BOOGEY LIGHTS®

GENERATION 2 (GEN2) LED CONTROLLERS

WIRING (Pg 1-8) and OPERATION (Pg 9-10)

This document has wiring diagrams for all possible scenarios. We urge you to read this information and refer to the wiring diagram that applies to your installation. Do not make assumptions based on wire colors. If you don't wire the system correctly, you can damage the components or worse. Please take our advice and read this document before proceeding with your installation.

BOOGEY LIGHTS® GEN2 LED controllers are POSITIVELY switched LED controllers. They will only work with COMMON CATHODE LED strips. The GEN2 Series is offered in the following four configurations:

- G2 PLUS (RGB only)
- G2 SUPER (RGBxx aka 'RGBx")
- G2 HD Single Zone (RGBxx aka 'RGBx")
- G2 HD Dual Zone (RGBxx aka 'RGBx")

WHICH LED COLOR DID YOU PURCHASE? Our GEN2 LED controllers will work with many LED color configurations. It's essential you know which LED strip color configuration you purchased. Do not proceed without knowing this information. Examples include RGB, RGBA, RGBW, RGBWW, Dual Color and Single Color. Once you know the LED color you purchased, refer to the wiring diagram for the LED Controller that matches the LED color. They start on page 5. Then, on page 8 you'll find the LED strip power lead color code wire diagrams. This matches the LED diode color to the power lead jacket wire color. You must refer to both pages. One for the LED Controller. One for the LED strip power lead. Do not skip this step.

RGB/RGBx/RGBxx

While we use the RGBxx designation, most installations will use RGB or RGBx. In the case of RGBx, we recommend twisting both 'xx' output channels together and connecting that twisted pair to the 'x' diode on the LED strip. Note too that if the controller is RGBxx capable, it doesn't mean you have to use all 5 output channels. Use what you need. Cap the others. If for example you have RGB LEDs, connect the RGB outputs to the RGB LED strips and cap the two remaining 'xx' outputs. Very simple. The model number appears on the back of the controller module as does the capacity ratings.

COMBO LED CONTROLLERS

All BOOGEY LIGHTS® GEN2 LED Controllers offer **BOTH** Bluetooth + RF wireless control. The PLUS version is offered in RGB only (3 channels output). The remaining three versions are RGBxx capable with up to 5 channels of output. The 'xx' refers to the ability to power up to 2 additional color channels or diodes ('xx' is in lower case to indicate it's a variable). Example: RGBA = RGB + Amber. RGBW = RGB + White (2400k). RGBWW = RGB + White(2400k) + White(4500k). You do not have to use all color output channels. Just make sure you cap off any of the color channels you aren't using. Also, the LED controller doesn't care which colors you assign to which channels as long as you don't exceed the maximum capacity for the channel. If, however you want the Bluetooth APP colors to match the LED colors, we suggest using the color designations shown in this document.

RF WIRELESS CONTROL

The PLUS RGB only version LED Controller comes with two 4 button hand-held KEYFOBS to operate the LED Controller wirelessly. The remaining three LED Controllers come with a single larger 15 button (or 18 button if dual zone) M7 tv style hand-held wireless remote.

GENERATION 2 (GEN2) LED CONTROLLERS

Wiring & Operating Information

BOOGEY LIGHTS® Gen2 LED controllers are offered in four versions: Plus (RGB only), Super (RGBxx), HD Single Zone (RGBxx) and HD Dual Zone (RGBxx). The model number appears on the back of the controller module. Overview of features, capabilities and limitations of each are in this chart.

MODEL	SKU	DESCRIPTION / KEY FEATURES	RGB LED Capacity (3 channels)	xx LED Capacity (2 channels)	Quick-Switch Trigger Wire Controls	Output Wires (Black = ground. All others are 12vdc +)	Input Color Wires
BLRC-G2P-KF	PGU-RC-G2-PLUS-KF	RGB, Bluetooth, RF wireless Key Fob, Brake Flash	300 6A max, 2A*3	0	Red output wire	Black, Red, Green, Blue	12VDC+ (Red) w/blade fuse, 12VDC- (Black), Yellow Brake Flash Trigger wire
BLRC-G2S	PGU-RC-G2-SUPER	RGBxx, Bluetooth, RF wireless M7, Quick Switch	900 9A max, 3A *3	600 3A max per X channel	GREY* output wire	Black, Red, Green, Blue, White, Grey	12VDC+ (Red) w/blade fuse, 12VDC- (Black), Yellow Quick Switch Trigger wire
BLRC-G2HD	PGU-RC-G2-HD	RGBxx, Bluetooth, RF wireless M7, Quick Switch, Stubby + Long Range External Antenna, Single Zone	1800 18A max, 6A*3	1200 5A max per X channel	GREY* output wire	Black, Red, Green, Blue, White, Grey	12VDC+ (Red) w/blade fuse, 12VDC- (Black), Yellow Quick Switch Trigger wire
BLRC-G2DZ	PGU-RC-G2-DZ	RGBxx, Bluetooth, RF wireless M7, Quick Switch, Stubby + Long Range External Antenna, Dual Zone	3000 (1500 / zone) 15A max, 5A*3	2400 (1200 / zone) 4A max per X channel (per zone)	GREY* output wire	Black, Red, Green, Blue, White, Grey (per zone)	PER ZONE: 12VDC+ (Red) w/blade fuse, 12VDC- (Black) One Yellow Quick Switch trigger input wire that triggers both zones.

