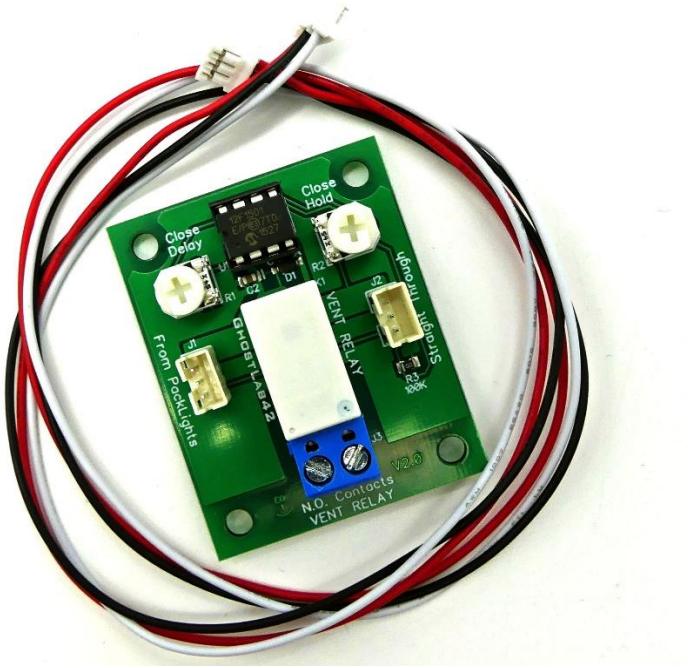
# Introduction

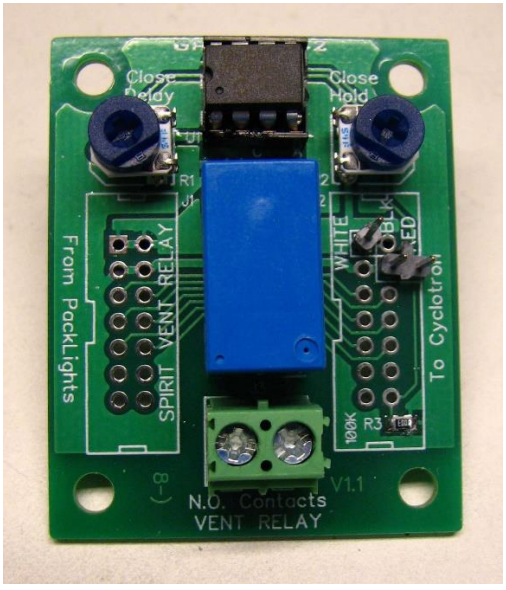
Congratulations on purchasing a Vent Relay Kit that makes it easier to control your e-cig style smoke kit (not provided).

There are now three versions of the Vent Relay:

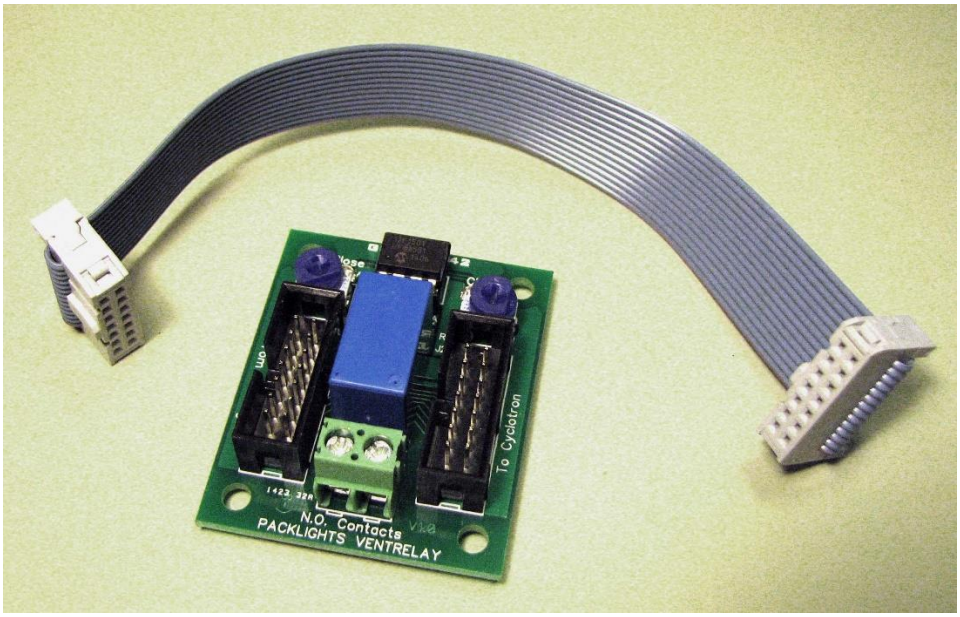
1) The latest Vent Relay board (V2.0) that works with both the new GBFans powercell and cyclotron lights kit that includes a 3-pin "Vent " connector and the GhostLab42 Spirit Pack Lights boards (all versions). This board comes with a 3 wire cable to connect the powercell board to the Vent relay board:




2) The Spirit Relay version that only works with the GhostLab42's Spirit Halloween Pack Lights boards and did not come with a cable since it used the Spirit Pack Lights Vent Cable:



3) The “original recipe” version to be used with the GBFans or GhostLab42 full-size pack Powercell boards that have a 14-pin black “Expansion” or “Cyclotron” connector and comes with a 14 conductor ribbon cable:



# Electrical Connection

*Powercell Connection:*
The vent relay will be connected to the powercell board with either a 3-wire vent cable or a ribbon cable.

