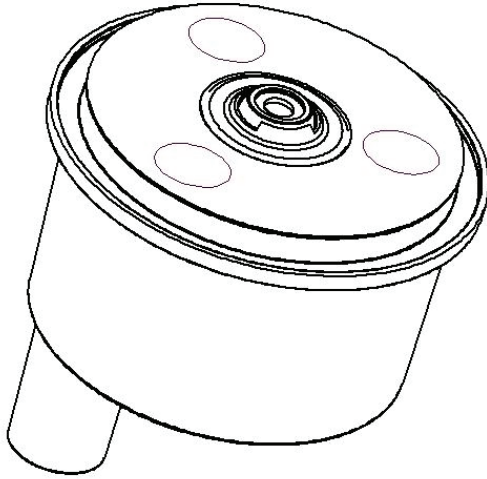




COLORCASCADE® UNDERWATER COLOR
CHANGING LED LIGHT
FOR POOL AND SPA



INSTALLATION
AND
USER'S GUIDE

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Technical Support

Phone: (800) 831-7133 - Fax: (800) 284-4151

Web sites: www.pentairpool.com and www.staritepool.com:

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READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL.

P/N 512280 Rev A - 12/1712

COLORCASCADE® Color Pool and Spa Light Installation and User's Guide

IMPORTANT WARNING AND SAFETY INSTRUCTIONS



SERIOUS BODILY INJURY OR DEATH CAN RESULT IF THIS LIGHT IS NOT INSTALLED AND USED CORRECTLY.



INSTALLERS, POOL OPERATORS AND POOL OWNERS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS BEFORE USING THE POOL AND/OR SPA LIGHT.



Most states and local codes regulate the construction, installation, and operation of public pools and spas, and the construction of residential pools and spas. It is important to comply with these codes, many of which directly regulate the installation and use of this product. Consult your local building and health codes for more information.



IMPORTANT NOTICE - Attention Installer: This Installation and User's Guide ("Guide") contains important information about the installation, operation and safe use of this underwater pool and spa light. This Guide should be given to the owner and/or operator of this equipment.



Before installing this product, read and follow all warning notices and instructions in this Guide. Failure to follow warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions. Please refer to www.pentairpool.com for more information related to this products.



RISK OF ELECTRICAL SHOCK OR ELECTROCUTION: THE COLORCASCADE® LIGHT REQUIRES HIGH VOLTAGE WHICH CAN SHOCK, BURN, OR CAUSE DEATH.

BEFORE WORKING ON THIS DEVICE! Always disconnect power to the pool and/or spa lights at the source circuit breaker from the light before servicing the light. Failure to do so could result in death or serious injury to service person, pool users or others due to electric shock. When installing and using this electrical equipment, basic safety precautions should always be followed, include the following:

This underwater light must be installed by a licensed or certified electrician or a qualified pool professional in accordance with the current National Electrical Code (NEC), NFPA 70 or the Canadian Electrical Code (CEC), CSA C22.1. All applicable local installation codes and ordinances must also be adhered to. Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock, and may also cause damage to power source. Always disconnect the power to the pool light at the circuit breaker before servicing the light. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electrical shock.



For countries in compliance with International Electrotechnical Commission (IEC) regulatory standards: The light fixture must

be installed by a licensed or certified electrician or a qualified pool service person, in accordance with IEC 364-7-702 and all applicable local codes and ordinance. Improper installation will create an electrical hazard, which could result in death or serious injury to pool user, installer or other due to electrical shock and may also cause damage to the property.

IMPORTANT WARNING AND SAFETY INSTRUCTIONS

⚠ WARNING **Risk of Electrical Shock. Connect only to a branch circuit protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by a GFCI.** This light must be connected only to a supply circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the light without the test button being pushed, a ground current is following, indicating the possibility of an electric shock. Do not use this light. Disconnect the light and have the problem corrected by a qualified service representative before using. Locate your pool so that the wall is at least 10 feet from all electrical receptacles and at least 20 feet from all receptacles not protected by a GFCI. It is also very important to locate the pool so that it is not under any electrical wiring, that is less than 18 feet vertically above the pool wall and within an area located 10 feet outside the pool walls. The pool must also never be located under any lighting fixture or within five (5) feet measured horizontally from any fixture mounted less than five (5) feet vertically above the pool water level.

NOTICE: The external flexible cable or cord of this luminaire cannot be replaced; if the cord is damaged, the luminaire shall be destroyed.

⚠ WARNING Under **no circumstances** replace lights by splicing wire under water or behind niche.

⚠ DANGER ColorCascade® Light is a 12 VAC system. **ONLY USE** an approved 12 volt AC transformer, sold separately. When using a Junction Box, connect 12 volt AC connections to junction box terminals. Never connect the light directly to high voltage lines.

INSTALLERS AND INSPECTORS: THE COLORCASCADE LIGHT AND PLASTIC NICHE FORM A COMPLETE NON-METALLIC LOW VOLTAGE LIGHTING SYSTEM. THIS CONFIGURATION DOES NOT REQUIRE BONDING OR GROUNDING WHEN POWERED BY A LISTED 100 WATT OR 300 WATT 12 VAC TRANSFORMER AND INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC). UNBONDED LIGHTING NEC PROVISIONS.

WHEN THE UL LISTED NON-METALLIC COLORCASCADE LIGHT LOW VOLTAGE LIGHTS ARE USED WITH THE LIGHT APPROVED NICHE, THE CURRENT NEC PROVIDES AN EXCEPTION TO LUMINAIRE BONDING AND GROUNDING IN ARTICLE 680.6 AND 680.23 POOL WATER BONDING NEC PROVISIONS: FOR POOL WATER BONDING REQUIRED BY NEC ARTICLE 680.26C, CONCRETE POOLS ARE CONSIDERED CONDUCTIVE (REFER TO 680.26 (B)(1) DUE TO THE POROSITY OF CONCRETE AND THE BONDING OF REBAR. NO ADDITIONAL BONDING IS REQUIRED.

ColorCascade® Color LED Pool and Spa Light Overview

This manual describes how to install and replace the ColorCascade® Color LED Light. The ColorCascade light provides brilliant vivid multi-colors along with spectacular lighting and underwater “bubbling” effects for your pool and spa. The energy efficient colored array utilizes IntelliBrite® Color LED Light technology and can cycle through colors at varying speeds and in different sequences of colors. Choose one of the seven pre-programmed color light shows or select one of the five fixed colors to create virtually endless range of dramatic underwater lighting effects for a spectacular effect in your pool and spa.