* NOTE: Due to a slight change in our controller circuitry late-2024, it's possible the trigger wire will control the WHITE wire instead of the GREY wire as noted above. If you're twisting the Grey and White wires together as instructed for wiring RGBx applications, it won't matter but if you're using the Quick-Switch trigger for an application where you're relying only on the trigger output wire, we suggest testing the controller first to see which wire - grey or white - is active when the Quick-Switch is engaged.

POWER INPUT

All amperage rating measurements for our GEN2 LED controllers assume an operating range of 12 to 13.5 vdc input. While they'll accept up to 14.5 vdc, be aware that increasing voltage input to the LED controller will increase the amperage draw of the LEDs the controller is powering (the LEDs will glow brighter with more input voltage which means they'll draw more amperage). Be careful not to exceed the amperage ratings for each LED output channel as listed on each controller. If you don't understand this concept, we urge you to have someone who does assist you with this part of the installation.

The RED power input has a blade fuse that connects to the 12vdc POSITIVE pole on your 12vdc power source. This should be an always on power source sufficiently sized for the load. Important to understand that wiring a 'switch' of any type between the controller power input and the main power source will NOT turn the LEDs connected to the controller on or off. Doing so will only energize the controller – nothing more. See controller operating info on page 9 of this guide for more info. It is important to insert a fuse in the blade fuse holder that matches the amperage draw of your system without exceeding the rated amperage of the controller. This is an important concept to understand. You can use lower rated fuses but never higher. The PLUS version will accept up to 5A. The SUPER VERSION will accept up to 10A. The HD SINGLE ZONE version will accept up to 20A. The HD DUAL ZONE version will accept up to two 20A fuses (one for each zone). **Do not exceed these amperage ratings.** The BLACK power input connects to the 12vdc NEGATIVE pole on the battery source. It's important to use appropriately sized wire gauge cable for making these two battery connections. For the PLUS version controller, you can use 12 or 14AWG. We recommend 10AWG or 8AWG depending on the installation for all others. It's important to take your own amperage measurements when installing your system to make sure, you're within the operating limits.

MOUNTING

All GEN2 LED Controllers are water resistant; they are not waterproof. Mount the LED controller in a location that is not exposed to water. Yes, they can get wet. No, they should not be submerged. Also, as with anything that uses electricity, heat build-up should not be overlooked. The more LEDs you connect to the controller, the more heat will build up. Mount the controller in a location that has air flow. If the controller overheats, it will shut itself down.

BRAKE FLASH & QUICK SWITCH FEATURE

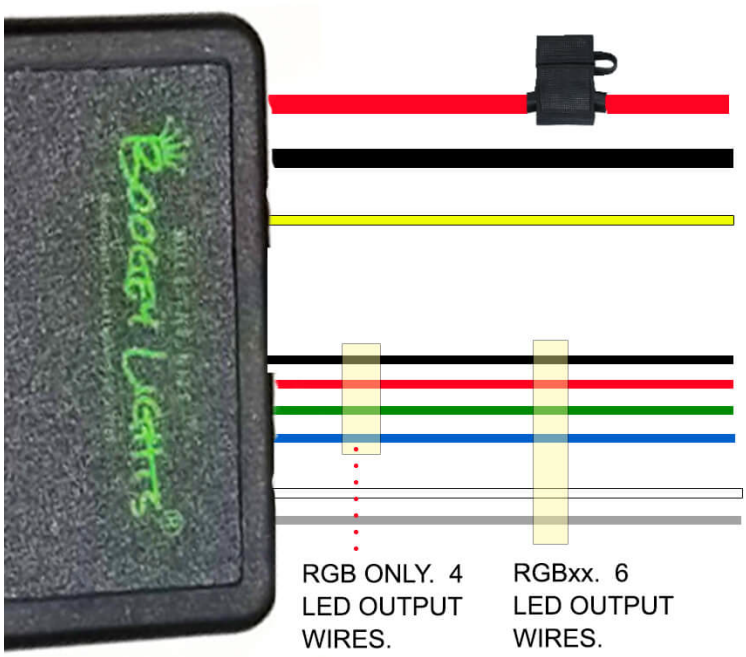
All GEN2 LED controllers have a Brake Flash or Quick Switch feature triggered by applying 12vdc + to the YELLOW input wire.

