INSTALLATION GUIDE

UNDER-GLOW LED LIGHT KIT
For Cargo/Utility/Food/Car Trailers

IMPORTANT! No two installation scenarios are the same. Accent lighting is highly subjective. Not everyone shares the same lighting or installation quality goals. Some folks are OK with twisting wires together, others want to solder and heat shrink them. Some folks are OK with running wires where they may be seen or unprotected to save money/time, others want a tidy, clean install so they wrap plastic split-loom around all exposed cables. Some folks are OK with mounting their LED strips to whatever surface they can find, others want to take the time necessary to build out appropriate mounting surfaces to provide the best lighting effect on their vehicle and maximize the longevity of their lighting system. The point is it's not possible to provide all the materials necessary for all installation scenarios on all types of vehicles to meet everyone's quality goals. Our light kits provide the essential components needed for a high-quality, functioning lighting system. Installation of our light kit to your specific vehicle will however likely require additional items to make it look, fit and work the way you want. This is particularly the case with electrical wiring, switching functionality and mounting surfaces for the LED strips. We have created a list of additional items you may need. Here's the link: **https://www.boogeylights.com/other-items-you-might-need/** . While we offer them for sale you can also find these items locally. We urge you to review this information before starting your install.

BENCH TEST YOUR LIGHTING COMPONENTS FIRST!

We know this takes a few extra minutes, but we STRONGLY suggest you bench test your lights AND your controller / switches on a table before doing anything further. Test all of them. 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. It also lets you know everything is working properly. 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.

Did we mention the importance of bench testing every LED strip and controller first?

THIS IS A GUIDE. NOT A HOW-TO. It's simply not possible to provide detailed instructions for all installation scenarios. Far too many variables. 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 we assume the installer has the skills, knowledge and tools necessary to do the work using the information we provide as a guide. You may need to vary your installation and/or make adjustments based on your vehicle. This is particularly the case with electrical wire routing, electrical connections, electrical load sizing 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.

YOU MUST HAVE AN UNDERSTANDING OF 12V POWER. An essential skill with installation of any Boogey Lights LED products 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 onsite. We cannot advise you on these matters remotely either.

POWERING YOUR LIGHT SYSTEM. This Under-Glow light kit will work on a wide variety of trailers: from cargo trailers to food trailers to car haulers to utility trailers to horse trailers; only to name a few. The lights don't care what type of trailer they're attached to. As long as you have 12vdc power available (or 120vac to 12vdc power converter), they'll work. This installation guide describes the process of how to properly install this light kit to the bottom of a trailer so they'll last. This guide however does not include wiring instructions to the power source which is typically coming from the tow vehicle. If you purchased an LED controller or single color switching mechanism with this kit, we of course include the wiring instructions for that specific device purchased but how to wire the lights mounted to the bottom of the trailer to your tow vehicle is not detailed. Why? Because there are way too many variations and configurations possible. For example, if you're mounting this light kit to a trailer that has its own on-board power source – such as a generator common with food trailers – then the power connection to the LEDs can be done within the trailer itself. It's straight forward. However, for the vast majority of trailer under-glow installations the only 12vdc power available (at least with sufficient amperage to support a trailer under-glow light kit) will need to come from the tow vehicle itself. To do so will require a wiring harness of some type from the tow vehicle to the trailer. We assume the installer of this light kit has the knowledge to do this. Depending on the light configuration, a simple 4 or 5 way trailer male/female plug/harness is all you need although we'll typically install the PHILLIPS STA-DRY 7 WAY plug system regardless (see photos later on in this guide). These plugs and related cables can be purchased online or at any trailer accessory shop. If you purchased a multi-color under-glow kit with a wireless LED controller, we strongly suggest mounting the LED controller inside the trailer itself and pulling 12vdc power from the tow vehicle. Just make sure you size your cabling appropriately for the amperage draw. Unless you absolutely know what you're doing (EG. have done the amperage calculations, have sized the wiring accordingly and are aware of the potential LCM error issues of the tow vehicle) **DO NOT** use the tow vehicle's existing truck to trailer wiring harness to power and/or control this light system

WORK AREA. 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).

