INSTALLATION GUIDE

48’ – 53’ DRY VAN TRAILER
UNDER-GLOW LED LIGHT KIT

RULE THE NITE™

BOOGEY LIGHTS®

Family Owned Motorsports Lighting Since 1989

800.847.1359

www.BoogeyLights.com

Thank you for purchasing genuine Boogey Lights® L\ED Lighting products! We know you’re anxious to get started but we strongly recommend taking time to read through these instructions. You’ll likely save yourself some grief and aggravation if you do. For additional installation support refer to www.BoogeyLights.com or give us a call at 800.847.1359 for assistance.

BEFORE YOU START

It's simply not possible to provide detailed instructions for all installation scenarios. Far too many variables and truck variations. **The information in this manual is intended to be used as a guide.** It is not a detailed step-by-step how-to installation manual. We do not spell out every single step along the way. We cover the essential steps related to installing this kit. Beyond that however we must assume the installer has the skills, knowledge and tools necessary to do the work using the information we provide. You may need to vary your installation based on your trailer. This is particularly the case with electrical wire routing and switching. If you're unsure about how to do the installation – particularly the electrical components – we urge you to seek assistance from someone who has those skills.

Make sure you have ample area in which to work and that the area is protected from rain or cold temperatures. The 3M adhesive tape (and 3M Adhesion Promoter) works best if applied when the air temperature is above 40 degrees (and of course is DRY).

Bench test your lights, switching and/or controllers! We know this takes a few extra minutes but we STRONGLY suggest you bench test your lights (and LED controller if purchased) on a table before doing anything further. While we test every light strip and controller before shipping, bench testing your lights will eliminate the possibility of any problems with the lights or controller before mounting. Also, the process of bench testing gives you an opportunity to understand the wiring system without interference from other wires, connectors and cables. You can use any 12vdc battery to do this (e.g. car battery, motorcycle battery, lawn tractor battery or 12vdc power supply). Bench testing takes an extra 10 or 15 minutes. It's simple to do and can potentially save you hours of time and frustration down the road. **Please take our advice.** Bench test your LEDs AND controller before mounting.

Installation Time

Installation of this led light kit takes 4 to 8 hours depending on how you are powering and controlling the trailer lights. Single color light installations will always be easier and take less time. Wiring diagrams are included at the end of the guide. We include wiring diagrams for the following scenarios:

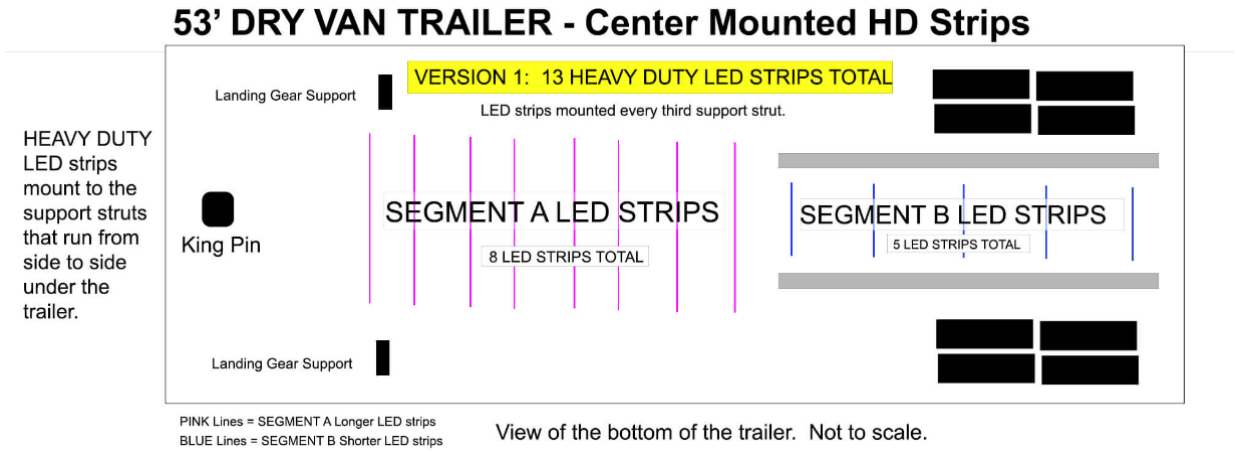
- Single color, wireless on/off
- Single color, wired toggle switch (on/off)
- Dual color, wired toggle switch (on/off/on)
- Multi-Color RGB/RGBA