Brake Flash Feature: Available on the GEN2 PLUS LED Controller (RGB only). Instantly turns off the current color and displays only RED. Commonly used on motorcycles as a safety feature by connecting the yellow input trigger wire to the vehicle's 12vdc brake light circuit. When the brake lights are on, the controller turns on just the RED diodes. When brake light 12vdc power is removed, the controller returns to its previous state. Be sure to cap the yellow trigger wire if unused.

Quick Switch Feature: Available on SUPER, HD SINGLE ZONE, and HD DUAL ZONE controllers (RGBx). Works the same as Brake Flash but activates the GREY (or WHITE) output wire instead of red. Most often used on commercial vehicles to instantly switch to a DOT-compliant AMBER (on RGBA strips) or on RGBW products (e.g., RV awning lights using the existing wall switch to turn on just the warm white diodes). You can see a wiring diagram here: https://www.boogeylights.com/quick-switch-wiring/ (also on page 8). When the yellow trigger is not powered, the controller operates normally. Cap the yellow wire if unused.

Note: On some GEN2 controller versions the Quick-Switch may control the WHITE wire instead of GREY. If you are twisting Grey and White together it will not matter; otherwise test the controller first to confirm which wire activates

GEN2 LED CONTROLLER WIRING DIAGRAM - ALL



POWER INPUT

12vdc+ power (must be fused)

12vdc- ground

YELLOW Trigger Wire (12vdc+)
(Quick Switch/Brake Flash Feature)

LED STRIPS POWER OUT

Black - Common Ground
(R) Red - Red Diodes on LED Strip
(G) Green - Green Diodes on LED Strip
(B) Blue - Blue Diodes on LED Strip
(x) White - x diodes* (Amber or White LEDs)
(x) Grey - x diodes* (Amber or White LEDs)

* 'x' is a variable. Usually Amber (RGBA) or White (RGBW). Can also be WW (White-2500k, White-4500k) when used with RGBWW.

Important to cap (seal) the yellow trigger wire if not using the brake flash or quick switch feature.

RGB: If you're wiring RGB, connect the Red, Green and Blue power output wires to each of the Red, Green and Blue LED strip diodes. Important to cap (seal) the remaining White and Grey power output wires (if available).

RGBx (RGBA, RGBW): If you're wiring RGBA or RGBW, connect both the WHITE and GREY power output wires to the Amber or White diodes on the RGBx LED strip (which will also be a white wire). This is important to avoid dead spots when operating the controller.

RGBxx (RGBWW): If you're wiring RGBWW, connect the WHITE and GREY power output wires to the White and Grey diodes on the RGBWW led strip (the LED strip wires will be white and grey too.)

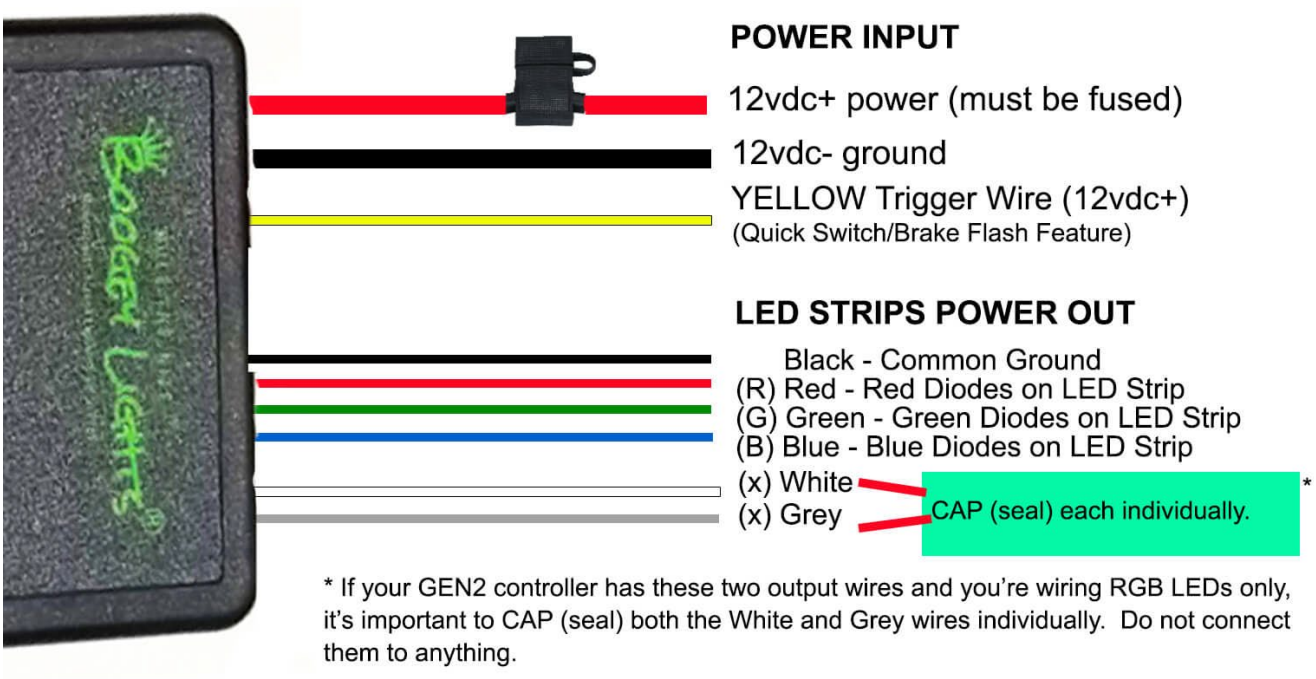
BRAKE FLASH: Only available on model BLRC-G2P-KF (the RGB only model). When 12vdc power is applied to the YELLOW trigger wire, the LEDs attached to the RED LED output wire are turned on. All others are off.