MOUNTING SURFACE CONSIDERATIONS. Make sure you have adequate surface area where to affix the LED light strips to the bottom of your trailer. Most trailers do not have an enclosed bottom. There will typically be a series of support struts. Depending on how you measured and ordered your light kit, you'll need to make sure you have sufficient surface area to attach the LED strips. In most trailer installs, you'll need to build out a mounting surface

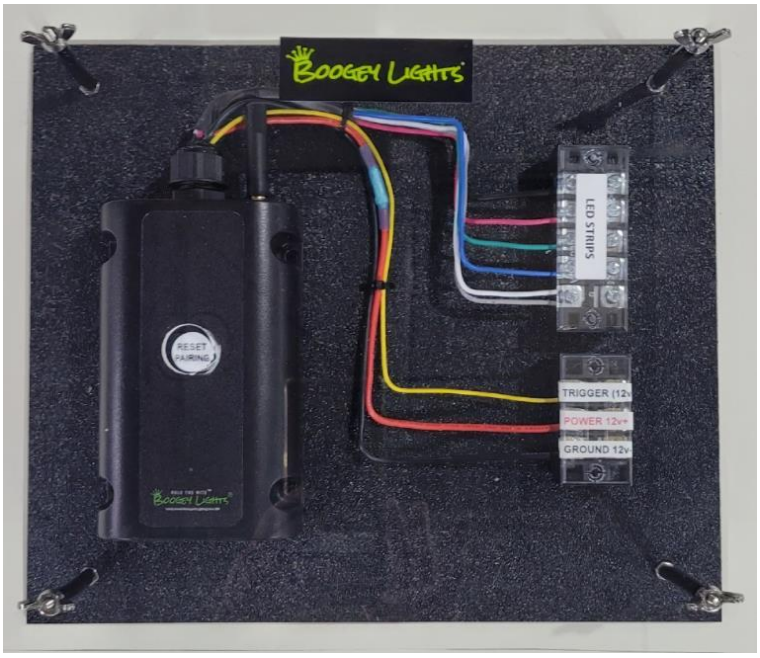
(see photos below). In addition, the area where you are attaching the LEDs needs to be reasonably clean (eg. free from oil, grease, rust, dirt, road grim), smooth, rigid, flat and one continuous flat surface.

IF YOU NEED TO BUILD OUT A MOUNTING SURFACE. For trailers that don't have a smooth, flat continuous surface to mount to – you can use 1.5" aluminum or plastic flat-stock (available at just about any home improvement store and we offer it for sale on our website too). Rivet (or screw) it to the bottom of the trailer typically 4 to 6 inches in from the outside edges. Then, mount the LED strip to the aluminum or plastic flat stock. It makes for a nice, clean installation. If you are mounting the LED strips over top of tires (more typical of semi-truck trailer), and you purchased our LOW PROFILE LED STRIP version of this kit, you may want to install the LED strips inside aluminum channel with plastic diffuser on top. That diffuser will protect the LED strip from being damaged by road debris flung up by the tires. Doing it this way also makes it easier to remove the lights if for some reason you want to in the future. It's the method we use for our in-house installations. We have a video on our website showing more about how to do this. Here's the link: https://www.boogeylights.com/video-creating-a-smooth-mounting-surface/. This video (and many others) can also be found in our INSTALLATION RESOURCES section here: https://www.boogeylights.com/installation-resources/ .

Before deciding how or where you're going to mount the LED strips, it's super 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.

ELECTRICAL CONNECTIONS. Make sure you know where your power leads from the LED strips will terminate. For most trailers, that point will be at or near the tongue of the trailer. For trailers that have power on board (e.g. food trailer with a generator on board), then that location is typically where the breaker box is located (usually at or near the location where the shore power connection is available). If you're installing a multi-color light system with an LED controller (or even a single color light system with an RF wireless on/off switch), we suggest mounting the LED controller as far forward inside the trailer as you can. That way you won't have to be concerned with the RF wireless signal reaching the controller from the driver's seat in the tow vehicle.

If you purchased the optional LED CONTROL CENTER (only offered for multi-color systems) we suggest mounting it as far forward as you can inside the trailer as well. This Control Center can usually be screwed to the inner wall or if you have to, use 3M VHB tape with 3M Adhesion Primer.



VIDEOS. We have a number of installation related videos on our website (and You Tube channel) which some customers find helpful. Here are some links (they can also be found on our INSTALLATION RESOURCES page). Even though some of the videos might not be of a trailer under-glow kit install, the wiring and LED controller mounting concepts are all the same regardless of the vehicle platform.

https://www.boogeylights.com/video-how-to-install-led-awning-light-on-any-travel-trailer/
https://www.boogeylights.com/video-how-to-install-a-boogey-lights-multi-color-under-glow-led-light-kit/

