



# SMARTPLAY CONTROLLER SETUP GUIDE

Potable / WTS By Others



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# 1.0 INTRODUCTION

The Waterwise SmartPLAY Controller automates the supply of water to the spray park components. The controller has many user configurable settings that allow spray parks to customize the control system to meet their needs.

The control panel has a display mounted on the door; this panel is the Human Machine Interface (HMI) which allows the user to setup, test, and monitor the aquatic play pad operation.

The following manual provides instructions on how to navigate through the HMI screens. There are several steps in this manual that will be required for the aquatic play pad to operate in automatic mode.

## **AWARNING**

Installation of the control panel and wiring must be done by a qualified electrician and must meet the local electrical code requirements.

Local authorities must inspect and approve the installation.

The control panel must be supplied from a dedicated GFCI circuit breaker.

The following manual provides instructions on how to navigate through the HMI screens. There are several steps in this manual that will be required for the aquatic play pad to operate in automatic mode.



# 2.0 INSTALLATION

## 2.1 Controller Location

The control panel must be installed in a secure indoor location that is not accessible to the public. It is important to ensure that only qualified personnel have access to the control panel.

Attention should be paid to the other items that are either stored or operated in the same room as the controller. The storage of chemicals or corrosive materials in the same room as the controller may cause adverse corrosion on electronic controller parts.

Above grade installation is recommended, if below grade installation is required ensure proper drainage and ventilation. In addition to installation in designated mechanical rooms, typical installations methods for the controller include:



Figure 1: Below Grade Utility Cabinet





Figure 2: Above Grade Utility Cabinet



Figure 3: Controller Cabinet (Controller Only)



## 2.2 Valve Wiring

Wiring from the control panel to the water distribution manifold solenoid valves must be waterproof. Heat-shrink tubing with waterproof lining is recommended for all spliced connections. Site specific wiring diagrams are included in the controller cabinet for each installation.

If you have purchased the Waterplay Below Grade Utility Cabinet or the Waterplay Above Grade Utility Cabinet, the conduit will be pre-installed, and the solenoid valves are pre-wired.

If the controller and manifold are shipped separately the wiring of the valves to the controller is the responsibility of the installer, no wire is supplied by Waterplay to complete this process.



Figure 4: Waterplay Manifold (Wiring to Junction Boxes by Other)

#### 2.3 Main Power Connection

Waterplay controllers require a dedicated 120 VAC 15-amp GFCI circuit breaker. Controllers can be configured for 220V input power, but must be ordered from Waterplay with that configuration specified. Surge suppressor is recommended on the power supply to the controller.



## 2.4 Activators

Each activator component will have its own installation and assembly drawing. There are two types of activation used in Waterplay activators: proximity and pressure.

If the proximity switch is not installed in the component when the component arrives on site, it is typically located inside the control box or the parts bag for that component.

Run a continuous cable from the controller to the activator in electrical conduit, providing enough extra cable such that the sensor can be removed from the component, replaced and rewired.

#### 2.4.1 3-Wire Inductive-Type Proximity Switch



Figure 5: 3-Wire Inductive-Type Proximity Switch



Figure 6: Butt Splice Connection Detail

- Recommended minimum, up to 200 feet; #18/3 SJOW cable
- Thread the proximity sensor into the activator, tighten until hand tight only

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#### 2.4.2 2-Wire Switch



#### Figure 7: 2-Wire Switch Wiring Diagram

- Recommended minimum, up to 200 feet; #18/2 AWG wire
- Apply a small amount of silicone to the sensor housing on the component
- Activator terminals will be labelled +24 (VDC) and ACTX (input)

#### 2.4.3 3-Wire Switch



Figure 8: 3-Wire Switch

- Recommended minimum, up to 200 feet; #18/3 AWG wire
- Push button Wires to be connected to -24VDC, +24VDC, and activator input.
- See project wiring diagrams for further details

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## 2.5 Activator Sensitivity Check (Proximity Sensors Only)

Pressure sensors do not require sensitivity checks.

