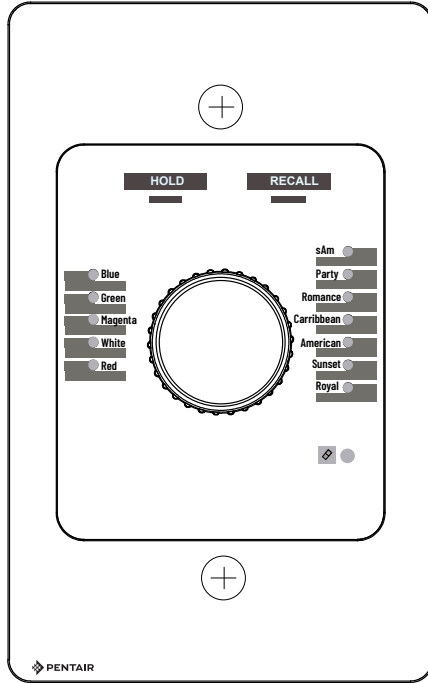




# COLOR SYNC™ CONTROLLER FOR PENTAIR COLOR LED POOL LIGHTS



## INSTALLATION GUIDE

## WARNINGS AND IMPORTANT SAFETY PRECAUTIONS

### NOTICE

### IMPORTANT!



**Attention Installer:** This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

### ⚠ DANGER

**IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS. READ AND FOLLOW ALL INSTRUCTIONS.**



### ⚠ WARNING

**DANGER! RISK OF ELECTRIC SHOCK, WHICH CAN RESULT IN SERIOUS INJURY OR DEATH.** Before attempting installation or service, ensure that all power to the circuit supplying power to the system is disconnected/turned off at the circuit breaker.

Grounding (earth bonding) is required. The Color Sync Controller should be installed by a qualified professional and grounded.

### ⚠ CAUTION

**Read Safety Precautions and Important Instructions. Before attempting any electrical wiring, be sure to read and follow Safety Instructions. Wiring should only be performed by a qualified professional.**

Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions.

### ⚠ CAUTION

**For Installation of Electrical Controls at Equipment Pad (ON/OFF Switches, Timers and Automation Load Center)**



Install all electrical controls at equipment pad, such as on/off switches, timers, and control systems, etc. to allow the operation (startup, shut-down, or servicing) of any pump or filter so the user does not place any portion of his/her body over or near the pump strainer lid, filter lid or valve closures. This installation should allow the user enough space to stand clear of the filter and pump during system start-up, shut down or servicing of the system filter.

## WARNINGS AND IMPORTANT SAFETY PRECAUTIONS

### General Installation Information

1. All work must be performed by a licensed electrician or qualified pool professional, and must conform to all national, state, and local codes.
2. Install to provide drainage of compartment for electrical components.
3. This equipment is not provided with integral Ground Fault Circuit Interruptors (GFCI) protection. When this equipment is used to power or switch an underwater luminaire, suitable GFCI protection shall be provided in the field. Luminaire circuit conductors shall not occupy the conduit, boxes or enclosures with other circuits unless the other circuits are also GFCI protected.
4. The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with 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. The disconnecting means must be readily accessible to the tub occupant but installed at least 10 ft. (3.05 m) from the inside wall of the pool.

## WARNINGS AND IMPORTANT SAFETY PRECAUTIONS

FCC Standard - 47 CFR Part 15, Subpart C (Section 15.247). This version is limited to chapter 1 to chapter 11 by specified firmware controlled in the U.S.A.

Instruction to user - This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the user's authority to operate this equipment.

Canada - Industry Canada (IC) Regulatory Notice: - This device complies with RSS210 of Industry Canada. (1999).

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication. This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure Requirements: The antenna(s) used for this device must be installed to provide a separation distance of at least 7.0 inches (20 cm) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

L'antenne (s) utilisé pour cet appareil doit être installé pour fournir une distance de séparation d'au moins (20 cm) à partir de toutes les personnes et ne doit pas être co-localisés ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.

