

RYG Tri-Color LED



The red wire is the common Anode. Light color (wavelength) can be determined by the length of the three green wires, RED being the longest and GREEN being the shortest.

Light color identified by green wire length

ALWAYS

Use a resistor on the positive lead (the red wire) and insulate the solder joint with heat shrink tubing or liquid tape.



USE GREAT CARE WHEN HANDLING THE LED ASSEMBLY. It is fragile and the wires can easily be broken by excessive bending. Take great care to avoid scratching the thin insulation off of the wires.

We do not recommend using superglue to mount an LED. Our recommendation is Pacer's Formula 560 Canopy Glue.

For ALL LED's some form of current limiting should **always** be provided. Typically, a resistor is used. To determine the ideal resistor value, use OHM's LAW:

$$V = I * R \text{ or } R = V/I$$

Where V is the resistor voltage in Volts, I is the current in Amps and R is the resistance in Ohms. (A milliamp is 1/1000 Amp)

The LED will use up part of any applied voltage and the resistor must use up the rest when they are connected in series. If excess forward voltage is used on any LED, it will generally draw excessive current and burn out. The series resistor prevents this.

Example: Assume the applied voltage across an LED and a resistor in series is 8 volts and you want a current of 3 milliamps (mA) through the LED. Since the resistor and LED are connected in series, they will have the same current but divide the voltage. The LED gets the first 3.5 volts so the resistor gets the other 4.5 volts. The appropriate ideal resistor for 3 mA in this example is $R = V/I = 4.5/.003 = 1500$ ohms.

The amount of resistance needed depends on:

1. Available voltage.
2. Desired brightness (personal choice)
3. LED package.
4. LED mounting in model.

THE TECHNICAL INFO:

The maximum current for each LED is 10 mA. Our recommended current is 1 mA or less. The LED forward voltages are dependent on the LED current, but you can assume APPROXIMATELY 1.7 V for RED, 2.1 V for AMBER, and 2.5V for GREEN.

Resistor selection is STRONGLY dependent on the available supply voltage.

Assuming a supply voltage of 12 V, We recommend that the user START with AT LEAST 1K ohms in series with the positive wire, and that may give a light that is too bright.

More information can be found on the Richmond Controls website:
www.richmondcontrols.com

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