



Electronics for Model Railroads

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PL-8, PL-12

PROGRESSIVE LAMP CIRCUITS

GENERAL DESCRIPTION: The CIRCUITRON **PL-8 & PL-12** Progressive Lamp Circuits are designed for signboard and other applications to provide a moving light display. The only difference between the circuits is the maximum number of lamps (8 or 12) that can be controlled. Either circuit can drive fewer lamps than the maximum, if needed. The lamp sequence is as follows: 1) Each lamp will light in sequence until all lamps are lit. 2) All lamps will remain on for a short time. 3) All lamps will go out. 4) After a few moments, all lamps will come on together. 5) After another short time, all lamps will again go out, and the cycle repeats. All the time periods and speeds are completely adjustable. The **PL-8 & PL-12** require a 12 - 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 **PL-8 & PL-12** or the corner pads may be drilled out and screws and standoffs used. If **PCMT** is used, it may be necessary to bend the retention tabs on the **PCMT** down so they do not contact the underside of the board due to the large number of components and their close proximity to the edges of the board. Each output on the **PL-8 & PL-12** can control up to 150 ma. of current, but the *TOTAL* lamp load must not exceed 1 amp (1,000 ma.). 12 volt lamps are provided with the **PL-8 & PL-12**, however other voltage lamps can be easily used (see wiring diagrams).

SIGN CONSTRUCTION: Since the physical size and appearance of the sign will vary greatly depending upon application, no materials for the sign construction are supplied. When constructing the sign, a few points should be kept in mind. A sealed light compartment should be provided behind each letter to be illuminated. We suggest using opaque plastic or heavy cardstock for the lighting compartments. If thin, translucent material must be used, apply a good coat of black paint over the completed assembly, followed by a coat of white (for reflectance) on the inside. If the lamps provided with the **PL-8 or PL-12** are physically too large for your intended application, any other small lamps may be substituted. The sign front can be constructed from frosted acrylic or any other material that will allow the light to pass through. Dry transfer lettering may be directly applied to create a sign, but this will result in a dark letter on a lighted background. A more dramatic effect can be achieved by producing your sign artwork full size and then having a lithography or print shop produce a 1:1 film negative. Colored filters or film dyes can be used to produce colored letters. If a very small sign with micro-lamps is to be constructed, it may be possible to photograph the artwork (or a prototype sign) with 35mm slide film. Transparency film in a color laser or inkjet printer can also be used with a graphics program to produce full color signs.

INSTRUCTIONS: The **PL-8 or PL-12** can be connected with .110" solderless connectors or by soldering leads directly to the terminals on the printed circuit board.

- 1) Mount the **PL-8 or PL-12** in a convenient location.
- 2) Connect one side of all the lamps together and run a light gauge wire from this "common" connection to the **[LP]** terminal on the **PL-8 or PL-12**. If lamps with a different voltage than the power supply voltage are being used, see *Fig. 2* for details.
- 3) Connect the remaining lead from each lamp to the output terminals **[1-12]** in sequence. If less than the maximum number of lamps (8 or 12) will be used, always start at terminal **[1]** and go up. It is permissible to skip terminals for irregular flash sequences.
- 4) Connect a 12 - 18 volt AC or DC power source to the **[IN]** terminals. Observe proper polarity if DC is used.
- 5) Initially set the four adjustment trimmers **[OFF, ON, MAX & RATE]** as follows:
MAX - Fully Clockwise, OFF, ON & RATE- Centered.

ADJUSTMENTS:

RATE: This trimmer adjusts the speed with which the lamps light in sequence. Rotating the control clockwise will *increase* the speed.