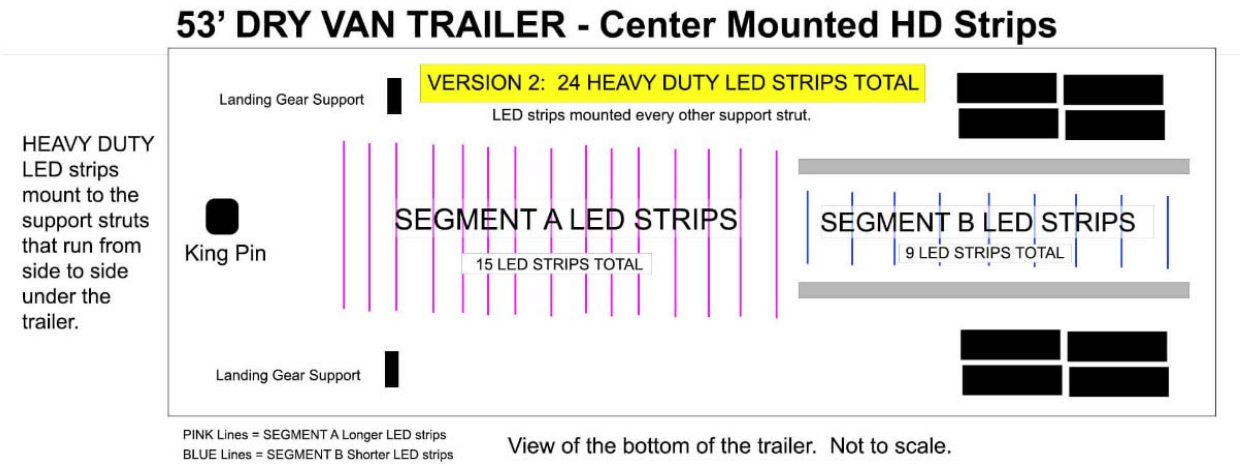
Know Your Power Consumption!

All of our light kits have specific LED counts to assist customers with making sure they have the information needed to properly assess amperage levels. Our documentation here includes that amperage data (it's on the product page as well). The amount of amperage your system will draw depends on the LED color, the number of LEDs in the circuit, the input voltage and the amount of copper wire in the system. We strongly suggest taking the time to carefully evaluate the amperage including taking physical amperage measurements of your system. Do not rely solely on our numbers.

Mounting & Placement Locations / Planning Your Install

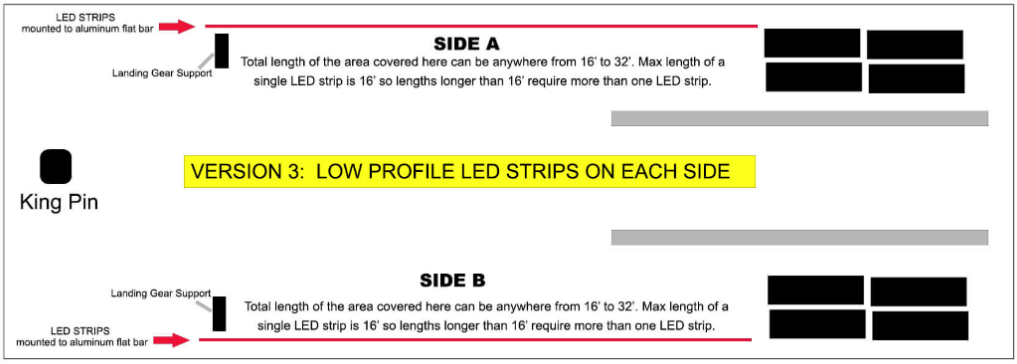
The Kit Version you purchased will for the most part, determine the layout of the LED strips on your trailer. Of course nothing says you have to follow our layout diagrams but they are what we recommend. Kit Versions 1 and 2 are CENTER mounted LED strips which simply means the LED strips are mounted horizontally down the center of the trailer. Notice that the only difference between these two kits is the number of LED strips. Kit Version 1 assumes you'll be mounting an LED strip every third support strut. Kit Version 2 assumes you'll be mounting an LED strip every other support strut. Kit Versions 3 and 4 are EDGE mounted LEDs which means the LED strips are mounted at or near the edge of the trailer on both sides. Below are the four possible layout diagrams. Make sure you're following the correct layout diagram for the light kit you purchased. You'll also find photos showing the difference between center mounted and edge mounted kits below.





53’ DRY VAN TRAILER - Edge Mounted Low Profile Strips

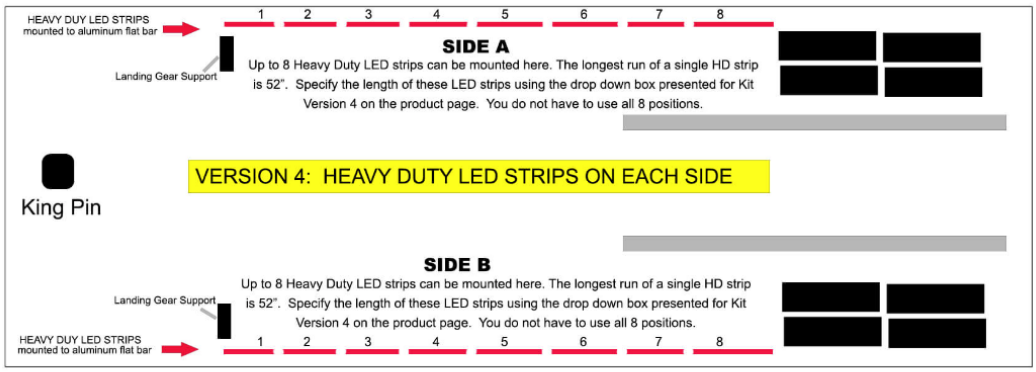
Multiple low profile LED strips mounted 4” to 18” in from the edge of the trailer length wise. This option requires 1” to 1.5” wide aluminum flat bar be mounted to the vertical support struts under the trailer first which is what the LED strips mount to.