QUICK SWITCH: Available on all RGBxx models. When 12vdc power is applied to the YELLOW trigger wire, the LEDs attached to the GREY LED output wire are turned on. All others are off. Note: Due to a slight change in our controller manufacturing process, it's possible the LEDS attached to the WHITE LED output wire are turned on instead of the GREY. If you're using RGBx and twist the white and grey output wires together as instructed, it won't matter. If however your lighting application depends on using just one output wire for the Quick-Switch, we recommend testing first.

For DUAL ZONE LED Controllers, you'll have the exact same wiring as you see above except there will be two sets of these wires; one set for each zone. Important to connect both 12vdc+ power inputs to your power source. Note: There will only be one yellow trigger wire which will trigger the GREY power output wires on both zones if that feature is used.

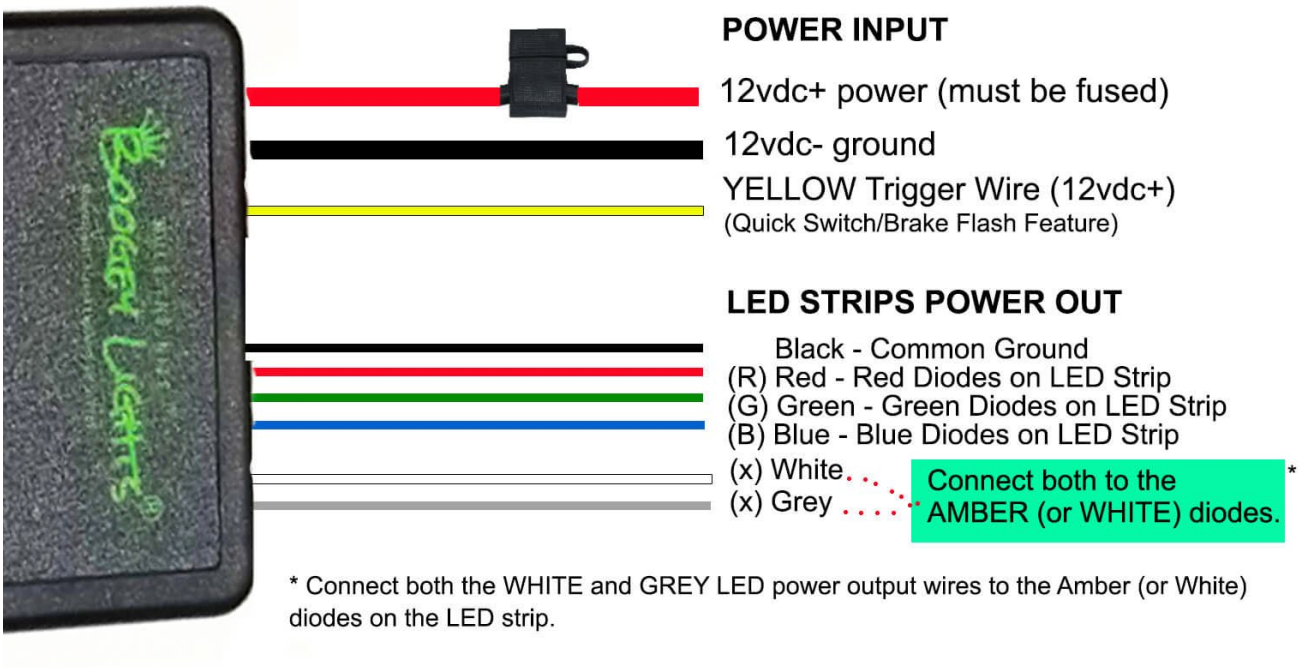
DO NOT OPERATE RGB and XX channels at the same time.

RGB WIRING DIAGRAM



NOTE: If you have the PLUS version of our GEN2 LED controller, it is an RGB only controller and as such you won't have the white or grey output wires shown in the above diagram.

