INSTALLATION INSTRUCTIONS

INTERIOR LIGHTING
CARGO VAN INTERIOR

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BEFORE YOU START

1. It's simply not possible to provide detailed instructions for all installation scenarios. Far too many variables and vehicle format variations. The information in this document is intended to be used as a guide. You may need to vary your installation based on your unique situation. This is particularly the case with electrical wiring, LED placement and switching.

2. 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 works best if applied when the air temperature is above 40 degrees (and of course is DRY).

3. The LED strips have power leads attached to them and those power leads will need to be routed to a 12vdc power source. Make sure you know where your electrical connections will terminate. Be sure to fuse the circuit.

4. For most cargo vans, the power source will be the vehicle's existing battery. If so, be sure the additional amperage you're adding with the installation of these LED lights does not exceed the battery's capacity AND that the battery can support the additional load. This is particularly true for WHITE LED lights. White LEDs consume the most amperage. For example, a 16' LED strip of white will on full power brightness pull about 3.3 amps if the input voltage is 12.5vdc. If you're wiring your lights to a vehicle that has a charging mechanism (e.g. alternator), the input voltage will likely increase when the engine is on; particularly as RPMs increase. It's not unusual for an alternator to charge the battery 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. That same 16' strip of LEDs will pull 4.5 or 5 amps at these higher input voltages. Simply put, be mindful of your power consumption and measure your amperage draw.

MULTI-COLOR INSTALLATIONS: If you purchased a multi-color LED controller, we have included a wiring diagram. Please refer to that wiring diagram to make your connections. Multi-Color (aka RGB) LEDs use four conductor power lead cable. Black = 12vdc (-) Ground, Red = 12vdc + (red leds), Green = 12vdc+ (green leds), Blue = 12vdc+ (blue leds).

SINGLE- COLOR INSTALLATIONS: Single color LEDs do not require an LED controller to operate. They do however require a switch somewhere in the circuit to turn them off/on. There are a number of ways to do this but regardless of how you decide to switch your single color LEDs, you need to be mindful of the amperage adding these LEDs will draw. Make sure the circuit you're using is capable of handling that additional amperage. For single color LEDs, the wiring is simple: RED power lead is connected to 12vdc + and the BLACK power lead is connected to 12vdc - .

4. Bench test your setup. 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).

BTW … Did we mention we suggest bench **testing your LEDs and** controller (or switches) before installing? You would be surprised at how many people don't take our advice on this step.

Important Mounting and Placement Notes

While Boogey Lights low profile surface mounted LED strips are built tough for use outdoor on motorized vehicles, they have to be installed correctly if you want them to last. It's important to understand the limitations and make sure you are installing your lights accordingly. We urge you to review this document before starting your installation.

IMPORTANT FOR CARGO VAN & TRAILER INSTALLATIONS! We suggest mounting the LED strips in this kit to plastic or aluminum flat stock (or something similar) and then mounting that assembly to the van/trailer. Do not mount the LED strips directly to the van/trailer's existing surface. The reason is that many cargo vans and trailers don't have finished interiors and those mounting surfaces are prone to flexing/movement as the trailer moves down the road. If you mount the LED strip directly to the existing surface, the LED strip is likely going to fail prematurely due to the flexing of that surface. Mounting the LED strip on another surface such as plastic flat bar and mounting the assembly to the van/trailer will isolate the LED strip and protect it from that flexing. The Aluminum Channel mounting option we offer is a great way to solve this problem or you can purchase plastic or aluminum flat bar locally. LED strips that fail when mounted directly to the trailer's inside surface are not covered under warranty.

A Smooth, Flat, Straight, Continuous and Rigid Surface is Absolutely Essential

It's super important to understand these low-profile surface mounted LED strips must be mounted to a smooth, flat, straight, continuous and rigid surface. Attempting to mount them on any other type of surface will almost certainly result in your LED lights failing sooner rather than later (none of which is covered under warranty). Here are some key points to keep in mind:

1. 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. If you have to span multiple surfaces, your options are to either build a mounting surface over those surfaces using plastic or aluminum or, installing multiple LED strips (one strip, one mounting surface).

2. The LED strip cannot be mounted on top of or over things such as bolt heads, connectors, wires, gussets, spring hangers, etc. The strip must be mounted to a flat surface with nothing between the LED strip and the mounting surface. Also, the LED strip cannot span gaps in a mounting surface. The entire LED strip must make contact with the mounting surface. Depending on the size of the gap, you may be able to put down some butyl tape first to fill in that gap and then mount the LED over that but this only works for small gaps in a mounting surface such as holes or seams. If you don't have a smooth mounting surface, you can use some 1.5" wide plastic or aluminum flat stock available at just about any home store and we offer it for sale on our website too. Screw or rivet it to the vehicle . Then, mount the LED strip to that flat stock. It makes for a nice, clean installation.

