DSC

DYNAMIC SEQUENCING CONTROLLER

Operation Manual

4600 North State HWY 123   San Marcos, Texas. 78666   512-392-1155

Table of Contents

Scan the QR code to see online videos of troubleshooting and other technical instructions on the DSC Controller:

SCAN ME

Terminology

Activator

An activator is a wired, vibration sensitive component that when touched, controls the water effects of the splash pad by sending the signal to the Dynamic Sequencing Controller (DSC).

Ball Valve

Ball valves, also known as throttling or maintenance valves, are located after the solenoid valve. This valve is used to adjust the height or throw of the splash pad feature that is supplied on the valve line. Ball valves can also be used to turn off a water line for pad maintenance.

Control Panel

The control Panel is an enclosure which contains electrical components that operate the splash pad. The control panel can be in a standalone above-ground valve box, mounted in a control room, or other enclosure.

Control panel diagram

A control panel diagram is a drawing that shows the features of the control panel, containing parts list and instructions.

Circuit Breaker

A circuit breaker is an electrical safety device, which is designed to protect electrical circuits from damage caused by overcurrent. Its basic function is to interrupt current flow to protect equipment and to prevent the risk of fire.

Project Documentation

The project documentation ships as a package inside package ships inside the control panel and is specific to each splash pad. The document package includes the Operating Schedule, Event table, Control Panel Diagrams, splash pad piping diagram and manifold drawing.

Discharge

A discharge is the solenoid and ball valve assembly that is connected to the manifold that feeds an individual pipe. The number of discharges is set by the manifold.

Dynamic Sequencing Controller (DSC)

The DSC is a programmable controller that allows up to 60 user changeable events. The options for each event are accessible through the DSC by using the integral keypad and LCD display.

Events

An event's function is responsible for instructing the DSC how the water features will operate when they are activated. There are five different types of events. **Duration**, which will turn on one or more water features for a set period of time. **Cycled**, which will turn on one or more water features, in unison, for a specified time, then turn off the outputs, in unison, for a specified time. **Defined** event will step through a defined sequence as programmed. **Random** events will randomly turn on the assigned water features for a random set time. **Cued** events will activate one or more events as programmed.

Input Module

Input module is included if the splash pad is using a wired activator to turn on an event or series of events. Input modules can support up to 8 individual activators.

Manifold

Water is introduced to the splash pad through the manifold. The manifold regulates the splash pad elements through valves. These valves are connected to individual pipes (also called water lines) and feed water to the features.

Mechanical Equipment

The mechanical equipment includes components that are required for a splash pad to operate. Examples: Manifold, Controller, Valve Box, Valves, Pressure Reducing Valve and Drains.

Operating Schedule

The operating schedule is the program defined by the manufacturer. Default programming is scheduled unless otherwise requested. Document packages will provide the operating schedule. The operating schedule lists each feature(s) and event as well as type and duration of event.

Output Module

The output module controls the solenoid valve activation. Every valve with a flow-through system manifold must have an output channel. Output modules can support up to 8 individual solenoid valves.

Piping Diagram

A drawing that shows the splash pad layout, water features, suggested piping and mechanical layouts. The drawing contains the documentation for the DSC programming for each manifold valve. The mechanical and manifold information will also be included in this drawing.

Play Scenario

The Play Scenario contains all the events, sequences, and daily operating hours used to control a splash pads behavior. Play scenarios are specific to each splash pad design and the factory preset is documented on the project package drawings.

Solenoid Valve

Solenoid valves are electrically powered valves that control the opening or closing of a water line. These valves are wired to the Control Panel and receive a signal from the Dynamic Sequence Controller (DSC). Water Odyssey uses closed solenoid valves that open when a signal is received. When this happens, water flows from the manifold, through the valves to the water features.

Valve Box

Weatherproof utility boxes that mechanical equipment is installed into. Valve boxes can be above ground or in ground. In-ground valve boxes house the manifold and valves. Field wiring of solenoid valves to the control panel is required. Above-ground valve enclosures protect the manifold, valves, and control panel. Solenoid valves are wired at the factory.

Piping and Electrical Documentation

Project Package Drawings are included by Water Odyssey and include important information on how your DSC was programmed.

OPERATING SCHEDULE

ELEMENT NAME	EVENT NUMBER	ACTIVATOR TYPE			VALVE/ OUTPUT	HOURS OF OPERATION	EVENT TYPE	DURATION TIME (MIN)	STEPPING RATE (SEC)		RANDOM OUTPUT USE		ALLOW IF
		WIRED	WIRELESS	OTHER					MINIMUM	MAXIMUM	EVENT-MIN	EVENT-MAX	
1-WATER CAGE	-	01:01	-	-	101 / 2:01	PARK HOURS	DURATION	3	-	-	-	-	PARK HOURS
2-WATER WEB	-	01:01	-	-	102 / 2:02	PARK HOURS	RANDOM	3	10	15	1	3	PARK HOURS
3-AQUA ARCH	-	01:01	-	-	103 / 2:03	PARK HOURS	RANDOM	3	10	15	1	3	PARK HOURS
4-AQUA ARCH	-	01:01	-	-	104 / 2:04	PARK HOURS	RANDOM	3	10	15	1	3	PARK HOURS
5-AQUA ARCH	-	01:01	-	-	105 / 2:05	PARK HOURS	RANDOM	3	10	15	1	3	PARK HOURS
6-WEEPING WATER	-	01:01	-	-	106 / 2:06	PARK HOURS	DURATION	3	-	-	-	-	PARK HOURS
7-ROLL-A-RAIL	-	01:01	-	-	107 / 2:07	PARK HOURS	DURATION	3	-	-	-	-	PARK HOURS
8-POPP DROPP	-	-	A1	-	108 / 2:08	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
9-POPP DROPP	-	-	A1	-	109 / 3:01	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
10-POPP DROPP	-	-	A1	-	110 / 3:02	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
11-POPP DROPP	-	-	A1	-	111 / 3:03	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
12-POPP DROPP	-	-	A2	-	112 / 3:04	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
13-POPP DROPP	-	-	A2	-	113 / 3:05	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
14-AQUA ARCH	-	-	A2	-	114 / 3:06	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
15-AQUA ARCH	-	-	A3	-	115 / 3:07	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
16-AQUA ARCH	-	-	A3	-	116 / 3:08	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

WATER ODYSSEY OPERATING SCHEDULE
Water Odyssey® by Fountain People, Inc.™ PO Box 807 ~ San Marcos, Texas 78667-0807
Phone (512) 392-1155 ~ Fax (512) 392-1154 ~ www.water-odyssey.com
DATE 02 - 16 - 23
1 of 1
PRO # -
REV.
TYPE OS
A
OPT.
VER. 1
W12345
WC
JND
DM SHEET

Operating schedule is the program defined by the manufacturer. Programming is defined by manufacturer unless otherwise requested. The operations schedule lists each feature(s) and event as well as type and duration of event.

Piping and Mechanical Diagram

The **Piping and Mechanical Diagram** shows your aquatic playground layout and illustrates how the play elements and other components are interrelated. Each discharge line is labeled and corresponds to the electrical drawing. Example: The valve labeled 102 connects to wire output 2 on module 1.

FEATURE CONTROL SCHEDULE

REF.	VALVE	VALVE SIZE	FEATURE PN	FEATURE DESCRIPTION	QTY	PIPE SIZE	GPM	PSI	OUTPUT CHANNEL	ACTIVATOR
A	101	1" std	W012C	WATER CAGE	1	1"	18	3	2:01	
B	102	1" std	W040	WATER WEB	1	1"	12	2	2:02	
C	103	1" std	W006C	AQUA ARCH	1	1"	1	2	2:03	
C	104	1" std	W006C	AQUA ARCH	1	1"	1	2	2:04	W009 #1
C	105	1" std	W006C	AQUA ARCH	1	1"	1	2	2:05	
D	106	2" std	W022	WEEPING WATER	1	2"	60	4	2:06	
E	107	1" std	W080C	ROLL-A-RAIL	1	1"	6	3	2:07	
F	108	1" std	W280	POPP DROPP	1	1"	3	7	2:08	
F	109	1" std	W280	POPP DROPP	1	1"	3	7	3:01	
F	110	1" std	W280	POPP DROPP	1	1"	3	7	3:02	
F	111	1" std	W280	POPP DROPP	1	1"	3	7	3:03	
F	112	1" std	W280	POPP DROPP	1	1"	3	7	3:04	W009 #2
F	113	1" std	W280	POPP DROPP	1	1"	3	7	3:05	
C	114	1" std	W006C	AQUA ARCH	1	1"	1	2	3:06	
C	115	1" std	W006C	AQUA ARCH	1	1"	1	2	3:07	
C	116	1" std	W006C	AQUA ARCH	1	1"	1	2	3:08	
	TOTAL FLOW						120			

EQUIPMENT CONTROL SCHEDULE

REF.	PRODUCT PN	PRODUCT DESCRIPTION	QTY
G	W009	TOUCH N' GO HARD WIRED	1
H	W009-W	TOUCH N' GO WIRELESS	1
I	W200	PLAIN DRAIN 50 GPM FLOW RATE EA	2
J	VM-16	VM-16 MANIFOLD	1
K	DSC-8-16-W	WIRELESS SEQUENCING CONTROLLER	1

ACTIVATOR CONTROL SCHEDULE

REF.	#	FROM (INPUT CHANNEL)	TO	OUTPUT CHANNEL
G	011	1:01	W009 #1	3 (3/4" CONDUIT)
H	012	1:02	W009 #2	WIRELESS

PLAY SCENARIO ZONES

ACTIVATOR LABEL	011 012
ACTIVATOR LOCATION	W009 TOUCH N' GO
MANIFOLD VALVE ASSEMBLY LABEL	V101 THRU V116

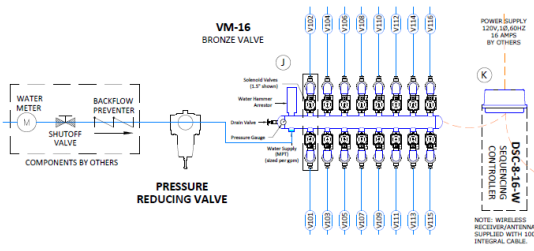PROGRAM SPECIFIED ON OPERATING SCHEDULE

GENERAL NOTES:
1. THIS DRAWING IS SCHEMATIC IN NATURE. LOCATIONS RECOMMENDED FOR PLAY COMPONENTS AND DRAINS ARE APPROXIMATE. PIPING AND CONDUIT RUNS ARE SCHEMATIC.
2. CHECK LOCAL CODES FOR PIPING REQUIREMENTS. JOB CONDITIONS AND LOCAL CODES MUST DETERMINE FINAL ROUTING.
3. REFER TO THE INSTALLATION DRAWING OF EACH PLAY FEATURE AND EQUIPMENT VAULT OR UTILITY BOX FOR SPECIFIC INSTALLATION DETAILS.
4. PIPING, CONDUIT, AND WIRE ARE BY INSTALLER.
5. ANY REQUIRED BACKFLOW DEVICE OR WATER METER ON THE CITY WATER MAIN SHALL BE PROVIDED BY INSTALLER.
6. PIPE SIZES ASSUME 100' MAXIMUM RUNS. LONGER RUNS MUST BE EVALUATED BY WATER ODYSSEY. CONTRACTOR RESPONSIBLE FOR VERIFICATION OF PIPE SIZE BETWEEN DISCHARGE MANIFOLD AND FEATURES. VELOCITY NOT TO EXCEED 8FT/SECOND.
7. A MAXIMUM OF 50 PSI @ PROVIDED MANIFOLD.
8. SYMBOL "*" INDICATES THAT THE TEE MUST BE PLACED IN THE CENTER OF THE PIPING RUN TO ENSURE BALANCED FLOW.
9. WET DECK AREA MUST BE POURED AND FORMED SO THAT WATER SHED AREA SLOPES TOWARD DRAINS.
10. ALL PIPING TO FEATURES ARE RECOMMENDED TO HAVE 1%-2% SLOPE FOR WINTERIZATION.

ELECTRICAL NOTES
1. REFER TO ELECTRICAL SCHEMATICS AND PROGRAMMING SHEET FOR WIRING CONNECTIONS TO BE MADE TO TAGGED SOLENOID VALVE ASSEMBLIES"

EQUIPMENT ROOM NOTES
1. LOCATION AND ORIENTATION OF EQUIPMENT ROOM AND EQUIPMENT BY OTHERS. SEE NOTE #6.
2. LOCATION OF COMPONENTS INSIDE ENCLOSURE MAY DIFFER FROM THIS LAYOUT.

Electrical Schematics

SECTION
LEFT BLANK
INTENTIONALLY

SCALE: NTS

SCALE: NTS

Electrical Schematics

The **Electrical Schematics** illustrate how the DSC is wired in the panel as well as how to connect the wired activators and solenoid valves to the terminal blocks.

Note: It is very important to terminate the field wiring (indicated by dashed lines) correctly for the aquatic playground to function in the manner described in the Play Scenario™.

Piping and Wiring Verification

Use your Water Odyssey Field Connections Drawing to determine how to plumb each aquatic play element to the appropriate solenoid valve.

As a, precaution it is recommended that you verify the water features in your play area are plumbed to the appropriate solenoid valve. Here are a few items to check:

- **Cloud 9™** elements should be plumbed to 1" solenoid valves grouped on a manifold with a pressure reducing valve set to a maximum of 20 psi. ***Note:*** If a cloud 9 is grouped with other water features on the same manifold, the pressure reducing valve must be reduced to a max pressure of 20 psi.
- The larger above ground water features such as a **Saguaro Soaker™** should be plumbed to 2" solenoid valves grouped with the 1" solenoid valves on a manifold with a maximum of 50 psi.

Important Note: Your manifold will have tags on the solenoid valves marked to coordinate with the Piping Diagram and Electrical drawings. The Contractor is required to do the following:

- Plumb water features to the appropriate solenoid valves.
- Run independent valve cables from each solenoid to the Water Odyssey Dynamic Sequencing Controller. DO NOT SHARE COMMONS. Check the label on each wire to assure proper connection.
- Connect the solenoid wires to the appropriate terminals according to the electrical drawings.

Note: *If solenoid valves are supplied by others, 24VAC solenoid valves must be used and must not exceed 8 watts per valve. A pressure regulating valve is necessary to maintain appropriate pressure. Maximum pressure to the manifold must not exceed 50 psi.*

Play Scenario

This section covers a typical aquatic playground layout, including aquatic play elements, the Play Scenario, and how it relates to the aquatic playground, and the events that instructing the water features to operate.
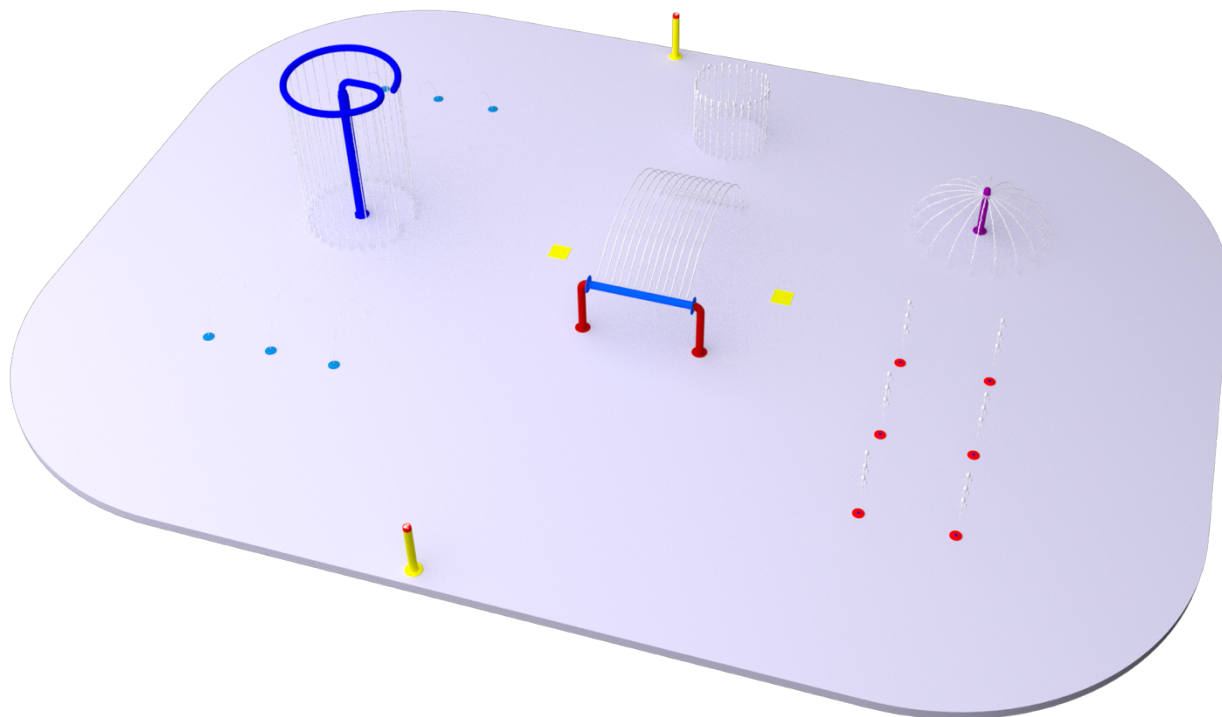
Element Reaction Times

Larger elements like the Roll-A-Rail™ or Weeping Water™ are typically controlled by a 1½" solenoid valve which will take approximately 15 to 30 seconds to turn on or turn off. Since these water features typically drain down when not operating, they can take up to a minute to fill back up. Due to the slow reaction time, larger water features such as these work well with duration and cycled events where the solenoid valves are changed every few minutes.

