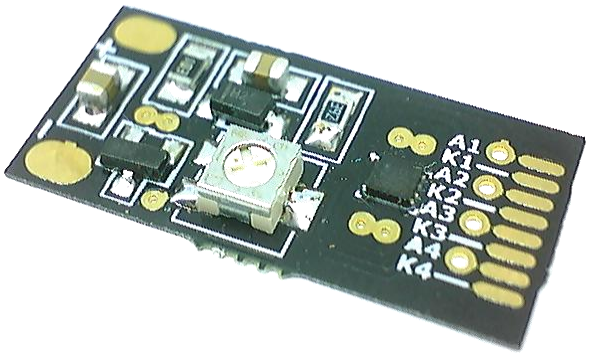
Micro Aircraft Lighting System MWLD01D

The MWLD01D aircraft lighting system has been specifically developed by MicronWings for use in micro aircraft with particular attention paid to the overall weight of the completed unit. The trim pot on the board enables the brightness to be set to the desired level.



Features

1. The standard method of wiring is for one LED to be wired to each output channel. However, more than one LED can be wired onto each channel, as long as the LEDs are wired in parallel. These LEDs must also have similar forward voltages (ie: Green/Blue/White together, and Red/Yellow/Orange together)
   Refer to Appendix A for a table of LED voltage values.

2. In regard to point one above, If LEDs are wired in parallel, the current will be shared almost equally among them (ie: if the current is set to 10mA, two leds with the same forward voltage in parallel on one channel will receive about 5mA each)

3. LEDs cannot be wired in series due to the low battery voltage.

4. This system is designed and tested for 3.7 – 4.1 volt operation. However, it has also been tested to sustain no damage when driven at voltages up to than 6.0volts for periods of not more than 15 minutes. The SMD 0805 LEDs attached to it will also not be damaged.

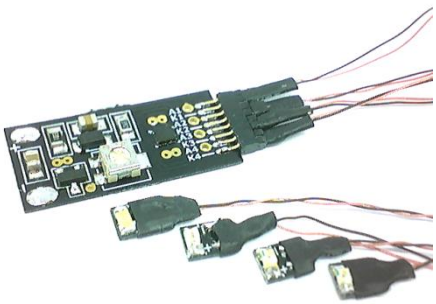
5. The 1mm pitch connectors can be plugged in both ways but will only function correctly when connected with the correct polarity. Although reverse connecting will not damage the unit over short periods of time, we recommend that you check the polarity when first connecting the LEDs and make sure they are connected properly.

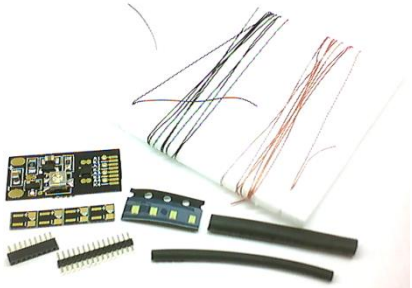
6. Components for this product are sourced from Australian distributors such as Radio Spares; Mouser and Digikey and are of reputable brands: International Rectifier, Kamaya, Kemet, ON Semiconductor, Murata. Unit resistors have a 1% tolerance, and the capacitor dielectric is X7R. The circuit boards themselves are produced in China but assembled in Australia.

7. The trim pot allows the brightness to be adjusted to the desired level and although the unit runs incredibly efficiently, current drain on the battery can be greatly reduced but turning down the brightness. The style of trim pot used is a sealed unit and immune to moisture and dust.

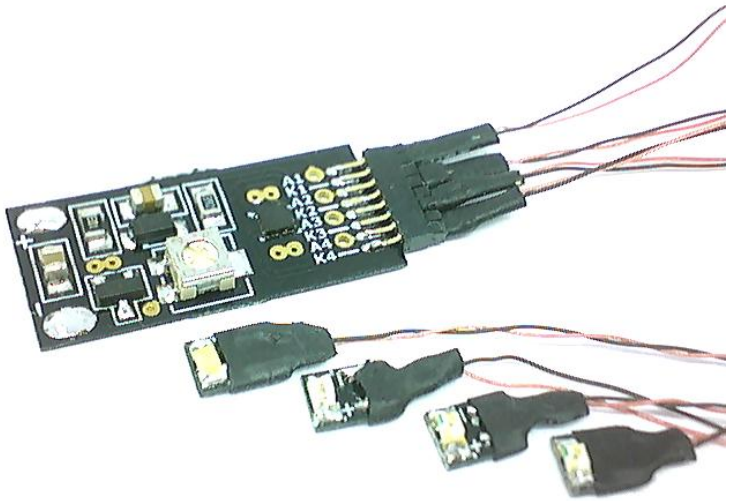
Versions

MicronWings sells two versions of this product. A completed version and a DIY kit version.





