

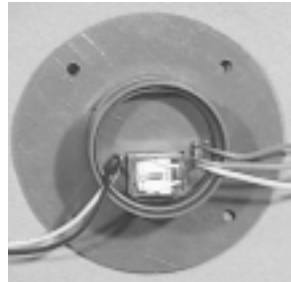
VERTICAL LATCHING LIQUID LEVEL CONTROLLERS

The Series LC-90 is a corrosion resistant float type latching liquid level controller. The float and column wet end components are available in Polypropylene and PVDF. The housing is manufactured out of PVC. The basic control function of this unit is to latch power on from a low set point to a high set point, and latch power on from a high set point to a low set point. Custom variations are available upon request.

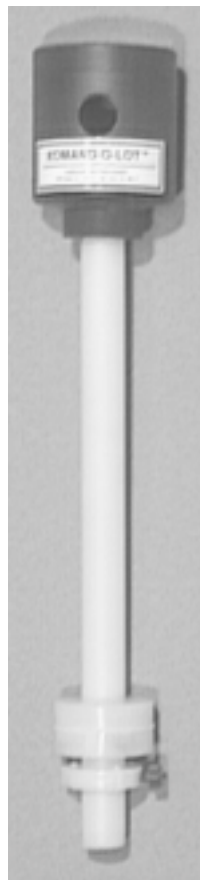
SPECIAL FEATURES

The Series LC-90 offers corrosion resistant water tight plastic construction. The latching control circuits incorporate a power interrupt power down reset function and a power down ground default.

The power interrupt power down reset function defaults the liquid level controller to the power down mode in the event of a supply power interruption. Once the liquid level switch reaches the low latching control point, the controller resets and resumes normal function. This unique feature prevents the float from bypassing the high latching level switch should a power failure occur, and the level continues to rise due to gravity drainage in piping systems.



Downward view of LC-90 control head



Another advantage of this feature is that it allows the operator to drain a tank by momentarily interrupting the power at the breaker box.

The power down ground default function defaults to power down and eliminates column power should a wet end column breach occur. This unique feature helps protect the operator from potential electrical hazards, especially in completely plastic piping systems, since they are usually not grounded.

Corrosion resistant plastic construction of the housing and wet end section protects the electrical components contained within from potential corrosion problems. The plastic housing makes use of an O-ring to help provide a watertight seal from the environment.

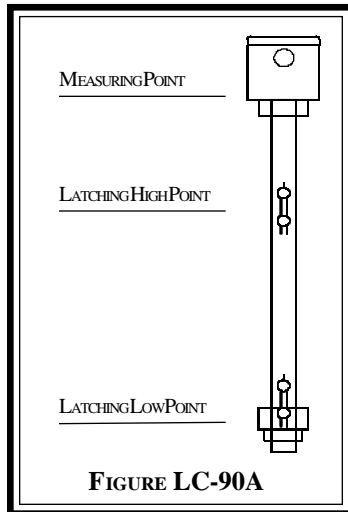
APPLICATION

Typical applications range from controlling valves, heaters, and pumps when automated filling and/or emptying is required. This controller can control a load of up to 10 amps resistive and motor loads to 1/2 hp directly. For larger loads the controller is reduced to pilot duty and easily operates large load contactors and motor starters.

Safe and Reliable Controller Selection - In selecting a level controller, the total system design must be considered to assure safe, trouble-free performance. Controller function, material compatibility, adequate power ratings, proper installation, operation and maintenance are the responsibility of the system designer and user. Please feel free to ask for a copy of our Product Warranty.

OPERATION

The Series LC-90 is a vertical latching magnetically activated liquid level controller capable of switching 10 amps using 12Vdc, 24Vdc, 48Vdc, 110Vdc, 12Vac, 24Vac, or 120Vac. This unit is equipped with both a power "ON" from the low to the high set point, and power "ON" from the high to the low set point (See figure LC-90A). The set points are factory hard wired magnetically sensitive switches, which are activated by the travel of the float containing specially oriented magnetic elements.



ELECTRICAL LOAD

The load placed upon the liquid level controller is directly proportional to its expected service life and operational reliability.

