

ELC-810 Water Level Controller Specification

A menu driven electronic multi water level sensing control system shall be furnished. The unit shall be capable of continuously monitoring and controlling normal water level, alternate water level, and high drain level. The controller shall incorporate up to three (ACT) proximity sensors and shall feature up to two solenoid applications for filling and draining. The water level control package shall be an ELC-810 by AquatiControl Technology, Englewood, Colorado.

Requests for application type and/or substitutions for make and model will have to be submitted to the specifying agent no less than 14 calendar days prior to bid date. Requests for application type must include all specified features; complete documentation relating to all the specified features; and engineering drawings, installation, operation, and maintenance manuals. Failure to provide these or any other information necessary to confirm that all specified features are provided will be cause for rejection of substitution request.

CONTROLLER

Housing and Mounting

The controller shall be housed in a watertight NEMA 4X UL94 5V UL flammability rated Polycarbonate enclosure to meet IP66 and NEMA 4, 4X, 12 and 13 ratings. The enclosure and connections shall be designed to eliminate any possibility of corrosion and/or damage to the internal components of the controller. The enclosure shall be mounted using the four mounting holes located under the lid and outside of the gasket seal. For user ease, the controller should be mounted so the display is near eye level with solid mounting. The controller shall be factory wired and tested for functionality.

Controls

The controller shall have a user friendly menu driven operating system. It shall utilize a 5 switch user interface, four direction arrows and enter key with a short audible click with each key press. An easy to read LCD display shall power down after a 15 minute period of no key entries and shall come back "on" by pressing any key. The overlay shall consist of embossed polycarbonate overlay with clear labeling.

Indicators

The green LED power rocker switch located at the left of the controller shall indicate that the primary power supplies are working, yellow LED shall indicate when the Level Sensor detects the fluid level, red LED shall indicate an alarm condition exists, green LED shall indicate flowswitch is open or closed, blue LED

shall indicate when filling is occurring. There shall also be an audible indicator for alarm conditions with an option in the menu to have it “yes” or “no”.

Timings

The controller shall have a fifteen second rolling slosh filter with 0.1-second sample for fluid detection. DELAY TO SHUTOFF (time solenoid valve is allowed to stay on after sensor begins sensing water) shall be adjustable from 2 seconds to 5 minutes with the ability to adjust to the second. MAXIMUM ON TIME (time solenoid valve is allowed to stay on per fill cycle) shall be adjustable from 30 to 240 minutes and shall be able to disable for continuous filling. DELAY TO NORMAL (delay between using normal sensor as level indicator and alternate sensor after switching back to normal from alternate) shall be adjustable from 1 minute to 60 minutes. MANUAL OVERRIDE (manual opening of solenoid in order to test solenoid function) shall be adjustable from 5 seconds to 99.

Outputs

The solenoid valve shall be 1 solid state relay output at 24VAC 1.85A. Auxiliary shall be 1 mechanical relay output with C, NO, and NC contacts available at a terminal block. This relay is for remote annunciation of an alarm condition, or for a drain solenoid valve. Any of the following four conditions will initiate an alarm condition and all of them actuate the relay output, the red LED and audible alarm.

- a. ***Maximum On Time Exceeded*** (maximum filled time setting exceed), normal functions disabled until reset.
- b. ***Over-current to Valve*** (no 24 VAC for valve i.e., polyfuse is open) Auto restore.
- c. ***No valve, or wiring problem*** (no valve load i.e., valve or wiring failure) Auto restore.
- d. ***Sensor not working properly*** (problem with the sensor) Auto restore.

A fifth alarm condition is the high drain, where the relay is used for the drain solenoid valve, the red LED flashes at double rate but with no audible alarm. Alarm resets when water reaches normal level.

Power

The controller shall be provided with a six foot three wire power cord; the controller runs on 90 to 130 VAC, 50/60 Hz and is fused at 2 amps with a user protected 5x20mm fuse. The controller shall have a 40VA, 24VAC transformer that is protected with a 2.0A Polyfuse to external loads. This allows the system to power up to a 30VA valve, as well as powers the internal electronics, and

provides power for use with a remote alarm indicator, if desired. There shall be a separation of high voltage and low voltage provided in the controller. Watertight strain reliefs are provided for all cordage. The power to the unit is switched on the side of the controller.

Proximity Switch Sensor

Sensing shall be controlled automatically within +/- 1/8" (4mm) of nominal water level. Supply voltage to sensor shall be 12 to 24VDC from controller (Operating voltage shall range from 10 to 30VDC). Current consumption shall be ≤15mA. Response frequency shall be 100Hz. Maximum control output shall be 200mA. Sensor operating temperature shall be -25 to 70°C. Operating humidity shall range from 35 to 95% RH.

Ambient Conditions

The ELC-810 shall work in ambient conditions of 0 to 60°C, although in extreme temperatures the display contrast may have to be adjusted. The sealed case shall insure the unit can operate in very humid environments.

Safeties

Changes to the parameters shall be password protected so that settings are secure. All settings shall be saved into non-volatile memory so they are not lost during a power outage. The 24VAC shall be monitored by the microcontroller. If it detects that the polyfuse is open because of an over-current condition or that no load is present when it turns "on" the valve, an alarm is output.

Warranty

Warranty shall be one year on parts and labor.