The LLC6 Series is a plug-in, single-probe conductive liquid level control designed for low liquid level cutoff protection. It offers a factory fixed time delay of 1 - 60s and is available in input voltages of 24, 120, or 230VAC. LED indicator illuminates whenever the LLC6's 10A, SPDT output relay is energized. Available with automatic/manual reset or a special manual reset with power outage feature, which auto resets the unit when power is restored and the water level is acceptable. 24VAC and 120VAC units are recognized as limit switches under UL353 (230VAC units are UL508) and CSA certified under Standard 14.

For more information see:
Appendix B, page 166, Figure 19 for dimensional drawing.
Appendix C, page 170, Figure 26 for connection diagram.

Features:

- Designed for low level cutoff protection
- Energized on wet probe
- Fixed time delay of 1 - 60s
- Fixed sense resistance of 5K - 250KΩ
- 24, 120, or 230VAC input voltage available
- Non-isolated, 10A, SPDT output contacts

Approvals:

Auxiliary Products:

- **Electrode:** P/N: PHST-38QTN
- **Threaded probe (24"):** P/N: LLP-24
- **Panel mount kit:** P/N: BZ1
- **11-pin socket:** P/N: NDS-11
- **Hold-down clips (sold in pairs):** P/N: PSC11 (NDS-11)

Available Models:

LLC6210F10M
LLC622F10P
LLC6410F10M
LLC642F10M
LLC643F250M
LLC645F250M
LLC6610F5P

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

Operation

Automatic Reset (Reset terminals not connected): When liquid rises to the low level cutoff probe, the output relay and the LED indicator energize. When the liquid falls below low level cutoff probe, the output relay and the LED indicator de-energize after a fixed time delay.

Manual Reset (Reset switch connected): When the liquid level falls below the low level probe, the output relay and LED de-energize after a fixed time delay. When the liquid level rises to the low level probe, the output relay and LED indicator remain de-energized until the manual reset switch is opened; then they energize immediately.

Power Outage Manual Reset (Reset switch connected): A power outage causes the output relay and LED indicator to de-energize. Upon restoration of power, if the liquid level is above the low level probe, the output relay and LED indicator will re-energize. If the liquid level is below the low level probe, the output relay and LED indicator remain de-energized until the Normally Closed (NC) reset switch is opened.

Order Table:

LLC6 **X** **Input**
- **2** - 24VAC
- **4** - 120VAC
- **6** - 230VAC

X **Time Delay (fixed)**
Specify fixed delay in seconds (**1-60**) in 1s increments

X **Sense Resistance**
F - Fixed (Specify fixed resistance in kilohms (**5-250**) in 1K increments.)

X **Reset**
- **M** - Manual/Automatic Reset
- **P** - Power outage manual reset

Specifications

Control

Type	ON/OFF (single level) resistance sensor with built-in time delay to prevent rapid cycling
Sense Voltage	12VAC nominal at probe terminals
Sense Resistance	Fixed 5K - 250KΩ
Sense Resistance Tolerance	Fixed ±10%

Time Delay

Range	1 - 60s in 1s increments
Tolerance	±20%
Repeat Accuracy	±10%
Time Delay vs Temp. & Voltage	±10%
Power Outage Reset Delay	≤ 1s

Input

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

Output

Type	Electromechanical relay
Form	Non-isolated, SPDT
Rating	10A resistive @ 240VAC; 1/4 hp @ 125VAC; 1/2 hp @ 250VAC

Protection

Surge	IEEE C62.41-1991 Level A
Isolation Voltage	≥ 2500V RMS between input & output terminals

Mechanical

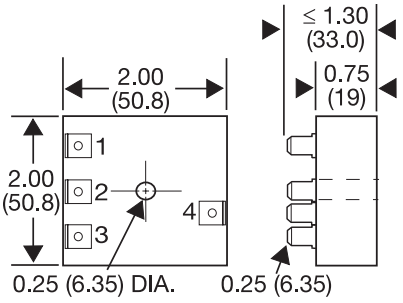
Mounting	Plug-in socket
Termination	11-pin relay type
Dimensions	2.91 x 2.39 x 1.78 in. (73.9 x 60.7 x 45.2 mm)

Environmental

Operating / Storage Temperature	-40° to 60°C / -40° to 80°C
Humidity	95% relative, non-condensing
Weight	≅ 7.3 oz (207 g)

