



Electronics for Model Railroads

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PS-1

AC to DC Converter & Filter

GENERAL DESCRIPTION: The CIRCUITRON **PS-1** is an AC to DC converter that will provide a highly filtered 1 amp DC output from an AC or unfiltered DC source. Input voltages can range from 2 to 22 volts. Since the **PS-1** is an unregulated power supply, the output will vary depending upon input voltage and the output load. Approximate output voltages for various conditions can be found in the graph. Keep in mind that these values are for an input voltage that remains constant independent of load. The transformer used to power the **PS-1** must be capable of supplying the rated voltage input at the load you will be applying, or else the output voltage will be lower than expected. A section of **PCMT**, Circuitron's Printed Circuit Mounting Track, is provided for simple, snap-in mounting of the **PS-1**.

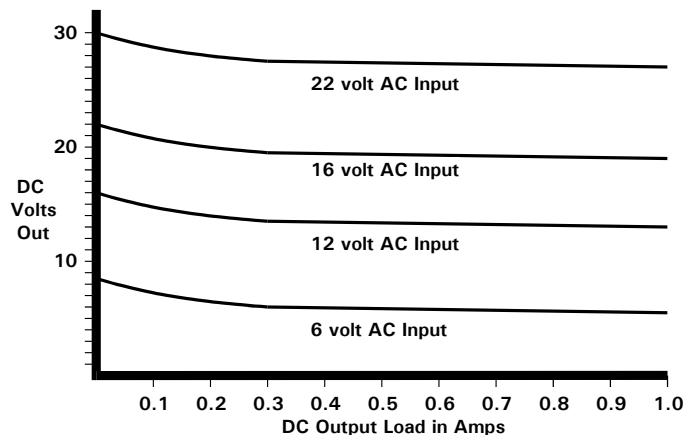
CIRCUIT DESIGN: Input to the **PS-1** passes through four diodes (D1-D4) which are connected as a full wave bridge rectifier. The resulting full wave DC is filtered by C1 and appears at the output terminals as smooth, essentially ripple free DC. Filtering is sufficient for loads up to one amp.

INSTRUCTIONS: The **PS-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 section of **PCMT** in a convenient location.
- 2) Snap the **PS-1** into the **PCMT**.
- 3) Connect a source of AC or DC to the input terminals. Refer to the graph below to determine the transformer necessary for various applications. Remember that transformers are rated for a given output under a certain load, i.e. 12 volts at 1 amp. That same transformer might deliver 16 - 18 volts at 1/10 amp. The approximations on the graph are derived from actual measurement of the input voltage at the rated loads shown. If the varying output of the **PS-1** might be a problem with the devices you are powering from it, we suggest the use of a CIRCUITRON **PS-2** or **PS-2A** regulated power supply converter that will provide a constant 12 volt DC output regardless of changes in input voltage or load conditions.
- 4) Connect your accessories to the output terminals.

WARNING

*Do not exceed a load of 1 amp on the output of the **PS-1**. To protect against possible short circuits, connect a 1 amp slo-blo fuse between the output and the load. Exceeding a 1 amp load may result in overheating and possible failure of the input diodes. This constitutes abuse and is not warranted.*



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.