In-ground water features such as Aqua Arches™ are typically controlled with a 1" solenoid valve and will take approximately 5 to 10 seconds to turn on or turn off. Water features like these, when grouped together, work well with defined and random events where the solenoid valves are changed every 10 to 20 seconds.

Popp Drops are programmed for fast action solenoid valves and can turn on or turn off in as little as ½ second. A ½ second pop on followed by a 1 to 2 second off time creates an interesting globule of water. Pop Drops are ideal for defined and random events where the solenoid valves are cycled every ½ second or so. This creates a very lively water feature.

Play Scenario

The DSC controller is shipped preprogrammed from the factory. During the design phase of each aquatic playground, a Play Scenario is written that describes how the water features will behave. This Play Scenario is then organized into an event table. The event table lists how the water features are grouped, how the water features are activated, and how the water features will behave when they are activated. Finally, a factory programmer sets up a DSC controller using the event table designed for the aquatic playground. An aquatic playground may have as few as one event or as many as 60 events.

Sample Play Scenario

OPERATING SCHEDULE													
ELEMENT NAME	EVENT NUMBER	ACTIVATOR TYPE			VALVE/	HOURS OF OPERATION	EVENT TYPE	DURATION TIME (MIN)	STEPPING RATE (SEC)		RANDOM OUTPUT USE		ALLOW IF
		WIRED	WIRELESS	OTHER	OUTPUT				MINIMUM	MAXIMUM	EVENT-MIN	EVENT-MAX	
1-WATER CAGE	-	01:01	-	-	101 / 2:01	PARK HOURS	DURATION	3	-	-	-	-	PARK HOURS
2-WATER WEB	-	01:01	-	-	102 / 2:02	PARK HOURS	RANDOM	3	10	15	1	3	PARK HOURS
3-AQUA ARCH	-	01:01	-	-	103 / 2:03	PARK HOURS	RANDOM	3	10	15	1	3	PARK HOURS
4-AQUA ARCH	-	01:01	-	-	104 / 2:04	PARK HOURS	RANDOM	3	10	15	1	3	PARK HOURS
5-AQUA ARCH	-	01:01	-	-	105 / 2:05	PARK HOURS	RANDOM	3	10	15	1	3	PARK HOURS
6-WEEPING WATER	-	01:01	-	-	106 / 2:06	PARK HOURS	DURATION	3	-	-	-	-	PARK HOURS
7-ROLL-A-RAIL	-	01:01	-	-	107 / 2:07	PARK HOURS	DURATION	3	-	-	-	-	PARK HOURS
8-POPP DROPP	-	-	01:02	-	108 / 2:08	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
9-POPP DROPP	-	-	01:02	-	109 / 3:01	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
10-POPP DROPP	-	-	01:02	-	110 / 3:02	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
11-POPP DROPP	-	-	01:02	-	111 / 3:03	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
12-POPP DROPP	-	-	01:02	-	112 / 3:04	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
13-POPP DROPP	-	-	01:02	-	113 / 3:05	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
14-AQUA ARCH	-	-	01:02	-	114 / 3:06	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
15-AQUA ARCH	-	-	01:02	-	115 / 3:07	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
16-AQUA ARCH	-	-	01:02	-	116 / 3:08	PARK HOURS	RANDOM	3	10	15	3	6	PARK HOURS
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

DSC Display Screen

Main Screen

This screen is displayed after the DSC has powered up. This screen displays the Water Odyssey™ project number, the current state of the operating hours, system messages including when a wireless activator requires a new battery, and the current date and time.

```
W6874 Control System
      Push Setup
Operating Hours:   On
Thr, Jan 01 11:23 AM
```
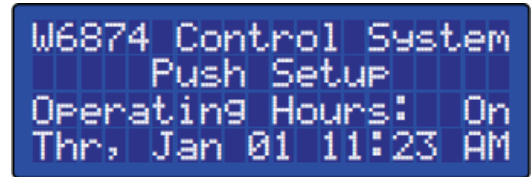
Keypad

The keypad consists of 20 keys used to navigate and modify all the settings in the DSC. This list describes their most common function.

Clock

Press the clock key at any time to override the hours and cycle through programmed events.

- Auto DSC will run according to the operating hours.
- On DSC will force operating hours on.
- Off DSC will force operating hours off.

Setup | Mode

Press the SETUP MODE key to access the function settings menu.

- Menu types:
- Settings
- Operating Hours
- System Test
- System setup
- PASSWORD: When a Password is set, you are required to enter the password before gaining access to the controller settings.

Enter

Used for navigation and selection of properties.

ESC | Back

Used for navigation, pressing the [ESC | BACK] key will return you to the previous Screen.

Save

Press this key at any time to permanently store any changes that you have made.

Set | Clear
Used to modify event properties, operating hours, and defined sequences.
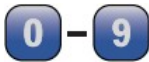
Left and Right Arrows
Used to modify event properties and for navigating operating hours and defined.
sequences.

Up and Down Arrows
Used for navigation throughout the menus and settings.

Numbers
Used to enter numeric values and for navigation shortcuts.

Menu Navigation

The [UP ARROW] and [DOWN ARROW] keys are used to navigate through menu options. Note that not all menu items are displayed on the screen at once. This is illustrated by two options, System Status and System Setup, shown below the screen to the left.

To display these options on the screen, scroll down using the [DOWN ARROW] key. The numbers to the left of the menu items are shortcut keys. These can be used instead of the arrows. For example, pressing the [4] key will go directly to System Setup. Examples in this manual are shown using shortcut keys whenever possible.

The screen below shows an arrow (>) pointing to the Events menu item. This arrow indicates the current item for selection. To select this item, press the [ENTER] or [RIGHT ARROW] key. Doing so will display the Events screen. You can also press the shortcut key, [1].

Note: At any time press the [ESC | Back] key to return to the previous screen.

To access Operating Hours, scroll down using the [DOWN ARROW] key until the arrow points to the Operating Hours menu item and press the [ENTER] or [RIGHT ARROW] key. You can also press the shortcut key, [2].

To access System Tests, scroll down using the [DOWN ARROW] key until the arrow points to the System Tests menu item and press the [ENTER] or [RIGHT ARROW] key. You can also press the shortcut key, [3].

To access System Setup, scroll down using the [DOWN ARROW] key until the arrow points to the System Setup menu item and press the [ENTER] or [RIGHT ARROW] key. You can also press the shortcut key, [4].

Adjust Date and Time

The DSC has a built-in time clock with a calendar that will maintain proper time and date even when the unit is not powered. This gives the DSC the capability of controlling events based on the time of day and the day of the week.

Adjust the System Time

The DSC is set to your aquatic playground's time zone before leaving the factory. The time can be adjusted using the following procedure.

```
System Setup
 ∆ Date:   01/01/2008
 3▷Time:      11:23 AM
 ▽ Disable Outputs
```
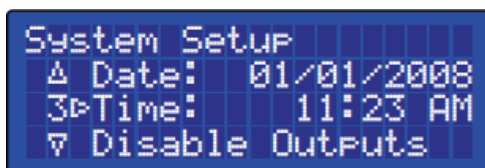
Starting on the Main Screen, press [SETUP] [4] [3]. This will display the System Settings screen and place the cursor on the Time item. Next press the [RIGHT ARROW] to place the cursor in the Time field. Using the numeric keys enter the current time. To change between the AM and PM, position the cursor on the AM/PM using the [RIGHT ARROW] key and press the [SET|CLEAR] key.

> **Example:** How to change the time from 11:23 AM to 2:45 PM. Starting on the Main Screen, press the following keys:
>
> [SETUP] [4] [3] [RIGHT ARROW] [0] [2] [4] [5] [SET|CLEAR] [RIGHT ARROW]

Adjust the System Date

The Date is preset before leaving the factory. The date can

be adjusted using the following procedure.

```
System Setup
 ∆ Date:   01/01/2008
 3▷Time:      11:23 AM
 ▽ Disable Outputs
```
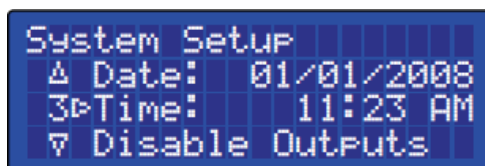
Starting on the Main Screen, press [SETUP] [4] [2]. This will display the System Settings screen and place the cursor on the Date item. If you are already on the System Setup screen, use the [UP ARROW] and/ or [DOWN ARROW] keys to scroll to the Date item. Next press the [RIGHT ARROW] to place the cursor in the Date field. Using the numeric keys enter the current date. Note that the DSC will support dates up to the year 2047.