Completed Version

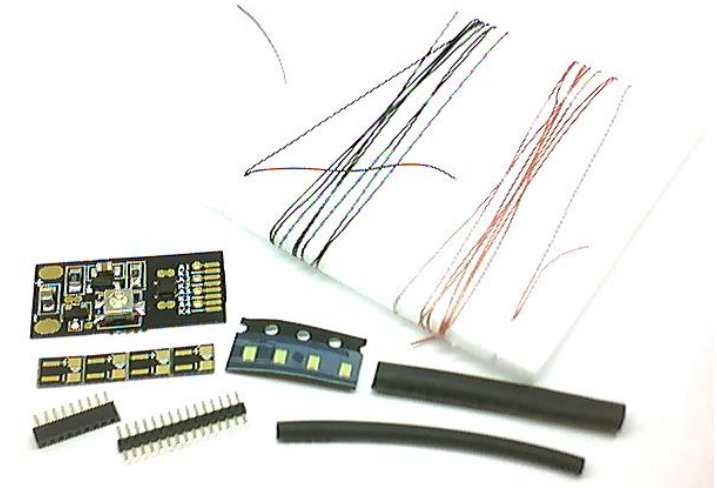


The completed version comes with all wiring harnesses and soldering complete. The units is ready for you to solder to your power source and attach to the plane.

Lighting
1 x RED LED – 25cm leads
1 x Green LED – 25cm leads
1 x RED LED – 15cm leads
1 x White LED – 15cm leads

Unit all up weight: 1.24grams

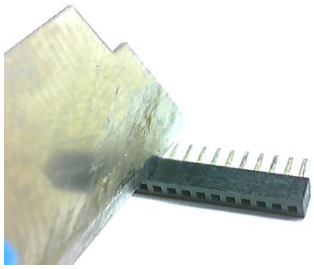
DIY Kit Version



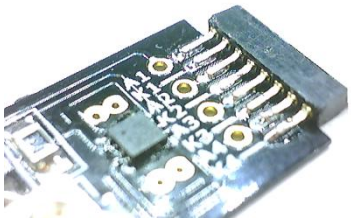
The DIY Kit Version allows people with the ability to do micro soldering, to build their own units. Note that this kit can't be soldered with a regular soldering iron due to the 1mm pitch connectors and pads on the circuit board, you will need a micro soldering iron.

Contents
1 x MWLD01D circuit board
4 x LED mounting boards
4 x SMD 0805 LEDs (1 x white, 1 x green, 2 x red)
1 x set of 1mm pitch header strip connectors
1 meter of red 36 AWG Teflon coated wire
1 meter of black 36 AWG Teflon coated wire
1 x piece of 1mm heat shrink
1 x piece of 3mm heat shrink

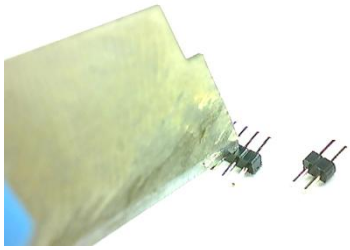
Constructing your DIY Kit Version



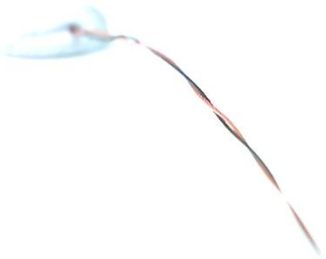
Cut the header strip to length with a hobby knife and trim as needed.



Solder the female header strip to the pads on the circuit board.
Note: you may instead prefer not to use connectors and to instead solder the wires directly to the pads to save weight.



Cut 4 connectors from the male header strip

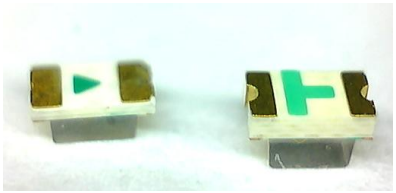


Wires can be anchored at one end and twisted together to make a wire pair. This is optional. Once the wires are twisted together pull them taught a few times to set them in place and keep them from curling up.

Solder the wires to the connector

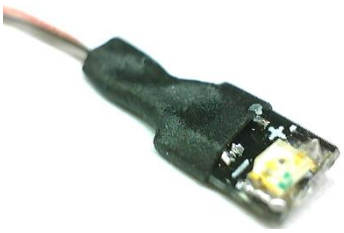
Cut a 5mm length of the 1mm heat shrink and slide it over the connector. Heat and press both sides together.

Solder the wires to the LED mount while noting the polarity as shown on the circuit board.

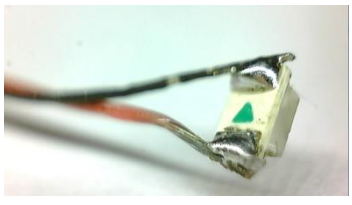


Turn the LEDs over to see the correct polarity. Align the arrow on the back of the LED to face the same direction as the one on the LED mount board. Both the LEDs in the image to the left have their polarity the same way.

Solder the LED to the LED mounting board



Cut a 5mm long piece from the 3mm heat shrink and squeeze it to slide it over the board where the wires are soldered on. You may need to file the rear corners of the board to allow the heat shrink to slide onto the board. Heat and press the sides together.



You may optionally prefer to solder the wires directly to the LED terminals to reduce weight or assist with fitting the LEDs.

Appendix A

SMD 0805 LED Voltages

White:	3.06v
UV:	3.25v
Pink:	3.31v
Orange:	1.98v
Yellow:	2.01v
Red:	1.91v
Green:	3.08v
Blue:	3.02v