If multiple LED lighting are being used, it is recommended that these lights be run independent of each other, using a separate transformer for each group or type of light. Otherwise all lights connected to the same transformer will be working together.

Operating Modes (Standard and IntelliBrite)

There are two operating settings within the ColorCascade light, Standard Mode and IntelliBrite Mode. The default factory setting is IntelliBrite Mode. Use the Standard Mode setting if you wish to operate the bubbler differently than your other pool lights to make the water feature stand out and contrast. If there is a ColorCascade light model installed in your pool or spa that does not support the IntelliBrite Mode feature, you will need to reset the ColorCascade light to Standard Mode to match the existing set up, see page 5. To access the Standard Mode setting, you must cycle the power to the ColorCascade light with 16 off/on sequences. To return to the IntelliBrite Mode setting, cycle the power 17 off/on sequences.

Operating ColorCascade Lights Using a Wall Switch

The ColorCascade light can be controlled using a standard wall-mount light switch. Multiple ColorCascade lights can be connected via a junction box to a single switch so that all lights can be switched on and off together. The lights are controlled by cycling the AC power to the 12 VAC power supply and from there to the lights from a standard wall switch. By turning the switch OFF and ON a specific number of times, the light activates one of the three light show modes or locks a chosen color.

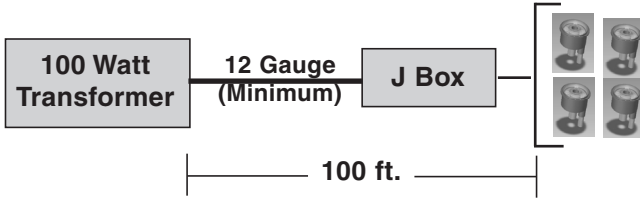
Operating ColorCascade Lights Using Automation Control System

ColorCascade lights can also be automatically controlled via Pentair IntelliTouch® and EasyTouch® Control Systems, utilizing the IntelliBrite “Circuit Function”. For more information refer to the IntelliTouch Control System User’s Guide (P/N 521075), EasyTouch Control System User’s Guide (P/N 521044).

For more information, see page 14.

Using an External Transformer for Multiple ColorCascade® Lights

When using multiple ColorCascade 12 VAC lights on a **100 Watt** transformer, it is recommended that no more than four (4) ColorCascade lights be used. It is also recommended not to exceed 100 feet of total cable run between the transformer and lights. Note: For long cable lengths, set transformer to 14 VAC, and use only ColorCascade lights with the 150" cord option, see diagram below.



Note: If a longer cable run is necessary, it is recommended that separate **100 Watt 12 VAC** transformers be used for each light with no more than 100 feet of total cable run between the transformer and lights.

Maximum wattage when using multiple ColorCascade and IntelliBrite® Color LED lights (using a 300 Watt Transformer)

IMPORTANT! When using multiple 12 VAC ColorCascade Light, IntelliBrite Light and IntelliBrite Landscape Lights, the total allowable light wattage is 300 Watts maximum. The ColorCascade and IntelliBrite light wattages are as follows:

- One ColorCascade light is 16 Watts maximum
- One GloBrite® Light is 23 Watts maximum
- One IntelliBrite Pool Light is 30 Watts maximum
- One IntelliBrite Spa Light is 18 Watts maximum
- One IntelliBrite Landscape light is 15 Watts maximum
- One MagicStream® Laminar is 16 Watts maximum

Operating ColorCascade® Color Lights Using a Wall Switch

ColorCascade Lights can be controlled using a standard wall-mount light switch or by the IntelliBrite® Controller (see page 3). Multiple ColorCascade lights can be connected via a junction box and 12 VAC transformer to a single switch so that all lights can be switched on and off together. ColorCascade lights are controlled by cycling AC power to the 12 VAC transformer from a standard wall switch. By turning the switch Off and On a specific number of times, the light activates one of the seven light show modes, fixed colors, or enables the “Hold” and “Recall” feature, see page 6.

Powering on the ColorCascade Light

When the ColorCascade light is powered on, the previously selected color is displayed, unless the HOLD or RECALL feature was previously enabled.

Note: *If power to the light is off for more than five (5) seconds, the last color show mode or fixed color that was saved will be displayed.*

Selecting a ColorCascade light show mode or fixed color using a Wall Switch

ColorCascade lights are compatible with IntelliBrite light colors and shows and can be synchronized with IntelliBrite® lights. First switch power on to the light; the previously selected color is displayed, unless the HOLD or RECALL feature was previously enabled.. To select a color show mode (1-7) or fixed color (8-12), turn the wall switch Off/On a specific number of times. Each number (1-17) shown below corresponds to the number of times to power-cycle the switch to activate a color light show or fixed color. For details about saving color effects while in Show modes, see “Hold” and “Recall” feature on page 6.

- | | | |
|---------------------------------------|----|--|
| Number of times to cycle power (1-17) | 1 | SAM Mode: Cycles through white, magenta, blue and green colors (emulates the Pentair SAM® Color Light). |
| | 2 | Party Mode: Rapid color changing building energy and excitement. |
| | 3 | Romance Mode: Slow color transitions creating a mesmerizing and calming effect. |
| | 4 | Caribbean Mode: Transitions between a variety of blues and greens. |
| | 5 | American Mode: Patriotic red, white and blue transition. |
| | 6 | California Sunset Mode: Dramatic transitions of orange, red and magenta tones. |
| | 7 | Royal Mode: Richer, deeper color tones. |
| | 8 | Blue: Fixed color. |
| | 9 | Green: Fixed color. |
| | 10 | Red: Fixed color. |
| | 11 | White: Fixed color. |
| | 12 | Magenta: Fixed color. |
| | 13 | Hold: Save the current color effect during a color light show. |
| | 14 | Recall: Activate the last saved color effect. |
| | 15 | White |
| | 16 | Standard Mode |
| | 17 | IntelliBrite Mode |

Example: To select **California Sunset Mode**; First switch power on to the light; the previously selected color is displayed, unless the HOLD or RECALL feature was previously enabled, then turn the switch off and on six (6) successive times. During the Off/On switching process, no illumination will occur.

NOTE: During the off/on switching process, before the selected color is displayed, no illumination will occur. This operating mode is normal during the switching process. During this period the pool and spa will be dark and precautions should be taken to avoid unforeseen accidents. Failure to observe this warning may result in serious injury or death to pool and spa users.