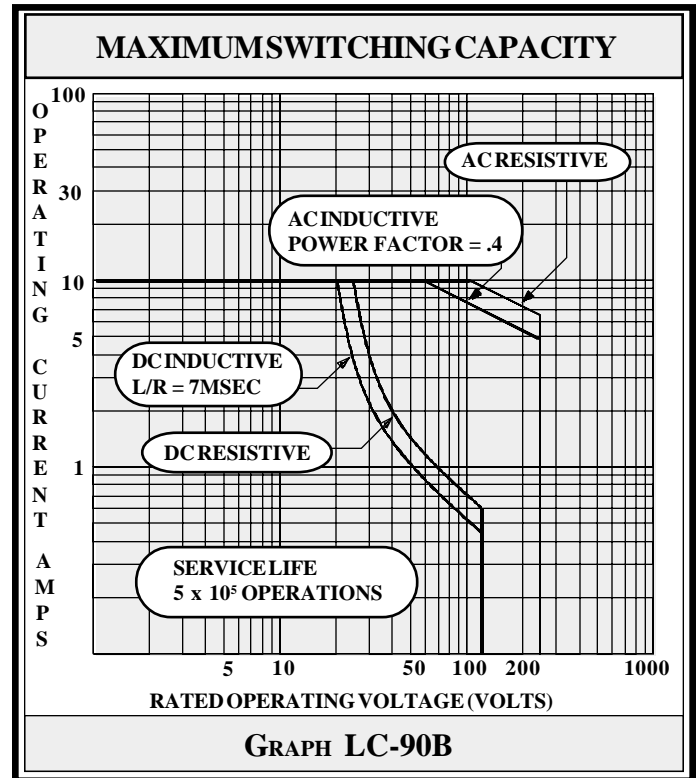
The load is determined by the type of device being switched. Typical loads such as a heater, pump, relay, or solenoid valve all have their own load ratings. These ratings can be expressed in terms of watts, volt-amperes, or amps. The term Watts or Volt-amp (VA) is usually associated with heater and relays, ie. a 20 watt solenoid valve or 1000 watt heater. Pumps usually refer to amp draw which indicates the motor running amperage, ie. a 1/2 hp pump has a typical steady state draw of 8 amps.

Inductive loads usually refers to the load generated by a magnetic field used to produce some sort of motion. Devices such as a motor generates a motion because of a magnetic field in the armature and rotor and a solenoid valve generates a magnetic field to lift up on a core. These devices have an initial inrush current of 5 to 12 times the running current which is caused by the initial generation of the magnetic field. That is to say, that until the magnetic field builds up and actually creates some sort of movement the current draw will always be significantly higher than the running current.

Resistive loads usually refer to devices such as heaters and electronic devices. These devices don't make use of magnetic fields to perform their functions. Hence

there is no inrush current.

The latching level controller utilizes a contact relay to handle loads up to 1/2 hp (inductive load) or 10 amps (resistive load). The maximum switching capacity graph LC-90B must be used for determining the appropriate load placed upon the latching controller circuits.



ELECTRICAL LOAD EXAMPLE

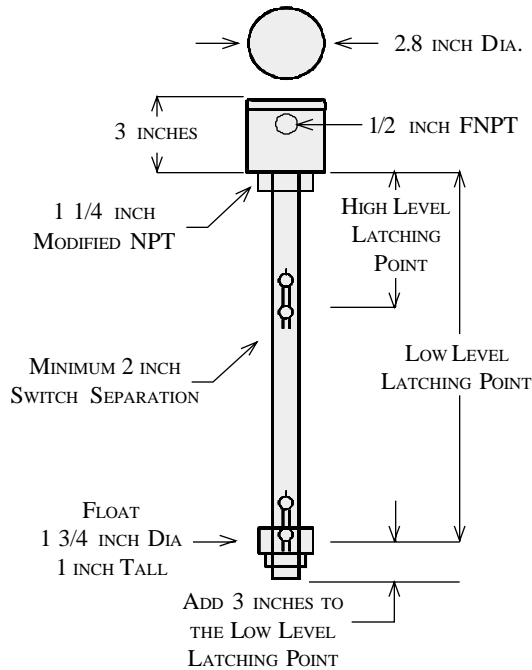
For example, a 1/4 hp pump (AC Inductive Load) uses 4 amps and has an operating voltage of 120 volts AC. Using the above graph LC-90B, find 120 volts on the voltage scale and draw a vertical line up. Next find the 4 amps on the amperage scale and draw a line horizontally. The intersection of these lines are below and to the left of the AC inductive limit line. This application will work. If the load was 10 amps at 120 Vac, the intersection of the lines would be above and to the right of the AC inductive limit line. You would have to use a heavy duty motor contactor and reduce the latching controller to pilot duty.

