

OPERATION AND MAINTENANCE MANUAL

ELC-810

AUTOMATIC WATER LEVEL CONTROLLER



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Serial No. _____

Model No. _____

TABLE OF CONTENTS

Introduction	3
Installation	4-5
Wiring Diagram	6
Operation	7-9
Routine Maintenance	10
Troubleshooting	11-12
Warranty	13

INTRODUCTION

The AquatiControl Technology (ACT) Model ELC-810 is designed to provide the most accurate and reliable automatic water level control for swimming pools, spas, fountains, and spray pads. All of the user-friendly features incorporated into the system were designed with the operator in mind.

The importance of precise control of water level in relation to proper filtration and water chemistry makes it possible to appreciate a device that will maintain levels within +/- 1/8 of an inch. Installing the system requires basic tools and is accomplished quickly. Installation and operating directions can be found on the following pages of this manual.

The ELC-810 should ship with the following contents:

- (1) Control unit
 - Sensing Unit(s)
 - Standard Well
 - Sight Glass
 - Wet Well
 - Surge Tank
 - Deck Well
- (1) Mounting Hardware
- (1) Operation and Maintenance Manual
- (1) Warranty Card

If any items are not found in this package, please call your closest distributor or the factory at (877) 755-8817.

ELC-810-SW Standard Well	ELC-810-DW Deck Well	ELC-810-SG Sight Glass	ELC-810-WW Wet Well	ELC-810-ST Surge Tank
Sensing unit	Sensing well	Sensing box	Sensing stick	Sensing stick
5' of 1/2" Polytubing	Sensing box	Mounting hardware	1 compression fitting	2- 1" Clic clamps
1/2" PVC ball valve	Mounting hardware	25' remote cable	Mounting hardware	Mounting hardware
2- 1/2" Parker fittings	25' remote cable		25' remote cable	25' remote cable
1/2"xclose Nipple TBE				
Mounting hardware				
25' remote cable				

INSTALLATION

The controller and sensing unit should be securely mounted on a sound surface. The controller should be mounted within 5 feet of a 120 VAC, 60 Hz grounded outlet.

The controller can be wired up to 300 feet from sensor unit (contact ACT for exceptions). ACT recommends mounting the controller in the most favorable environment possible.

The **standard well** sensing unit is installed at the water level of the pool. The center of the clear ½" PVC tube on the sensor unit should be at the normal operating water level of the pool. An isolated static water line from the pool to the sensor unit is necessary to provide stable water conditions. A valve arrangement is provided. The valves are installed so that the operator may maintain and clean the sensing unit.

The **sight glass** sensing unit is installed by attaching the unit to a balance tank sight glass. The sensor should be mounted at normal operating water level of the balance tank using the attached clic connectors.

The **wet well** sensing unit is installed in a 2" PVC pipe which serves as a still water stand pipe from the pool. The normal water level should sit approximately 1.5" up from the bottom of the end cap.

The **surge tank** sensing unit is installed in the surge tank at normal operating water level with the included clic connectors. The normal water level should sit approximately 1.5" up from the bottom of the end cap.

The **deck well** sensing unit is installed at pool side. The unit has a ½" static line sight glass inside to attach a sight glass sensing unit to, which is also provided. The deck well is connected to the pool using a 2" static line. Conduit connection and drain connections are also present to make installation quick and easy.

The 3 conductor extension cable provided with the system is the electrical connection for the sensor unit to the controller. With the standard well, sight glass, wet well and deck well, a terminal strip is provided in the sensor housing for terminating the cable (please see wiring diagram for color connections located inside sensor box for standard well, sight glass, wet well, and deck well applications). The other end of the cable terminates inside the ELC-810. The interconnecting cable carries low voltage. Local codes may require the cable to be housed in conduit.

Refer to www.aquaticontrol.com for sensing applications, drawings, and other product information offered by AquatiControl Technology.

CONNECTING THE SOLENOID VALVE

The ELC-810 unit will actuate up to a 2" solenoid valve with a 24 VAC, 10 watt (max) supply, without the use of an auxiliary relay. We recommend an anti-water hammer or slow close solenoid valve. The power and ground cables should be directly connected to the ELC-810 terminal strip.

Refer to www.aquaticontrol.com for a full line of solenoid valves.

CONNECTING ALTERNATE LEVEL SENSOR

The ELC-810 has an alternate level sensing feature that allows a surge tank to run at two different levels. This feature is activated with a flow switch or through a signal from the contactor on the feature pump located near the starter; and is normally used in conjunction with spray features.

In order to setup the use of an alternate level on the ELC-810, a second sensing application should be placed at the chosen lower water level and a flow switch, supplied with the ELC-810, needs to be installed in the feature pump line. The second sensing application and flow switch must be wired following the wiring diagram on page 6 of this manual.

CONNECTING HIGH LEVEL WATER DRAIN OFF

The ELC-810 has a high water drain off feature that allows a NC/NO relay inside the unit to be used to open a solenoid that will drain water.