> **Example:** How to change the date from 01/01/2008 to 08/11/2008. Starting on the Main Screen, press the following keys:
>
> [SETUP] [4] [2] [RIGHT ARROW] [8] [1] [1] [0] [8]

Adjust Operating Hours

Your aquatic playground operating hours can be uniquely set in 15-minute increments for each day of the week.

The DSC is shipped with operating hours preset to open at 10:00 AM and close at 6:00 PM for your time zone. These hours can be modified to suit the requirements of the aquatic playground. Each day can have multiple opening, and closing times and each day of the week can have its own unique operating hours.

Access the Operating Hours

Starting on the Main Screen, press [SETUP] [2]. This will display the Operating Hours screen and place the cursor on Monday at 10:00 AM. The top row displays the cursor movement and the cursor location. The cursor move determines how many spaces the cursor will move when the [LEFT ARROW] and [RIGHT ARROW] keys are pressed. The move value can be adjusted by pressing the [SETUP|MODE] key. The possible values are 15 minutes and 2 hours.
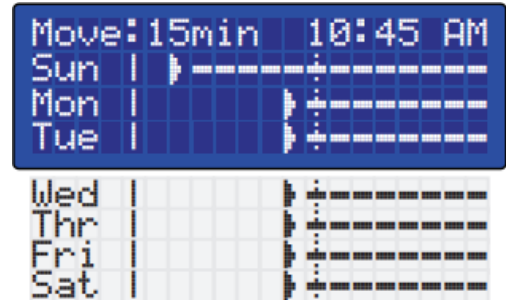
The cursor location is shown in the upper right corner, 10:45 AM on the screen above. This value will change when the [LEFT ARROW] or [RIGHT ARROW] key is pressed to reflect the current cursor location.

Use the [UP ARROW] and [DOWN ARROW] keys to scroll through the days of the week. Use the [LEFT ARROW] and [RIGHT ARROW] keys to scroll through the times of the day. Press the [SET|CLEAR] key to set and clear the open and close times on the display.

Example: Setting open and close times

Use the [LEFT ARROW] and [RIGHT ARROW] keys to scroll to the time you want the aquatic playground to open. Press the [SET|CLEAR] key, the screen should be like the following. The DSC automatically fills in the time to the right with dashed lines.

Using the [LEFT ARROW] and [RIGHT ARROW] keys scroll to the time you want the aquatic playground to close. Press the [SET|CLEAR] key, the screen should be like the following:

If you insert a time in-between the open and close times, all the open and close times to the right will be inverted. The screen should be like the following:

The operating hours can be overridden simply by pressing the clock override button. This will allow you to operate the aquatic playground while operating hours are off and shut it down while the operating hours are on.

Force Operating Hours On

Press the [CLOCK] key until you see the Operating Hours Forced On screen. While the DSC display is on the main screen, the Forced On screen will periodically flash as a reminder that the operating hours are not in their normal automatic mode.
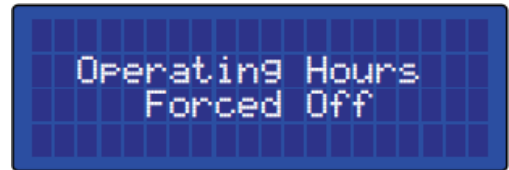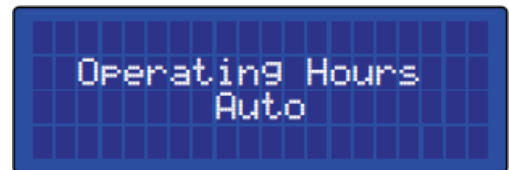
All Events set to run while operating hours are on will be enabled. Events requiring an activator to operate will need to be activated as they would normally.

Force Operating Hours Off

Press the [CLOCK] key until you see the Operating Hours Forced Off screen. While the DSC display is on the main screen, the Forced Off screen will periodically flash as a reminder that the operating hours are not in their normal automatic mode.

All events that require operating hours ON to operate will be disabled.

Set Operating Hours to Automatic

Press the [CLOCK] key until you see the Operating Hours Auto screen.

The Aquatic playground will start and stop according to the Operating Hours settings.

Modifying/Reprogramming Events

Select Event

As mentioned previously, the DSC controller is shipped from the factory preprogrammed with the events defined by the Play Scenario™. These Events can be modified; however, we strongly suggest calling the factory before making any significant changes. We maintain records for every aquatic playground so that we may be of assistance if needed.

To display a list of the events stored in your DSC, perform the following steps:

Starting on the Main Screen, press [SETUP] [1] [2]. This will display the Edit Event Selection List screen and place the cursor on the first event.

Use the [UP ARROW] and [DOWN ARROW] keys to scroll through the list of events. Once the event you wish to edit is next to the right arrow on the display, press the [RIGHT ARROW] or [ENTER] key to select the event. This will take you to the Edit Event screen. You can also use the number keys to quickly scroll through the event list.
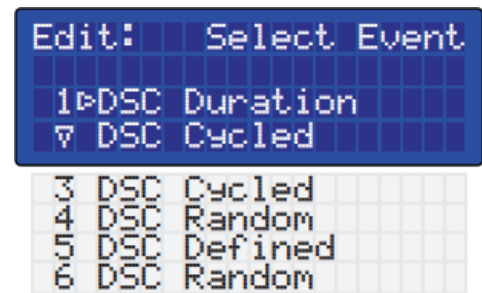
When adding a new event, the DSC automatically assigns that event to the next available event number.

```
Edit:     Select Event

 1▷DSC Duration
 ▽ DSC Cycled

 3  DSC Cycled
 4  DSC Random
 5  DSC Defined
 6  DSC Random
```

Event Settings

Basically, the controller gives the commands that cause the aquatic play equipment to turn on and off.
Each Event will require the following settings to be entered.

Activators:

Select one or several activators to be used for the event. Activator types are Clocks, Wired, and Wireless.

```
Activators

 1▷Clocks            0
 ▽ Wired Inputs      1

 3 Wireless          0
```
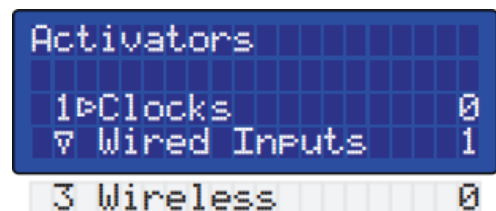
Outputs:

Select one or several outputs assigned to the water features that will be controlled by the event.

```
Outputs
    ID Type   12345678
◁1▷02 ACO:   -●●●●●●●
  ▽ 03 ACO:   ---●●●-●
```
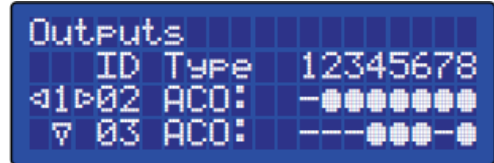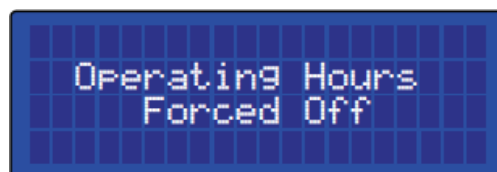
Event settings:

Enter the function settings for the event. This will include the event duration and other settings specific to the event function type.

```
Settings  (Duration)

 1▷Dur:   00:00:30.0s
 ▽  └Continuous:   NO
 3 Advanced
```
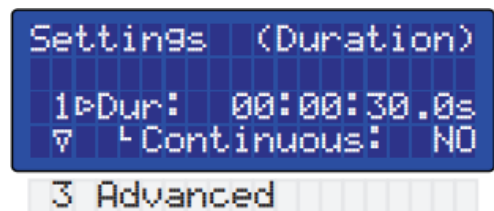
Changes made to the DSC Settings can be permanently saved at any time simply by pressing the [SAVE] key. The following screen will be briefly displayed informing you that changes have been saved.

```
        Saving
      Scenario....
```
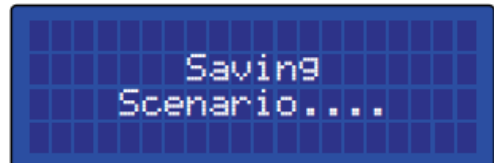
When you are finished modifying the DSC settings and return to the Main Screen, if changes were made but not saved, you will be asked if you would like to save the changes.

```
Save Changes?
 1▷No, Do Not Save
 ▽ Yes, Save.
```
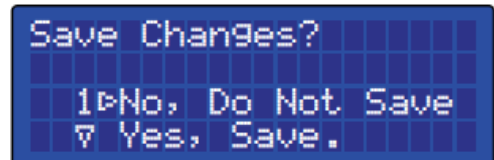
Change the Clock Mode

The operating hours can be overridden simply by pressing the clock override button. This will allow you to operate the aquatic playground while operating hours are off and shut it down while the operating hours are on.

