

INSTALLATION INSTRUCTIONS

Revision A1
Rapid City, SD, USA, 10/2009

PumpSaver®
ELECTRONIC PUMP
CONTROL & PROTECTION

MODELS PC-100-LLC-CZ PC-200-LLC-CZ



II-PC-LLC-CZ-B



www.SymCom.com
... your electronic control & protection specialists

222 Disk Drive, Rapid City, SD 57701
(800) 843-8848 www.symcom.com

DANGER!



HAZARDOUS VOLTAGES MAY BE PRESENT DURING INSTALLATION.

Electrical shock can cause death or serious injury.

Installation should be done by qualified personnel following all national, state and local electrical codes.



**BE SURE POWER IS DISCONNECTED PRIOR TO INSTALLATION!
FOLLOW NATIONAL, STATE AND LOCAL CODES.
READ THESE INSTRUCTIONS ENTIRELY BEFORE INSTALLATION.**

SymCom's PumpSaver® Model PC-XXX-LLC-CZ liquid level controllers are used to detect the presence of conductive liquids and control the operation of a single pump. The line voltage must be specified in the part number.

These devices use two probe inputs (a High Probe and a Low Probe, with a tank or probe common) to determine whether to start or stop a pump. The inputs to the PumpSaver® are usually liquid level sensors that sense a decrease in resistance between the probes when liquid contacts the sensors. Pump-up or pump-down operation may be selected by turning the adjustment knob to the left or right side of center on the sensitivity range. See Figure 3. The probe sensitivity may be selected by turning the adjustment knob to the desired resistance threshold. This sets the level at which the PumpSaver® determines whether liquid is present at the probes. If the resistance of the probe drops below the threshold, then liquid is detected. If the resistance of the probe rises above the threshold, then liquid is not detected.

These devices may also be used in a single-probe application (with a tank or probe common).

CONNECTIONS for PC-XXX-LLC-CZ Products

1. The PC-XXX-LLC-CZ requires an 8-pin socket, part number OT08-PC (sold separately).
2. Mount the PumpSaver® socket in a convenient location in or near the pump control panel. If the location is wet or dusty, it should be mounted in a NEMA 4 or 12 enclosure.
3. For pump motor control, connect the normally open contact, socket terminal 3, and common, socket terminal 1, in series with the motor's magnetic contactor coil (M) as shown in Figure 2.
4. Connect the power supply L1 to socket terminal 2 and power supply L2 to socket terminal 7.
5. Connect high level probe to socket terminal 6.¹
6. Connect low level probe to socket terminal 8.
7. If the tank is conductive, connect a probe common wire between the tank and socket terminal 5. If the tank is not conductive, a wire must be connected between a reference, or common, probe and socket terminal 5.
8. Plug the PumpSaver® into the socket.

Note: The PC-XXX-LLC-CZ uses a 5vdc pulse to check the resistance of each probe, so the probes must be isolated from other voltage sources.

¹ For single probe applications, connect a wire between socket terminals 6 and 5. Connect the single probe between socket terminals 8 and 5. The single probe must be connected to the low probe and the high probe input must be connected directly to common.

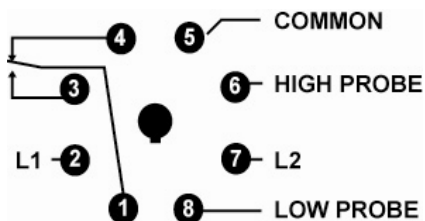


Figure 1: Pin-Out Diagram

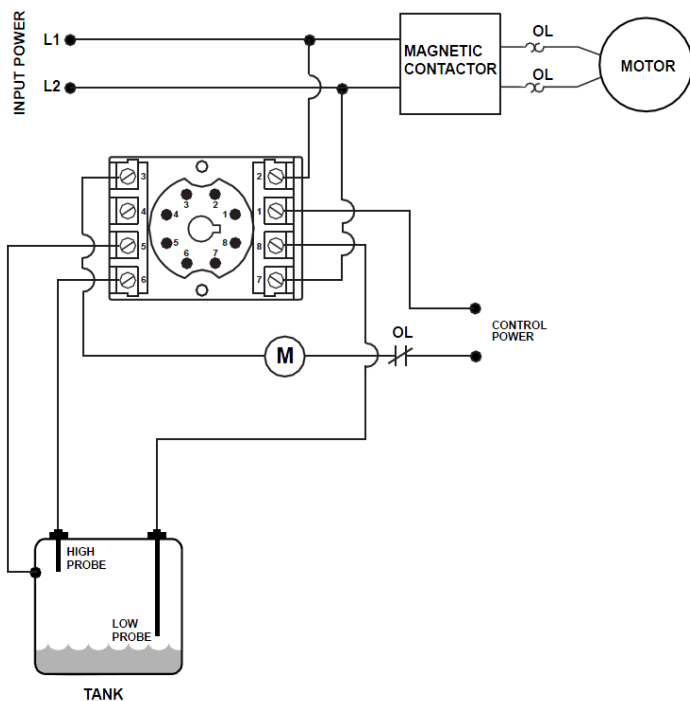


Figure 2: Typical Pump Control Wiring Diagram

SETTINGS

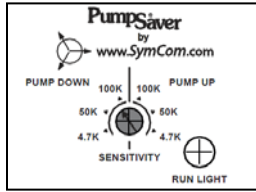


Figure 3: Selectivity and Mode Selection

Use the adjustment knob shown in Figure 3 to set the mode of operation and the sensitivity threshold for the probes. Set the sensitivity from 4.7k to 100k on the left half of the dial for pump-down applications. Set the sensitivity from 4.7k to 100k on the right half of the dial for pump-up applications².

