

Dual Alternating Flasher Module Installation and Operation

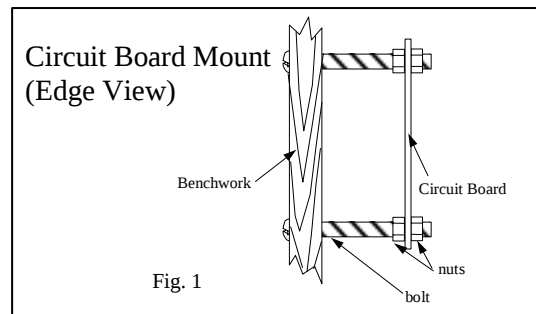
Green Steam Products presents the third generation of our Dual Flasher Module, a module incorporating two separate lamp flasher circuits that can be used independently. For example, one half of the module can be triggered automatically to operate crossbucks at a grade crossing, while the other half can be triggered manually to operate flashing lights on vehicles. Convenient features have been integrated into this latest version to provide versatility for the model railroader. The module has the capability to flash both incandescent lamps and LEDs so crossbucks utilizing grain-of-wheat bulbs (such as NJ International's) can be operated as well as our LED crossbuck. In addition, the alternating flash rate for each circuit is independently adjustable from a very fast rate, suitable for simulating emergency-vehicle lights, to a very slow rate similar to that used by beacons on bridges or high buildings. The user is able to adjust the rate to suit their application. Each flashing circuit may be controlled automatically by a train-detector circuit, such as Green Steam Products' Quad Optical Train Detector, or activated manually using a switch.

DESCRIPTION

This module contains two independent flasher circuits. Circuit 1 uses terminals R1, L1, T1, and COM1; Circuit 2 uses terminals R2, L2, T2, and COM2. The module must be powered by a filtered 12 VDC power supply connected to the +12 and GND terminals. Each independent flasher is turned "ON" when 12 volts is present on the corresponding trigger terminal (T1 or T2). It is turned "OFF" when the trigger is grounded (connected to the power supply negative or common terminal) or disconnected. When a circuit is "ON", the two corresponding outputs, R and L, are turned "ON" and "OFF" in an alternating fashion. The terminals marked COM1 and COM2 are separate common connection points for the lamps on each flasher circuit.

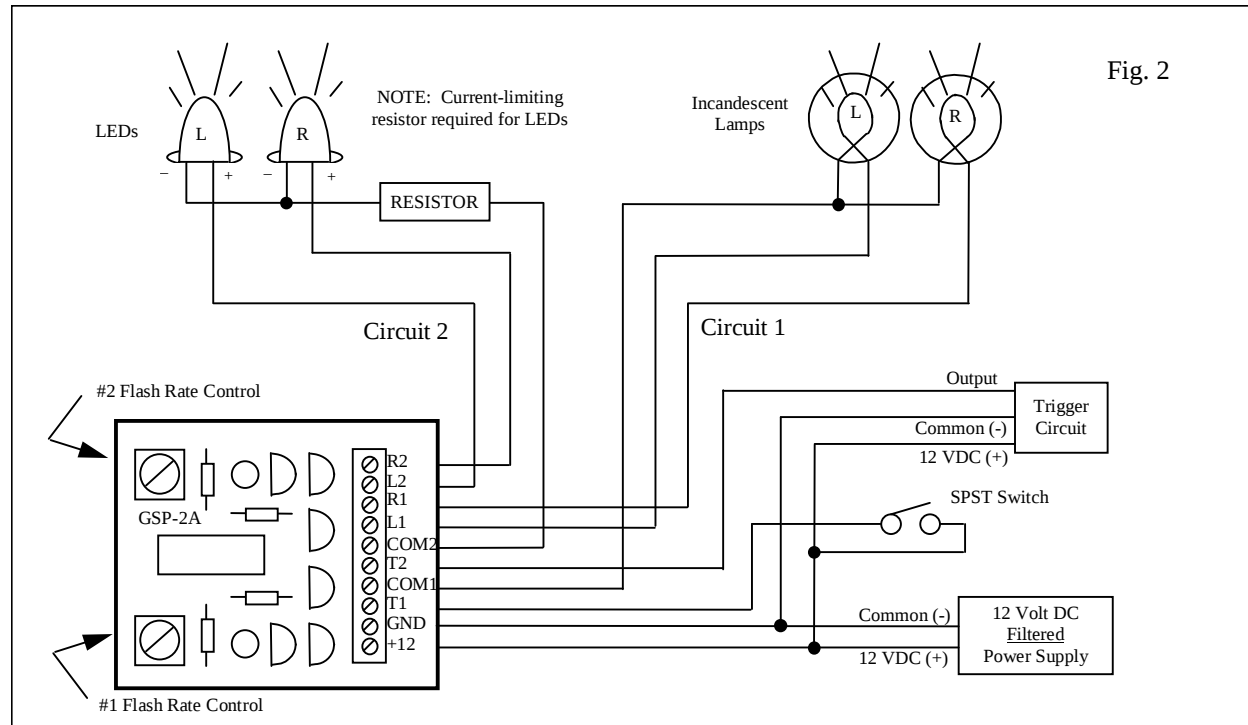
CIRCUIT BOARD MOUNTING

The Dual Alternating Flasher Module can be mounted anywhere that is convenient. Using #6 hardware, the circuit board can be easily mounted to the underside of the benchwork or another location of your choosing (Fig. 1). Be sure to mount the board squarely and do not over tighten the mounting hardware. Improper mounting may result in circuit board damage.