Although the activator switch sensitivity is pre-calibrated at the Waterplay factory, it should be checked at this time. Too much sensitivity and the activator may be triggered by water spray; conversely, too little sensitivity and the switch may not properly detect a person's hand.

Hold the activator cap in one hand, avoiding the area directly above the sensor. Place the other hand directly over the activator switch area. When your hand is on the activator pad the LED light should be on; when your hand is removed from the sensor pad the LED should go off.



Figure 9: Activator Sensitivity Check

If necessary, adjust the sensitivity of the activator switch by turning the potentiometer on the back of the switch. Turning it clockwise will increase sensitivity, and counterclockwise will decrease sensitivity. Once the proper operation is verified, install the activator cap in the activator component.



#### 2.6 System Power Up

Once all of the wiring is complete, power can be applied to the control panel. This is done using the following procedure:

- 1. Turn on the GFCI circuit breaker that supplies power to the control panel.
- 2. Open fuse #1 and verify inlet voltage is 115 Volts (230 Volts outside of North America). Close fuse #1.
- 3. Turn the control panel on by rotating the power switch to the "ON" position.



Figure 10: Power Switch on Controller Panel

The panel display will begin its boot up sequence which will take approximately 30 seconds. The Home screen displays the park name and order number, date, and time as well as contact information for Waterplay.



#### 2.7 Inspection



## **AWARNING**

Installation of the control panel and wiring must be done by a qualified electrician and must meet the local electrical code requirements.

Local authorities must inspect and approve the installation.

## 3.0 CONFIGURATION

#### 3.1 Home Screen

Once the controller has been wired and inspected, it needs to be configured for automatic operation. Configuration starts from the Waterplay Home Screen. The Park Name, Order Number (ORD-XXXXX) and Waterplay Support Phone number are shown here.



Figure 11: Controller Home Screen

Touching the language button toggles between English, French, or German.

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#### 3.2 System Status – Potable Controller

Pressing the button will bring you to the Active Status screen showing the status of the valves in the active park sequence.



Figure 12: System Status Screen for Potable Controller

- GREEN shows a valve that is ON
- RED shows a valve that is OFF
- Park Open shows that the park is currently scheduled to be open
- Step \_\_\_\_ displays the current step number for that activator
- Press SAVE/RESTORE SETTINGS to restore the user or factory Sequence and Schedule



#### 3.3 System Status / Operation – WTS By Others Controller

Pressing the button will bring you to the Status screen, showing the Treatment Status of the standard functionality offered by Waterplay. Please note that some of these functions may not apply to your project. For example, if your project has an automatic fill valve and no digital holding tank feedback the Tank High/Mid/Low status is not applicable. Refer to controller wiring diagrams for additional details.



Figure 13: System Status Screen for WTS By Others Controller

- Items with a GREEN background mean that input/function is active (ON/OPEN)
- Items with a GREY background means that input/function is not active (OFF/CLOSE)
- Park Open shows that the park is currently scheduled to be open.
- The ALARM RESET button will turn RED when an alarm is present, and when pressed will reset the alarm. Alarms should be reset only when the operator understands the reason for the alarm.

Pressing the OPERATION button shows the status of Inputs, Outputs, and Valves.



		Inpu	t Status $1 \stackrel{2}{\bullet} \stackrel{3}{\bullet} \stackrel{4}{\bullet} \stackrel{5}{\bullet} \stackrel{6}{\bullet} \stackrel{7}{\bullet} \stackrel{8}{\bullet} \stackrel{9}{\bullet}$
	SAVE/RESTORE SETTINGS	Outp 0 Valv	put Status
Â	SCHEDULE	SEQUENCE	SYSTEM READY ALARM RESET

Figure 14: Operation Screen for WTS By Others Controller

#### 3.4 Park Schedule

From the Park Status or Operation screen, pressing the **SCHEDULE** button will take you to the Schedule screen where you can set the park opening/closing date and the current date and time.

