



Electronics for Model Railroads

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GD-1

GATE DRIVER CIRCUIT

GENERAL DESCRIPTION: The CIRCUITRON **GD-1** is designed to drive one or two TORTOISE™ Slow Motion Switch Machines for crossing gate applications. An adjustment trimmer is provided to set the speed of motion of the TORTOISE(s) to adjust for different scales or preferences. There are also FLASHER and BELL outputs designed to control these external circuits at the grade crossing. The FLASHER and BELL circuits must be DC powered. These two outputs can control up to 250 ma and provide a ground [-] output. The **GD-1** has a CONTROL terminal which requires a ground [-] signal from detection circuits and when grounded starts the crossing sequence. The **GD-1** requires a 12-18 volt DC power supply.

INSTRUCTIONS: Please refer to the diagrams for labeling and Opto-Sensor locations. The CIRCUITRON **GD-1** can be connected with .110" x 0.032" solderless connectors or by soldering leads directly to the terminals on the printed circuit board.

- 1] Mount the **GD-1** in a convenient location. A section of CIRCUITRON's Printed Circuit Mounting Track [**PCMT**] makes this step simple, or you may drill holes in a couple of the corner pads and use screws and standoffs.

Please refer to the connection diagram on page 2 for the following steps

- 2] Connect a wire from the detection circuit output that provides a GROUND [-] when the train is detected to the CONTROL terminal on the **GD-1**. Connect one or two TORTOISE™ Switch Machines to the two terminals labeled TORTOISE.
- 2] If you are using an alternating flasher such as our FL-2, connect its CONTROL terminal [C] to the FLASHER terminal on the **GD-1**.
- 4] In similar fashion connect the CONTROL terminal of a Bell sound module to the BELL terminal on the **GD-1**.
- 5] Connect the [+] and [-] supply terminals to a FILTERED 12-18 volt DC power supply. The **GD-1** may be powered from the DC accessory terminals on a power pack, but the voltage should be checked with a voltmeter to be certain that it does not exceed 18 volts DC.

ADJUSTMENTS: There are three adjustment trimmers on the **GD-1**. Initially set all 3 to the midpoint of their travel. SPEED is used to adjust how fast the TORTOISE™ Switch Machine(s) move. Turning it clockwise increases the speed. You will want to set this for the desired speed of motion so that the gates get fully down before the train arrives.

GATE DELAY sets the amount of time that elapses after the CONTROL terminal is grounded by your detection before the TORTOISE(s) start to move. This simulates the real life scenario where the lights start flashing for a short period of time before the gates move. Turning this trimmer fully counter-clockwise will eliminate the delay entirely and fully clockwise will give you 5 or 6 seconds of delay. Increasing this delay will also affect the total time required before a train arrives at the crossing. So you may want to be careful how much delay you dial in here.

FLASHER HOLD sets the amount of time that the FLASHER terminal remains grounded after the CONTROL terminal is released. This time delay sets the time the crossbuck lights will remain flashing while the gates rise. Turning it clockwise increases the time and there is a maximum of about 5 or 6 seconds.

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.

TYPICAL HOOKUP:

