

# SINGLE PROBE | PUMP UP & PUMP DOWN

## LCP SERIES

LIQUID LEVEL CONTROL RELAYS | PLUG-IN



- ◆ Controls Level of Conductive Liquids in Pump Up (Fill) or Pump Down (Drain) Applications
- ◆ Single Probe
- ◆ Probe is Pulsed with a DC Voltage to Prevent Electroplating
- ◆ Factory-Fixed Time Delay of 1-60 Seconds Prevents Rapid Cycling
- ◆ Two Adjustable Sensitivity Ranges
- ◆ LED Status Indication
- ◆ Uses industry-standard 8 pin octal socket
- ◆ Pilot Duty Rating

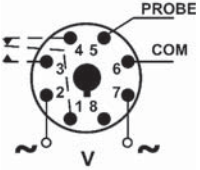


LCP Series Liquid Level Control Relays detect and control levels of conductive liquids (tap water, seawater, sewage, chemical solutions, coffee, ice cream, etc.) in single probe pump up or pump down applications. The conductive properties of the liquid complete a circuit between a probe and common when the liquid comes in contact with both. These relays compare the value of the measured resistance between probes with the setpoint of the adjustable potentiometer provided on the product. The output of the relay is used to control pumps, solenoids or valves to lower, raise or maintain the level of the liquid in the tank. Probes are pulsed with a DC voltage to prevent potential electroplating issues. A built-in time delay prevents rapid cycling.

Two versions of Single Probe products are available:

- **Pump Up (Fill):** The relay is OFF as long as the liquid is in contact with the probe. The relay energizes after a fixed time delay when the liquid level drops below the probe. The relay de-energizes when the liquid level touches the probe.
- **Pump Down (Drain):** The relay is OFF as long as no liquid is in contact with the probe. The relay energizes after a fixed time delay when the liquid level touches the probe. The relay de-energizes when the liquid level falls below the probe.

### Single Probe

FUNCTION	INPUT VOLTAGE	SENSITIVITY RANGE	PRODUCT NUMBER ◆	WIRING/SOCKET
PUMP UP (FILL)	24V AC	4.7K to 100KΩ 1K to 250KΩ	LCP8A100F◆ LCP8A250F◆	8 Pin Octal <b>70169-D</b> 
	120V AC	4.7K to 100KΩ 1K to 250KΩ	LCP2A100F◆ LCP2A250F◆	
	240V AC	4.7K to 100KΩ 1K to 250KΩ	LCP1A100F◆ LCP1A250F◆	
PUMP DOWN (DRAIN)	24V AC	4.7K to 100KΩ 1K to 250KΩ	LCP8B100F◆ LCP8B250F◆	<b>DIAGRAM 203</b>
	120V AC	4.7K to 100KΩ 1K to 250KΩ	LCP2B100F◆ LCP2B250F◆	
	240V AC	4.7K to 100KΩ 1K to 250KΩ	LCP1B100F◆ LCP1B250F◆	

- ◆ Complete Product Number by adding time delay in one second increments between 1 & 60, i.e., LCP2A100F2 is a Single Probe Pump Up Relay, 120V Input Voltage, 4.7K-100KΩ Sensitivity with a Fixed 2 Second Delay

**Sockets & Accessories available**



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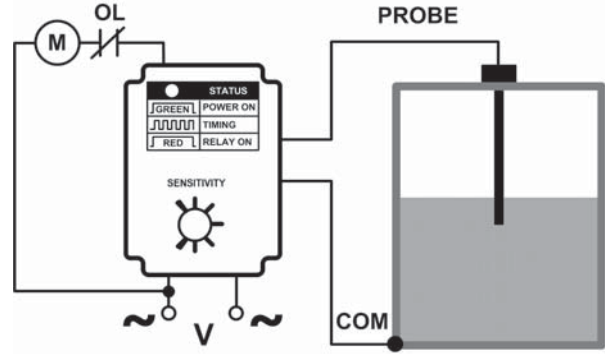
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### OPERATION

**Pump Up (Fill):** When the liquid level falls below the probe, a fixed time delay begins and the LED flashes Red. 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 the LED is Red ON. The pump is ON to fill the tank. The relay remains energized until the liquid level rises and touches the probe. The output relay de-energizes, turning off the pump, and remains de-energized and the LED is Green ON until the liquid level falls below the probe.

**Pump Down (Drain):** When the liquid level rises and touches the probe, a fixed time delay begins and the LED flashes Red. 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 the LED is Red ON. The pump is ON to drain the tank. The relay remains energized until the liquid level falls below the probe level. The output relay de-energizes, turning off the pump, and remains de-energized and the LED is Green ON until the liquid level rises and touches the probe.



If the container is non-conductive or insulated, an additional probe must be installed as the COM connection where it will always be submerged.

### APPLICATION DATA

**Voltage Tolerance:**

AC Operation: +10/-15% of nominal at 50/60 Hz.

**Load (Burden):**

2 VA

**Probe Voltage:**

5V DC Pulsed

**Resistance Sensitivity Range:**

4.7K - 100KΩ or 1K - 250KΩ

**Response Time:**

Pick-up: Fixed in one second increments from 1-60 seconds  
(Minimum Quantities may apply)

Drop-out: 500ms

**LED Indicator:**

Green ON with Input Voltage applied; Red Flashing during timing;  
Red ON when relay energized

**Temperature:** Operating: -28° to 65°C (-18° to 149°F)  
Storage: -40° to 85°C (-40° to 185°F)

**Output Contacts:**

10A @ 240V AC / 7A @ 28V DC, 1/4HP @ 120V AC (N.O.)

**Life:**

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

**Mounting:**

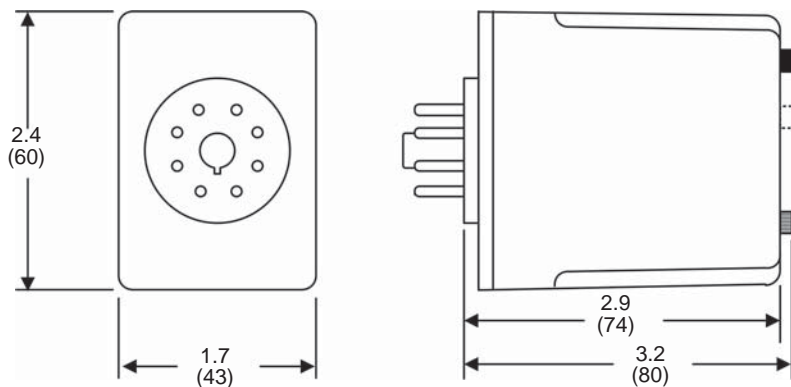
Requires Industry-Standard 8 Pin Octal Socket  
(Macromatic 70169-D or equivalent)

**Approvals:**



with appropriate socket  
File #E109466

### DIMENSIONS



All Dimensions in Inches (Millimeters)