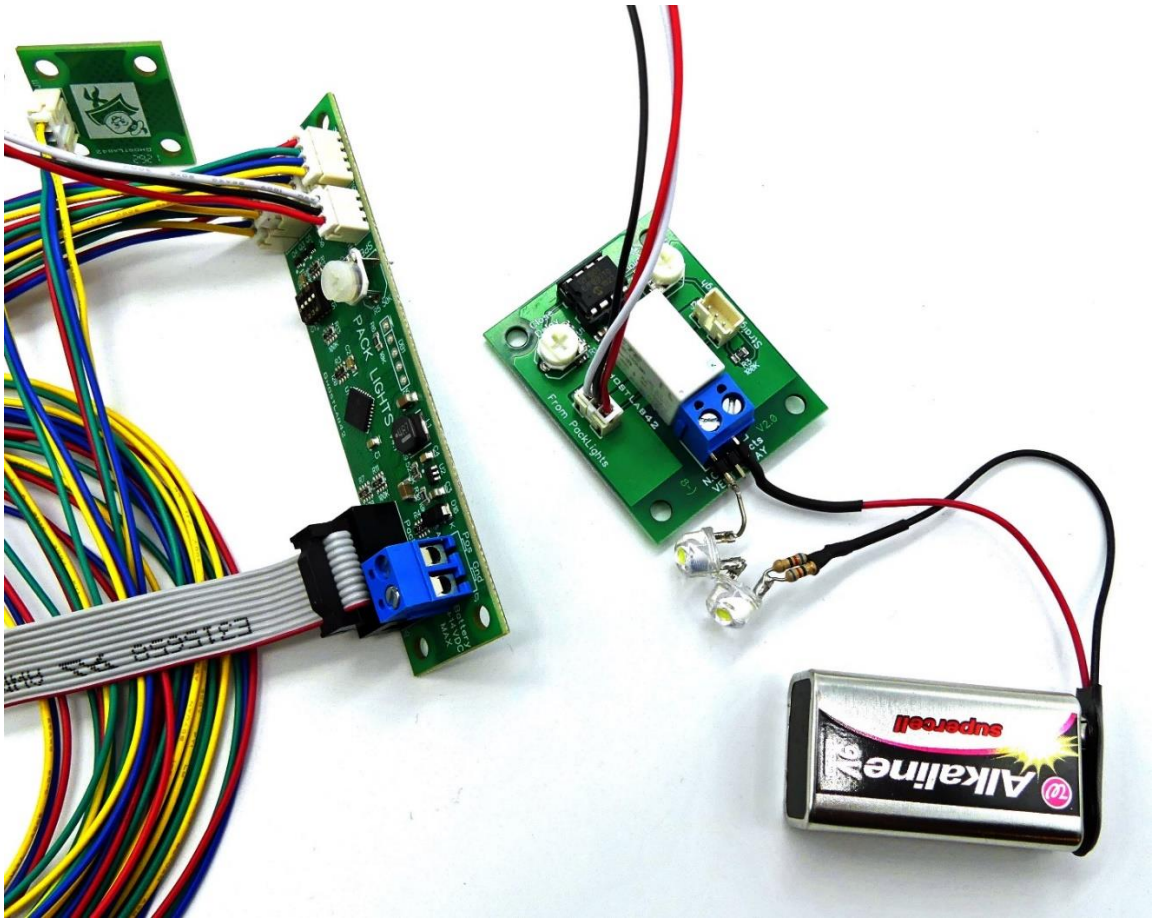
The connecting cable will provide control and power to operate the relay only, not the e-Cig kit. The power for whatever the relay is controlling must be provided separately and is connected to the screw terminals marked “N.O. Contacts”.

Connections from the powercell board to the vent relay board are shown for the various combination of supported boards.

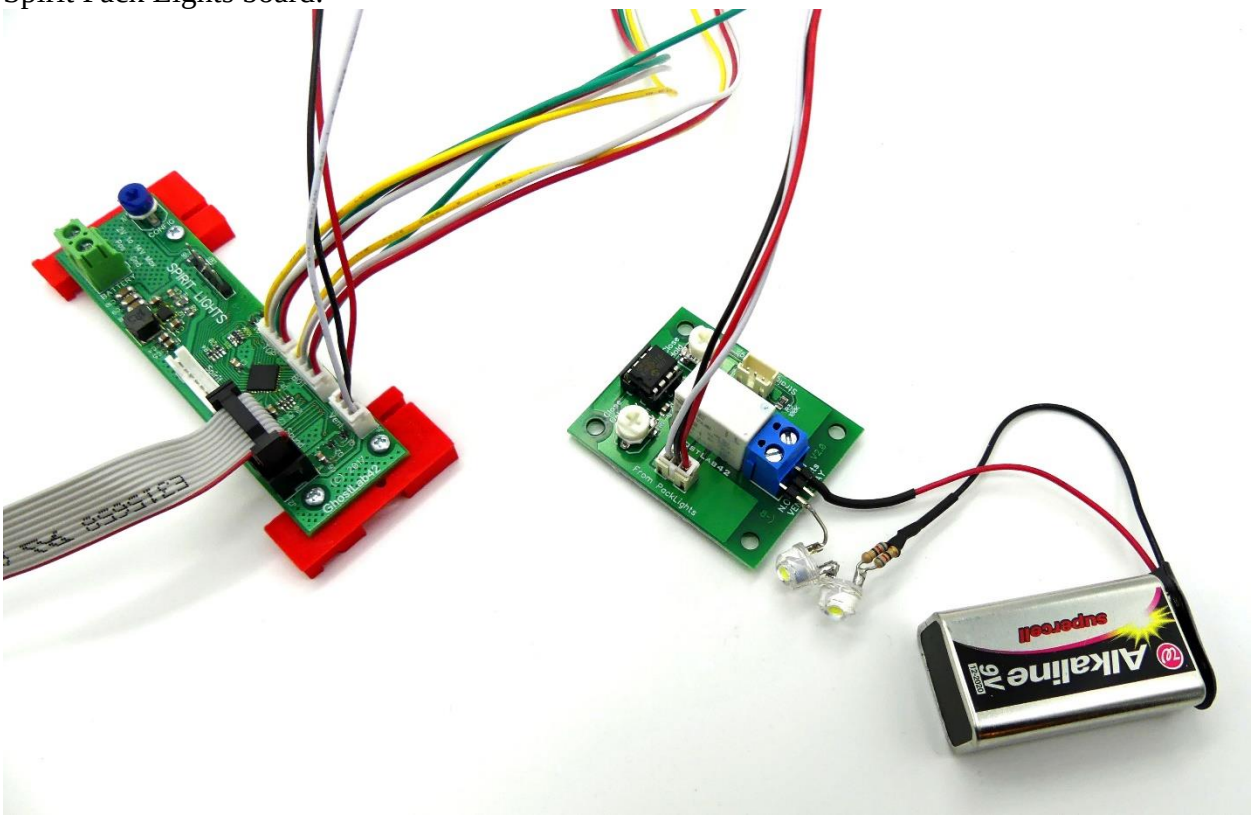
1) Latest Spirit Relay board works with both the new GBFans Powercell board that has RGB cyclotron light boards and also all versions of the Spirit Pack Lights boards. The connection cable is keyed at both ends, so it is more difficult to install them backwards.

