

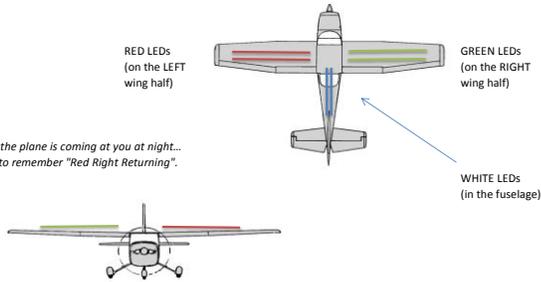
Here are the details of how I used LEDs on my airplane. I want to thank my long-time flying friends Brian Rust, Scott Lehr and Jim Hagel for their encouragement and support!



So you first need LEDs. I bought mine from: www.thecubden.org/store

As you can see they come in a roll and I used their basic variety ~ non-waterproof, single color. Prices may have increased, but at the time I bought mine - they were about \$4 a roll. One roll is about 4' long. If you "double up" the strip (fore and aft of the spar) you'll have plenty to do one half of a 4' wing.

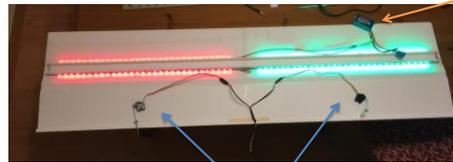
Here is how I planned my simple 3 color design:



You will need some wire and I would recommend connectors. This package of JST male & female connectors (from Amazon) was perfect for this application. 22 AWG wire is really all you need.

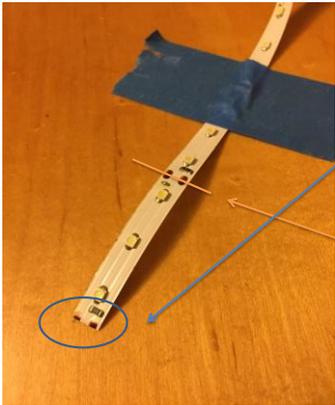
I prefer to plan my installation carefully and solder the system together FIRST before gluing it into the plane. Some builders prefer to glue the strips in... then carefully solder the jumper wires. I have a high wing airplane that I need to take the wing off for storage. So I knew I needed a way to "disconnect" the LED lighting circuit. So just like my aileron servo lead that exits the wing ~ so too is my LED lighting lead (male JST connector).

Here's a pic of my FT Bushwacker wing and the RED and GREEN LEDs:



3s 800 mah pack used for testing. I'll explain how to connect the LEDs to the battery a bit further down.

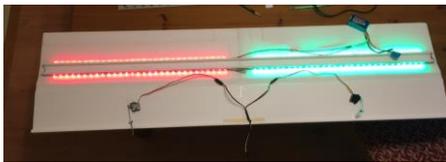
Here are my aileron servos and their Y harness... I'm trying to visualize how all this will fit!



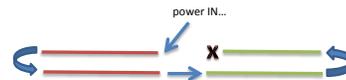
So here is the business end of an LED light strip. You'll want to study the little copper "ovals" or contact points. This is the area where you'll be soldering the wire onto. Tin these spots and your wire ends for best results.

Remember, if you enclose these LED strips into your airframe ~ it'll be a real challenge to have to re-solder one of these connections! Best to test if they're going to fall off OUTSIDE of the airframe.

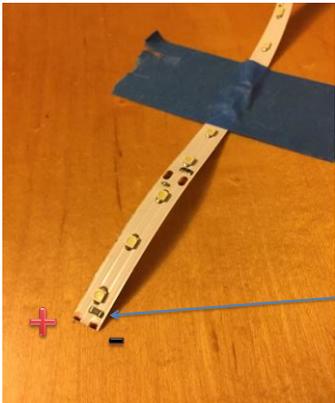
A really cool thing about these strips is that you can cut across these copper contact points and use a "jumper" wire to start the next section. So if you really want to mix and match colors ~ you certainly could.



This is how I was able to "jump" from the RED front to the RED back to the GREEN back to the GREEN front strips.



The "x" in the diagram above indicates the end of the LED strip. You don't have to do anything with the very end of this strip.



So how do you know which is the POSITIVE side and the NEGATIVE side?

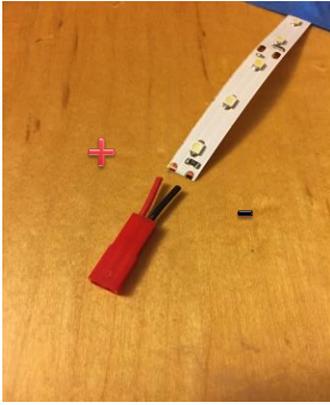
I must confess, I just tested the strip by carefully touching two wires to these contact points using my 3s 800 mah flight pack. (see the "mini-plug" section below... read on)

WRITE DOWN OR INDICATE this polarity so you don't mix it up along the way.

