



Electronics for Model Railroads

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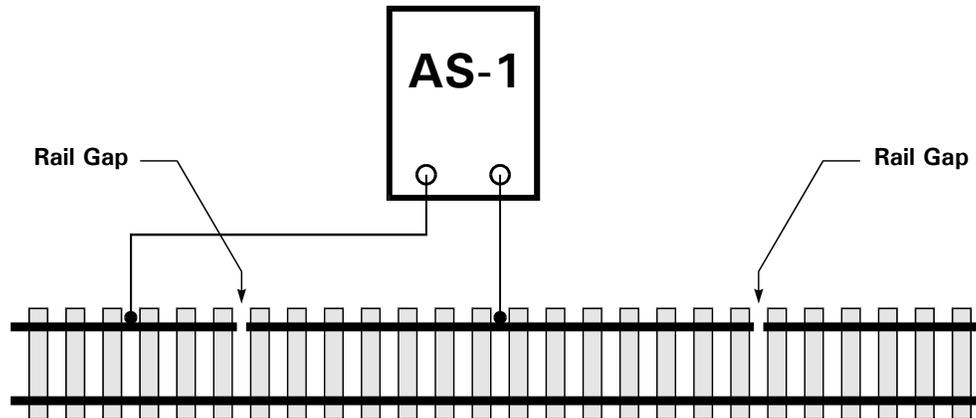
AS-1

Automatic Slowdown Circuit

GENERAL DESCRIPTION: The CIRCUITRON **AS-1** is a solid state voltage dropping circuit that provides many advantages over the traditional methods of reducing train speed within a given section of track. When a dropping resistor is used to reduce a train's speed, the voltage dropped across the resistor is a direct function of the current being drawn by the locomotive. If all the locomotives on a layout draw exactly the same amount of current, then the speed reduction will be equal for all units. If, however, as is more often the case, the locomotives draw varying currents, then certain trains will slow down too much, and other trains may not slow down enough. The CIRCUITRON **AS-1** helps to overcome these problems with its solid state circuitry. The **AS-1** will provide a nearly constant voltage drop over its complete range of currents (up to 2 amps). This voltage drop can be adjusted so that the output voltage will be anywhere between 1/4 and 3/4 of the input voltage.

INSTRUCTIONS: The **AS-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.

The CIRCUITRON **AS-1** is an exceedingly simple circuit to connect. The **AS-1** is merely connected in series to the section of track in which you want a slowdown to occur. We recommend insulating one rail for the distance that you want the train's speed reduced and then merely connect the **AS-1** across the gap. By adjusting the speed control on the printed circuit board, you can get a wide range of speed reductions. *CAUTION: Do not exceed the rated current limit of 2 amps on this circuit. Exceeding 2 amps will very probably destroy the output transistor. Failure of this type is not warranted. (See below)*



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 anyone 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.