   The “Straight Through” connector can be used to plug in the vent light that came with your compatible powercell board. It uses the same 3 pin connector and works just like it did when plugged directly into the powercell board’s “Vent” connector.

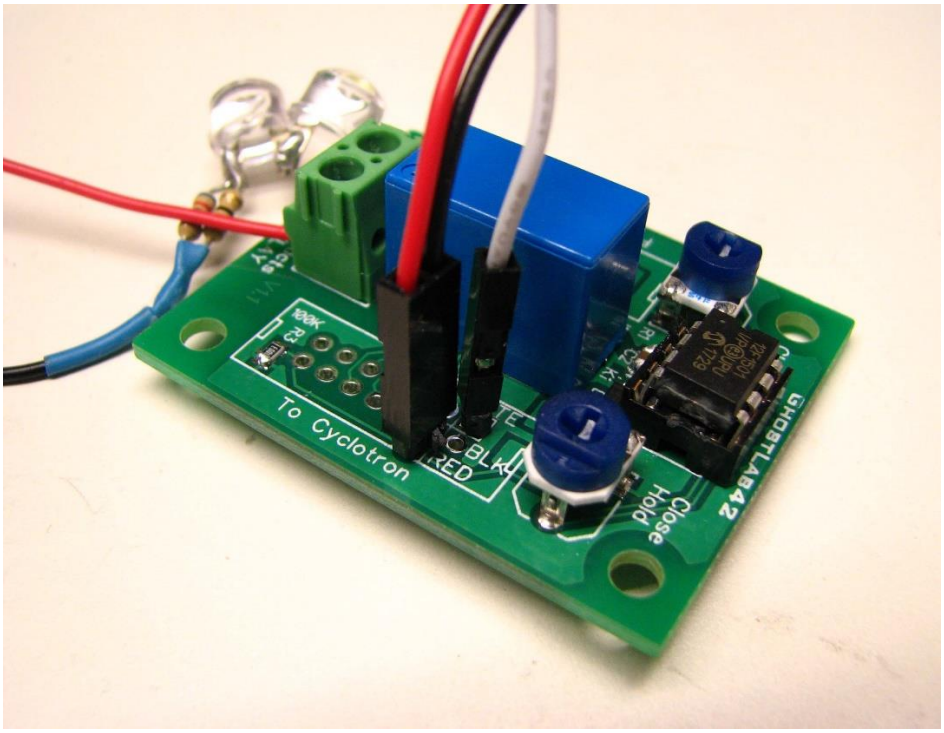
GBFans Powercell board:

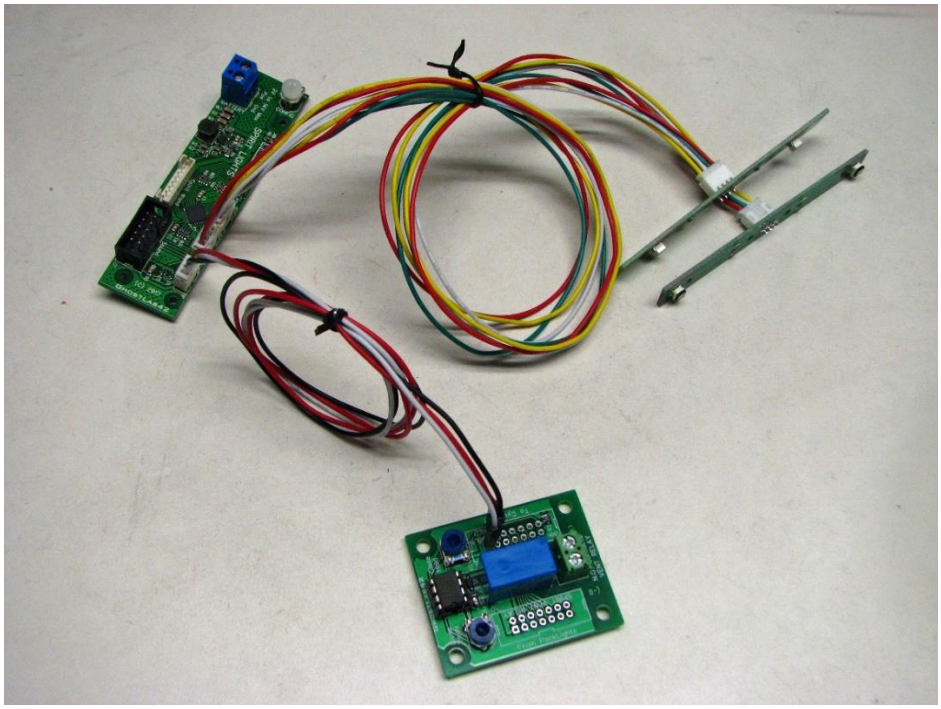


Spirit Pack Lights board:

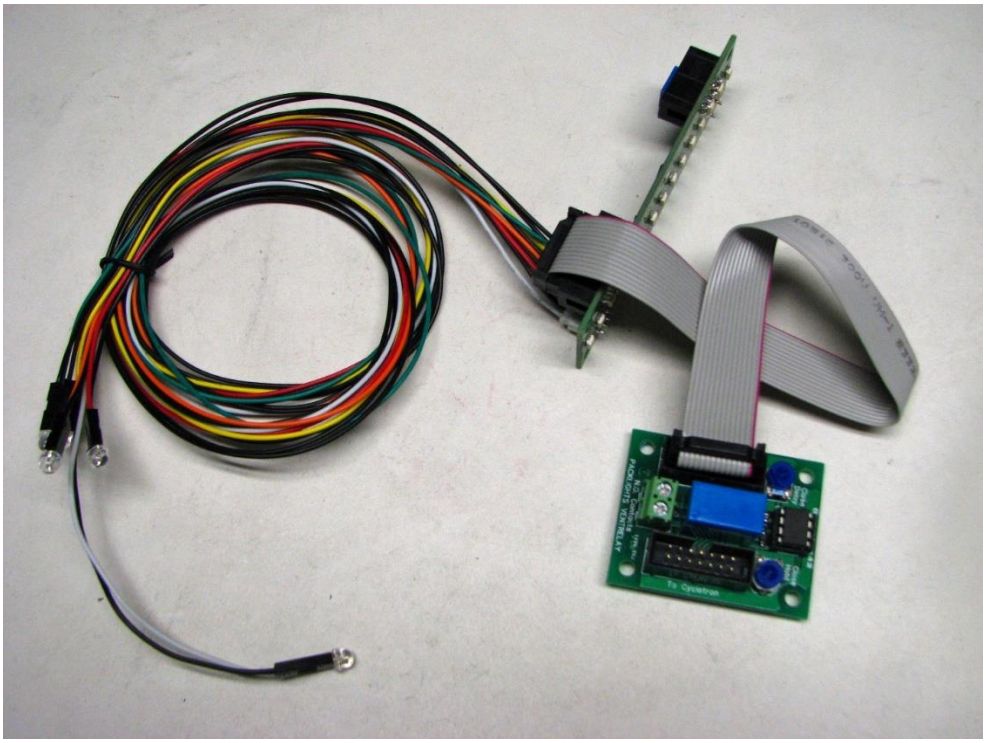



2) The previous Spirit Relay that used the Spirit Pack Lights cable.
The cable orientation and connection is especially important, and the boards can be damaged if they are not plugged in correctly. There are no keyed connectors available, so you just need to be careful!





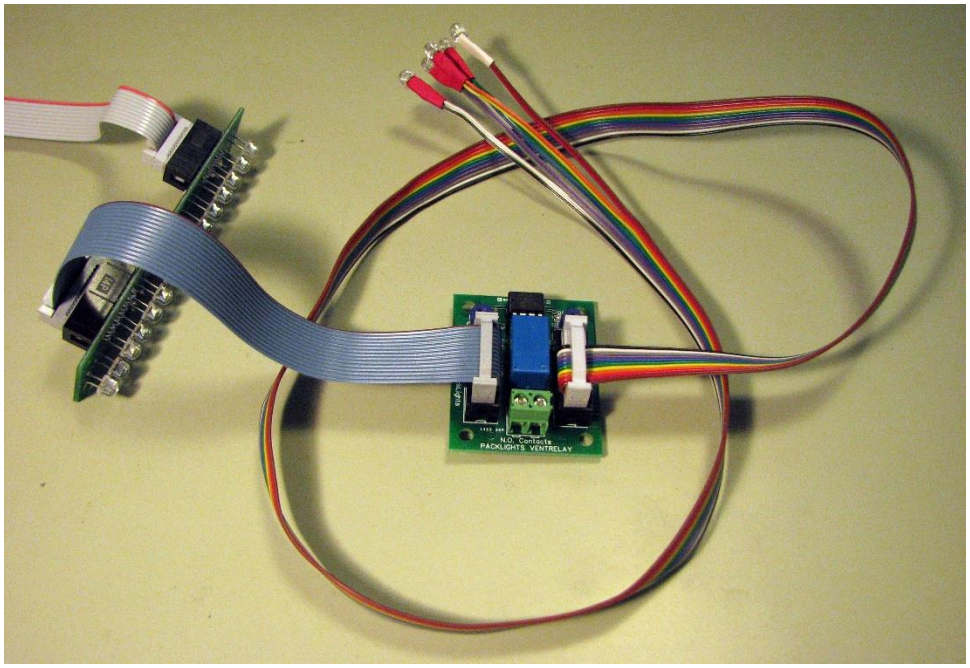
3) With the previous versions of the GBFans powercell board there is a separate connector for the vent relay labeled “Expansion”. The vent relay “To Cyclotron” connector is not used:



The connection cables are keyed, so it is more difficult to put them in backwards.

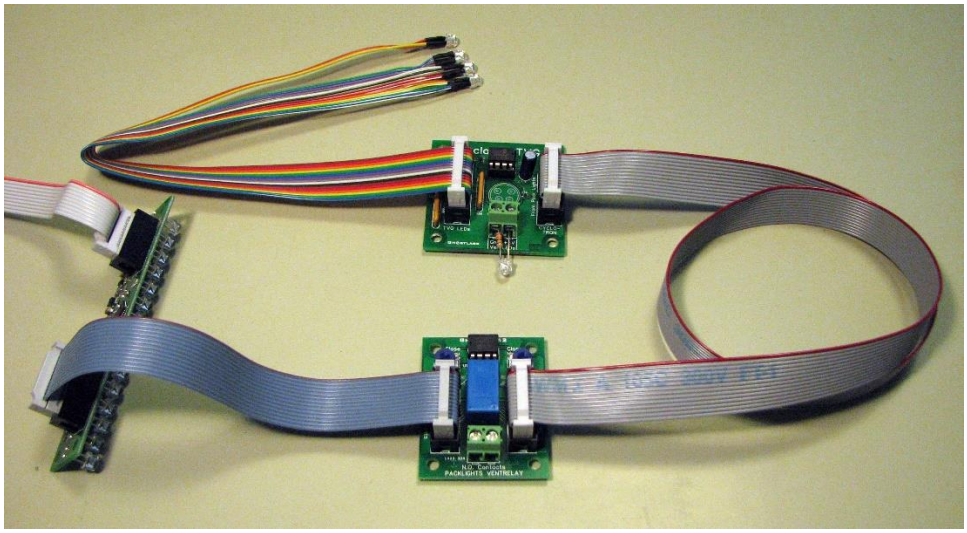
With the first generation of GBFans powercell board, the LED cable needs to be moved from the LED connector on the powercell board to the “To Cyclotron” connector on the vent relay board and the Vent Relay ribbon cable plugs into the “Cyclotron Lights” connector on the Powercell board.

The connection cables are keyed, so it is more difficult to put them in backwards.



A GBFans powercell board (either generation) along with the GhostLab42 CyclotronTVG board (to enable different color cyclotron illumination) uses the same ribbon cable to connect to the powercell board, but the CyclotronTVG board with its own ribbon cable needs to be plugged into the “To Cyclotron” connector on the Vent Relay:

The connection cables are keyed, so it is more difficult to put them in backwards.