RGBx WIRING DIAGRAM (RGBW or RGBA)

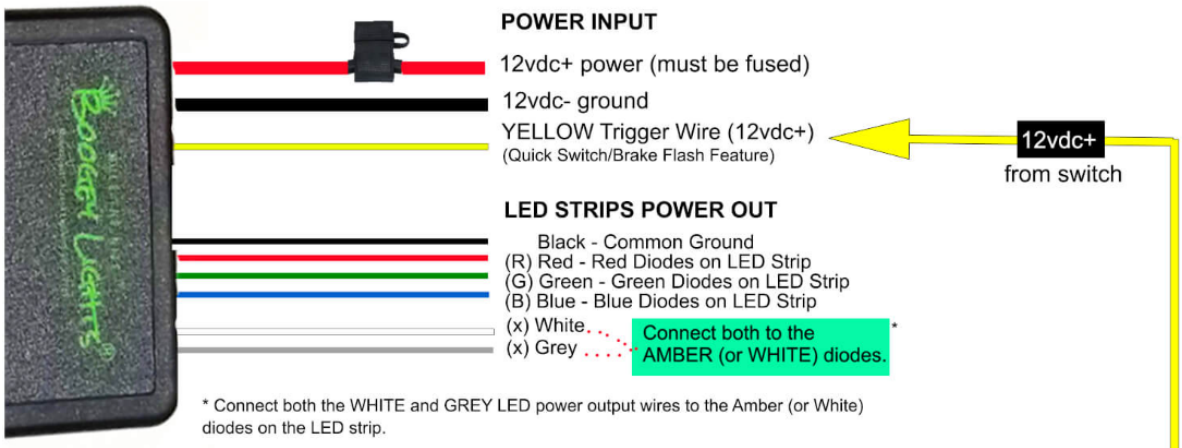


See next page for diagram of the Quick-Switch wiring. You can also view it here:
https://www.boogeylights.com/quick-switch-wiring/

USING THE QUICK-SWITCH FEATURE

For BOOGEY LIGHTS® GEN2 Super and Heavy Duty LED Controllers

RGBx WIRING DIAGRAM (RGBW or RGBA)



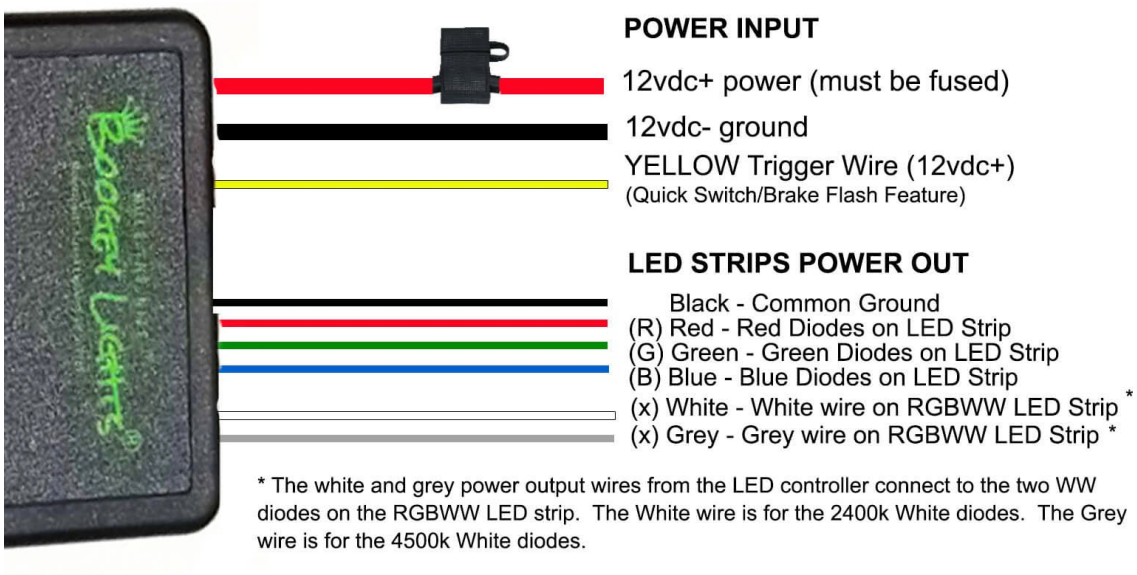
* Connect both the WHITE and GREY LED power output wires to the Amber (or White) diodes on the LED strip.



12vdc power coming from a switch of some type supplies 12vdc power to the Quick Switch trigger wire to activate this feature. The switch can be any 12vdc power source: wall switch, push button switch, toggle switch, running lights, existing dash switch, etc.

When 12vdc is applied to the Quick-Switch trigger input, the controller instantly TURNS OFF power to all LEDs and TURNS ON power to the LEDs that are connected to the GREY output wire. All others are OFF. When that 12vdc switch power is turned off, the controller returns to its previous state.