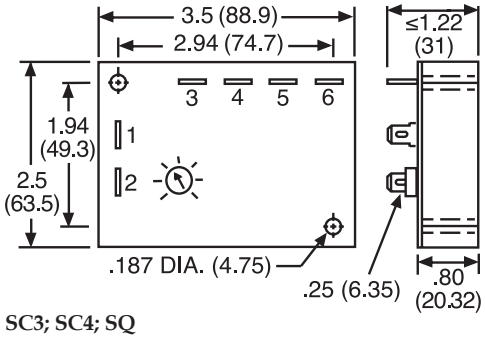
Appendix B - Dimensional Drawings

FIGURE 13



AF

FIGURE 14



SC3; SC4; SQ

FIGURE 15

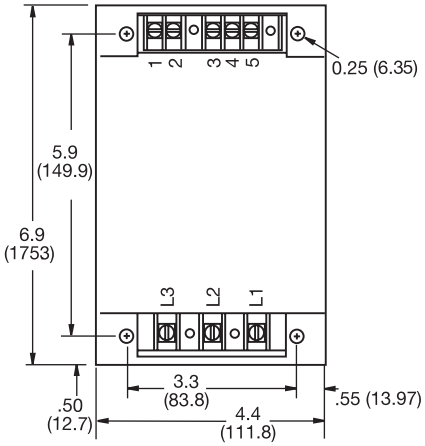
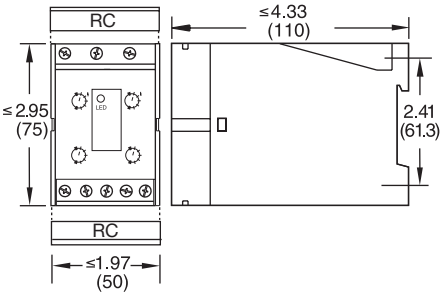
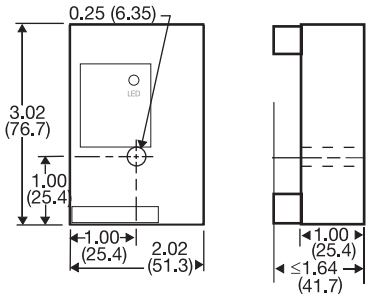


FIGURE 16

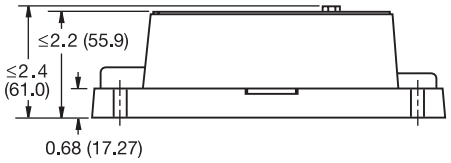


DLMU

FIGURE 17

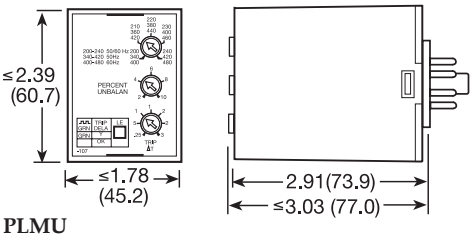


FB9L; HLMU; SCR9L



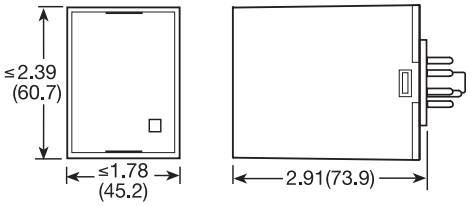
WVM

FIGURE 18



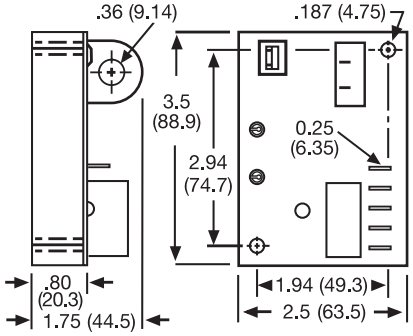
PLMU

FIGURE 19



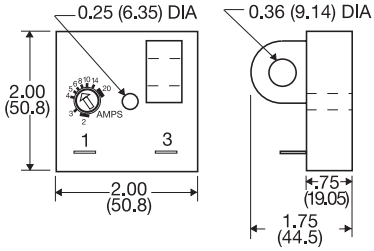
LLC4; LLC6; PLS

FIGURE 20



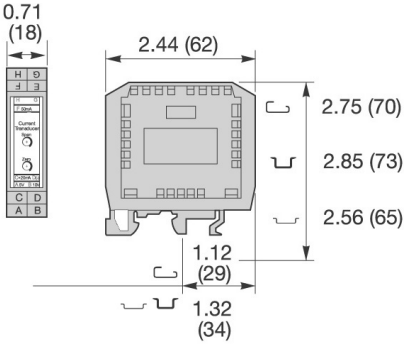
ECS; ECSW (ECS has spade connectors and ECSW has terminal board)

FIGURE 21



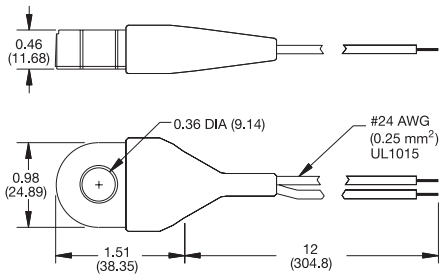
TCS; TCSA

FIGURE 22



DCSA

FIGURE 23

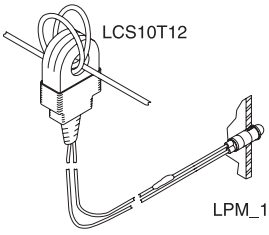


LCS

inches (millimeters)