Random Mode

The ColorCascade® Light has an additional Random Mode. In Random Mode the lights will randomly transition through the same color palette as in IntelliBrite Mode at a similar speed to the IntelliBrite Mode. For an example, IntelliBrite American Mode lights up only in red white and blue and when the IntelliBrite Random Mode is turned on and the light is set to American Mode it will display red, white and blue, but randomly. The speed of the transitions is also tied to the IntelliBrite Mode. Sam Mode will change colors slowly and Party Mode will change more rapidly.

Activating IntelliBrite Random Mode: To toggle IntelliBrite Random Mode On or Off you need to enter Party Mode(Off-On-Off-On), wait until the lights come on and then enter Party Mode a second time (Off-On-Off-On) with less than 30 seconds between them.

Resetting All Lights: To Reset all the lights you need to enter Party Mode four (4) times with less than 30 seconds between them. This will turn IntelliBrite Random Mode OFF. This is needed because should two lights ever get into different states, toggling their states will never fix the problem.

Saving a color mode or fixed color

When power is switched off to the ColorCascade® lights, the last color show mode or fixed color will be saved. The next time the light is powered on, the previously saved color show mode or fixed color will be displayed. For example, while in Party Mode switch the light off. Wait more than 10 seconds, switch the light back on to resume Party Mode.

Operating ColorCascade® Lights in Standard Mode

To access the Standard Mode setting, you must cycle the power to the ColorCascade Light with 16 Off/On sequences. To return to the IntelliBrite Mode, cycle the power Off/On with 17 sequences. By turning the switch Off and On a specific number of times, the light activates one of the three light show modes or locks a chosen color.

Selecting a color light show mode or fixed color

Switch power on to the ColorCascade light. A random color will flash indicating the program you are in, followed by the previously selected program mode. To select a color show mode or fixed color, turn the wall switch off/on a specific number of times. Please review the chart below and follow the power cycle sequence to activate the various show feature effects while in “show” modes.

- 1. Fixed Color:** Turn power off and then on to “Hold” the Light on that specific color (no matter what color show you are in). If you keep the unit on that color for at least five (5) seconds, the ColorCascade light will “save” this color and keep it in that mode until you release it with an additional power off/on sequence. In “Fixed Color” mode the light when powered on, will not flash its program, but immediately go to the “Fixed Color” chosen.
- 2. Color Show Mode:** Turn power off and then on twice (Off/On, Off/On) to cycle through the following three color modes. Turning the power on and off twice (Off/On, Off/On) will continue to cycle through the programs.

Synchronized Mode: All ColorCascade lights on the same circuit will synchronize and cycle on the same colors. When the units are in this mode, when powered up, the light will flash a random color one time and then turn all units on white and then start cycling through the eight colors. The single flash of a random color is the visual confirmation what color show you have activated. The light will stay in this mode each time the system is powered on until a program change is made.

Random Mode: Turn the power on and then off twice (Off/On, Off/On) and the light will cycle to the next program, Random Mode. In this mode each of the ColorCascade lights will cycle together, but in random colors. When this mode is selected, the light will flash twice to indicate it is in random mode and then start up in a random color sequence. If multiple lights are on the same circuit, each light will display different random colors.

Party Mode: Turn the power on and then off twice (Off/On, Off/On) and the light will cycle to the next program, Party Mode. In this mode each of the ColorCascade lights will cycle together, but in random colors and in ever increasing cycle speeds until the last ten seconds at which time the ColorCascade lights will randomly flash different colors at different times. When this mode is selected, the light will flash three times to indicate it is in Party Mode and then start up in a random color sequence. If multiple lights are on the same circuit, each light will display different colors. In the event of a power interruption or power loss and the units become out of sequence, turn the light switch on and then off four times (Off/On, Off/On, Off/On, Off/On). The unit will flash five (5) times then reset all of the lights and start them in Random Mode.

Selecting a ColorCascade® Light show mode or fixed color using an IntelliBrite® Controller

Instead of using a wall switch, ColorCascade Lights can be controlled with the IntelliBrite Controller (P/N 600054, sold separately). The IntelliBrite controller provides complete control of your ColorCascade lights. The IntelliBrite controller can control individual or multiple 12 VAC transformers to control ColorCascade lights. Multiple ColorCascade lights can be connected via a junction box to the Controller so that all lights can be switched on and off together. The IntelliBrite controller can also control multiple ColorCascade and IntelliBrite lights.

Note: For IntelliBrite controller wiring instructions, see page 17.



IntelliBrite® Controller

Using the IntelliBrite Controller: ColorCascade lights are compatible with IntelliBrite colors and shows and can be synchronized with IntelliBrite color pool/spa and landscape lights. To select a color light show mode or fixed color mode, rotate the dial so that it points to the desired selection. The color mode selections start in a clockwise direction from the 9 o'clock position.

Hold and Recall Feature

Note: When ColorCascade lights are powered on, the previously selected color is displayed, unless the HOLD or RECALL feature was previously enabled.

Hold button/LED: Press this button (LED on) to capture and save a color effect while displaying one of the light show modes. When the button is pressed, the LED will be on, indicating that the color effect is captured.

Recall Button/LED: Use this button (LED on) to activate the last saved color effect. When the button is pressed, the LED will be on, indicating that the color effect is being displayed.

Activating IntelliBrite Random Mode: To toggle IntelliBrite Random Mode On or Off you need to enter Party Mode, wait until the lights come on turn the dial one notch and then enter Party Mode a second time with less than 30 seconds between them.

Resetting All Lights: To Reset all the lights you need to enter Party Mode four (4) times with less than 30 seconds between them. This will turn IntelliBrite Random Mode OFF. This is needed because should two lights ever get into different states, toggling their states will never fix the problem.

There are two ways to issue the commands with an IntelliBrite controller. You can switch to Party Mode and then turn the lights on and off using the Green button the desired number of times or you can switch back and forth between Party Mode and Sam Mode the desired number of times. Both methods require you to wait until the lights come back on before repeating the procedure. If the lights are not within sight of the controller, waiting 10 seconds between each change also works.

INSTALLING COLORCASCADE® LIGHT FIXTURE (NEW POOL CONSTRUCTION)

The following describes how to install the ColorCascade Light fixture.

BEFORE STARTING: The following instructions must be completed by the electrician before the ColorCascade light fixture is installed.