Force Operating Hours On

Press the [CLOCK] key until you see the Operating Hours Forced On screen. While the DSC display is on the main screen the Forced On screen will periodically flash as a reminder that the operating hours are not in their normal automatic mode.
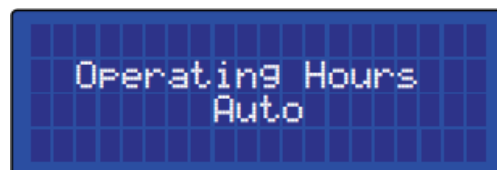
All Events set to run while operating hours are on will be enabled. Events requiring an activator to operate will need to be activated as they would normally.

Force Operating Hours Off

Press the [CLOCK] key until you see the Operating Hours Forced Off screen. While the DSC display is on the main screen the Forced Off screen will periodically flash as a reminder that the operating hours are not in their normal automatic mode.

All events that require operating hours on to operate will be disabled.

Set Operating Hours to Automatic

Press the [CLOCK] key until you see the Operating Hours Auto screen.

The Aquatic playground will start and stop according to the Operating Hours settings.

Add a Password

To prevent unauthorized personnel from modifying settings, the DSC can be password protected. Once enabled, a password is required every time the [SETUP] key is pressed to allow access to the controller's settings.

The DSC is shipped with password protection enabled. **The default password is 1155.** To modify password protection and set a new system password, perform the following steps:

Starting at the Main screen, press [SETUP], enter the password [1] [1] [5] [5], and navigate to the password settings [4] [1]. This will display the Password screen and wait for you to enter a four-digit password.
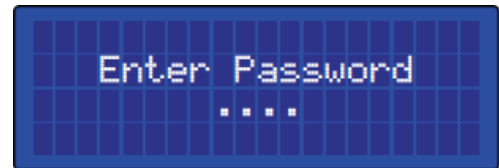
Next press the four desired keys to set the password. A password can only consist of numeric values. After the four keys have been pressed a second password screen will be displayed requiring that the four keys are reentered for confirmation.
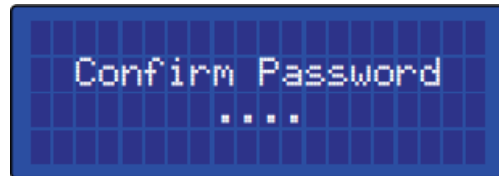
After the password is reentered, you are returned to the System Setup screen, and password protection is now enabled. Once set, you will be asked to enter the password to gain access to the DSC's settings.

> **Example:** How to enable password protection and set the password to 3194.
>
> Starting on the Main Screen, press the following keys:
>
> [SETUP] [1] [1] [5] [5] [4] [1] [3] [1] [9] [4] [3] [1] [9] [4]

To disable password protection, go to the set password screen and enter 0000 for the password. This instructs the DSC to disable password protection.
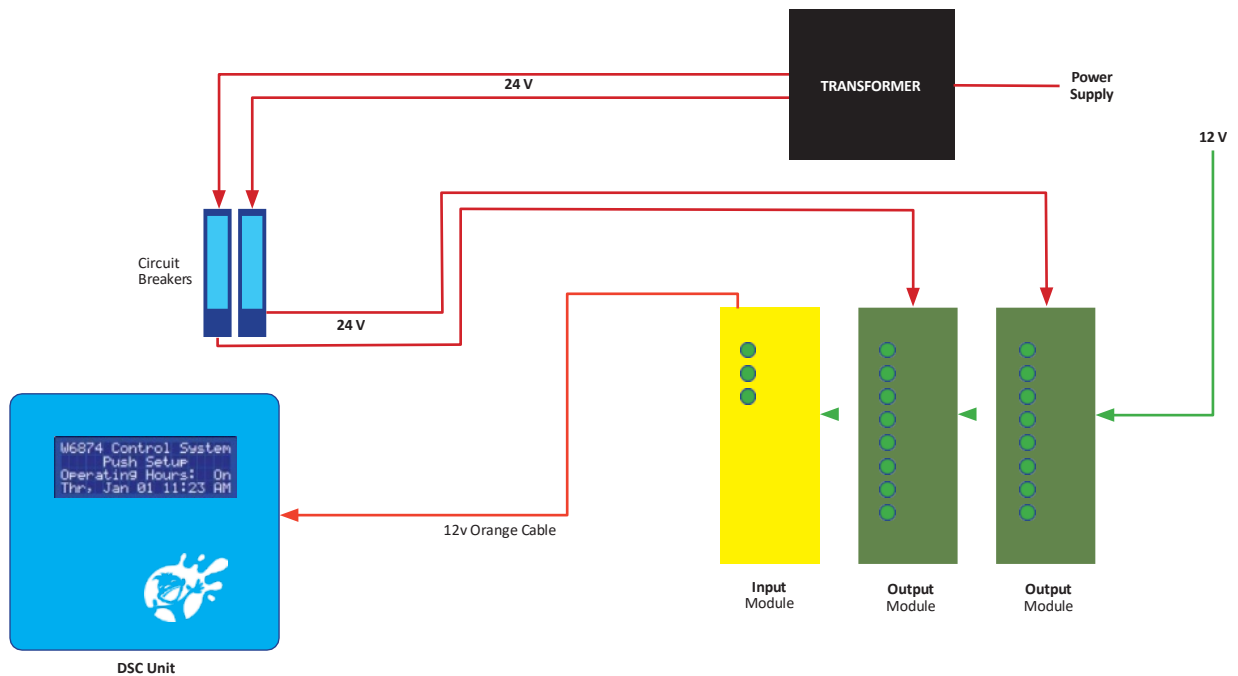
> **Example:** How to disable password protection. Starting on the Main Screen, press the following keys:
>
> [SETUP] [Enter Password] [4] [1] [0] [0] [0] [0] [0] [0] [0] [0]

DSC Components

The follow diagram will guide you in basic troubleshooting on all equipment regarding the **Dynamic Sequencing Controller** panel. This diagram shows how 12V and 24V power are conducted through each electrical component in the DSC panel. If all components have power and working in a normal state, the input and output modules will display green lights, and the DSC screen will display the correct information.

─────	12v Power
─────	24v Power Modules
─────	12v Power DSC cable

TRANSFORMER

Power Supply

24 V

12 V

Circuit Breakers

24 V

W6874 Control System
Push Setup
Operating Hours: On
Thr, Jan 01 11:23 AM

12v Orange Cable

Input Module

Output Module

Output Module

DSC Unit

This picture shows a typical control panel with document package as shipped from the factory. This model is not prewired with solenoid valves, and it would be mounted in a pump room adjacent to the manifold, 100' from the furthest activator on the splash pad.

Activators

The DSC can test activators to determine if they are properly wired and correctly located in the aquatic playground.

Wired Activators

Each activator is wired to its own terminal location. This location is associated with one or more water features as described in your event table and electrical drawings.

Starting on the Main Screen, press [SETUP] [3] [4]. This will display the Input/Output Status screen. The terminal status is displayed for the Input and Output Modules. The input modules are labeled as DCI in the Type column.
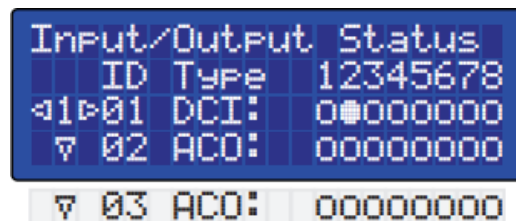
Use the [UP ARROW] and [DOWN ARROW] keys to display the input module you wish to test. At this point, have someone press the activator while watching for a circle ("o") to be displayed corresponding to the terminal of the activator that has been pressed.
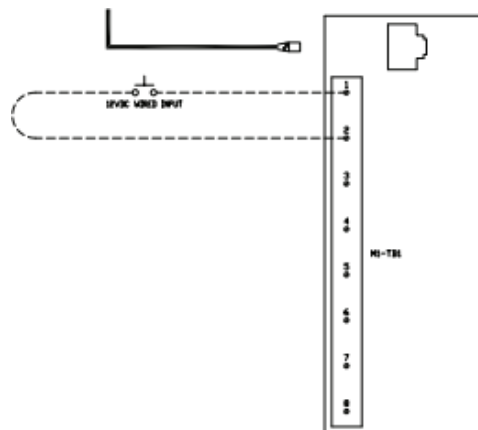
Note: If the terminal displayed is not correct, the activator wiring is connected to the wrong terminal. Check your electrical drawings and site plan and make any necessary corrections.

Wireless Activators

Each activator sends its own address comprising of a group (A, B, C, or D) and a code (1 through 8). This address is associated with one or more water features as described in your event table and electrical drawings.

