The LLC5 provides dual probe conductive liquid level control in a convenient octal plug-in package. Models are available for fixed fill or drain operation. Isolated, pulsed DC voltage on the probes prevents electrolytic plating. Less than 1 mA of current is used to sense the presence of conductive liquid between the probes and common. On adjustable units, the sensitivity adjustment eliminates false tripping caused by floating debris and foaming agents.

For more information see:
Appendix B, page 167, Figure 29 for dimensional drawing.
Appendix C, page 170, Figure 28 for connection diagram.

Features:

- Dual probe level control for conductive liquids
- Onboard knob or fixed sensing up to 100KΩ
- Fill or drain operation available
- Select standard or diagnostic LED operation
- Diagnostic LED operation reduces adjustment & troubleshooting time
- 24, 120, or 230VAC models are available
- Isolated, 5A, SPDT ouput contacts

Approvals:

Auxiliary Products:

- **Panel mount kit:** P/N: BZ1
- **Octal 8-pin socket:** P/N: NDS-8
- **Hold-down clips (sold in pairs):** P/N: PSC8 (NDS-8)
- **Electrode:** P/N: PHST-38QTN
- **Threaded probe (24"):** P/N: LLP-24

Available Models:

LLC52AA	LLC54AF10
LLC52BA	LLC54BA
LLC54AA	LLC54BAS
LLC54AAS	LLC56AA

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

Operation

Drain (Pump-Down Mode): When the liquid level rises and touches the high level probe, the output relay and LED energize and remain energized until the liquid level falls below the low level probe. The output relay and LED de-energize and remain de-energized until the liquid rises and touches the high level probe.

Fill (Pump-Up Mode): When the liquid level falls below the low level probe, the output relay and LED energize and remain energized until the liquid level rises and touches the high level probe. The output relay and LED de-energize and remain de-energized until the liquid level again falls below the low level probe.

Order Table:

LLC5 **X** **X** **X** **X** **X**

Input
- **2** - 24VAC
- **4** - 120VAC
- **6** - 230VAC

Operation
- **A** - Drain
- **B** - Fill

Sense Resistance
- **A** - Adjustable
- **F** - Fixed (Specify fixed resistance **1-100** in 1KΩ increments.)

Connection
- **Blank** - Standard (#6 Low, #8 High)
- **S** - Reverse (#8 Low, #6 High)

LED Operation
- **Blank** - Standard LED operation
- **D** - LED operation with diagnostics

Specifications

Control

Type	Resistance sensing for high & low level detection of conductive liquids
Sensing Voltage	Pulsed DC at probe terminals
Sensing Resistance	Factory fixed or adjustable to 100KΩ
Sensing Resistance Tolerance	Adjustable: 1K ±500Ω at low end; 100KΩ ±25%, 0% at high end Factory fixed: ±10% or 500Ω whichever is greater
Response Time	Debounce time delay <1s

Input

Voltage	24, 120, or 230VAC
Tolerance 24VAC	-15%, +20%
120 & 230VAC	-20%, +10%
AC Line Frequency	50/60 Hz

Output

Type	Electromechanical relay
Form	Isolated, SPDT
Rating	5A resistive @ 240VAC 1/10 hp @ 240VAC

Protection

Isolation Voltage	≥ 1500V RMS between input, output, & probe

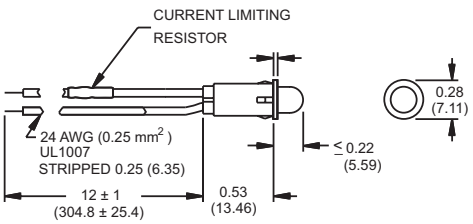
Mechanical

Mounting	Plug-in socket
Dimensions	3.01 x 2.39 x 1.78 in. (76.5 x 60.7 x 45.2 mm)
Termination	Octal 8-pin plug-in

Environmental

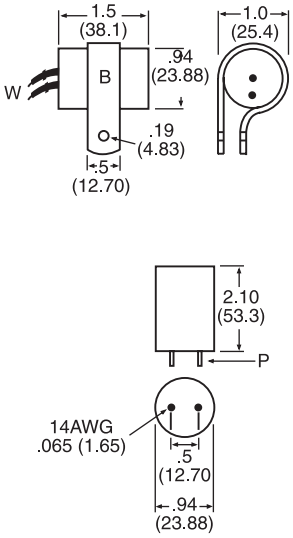
Operating / Storage Temperature	-20° to 60°C / -40° to 80°C
Weight	≈ 6 oz (170 g)