## WARNINGS AND IMPORTANT SAFETY PRECAUTIONS

Be sure the pool electrical system conforms with all requirements of the National Electrical Code (NEC), and all local codes and ordinances. A licensed or certified electrician must install the electrical system to meet or exceed those requirements before the Color Sync™ Controller is installed. The electrician should also consult the local building department regarding local codes. Some of the NEC requirements are listed below:

- The Controller must be installed by a qualified electrician, according to the National Electrical Code (including article 680) or Canadian Electrical Code (including section 68) and, local code requirements. For Canadian installations, supply circuit must be protected by a ground fault circuit interrupter.
- The Controller must be provided with a fail-proof ground as required by NEC, Article 680 and any applicable local codes. For Canadian installations, the supply circuit must be protected by a ground fault circuit interrupter.
- Do not install the Controller within 5 feet (3 meters for Canadian installations) of any body of water. **USE COPPER CONDUCTORS ONLY.**
- The Controller should be mounted at least 1 foot above the water and ground level.
- Do not exceed the maximum ratings of individual components, wiring devices, and current carrying capacity of conductors.
- For grounding and bonding the Controller and the installation, refer to section 680 of the National Electrical Code or section 68 of the Canadian Electrical Code.
- The lighting circuit must have a Ground Fault Circuit Interrupter (GFCI), and an appropriately rated circuit breaker.
- The light fixture and all metal items within five (5) feet of the pool must be properly electrically bonded.
- The Controller must be properly electrically bonded and grounded.
- Do not submerge the Controller.
- Do not connect two or more Controllers together.

**Customer Service and Technical Support, USA**

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**Moorpark, California** (8 AM - 5.30 PM PT)

Phone: (805) 553-5000 (Ext. 5591)

Fax: (805) 553-5515

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**Contents**

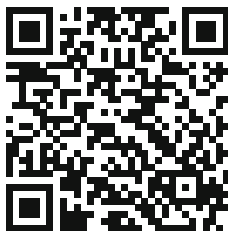
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|  |     |
|--|-----|
| Warnings and Important Safety Precautions .....                                      | 2-5 |
| Overview / Features .....  | 7   |
| Color Sync Controller Controls and Buttons .....                                     | 8   |
| Color Sync Controller Power (Wattage)<br>and Maximum Number of Connected Lights..... | 8   |
| Outlet Box Location / Specifications .....   | 9   |
| Installing the Outlet box .....  | 10  |
| Wiring Lights to the Color Sync Controller.....                                      | 11  |
| Wiring Lights to the Color Sync Controller<br>using a 300 Watt Transformer.....      | 12  |
| Mounting the Controller into the Outlet Box .....                                    | 13  |
| Color Sync Controller Mounting Kit<br>Replacement .....                              | 14  |
| Troubleshooting the Color Sync Controller.....                                       | 16  |
| Color Sync Controller Dimensions.....  | 18  |

**Download the free Pentair Home App:**

**Apple® (iOS® 11 or later).** Scan the bar code or go to the Apple Store to download the Pentair Home app.

**Android® (v6.6 or later) smart devices.** Scan the bar code or go to the Google Store to download the Pentair Home app.



## Overview

The Color Sync™ Controller gives you complete control of Pentair pool, spa and landscape lights. It's easy to select a lighting feature, just dial in any one of the pre-programmed color light shows or fixed colors. Using the Hold and Recall feature you can also create endless unique lighting effects. The Color Sync™ Controller can control individual or multiple Pentair color/white LED lights, which are connected via a junction box to the controller so that all lights can be switched on and off together.

## Features

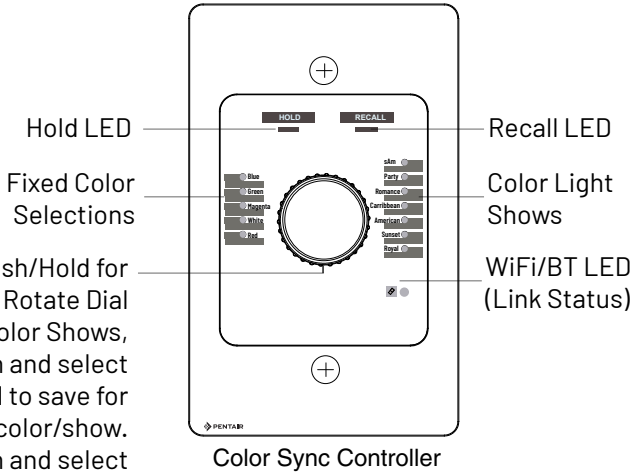
- Operating Voltage 120 VAC 60 Hz
- Power Rating 240 W continuous usage
- Wire Size: 12 AWG maximum
- UL/CSA listing
- UL/CSA type gang box
- Bluetooth® wireless technology pairing
- WiFi connection/communication
- Storage Temperature: 14°F to 185°F [-10°C to 85°C]
- Ambient Operating Temperature: 14°F to 149°F [-10°C to 65°C]  
Environment: Outdoor rated (Must use provided gasket and wet location rated outlet junction box end bracket)