WARNING

Be sure that the pool or spa meets the requirements of the current National Electrical Code (NEC) Article 680-22 and all local codes and ordinances. A licensed or certified electrician must install the electrical system to meet or exceed those requirements before the underwater light is installed. Some of the requirements of the National Electrical Code which the pool's electrical system must meet are as follows:

- The lighting circuit has a Ground Fault Circuit Interrupter (GFCI) for 120 VAC line voltage models, and has an appropriately rated circuit breaker. The conductors on the load side of the GFCI circuit shall not occupy conduit, boxes, or enclosures containing other conductors unless the additional conductors are also protected by a GFCI. Refer to local codes for complete details.
- The Junction Box and the low voltage transformer is located at least eight (8) inches (20.3 cm) above ground level and at least 48 inches (1.219 m) from the edge of the pool; see Figure 2 on page 8.
- To be certain that the pool or spa electrical system meets all applicable requirements, the electrician should also consult the local building department.

INSTALLING THE COLORCASCADE® LIGHT NICHE (AFTER ELECTRICAL REQUIREMENTS ARE MET)

Note: The pool or spa electrical system can be verified with a Pool and Spa Electrical Qualification Test Kit. The test kit is available from Pentair Aquatic Systems. The electrical system inspection using this kit must be performed by trained and certified personnel. To be certain that the pool or spa electrical system meets all current applicable requirements, the electrician should also consult the local building department. Use only Pentair Aquatic Systems wet niches to ensure proper bonding and grounding connections.

Determine a location for the ColorCascade® Light

- The ColorCascade Light should be located at least 2-1/2 feet from any walls or other ColorCascade lights (bubblers).
- The ColorCascade light should be installed in water depths between 2" and 10'.
- The ColorCascade light is designed to be installed flush with the pool finish.
- The ColorCascade light niche is designed for 1-1/2" PVC pipe for the water supply and 1" conduit for the light cable.

Note: For pressure testing the water line, use an expandable plug (see Figure 1), plug not included.

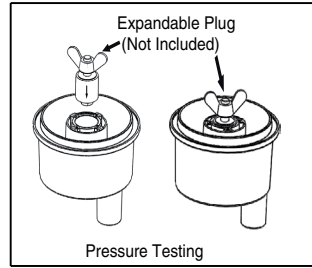


Figure 1

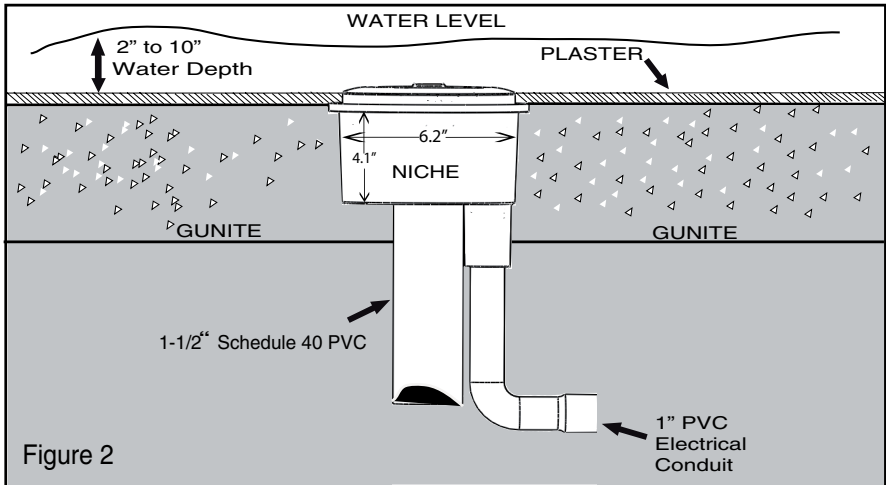


Figure 2

Note: Prepare the end of the ColorCascade light power cable and install to the 12 VAC output wires of an approved transformer (if you are using longer runs of cables or multiple lights per transformer, it is recommended to use the 13 VAC or even the 14 VAC

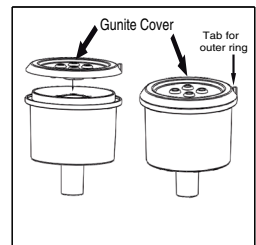


Figure 3

1. Install the ColorCascade light niche in the pool or spa floor as shown in Figure 2.
2. Snap on the gunite cover over the top of the niche (shown above). This will protect the light cavity of the niche during installation. Note: If a gunite cover is not available, use masking tape to protect niche cavity from plaster operation.

3. Set the niche in gunite as per current local building codes.
4. Remove the outer edge of the gunite cover by pulling the tap and exposing the niche plaster ring.
5. Apply plaster up to the outer edge of the gunite cover. The gunite cover should be the only exposed part of the niche after plastering, see Figure 2 on page 8.
6. After the plastering has been completed, remove and dispose of the gunite cover. Retain the screws to fasten the light assembly into the niche.



⚠ DANGER



D A N G E R !

RISK OF ELECTRICAL SHOCK OR ELECTROCUTION

Always disconnect power to the pool light at the circuit breaker before servicing the light. Failure to do so could result in death or serious injury to installer, serviceman, pool users, or others due to electrical shock.

1. Turn off main electrical switch or circuit breaker.
2. Feed cord through Niche and then through conduit to Junction Box or 12 Volt AC Transformer. The ColorCascade® Light has no serviceable parts, so leave approximately 12 to 18 inches of cord to allow the light to be easily removed if replacement is required.



NOTE: This is a 12 Volt AC system ONLY. An approved 12 VAC transformer (sold separately) must be used. If a Junction Box is used, it would be for 12 VAC connections. Never wire the ColorCascade light directly to high voltage lines.

3. Cut the cord at the Junction Box or 12 VAC transformer, leaving at least six (6) inches of cord to make connections.
4. Strip back three (3) inches of the outer cord jacket to expose the two insulated wires (be careful not to damage the insulation on the two (2) inner wires).
5. Connect both (2) wires to the corresponding circuit wires in the Junction Box or 12 Volt AC Transformer and secure the Junction Box cover in place.
6. Install the ColorCascade light assembly into the ColorCascade light niche and tighten the four screws provided.
7. Install the desired eyeball fitting included with the light assembly (See Eyeball Instructions on page 20) by firmly pressing it into the center hole. Be sure it is pressed all the way down to provide a smooth transition. Adjust the eyeball for proper water direction.
8. Fill the pool until the underwater light is completely submerged in water before operating the light for more than ten (10) seconds. To check for proper operation, switch on the main switch or circuit breaker, as well as the switch which operates the ColorCascade light itself.