Once tested, this is how my sides turned out. Yours may vary.

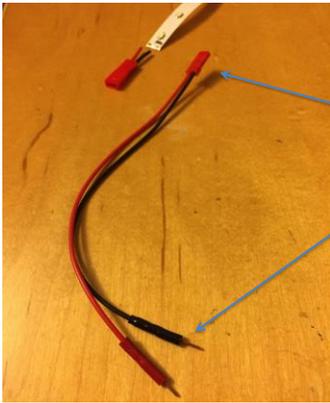
I found that all the LED strips I bought (simple, single color) were oriented this same way... (I started keying off of this little square resistor/circuit thing right here).

Please be aware that if you get "fancier" LEDs with multiple colors on the same strip - they will probably have multiple contact points.



So once I had tested which side was POSITIVE and NEGATIVE... I just soldered on one of the female JST connectors.
(this is just a photo example ~ in my actual system I left a fair amount of wire between the connector and the strip)

I'm calling the JST connector with the larger "boxed" opening the female side.
 The other one I'm calling the male side.
 I hope I've got my connector gender correct. :)

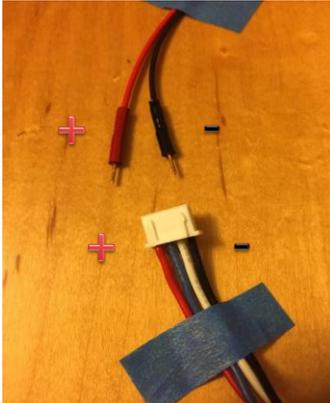


So now you need a way to plug the LED strip into your battery pack. Here again those little JST connectors came in real handy!

Here's the male end of the JST connector...
 plug it into the female connector.

Then cut two short pieces of copper wire (I had this size laying around).
 I soldered them onto the ends of the wire and then covered them with some heat shrink tubing.

So these single pin "mini-plugs" you just made... should plug right in to the battery balancing connector.



In my picture, since I'm CERTAIN that I have the polarity right... I can just plug BLACK to Black and RED to Red.

Do not connect to the inner 2 wires.
Use the outer 2 sockets in the balancing plug only.

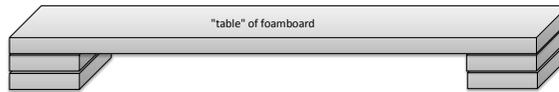
PLEASE USE CAUTION WHEN CONNECTING ANYTHING TO A BATTERY PACK.

Once you connect your mini-plugs...
 you should have a strip of LED lights blinding you!!!

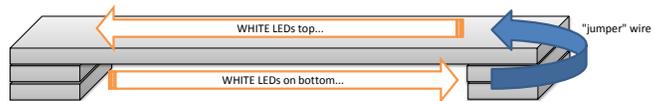
"SO HOW DO THE LIGHTS IN THE FUSELAGE GET INSTALLED AND HOW DOES THIS WHOLE THING CONNECT TOGETHER AND LIGHT UP?"

Good question. First unplug your "mini-plugs" and disconnect it from your LED strip.
 Now, let me draw a sketch to represent how I mounted the WHITE LEDs in the fuselage.

I basically built a long, thin "table" out of foamboard.
 I used several blocks of foamboard at each end to raise the table up...
(you can add more height or even mount this "table" on edge if you prefer)



I then ran the WHITE LEDs across the top and bottom.
 I was careful to keep my + and - polarity in mind while soldering a "jumper" wire at the tail end.

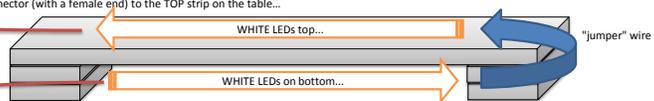


female JST connector

Then I added a LONG JST connector (with a female end) to the TOP strip on the table...

female JST connector

And another JST connector (with a female end) to the BOTTOM strip on the table.



Once I had the "table" unit built, I could squeeze it into the tail section of the fuselage and secure it.

The top female plug from the "table" plugs into the male plug for the wing.

The bottom female plug from the "table" plugs into the male connector with your mini-plugs on it.

And lastly, those mini-plugs connect to the battery balancing plug.

Now you're ready for NIGHT FLYING!

Feel free to email me if you have questions: toddkmerrill@gmail.com