*e-Cig Connections:*

The relay acts like a N.O. SPST switch. That means the two screw terminals will be normally open (not connected together) but will be shorted (connected together) during a venting operation.

The easiest way to understand how to wire the e-Cig kit in is

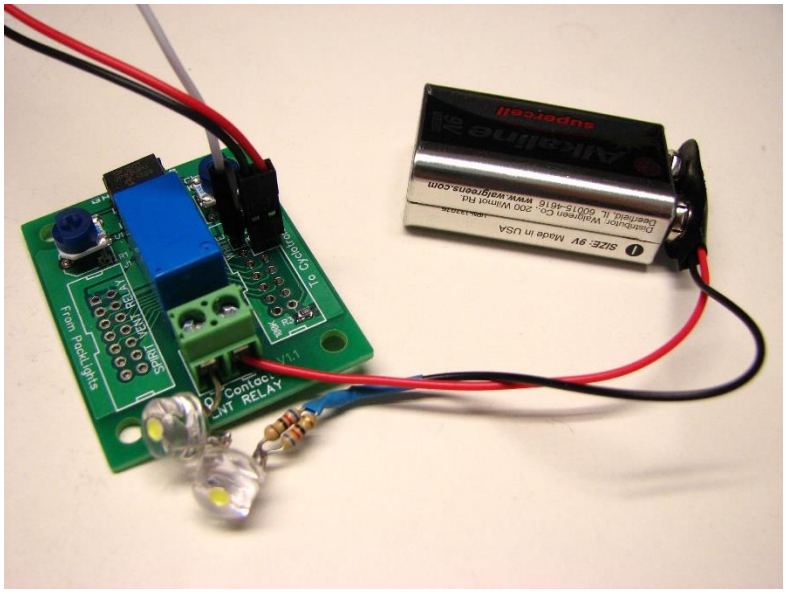
1) Set up your e-Cig smoke kit such that whenever the battery is connected to the e-Cig kit it functions as desired.
2) Cut the wire between the battery and the e-cig kit in a place that allows the relay to connect to the two cut ends of the wire.
3) Strip the wire cut ends so about 3/16" of bare wire is showing.
4) Put one of the stripped wires ends into one of the vent relay's screw terminal openings and tighten the screw. Make sure the wire is fixed securely.
5) Put the other stripped wire end into the other vent relay screw terminal opening and tighten the screw. Make sure the wire is fixed securely.

Bonus step: Test the vent relay connections to make sure the e-cig kit can be controlled by the relay: take a small piece of wire and touch each bare metal end of the wire to one of the screw terminals. The idea is to provide an external test connection between the two screw terminals. The e-Cig kit should start working while you are shorting those two screw terminals together.

When the whole system is setup, the relay will do that shorting for you whenever the pack is generating a vent sequence.

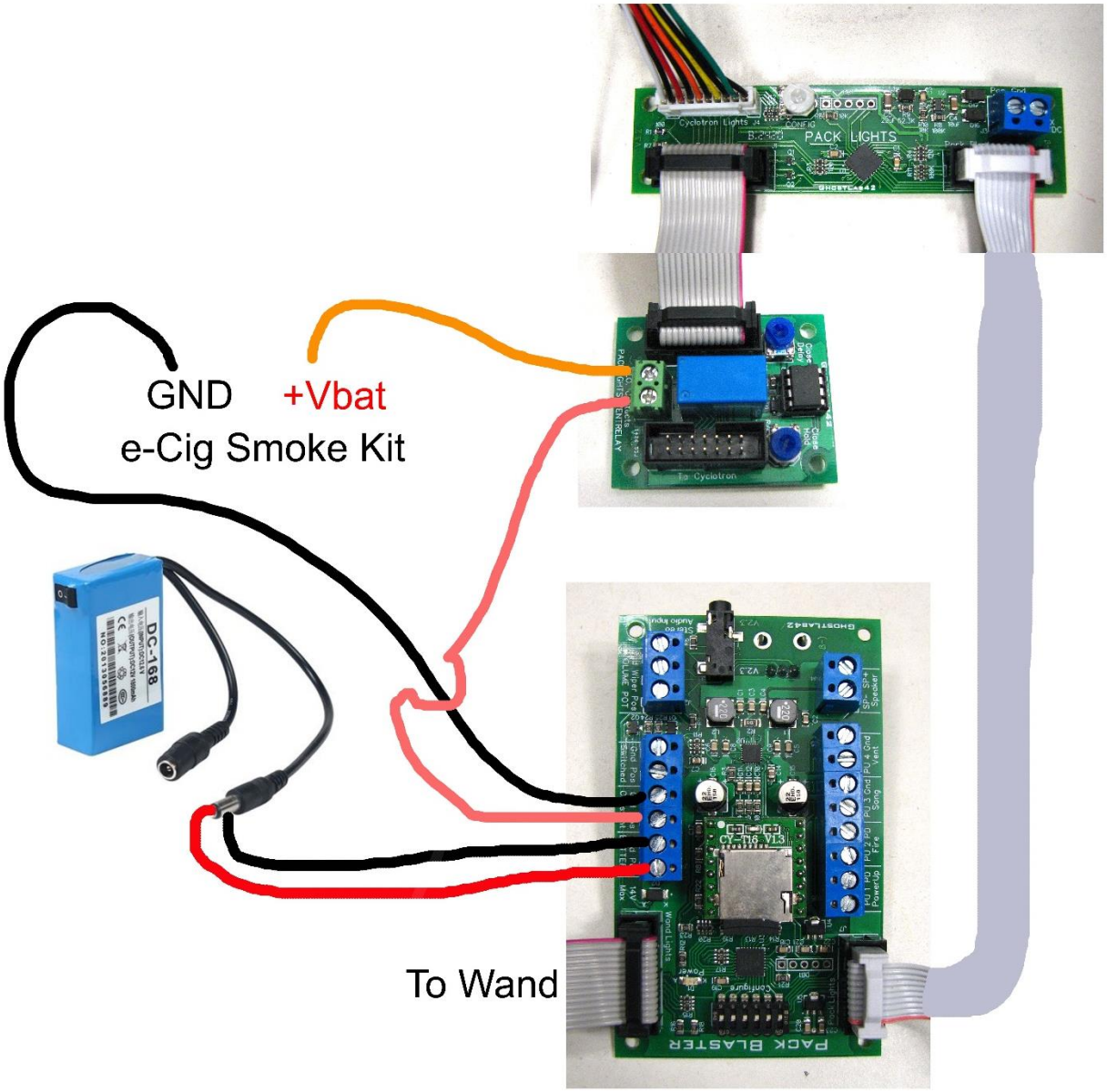
The battery used for the e-cig kit can either be a separate battery or can be your main battery that powers everything. It really depends on the battery you have for the main system and the battery requirements on the e-Cig setup as to what you will need to provide. I have a single 12V battery that runs everything for my packs.

The 9V battery with LEDs with current limiting resistors shown here are just for testing and illustrating how the Relay screw terminals can be used to control some external electronics with a separate power source.

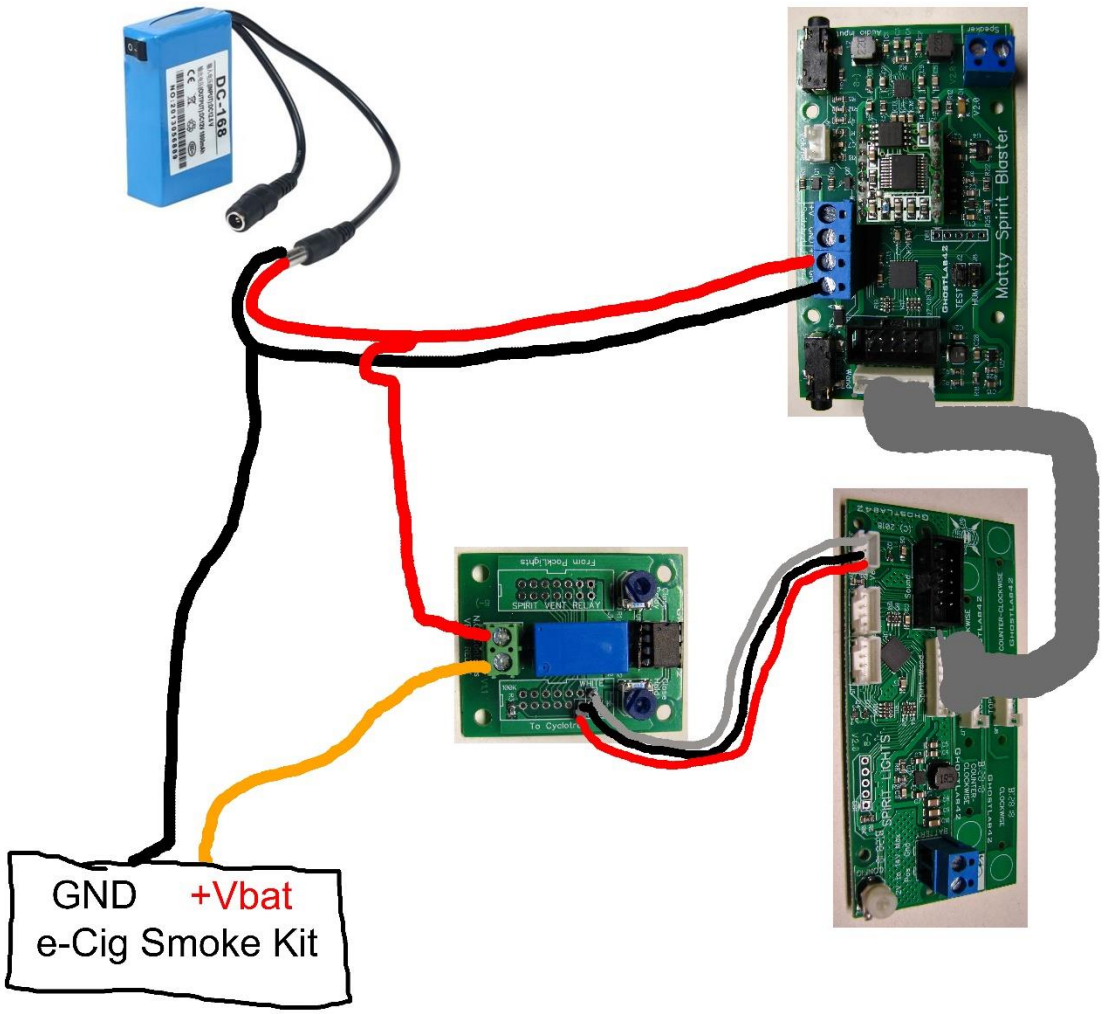


Here are a couple of diagrams showing the main two ways to connect power.