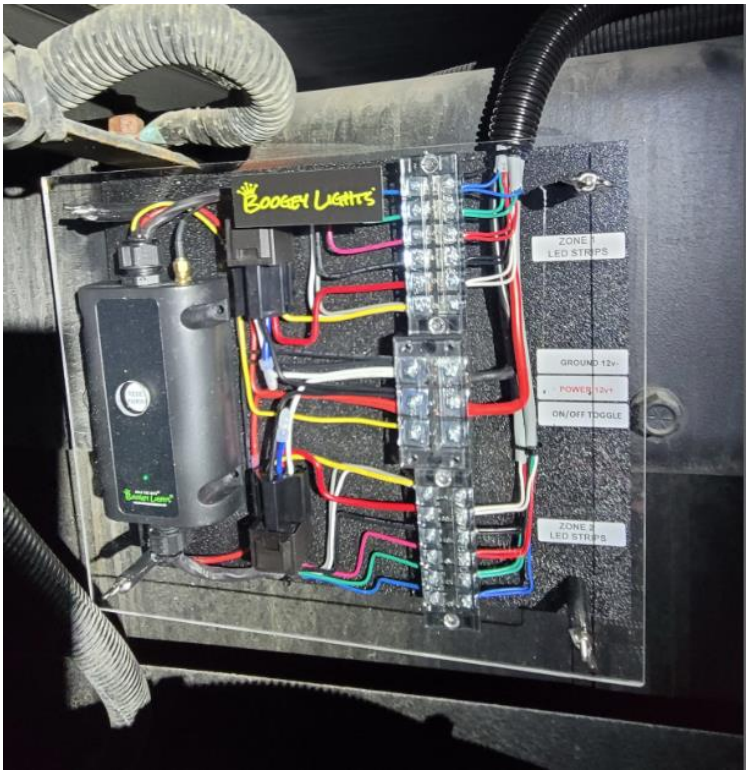
You can also view additional videos on our Youtube channel here:
https://www.youtube.com/c/BoogeyLightsLEDs/

KNOW YOUR AMPERAGE DRAW. Pay attention to the number of LEDs you are lighting and the total amps you will be drawing. Whether you are installing a single color, dual color or multi-color light system, knowing this information is important. We manufacture a number of LED Controllers of varying capacities. If you over-load the LED controller, it will either not work at all or the lights will dim in a short period of time. If you're powering your light system from a tow vehicle, you need to know this information too to make sure you size the wiring accordingly. Amperage data for all our LED products are on each product page. You can also download it directly here: https://www.boogeylights.net/?wpdmdl=1137

As a point of reference, one 16' RGB LED strip (300 LEDs) will consume about 3.5 amps on full power brightness (white, max brightness setting). One 16' RED single color LED strip (300 LEDs) will consume about 4.3 amps on full power brightness. Both assume 12.5vdc power input. On lower brightness settings the consumption is considerably less. While most people do not use this max brightness setting for long periods of time, you still need to make sure the 12vdc power source you're using is not only capable of powering the load you're adding, it needs to be able to sustain that load over time.

OPTIONAL LED CONTROL CENTER

If you purchased the optional LED CONTROL CENTER, the wiring will be easier since all of the connections are labeled and made on the control center board terminal blocks. This saves time with the installation. Also makes it easier to do. We have included some photos of typical LED CONTROL CENTER configurations below.