For online Color Sync manuals, visit [www.pentair.com](http://www.pentair.com)

- Color Sync Quick Start Guide (P/N 618032)
- Color Sync Pentair Home App User's Guide (P/N 618033)
- Color Sync Installation Guide (P/N 618034). This manual

## Color Sync™ Controller Controls and Buttons

Pentair Color Sync™ Controller controls, buttons and LEDs:



## Color Sync™ Controller Power (Wattage) and Maximum Number of Connected Lights

| Color LED Light Type   | Wattage Per Light | Maximum Recommended Number of Lights (240W Continuous) |
|------------------------|-------------------|--|
| MicroBrite® Color      | 14 W              | 17   |
| IntelliBrite® 5G Color | 26 W              | 9  |
| GloBrite® Color        | 15 W              | 16   |

**Note:** The Color Sync controller is not designed to use incandescent lights. Be sure the total electrical load of the controller does NOT exceed 240 Watts. See Table above and page 11 for more information.



## COLOR SYNC™ CONTROLLER AND OUTLET BOX INSTALLATION

### Outlet Box Location

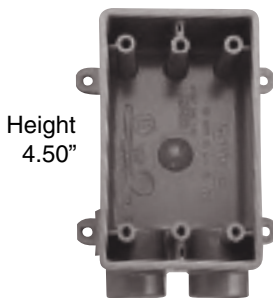
Before installing the Color Sync Controller, read the following guidelines carefully:

1. Before permanent installation, test the 2.4 GHz WiFi signal strength at the location where the controller will be mounted (refer to "Testing WiFi Signal Strength" in the Color Sync Pentair Home App User's Guide). The controller operates on 2.4 GHz. **Note: Be sure the home network router supports 2.4 GHz. Dual Band routers are supported.**
2. If possible, minimize the number and volume of obstacles that may block the wireless signal to the enclosure.
3. Before choosing the final location for the controller, consider the length of all AC power wires that will need to be connected to the unit.
4. Mount the unit on a flat vertical surface with unobstructed access to the front of the unit. The unit can be mounted inside your house, outside or inside of a pool equipment shed or other enclosures.
5. All electrical equipment, except for UL Listed spa-side remote switches, must be installed no fewer than 5 ft. (1.5 m). For Canada, 3 m (9.75 ft.) from the pool and/or spa. Comply with all national state, and local code
6. CAUTION: Install the controller in a location to allow enough space at the equipment pad to stand clear of the filter and pump during system start-up.

### Outlet Box Specifications (purchased separately)

The Color Sync Controller requires a standard outlet box which is purchased separately. The outlet box must meet the following specifications:

- Outlet box type: **22.5 cubic inches (minimum)** - Suitable for wet locations with UL/CSA approval listings. Check the inside of outlet box for specification label.
- A minimum of one 3/4" conduit inlet.



Height  
4.50"

Width 2.75" Depth 1.60"

Outlet Box

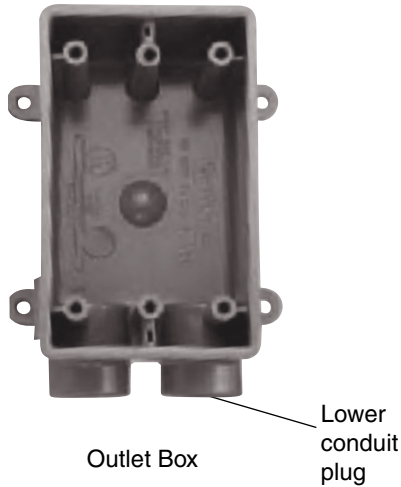
## Installing the Outlet box

To install the outlet box:

1. Position the controller and outlet box to meet National Electrical Code requirements, and to prevent hazard to personnel.
2. Run conduit from the pool/spa light niche to the junction box.

