

## SPT LED Light Strip Installation Instructions

Thank you for your purchase of Superior Panel Technology's LED Light Strip. You will find that the SPT LED Light Strips provide a very nice white, fully dimmable light that significantly improves the illumination of a cockpit. When used under a glare-shield, the SPT LED Light Strip will improve the visibility of instruments, nomenclature of switches and breakers and will aid in the reading of charts and maps. The SPT LED Light Strip is also a great back-up lighting system when installed with a Battery Back-up unit (BATTPACK14V or BATTPACK28V). The flexible SPT LED Light Strips can also be used to illuminate other areas such as baggage compartments or under-the-seat lighting to illuminate the floor.

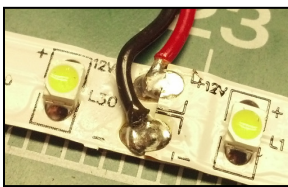
### Contents:

- 1 qty LED Light Strip 39.25" in length
- 1 qty .375" diameter x .5" length black heat-shrink tubing with inner adhesive liner
- 2 qty. .25" diameter x .5" length black heat-shrink tubing
- 1 qty. .125" x 5" black heat-shrink tubing
- 1 qty 10" 22 gauge black wire (M22759/16-22-0)
- 1 qty 10" 22 gauge red wire (M22759/16-22-2)
- 1 qty 3M Adhesive Primer

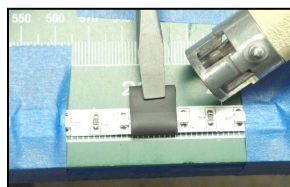
The LED Light Strips are shipped for use with 14V DC power input but they can easily be modified for use in 28V aircraft. LED Strip Lights can be cut shorter but you must only cut across the copper colored tabs in groups of three.

### Wire Installation Steps for 14V Aircraft

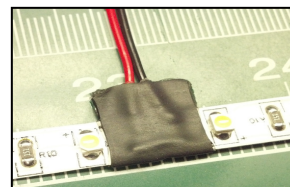
1. Measure and cut the LED Light Strip to length as needed (again, cut only across the copper colored tabs as the LEDs are grouped in threes with a resistor).
2. Strip approx. 1/8" of the red and black wires. Always tin the wires and the copper tabs with solder before joining.
3. Look carefully at the LED Light Strip and you will see a "+" and a "-" sign beside the copper tabs. You can solder the wires to any copper tab (or at the center point of the lamps where there are two copper tabs that already have solder on them). Solder the red wire to the "+" side and the black wire to the "-" side using minimal heat from a solder gun. See picture #1.
4. Cut the one piece of adhesive lined .375" dia. x .5" heat-shrink tubing lengthwise. Place it over the wire connections and heat it while holding with a screwdriver as shown and pinch it together. See pictures #2 and #3. Heat only until pliable. Do not overheat. While wearing a glove, press down to adhere.
5. Remove about an inch of the release liner at the ends of the LED Light Strips and place the .25" diameter heat shrink over the ends of the LED Lights Strips. Shrink by applying heat with a heat gun so that it the ends looks like those in picture #4 and trim any access.