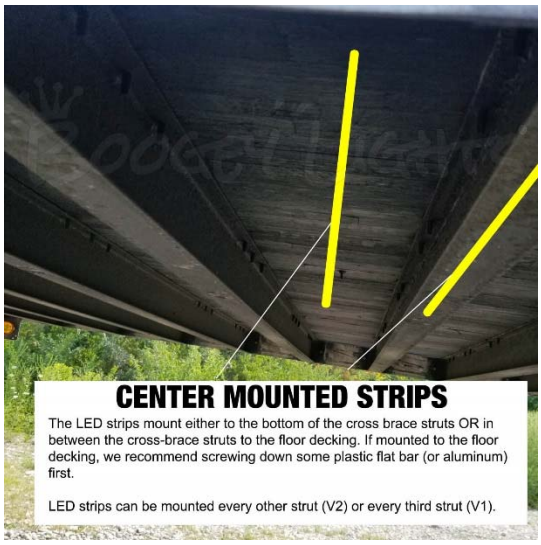
View of the bottom of the trailer. Not to scale.

53’ DRY VAN TRAILER - Edge Mounted HD LED Strips

Up to 8 Heavy Duty (HD) LED strips mounted 4” to 18” in from the edge of the trailer length wise. This option requires 1” to 1.5” wide aluminum flat bar be mounted to the vertical support struts under the trailer first which is what the LED strips mount to.



View of the bottom of the trailer. Not to scale.



IMPORTANT NOTE IF CENTER MOUNTED / IN-BETWEEN SUPPORT STRUTS

If you're going to be mounting the LED strips in-between the support struts (e.g. to the floor decking), we strongly suggest screwing some flat plastic or aluminum down first – and then mounting the LED to that plastic or aluminum surface. If you don't do this, the led strips will likely fail prematurely due to the movement of the individual floor decking pieces that are perpendicular to the LED strips. If so, this kind of failure is not covered under warranty.

EDIGE MOUNTED STRIPS. BUILDING OUT THE MOUNTING SURFACE

The biggest challenge for edge mounted LED strips is on most van/box trailers, there isn't an easy to use mounting surface that runs the length of the trailer. You'll likely need to build out a mounting surface if you want to go with edge mounted LEDs. We recommend using 1.5" aluminum flat bar that gets bolted or secured to the bottom of the trailer in some way. Once that flat bar is mounted, the LED strips will mount to that surface. Here's a photo.

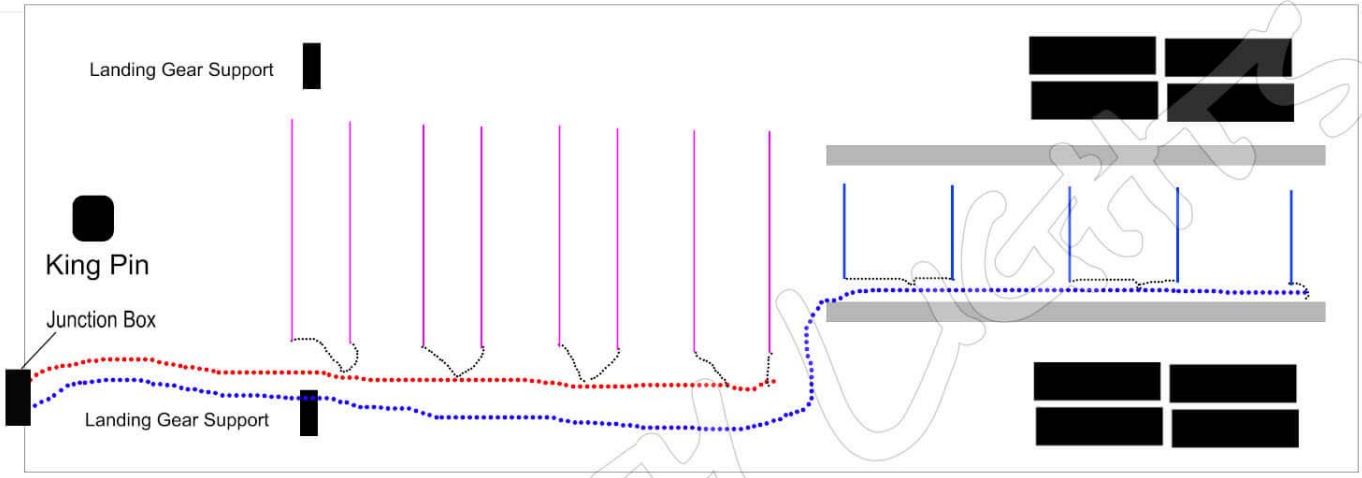
WIRING THE LED STRIPS

Center Mounted LED Strips

All center mounted LED strips use our Heavy Duty (HD) LED strips. Each HD LED strip comes with a 36" power lead. Our preference is to run the 18awg feeder cable down one side or the other of the end of the HD strips and then, connect every 2 or 3 HD led strips to that feeder cable. The only limitation to be aware of is that you shouldn't run more than 900 LEDs on a single 18awg feeder cable run. The kit includes enough feeder cable to run one feeder cable to each group of LED strips (eg Segment A and B) as shown in the below layout diagram. We have included a diagram below showing how we typically wire up center mounted led strip installations.

