

## Edge Lighting Glass or Acrylic Using LED Strips



<u>Description</u>	<u>Part Number</u>
<a href="#">LED Strip Light 4-Wire Red-Green-Blue by the 5-meter reel</a>	RGBrf-reel
<a href="#">LED Strip Light Double Density 4-Wire Red-Green-Blue by the 5-meter reel</a>	RGBDDrf-reel-10
<a href="#">LED 4-Wire Red-Green-Blue 22.5 Inch Rigid LED Strip</a>	RGB strip
<a href="#">Programmable Micro Remote LED Controller and Driver for RGB LED Strips - 12 VDC</a>	PMRC
<a href="#">60 Watt 12 VDC Power Supply</a>	Driver-60-12
<a href="#">Regular LED Strip (0.375 in. glass) Aluminum DEEP Channel, 98 in. long, Brushed Nickel</a>	SDCD38BN
<a href="#">Regular LED Strip (0.375 in. glass) End Cap for DEEP U-Channel, Brushed Nickel (10-pack)</a>	SDCEC38BN
<a href="#">Regular LED Strip (0.375 in. glass) End Cap for DEEP U-Channel, Brushed Nickel (single piece)</a>	SDCEC38BN-single
<a href="#">1/4" x 3/8" x 4" Neoprene Setting Block</a>	SB572-single

It's easy to edge light glass or acrylic using our LED flexible strips or rigid strips to add a touch of class to:

- Signs with patterns or logos etched or sand-blasted into the glass
- Glass curtain walls and partitions
- Glass shelves

We sell everything you need to do the job except the glass or acrylic. Acrylite Endlighten acrylic seems to work the best and you can buy it cut to size at their [online store](#). See our [note on Acrylite](#). If you choose glass, you can have it made locally at any quality-oriented glass shop that creates patterned glass. Use Starfire glass or an equivalent high-quality glass for the best look.

You may want to have the glass tempered for strength. Consult your glass shop to select the right thickness and glass type for your installation.

Our customers tell us our LEDs are brighter than the competition. Since you're investing time and money in the materials and construction of your LED edge-lit sign, use the best LEDs you can find-ours. There really is a difference in LED quality from various sources. We use the best. Be sure to consider our double density RGB LED strip. It has twice as many LEDs per unit length as the regular RGB strips.

## **Instructions**

Please take the following general precautions when installing any sort of LED lighting:

1. This equipment, like all electrical equipment, should be installed by a qualified person. You should have the basic tools and knowledge of the trade. If you do not, get help.
2. Never wire systems with the power on. Even if you take care not to hurt yourself, you may damage the LEDs or equipment by creating current spikes. Always shut the power off before making connections.
3. Do not expose LEDs, controllers or other electronics to intense electro-magnetic fields, including lightning.
4. Our controllers, boosters, decoders and power supplies are generally not waterproof. Keep them dry.
5. Always observe proper polarity to avoid damaging components.
6. Supply the LED strips with 12 volts DC only. (12 volt AC systems will light the LEDs, but they will flicker and be dim because they only operate half of each cycle.)
7. If you use your own power supplies, be sure they are regulated. Some inexpensive wall wart supplies and other power supplies allow the voltage to go above the rated voltage in certain low-load situations.
8. It is a good idea to allow around 20-25% or more margin for safety with power supplies. We have another document that explains how to build large scale systems—ask for it, and be sure to buy enough hardware to get the job done.

When installing LED lighting, it is a good idea to follow this “dry-run” procedure:

1. Be sure you have everything you need before you start.
2. Lay out your lights, controller, power supply and any other required hardware on the floor or table.
3. There is some resistance in the LED lighting. If you see any color fading or dimming at the end of a long run, you may have too many LEDs for your power supply or controller.

Call if you need assistance with larger projects. We can help you select the required power supplies. We have detailed design diagrams and provide technical phone support.

4. Connect everything and test it to be sure it works and you have it connected properly. It is unlikely, but possible, that some part of your system is defective or was damaged during shipment. If that is the case, it will be very helpful to you to know that before you do all the work involved in installing it. You will also know if you damage anything during installation, which is helpful in trouble-shooting because manufacturing defects and installation damage typically have very different solutions.
5. Damaged and previously installed strips are not returnable, so please call first if you have questions. Our customers have very few problems with our LED lights, as long as they follow the instructions and call if they have questions.

Once you have tested the system successfully, you are ready to install it.

