Instructions

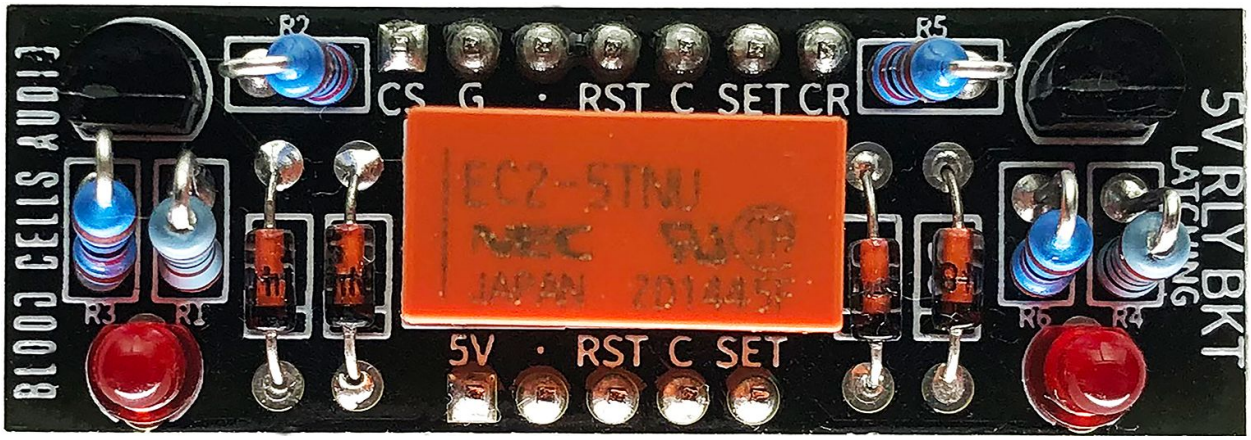
Relay Breakout Boards *RB5V-L-T and RB12V-L-T*

Latching Relay, Transistor-controlled

Thanks for your purchase! This series of breadboard-ready relay breakout boards was brought about while prototyping audio circuits. I got tired of dealing with the tiny non-breadboard-friendly relays I was testing with, and instead decided to fab some modular options that can be placed neatly on a breadboard or a more permanent protoboard.

This model uses the EC2-5TNU, or EC2-12TNU, which is a DPDT (Double Pole, Double Throw) dual-coil latching relay. Also included is transistor control for each coil to make it easy to trigger via 3.3V or 5V logic levels of GPO from Raspberry Pi/Arduino/etc, as well as an LED to indicate the moment a coil is activated.