REPLACING THE COLORCASCADE® LIGHT ASSEMBLY (IN AN EXISTING POOL OR SPA)

DANGER



Risk of Electrical Shock or Electrocution!

This underwater light must be installed by a licensed or certified electrician or a qualified pool professional in accordance with the current National Electrical Code (NEC), NFPA 70 or the Canadian Electrical Code (CEC), CSA C22.1 and all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock, and may also cause damage to property.

Always disconnect the power to the pool light at the circuit breaker before servicing the light. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electrical shock.

Verify that the pool and spa meets the requirements of the current National Electrical Code and all local codes and ordinances. A licensed or certified electrician must install the electrical system to meet or exceed those requirements before the underwater light is installed. Some of the requirements of the National Electrical Code which the pool's electrical system must meet are as follows:

- The lighting circuit has a Ground Fault Circuit Interrupter (GFCI) for line voltage models, and has an appropriately rated circuit breaker.
- The Junction Box (low voltage transformer) is located at least eight (8) inches (20.3 cm) above ground level and at least 48 inches (1.219 m) from the edge of the pool.
- To be certain that the pool's electrical system meets all applicable requirements, the electrician should also consult the local building department.



REPLACING THE COLORCASCADE® LIGHT ASSEMBLY (AFTER ELECTRICAL REQUIREMENTS ARE MET)

The following removal and installation instructions describe how to remove and install the ColorCascade Light assembly. Also use these instructions after completing the following light replacement procedure.

WARNING

Failure to bring the pool or spa's electrical system up to code requirements before installing the underwater light will create an electrical hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

1. **Switch off electrical switch or circuit breaker at the source.**
2. Remove Junction Box or Transformer cover. Disconnect the light wires and attach a fish tape to the existing light power cord. This will assist in pulling the replacement light power cord through the conduit back to the junction box.
3. Remove the ColorCascade light assembly from the pool or spa water:
4. Slowly pull the light and attached power cord (with attached fish tape) out of the niche. Pull the light's power cord and fish tape out of the niche and place the light on the deck.
5. Attach the new light power cord to the fish tape and carefully feed the fish tape and cable to the junction box.
6. Feed cord through Niche and then through conduit to Junction Box or 12 Volt AC Transformer. The ColorCascade light has no serviceable parts, so leave approximately 12 to 18 inches of cord to allow the light to be easily removed if replacement is required.
7. Cut the cord at the Junction Box or 12 volt AC transformer, leaving at least six (6) inches of cord to make connections.
8. Strip back three (3) inches of the outer cord jacket to expose the two insulated wires (be careful not to damage the insulation on the two (2) inner wires).
9. Connect both (2) wires to the corresponding circuit wires in the Junction Box or 12 Volt AC Transformer and secure the Junction Box cover in place.
10. Install the ColorCascade light assembly into the niche and tighten the four screws provided.
11. Install the return line fitting included with the light assembly by firmly pressing it into the center hole. Make sure it is pressed all the way down to provide a smooth transition. Adjust the ball for proper water direction.
12. Fill the pool until the underwater light is completely submerged in water before operating the light for more than ten (10) seconds. To check for proper operation, switch on the main switch or circuit breaker, as well as the switch which operates the ColorCascade light itself. *Proceed to next page for light installation instructions.* **Note:** *The ColorCascade light should not be powered for more than 30 sec if is not submersed in water.*

CONNECTING COLORCASCADE® LIGHTS TO THE AUTOMATION CONTROL SYSTEM

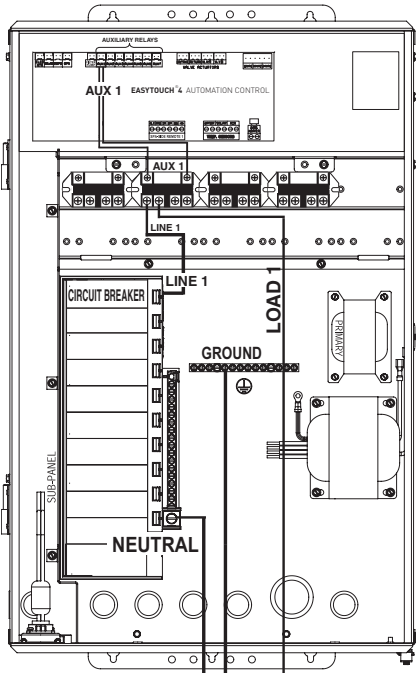
 **DANGER**

D A N G E R !

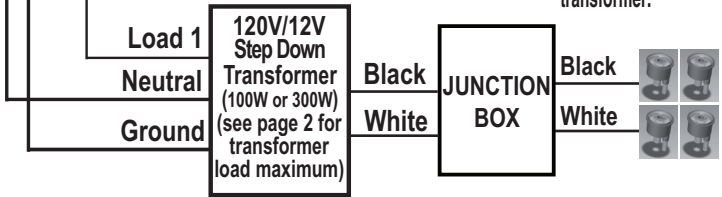
RISK OF ELECTRICAL SHOCK OR ELECTROCUTION

Always disconnect AC power to EasyTouch® and IntelliTouch® Control System load center at the circuit breaker before servicing, or removing the **HIGH VOLTAGE FRONT PANEL**. Failure to do so could result in death or serious injury to installer, service person, pool users, or others due to electrical shock.

1. **Load Center:** Unlatch the enclosure door spring latch, and open the door.
2. **Discharge Electrostatic energy before removing the cover by first touching the metal part of the enclosure.**
3. Loosen the two (2) retaining screws from the HIGH VOLTAGE FRONT PANEL. Remove the panel from the enclosure.
4. Connect the 120 Volt side of a 12 VAC transformer to the LOAD SIDE of one of the auxiliary (AUX) relays in the load center.
5. Connect the Neutral conductor from the 12 VAC transformer to the Neutral bus bar in the load center.
6. After the connection has been completed, close the control panel and secure it with the two (2) retaining screws.
7. Close the load center front door. Fasten the spring latch.

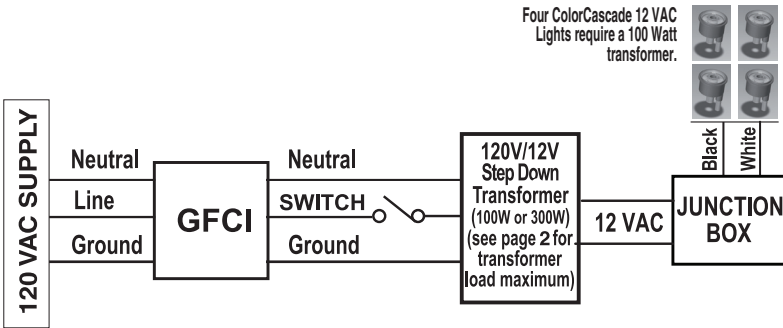


Load Center



Four ColorCascade 12 VAC Lights require a 100 Watt transformer.