## Check List for Your Edge-Lit Glass Project

1. Procure the basics.

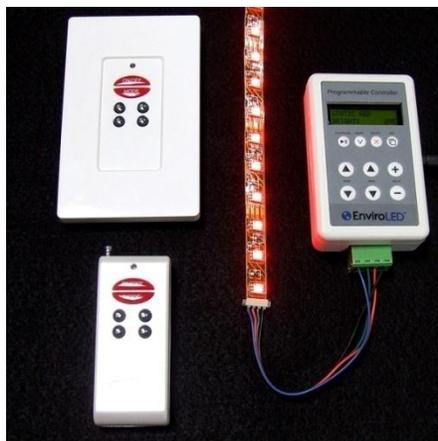


- a. Your glass, in this case, 3/8" or 1/2" thick, purchase from your local glass shop.
- b. Channel. We sell:
  - i. Brushed nickel and gold anodized finishes. Others are available. Call.
  - ii. Deep or shallow channel. We used deep channel for this project.
  - iii. Channel widths suitable for 3/8" or 1/2" thick glass. We used 3/8".
  - iv. Brushed nickel and gold end caps to finish with a polished look. (Deep channel versions only.) Pictured: brushed nickel to match the channel.
- c. Your LED strip lights. We sell:

- i. RGB 22.5" long strips (pictured below the glass above) comes with 2 connectors, about 4 inches long (1 is pictured at a diagonal, above.)
- ii. RGB 5 meter (16.4 foot) reels (also pictured above.) (1 cm wide.)
- iii. RGB 5 meter (16.4 foot) double density reels (1.3 cm = 0.5" wide.) Don't use 3/8" glass for this LED strip because it's too narrow-use 1/2" glass and track.
- iv. Dimmable monochrome LED strip reels (not pictured.) (0.8 cm wide.)

It is usually easier to use flexible strips than rigid strips because the regular RGB flexible strip lighting is cuttable every 10 cm (about 4 inches) and the monochrome strip is cuttable every 5 cm (about 2 inches.) The RGB rigid strips are 22.5" long, and they are cuttable with a hack saw, but that's a little less convenient than cutting the flexible strip with a wire cutter. Also, the flexible strip (ribbon) comes in 5 meter (16.4 foot) reels, so if you need to go more than 22.5 inches, the ribbon is a lot easier than the rigid strips, because you'd have to connect multiple rigid strips, and preserving LED spacing across the connection would be hard. We chose the 22.5" RGB rigid strip for this example because it was the perfect length for our sign.

- d. A setting block to protect the LEDs from the weight of your glass (not pictured.)
  - e. Black 95C Silicone Building Sealant, if you want to caulk the channel to the glass (optional, sold elsewhere.)
  - f. Optional clip-on connectors, if you chose flexible strips instead of rigid strips.
2. Procure something to power your 12 volt DC LEDs. We offer a comprehensive selection of [controllers and dimmers](#) for LED strips. We also offer complete installation guides for building large scale color-changing and monochrome LED linear lighting projects. Ask for those guides if you plan a larger installation. For this example, we chose our Programmable Micro Remote Controller.



[PMRC](#)



PMRC (with supply)

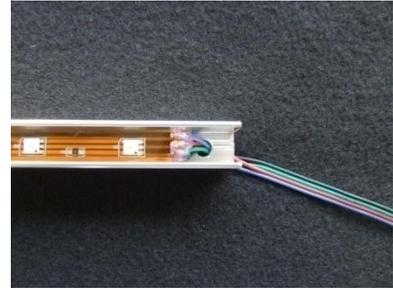
3. Tools you might need:
  - a. A wire-cutter
  - b. A knife, to cut the setting block
  - c. A hack saw, to cut the channel to the right length
  - d. A caulking gun, if you want to seal the glass to the channel
  - e. Black electrical tape, not a “tool,” but it might be in your tool box
  - f. A drill and bit (about 7/32”), to make a hole in the channel for the wire
  - g. Possibly, a soldering pen and solder

## **Assemble the Edge-Lit Glass**

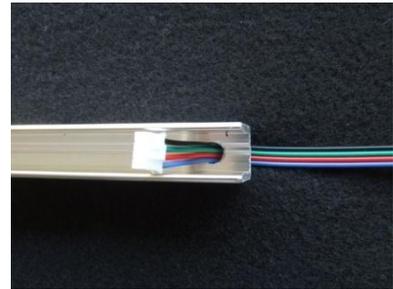
1. Attach wires to the LED strip.
  - a. If you chose flexible strips (not RGB rigid strips,) we sell handy clip-on connectors, but you need to check to see if they fit in the channel you bought. Typically, they do not. You can either extend the flexible strip past the end of the channel and attach the clip-on connector, or you may solder wires onto the flexible strip. If you solder, pre-tin the wire and just quickly touch the wire, solder and pen to the solder pad on the flexible LED strip. **DO NOT** apply the solder pen for more than about 1 second. The excess heat could damage the nearest LED. Test to be sure you have a solid mechanical and electrical connection.
  - b. If you chose an RGB rigid strip, cut the plug off one end of one of the 2 4-inch cables that come with the strip. Strip the ends of the wires.
2. Test the lights to be sure you know how to hook them up and everything is in order. If you don't know how to wire them, ask for our comprehensive instructions for [monochrome linear light](#) or [RGB linear light](#). Cut or damaged strips are not returnable.
3. Cut the channel to the right length (a little longer than the glass) using a hack saw. If you happen to have a grinder, you can grind the end of the channel for a smooth finish. If you don't have a grinder, you might want to take any burrs off the cut edge with a hand file.
4. If you want the wires coming off the bottom of the channel, drill a hole about 7/32” diameter in the bottom of the channel near the end. You can also have the wires come off the end of the channel.

