ELC-800r 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 and low water level. The controller shall incorporate up to two (ACT) proximity sensors and shall feature one solenoid valve for filling. The controller shall have the ability to trigger an alarm notification or interrupt the power to the circulation pump during a low water condition. The water level control package shall be an ELC-800r 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 3 switch user interface, 2 direction arrows and a select key with a short audible click with each key press and an alarm reset button. 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, green LED on front of controller shall indicate power, yellow LED shall indicate when the level sensor

detects the fluid level, two red LEDs shall indicate an alarm condition exists, 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 on or off, "yes" and "no" respectively.

Timings

FILL ON DELAY (time between sensor not sensing water and fill solenoid opening) shall be adjustable from 15 seconds to 99 seconds. FILL OFF DELAY (time solenoid valve is allowed to stay on after sensor begins sensing water) shall be adjustable from 2 seconds to 99 seconds. MAX FILL TIME (solenoid on time limit) shall be adjustable from 20 to 240 minutes and shall be able to disable for continuous filling. LOW WATER DELAY (time required before alarm is triggered) shall be adjustable from 10 seconds to 99 seconds.

Outputs

The solenoid valve shall be 1 solid state relay output at 24VAC, 1.85A. Auxiliary shall be a 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 to interrupt power to the circulation pump during low water condition. Any of the following four conditions will initiate an alarm condition and all of them actuate on the relay output, the red LED and audible alarm.

a. *Maximum Fill Time Exceeded* (Filled longer than setting), normal functions disabled until reset.

b. *Low Water Condition* (low water detected) auto or manual restore (select auto or manual during programming).

c. *Level Sensor Problem (*Sensor not working properly), auto restore.

d. *Low Water Sensor Problem (*Sensor not working properly), auto restore.

LOW WATER ALARM RESET shall be programmable between *automatic* (once low water level is resolved, alarm resets relay and normal functions resume; alarm light shall continue to flash to indicate an alarm condition occurred; pressing reset button clears alarm) and *manual* (once low water alarm is triggered, low water level must be resolved and alarm reset button must be pressed to allow controller to operate).

Power

The controller shall be provided with a six foot three wire power cord, 18 AWG; the controller operates 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 power the internal electronics and provide 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 24V DC from controller (Operating voltage shall range from 10 to 30V DC). Current consumption shall be ≤15mA. Response frequency shall be 100Hz. Maximum control output shall be 200mA. Sensor operating temperature shall be -25 to 70ºC. Operating humidity shall range from 35 to 95% RH.

Ambient Conditions

The ELC-800r shall work in ambient conditions of 0 to 60ºC, 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.