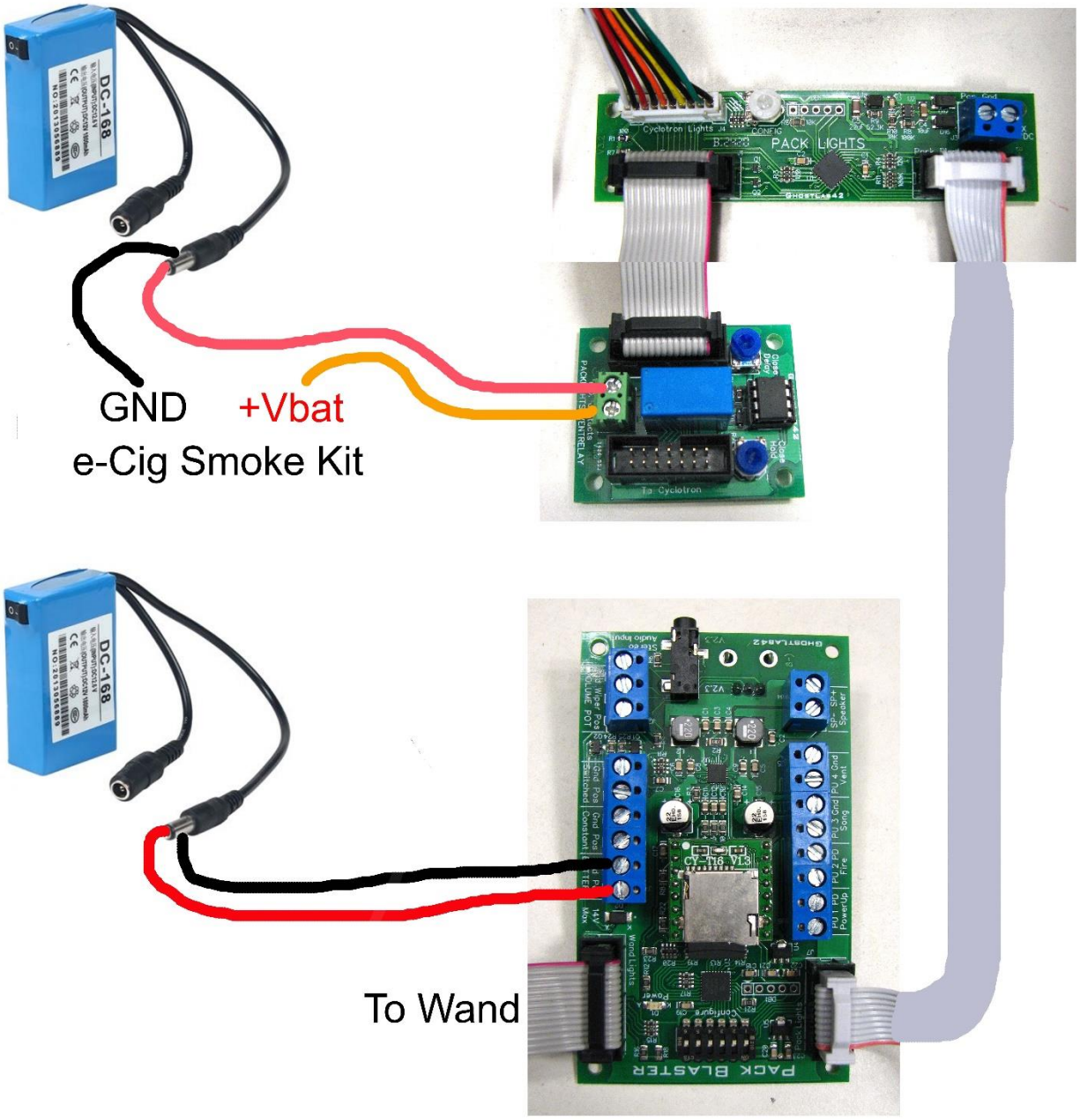
GBFans version, one common battery:



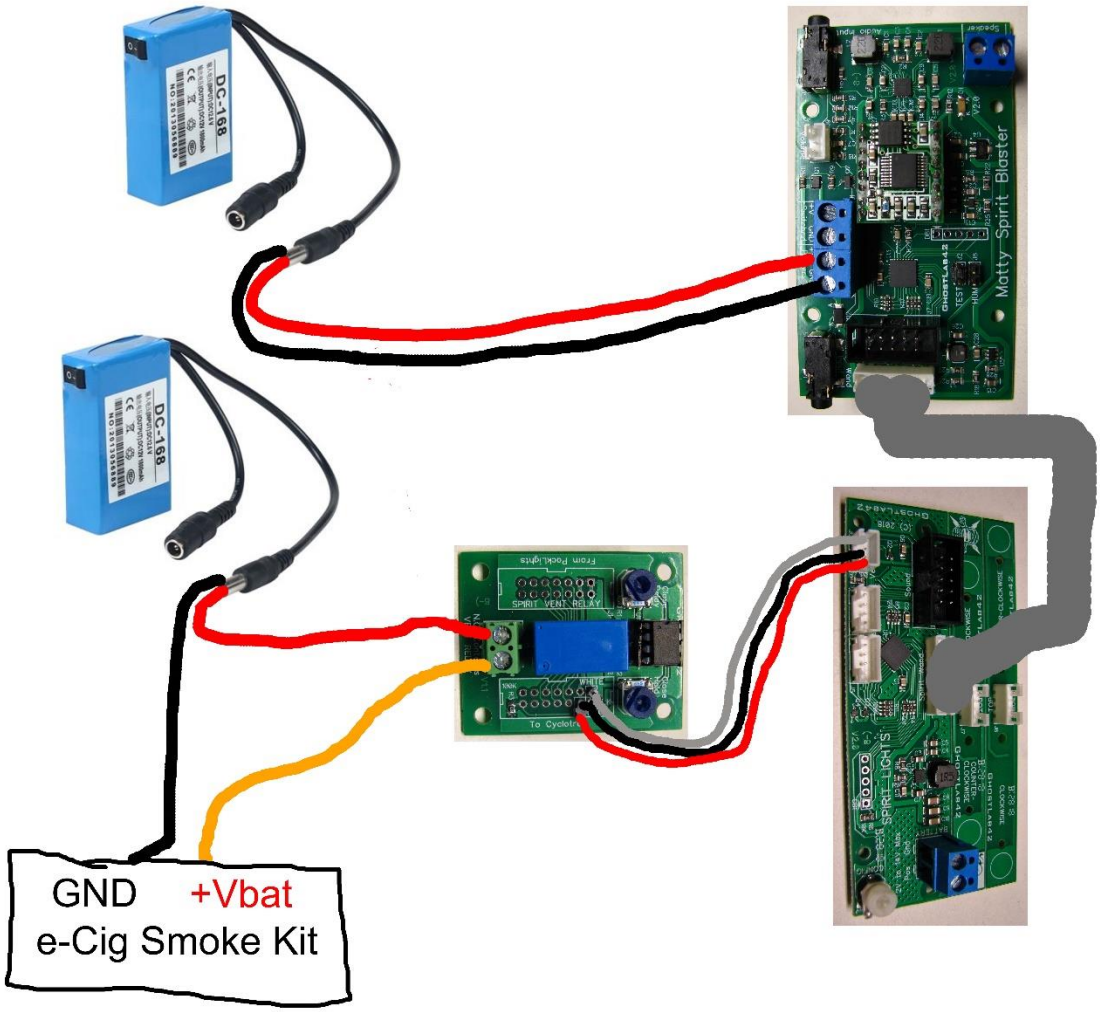
Spirit version, one common battery:



GBFans version, separate batteries:



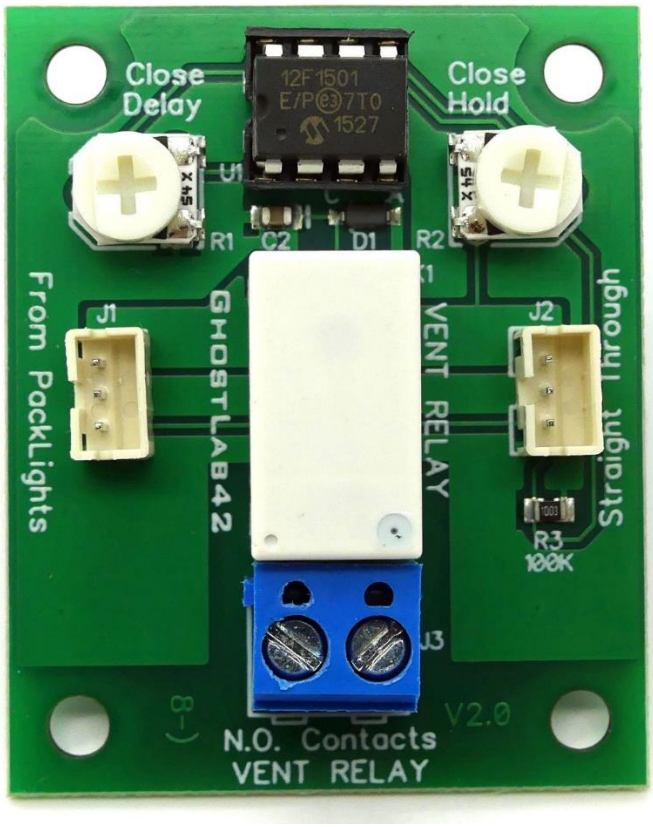
Spirit version, separate batteries:



*Operation:*

The vent relay is told when a vent sequence is happening by the powercell connection. There are two adjustments on the vent relay board to adjust how long the vent relay waits from the start of the vent sequence before operating and also the maximum amount of time continuous venting is allowed.

**Vent Relay (V2.0) Operation:**
The two white topped potentiometers are made of plastic, so be gentle when adjusting them!

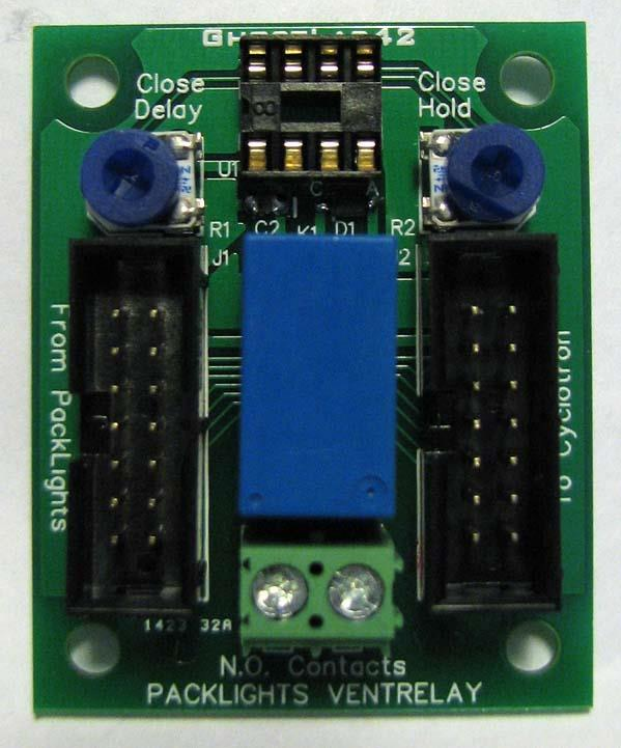


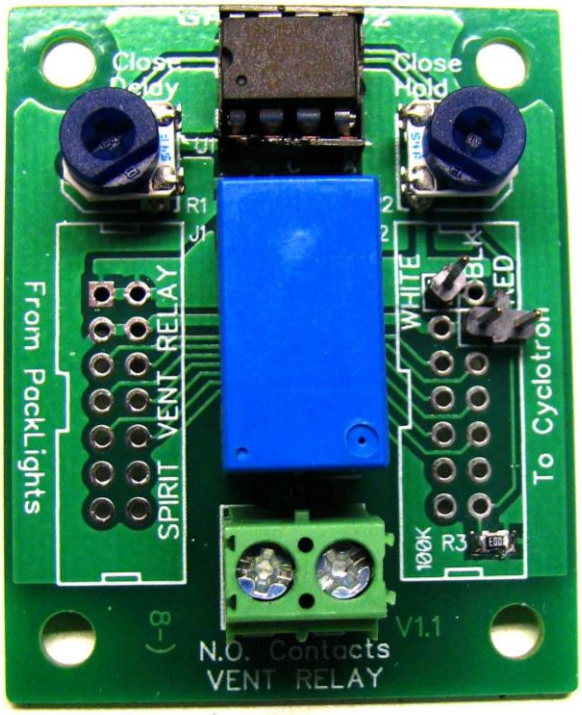

The "Close Delay" potentiometer near the upper left-hand corner in the above image is used to delay the start of the relay closure from 0 (fully counterclockwise) to about 2.5 seconds (fully clockwise). This can be used to time lights or smoke to the hissing sound if necessary.

The "Close Hold" potentiometer near the upper right-hand corner in the above image is used to limit the amount of time the relay will be closed, from 0 (fully counter-clockwise) to about **12** seconds (fully clockwise). This is to protect the e-cig from being left on for long periods of time.

The "Straight Through" connector can be used to plug in the vent light that came with your compatible powercell board. It uses the same 3 pin connector and works just like it did when plugged directly into the powercell board's "Vent" connector.

**Previous Vent Relay (V1.0) Operation:**
The blue topped potentiometers are made of plastic, so be gentle when adjusting them!




The “Close Delay” potentiometer near the upper left-hand corner in the above image is used to delay the start of the relay closure from 0 (fully counterclockwise) to about 2.5 seconds (fully clockwise). This can be used to time lights or smoke to the hissing sound if necessary.

The “Close Hold” potentiometer near the upper right-hand corner in the above image is used to limit the amount of time the relay will be closed, from 0 (fully counter-clockwise) to about 6 seconds (fully clockwise). This is to protect the e-cig from being left on for long periods of time.