WIRING & TESTING

All connections to the Dual Alternating Flasher Module are to be made through the ten-position screw terminal strip located along the edge of the board (see Fig. 2). **Be very careful when making connections to the circuit board; incorrect connections may damage the module! Leave the power supply turned off until all connections are made.**



All screw terminal connectors are clearly marked on the circuit board. Figure 2 shows the proper way to connect either LEDs or incandescent lamps to the Dual Alternating Flasher board. **Note: When using LEDs, you must observe polarity and use a current limiting resistor in the common lead of the LED circuit.** Connect the LEDs or lamps for your application following the example in Figure 2. Do not exceed 250 mA any output circuit.

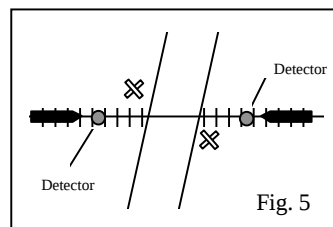
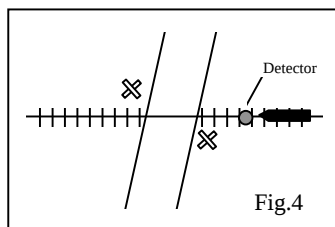
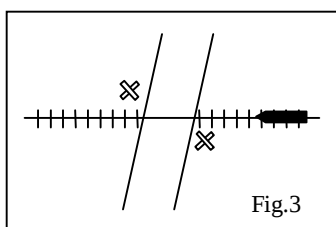
Connect your trigger device to the appropriate trigger terminal (T1 or T2). If the trigger is provided by another electronic circuit, connect the output of the circuit to the trigger terminal and power the device from the same supply as the Flasher Module. **Ensure this trigger circuit is a 12 VDC device or the Flasher Module and the trigger circuit could be damaged!** The trigger may also be provided by a single-pole-single-throw (SPST) switch. Connect one side of the switch to the trigger terminal, and the other side to the +12 terminal on the Flasher Module or power-supply positive terminal. Turning the switch on will connect the trigger terminal to 12 VDC, thus turning the flasher "ON". Figure 2 illustrates examples of both methods. Connect your 12 VDC filtered power supply to the +12 and GND terminals. Double-check all wiring before applying power.

Turn on the power supply. With the triggers "OFF", no lamps should be flashing. Turn your trigger "ON". The lamps on the associated circuit should flash. If your lamps do not flash, IMMEDIATELY DISCONNECT THE POWER AND RECHECK YOUR WIRING. With the lamps flashing, you may adjust their flash rate by turning the flash rate control for that circuit on the Dual Alternating Flasher Module. When the trigger for Circuit 1 is at 12 VDC, the left and right lamps for Circuit 1 will flash in an alternating sequence. When the trigger for Circuit 2 is at 12 VDC, the left and right lamps for Circuit 2 will flash in an alternating sequence. Each circuit can operate multiple sets of LEDs or lamps as long as the total current draw does not exceed 250 mA on either the right or left side. When the triggers are disconnected or grounded the lamps will be off. If you experience difficulty, recheck all of your terminal connections and try again.

Your Dual Alternating Flasher Module is now ready for operation.

FLASHER (CROSSBUCK) OPERATIONS WITH TRAIN DETECTORS

Occasions may arise when you want to have two or more train detectors operate such that when any one or more of them detect a train, a single output signal is provided. An example of this would be a grade crossing as in Fig. 3. You want to trigger the crossbuck signals whenever a train approaches from either direction. A single optical train detector can protect your grade crossing from only one direction as shown in Fig. 4. By placing two optical train detectors, one on either side of the grade crossing, as shown in Fig. 5 you can protect the crossing from both directions.



But how do you connect the detectors to do this? With Green Steam Products' GSP-1A Quad Optical Train Detector, it's simple! Just connect the outputs of the detectors used for the grade crossing together, then tie that connection to the correct trigger terminal on the flasher board for the crossbucks (Fig. 6). Again, the detector boards and the flasher must share a common power supply. If you are using an early 10-terminal GSP-1 Optical Detector Module, rather than the current 12-terminal GSP-1A, you will need to connect the outputs together using diodes. See the inset in Figure 6.

WARRANTY

Your Green Steam Products module was completely tested prior to packaging. Due to the electronic nature of this product and the susceptibility to damage caused by improper user installation and operation, there is no warranty. However, if you experience problems with this product, contact Green Steam Products at the address below for troubleshooting assistance. In the event that we are unable to resolve your problem, you will be given instructions on how to return your product to Green Steam Products for repair or replacement. Do not return your product to Green Steam Products without prior factory authorization.

We hope you enjoy your Dual Alternating Flasher Module and that it gives you many years of quality service.



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