CENTER MOUNTED LED STRIPS WIRING

View of the bottom of the trailer. Not to scale.



18awg Feeder Cable #1 connecting the front LED strips.

18awg Feeder Cable #2 connecting the rear LED strips

Feeder cable needs to be wrapped in split loom (supplied) to protect the cable from chaffing. Feeder cable can be either secured to the floor decking using wood screws OR many trailer support struts have holes in them to allow for cabling to run through them easily (or, drill your own). Doesn't matter how you do it as long as the feeder cable is secured firmly to the trailer so it does not hang down. The LED strip connections to the feeder cable can be done every 2 or 3 LED strips depending on the spacing. While we provide crimp on connectors for this purpose, any type of 10-12 awg connector will usually work.

DO NOT OVERLOAD your feeder cable runs. The maximum number of LEDs per 18awg run is 900 LEDs. Make sure you have properly calcutated the number of LEDs using the data on the product page and the kit configuration. Here is the product page link if you need assistance with this -> **https://www.boogeylights.com/dry-van-trailer-under-glow-light-kit/ .**

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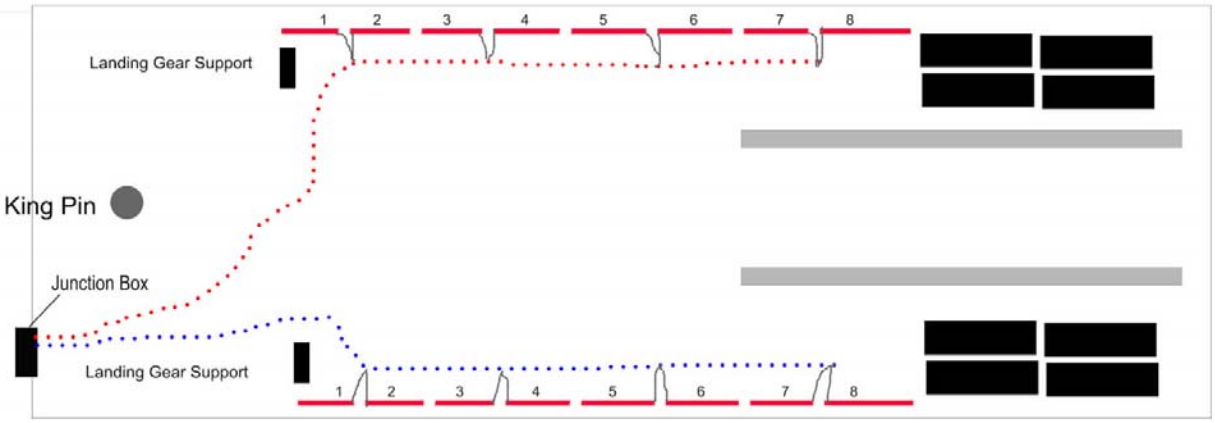
Edge Mounted LED Strips

Edge mounted LED strips can use either our LOW PROFILE (Kit Version 3) LED strip or our HEAVY DUTY (Kit Version 4) LED strips. For commercial applications we only suggest our Heavy Duty LED strips. Regardless, the way you mount them is the same. With our Low Profile LED strips you'll have one or two LED strips total on each side depending on the lengths you ordered. With our Heavy Duty LED strips, there can be as many as 8 LED strips on each side of the trailer. See layout diagrams. In both cases, the LED strips will need to be mounted to a smooth, flat, sturdy surface. We recommend using 1.5" aluminum or plastic flat bar that is secured to some sort of trailer edge flange or cross member struts on each side of the trailer. It's important that the LED strips not span two different pieces of flat bar as those two pieces will vibrate/move independently of each other eventually causing the PCB in the LED strip to fail prematurely.

Our Low Profile LED Strips come with 10' power lead. The Heavy Duty LED strips come with a 36" power lead. Our preference is to run the 18awg feeder cable down one side or the other of the end of the strips and then, connect every 2 or 3 HD led strips to that feeder cable. The only limitation to be aware of is that you shouldn't run more than 900 LEDs on a single 18awg feeder cable run. The kit includes enough feeder cable to run one feeder cable to each side of the trailer as shown in the below layout diagram. We have included a diagram below showing how we typically wire up center mounted led strip installations.

EDGE MOUNTED LED STRIPS WIRING

View of the bottom of the trailer. Not to scale.



18awg Feeder Cable #1 connecting one edge of LED strips.