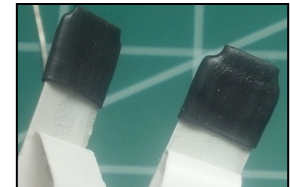
Picture #1



Picture #2



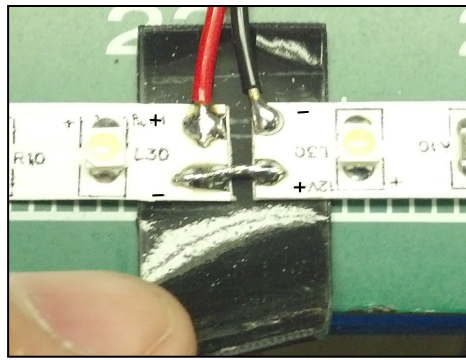
Picture #3



Picture #4

### Wire Installation Steps for 28V Aircraft

1. The LED Light Strips **must be cut into two lamps and wired in series for 28V**. Measure the length of the lamp that you need. If you need to shorten the lamp, it must be done in groups of 3 leds at the copper tabs. Once you have the length of lamp you desire, find the center. Then cut on the copper tabs which are closest to the center of the lamp. If the lamp has not been shortened, this will be the copper tabs that have solder on them.
2. **Reverse** one lamp end to end so that now where they meet you will have a positive (+) and a negative (-) adjacent to each other. Leave approximately a 1/16" gap between the lamps and solder a jumper wire between the positive (+) and the negative (-) tabs. Strip the wire as explained in step 2 above and then solder a red wire to the remaining positive (+) and a black ground wire to the remaining (-). See picture #5. On a 28V system you must connect the power input at this point (Unlike a 14V system where you connect to any + and - along the LED light strip.)



Picture #5

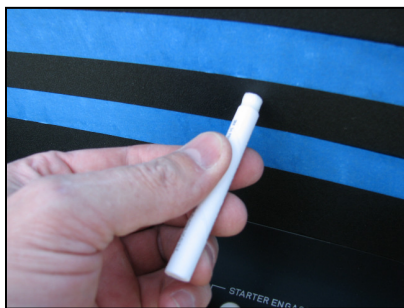
3. Follow steps 4 and 5 in the 14V wiring instructions for placement of the heat-shrink tubing. See Picture #2, #3, #4 and #5.

## Installation Under Glare Shield

1. Thread the red and black wires through the .125" x 3" heat-shrink so that it is up against the LED Light Strip (this short section that will be visible from the underside of the glare-shield). Apply heat to shrink.
2. Drill a 1/4" hole in the appropriate place for the wires to pass through the panel. This is normally centered near the top of the panel. Use caution when drilling through your panel. Nothing will ruin your day more than accidentally drilling through a rigid oxygen line or wire bundle. If you are drilling through an overlay, be sure to hold it down while drilling to prevent it from cracking. A thin piece of wood with the 1/4" hole drilled in it can be used as a guide to protect the panel, keep the bit from walking and hold the overlay down. The best bit for this operation is a Unibit step bit.
3. You need to temporarily position the LED Light Strip under the glare-shield and mark its footprint. Do this by placing it under the glare-shield and tape it down with masking tape. Place masking tape around the outside perimeter of the SPT LED Light Strip. Remove the LED Light Strip and then use a cleaning solvent like isopropyl alcohol/water mixture (rubbing alcohol) or heptane to clean the surface where you will be mounting it. After that, coat this area with adhesive primer by using the small adhesive primer ampoule that is included in your kit. See Picture #6. Apply the primer by breaking the barrier in the ampoule where shown on the container and allow it to wick into the brush end. Coat the area within the rectangular area bordered by the masking tape. Work quickly and tip the ampoule upside down a few times during the process to re-wick the tip. Allow the primer to thoroughly dry (10-20 minutes).
4. Remove the release liner on the LED Light Strip and adhere it to the glare-shield using the masking tape as a guide. NOTE: It is recommended that a very small dab of adhesive (Poly-Bond, Gorilla Glue or other adhesive/sealant) be applied to the ends and center (on the black heat shrink).
5. The red wire is connected to the power input and the black wire to a good ground. **We highly recommend the use of the SPT Pulse-Width-Modulation dimmer (Part number SPTPWMLED). This dimmer was specifically designed to dim low-current items such as LEDs and electroluminescent lamps.**

### Additional tips:

1. Leave a service loop of the wire on the backside of the panel where it passes through the top of the panel.
2. Although flexible lengthwise, the SPT LED Light Strips will not make compound curves. Take your time to temporarily position the strips first with masking tape before adhering them permanently into place.
3. The LEDs are bright and there should be a shield that prevents the pilot and passengers from directly viewing the LEDs. If necessary, we recommend that some type of shielding be added. A black quarter round flexible weather stripping works well.



Picture #6



Picture #7

This image shows the SPT Glow Strips. The SPT LED Strip would look similar.