

## Patrios LED Operating Instructions, Last Update 5/2/23

### Warning:

The LED enclosure will get very hot when in use, especially at high brightness levels. Ensure adequate airflow and avoid skin contact after operation.

### Wiring Diagram:

		Recommended Connections
Red	+6V to +28V, 500mA max	VBAT
White	PWM Control Signal (3.3V – 5V)	PWM AUX on the radio receiver
Black	Ground	VBAT

### Instructions:

1. Connect the white PWM control input to an RC radio receiver or control system (e.g. Pixhawk or similar). Ensure the ground point is common between the receiver/controller and the power source.
2. Connect the red wire to a 6V to 28V source capable of sourcing 500mA.
3. Connect the black wire to system ground.
4. **The LED is not equipped with reverse polarity protection. Ensure the wires are connected properly or immediate and irreversible damage may occur.**

The light assembly will respond to the following PWM high pulse duration ranges:

PWM High Pulse Duration	Status						
< 1000 us	All LEDs off, standby mode. Recommended to use 900us for off.						
1000 – 1500 us	<p><b>IR LEDs ON, Overt LEDs OFF</b>                      IR LEDs variable brightness:</p> <table border="1"> <tr> <td>1000 us</td> <td>1% Brightness</td> </tr> <tr> <td>1250 us</td> <td>50% Brightness</td> </tr> <tr> <td>1500 us</td> <td>100% Brightness</td> </tr> </table> <p><b>*Recommend starting at 1100 us</b></p>	1000 us	1% Brightness	1250 us	50% Brightness	1500 us	100% Brightness
1000 us	1% Brightness						
1250 us	50% Brightness						
1500 us	100% Brightness						
1600 - 2100 us	<p><b>Overt LEDs ON, IR LEDs OFF</b>                      Overt LEDs variable brightness:</p> <table border="1"> <tr> <td>1600 us</td> <td>1% Brightness</td> </tr> <tr> <td>1850 us</td> <td>50% Brightness</td> </tr> <tr> <td>2100 us</td> <td>100% Brightness</td> </tr> </table> <p><b>*Recommend starting at 1700 us</b></p>	1600 us	1% Brightness	1850 us	50% Brightness	2100 us	100% Brightness
1600 us	1% Brightness						
1850 us	50% Brightness						
2100 us	100% Brightness						

\*Using PWM settings greater than 50% will yield little gain in brightness and create excess heat which reduces the life of the LEDs.

**Ratings:**

Voltage: 6-30V, **Recommend 6V-28V**

Current:

    OFF: 2mA

    ON: 5mA to 500mA depending on specified brightness

Maximum power: 6W

**Color/Wavelength:**

Overt: 5700K

IR: 850nm

**Viewing Angle:**

130 degrees

**Maximum Output:**

Overt: 700 lumens

IR: 760 mW/sr

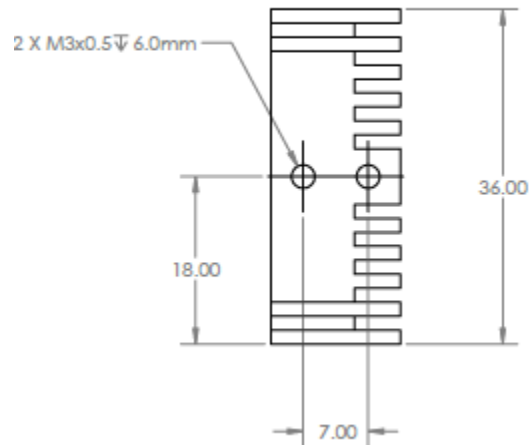
**Thermal shutdown:**

If the internal circuit board gets too hot, a thermal protection mechanism will disable the LEDs. If this happens, let the assembly cool and resume use.

The assembly has been tested to ensure thermal management provides at least 30 minutes of operation at maximum brightness in a 72°F indoor environment with a 12V power supply. Time before thermal shutdown may be reduced in higher ambient temperature conditions or in direct sunlight.

**Mounting:**

The LED assembly has two tapped M3 holes which can be used for mounting. All measurements are in millimeters.



**Weight:**

The LED with housing and wiring weights approximately 20 grams / 0.7 oz