For ceiling mounted LEDs, we also offer mini-t12 aluminum channels (diffusers too) which make for a nice finished look.

3. The LED strip must be mounted in a straight line. Do not attempt to bend the LED strip on a horizonal plane. Also, do not bend the LED strip in a radius of less than 2 inches. For example, installing these LED strips around a corner will not work long term. They will fail.

4. The area where you are mounting the LEDs has to be clean; free of all dirt, grease, oil or anything that might affect the LED strip from adhering. You only get one opportunity to mount the LEDs so it's critical the area be prepared properly. Be sure to clean the area first with rubbing alcohol and then, use 3M adhesion primer to prep the surface. This is an important step. Do not skip it.

CUTTING YOUR LEDS

If you need to cut your LED strip you can do so as long as you cut in the proper location – which is every three LEDs as shown in the below photo. Cutting incorrectly could damage your lights and is not covered by the warranty. If you cut the strip, be sure to use heat shrink tubing or silicon to seal the cut end. If you do need to cut your LED strip, we strongly suggest doing so BEFORE you mount the strip.

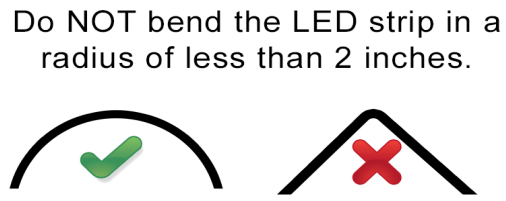
MOUNTING YOUR LED STRIPS

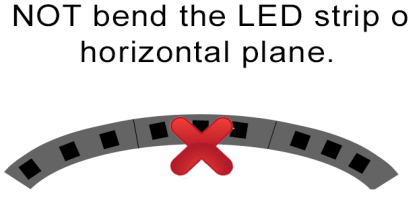
Follow these steps for mounting your LED strips:

- 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.

- Use the supplied alcohol pads 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).

- 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. The strip must be mounted flat against a single continuous mounting surface, in a straight line. Really important that the ENTIRE STRIP be stuck to the mounting surface and that you NOT attempt to span across multiple mounting surfaces.

LED PLACEMENT | CARGO VANS & UTILITY TRAILERS

The below diagrams show three different options for mounting and wiring placement two 10’ led strips on a 20’ to 24’ cargo trailer. The same principle applies to CARGO VANs. And, if your cargo van/trailer is longer than our example, the same principle applies if using longer LED strips. Of course if you only have one LED strip on each side of the van/trailer (e.g. one 8’ LED strip vs two 10’ strips) then the power lead coming off the LED strip can either go towards the front or the rear. The direction you choose is usually determined by how you’re going to route the power leads that connect to your power source and/or switching.

Option One: On each side of the van/trailer there are two 10' LED strips mounted to the ceiling about 12" from the side wall. The two power lead ends (the red-dashed line) come together in the middle (splice into one single cable OR continue as two separate cables) and then follow the roof line forward to the front wall where the power lead then drops down in the corner through the floor where it will connect to the LED controller, switch or power supply.

Option Two: Another way to do this would be to mount both LED strips with their power lead ends facing forward. The front LED strip would immediately drop the corner. The rear LED strips would follow the roof line up to the corner and drop down. Either method will work.

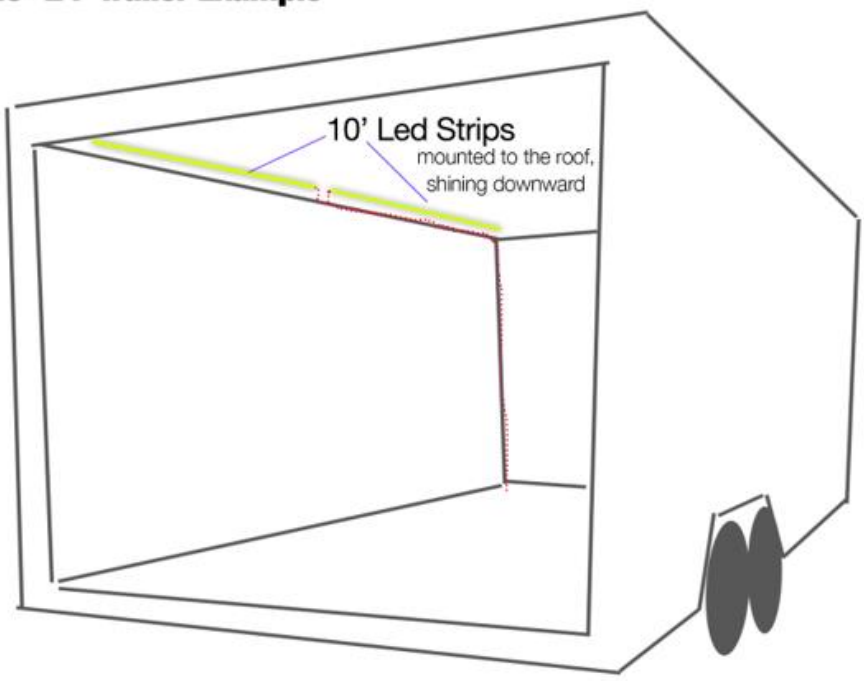
Option Three: Both power leads meet in the middle (like our drawing shows below) but have them drop straight down to the floor instead of going forward following the roof line. In this scenario the power leads can be hidden with wall cable raceway. You could also us some corner duct wall cable raceway to hide the cables that run down the corner.

