

# **Traffic Signal Vest**

## *User Manual*

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Welcome, aspiring blinker vest-wearing motorcycle-rider, to the product manual for your new vest!

Your complete vest package has three components:

- The vest with the grid
- The box with the board
- The harness for the bike

Once properly installed, the little computer inside the box will “listen” to your turn and brake signals. When it sees a signal there (because you hit the switch), it does a little bit of math and lights up the corresponding part of the vest’s grid. All of the power to run the show comes from the bike itself. Install the bike-side harness, connect the vest-side harness, connect the grid cable to the matching cable out of the box and that’s it!

## Specifications:

Input: 12 V DC

Draw:  $\leq 4.1$  A

## Installation:

**Skills required:** Familiarity with butt-splicing electrical wires, ability to locate physical wires from wiring diagram.

**Suggested Tools:** Heat gun, wire cutters/strippers, wire crimpers, electrical tape

Every bike is different, so the details of locating the signal wires and splicing in the bike-side harness is left to the installer. Generally speaking, though, the process is as follows:

1. Locate the left turn signal wire on your bike
  - a) Figure out where you’d like to splice in the harness lead.
  - b) **NB:** *Any where between the blinker module itself and the first piece of switching gear as you follow back to the handlebar switch. This might be the handlebar switch itself, or a relay somewhere in between.*
  - c) Cut and prep both ends of the original bike signal wire
  - d) Cut and prep the **YELLOW-ONLY** harness lead
  - e) Make a Y-splice with the three wire ends

2. Repeat *Step 1*, matching the following harness leads to their circuits on the bike:

- **YELLOW-BROWN** ==> Right Turn Signal
- **YELLOW-GREEN** ==> Brake signal
- **WHITE** ==> 12V Power
- **BLUE** ==> GND (frame ground or spliced into ground lead)

### **Safety:**

The vest is **arguably** a safety feature in-and-of itself, but we've still taken all efforts to make sure it's safe for you wear.

The primary safety features are the fuses that you can see protruding through the walls of the box. There are four of them. The three grey ones on one side are 2A fuses that protect the signal lines. The red/amber one on the other side is a 7.5A fuse that protects the power supply line. These make sure that if the board somehow starts drawing enough power to heat up, it will shut off before it sets your pocket on fire.

### **Trouble-Shooting:**

If the vest doesn't function at all check that the amber power fuse is good. Pull it out of the board and inspect the window in its middle. If the "Squashed S" shape in the middle is broken, the fuse is blown and must be replaced. Similarly, if the vest *is* working but any one of the three signals isn't getting animated, check the signal fuses. If you do have a tripped fuse, open the box and look at the electrical (copper) side of the board. Anything that could have crossed any of the lines or made them short on the wide swaths of copper should be cleaned away.

The fuses are the only user-serviceable part of the system. If the fuses are confirmed good and you still have faults, check the wiring along the circuit from the signal to the box and from the box to the vest. This can be done rudely by wiggling connection points to see if there's a change while the system is power and the signal is on. More systematically, you can use a DMM to check voltage and continuity around the circuit to locate the issue. Further diagnostics and troubleshooting are left as exercise for the aspiring electrical technician.

### **WARNING!**

The RGB pixels that make up the display are waterproof, but none of the connectors used in the vest are. Nor is the enclosure for the control board. Wearing this vest connected to the bike in the rain is likely to result in problems up to and including destroying the microcontroller. If you're caught out riding and it starts to get wet, disconnect the vest from bike. It **should** be okay as long as it is truly, thoroughly dried out before you power it up again.