Opening Date	01/01/04 00:00:00		
	mm/d	d/yy hh:mm:ss	
Closing Date	12/1	2/25 00:00:00	
Set Current Date 0	7/25/18	Set Current Time	08:20:58

Figure 15: Schedule Screen

If the following settings are not entered, the park will not operate and will display "PARK CLOSED" on the System Status screen:



- Set Opening Date (Cannot be prior to 2004)
- Set Closing Date (Cannot be later than 2035)
- Set Current Date
- Set Current Time



## 3.5 Operating Days & Time

From the Schedule screen, pressing **HOURS** will open the screen where the daily hours of operation are set.

	MON	TUE	WED	THU	FRI	SAT	SUN
OPEN	10:00	10:00	05:00	10:00	10:00	10:00	10:00
CLOSE	20:00	20:00	20:00	20:00	20:00	20:00	20:00
OFF	OFF	OFF	OFF	ON	ON	ON	ON
Â	SCHEDU	JLE		NOT	ГЕ: 24 ho	our clock	cused.

#### Figure 16: Hours Screen

- If <sup>™</sup> is displayed, the park is scheduled to be open
- If OFF is displayed, the park is not scheduled to be open
- The hour of the day must be entered in 24 hour time



If enabled, pressing **NIGHT** will open another screen where the nighttime operation hours can be set. Ensure that no overlap between the day and night schedule is present.

## 3.6 Sequence Setup & Step Time

To modify an Activator Sequence, from the System Status page, select SEQUENCE.

As a default Waterplay provides a recommended sequence. You can also select **User Defined** sequence to use a customized sequence. The active sequence is denoted by the water drop.

Set Sequence Type				
User Defined		Edit U	SER S	equence
Waterplay	۵	View Wat	erpla	y Sequence
		25	1	1
		Step Len Max 12	gth Os	Activator Edit / View
6	User	Delete	Loa	d Wtrply Seq

Figure 17: Sequence Setup Screen

- Set Step Time, the default is 25 seconds and maximum is 120 seconds
- Both sequence types consist of 12 steps
- If more than one activator, select the number to Edit/View that sequence
- You can view the Waterplay sequence, but not make changes to it as that is the factory default

To customize the User Sequence, press Edit USER Sequence.





Figure 18: Edit User Sequence Screen

- 💧 🥝 Indicates output ON
- 💧 🔍 Indicates output OFF
- Opens the next group of outputs
- Rows for F1, F2, F3, ... denote feature numbers
- Columns 1, 2, 3, ... denote sequence step numbers
- Act # refers to activator number being customized
- Press SAVE for the changes to be accepted prior to moving onto the next group of outputs
- Selecting SEQUENCE will take you back to the Sequence Setup page
- Selecting NAMES will take you to a page where the Component names are shown

After configuration is complete, it is recommended to press **SAVE USER SETTINGS** to avoid loss of user settings in the even that the controller is turned off for long periods of time or the backup battery becomes discharged.



# 4.0 OVERRIDE & VALVE TEST

#### 4.1 Override

The following figures show the Override default screens for the Potable and WTS By Others Controllers.



Figure 19: Override Default Screen for Potable Controller

Set Sequence Type		System Auto
Activators	MANUAL	
Activator 1 AUTO		
	INACTIVITY PUMP STOP	
	10.00	
		🐞 🤯 waterplay
VALVE TEST VA	LVE ASSIGNMENT FACTORY CO	Support: 1 - 800 - 590 - 5552 00001234

Figure 20: Override Default Screen for WTS By Others Controller

The default conditions should be Auto.



Activators can be toggled from **Activator AUTO** to **Activator ON** which will have the activator sequence repeat during park operating hours. This is helpful if an activator switch is not functioning, and the park is expected to be busy.

The **INACTIVITY PUMP STOP** is the length of time, in minutes, that the feature pump (if wired to the Waterplay controller) will continue to run after a park sequence is complete. This avoids frequent pump stop/starts but a bypass value is required to avoid dead heading the pump.