5. Thread the wire through the channel.

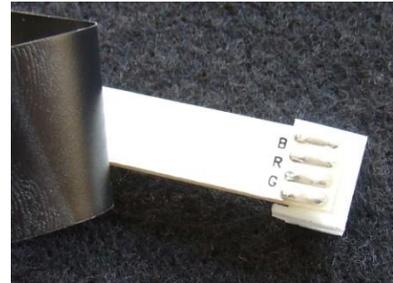
a. If you chose RGB flexible strip, it looks like this:



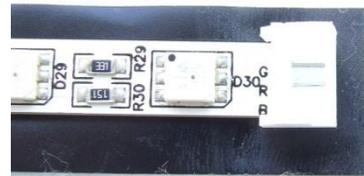
b. If you chose the RGB rigid strip:



6. Put electrical tape on the back of your lights to electrically insulate the strip from the metal channel. If you chose the RGB rigid strip, put 3 thicknesses of electrical tape over the solder bumps protruding through the back of the strip or the pointy bumps will poke through the tape and the channel will short your lines together.



For the RGB rigid strip, it looks like this from the top, after you put the tape on:



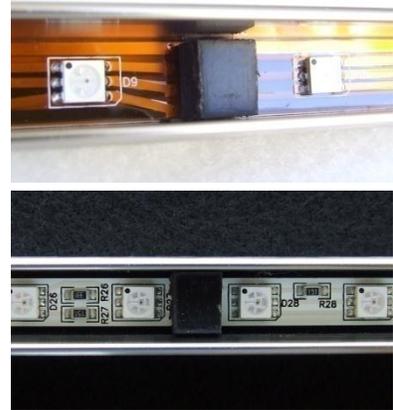
7. Cut your lights to the right length, if necessary. Put them in the channel and test again. If you used RGB LEDs be sure you can light all 3 colors.



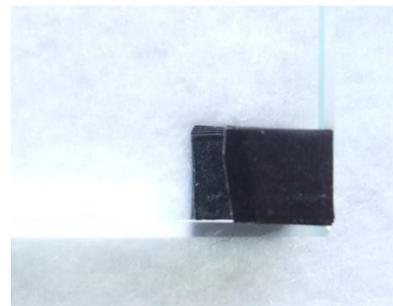
8. Cut 2 pieces of setting block ¼” square:



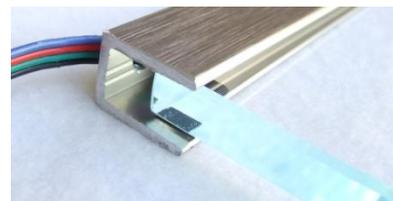
9. Position one setting block near each end of the channel between LEDs and resistors. The purpose is to keep the glass from resting directly on the LEDs. The setting block is thicker than the LEDs so it bears the weight of the glass, not the LEDs. The setting block is shown with RGB flexible strip lighting (above) and with the RGB rigid strip (below.) You should use setting blocks on the side and top if those edges are under compression, similar to the bottom edge of the glass, due to its own weight.



10. Put some shims at the edge of the glass on each side of the glass to make the glass fit snugly in the channel. Here, we used a few thicknesses of electrical tape, cut into a small square. Our sign is only around 2 feet long, so we just used a pair of shims at each corner, with no shim in the middle of the glass.



11. Put the glass in the channel. The dead end is shown at left, and the live end is shown at right.



12. Test it again to be sure all colors light.



13. If you want to caulk the edges, use Black 95C Silicone Building Sealant. Do not use clear. Black hides, clear does not, and the clear will yellow over time. Caulking is optional; however, if you want the joint to be waterproof, caulking is required, of course.



14. Caulk the seam (see pointer) between the glass and channel. Your goal is to achieve 1/4" caulk penetration.



15. Depending on your installation, you might want to add end caps for a finished look. Congratulations. You're done!