ColorCascade® Light to EasyTouch or IntelliTouch Control System Load Center Wiring Connection Diagram



Four ColorCascade 12 VAC Lights require a 100 Watt transformer.

ColorCascade Light Standard Wiring Connection Diagram

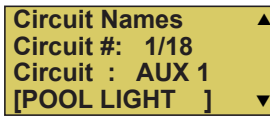
SETTING UP COLORCASCADE® LIGHTS WITH THE AUTOMATION CONTROL SYSTEM

EasyTouch® Control System

The following describes how to setup the ColorCascade Light from the EasyTouch Control System indoor control panel or wireless control panel. From the EasyTouch control system control panel you can control the light shows.

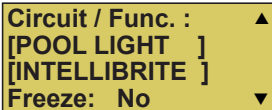
To set up a ColorCascade light circuit; assign the “Light Circuit Name” to the relay circuit (example; AUX 3, as “Pool Light”) and “Function”: assign the name “Pool Light” circuit in the Circuit Func menu as a “light” circuit (IntelliBrite). After assigning the circuit name and function, the light circuit name “Pool Light” can be setup in the CONFIG menu for light position, color etc.

To assign a Circuit Name go to: MENU > SETTINGS > CIRCUIT NAMES



1. Press the **Up/Down button** to select a circuit number 1/18. Press the Up button two times to select **AUX 1** to choose this circuit for a light circuit On/Off button. The circuit number (1/18) corresponds to its assigned circuit name.
2. Press the **Up/Down button** to scroll through the list of preset names. Select a name such as “Pool Light.” AUX 1 has now been assigned the circuit name “Pool Light.”

To assign a Circuit Function go to: MENU > SETTINGS > CIRCUIT FUNC.



3. Press the Menu button to return to the Settings menu. Press the Down button to and select “Circuit Func.” Press the Right button to access the Circuit Func. menu.
4. Press the **Up/Down button** to select the already assigned circuit name “Pool Light.”
5. Press the **Right button** to view “Circuit Functions” to assign to light circuit “Pool Light.”
6. Press the **Up/Down button** to select the type of light circuit function to use. Select “INTELLIBRITE” for the ColorCascade light circuit function.
7. Press the Menu button three times to return to the main screen.

Operating the ColorCascade lights: The ColorCascade light is ready to operate using the EasyTouch control panel button 1 (auxiliary 1 circuit). To access the Lights menu screen (*special Light Features*), press **Menu > Lights**. The Lights menu settings are: MODES, COLORS, ALL ON, ALL OFF, SYNC, MAGICSTREAM, CONFIG: From the Modes screen you can control the color light shows. To access the Modes menu, press Menu > Lights > Modes. See page 3 for ColorCascade color shows.

IntelliTouch® Control System

The following describes how to setup the ColorCascade® Light from the IntelliTouch Control System control panel. From the IntelliTouch control system control panel you can control the light shows. To access the ColorCascade light screens, from the IntelliTouch control system indoor control panel or the wireless MobileTouch® Remote Control Panel.

Assigning a Circuit Name

To identify the ColorCascade light connected to the auxiliary circuits (AUX 1, AUX 2) in the IntelliTouch control system load center, you need to assign the ColorCascade light circuit name to the corresponding auxiliary circuits in the IntelliTouch control system indoor control panel. Choose a circuit name from the preset list of names for the ColorCascade light connected to the auxiliary relay installed in the IntelliTouch load control system center.

Assigning a Circuit Name for the ColorCascade Light: To assign a Circuit Name for the ColorCascade light, go to: **MENU > SETUP > ADVANCED > CIRCUIT NAMES > ASSIGN CIRCUIT NAMES > DISPLAY.**

Selecting DISPLAY Screen 1, 2, 3, or 4: The auxiliary circuits that control the pool and spa equipment can be accessed from the “Display” screen on the Indoor Control Panel or MobileTouch wireless control panel. Selecting the button next to Display 1, 2, 3, or 4 displays the screen with circuits belonging to that particular expansion Load Center or Power Center. “Feature Circuits” can also be assigned from this screen.

To assign circuit names for a specific display screen:

Display #1 - This screen shows circuit names for the filter pump, pool and spa modes, and all high voltage auxiliary circuits connected to the main Load Center or Power Center. **Display #2** - This screen shows circuit names for the additional auxiliary circuits connected to the first expansion center (Load Center or Power Center).

Display #3 - This screen shows circuit names for the additional auxiliary circuits connected to the second expansion center (Load Center or Power Center)

Display #4 - This screen shows circuit names for the additional auxiliary circuits connected to the third expansion center (Load Center or Power Center).

To assign a ColorCascade light circuit name for the MAIN SCREEN:

1. Select the button next to Display #1. These are the circuit names that will be displayed on the Main Screen. Note: If there is an expansion Load Center or Power Center installed, select the appropriate Display #2, #3, or #4 associated with that expansion Load Center or Power Center.
2. From the Main Display screen, press the button next to AUX 1. A small arrow pointing to AUX 1 is displayed.
3. Use the Up and Down buttons at the bottom of the screen to scroll through the alphabetical list of preset equipment names. Choose the equipment name that matches the label name for button number 1 on the Load Center Outdoor Control Panel.
4. Continue to name other auxiliary circuits (AUX2, AUX3, etc.): After selecting the equipment name you want to use for AUX 1, press the button next to the AUX 2 and choose a circuit name. The small arrow indicates which circuit is selected for naming.
5. Repeat the process to assign the other equipment to circuits on this screen.
6. When you have finished assigning equipment circuit names, press the Save button. Press the Exit button to return to the Main screen.
7. **CONTINUE TO NEXT PAGE to set up the ColorCascade light “Function Circuit.”**

Set up a ColorCascade® Light Circuit Function

To setup an AUX circuit to control the ColorCascade Light, assign the circuit light function an auxiliary relay circuit (AUX 1), then assign the circuit name for that light circuit. The light circuit name will appear on the main screen. Each ColorCascade light must also be assigned a circuit function. **To assign a Circuit Name for the ColorCascade light, go to: MENU > SETUP > ADVANCED > CIRCUIT FUNCTIONS**

Setup a ColorCascade light function circuit: Assign each light auxiliary relay circuit a circuit name, then assign that light relay circuit in the “CIRCUIT FUNCTIONS” section, as “INTELLIBRITE.” To setup the ColorCascade light circuit function (use the “IntelliBrite” circuit name):

1. Press the button next to the AUX button (the relay auxiliary circuit connected to the ColorCascade (IntelliBrite) light).
2. Press the right or left side (PREV/NEXT) button next to “INTELLIBRITE.” Scroll through the circuit functions until “INTELLIBRITE” is displayed.
3. Press the SAVE button on the bottom of the screen. Press the EXIT button to return to the main screen.