18awg Feeder Cable #2 connecting the other edge of LED strips

Feeder cable needs to be wrapped in split loom (supplied) to protect the cable from chaffing. Feeder cable can be either secured to the floor decking using wood screws OR many trailer support struts have holes in them to allow for cabling to run through them easily (or, drill your own). Doesn't matter how you do it as long as the feeder cable is secured firmly to the trailer so it does not hang down. The LED strip connections to the feeder cable can be done every 2 or 3 LED strips depending on the spacing. While we provide crimp on connectors for this purpose, any type of 10-12 awg connector will usually work.

DO NOT OVERLOAD your feeder cable runs. The maximum number of LEDs per 18awg run is 900 LEDs. Make sure you have properly calcutated the number of LEDs using the data on the product page and the kit configuration. Here is the product page link if you need assistance with this -> **https://www.boogeylights.com/dry-van-trailer-under-glow-light-kit/ .**

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Single Color or Dual Color Installations

The most common switching and wiring method is to use a heavy duty relay mounted in a junction box on the front of the trailer (see image below). That relay can then be triggered either by the trailer's existing running lights or another switch of some type. That additional switch can be either a wireless on/off switch or a wired switch which is mounted in the cab of the tractor that's pulling the trailer. For wireless on/off, the wireless controller can usually be mounted inside the same junction box. A hand held wireless remote is then used to turn the lights on/off. For wired switching, you'll need to add at least a dedicated 2 way plug on the trailer along with a coiled cable that connects the tractor to the trailer (note – these are NOT supplied with the kit). That harness will then connect to a simple ON/OFF switch (or ON/OFF/ON switch in the case of a Dual Color system) on the dash which triggers the relay to activate the lights. We include a diagram of both the wireless and wired options under the Tractor-Trailer Wiring Diagrams on the next page.

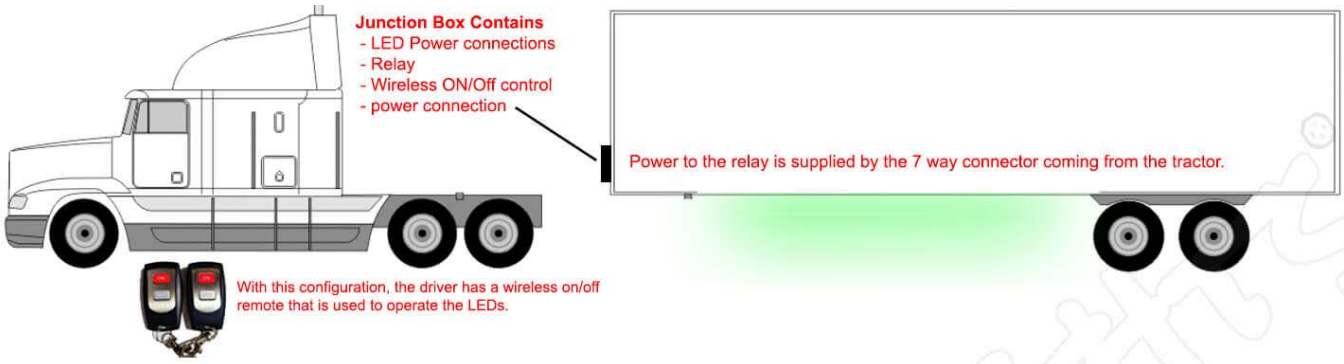
Multi-Color Installations

Multi-Color installations are more challenging simply because there is an LED controller required to be in the circuit which operates the under-glow lights. That LED controller is rather large: as much as 10" x 5" x 4" is needed. In addition, many customers who want a multi-color system do so because their tractor is also lit up and they want the LED controller to operate both the tractor and trailer lights. Example: Zone 1 = tractor lights. Zone 2 = trailer under-glow lights. It's all doable but it does take some planning. In the vast majority of multi-color installations we install a 5 way plug on the front of the trailer using a junction box. All of the LED strips mounted to the trailer join up there using the supplied feeder cable. We then use a standard 15' (or longer) coiled cable that connects the trailer to the tractor (this is separate and apart from the coiled cable that connects the trailer lights to the tractor for ABS, tail, turn and brake lighting on the trailer.) The LED CONTROLLER (usually our dual zone heavy duty version) is mounted in the driver's side storage compartment (where it then gets its power from the truck's batteries). We include a diagram of this option under the Tractor-Trailer Wiring Diagrams on the next page.