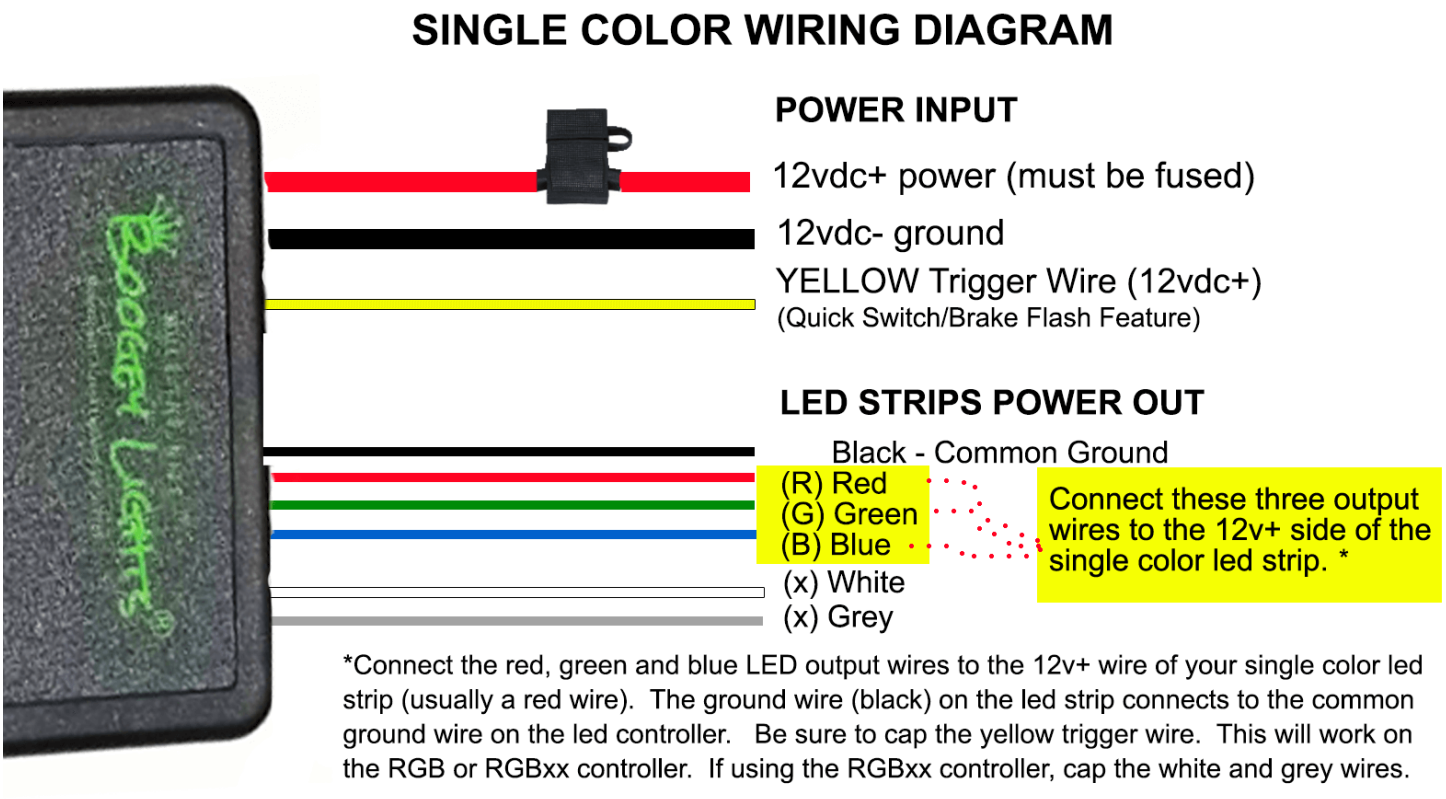
RGBWW WIRING DIAGRAM



* The white and grey power output wires from the LED controller connect to the two WW diodes on the RGBWW LED strip. The White wire is for the 2400k White diodes. The Grey wire is for the 4500k White diodes.

WIRING A GEN2 LED CONTROLLER TO SINGLE COLOR LEDS

While you don't need an LED controller to operate single color LEDs, some will use one to operate single color LEDs because the controller offers the ability to dim the LEDs (along with other features). For single color LEDs, simply twist the red + green + blue output wires together and connect all of them to the 12vdc + wire (usually red) for the single color LED strip. Connect the ground wire on the strip to the ground on the controller.



DO NOT operate the RGB and XX diodes at the same time. Why? Because the LED strip is designed to use either or – but not both. If you were to light up all 5 diodes at one time you run the risk of pushing too many amps through the LED strip and/or the LED controller. Doing so could damage the controller, the LED strip or both (not to mention the risk of fire). This is especially true if attempting to operate all 5 diodes at one time on the brightest setting for white which will draw the most power.

POWER LEAD WIRE COLORS

This key matches the power lead wire jacket colors to the LED diode colors in the LED strip. The wire colors are different based on the LED strip type (Low Profile vs Heavy Duty) and LED color configuration (RGB, RGBA, RGBW). We urge you to bench test each LED strip before installing to double-check the color relationships. If you don't know how to bench test, download this pdf: https://docs.boogeylights.net/?wpdmdl=1305

LOW PROFILE LED Strips

RGB Low Profile LED Strips

- Black Wire = Common Ground (12vdc -)
- Red Wire = Red Diodes (12vdc +)
- Green Wire = Green Diodes (12vdc +)
- White Wire* = Blue Diodes (12vdc +)

* **This is not a misprint.** On RGB Low Profile LED strips, the white power lead wire connects to the BLUE DIODES in the LED strip. If you bench test the LED strip as we suggest, you'll see this to be the case.