Starting on the Main Screen, press [SETUP] [3] [3] [1]. This will display the Recent Transmits screen. The most recently activated transmitter's address (Group and Code) is displayed on line 1 with the time the transmission occurred. The nine previous transmissions are displayed as well on the following lines 2 through 10. At this point, have someone press the activator while watching for the transmitter's address and transmission time to be displayed on line 1.
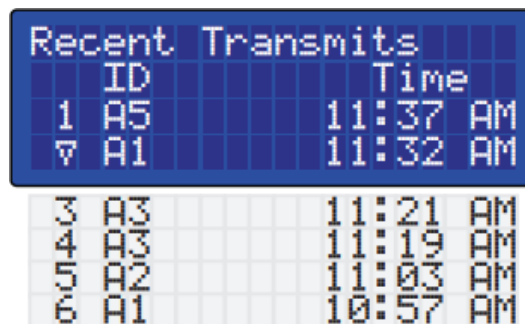
Note: If the address displayed is not correct, it is possible that the activator was installed in the wrong location. At this point, the activator can be moved or the events using this activator can be modified.

Test Outputs/Solenoid Valves

You can bypass both the operating hours and the events to force the outputs of the DSC on to verify that the water effect solenoid valves are working properly.

Each output is wired to its own terminal location. This location is associated with one or more water features as described in your event table and electrical drawings.
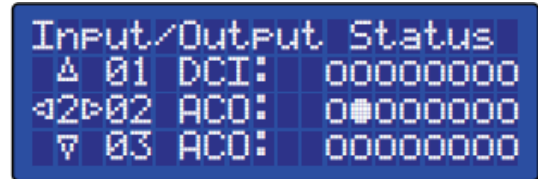
Starting on the Main Screen, press [SETUP] [3] [4]. This will display the Input/Output Status screen. The terminal status is displayed for the Input and Output Modules. The output modules are labeled as ACO in the Type column. Use the [UP ARROW] and [DOWN ARROW] keys to select the output module you wish to test.

Using the [LEFT ARROW] and [RIGHT ARROW] keys, scroll to the input or output you want to test. Once the cursor is on the desired output press the [SET|CLEAR] key. This will display a solid white dot, indicating that the output has been turned on. The corresponding output indicator on the selected module will light. The selected output now has power, and the associated water feature should be running. You can move the cursor to the next terminal and press the [SET|CLEAR] key again to turn the output on. To turn the output off, position the cursor on the desired output and press the [SET|CLEAR] key or the [ESC] key.

Continue to test the outputs associated with your aquatic playground.

> **Example:** How to turn on output terminal 2 on module 1. Starting on the Main Screen, press the following keys:
>
> [SETUP] [2] [2] [1] [RIGHT ARROW] [RIGHT ARROW] [SET|CLEAR]
>
> To turn the output off press the following keys:
>
> [LEFT ARROW] [SET|CLEAR]
>
> Or press [ESC | Back] to turn off all outputs and return to the System Tests menu.

> **Note:** *If you turn on an output and the wrong water feature turns on, the solenoid valve wiring is connected to the wrong terminal. Check your electrical drawings and site plan and make any necessary corrections.*

The follow diagram shows how 12V power are conducted through each electrical component in the DSC panel. Assuming that all components have power and working in a normal state, the input modules will display green lights and output modules will display red lights, and the DSC screen will display the correct information.
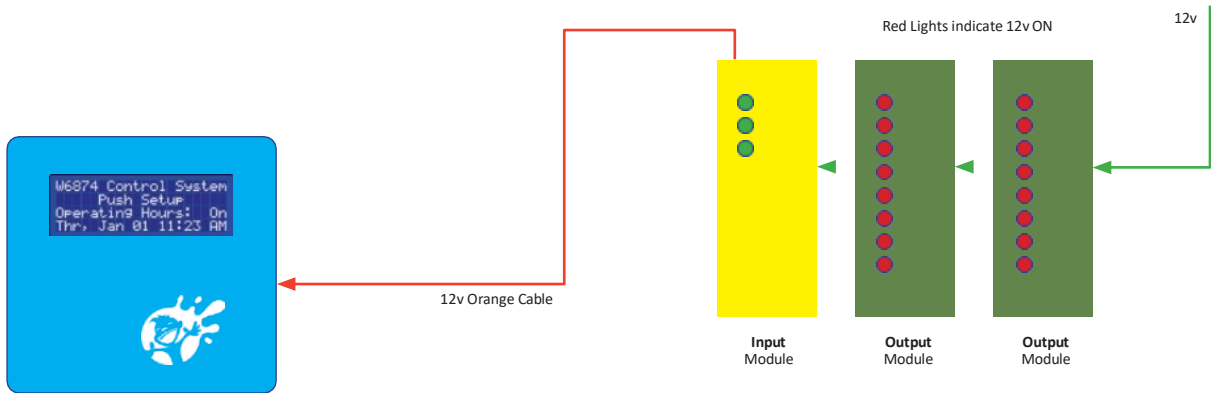

## Troubleshooting Input/Output modules

The following are common problems, troubleshooting, and solutions.

Problem: RED light won't show on OUTPUT modules or green light on INPUT modules.

Troubleshooting: Check for a faulty module; correct the position of the module and align them with main plug 12V cable; check connection between modules making sure the power is passing from the first to the last, using a voltmeter to see if the cable connected to the first output module are energized with 12 volts.

Solution: If the module still doesn't show RED or GREEN lights after troubleshooting the cable, Replace module unit.
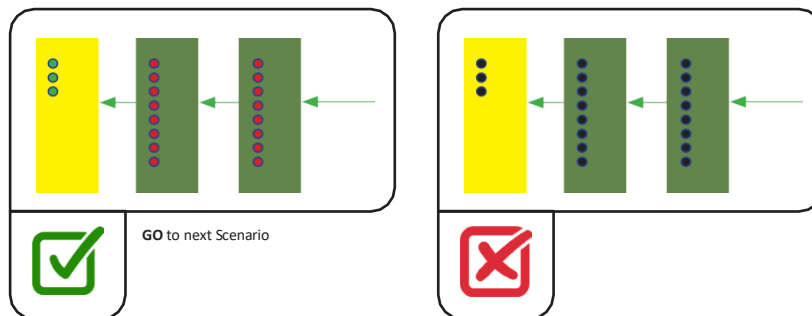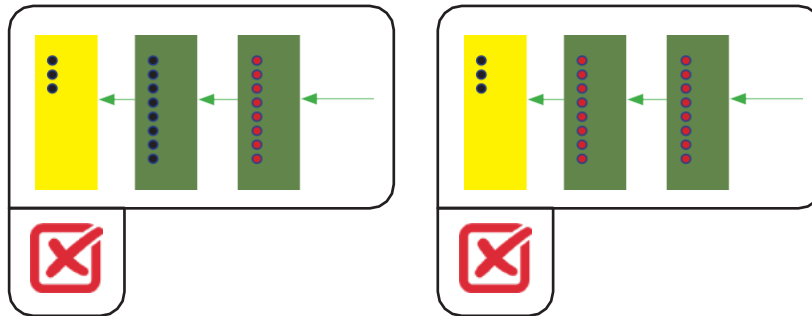
Removing and replacing a power module

Confirm the faulty power module location based on the troubleshooting steps. Follow these steps to remove and replace the old unit:

- Power off all units by flipping the main breaker switch to the OFF position.

- Remove the 12V cable on the right side of the module unit, the 24V power cables connected on the top of the unit, and the terminal wires at the bottom of the module before removing the faulty module.
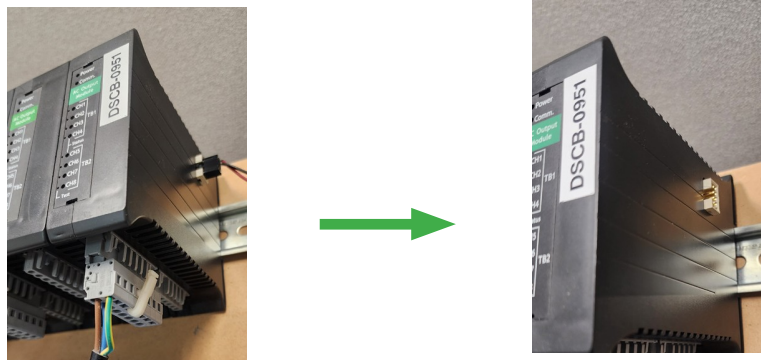

- In order to remove the module(s), first remove the plastic stop(s) on one or both sides of the modules. Use the module connector/removal tool or a flathead screwdriver to press in and up at the bottom of the stop. This should release the bottom connection of the stop from the DIN rail. Remove the stop to freely slide the module along the DIN rail.
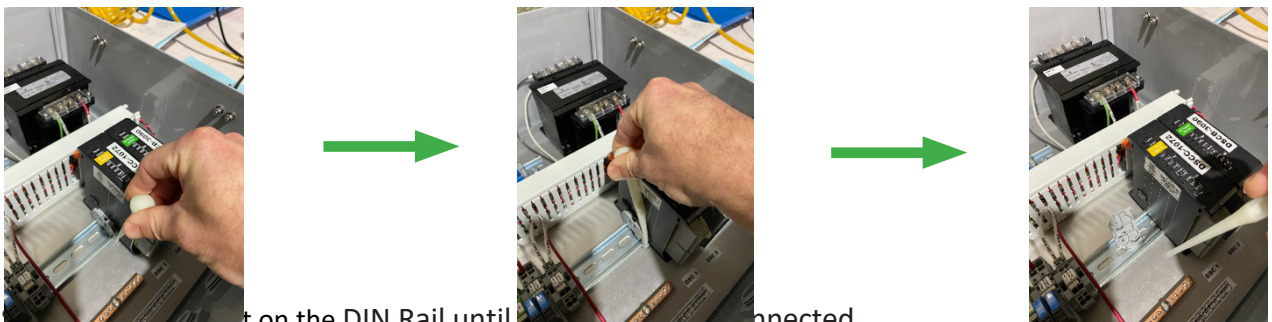
- Slide modules apart on the DIN Rail until faulty unit is disconnected.