VALVE ASSIGNMENT and FACTORY CONFIG are password protected screens that are not typically required for normal park operation.

For WTS By Others Controllers, the user can put the system into **MANUAL** to Start, Stop, and Run the feature pump manually.



Figure 21: Manual Operation of WTS By Others Controller





## 4.2 Valve Test

The Valve Test mode in the Waterplay controller allows the valves to be turned on and off individually using the outputs of the controller. The Test Mode should be used to test that the correct component is connected to the correct solenoid valve. While in test mode the activators will not start the sequences.

Starting at the System Status screen, select **OVERRIDE**, followed by **VALVE TEST** to open the following screen.

١	/al	ve Test/	'Auto	)			
	1	ON	б	AUTO	11	AUTO	
	2	AUTO	7	ON	12	AUTO	
	3	ON	8	ON			
	4	AUTO	9	AUTO			
	5	AUTO	10	AUTO			
Ľ	Z	OVERR	IDE				>

Figure 22: Valve Test Screen

- AUTO Indicates valve is OFF (default)
- Indicates valve is manually ON
- **OVERRIDE** returns to the previous screen
- Refer to the troubleshooting section for further details
- If a feature pump is wired to the Waterplay Controller, it will turn ON when entering Test Mode



## 5.0 OPERATION

The spray park will only operate in automatic mode if all of the following are satisfied:

- The power switch on the front of the controller panel is set to "ON"
- The SmartPLAY controller is programmed to operate for the current day of the week and time of the day
- The date and time are set correctly
- The controller is not in Test Mode

During automatic operation, a child touches an activator in the spray park and a signal is sent to the Waterwise SmartPLAY controller. When the controller receives the signal, it begins the sequencing associated with that activator. When the sequence is complete, all the valves will close and the Waterwise SmartPLAY controller will wait for the activator to be touched again.

## 6.0 MAINTENANCE

#### 6.1 Preventative Maintenance

Control panel should be inspected regularly as part of a routine inspection program to ensure panel is dry and clean.

#### 6.2 Winterizing

Waterplay aquatic play pads must be properly winterized to prevent damage to components, supply lines and manifold. Please refer to Waterplay Operations and Installation Manual for further winterization instructions.

Once the park winterizing procedure has been completed, turn the control panel power switch to the "OFF" position. Turn off the dedicated GFI circuit breaker that supplies power to the control panel. Ensure panel doors are closed and secured.



## 6.3 Spring Start Up

There are a few basic steps that should be taken during spring start up. Please refer to Waterplay Operation and Installation Manual for further instructions.

Check to make sure control panel is clean and dry. Turn on the dedicated GFCI circuit breaker that supplies power to the control panel. Turn the control panel power switch to the "ON" position. The control panel is now ready for operation.

Verify clock is properly programmed. If the control panel has been off for a significant period of time (months), the programming will default to the original program when originally received. Use the TEST screen to cycle through the valves and verify the water flow and spray patterns. Exit out of the TEST screen to go back into normal operation. For parks with activators, ensure sensitivity of activators is correctly set. Test that the activators trigger the sequences and that the sequences are still programmed into the controller.

# 7.0 FIELD WIRING DIAGRAMS

Refer to project specific field wiring diagram in project binder or shipped inside controller.



# 8.0 REPROGRAMMING INSTRUCTIONS

#### 8.1 Loading a Clone File

1. Remove the micro-SD Card from the Waterplay controller.



Figure 23: Micro-SD Card Located in Controller

- Connect the card to a computer and load the program.
  Copy the program provided by Waterplay into the SYSTEM folder and rename the file "OOOXXXXX" where the XXXXX corresponds to an order number and is project specific. Overwrite the existing file if necessary.
- 3. Insert the micro-SD back into the controller. With power on, hold a finger on the touch screen until a prompt appears. Select "Enter Info Mode" and enter the password "1111". Then follow the following steps:



Informat	ESC					
Version	Version SD Serial					
Unit ID	CANBus	Ethernet	$\overline{\mathbf{\nabla}}$			
Flash memory	Time & Date	Working Mode	Help			
2						

Figure 24: Information Mode Screen

- a. Select the "SD" button.
- b. Select "Full Clone" and then "Upload to PLC".
- c. Select the latest program file from the full clone screen and press "Send File".
- d. Start Cloning Process, select "Yes".
- e. The screen should then say "Unitronics" and will take a few minutes to upload. You can see the PLC loading files at the bottom right of the screen. The home screen for the waterpark will appear when complete. The program has now been loaded.

