Circuitron
Electronics for Model Railroads
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TL-1

TRAFFIC LIGHT CONTROLLER

GENERAL DESCRIPTION: The CIRCUITRON **TL-1** Traffic Light Controller provides the timing circuitry to accurately reproduce the standard four step traffic light sequence. The outputs can control up to 250 ma. each and will drive either Light Emitting Diode (LED) or incandescent lamp type traffic signals (not included). If LED signals are used, they ***must*** have the anodes (positive terminal) of the LEDs connected together. Six outputs are provided for all three colors in both directions. Each of the four time periods are individually adjustable. The **TL-1** requires a 10-18 volt AC or DC input for proper operation. A section of CIRCUITRON's Printed Circuit Mounting Track **(PCMT)** can be used to provide simple snap-in mounting of the **TL-1** or the corner pads can be drilled out and screws and standoffs used.

INSTRUCTIONS: The **TL-1** can be connected with .110" solderless connectors or by soldering leads directly to the terminals on the printed circuit board. If soldering, use a small pencil-type iron and electronics-grade rosin core 60/40 solder (available at Radio Shack). Use only as much heat as necessary to obtain a good joint and do not wiggle the terminal until the solder has cooled completely.

1) Mount the **TL-1** in a convenient location near the intersection to be controlled.

2) Your traffic signals must have one side of all the lamps or LEDs connected together to a "common" wire. If the signals are LED type, the anodes (+) of all LEDs should be used. If your signals use incandescent lamps, it doesn't matter which lead is used. Many signals come pre-wired with one lead common. Check with the signal manufacturer if you are unsure.

3) The **TL-1** will power any voltage lamps from 1 - 48 volts. If your signals utilize LEDs or lamps with the same voltage rating as your **TL-1** power source, you may power them off the Lamp Output Terminal **[L]** on the **TL-1**. If your signals use other voltage lamps, you will need to provide a separate power source for the lamps. Your lamp power supply [-] should be connected to [-] on the **TL-1.**

4) Connect the common leads from all your signals to the **[L]** terminal on the **TL-1** (or to the [+] terminal on your separate lamp supply). If you are using LED type signals, a suitable current limiting resistor *MUST* be connected in series with the common lead from *EACH* signal. Use 1000 ohm, 1/2 watt resistors if the signal manufacturer has not provided them.