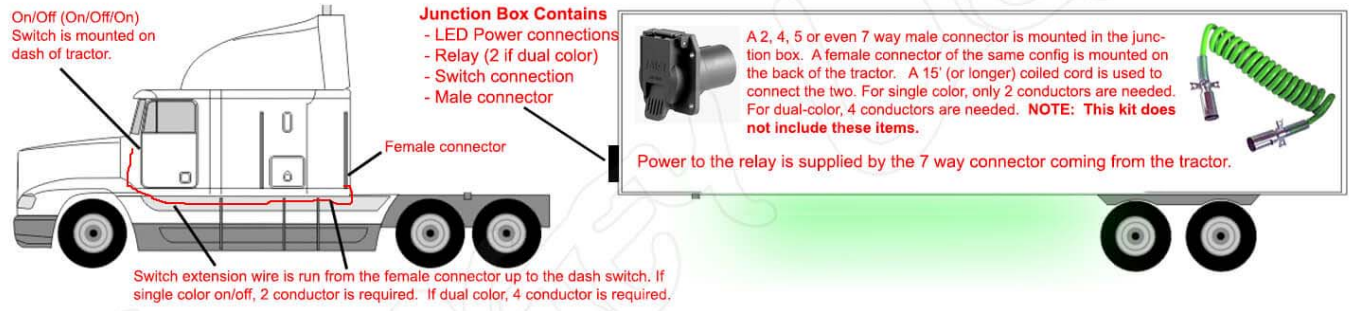
NOTE: Wiring diagrams for the switching and/or controller mechanism you purchased are included with your kit which are separate from these installation instructions.

TRACTOR / TRAILER WIRING DIAGRAMS

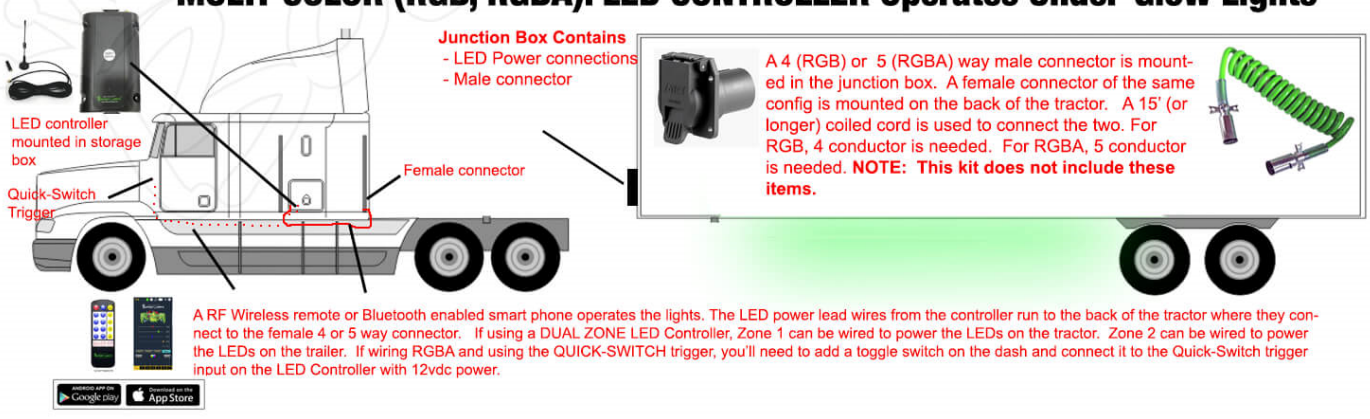
SINGLE COLOR : Wireless On/Off Switch Operates Under-Glow Lights



SINGLE COLOR (or DUAL-COLOR): Wired On/Off (or On/Off/On) Switch Operates Under-Glow Lights