Assign the ColorCascade light circuit to the Lights screen:

4. Press the Lights button on the bottom of the screen.
5. Press the right side button next to “CONFIGURE.”
6. Press the button next to “NONE” to assign an IntelliBrite light circuit to the selected button. Light names can be setup to display on the left side for “Spa” features and on the right side for the “Pool” features.
7. Press the top left or right side button to scroll through the available light circuits which can be used for the ColorCascade (IntelliBrite) lighting features. Select at the circuit name you wish to use. The displayed circuit names are circuit names that were previously assigned when assigning a circuit function.

Operating and Selecting ColorCascade (IntelliBrite) Color Modes

From the “Modes” screen you can select various preset show color lighting effects, such as “American mode” and “Sunset mode,” and SAm Style (an emulation of the SAm color scheme). Using the “Hold” and “Recall” feature you can also capture and save a unique color effect to recall at a later time.

Modes screen: To access the IntelliBrite color show “Modes” features from the Lights screen, press the Lights button on the bottom of the screen, then press the left side button next to “MODES.”

Special Light Features: Up to twelve (12) IntelliBrite light circuits can be displayed on the main Lights screen (special light features). From the Lights screen you can activate the IntelliBrite lighting features (i.e., color swim, color set). Assuming each ColorCascade (IntelliBrite) light has its own relay and separate circuit.

Activating IntelliBrite Random Mode: To toggle IntelliBrite Random Mode On or Off you need to enter Party Mode(Off-On-Off-On), wait until the lights come on and then enter Party Mode a second time (Off-On-Off-On) with less than 30 seconds between them.

Resetting All Lights: To Reset all the lights you need to enter Party Mode four (4) times with less than 30 seconds between them. This will turn IntelliBrite Random Mode OFF. This is needed because should two lights ever get into different states, toggling their states will never fix the problem.

CONNECTING COLORCASCADE® LIGHT TO AN INTELLIBRITE® CONTROLLER

⚠ DANGER



RISK OF ELECTRICAL SHOCK OR ELECTROCUTION

TURN power OFF at circuit breaker -

Always disconnect power to the pool light at the circuit breaker before servicing the light. Failure to do so could result in death or serious injury to installer, service person, pool users, or others due to electrical shock.

To wire multiple 12 Volt ColorCascade Lights to an IntelliBrite Controller:
12 VAC ColorCascade and IntelliBrite Lights

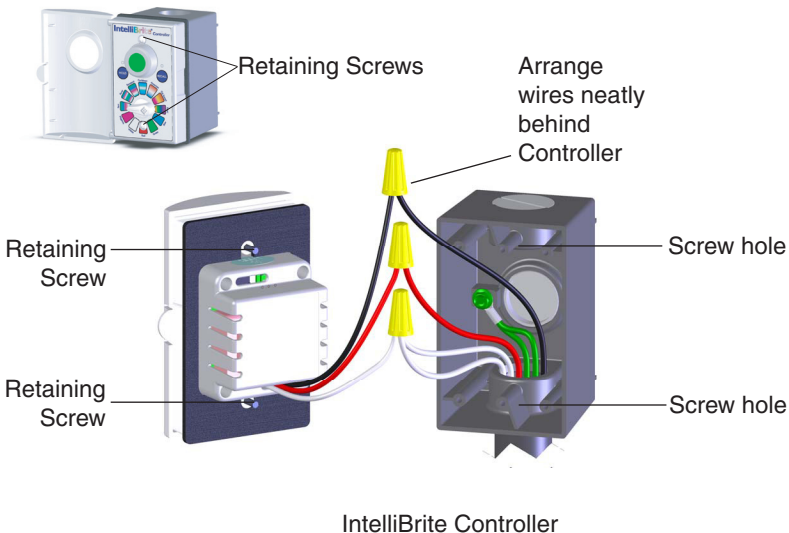
IMPORTANT! When installing 12 VAC ColorCascade lights, connect the lights to the **secondary 12 VAC output** of the step down transformer, then connect the IntelliBrite controller to the **120 VAC primary input** of the step down transformer.

Installing the IntelliBrite Controller in the Outlet box

The IntelliBrite Controller mounts onto a standard outlet box (22.5 cubic inches minimum). After wiring the IntelliBrite Controller, check all wiring connections before mounting the controller into the outlet box.

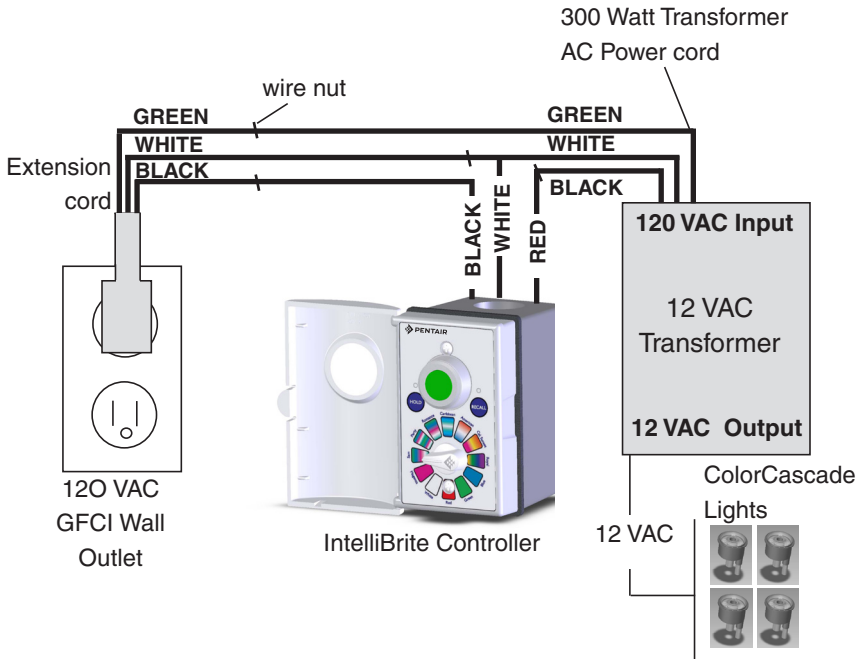
To install the IntelliBrite Controller:

1. Neatly arrange the wires in the back of the outlet box.
2. Align the Controller with the screw holes of the outlet box. Secure the Controller to the outlet box with the two (2) retaining screws.
3. Close the front door of the Controller.