RGBW Low Profile LED Strips

- Black Wire = Common Ground (12vdc -)
- Red Wire = Red Diodes (12vdc +)
- Green Wire = Green Diodes (12vdc +)
- Blue Wire = Blue Diodes (12vdc +)
- White Wire = White Diodes (12vdc +)
- Brown Wire = not used

RGBA Low Profile LED Strips

- Black Wire = Common Ground (12vdc -)
- Red Wire = Red Diodes (12vdc +)
- Green Wire = Green Diodes (12vdc +)
- Blue Wire = Blue Diodes (12vdc +)
- Brown Wire = Amber Diodes (12vdc +)
- White Wire = not used

HEAVY DUTY LED Strips

RGB Heavy Duty LED Strips

- Black Wire = Common Ground (12vdc -)
- Red Wire = Red Diodes (12vdc +)
- Green Wire = Green Diodes (12vdc +)
- Blue Wire = Blue Diodes (12vdc +)

RGBW Heavy Duty LED Strips

- Black Wire = Common Ground (12vdc -)
- Red Wire = Red Diodes (12vdc +)
- Green Wire = Green Diodes (12vdc +)
- Blue Wire = Blue Diodes (12vdc +)
- Yellow Wire = White Diodes (12vdc +)

RGBA Heavy Duty LED Strips

- Black Wire = Common Ground (12vdc -)
- Red Wire = Red Diodes (12vdc +)
- Green Wire = Green Diodes (12vdc +)
- Blue Wire = Blue Diodes (12vdc +)
- Yellow Wire = Amber Diodes (12vdc +)

REDA Heavy Duty LED Strips

- Black Wire = Common Ground (12vdc -)
- Red Wire = Red Diodes (12vdc +)
- Green Wire = Red Diodes (12vdc +)
- Blue Wire = Red Diodes (12vdc +)
- Yellow Wire = Amber Diodes (12vdc +)

For two conductor Single Color LEDs, there will be two conductors (one positive and one negative). For Dual-Color LEDs, there will be three conductors: one negative and two positives (one positive for each of the dual colors). **The BLACK wire jacket is always the negative in the 12vdc world.** Any remaining wire jacket colors will be positive. If you have a Single-Color LED strip with four conductors such as what is used with our Tail-Turn-Brake add-on lights, there will be one negative (black) and three positives (or four positives if you have REDA or REDW). In all cases, bench testing the LED strip will quickly determine which power lead wire jacket color powers which LED diode colors on the LED strip. We urge you to bench test both the LED controller and LED strips before installing.

BASIC OPERATING INFORMATION

Powering Up

When the LED controller is first connected to 12vdc power, all LEDs attached to the controller will quickly flash. You'll notice too the green light on the face of the controller will be lit. This green light stays on all the time. It's your indication that the LED controller is energized; has 12vdc power connected to it. That single tiny LED draws very little power; milliamps. If you're not going to be using the lighting system for an extended period of time we suggest removing the fuse from the controller and powering it down. This is particularly true for vehicles that are often stored for months at a time. No reason to leave the controller energized in that scenario. NOTE: Connecting 12vdc power to the controller does nothing more than energize the controller. To operate the LED lights connected to the LED controller you need to use the RF wireless handheld remote or Bluetooth APP. Also, if your controller has the Quick-Switch feature (and you have it wired according to the wiring diagram), you can use the switch you wired to the Quick-Switch yellow trigger wire to turn on/off the LEDs connected to the X output channels on the controller.

Turning On and Using

With the green light on, your LED controller is ready to be used (assumes you have wired your LEDs to the controller). The GEN2 LED Controllers can be operated using either the RF wireless remote that comes with the controller or your Bluetooth capable smartphone and our free GEN2 Smartphone APP. When the controller is first turned on, the LEDs will display in whichever mode/color they were last used. This feature is particularly useful for those who want the lights to work the exact same way every time the controller is turned on. It does not matter how the controller was last used either; the RF wireless remote or Bluetooth APP. One word of caution though: If the last setting used on the controller had the brightness all the way down, when you turn on the controller the next time, it might appear as if the controller isn't working when in fact it's merely coming up with the last used setting (which is why you can't see the light). If this happens, be sure to cycle through the MODE and/or BRIGHTNESS buttons until the lights are visible. Details about using the RF handheld remote or the GEN2 Bluetooth APP are in separate documents.