OPERATION

Apply power to the system. The green run light will come on if the relay has been energized.

The PumpSaver[®] is equipped with a debounce time delay. The PumpSaver[®] will wait for the time delay to complete before energizing/de-energizing the relay.

Pump-Up³

The relay is energized when liquid is not detected at the low probe, regardless of the state of the high probe. When the liquid level rises and liquid is detected at the low and high probes, the relay is de-energized.

Pump-Down⁴

The relay is energized when the liquid level rises and is detected at the low and high probes. When the liquid level drops and no liquid is detected at the low probe, the relay is de-energized, regardless of the state of the high probe.

² Reducing the resistance setting will provide increased sensitivity to the presence of liquid.

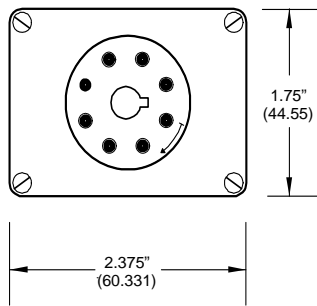
³ When used with a single probe in a pump-up setting, the relay will energize the pump when no liquid is detected by the probe and de-energize when liquid is detected by the probe.

⁴ When used with a single probe in pump-down setting, the relay will energize the pump when liquid is detected by the probe and de-energize when liquid is not detected by the probe.

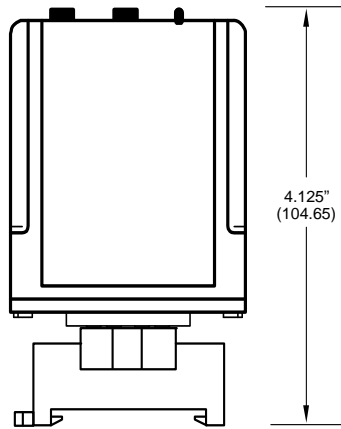
TROUBLESHOOTING

SYMPTOM	LIGHT PATTERN	SOLUTION
Device is not functional	N/A	Verify that the product is wired properly. If wiring is correct, then measure the line voltage at terminals 2 and 7 on the octal base. If the voltage is below the minimum listed in the Specification Table for the model in use, the PumpSaver® does not have enough power to operate its internal electronics. Also check for a valid input to the unit from the appropriate probe. If the voltages and probe inputs are correct but unit fails to function, call SymCom at (800) 843-8848 or (605) 348-5580.
Green LED turns on, but the pump does not run.	GREEN LED ON	The PumpSaver® has energized the internal relay. Check the wiring to the motor's magnetic contactor coil. Verify all safeties and controls are operating correctly.

DIMENSIONS



BOTTOM



**SIDE
WITH OT08* SOCKET**

*The OT08 octal socket is 35mm DIN rail compatible. The use of an OT08 octal socket is required for Model PC-XXX-LLC-CZ to qualify as a UL Listed device.

PUMPSAVER® PC-XXX-LLC-CZ SPECIFICATIONS

Functional Characteristics	
Debounce Time Delay	2 seconds
Input Characteristics	
Line Supply Voltage PC-100-LLC-CZ PC-200-LLC-CZ Frequency Probe Sense Voltage	95-120VAC 190-240VAC 50 ⁵ /60Hz 5vdc Pulsed
Probe Sensitivity	4.7k to 100k Adjustable
Output Characteristics	
Output Contact Rating Pilot Duty General Purpose	480VA @ 240VAC 10A @ 240VAC
General Characteristics	
Environmental Ambient Operating Temperature ⁶ Relative Humidity Maximum Input Power Standards Passed Electrostatic Discharge (ESD) Radio Frequency Immunity, Radiated Fast Transient Burst Surge Immunity IEC ANSI/IEEE Hi-Potential Test	-40° to 70°C (-40° to 158°F) 10-95%, non-condensing per IEC 68-2-3 5 W IEC 61000-4-2, Level 3, 6kV contact, 8kV air 150 MHz, 10V/m IEC 61000-4-4, Level 3, 2kV input power and controls IEC 61000-4-5, Level 4, 4kV line-to-line; Level 4, 4kV line-to-ground; Level 2, 1kV probe inputs-to- ground C62.41 Surge and Ring Wave Compliance to a level of 6kV line-to-line Meets UL508 (2 x rated V +1000 V for 1 minute)
Safety Marks UL listed (OT08 octal socket required) CE	UL508 (File #E68520) IEC 60947-6-2
Dimensions	1.750" H x 2.375" W x 4.125" D (with socket)
Weight	9 oz.
Enclosure	Polycarbonate
Mounting Method	Plugs into OT08 Socket; DIN Rail or Surface Mount
Wire Gauge	12-22 AWG Solid or Stranded
Terminal Torque for P/N OT08 Socket	12 in. – lb

⁵ 50 Hz will increase all delay timers by 20%

⁶ The ambient air temperature is the air temperature directly surrounding the product.

For warranty information, please see **Terms and Conditions** at
www.symcom.com

*Visit us at www.symcom.com to see
our complete product listing!*

Need something special?

*Contact SymCom today
for your custom solution!
800-843-8848*