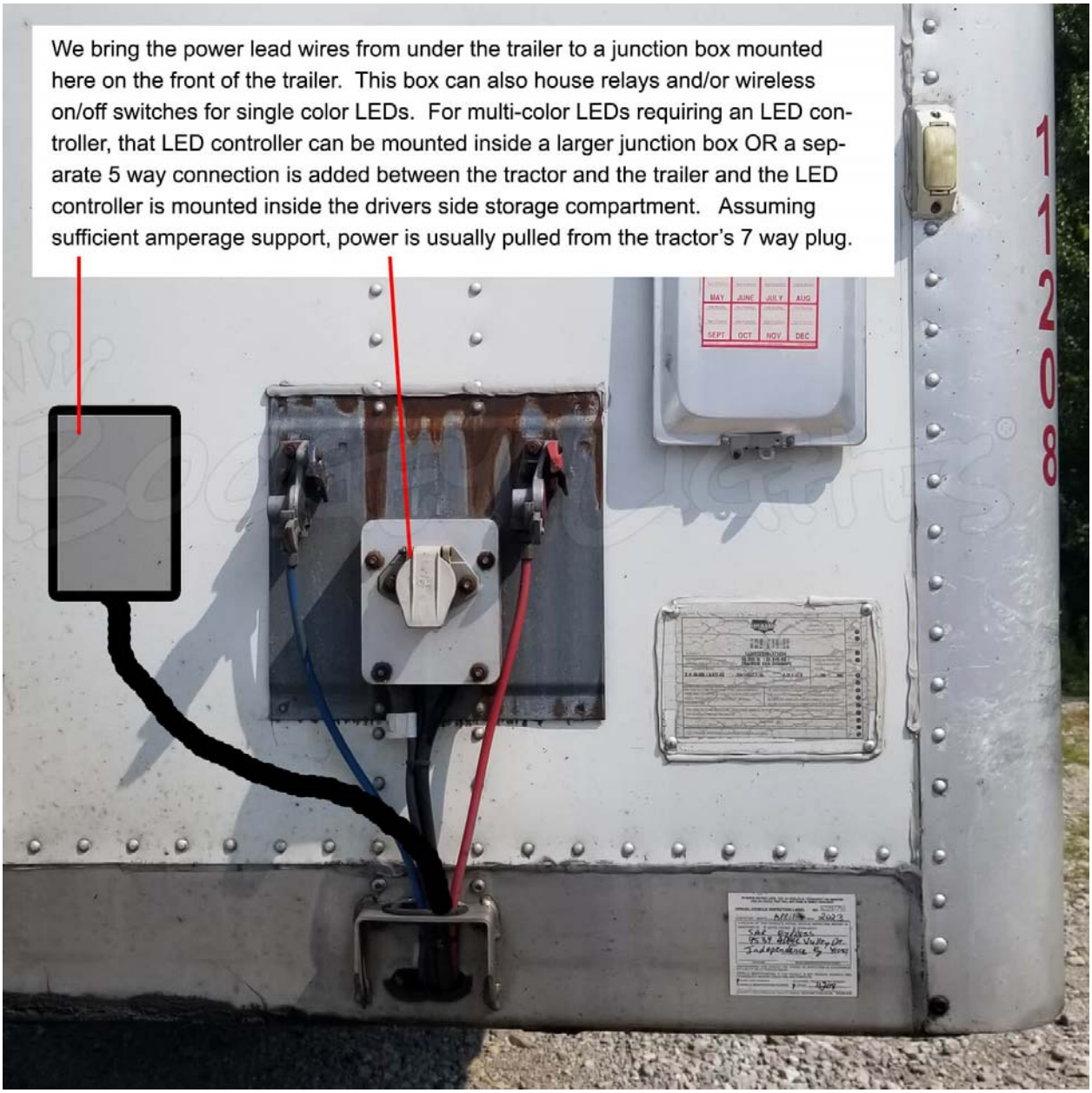


MULTI-COLOR (RGB, RGBA): LED CONTROLLER Operates Under-Glow Lights



JUCTION BOX

Here's a diagram showing the wiring from underneath the trailer meeting up in the junction box on the front of the trailer.



WHAT'S INCLUDED

In addition to the LED light strips, power leads (and controller / switch if ordered), this kit includes some additional items you'll need. Here's a quick review of those items and why we include them.

- Feeder Cable – 4 Conductor will work for both RGB and Single Color. 5 conductor is included for RGBA. Use this cable to extend the LED power leads back to the battery box and/or the LED controller/switch.
- Switch Extension Cable – if you purchased a wired switch (single color or dual color kits), we include 2 (or 4) conductor extension cable to run from the rear of the truck to the front of the truck where the on/off (or on/off/on) switch is typically mounted in the dash.
- 3M Adhesion Primer. Used to prep the surface before attaching the LED strips AND the 3M quick-lock tape. *Always, always, always* use this adhesion primer with 3M adhesive products if you want the bond to hold.
- Junction Box. This is mounted on the front of the trailer. It measures 3.5" x 2.25" x 4.75".
- Split Wire Loom / ¼". All power leads need to be protected from chaffing. Wrap them in this first.
- Battery Extension Cable (if LED Controller or switch is purchased). We include some 10awg cable to extend the battery power inputs going to the LED Controller to the battery. Be sure to wrap this extension cable in split loom.
- Fuse Holder – 25AMP (at least). In some cases we will include a 30 or 40 AMP fuse holder. Insert this fuse holder on the 12vdc positive side of the battery connection before the battery extension cable. This is critical.
- Battery Terminal Lugs (if LED Controller or switch is purchased). We include a couple of battery terminal lugs that attach to the battery extension cable (crimp on) to make it easy to connect the positive and negative power leads to the truck's battery to the LED controller. It's a much better way to make this connection than to just simply wrap the bare cable around the battery post.

- NOTE: Every installation varies a little so you may need to purchase additional items (or more of them such as zip ties) for your install. Here is a LINK to a page on our website that list some of these items: https://www.boogeylights.com/other-items-you-might-need/ .

If you purchased a kit without an LED Controller or switch we do not include any switching devices with the kit. We assume you already have a switch available in your truck or will be installing another switch of some type. Regardless of how you decide to switch your single color LEDs, be mindful of the amperage that adding all these LEDs will draw.