- Using the release tool provided with the unit, locate the lock section on the bottom of the module and release the lock to be able to pull the module out.
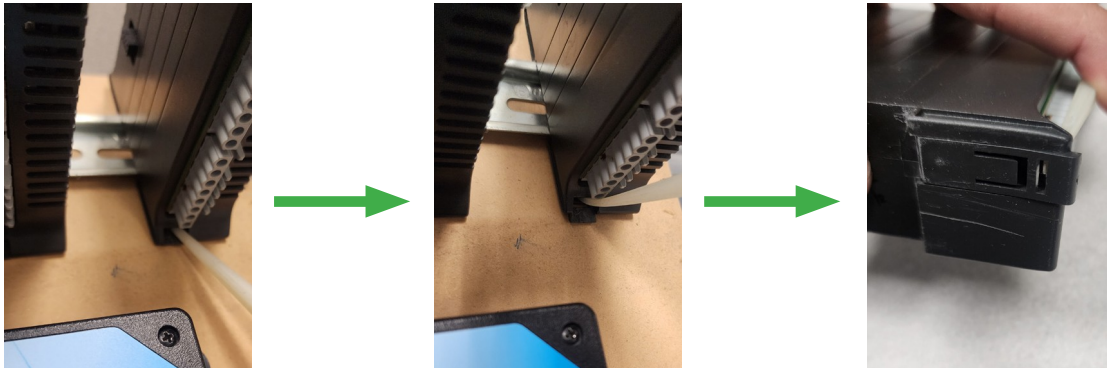
- Install new module with the terminal installation tool included in your DSC control panel. The back of the module has a C-channel for connecting to the DIN Rail. To seat the module onto the DIN Rail, Press the module onto the DIN Rail from the top groove in the C-channel of the module and push down. Once the top groove is seated, press the bottom-front of the module into the DIN Rail. As a result, the module should lock into the DIN Rail.

- Once modules are in their correct position, reattach the plastic stops on either side of the module. To reattach, place the stop against the side of the module and press the stop into the din rail. It should click in when properly attached. This will restrict the modules from sliding on the DIN Rail.

- Once the module is locked into the DIN Rail, slide the module back into the original position of the previous module. Be careful not to damage the pin connectors on the side of the modules. The module pins will connect when the modules are pressed together and are in their proper position on the rail.

- Reconnect all power supply cables, then reconnect wire plugs to the underside of the module's terminal blocks.

- Verify that all cables have been properly reconnected, then flip the main breaker switch to the ON position.
- Verify that all modules are receiving power and status indicator lights are illuminated on the module.

**Problem:** DSC display won't POWER ON.

Troubleshooting: One orange ethernet cable connected from the DSC to the input module provides power to the DSC controller. Check the end-point connections of this cable and ensure they are firmly connected to the terminals of the DSC controller and input module.

Solution: If the DSC wont power ON, **Replace Orange Cable**

If the Orange Cable has been replaced and there is still no power to the DSC Controller, Replace the DSC Controller.
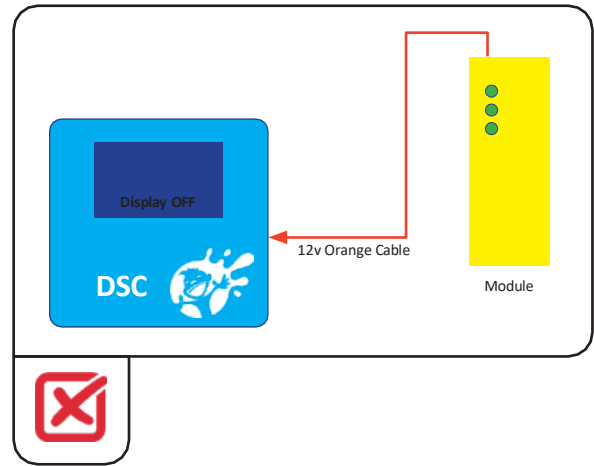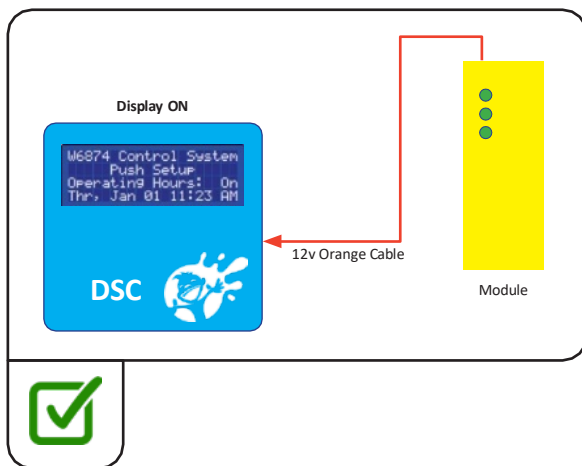
The follow diagram shows how 24V power are conducted through each electrical component in the DSC panel. Assuming that all components have power and working in a normal state, the input and output modules will display green lights, and the DSC screen will display the correct information.
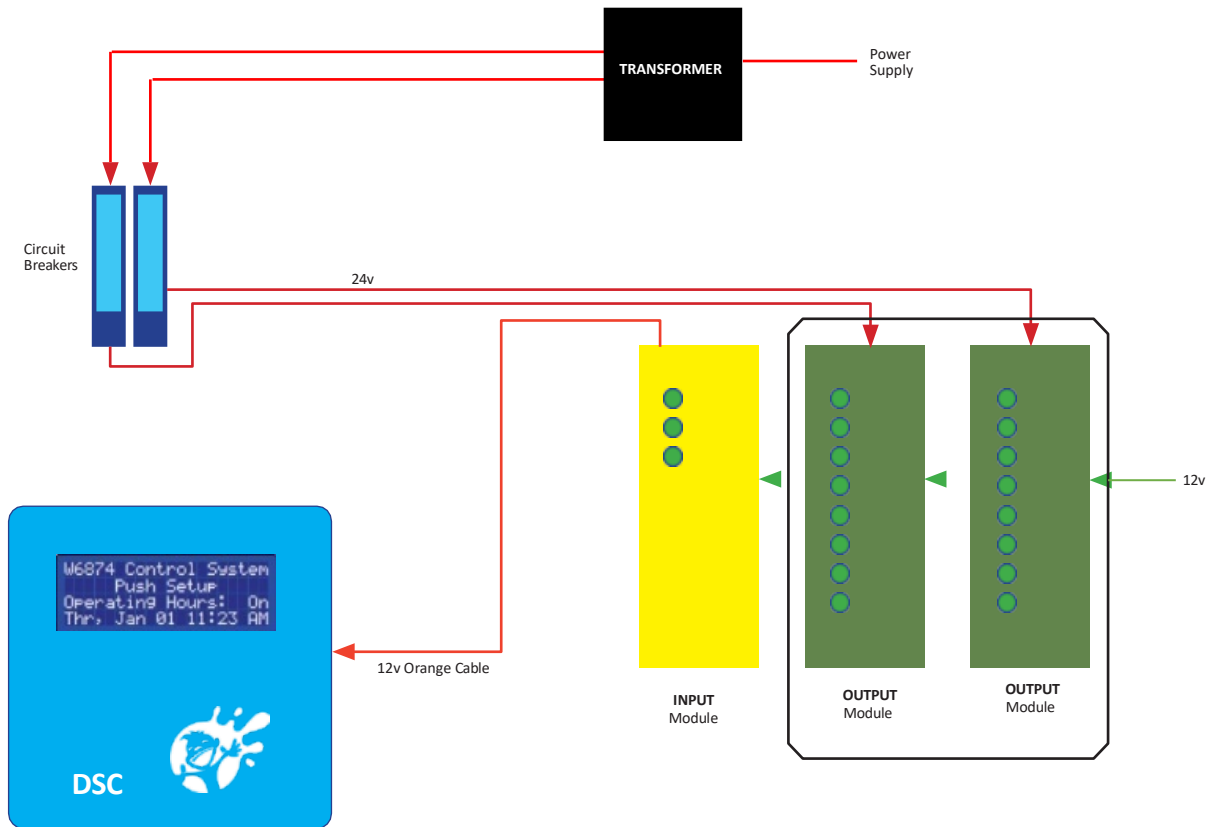
Problem: One or more GREEN lights are not illuminated on the OUTPUT module(s).