In order to setup the use of the high water drain off feature on the ELC-810, a third sensing application should be placed at the chosen higher water level and a second 24 VAC solenoid, not supplied with the ELC-810, should be used (can be a general purpose solenoid). The third sensing application and second solenoid must be wired following the wiring diagram on page 6 of this manual.

ELC-810 Normal Installation – Wiring Diagram

Input/Output Terminal

1	Fill Valve Ground	20	Flow Switch or Contactor
2	Fill Valve 24VAC	19	Flow Switch or Contactor
3	Fill Valve 24VAC	18	High Level Sensor – Red Wire
4	Drain Valve Ground	17	High Level Sensor – Green Wire
5	Drain Valve Jumper (Jump to #7)	16	High Level Sensor – Black Wire
6	Drain Valve 24VAC	15	Alternate Level Sensor – Red Wire
7	Drain Valve Jumper (Jump to #5)	14	Alternate Level Sensor – Green Wire
8	Drain Valve 24VAC	13	Alternate Level Sensor – Black Wire
9	Used for alternate set up	12	Normal Level Sensor – Red Wire
10	Normal Level Sensor – Black Wire	11	Normal Level Sensor – Green Wire
11	Normal Level Sensor – Green Wire	10	Normal Level Sensor – Black Wire
12	Normal Level Sensor – Red Wire	9	Used for alternate set up
13	Alternate Level Sensor – Black Wire	8	Drain Valve 24VAC
14	Alternate Level Sensor – Green Wire	7	Drain Valve Jumper (Jump to #5)
15	Alternate Level Sensor – Red Wire	6	Drain Valve 24VAC
16	High Level Sensor – Black Wire	5	Drain Valve Jumper (Jump to #7)
17	High Level Sensor – Green Wire	4	Drain Valve Ground
18	High Level Sensor – Red Wire	3	Fill Valve 24VAC
19	Flow Switch or Contactor	2	Fill Valve 24VAC
20	Flow Switch or Contactor	1	Fill Valve Ground

Single Level Control – Sensor attaches to Normal Level (#'s 10,11,12) & Fill Valve attaches to Fill Valve (#'s 1,2,3).

Dual Level Control – Same as above plus: Second (lower) sensor attaches to Alternate Level (#'s 13,14,15), and two wires from either a flow switch or a pump contactor attach to Flow Switch (#'s 19 & 20 – order doesn't matter).

Tri Level Control – Same as above plus: Third (highest) sensor attaches to High Level (#'s 16,17,18), and second valve (drain off solenoid) attaches to Drain Valve (#'s 4,6,8). Also, you must run a jumper from #5 to #7 when using a standard normally closed drain solenoid valve.

Note: #9 is not normally used.

OPERATION

Once installation has been completed as described on pages 4 and 5, open water supply valve to sensor unit. If the water is not up to normal operating level in the pool, manually adjust the water level to that point.

After level is set and water is at normal operating level, it is time to power the control unit. Plug the unit into the 120 VAC, 60 Hz electrical outlet; turn the on/off toggle switch on the side of the controller to the ON position. The unit will go through a self-test and beep to let you know it is on.

Once power is applied to the controller there are settings in the menu that can be changed. You can scroll through the menu by pressing the up and down arrows. The enter button will bring you back to the startup screen. Options can be changed by following the directions below.

The first six screens as you scroll down through the menu are for informational purposes. The screens give you the following information.

STARTUP SCREEN

This screen will tell you the version of code that your controller is running.

SCREEN 1

This screen will tell you what your controller settings are for Delay Time To Shutoff and Maximum Fill Time.

SCREEN 2

This screen will tell you what your controller settings are for Manual Override and Delay To Normal.

SCREEN 3

This screen will tell you what your controller settings are for Level Sensor Type and Alternate Sensor Option.

SCREEN 4

This screen will tell you what the Last Fill Time was.

SCREEN 5

This screen will tell you what the Last Drain Time was.

SCREEN 6

This screen will tell you when the Last Alarm was.

Following the informational screens is the ability to change menu options. In order to change settings, bring up the option and press the right arrow until a small “p” appears in the lower right corner of the LCD. The user is then able to change the settings using the specified arrows for each setting.

PASSWORD (enables password protection of settings)

NONE – No password required to change settings

SETUP- Press the enter button and input up to an 8 digit (0-9) password, press the enter button to confirm new password.

If the password is forgotten the user can perform a master reset by powering the unit on while holding the left and right arrows (this will reset all settings to the factory default settings).

DEFAULT: None

MANUAL OVER-RIDE (turns on fill solenoid for specified time, for testing purposes)

Manual Over-ride can be set from 5 seconds to 99 seconds. (use up and down arrows to change) To activate this option hold the left and right arrows for 3 seconds.