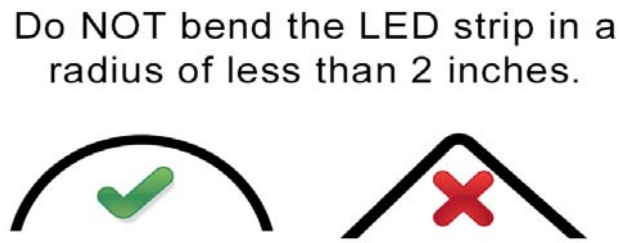
MOUNTING THE LED STRIPS

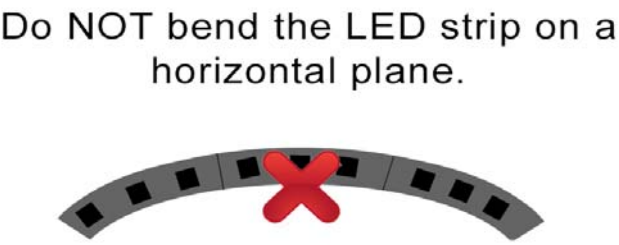
It's important to understand that these LED strips cannot be mounted in such a way as they span multiple surfaces. They must be mounted on a smooth, flat, continuous rigid mounting surface. Spanning two mounting surfaces on a vehicle that moves, flexes and vibrates will absolutely not work. The LED strip will fail and they will do so sooner rather than later; we can almost guarantee it. We know the temptation is there because it's easy/fast to do BUT you're going to be disappointed if you do. Mounting the LED strip across multiple surfaces will void the warranty as well. Also, do not attempt to mount the strip to follow a radius. The LED strip has to be mounted in a straight line.

- The area where you are mounting the LEDs has to be clean: free of all dirt, oil or anything that might affect the LED from sticking. You only get one opportunity to mount the LEDs so it's critical the area be prepared properly. If necessary, us an eraser wheel to properly clean the surface if it's rusty.

- Use rubbing alcohol to clean the area where you are going to mount the LED strip. Be sure to let the alcohol dry completely before proceeding to the next step. (Note: Do not use acetone or similar cleaner).

  If the area is especially greasy, you'll need to clean it with a degreaser or similar solvent. IF you do, be sure to use rubbing alcohol on the surface next to completely remove any left-over residue from the degreaser.





- Next, use the 3M Adhesion Promoter supplied with your kit to "paint" on the promoter where you are going to mount the LED strip. ***This is an important step. Do not bypass.*** Allow the promoter to dry for 60-90 seconds.

- Peel off the red backing tape that protects the 3M adhesive tape on your LED strip. Be careful not to let the tape touch anything. The 3M backing tape on these LED strips are one-use only. They cannot be reused.

Carefully push the LED strip to the area you have prepared. You will want to apply only enough pressure to the strip to make sure it is firmly mounted. *You only get one opportunity to do this.* Once the LED strip touches a properly prepared surface that has been promoted, that LED strip will be very difficult to remove. Moreover, if you do remove the LED strip, the strip cannot be used again without adding another layer of 3M adhesive tape to the back. DO NOT press too hard as too much pressure can damage the LEDs and connecting wires in the strip. Also, do not pull, stretch or twist the LED strip. Too much tension on the strip will also damage the LEDs such that some of the LEDs in the strip will not illuminate.

POWER CONSIDERATIONS

In addition to these installation instructions, we include wiring diagrams for the kit switching/controller mechanism you purchased. Please review these wiring diagrams carefully. An essential skill with installation of any Boogey Lights LED product is knowing how to correctly wire the product to a 12vdc circuit. This includes understanding the importance of having a properly sized fuse at the power source, polarity, how to properly seal an electrical connection, using properly sized wire gauge for the load, measuring voltage and measuring the additional amperage draw you're adding. If you are uncertain or unfamiliar with any of these concepts, we urge you to ask someone who has the knowledge to assist you. Electricity is unforgiving.

Be mindful of the amount of amperage you're drawing through your lighting circuit and to not exceed the circuit component limitations. We have included an amperage chart to give you a general idea of amperage draw but be aware that the amount of power (amps) you're pulling through the circuit will vary based on a combination of three factors: 1) The number of LEDs in the circuit, 2) the amount of copper wire in the circuit and 3) the input voltage to the circuit. The amperage ratings for our switches, controllers and LEDs assume 12.5 vdc input or less. If you're going to be driving with your Boogey Lights on, be aware that the input voltage will absolutely increase when the engine is on as RPMs increase. It's not unusual for an alternator to charge the batteries at a rate of 13.5 to 14.5 vdc depending upon the vehicle. Increasing the input voltage to the LED Controller/LEDs will also increase the amperage draw of those LEDs because they'll burn brighter. For example, we've seen circuits that draw 17 amps when the engine is off and the input voltage is 12.5vdc but jump up to drawing 24 amps when the engine is on and RPMs increased. This is because the input voltage jumps to 14vdc when the engine is running. If your circuit is only sized for 20 amps but the system requires 24 amps while running, you're going to have a problem.

Generally speaking, you don't have to be concerned about this issue if you're not within 60% or more of the collective max amperage rating for the components in your circuit. If however you're at or above that 60% rated load, we strongly suggest measuring actual amperage drawn for your installation to make sure it's fused and wired appropriately given the highest possible amperage draw when the alternator is charging the system at typical operating RPMs. If you have an over-voltage situation, there are a couple of solutions:

1) install a voltage regulator that will limit the input voltage going to the lights to 12.5 vdc regardless of the alternator output voltage. We sell them. They can also be purchased on Amazon/EBay.

2) install a second fuse/relay circuit and balance the LED load between those two circuits. Doing so will effectively cut the load by 50% per circuit. This is our preferred solution when possible.