**Note:** *The outlet box must be located a minimum distance of five (5) feet measured horizontally from the inside wall of the pool and not less than one (1) foot above the maximum pool water level measured to the top of the outlet box.*

3. Remove the lower conduit plug from the outlet box.
4. Mount the outlet box onto the conduit.



## WIRING LIGHTS TO THE COLOR SYNC™ CONTROLLER

### WARNING

**300 Watts Maximum Load.** The total allowable light wattage is **300 Watts** maximum. Loading above 300 W will cause permanent damage to the Color Sync Controller and may render it permanently inoperable.

**IMPORTANT! RECOMMENDED 80% LOADING AT 240 WATTS IS THE PREFERRED MAXIMUM LOAD PERMISSIBLE FOR CONTINUOUS OPERATION.**

### WARNING

The Color Sync Controller is a 120 VAC device, **DO NOT** connect 12 VAC Pentair Color LED lights directly to the Color Sync Controller, use an appropriate step down transformer between the controller and lights.

### 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.

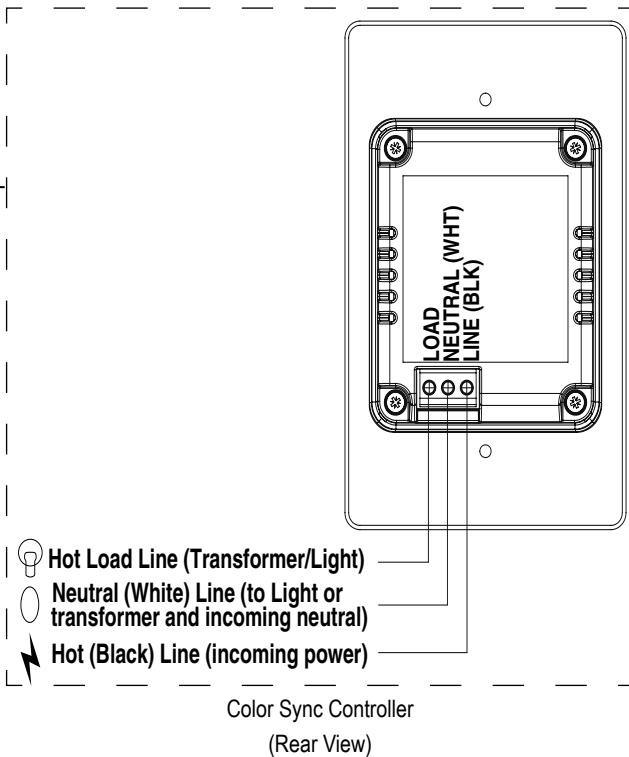
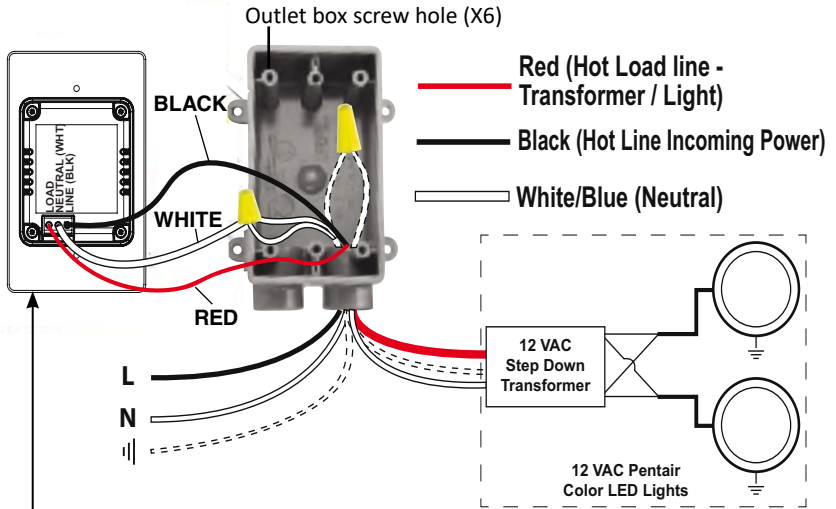
To wire Pentair 120 VAC or 12 VAC Lights to the Color Sync Controller:

1. Route the Pentair color LED Light cord (for 120VAC lights only), or the supply wires for the Pentair transformer, along with the three supply wires (White, Green and Black) from the GFCI, up through the conduit opening into the outlet box. **See page 12 for wiring diagram.**
2. Strip the ends of all the conductors a minimum of 1/4". *Note: Use under-water lights with water resistant cord only.*
3. Using the ground screw in the outlet box, secure the Green ground wire from the light, and the GFCI to the back of the outlet box.
4. Place the gasket onto Color Sync back of the controller before connecting the wires.
5. **12 VAC LIGHT:** Connect the the LOAD wire from the controller to the step down transformer. *Note: **Connect the light to the secondary 12 VAC output of the step-down transformer, then connect the Controller to the 120 VAC primary input of the step down transformer.***

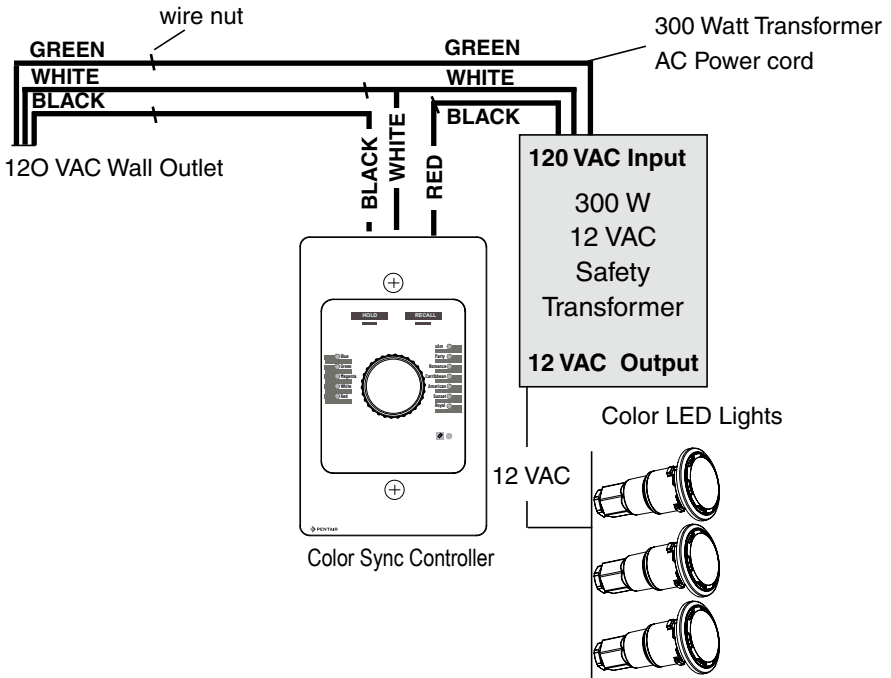
**120 VAC LIGHT:** Connect the LOAD wire from the controller junction box to HOT line wire of the light. **IMPORTANT! 120 VAC POOL/SPA LIGHTS MUST HAVE A GFCI CONNECTION.**

6. Connect the **White (Neutral)** wire from the Color Sync Controller to the White wire from the light cord, and the White (Neutral) wire from the GFCI, using an appropriately sized wire nut.

**WIRING LIGHTS TO THE COLOR SYNC™ CONTROLLER**



## INSTALLING THE CONTROLLER INTO THE OUTLET BOX



### Mounting the Controller into the Outlet Box

The controller mounts into a standard outlet box (22.5 cubic inches minimum). See page 9 for outlet box specifications. Note: After wiring to the controller is complete, check all wiring connections before mounting the controller into the outlet box.

To install the controller into the outlet box:

1. Neatly arrange the wires in the back of the outlet box.
2. Apply the provided grease to the screw threads (to avoid damaging gasket).
3. Align the controller with the screw holes of the outlet box.
4. Secure the Controller to the outlet box with the two (2) front retaining screws.