HOW TO WIRE A LOAD

The Series LC-90 contains 5 wires within the control head. The wires are color coded for ease of installation. For 120Vac models; White = Neutral, Black = Hot, Green = Ground, Red = Hot Power Switched "ON" from the low to high point, Yellow = Hot Power Switched "ON" from the high to low point.

The White, Black, and Green wires are power

DIMENSIONS (FIGURE LC-90D)



LC-90 CONTROLLER SPECIFICATIONS

MATERIAL:

Polyvinyl Chloride (PVC) Control Head
Polypropylene (PP)
Polyvinylidene Fluoride (PVDF)

WIRE: 14 AWG Type THHN/THWN standard.

BUOYANCY:

50% for Polypropylene in H₂O
30% for Polyvinylidene Fluoride in H₂O

MOUNTING ATTITUDE: +/- 30 degrees in clean liquid

COLUMN / TANK CLEARANCE: Flush in clean liquid.

3 inches from the bottom of the tank in precipitate or sediment bearing liquids.

HOUSING: Water Tight. For outdoor installations a vent must be installed into the cap to prevent condensation due to temperature fluctuations.

TEMPERATURE RANGE: Control Head: 40°F-120°F

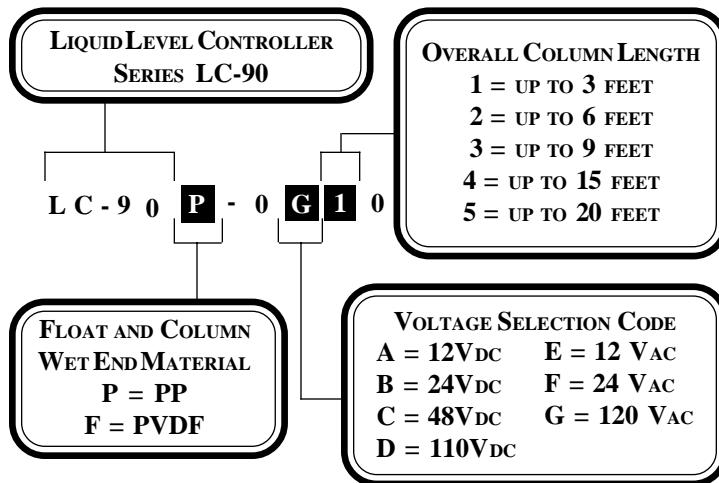
WET END TEMPERATURE RANGE:

PP: 32°F-180°F

PVDF: 32°F-210°F

ANTI - TURBULENCE SHROUD: Optional

HOW TO ORDER



THE ACTUAL SET POINTS REQUIRED FOR YOUR SPECIFIC APPLICATION. DIMENSIONS ARE MEASURED FROM THE MEASURING LINE TO THE SWITCH TRIGGERING POINTS.

x"Hx"L-x"OVL

(SEE FIGURE LC-90A & D)

PLEASE INCLUDE THIS INFORMATION IMMEDIATELY AFTER THE PART NUMBER

EXAMPLE

A Latching Liquid Level Controller is required to fill a tank. The pump must turn on at 24 inches from the top of the tank and shut off 6 inches from the top. The wet end material that best fits the application is Polypropylene. The pump operates on 120 volts AC and is within the maximum switching capacity of the LC-90 Controller.

From the above we know the overall column length is 27 inches (24"+3"). The column Length Code is "1" (under 3 feet). The Material Code is "P" for Polypropylene. The Voltage Code is "G" for 120Vac. The set points are 6 inches and 24 inches (Orientation doesn't matter because the LC-90 has both power up and down channels).

The part number is simply LC-90P-0G10 with set points 6H24L-27OVL

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