

ScaleRCHelis.com V1.1 450 Light Controller Kit



Thank you for purchasing the ScaleRCHelis.com V1.1 450 Light Controller Kit. This is something you can build in under a hour with some simple soldering equipment.

Your kit will include all the parts necessary to put a working light controller together. We recommend using a good temperature controlled soldering iron with a good medium size chisel tip to ensure good fast heat transfer to the soldering area.

Included in the kit are the following items:

- 1 x Nano "Arduino Compatible" pre loaded with firmware
- 1 x V1.1 450 Green PCB with surface mount Diode pre-soldered
- 1 x 11x2 Right Hand LED Pin Header
- 2 x 15 pin Nano header
- 1 x 6" Male Servo Lead
- 22 x female Dupont Pins
- 11 x 2 Pin Dupont female connectors for LEDs
- 2 x LED pin shrink wrap
- 1 x Board Shrink warp

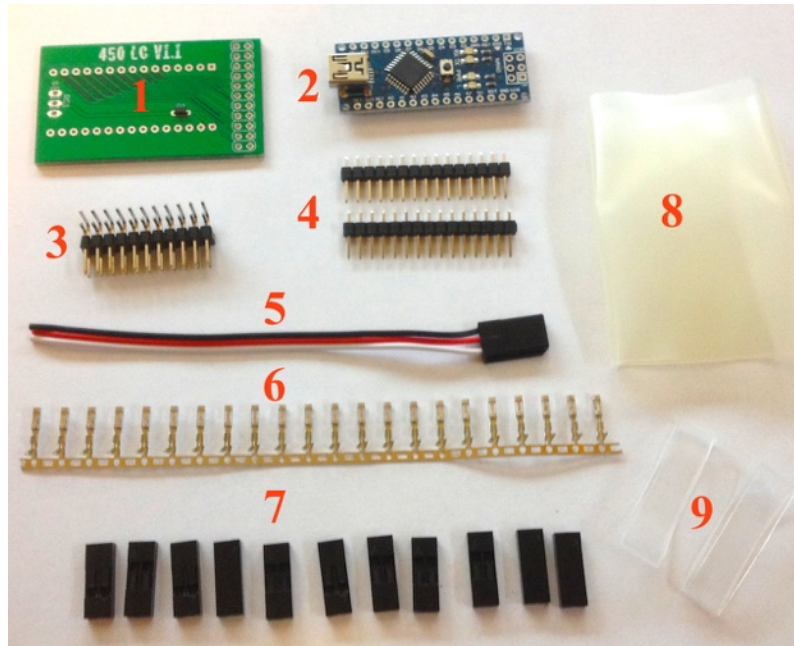
Required Items:

- Good temperature controlled Soldering Iron set to 600 - 650 F (315 -345 C).
- Good Electrical Solder (recommend 63-37 or 60-40 solder)
- Desolder Braid just incase
- Volt Meter to check for shorts

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Please read thru this entire build manual before starting your project to familiarize yourself with the steps involved and also to identify potential pitfalls that may occur during the build. Take your time and the end result will be a functioning light controller that you assembled yourself.

Step 1 - Identifying the parts

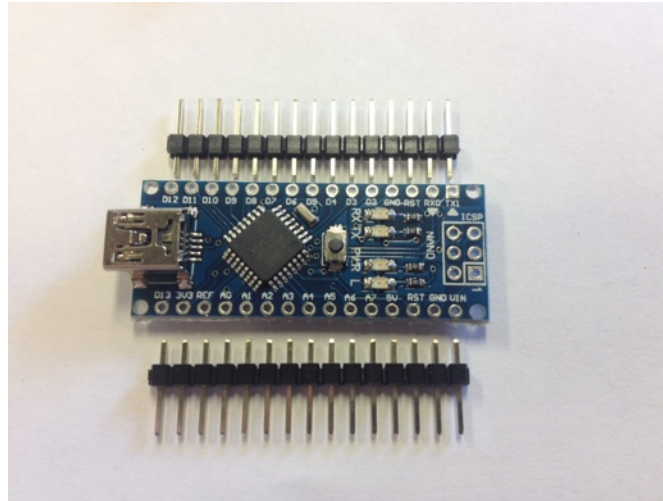


1. V1.1 450 Green PCB
2. Nano
3. RH LED output pins
4. Nano PCB pins
5. Male Servo lead
6. Dupont Pins
7. Dupont Pin connectors
8. Shrink tube
9. LED pin output shrink tube

