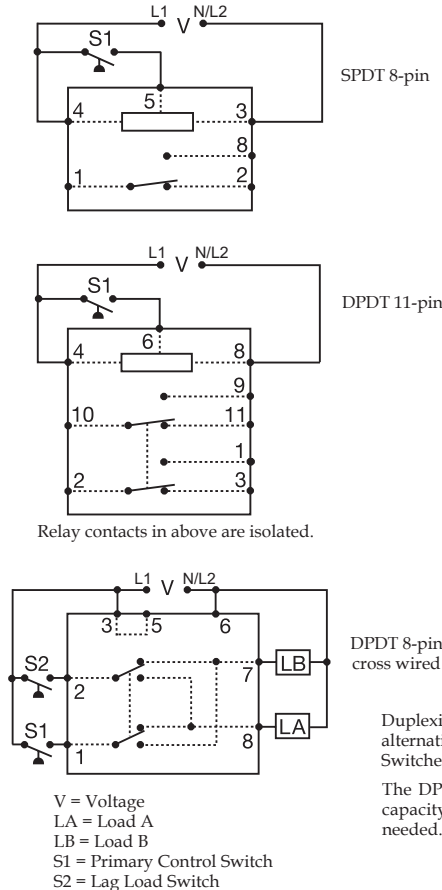


FIGURE 29 - ARP Series



Duplexing (Cross Wired): Duplexing models operate the same as alternating relays and when both the Control (S1) and Lag Load (S2) Switches are closed, Load A and Load B energize simultaneously.

The DPDT 8-pin, cross wired option, allows extra system load capacity through simultaneous operation of both motors when needed. Relay contacts are not isolated.