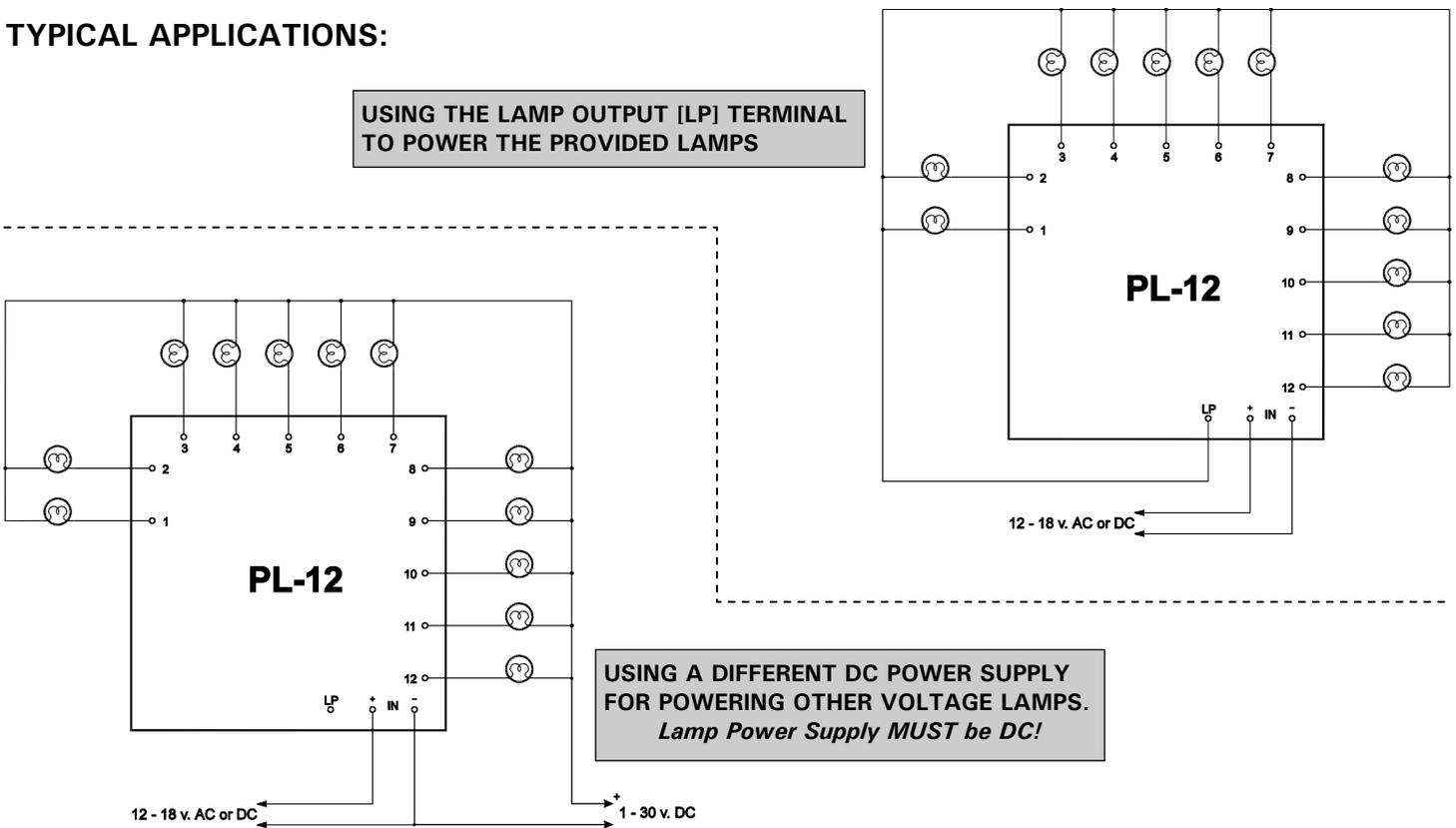
MAX: After the lamps step up in sequence, all lamps remain lit for a time period controlled by this trimmer. Rotating the trimmer clockwise *increases* this time period. This adjustment also allows compensation for short lamp sequences, such as when only 3 or 4 lamps are used.

OFF: After the time period controlled by the MAX trimmer, all lamps go off. The amount of time they remain off is controlled by the OFF trimmer. Clockwise *increases* the time period.

ON: After the OFF period, all lamps come on together and stay on for a period of time controlled by the ON trimmer. Clockwise *increases* the time period. If it is desired to eliminate the part of the sequence where all lamps come on together, merely rotate the ON trimmer fully counterclockwise.

NOTE: If the lamps appear to "run down" at the end of the sequence rather than turning cleanly off, it likely indicates that the power supply voltage is a bit too low.

TYPICAL APPLICATIONS:



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.