FIGURE 24



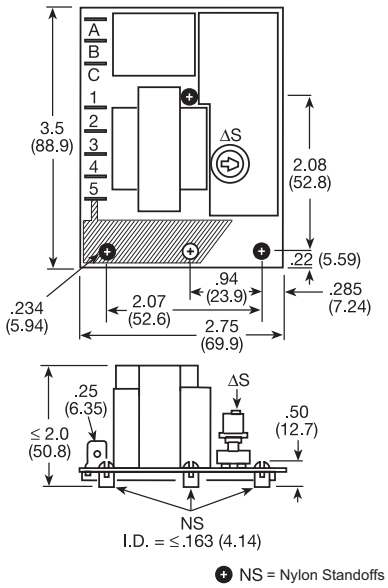
LPM

FIGURE 25



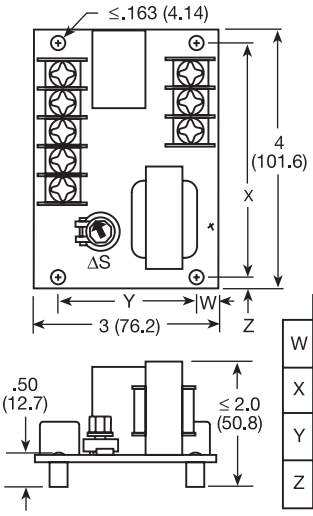
MSM

FIGURE 26



LLC1

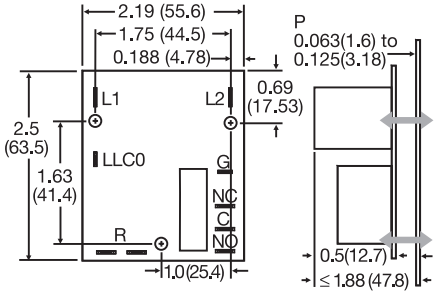
FIGURE 27



	N	C
W	.44 (11.35)	.25 (6.35)
X	3.62 (91.9)	3.5 (88.9)
Y	2.12 (53.8)	2.5 (63.5)
Z	.19 (4.83)	.25 (6.35)

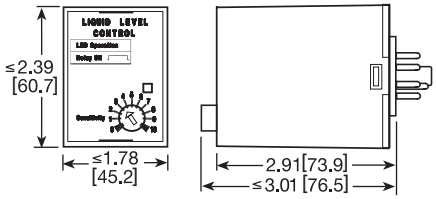
LLC2

FIGURE 28



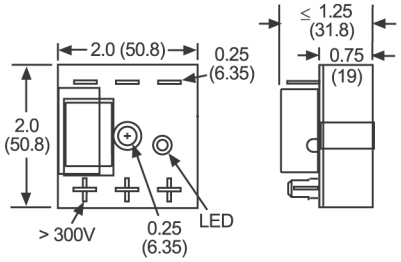
LLC8

FIGURE 29



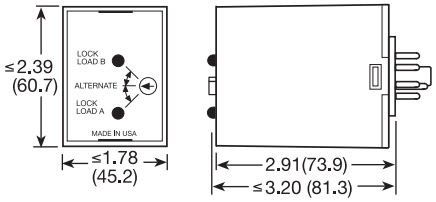
LLC5

FIGURE 30



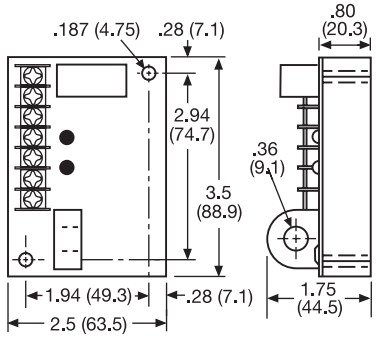
TVM; TVW

FIGURE 31



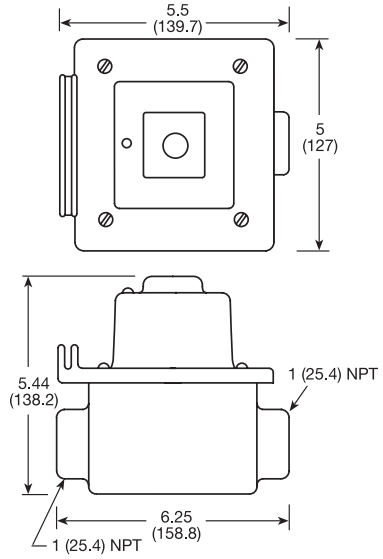
ARP

FIGURE 32



FB; SCR

FIGURE 33

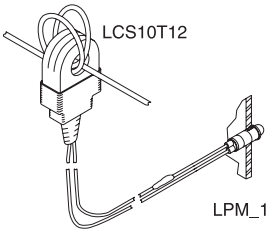


PCR

inches (millimeters)

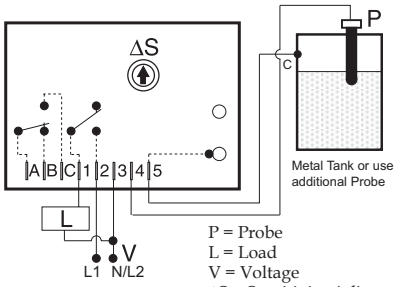
Appendix C - Connection Diagrams

FIGURE 22 - LCS10T12



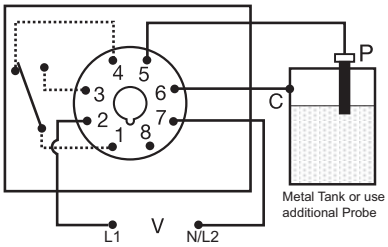
Wire Length: 500 ft. (152.4m) max. (Customer Supplied)
CAUTION: The LCS10T12 must be connected to the LPM12 or LPMG12 before current flows to prevent damage or shock hazard. Monitored wires must be properly insulated.

FIGURE 23 - LLC1 Series



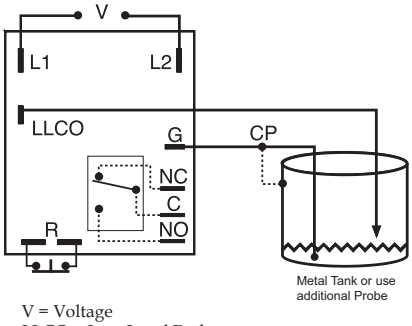
P = Probe
L = Load
V = Voltage
ΔS = Sensitivity Adjustment
Connect common to conductive tank or an additional probe as required.
Contacts A, B & C are isolated.

FIGURE 24 - LLC4 Series



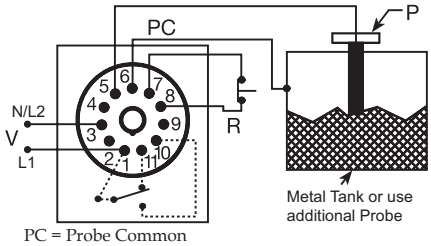
P = Probe
C = Probe Common
V = Voltage
Relay contacts are isolated.
Connect common to conductive tank. Additional probe is necessary for non-conductive or insulated tanks.

FIGURE 25 - LLC8 Series



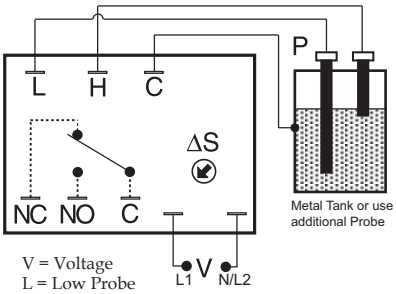
V = Voltage
LLCO = Low Level Probe
G or CP = Ground or Common (Reference) Probe
R = Optional NC Reset Switch (not included)
NO = Normally Open
NC = Normally Closed
C = Common or Transfer Contact
Relay contacts are isolated.
Connect common to conductive tank. Additional probe is necessary for non-conductive or insulated tanks.

FIGURE 26 - LLC6 Series



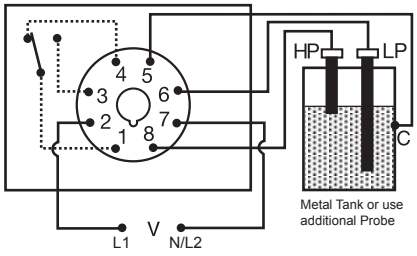
PC = Probe Common
P = Probe
V = Voltage
R = Optional NC Reset Switch
Connect common to conductive tank. Additional probe is necessary for non-conductive or insulated tanks.

FIGURE 27 - LLC2 Series



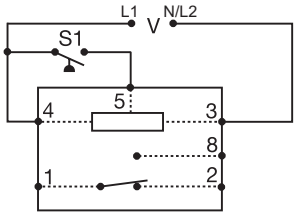
V = Voltage
L = Low Probe
H = High Probe
C = Probe Common
ΔS = Sensitivity Adjustment
NC = Normally Closed
NO = Normally Open
Connect common to conductive tank. Additional probe is necessary for non-conductive or insulated tanks.

FIGURE 28 - LLC5 Series

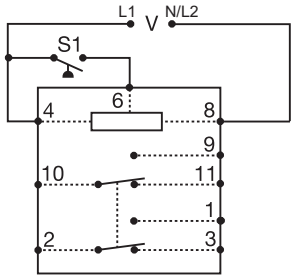


HP = High Level Probe
LP = Low Level Probe
C = Probe Common
V = Voltage
Relay contacts are isolated.
Connect common to conductive tank. Additional probe is necessary for non-conductive or insulated tanks.

FIGURE 29 - ARP Series

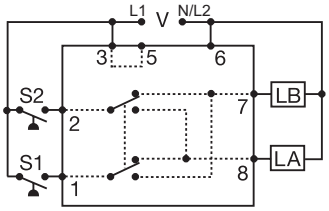


SPDT 8-pin



DPDT 11-pin

Relay contacts in above are isolated.



DPDT 8-pin cross wired

V = Voltage
LA = Load A
LB = Load B
S1 = Primary Control Switch
S2 = Lag Load Switch

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.

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