User specified settings such as operating hours and sequencing will be reset by the new program. Ensure to double-check all user settings.



## 8.2 Loading an Application File

1. Remove the micro-SD Card from the Waterplay controller.





Figure 25:Micro-SD Located in Controller

- 2. Connect the card to a computer and load the program.
  - a. Delete any existing files from the "SYSTEM" folder.
  - b. Copy the new CXX file, provided by Waterplay, into the "SYSTEM" folder.
  - c. Delete any existing files from the "USER\_APPS" folder.
  - d. Copy the new VXX file, provided by Waterplay, into the "USER\_APPS" folder.
- 3. Insert the micro-SD back into the controller. With power on, hold a finger on the touch screen until a prompt appears. Select "Enter Info Mode" and enter the password "1111". Then follow the following steps:



Informat	ESC					
Version	Version SD Serial					
Unit ID	CANBus	Ethernet	$\overline{\mathbf{\nabla}}$			
Flash memory	Time & Date	Working Mode	Help			
2						

Figure 26: Information Mode Screen

- a. Select the "SD" button.
- b. Select "Application" and then "Upload to PLC".
- c. Select the application file you saved to the card.
- d. This should take approximately 2 minutes.
- 4. Press the "SAVE/RESTORE SETTINGS" button from the System Status screen (Potable) or the Operation screen (WTS By Others), and press "Save Settings".



#### 8.3 Factory Reboot Instructions

When powering up the Waterplay controller, if the following "Idle Mode" screen is displayed, a factory reboot is required.

	V130 (R34 )      I        (A)      I        0.S. (Stop Mode)      I        094.993.965 Jun 29 2016      12:24:26	
	COM1 SETTINGS : 115200,8,NP,1,Nn COM2 SETTINGS : Ethernet Stop reasons : No Application 000000020	
	STATUS : Idle (c) Copyright by UNITRONICS	
0	F1 F2 F3 F4 ESC	

Figure 27: Idle Mode Screen

The most likely causes for this are power interruptions or similar electrical issues causing an operating system problem. Follow these steps to restore proper controller functionality:

- 1. With the screen showing "Idle Mode", hold a finger on the touch screen until a prompt appears. Select "Enter Info Mode" and enter the password "1111".
- 2. Select "Working Mode", then "Exit to Factory Reboot", and push "Yes". This will result in a red screen.
- 3. Turn the power off to the PLC for a few seconds, and then back on. The PLC will start up again in "Idle Mode", but with a slightly different screen. At this screen, hold a finger on the touch screen again until a prompt appears. Select "Enter Info Mode" and enter the password "1111".



Informat	ESC						
	OPERANDS						
Version	Version SD Serial						
Unit ID	CANBus	Ethernet	$\overline{}$				
Flash memory	Time & Date	Working Mode	Help				
2							

Figure 28: Information Mode Screen

4. Select the "SD" button, then "Full Clone", and "Upload to PLC". Select the latest program file listed on the screen and press "Send File". Start Cloning Process, select "Yes".

The screen should then say "Unitronics" and will take a few minutes to upload. You can see the PLC loading files at the bottom right of the screen. The home screen for the waterpark will appear when complete. The program has now been loaded.

User specified settings such as operating hours and sequencing will be reset by the new program. Ensure to double-check all user settings.



# 9.0 TROUBLESHOOTING

There can be many reasons why an aquatic play pad will not operate when the activator is touched. This troubleshooting section will start from the most basic reason and work up from there.

