Improved lighting for your layout room

by Neal Anderson   MMR 641

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1. Problem Statement

Although most of us already have lighting for our layout area, we often have difficulty uncoupling or rerailing cars without using a flashlight or squinting.

2. Description of solution

This class will show you how to add more effective lighting to permit easier and faster uncoupling and rerailing. This system can be installed without disturbing the existing railroad, and with only minor expense.

3. Measuring current light levels

Use a multimeter with a light meter on it to measure light in different areas of the room. This will enable you to determine where lighting needs to be improved.

4. Method of construction

- Cut a 1"x4"x8' board in half lengthwise.
- Cut two lengthwise slots for the wires to run through the back side of the board.
- Use the lighting gauge to set up the desired light pattern.
- Attach a catfood can to the board with a sheet metal screw.
- Drill two holes from the back side of the board into the can.
- Solder two leads to the LED (as showen on the next page) and then run the leads through the two holes.
- Hot glue the LED to the bottom of the can.
- Repeat steps above for all cans on this board.

5. Settings

- Adjust the voltage down on the Buck Driver to 6.0 Volts.
- Hook the meter up to read Amps and adjust the Amps down to .6 Amps.
- Reset for Volts and turn the adjuster so the Voltage goes back up to 12 Volts.

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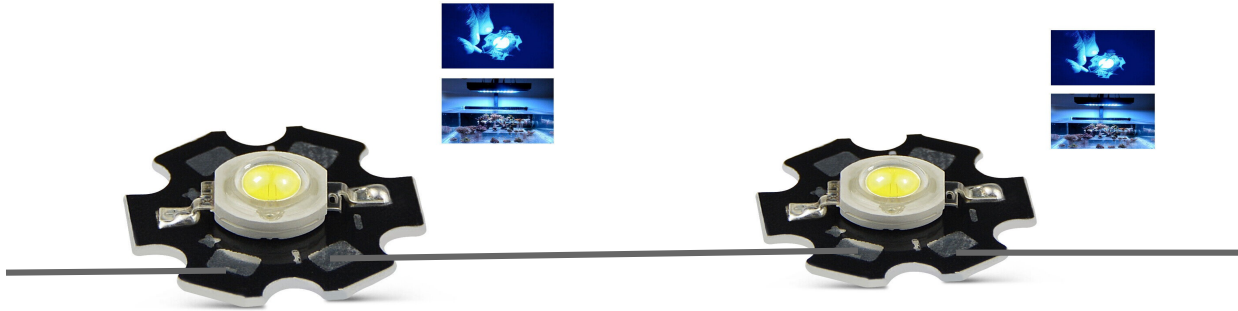
- When powering up the lights, the LEDs must be hooked up positive to negative in line with a total of 4 LEDs, as shown above.

- Each Buck driver can power up to 16 LEDs.

- Four LED lights in series. Conected to four sets in parallel.

- Solder the positive on the four sets together and the negatives together.

- Attach completed board to the ceiling using 1 ½" deck screws.

- The buck driver controls 12v DC power at .6 amps.

- Each LED is rated at 3 watts , and has a heat sink attached.

- Four LED's will light up with the .6 Amps, but add one more and the set will not have the power to light it up. (looking for a soft light)

- At this setting the lights are not over powered and will last a very long time.
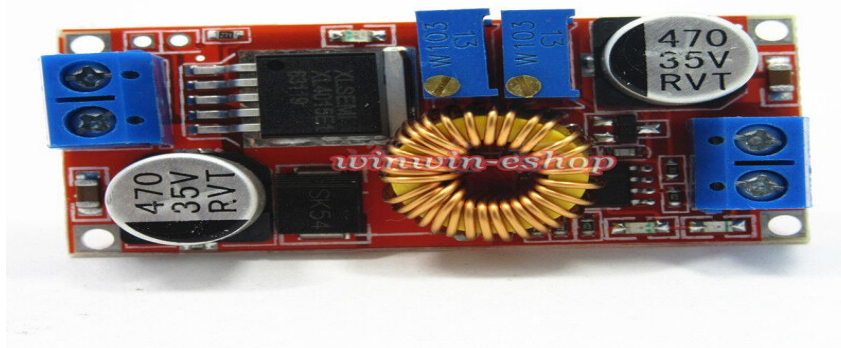
- Parts & Materials Used -- Where to Buy

Wood	1"x4"x8'	Lowes / Home Depot
Wire	22 gauge	Electrical Dept
Cans	Cat food	Friskies / 9 Lives
Screws	1 ½" Deck screws	
	3/8"x8 Sheet metal screws	
LEDs	3W cool white High Power LED Bead Chip 3 Watt 6000-6500k	
Hot glue	Glue stick	
Buck driver	DC 5V 12V 24V 5A Constant Current/Voltage LED Driver Buck Step-Down Power Module	
Transformer	DC transformer (old trainset transformer will do)	
Multimeter	Mastech ms8229 5in1	

Led Lights 3w white High Power Led Light Bead Chip 3 Watt warm white/cool white .   Cool White 6000 – 6500k

1. Amazon …. 50 pcs   = $ 21.55
2. Ebay …...... 50 pcs   = $ 8.60

5A DC Buck Step Down Voltage Converter Constant Current Power Module.

1. Amazon …. 6 pcs   = $ 12.99
2. Ebay …...... 6 pcs   = $ 58.08

Auto-Range Multi – Functional Digital Meter
Model # MS8229

1. Amazon ….. = $ 79.98
2. Ebay …......   = $ 66.49

Priced out in April 2023