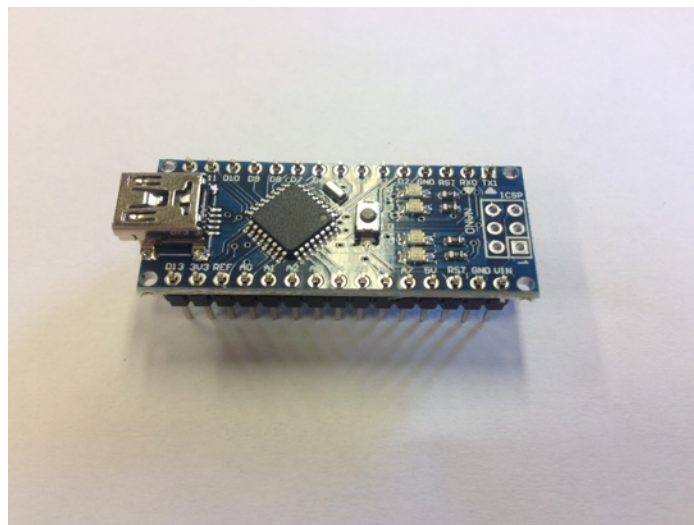
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Step 2 - Soldering the Nano

Soldering the Nano will be easy since it has a Solder Mask on the PCB making it pretty hard to solder a short unless you are using large diameter solder. Remove the Nano from it's anti-static package and the 2 x 15 pin headers.

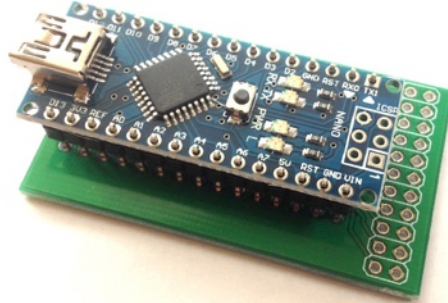


Now do a test fit to ensure everything is good.

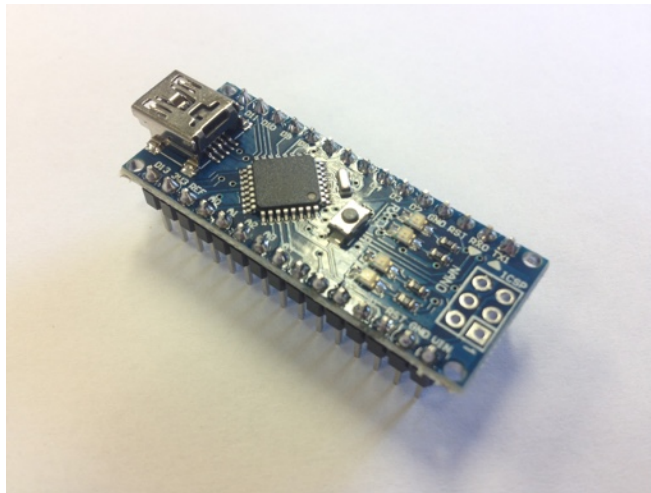


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Place the Nano and pins onto the PCB to ensure alignment of the pins.



Now solder the pins to the Nano while keeping the Nano on the green PCB. This will allow us to ensure the headers are straight so the pins will align with the holes on the green PCB.