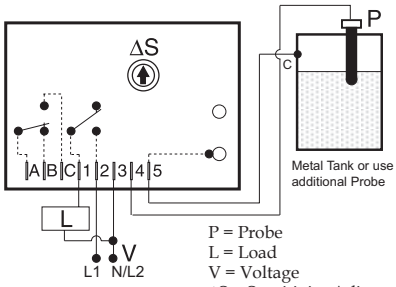
Appendix C - Connection Diagrams

FIGURE 22 - LCS10T12



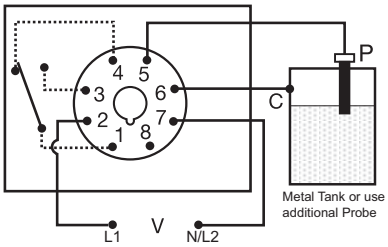
Wire Length: 500 ft. (152.4m) max. (Customer Supplied)
CAUTION: The LCS10T12 must be connected to the LPM12 or LPMG12 before current flows to prevent damage or shock hazard. Monitored wires must be properly insulated.

FIGURE 23 - LLC1 Series



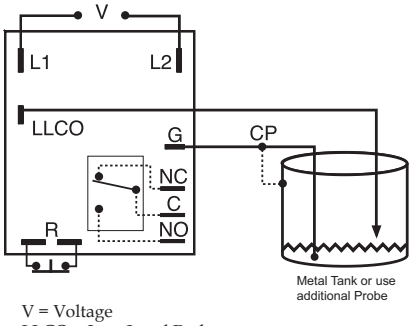
P = Probe
L = Load
V = Voltage
ΔS = Sensitivity Adjustment
Connect common to conductive tank or an additional probe as required.
Contacts A, B & C are isolated.

FIGURE 24 - LLC4 Series



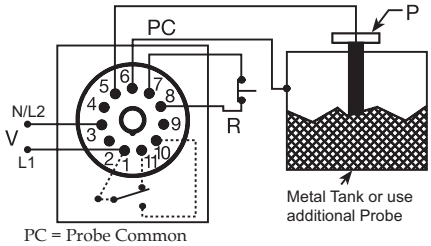
P = Probe
C = Probe Common
V = Voltage
Relay contacts are isolated.
Connect common to conductive tank. Additional probe is necessary for non-conductive or insulated tanks.

FIGURE 25 - LLC8 Series



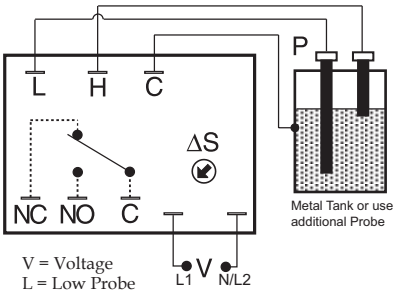
V = Voltage
LLCO = Low Level Probe
G or CP = Ground or Common (Reference) Probe
R = Optional NC Reset Switch (not included)
NO = Normally Open
NC = Normally Closed
C = Common or Transfer Contact
Relay contacts are isolated.
Connect common to conductive tank. Additional probe is necessary for non-conductive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

FIGURE 26 - LLC6 Series



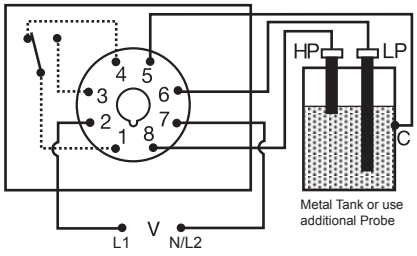
PC = Probe Common
P = Probe
V = Voltage
R = Optional NC Reset Switch
Connect common to conductive tank. Additional probe is necessary for non-conductive or insulated tanks.

FIGURE 27 - LLC2 Series



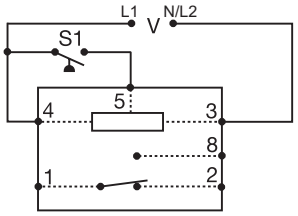
V = Voltage
L = Low Probe
H = High Probe
C = Probe Common
ΔS = Sensitivity Adjustment
NC = Normally Closed
NO = Normally Open
Connect common to conductive tank. Additional probe is necessary for non-conductive or insulated tanks.

FIGURE 28 - LLC5 Series

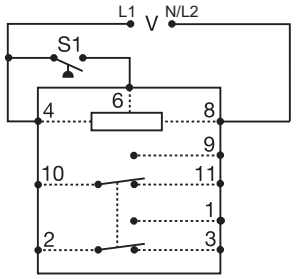


HP = High Level Probe
LP = Low Level Probe
C = Probe Common
V = Voltage
Relay contacts are isolated.
Connect common to conductive tank. Additional probe is necessary for non-conductive or insulated tanks.

FIGURE 29 - ARP Series

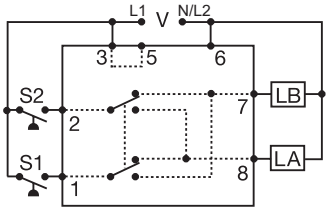


SPDT 8-pin



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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