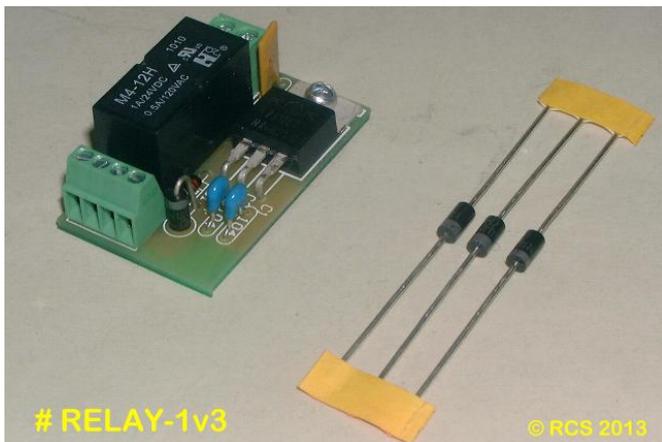


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RELAY-1v3.

1 AMP RELAY KIT TO REVERSE
 A CONSTANT VOLTAGE.



This 1 amp relay device is designed to change the polarity of a fixed voltage supply from 12 volts up to 24 volts.

It is intended for use with any brand of R/C throttle that has open drain FET transistors for switching lights such as the RCS **OMEGA-10**, **COBRA-260** ESC's.

The output polarity is determined by which lighting output is switched on at the ESC.

RELAY-1v3 can be used three different ways:

1. It is ideal for situations where you desire the front marker lamps to stay lit even though the front headlight is off.

2. Instead of rewiring USA Trains® locos enough components are supplied that permit reversing the polarity of PCB's fitted in USA Trains® locos, so the Red/Green marker lamps will now illuminate correctly.

3. Switching ON-OFF smoke units. **OR:** For greatly simplifying the Bachmann® Shay R/C installation. Saves rewiring the Shay. When making programming changes the lights will still blink correctly to acknowledge a change has been made.

The lights cannot be turned off completely by the TX handpiece.

There is a 1 amp Polyswitch® fuse on the pcb for circuit protection.

INSTRUCTIONS FOR USE WITH RCS 100 WATT ESC's.

INSTALLATION.

You can mount the PCB with double stick tape. Do not allow metal objects to touch the rear of the PCB. Damage to the PCB may result.

USE WITH A MINIMUM OF 12 VOLT TRACTION BATTERIES.

Insert the Yellow wire only from the reverse light output terminal on the 100 Watt ESC into the 3 way terminal marked **S** on the **# RELAY-1-v3**. Connect the Red/Black fused battery voltage into the terminals marked + (Red) & - (Black). The RELAY coil is off in the forward direction.

CONTROLLING LIGHTING OUTPUTS.

With regular incandescent bulbs use the supplied 1 amp diodes. For Diode lights use a suitable dropping resistor where shown.

How to use with USAT locos where the motors are being powered direct from the ESC M+ & M-terminals.

Remove both Red/Black track pickup cables with locking clip on the plug from the USA Trains® motor blocks and use one of them for version # 2. Connect to the **# RELAY-1v3** terminals as shown in the diagram and plug into one of the two plugs without a locking clip coming from the USA Trains® PCB's.

OPERATION IS AUTOMATIC.

(1). When correctly wired the FRONT light will illuminate when first switched on. The Red wire is + positive when direction output is set to forwards. (Relay coil will be off).

(2). With USA Trains® locos the front headlight should come on at start up and the front marker lamp should be green. As you change direction to reverse the front light should go out and the front marker lamps should change colour to Red.

If not simply reverse the red/blackwires at the 2 way output terminal of the **# RELAY-1v3**.