Antennas: RF Wireless + Bluetooth

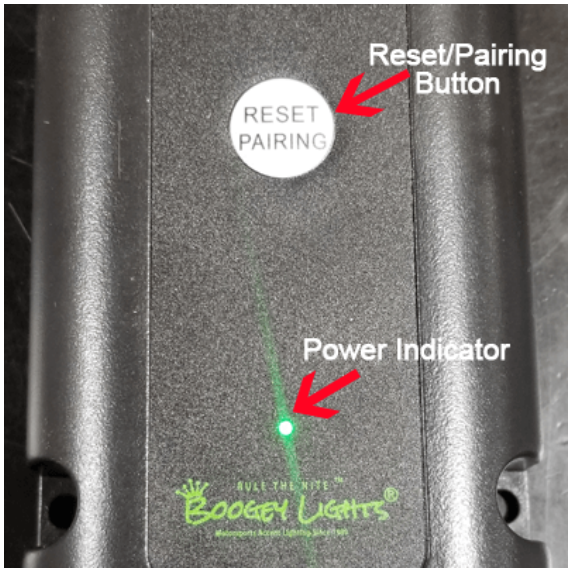
All GEN2 LED controllers have an RF antenna and a Bluetooth antenna. For all models, the Bluetooth antenna is internal; it cannot be seen or extended. For the PLUS and SUPER controller versions, the RF wireless antenna is internal as well. For the HEAVY DUTY SINGLE and DUAL ZONE LED controllers, the RF wireless antenna is external and we include two versions: a 'stubby' screw-on antenna and a magnetic mount extended range antenna with 15' extension cable.

RF Wireless Range: RF wireless range will vary based on the operating environment but it's not unusual to get 100'+ range with any of the controllers. If you have either of our HEAVY-DUTY LED Controllers, we recommend using the extended range magnetic mount antenna if you're mounting the LED controller inside a metal enclosure of any type. You'll get better RF reception by mounting that RF antenna on the outside of the vehicle somewhere (usually on the bottom where it can't be seen.)

Bluetooth Range: The GEN2 LED Controller is based on the Bluetooth 5 series chip which has significantly improved range, data set payload and speed over all prior versions. For indoor use, you can expect distances of 50 to 500'. A lot of it depends on the operating environment and the strength of your smartphone.

If you're concerned about range, we suggest dry mounting your LED controller and/or antenna if applicable and testing reception before making a decision on where to permanently locate. It's simple enough to do.

RESET PAIRING BUTTON



All GEN2 LED controllers have a 'RESET PAIRING' button on their face. To work, the controller must have power with the green power indicator light lit as shown in this photo.

Reset: The reset functionality erases the Bluetooth nicknames saved for the Bluetooth app. It also erases any password (if any) assigned using the Bluetooth APP. If you're being asked for a password and you don't know it, reset the controller. To reset, simply press and hold the RESET PAIRING button down for at least 7 seconds until the green power indicator light flashes quickly and stops, then release. Note too that performing this reset will also erase the pairing with any RF handheld remotes (see below).

Pairing: This pairing functionality is used most often. The pairing functionality 'pairs' or links the RF handheld remote with the LED controller. When the controller and remote are shipped, they are already paired. Typically, they will stay paired. If however the RF remote and controller become un-paired, you need to re-pair them. Common causes for unpairing include accidental pressing of the 'Reset Pairing' button, the battery in the remote dying or buying a new remote to replace one that was lost or damaged.

The pairing process is quick and easy. To pair the RF wireless handheld remote with the LED controller, quickly press and release the pairing button on the face of the LED controller (do not hold it down). As soon as you do, the green power indicator light will start flashing. You have 30 seconds at that point to press any button on the RF wireless remote to 'pair' the RF remote to the LED controller. If the pairing is successful, the green power indicator light will stop flashing. If you wish to pair a second RF remote, repeat the process. You can pair up to 3 RF remotes to a single led controller.

Note: The Key Fob RF and M7 RF wireless remotes are not interchangeable. The KEY FOB 4 button RF remote will only pair with the PLUS (model BLRC-G2P-KF) RGB only LED Controller. The larger format 15 button (or 18 buttons if dual zone) M7 tv style RF wireless remote will pair with any of the other three GEN2 RGBxx LED Controllers.

OTHER RESOURCES

GEN2 RF Remote Operation: https://docs.boogeylights.net/?wpdmdl=1164

GEN2 Bluetooth APP Quick Start: https://docs.boogeylights.net/?wpdmdl=1167

GEN2 Bluetooth APP Manual: https://docs.boogeylights.net/?wpdmdl=1169

GEN2 LED Controller Product: https://www.boogeylights.com/gen2-bluetooth-rf-combo-led-controller/

Installation Resources: https://www.boogeylights.com/installation-resources/

Trouble Shooting: https://www.boogeylights.com/trouble-shooting-guide/

Warranty: https://www.boogeylights.com/warranty/

How-To Videos: https://www.boogeylights.com/how-to-videos/

Open a Support Ticket: https://www.boogeylights.com/contact-us/

Technical Support. 1.800.847.1359 M-F, 9-5 Eastern. Text Only Support: 1.859.955.8155