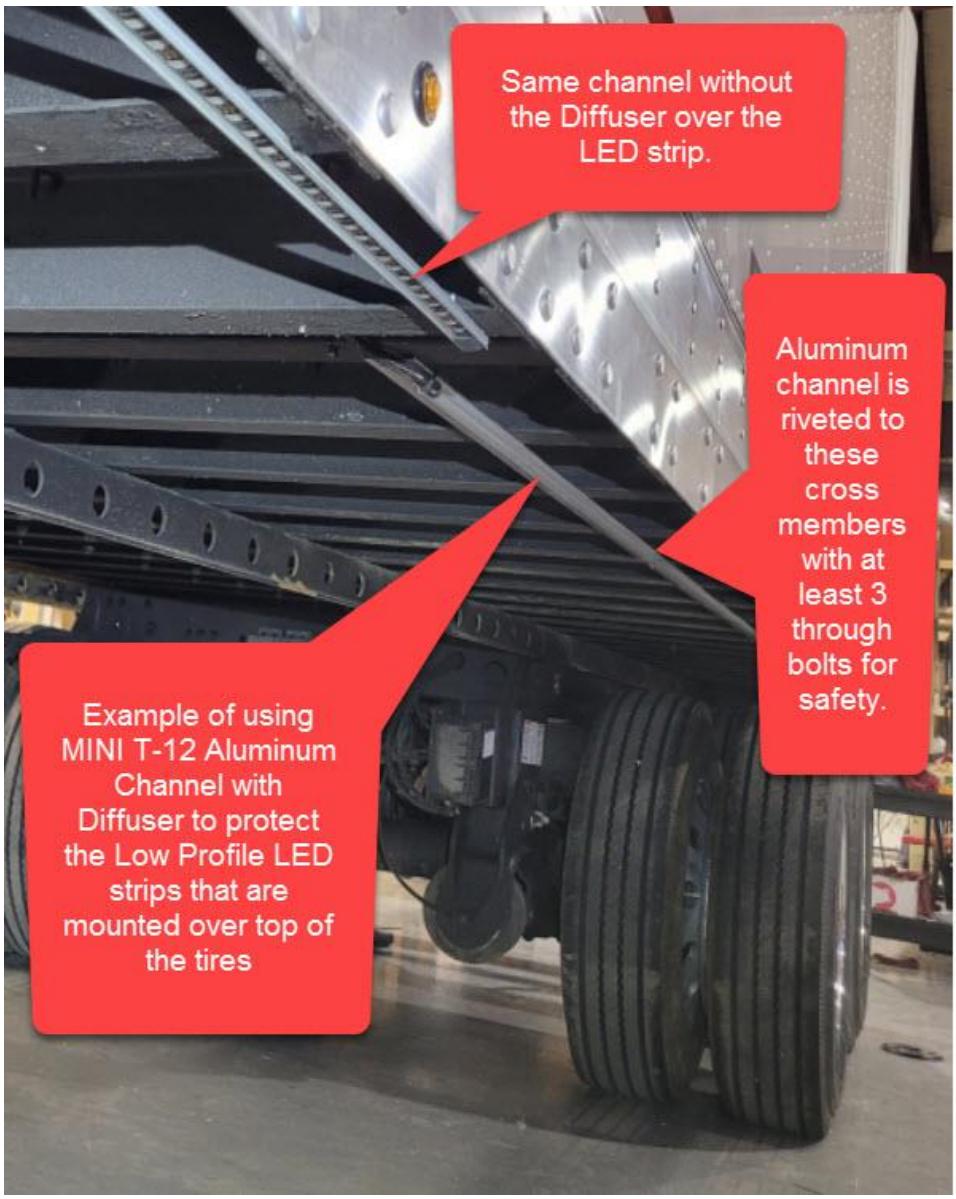
MOUNTING YOUR LED STRIPS

Where you mount the LED strips will depend on what you ordered and the measurements you took before placing your order. Whether you ordered LOW PROFILE LED STRIPS or HEAVY DUTY LED STRIPS the mounting will be pretty much the same. If you don't have a smooth flat mounting surface where you want to mount the LED strips, you'll need to build out that mounting surface. For most trailer under-glow installations, we have to build out the mounting surface. In these situations we recommend using 1.5" x 1/8" aluminum or plastic flat stock (https://www.boogeylights.com/mounting-supplies/) . It can usually be screwed, riveted or wire-tied to the bottom of the trailer and then the LED strips mounted to the smooth surface. In some situations you might need to use aluminum angle (https://www.boogeylights.com/aluminum-angle/) if you're spanning open areas for rigidity. As mentioned earlier in this manual, we have a video on our website showing this process. Here's the link again: https://www.boogeylights.com/video-creating-a-smooth-mounting-surface/. We include some photos below and on the following page.

Placement of the LED strips

With regard to placement, one option is to mount the LED strips 4 to 12" in from each side of your trailer. This placement will usually provide the best "glow" effect without seeing the LEDs when lit. Of course, this is a matter of personal preference and depends on available mounting locations. If in doubt, we recommend dry mounting an led strip in the location you're thinking and then, light that strip up using any 12vdc power source. See how the glow looks from a distance. There aren't any right or wrong answers here. All personal preference. Adjust as needed.

This photo is from an under-glow installation on a semi-trailer but the concept is the same for any trailer that has support beams as shown in this photo.



This photo is from a double axel travel trailer. We installed the aluminum flat bar to the bottom struts and then mounted the LED strips to that aluminum flat bar.

HOW TO VIDEOS -> https://www.boogeylights.com/how-to-videos/

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 seal the cut end. You can also use silicone found at your local hardware or RV store. If you do need to cut your LED strip, we strongly suggest doing so BEFORE you mount the strip to your RV/Camper/Trailer. **NOTE: Heavy Duty LED strips CANNOT be cut. LOW PROFILE only.**