DEFAULT: 10 seconds

DELAY TO SHUTOFF (time solenoid valve will stay on after sensor begins sensing water)

Delay to Shutoff can be set from 2 seconds to 5 minutes. (use up and down arrows to change)

DEFAULT: 0:02 seconds

MAXIMUM ON TIME (maximum time solenoid valve is allowed to stay on per fill cycle)

Maximum On Time can be set from 30 minutes to 240 minutes using the up and down arrow buttons, or continuous using the left and right arrow buttons.

DEFAULT: 120 minutes

ALTERNATE SENSOR (enables alternate level feature option)

On or Off (use left and right arrows to change)

DEFAULT: Off

DELAY TO NORMAL (time before solenoid is turned on after switching from alternate level sensing to normal level sensing)

Delay to Normal can be set from 1 minute to 60 minutes. (use up and down arrows to change)

DEFAULT: 60:00 minutes

HIGH LEVEL OPTION (enables high level feature option)

No or Yes (use left and right arrows to change)

DEFAULT: No

FLOW SENSOR ACTIVE (allows use of normally open or normally closed flow switches)
Open or Closed (use left and right arrows to change)
DEFAULT: Closed

SENSOR TYPE (set to Other)
DEFAULT: Other

SOUNDER WITH ALARM (beeping will occur when in alarm mode if yes is selected)
Yes or No (use left and right arrows to change)
DEFAULT: Yes

ROUTINE MAINTENANCE

AquatiControl Technology's Model ELC-810 controller is completely solid state and normally will not require any maintenance.

SENSOR UNIT CLEANING

STANDARD WELL

The ½" PVC tube on the Standard Well Sensing Unit may need to be cleaned periodically. To clean the tube, isolate the sensor unit by closing the valve that supplies the water to it. Remove the cap from the top of the tube and fill with a diluted acid solution, 3 parts water to 1 part acid. A brush may be used to clean the inside of the tube.

The valve at the bottom of the sensing unit can be opened to drain out the acid solution. Place the solution into a container and dispose of it properly. The tube can then be flushed with fresh water. After flushing, open the valve from the pool. The unit is now ready for operation.

SIGHT GLASS

The Sight Glass Sensing Unit will not normally need to be cleaned.

SURGE TANK

The Surge Tank Sensing Unit will not normally need to be cleaned; however, if the cap on the bottom of the sensing application becomes clogged with debris, it can be unscrewed and rinsed until clean and then replaced.

WET WELL

The Wet Well Sensing Unit will not normally need to be cleaned; however, if the cap on the bottom of the sensing application becomes clogged with debris, it can be unscrewed and rinsed until clean and then replaced.

DECK WELL

The Deck Well Sensing Unit will not normally need to be cleaned; however, debris and stagnant water may enter the Deck Well which can be cleaned out being very careful not to get any water near the sensing unit or electrical conduit.

SENSOR REPLACEMENT

The proximity switch used for the control system is good for thousands of on/off switching. Typically the sensor should be replaced every three years for year round usage. Seasonal pools may require replacing every five years or as needed. Replacement sensors are available from the distributor and factory for all but the surge tank sensing units which need to be replaced in whole.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
No power to controller	Plugged into a dead outlet	Check outlet power and switch setting on controller
	Bad system fuse	Replace fuse
Filling light flashing	Fill is in delay	Normal operation for ELC-810
Frequent fill time alarm	Water supply flow is too low	Increase flow
	Solenoid not opening	Repair/replace valve
	Exceeded maximum time on alarm sequence	Increase setting
Normal operating water level too low	Sensing unit not set properly	Readjust sensor to water level
	Supply valve to sensor shut off	Turn on valve
Level light does not come on	Defective sensor	Replace sensor
	Sensing unit not set properly	Readjust sensor to water level
	Wiring is incorrect in sensor junction box	Check wiring connection
	Cable in ELC-810 controller wired improperly	Check wiring connection
Level light continually on	Sensing unit is dirty	Clean sensing unit
	Defective sensor	Replace sensor
Hammering of water supply	Water pressure is too high	Install slow close solenoid valve
Solenoid valve does not activate	Bad system fuse	Check voltage on valve: 24 VAC (10 watts max)
	Defective solenoid	Clean or replace valve or coil
Alternate water level not sensed at	Wiring is incorrect in ELC or at contactor	Check wiring connection
	Feature not turned on	Change setting in menu options
	Flow switch not working	Replace flow switch

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Can't change settings	Forgotten/wrong password	Reset ELC by turning the power on while holding the left and right arrows

WARRANTY

AquatiControl Technology (ACT) warrants equipment of its manufacture and bearing its identification to be free of defects in workmanship and material. ACT's liability under this warranty extends for a period of one year from date of delivery from our factory or authorized distributor. It is limited to repairing or replacing any device or part which is returned, transportation prepaid, to the factory within one year of delivery to the original purchaser, and which is proven defective upon examination.

ACT disclaims all liability for damage during transportation, for consequential damage of any nature, for damage due to handling, installation or improper operation, and for determining suitability for the use intended by the purchaser.

ACT makes no warranties, expressed or implied, other than those stated above. No representative has authority to change or modify this warranty in any respect.