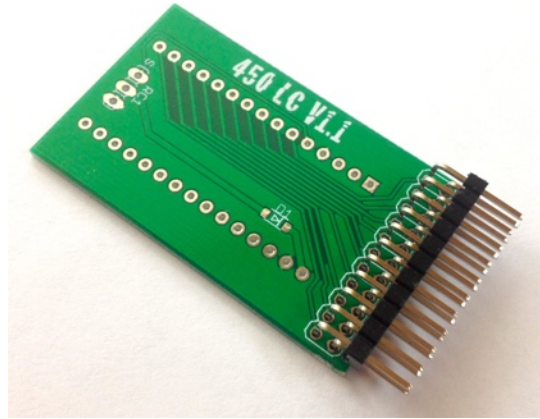


Remove the Nano from the green PCB and Check for shorts on the pins to ensure you have not accidentally shorted out a pin.

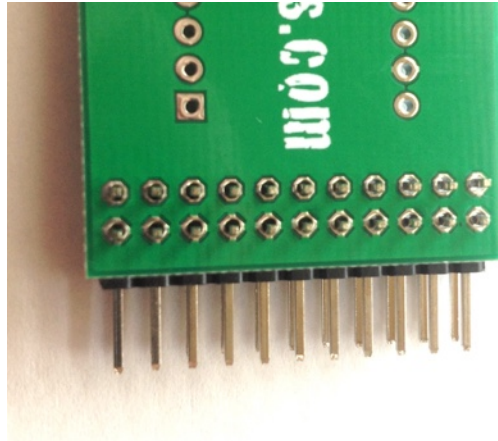
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Step 3 - Installing the LED pin header

Place the 11x2 Right hand header into the PCB. It should fit snug into the PCB and hold itself in place.



Flip the PCB over and solder the top row of pins first then the bottom row of pins. You may have to support the board underneath to ensure the pins are level with the board before soldering.



Step 4 - Soldering the RC Input Lead

You will receive 1 male servo lead with the kit. This servo lead will provide the RC signal and power from your receiver to the light controller.

Strip about 3/16th of an inch of the protective covering off to expose the bare wire. Next you will want to twist the wire ends to make the strands as tight as possible so they will

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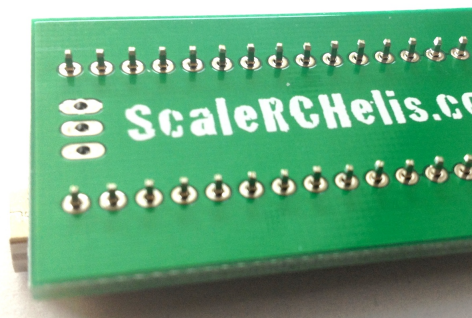
pass thru the holes on the PCB. You may tin the wire ends also to help keep them from fraying when inserting them into the holes. Beware, this is a very tight fit and too much solder may make impossible to pass the wire thru the holes. Note the silk screen designates the Signal Wire "S" (white wire on the servo lead).



Flip the board over and solder the servo leads. If you notice you did not get the protective covering all the way to the PCB (have a little exposed wire), one wire at a time, gently touch the solder joint with your soldering iron and press the wire in from the back side. The wire should slide down causing the insulation to mate with the PCB and make a nice connection.

Step 5 - Soldering the Nano to the PCB

This is the last bit of soldering we have to do. Now take your nano and place it onto the PCB with the USB port facing away from the LED output Pins. Press the Nano onto the PCB to where the pins on the back of the PCB are exposed about 2mm. You may want to use something to shim the PCB when you flip it over to keep the Nano level. Once you are satisfied with the placement, solder the Nano to the PCB. Note the USB connector is above the Servo wire solder pads.



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Before applying the shrink tube covering, we suggest you run the light controller to verify everything works before final assembly.

Congratulations! You have built your own light controller.

Please see the V1.1 Manual for final setup.



As always with any new equipment added to your aircraft, do a range check per your radio manufactures recommendation and ensure there are no issues with your installation.

Again, thank you for purchasing a ScaleRCHelis High Power Light Controller Kit.