Troubleshooting: Check the 24V connection on top of the OUTPUT module. Make sure the circuit breakers are passing electricity to the OUTPUT module(s). Switch the circuit breaker to see if the GREEN lights are displayed on the OUTPUT module(s).

Solution: If there is no GREEN light displayed on the OUTPUT module(s), the circuit breaker is bad. Replace the circuit breaker.

If a new circuit breaker is installed and there are still no green lights displayed on the OUTPUT module(s), replace the defective OUTPUT module(s).

GO to next Scenario
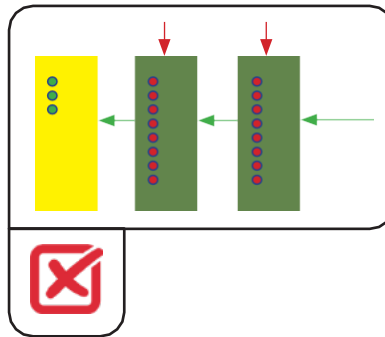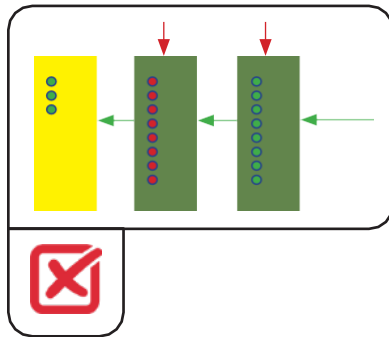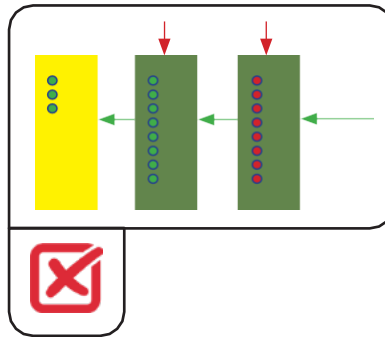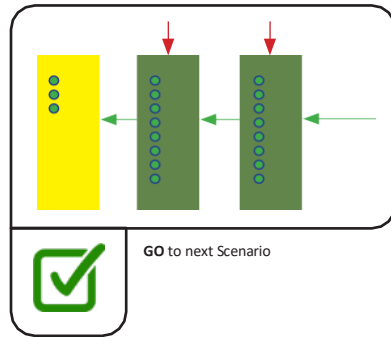
Removing and replacing internal battery

The DSC internal battery is required to retain setup information on the local memory in the controller. When the battery dies, the DSC will still be powered by the incoming hard-wired power line; however, if power is lost due to electrical disruptions or manual shutter-off of the incoming city power supply, the internal DSC memory will be reset to default, and you will lose all saved settings. The DSC Controller requires a Lithium Cell 3V CR2430 battery. It is best to replace this battery every six months to one year.


Problem: The DSC display shows NO splash pad setup.

Troubleshooting: if display shows W99999 as first characters in display, this is an indication of loss of power and/or the internal battery is BAD.

Solution:

- Disconnect the DSC from power supply (orange cable).

- Unmount DSC from the control panel for easy access.

- Carefully open the DSC touchpad by removing the four screws that connect the touchpad to the housing.

- The battery location will be on the upper left corner inside the board.

- Carefully remove battery and replace it with a new one.

- Close the DSC by reseating the touchpad on the housing and securing it with the four screws. The screws should be hand-tightened with a Phillips-Head screwdriver only. Do not use an impact driver as this may damage the DSC controller from over-tightening.

- Power up the DSC controller (connect the Orange Cable).
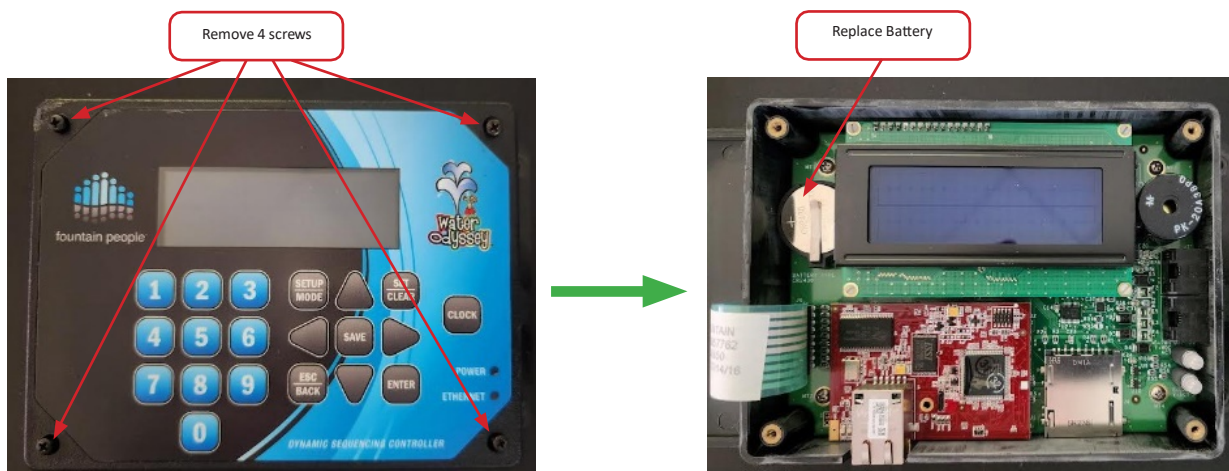
Problem: The DSC displays the default setup.

Troubleshooting: After replacing the internal battery, you will need to load the index files from the SD card **provided by the manufacturer when the controller was shipped** (usually, the SD card will be inserted on the DSC bottom). This file contains the basic setup for your splash pad.

Solution:

- Insert the SD card until you feel it chick into place.
- Power up the controller
- Press the SETUP button.
- Enter the password.
- Go to SCENARIO [5]
- Go to LOAD [2]
- Choose the file (it will load the first setup)
- If you lost the SD card or the SD card information has been corrupted, please contact Water Odyssey. They will provide a copy of the file so you can load it onto a new SD card and save it to the controller.

SD Memory Card instructions (In case you lose your program)

Problem: The DSC lost its program due to a prolonged power loss.

Solution:

- Make sure the SD Card is inserted into the SD card slot located on the bottom of the DSC (Dynamic Sequencing Controller). Maximum size SD card is 2 Gigabytes.

- Press the SET UP button and enter the factory DSC password (1155)
  Controller Settings will be displayed.

- Scroll down with the down arrow button to #5 Scenario, press the ENTER button.

- Scroll down with the down arrow button to #2 Load, press the ENTER button.

- Display will show:
  Wxxxxx_01

- Using the up/down arrow buttons, make your selection and press the ENTER button. The program will load.

- Press the escape key back to the main screen. If it asks you to save changes select yes by pressing the down arrow button and then press the ENTER button if it asks you to 'Index File', select 'No' by pressing the ENTER button.

Common Troubleshooting Issues

Module Error Not Configured-
➤ Check to see if the receiver/antenna is plugged in.
➤ Plug in receiver and reboot power.
➤ If error is still present on screen call Tech support

Red Power Light-
➤ Check 5amp fuse. If fuse is good call tech support.

Comm./Error Light red-
➤ Check 12VDC 3amp Fuse,
➤ Check to see if 3ft yellow cat 5 cable is plugged in to module and controller.

Blank screen-
➤ Press any key controller is in screen saver mode

Park will not activate-
➤ Check the operating hours.
➤ Press clock button to on/auto.
➤ Check programming.
➤ Check to see if the chemical controller is in alarm.
➤ Refer to manual
➤ Call Tech support

Common Troubleshooting Issues

Wireless activators will not activate-
➤ Remove Mylar paper from battery on the inside of activator.
➤ Verify antenna is connected and recognized by controller by cycling power off/on
➤ Check programming

Where do I land the field connections for the solenoid valves-
➤ Blue wire lands to channel 1 first hole from front to back of the AC output module
➤ Brown wire lands in the second hole of the AC output module from front to back
➤ The Green/yellow stripe wire goes to ground

Where do I land the field connections for wired activators-
➤ White wire goes to 12vdc (–), Black wire goes to 12vdc (+), Green wire goes to second slot, and on every other slot per activators used, on the bottom of the DC input module, in this case **GREEN WIRE IS NOT GROUND**.
➤ **New wired activator colors are Blue + White is – and Red wire is the signal.**

Park keeps activating after event duration has timed out-
➤ For wireless activators check sensitivity settings on transmitter board, Follow PDI-003
➤ For wired activators on features throttle down water with ball valve
➤ Check solenoid for debris and clean out if needed