No.	Problem or Symptom	Possible Cause	Remedy
1	No water flows to features	Controller power OFF	Verify main power & front door switch are ON.
		Incorrect valve type	Replace with 24VAC 0.25A valves.
		Blown fuse(s)	Replace blown fuse(s) from terminal strip (see Controller Wiring Diagrams for locations & type of fuses).
		Water supply interrupted	Investigate water supply source and verify all valves are in correct position. Verify manual valves from header are in the open position. Disengage solenoids and verify water flows.



No.	Problem or Symptom	Possible Cause	Remedy
		Controller programmed incorrectly	Reprogram clock for time, date & operation time. Verify component sequence settings are correct. Test operation of aquatic facility with the controller's TEST mode
2	One (or more) zones do not run	One or more zones are wired incorrectly	Verify valve wiring is completed as per the wiring diagram (Diagram in Controller manual) and piping plan. Test operation of aquatic facility with the controller's TEST mode to determine which component is out of sequence and correct wiring as required. Call Waterplay @ 1-800-590-5552 for assistance.
		Solenoid Valve Failed	Check controller fuses. Verify 24AC power at solenoid valve.
		Manual Valve Closed	Verify manual valve from header is in the open position.
		Nozzle or Pipe Blockage	Verify that distribution piping and the component nozzle(s) is not blocked with debris.



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No.	Problem or Symptom	Possible Cause	Remedy
3	System stops running, or stops running periodically	Loose wiring	Verify all wire connections are tight.
		Program has come to the end of the sequence	Normal operation is to stop after 5 minute duration. Test program by touching activation device.
4	Water sprays continuously	Solenoid valves in manually open position	Set control valve(s) to automatic by closing manual operator (rotate clockwise).
		Activator sensitivity set too high (LED on sensor &/or PLC is on constantly)	Adjust (reduce) sensitivity on sensor by rotating adjustment screw. Adjust so that light turns on when hand is placed on sensor and light turns off when hand is removed.
		System in Test Mode (one or more component may be spraying)	When TEST is finished, push BACK button to exit TEST screen (valves which were open will now close).
		Dirt or debris in valve body keeping valve open	Clean Solenoid valve screen and diaphragm.



No.	Problem or Symptom	Possible Cause	Remedy
		Faulty control valve or solenoid	Test solenoid valve manually. If the valve won't operate manually it is defective & requires replacement. Swap suspect valve (or solenoid) with a properly operating one to isolate problem, replace valve (or solenoid) as necessary. Check wiring drawings.
		Power connected directly to transformer (ON/OFF switch & fuse are then bypassed)	Rewire power connection according to Section 1 of Instruction Manual.
5	Activator does not start the facility	Activator sensitivity not adjusted correctly	Adjust sensitivity of activator sensor. Adjust so that light turns on when hand is placed on sensor and light turns off when hand is removed.
		Activator sensor not wired correctly	Verify sensor wiring is correct. Check wiring drawings.
		Excessive Pressure or flow	Reduce pressure to 10 psi. Adjust flow so that bucket tips every 15 – 20 seconds.
7	Water spray height varies or drops off	Supply pressure fluctuation	Investigate water supply source. Did sequence grouping change?



No.	Problem or Symptom	Possible Cause	Remedy
8	Blown fuses	Incorrect fuse	Replace with fuse type specified in controller drawings.
		Incorrect sensor wiring	Rewire according to controller drawings.
9	No inputs or outputs or power light showing in PLC	Controller power OFF	Verify main power & front door switch are ON.
		Faulty Transformer	Contact electrician to test transformer.
		Blown fuse	Replace fuse(s).
		Damaged PLC	Contact Waterplay @ 1-800-590-5552.
10	Touch screen is blank	Loose wire connection	Verify all wire connections are tight.
		PLC is OFF	Ensure PLC power and run light are on.
		Controller power OFF	Verify main power & front door switch are ON.
		Blown fuse	Replace fuse(s).