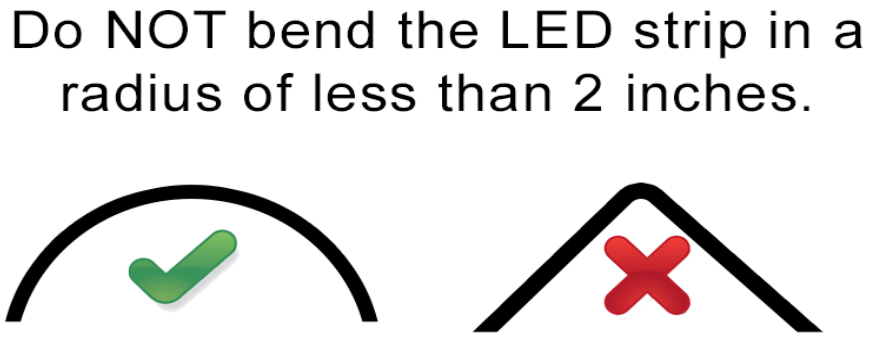
MOUNTING THE LED STRIPS

Once you have your LED strips cut (if necessary) and you know where you are going to attach them, follow these steps:

- 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 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 without reading the section "A Word About 3M Tape & 3M Promoter" further on in this document).

- Next, use the 3M Adhesion Promoter supplied with your kit to "paint" on the promoter where you are going to mount the LED strip. See the note below (on page 6) about the proper way to use promoter. ***This is an important step. Do not bypass.*** Allow the promoter to dry for 30-60 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. **NOTE: With these large LED rolls we suggest you unroll the LEDs as you apply them to the side or bottom of your trailer.**

- Use ZIP TIE mounts and ZIP TIES to affix the left-over power lead cable running to the LED strip to the bottom of your trailer. You don't want to leave this power lead cable hanging. Doing so will place too much stress on the LED strip itself causing it to fall off or fail where the power lead connects to the LED strip. Before affixing the Zip Tie Mounts be sure to prepare the area with alcohol and 3M Promoter just like you did with the LED strip. It's important these Zip Tie mounts hold. If you need more support, add more zip tie mounts.

3M Tape & 3M Adhesion Promoter (aka Primer)

All Boogey Lights® LED strips have 3M Tape backing affixed to them. This 3M Tape is designed to make a more-or-less permanent bond between the LED strip and the surface to which it is attached. When properly prepared, 3M Tape can be affixed to polyethylene, polypropylene, ABS, PET/PBT blends, concrete, wood, glass, metal and painted metal surfaces. To make this bond you must however prepare the surface to which the LED strip will be affixed. You do this by first cleaning the surface with isopropyl alcohol (50/50 mixture with water) and then painting on 3M Adhesion Promoter. YOU CANNOT SKIP THIS STEP. Always apply 3M Adhesion Promoter to any surface Boogey Lights® LED strips will be mounted. The promoter acts as a primer that ensures maximum adhesion. Porous surfaces may require 2 applications of 3M Promoter for uniform coverage and good adhesion. If you are going to add a second coat, allow the first application of promoter to dry before applying the second coat. Our lighting kits include a small bottle of 3M Adhesion Promoter. Simply use a clean, dry cloth to apply it to the mounting surface.

Using Acetone on Heavy Oiled or Greasy Surfaces

For situations where you are affixing Boogey Lights® to a surface where heavy oils or grease are present, a "degreaser" solvent such as acetone may need to be used first. If you use acetone (or any other degreasing solvent) you must still apply the 3M Promoter. Acetone is not a replacement for promoter. In addition, if you use acetone to clean a heavy oiled or greased surface, you will still need to follow up with an alcohol cleaning to help ensure any residue or film from the acetone is removed. This is because acetone (and most other degreasing solvents) will thin the promoter as well as break down the adhesive in the tape greatly reducing the tape's stickiness. Any surface first cleaned with acetone must also be cleaned with alcohol and then thoroughly dried before painting on promoter.

Important Reminder! The 3M adhesive tape on the back of Boogey Lights® LED stripes are one-use only. If you apply them to a surface that has not been properly prepared, the holding power of the 3M adhesive tape will be greatly diminished perhaps making the light strip unusable. If you take the time to properly prepare the surface in accordance with our instructions here, you won't have any problems mounting your LEDs.

TOW VEHICLE CONNECTION

If you're going to be powering your trailer Under-Glow light system using a tow vehicle, we recommend using the **Phillips STA-DRY Nose Box with 7 Way Plug** system for the harness. We like it because it's easy to install on both the trailer and tow vehicle, easy to service and widely available just about anywhere. Plus, it's heavy duty. The base and plug are separate parts. The base is available in both 2.5" and 3.5" (16-775) depths. The plug is available with built in 20amp breakers (15-762) (per pin) and without (15-760). So lots of flexibility. While the standard Sta-Dry plug is 7 way, nothing says you have to use all 7 pins. There have been many times when we only used 2 of those pins (12vdc + and 12vdc-).