## COLOR SYNC CONTROLLER MOUNTING KIT REPLACEMENT

### **⚠ DANGER RISK OF ELECTRICAL SHOCK OR ELECTROCUTION**

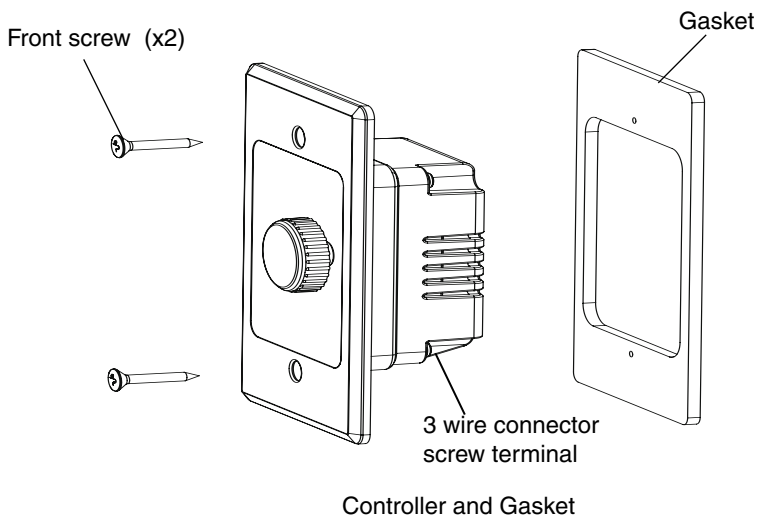
**TURN power OFF at circuit breaker** - Always disconnect power to the pool light at the circuit breaker before servicing the light. Failure to do so could result in death or serious injury to installer, service person, pool users, or others due to electrical shock.

#### MOUNTING KIT CONTENTS (P/N 602159Z):

- Gasket, Screws (x2), Grease Packet

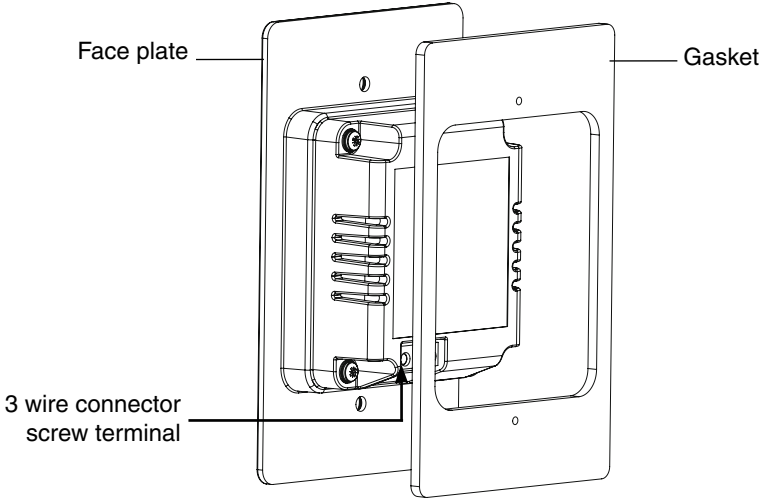
To remove and install a new gasket:

1. Remove the two front screws from the front plate.
2. Carefully remove the controller, face plate and gasket from the outlet box.
3. Using a small flat-blade screw drive, disconnect the three (3) power wires by loosen the three (3) screws on the connector terminals located on the lower rear side of the controller. See page 12 for wiring diagram.
4. Separate the gasket from the face plate and discard the gasket.



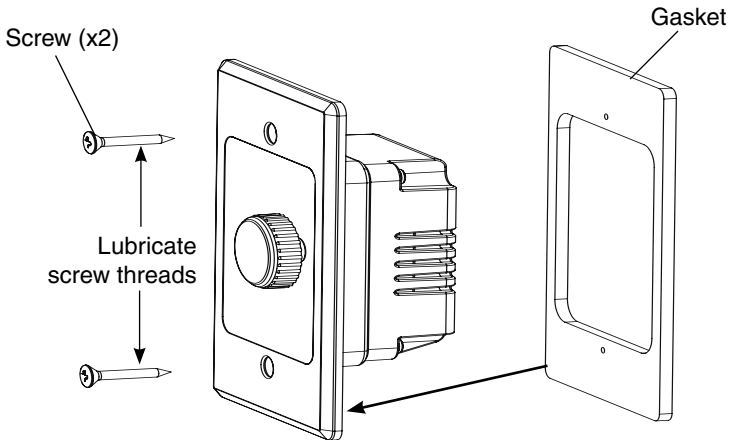
## COLOR SYNC CONTROLLER MOUNTING KIT REPLACEMENT

5. **Install the new gasket:** Place the gasket behind the face plate flush against the back of the face plate as shown below.
6. Reconnect the three (3) wires to the connector screw terminal as shown on page 12.