To fasten the power leads along the roof line, we like to use 3M VHB tape (be sure to use 3M Adhesion Primer first) or zip tie mounts. There are a number of options to secure the power lead wire to the roof line. Of course you would need to repeat the same process for the other side of the trailer.

HOW FAR IN FROM THE SIDES SHOULD I MOUNT THE LED STRIPS?

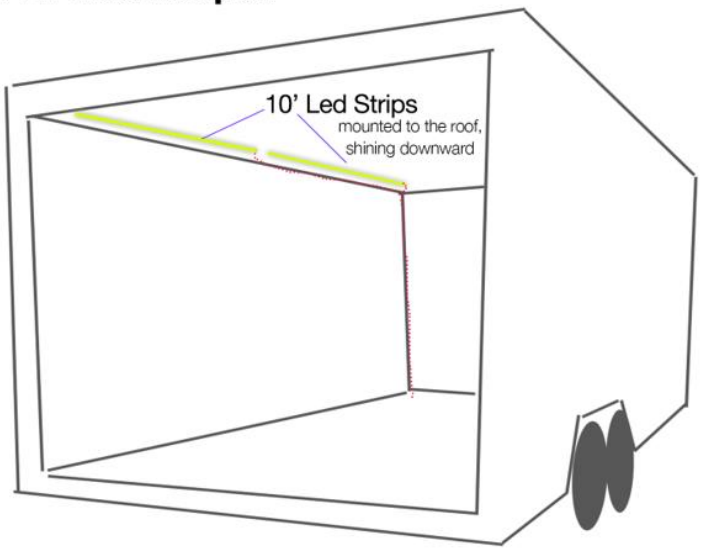
This question is totally subjective. It depends on where you want the light to be concentrated. If for example your cargo van has built in shelves mounted to the sides of the van, you may want to mount the LED strips further in from the side of the van so the shelving doesn’t cast a shadow. When in doubt, we suggest dry mounting the LED strips and temporarily lighting the strips to see how it looks before committing to a permanent mounting location. We do it all the time with our installations here at Boogey HQ.

20’-24’ Trailer Example



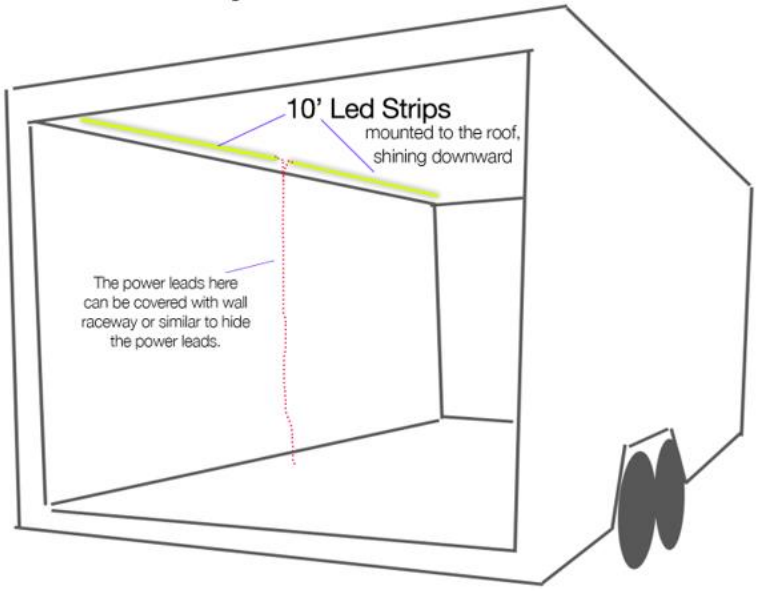
In this example, the power leads (red dashed line) from each LED strip follow the roof line forward to the corner and then down through the floor where they attach to the power source and/or LED controller.

20’-24’ Trailer Example 2



In this example, the power lead (red dashed line) from the rear mounted LED strip follows the roof line forward to the corner and then down through the floor while the forward LED strip power lead immediately drops down the corner and then through the floor where they both attach to the power source,switch and/or LED controller.

20’-24’ Trailer Example 3



In this example, the power leads (red dashed line) from both strips meet in the middle and then run down the wall and through the floor where they’ll connect to the LED controller, switch or power source.