Wiring ColorCascade® Lights to IntelliBrite® Controller and 300 Watt Transformer

The following diagram shows how to connect ColorCascade Lights to an IntelliBrite Controller using a 300 Watt transformer. Note: For ColorCascade light operating instructions, see page 3.



Troubleshooting (ColorCascade Light)

<p>The light will not illuminate.</p> <p>Light does not function properly.</p>	<p>Check the GFCI ground fault wiring and reset if necessary.</p> <p>Check the light wiring connection to the junction box at the pool side and to the AC power switch.</p> <p>Be sure that there is proper AC power applied to the light.</p>

Troubleshooting (IntelliBrite® Controller)

<p>Both of the LEDs are flashing.</p>	<p>The IntelliBrite Controller has detected that the load has exceeded the maximum allowable wattage or the output is shorted out</p> <ol style="list-style-type: none"> 1. Switch off the IntelliBrite Controller OFF. Remove excessive load or short. 2. Press the IntelliBrite Controller power switch to power on the unit. Ensure that the LEDs are no longer flashing.
<p>The light will not illuminate.</p> <p>Light does not function properly.</p>	<p>Check the ground fault wiring and reset if necessary.</p> <p>Check the light wiring connection to the junction box at the pool side and to the main circuit breaker.</p> <p>Be sure that there is proper AC power applied to the light.</p>

APPENDIX

ACCESSORIES BAG ASSEMBLY INSTRUCTIONS

ColorCascade® Light Accessories Bag Assembly Contents

- Four mounting screws
- One eyeball housing
- One ¾" eyeball
- One ½" eyeball
- Extended nozzle



It is recommended as an initial setup to use the ¾" eyeball. However, you should use the eyeball size that better suits the flow rate, water depth, and desired plume height. To increase the plume height, use the smaller eyeball.

Eyeball Assembly Installation and Replacement Instructions

Eyeball Installation

To install the eyeball assembly

1. Insert the eyeball perpendicular into the eyeball housing opening.
2. Rotate to center the eyeball into the eyeball housing.



Eyeball Replacement

To replace the eyeball assembly

1. Rotate the eyeball, and align it to the eyeball housing opening.
2. Pull the eyeball out of the housing.
3. Insert the alternate size eyeball perpendicular, into the housing opening.
4. Rotate and center the eyeball into the eyeball housing.



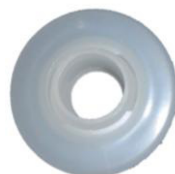
COLORCASCADE® LIGHT EXTENDED NOZZLE INSTALLATION INSTRUCTIONS

The flexible nozzle is recommended in cases where the plume from the ColorCascade Light tends to swirl around. The swirling effect is usually caused by a wave action in the body of water. This flexible nozzle is designed to protect the jet water as it reaches the surface and protects it from the wave action.

Eyeball Replacement

To replace the eyeball assembly

1. Insert the $\frac{3}{4}$ " eyeball into the eyeball housing.
2. Pull the rubber nozzle through the eyeball until it locks in place.



3. Insert the fitting with the nozzle into the niche.

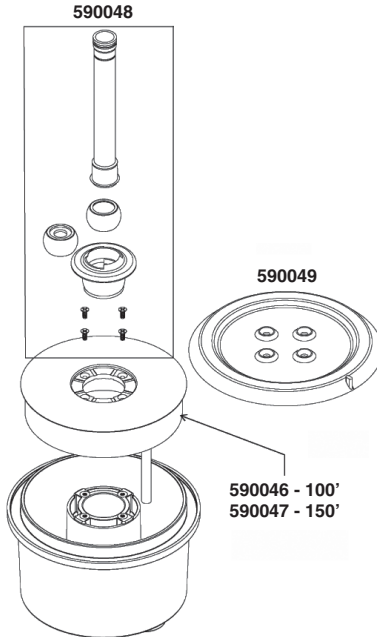
Note: It is recommended to custom cut the flexible nozzle once it is installed into the pool. Start off by cutting 1" at a time until you get the desired plume and the swirling has stopped. The flexible nozzle is directional so it can be adjusted for proper water flow to the surface.



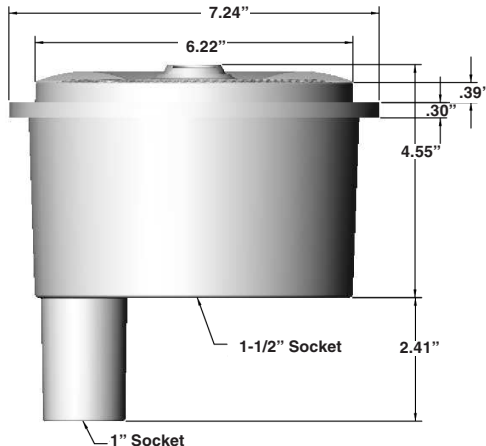
COLORCASCADE® LIGHT REPLACEMENT PARTS

ColorCascade Light (Bubbler) Replacement Parts List

- | | | |
|----|--------|---|
| 1. | 590046 | LED Bubbler replacement light engine with 100' cord |
| 2. | 590047 | LED Bubbler replacement light engine with 150' cord |
| 3. | 590048 | Accessory Kit |



ColorCascade Light Niche Dimensions



ColorCascade® Light Water Depth and Plume Height Chart

	WATER DEPTH									
	2"		4"		6"		8"		10"	
	PLUME HEIGHT*									
	Nozzle Diameter									
GPM	1/2"	3/4"	1/2"	3/4"	1/2"	3/4"	1/2"	3/4"	1/2"	3/4"
15		12"	24"	8"	17"	7"	12"	5"	9"	4"
20		20"		13"		12"	19"	7"	15"	6"
25				21"		15"		10"	24"	8"
30						23"		15"		12"
35								17"		14"
40								21"		17"
45										20"

Plume height data should only be used as a reference, actual plume height may vary based upon a variety of circumstances including but not limited to system plumbing and water conditions.



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