Controller Gasket Rear View

7. Using the **provided** grease, lubricate the two screw threads.
8. Secure the controller in the outlet box with the two front screws.



## Troubleshooting the Color Sync™ Controller

Use the following troubleshooting chart to resolve some of the common faults or problems.

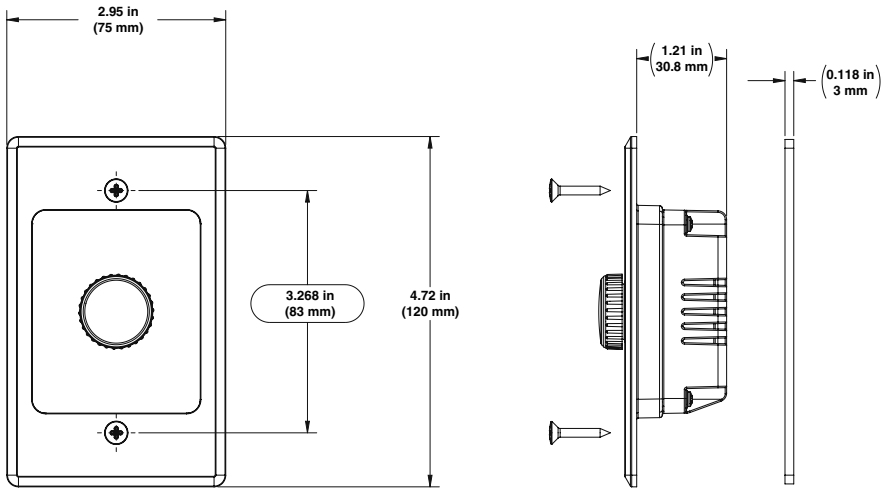
| PROBLEM/<br>FAULT                              | SYMPTOM  | CHECK   | SOLUTION   |
|--|--|---|--|
| Lights do not turn on.                         | None of the pool/spa lights are on after turning the Controller on.                                      | Be sure the wiring and installation setup is correct, and line voltage input (Black and white) to the Controller, and switched output (Red) wire is at 120 VAC.   | If the Controller has an LED indicator ON light ON next to a color or a color sequence, and voltages read correctly at 120 VAC, and Controller did not go into overload condition, then replace the Controller.        |
| Lights turn ON but do not remain synchronized. | One or some of the lights display a different color and do not stay in sync with the rest of the lights. | Check the Controller and lights by selecting one of the fixed color modes.  | Reset the light(s): Hold the Controller button until it resets. Try again and see if lights remain in sync. If not replace the Controller.   |
|  | Lights will not turn on and all Color Sync LEDs are all flashing.  | The Color Sync controller has detected an electrical load in excess of the maximum allowable wattage or maximum allowable unit temperature. Turn off power at the circuit breaker and inspect all electrical systems including Color Sync transformer (if present). Refer to maximum wattage of light controller (page 11) to ensure power does not exceed 300 W. | Reduce lights load (wattage) on the controller and/or replace damaged electrical systems. Turn OFF power to the controller off at the circuit breaker, then turn back on to re-set the controller to resume operation. |



## Troubleshooting the Color Sync™ Controller (Continued)

| PROBLEM/<br>FAULT              | SYMPTOM                                       | CHECK  | SOLUTION   |
|--------------------------------|---|--|--|
| All Lights are not turning on. | One or some of the lights are not turning on. | Disconnect the lights, then reconnect them one by one. Be sure the problem is not with the lights. | If problem is with the lights; replace faulty light(s). If problem persists, make sure the correct transformer (XFRMR) output 12/13/14 VAC is selected for the load and cable lengths: Refer to the Transformer Installation and Guide. If problem still persists then replace Controller. |

## Color Sync™ Controller Dimensions







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