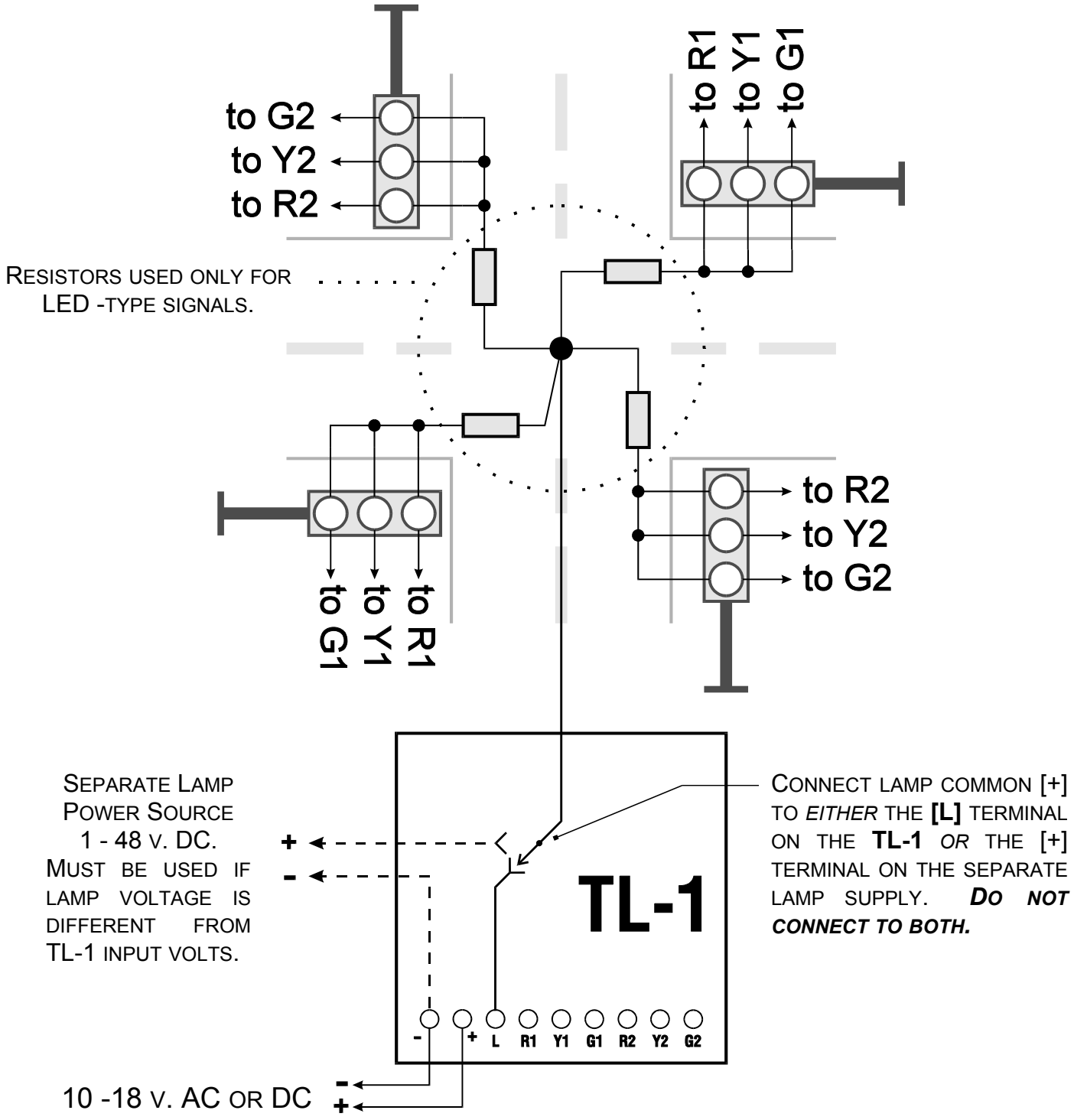
5) The remaining three leads from each signal (red, yellow and green) connect to the **[R], [Y]** & **[G]** terminals at the bottom of the **TL-1**. Notice that these 6 terminals are divided into two groups. Connect all your E-W signals to **[R1], [Y1] & [G1]** and all your N-S signals to **[R2], [Y2] & [G2]**. *CAUTION: The total lamp load applied to any one output must be less than 250 milliamps (1/4 amp).*

6) Set all four adjustment trimmers at the top of the board to the midpoints of their rotation.

7) Connect a 10 - 18 volt AC or DC power source to [+] and [-] input terminals. Observe proper polarity if DC is used.

ADJUSTMENTS: Each trimmer at the top of the **TL-1** controls one step of the four step traffic light sequence. These can all be adjusted independently to tailor the operation to your liking. The specific lamp outputs controlled by each trimmer are indicated by the legend printed on the circuit board directly adjoining the respective trimmer. Thus, the trimmer labelled **[R1/G2]** will control the "ON" time of the RED lamp in the E-W direction and the GREEN lamp in the N-S direction. A very wide range of adjustment is available, however the two steps that light YELLOW lamps are intentionally much shorter than the RED and GREEN ones. Rotating any trimmer *CLOCKWISE* will *INCREASE* the time period for that step of the sequence.

TYPICAL APPLICATION:



WARRANTY

CIRCUITRON warrants this device against defects in materials and workmanship for a period of one year from the date of purchase. This warranty covers all defects incurred in normal use of the device and does not apply in the following cases:

a) damage to the device resulting from abuse, mishandling, accident or failure to follow operating instructions.

b) if the device has been serviced or modified by other than the CIRCUITRON factory.

EXCEPT AS MENTIONED ABOVE, NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED INCLUDING MERCHANTABILITY, ON THE PART OF THE UNDERSIGNED OR ANY OTHER PERSON, FIRM OR CORPORATION, APPLIES TO THIS DEVICE.

CIRCUITRON, INC.