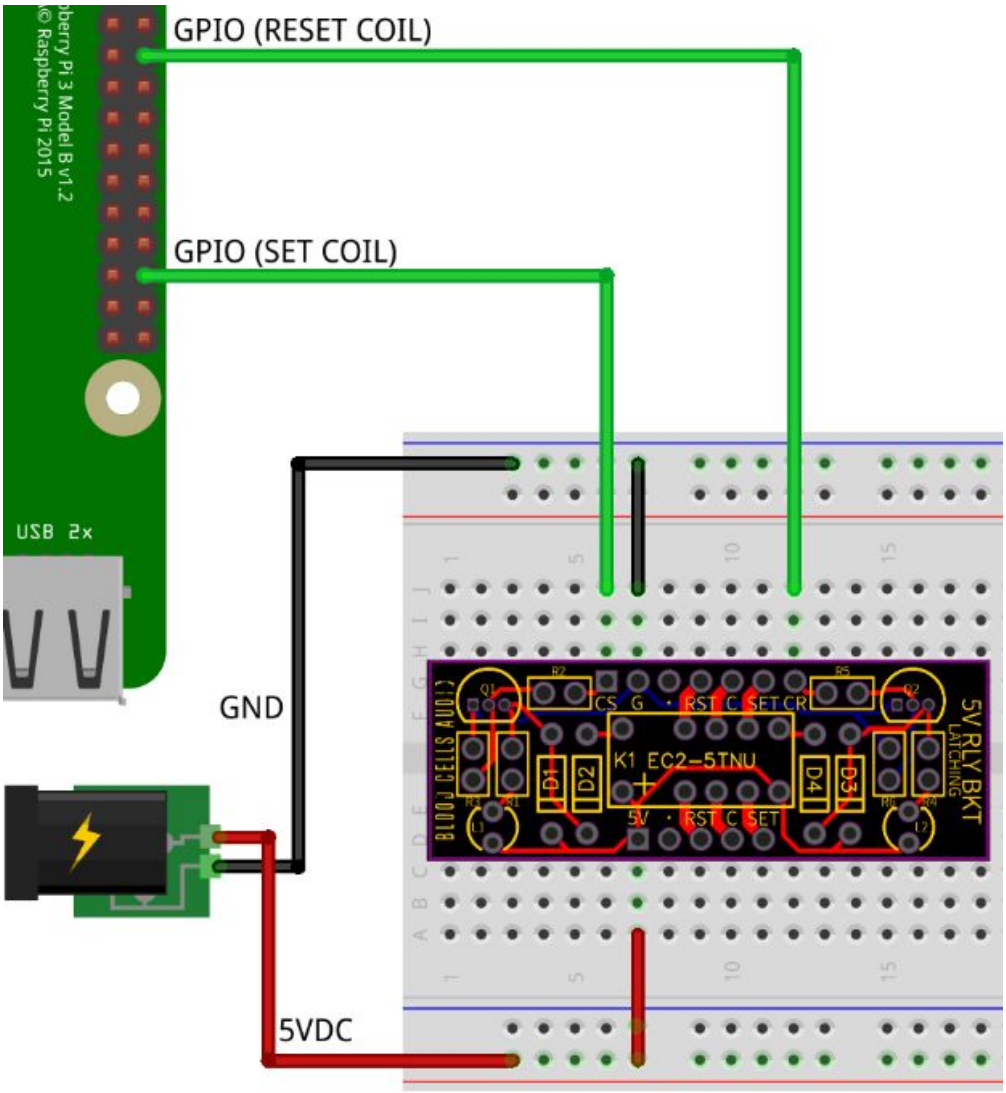
When active, a relay coil and LED draws about 15mA in total. Note that since this a latching relay, it only needs a *momentary* pulse (>10ms) to activate either of the coils. The relay will then hold the position of whichever state it was set to last, even through a power-cycle. Not having to actively hold the state will save you power! *Note: The LEDs will light up only during this momentary pulse.*



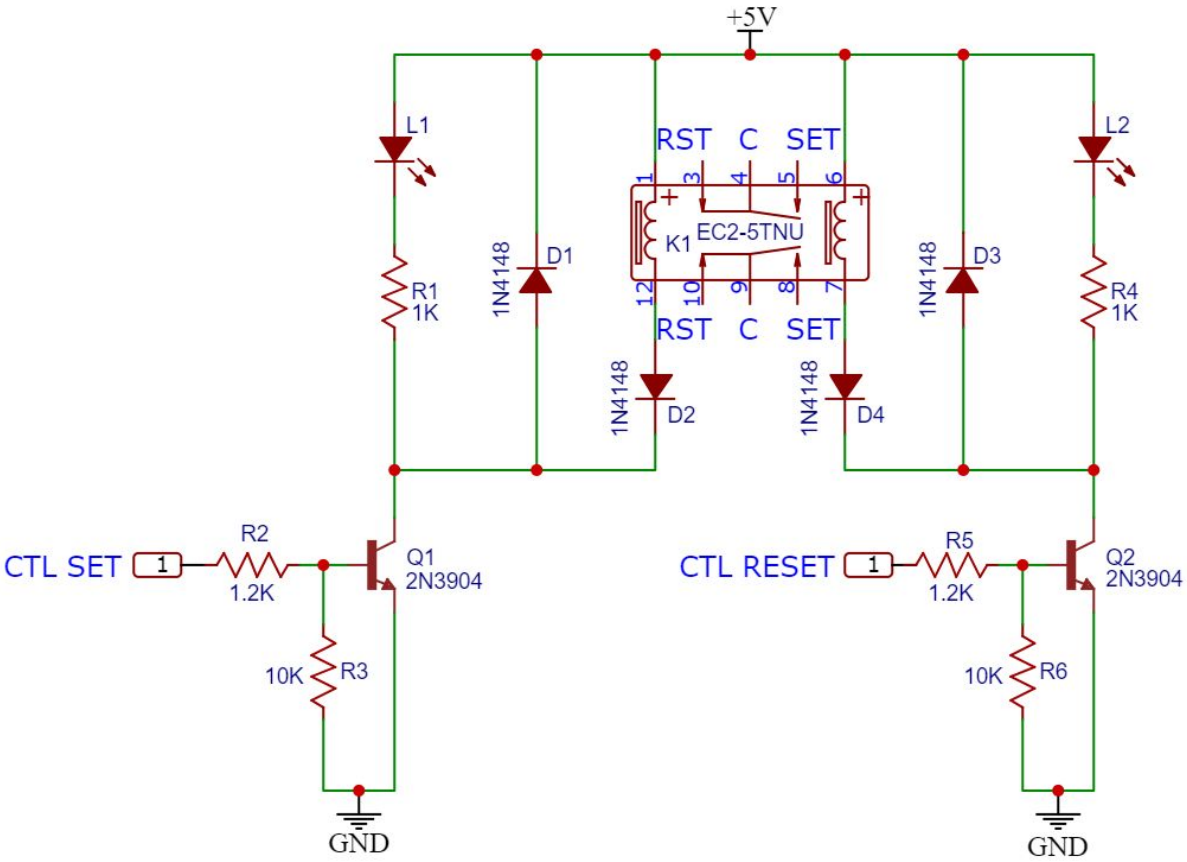
Connections:

- Connect 5VDC to the 5V pin. (Use 12VDC for the 12V version).
- Connect ground to the G pin.
- Connect the signal you want to switch to the C (Common) pin.
- Connect a GPO pin or other logic-level voltage source to the CS pin (Control Set) - when a logic signal is pulsed to the CS pin, the Set coil will activate and internally connect the C pin to the SET pin. The SET LED will also flicker to give you an active visual.
- Connect a second GPO pin or other logic-level voltage source to the CR (Control Reset) pin - when a logic signal is pulsed to this pin, the Reset coil will activate and internally connect the C pin to the RST pin (RESET). The RESET LED will also pulse.

Note: to avoid chaos, it isn't recommended to trigger both coils simultaneously.

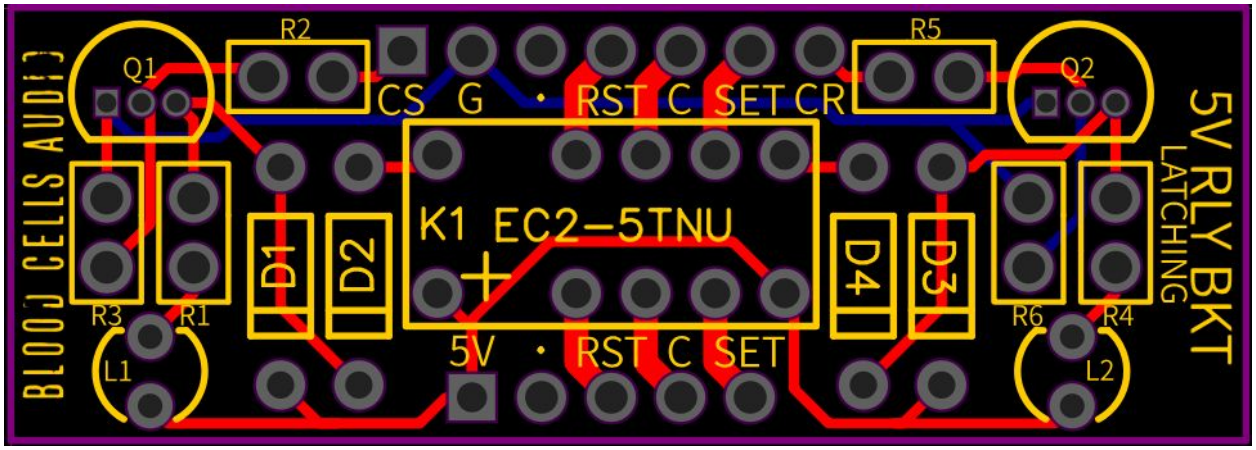


Schematic:



*R1 and R4 = 3.32K in 12V Relay Version

Board layout:



Additional info:

When active, a relay coil and LED draws about 15mA in total

Relay: EC2-5TNU / EC2-12TNU
Datasheet

- Maximum Switching Power 60 W, 125 VA
- Maximum Switching Voltage 220 VDC, 250 VAC
- Maximum Switching Current 2 A
- Maximum Carrying Current 2 A

Datasheet is available by searching the relay model #, or at
www.bloodcellsaudio.com/relaybreakouts

**************PSA**************

This PCB is built for a *breadboard*. A typical solderless breadboard's contacts are rated for 5V at 1A, or 15 Volts and 333mA. Just because the relay is rated for bigger stuff, doesn't mean you should run big stuff through your breadboard. Don’t do it!