SOTABEAMS FUSER-6 INSTRUCTIONS

Prior to beginning work, if you bought the board kit (no enclosure), now is a good time to use the Fuser-6 pcb as a drilling template for your chosen mounting method. The holes in the PCB are M3 (3mm diameter).

Assembling the PCB

You will need solder, wire cutter and a soldering iron of 50 Watt + with a medium/large bit.

Install the polarity indicator

1. Install the 680 Ohm resistor (R1) and the LED. Solder these components carefully as it is easy to bridge the tracks from the pads. ***Note that the silk screening on PCB V1.0 is incorrect and the LED mounts the other way round. All subsequent PCBs correct this error.***

Install the fuses

2. Slide the fuse contacts onto the fuses. Make sure that the open end of the contact is the same side on each leg of every fuse.

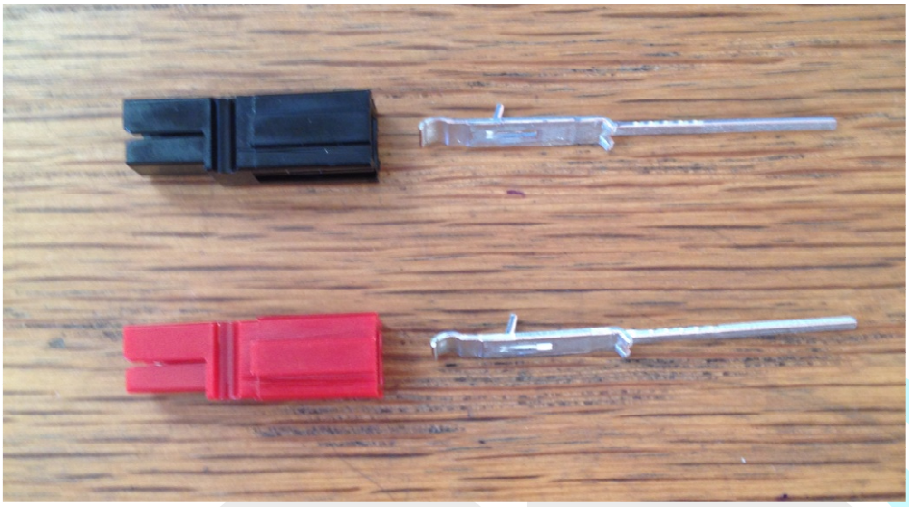
3. Insert all six fuses into the PCB with the open end of the contact towards the top of the PCB. Invert the PCB onto a flat firm surface. Check that all the fuses are all straight.

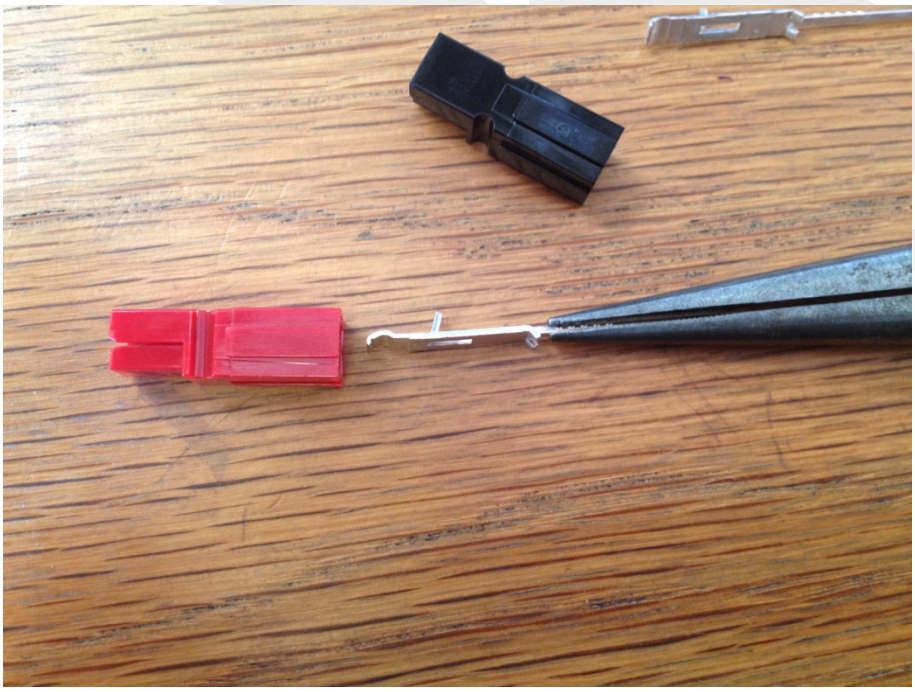
4. Solder the fuses. Make sure that each joint is well heated and use enough solder to ensure a good joint. However, do not try to run excess solder down into the plated-through holes or you may solder the fuses into the holders.

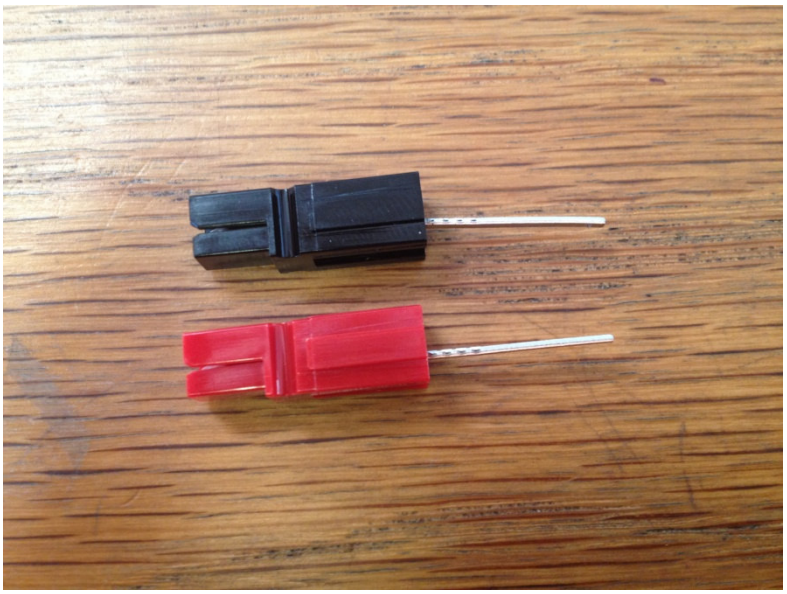
Bridging the track spokes is not a problem – it reduces the resistance. The spokes are there to help you get the board/pins up to temperature for soldering.

Install the Powerpole connectors

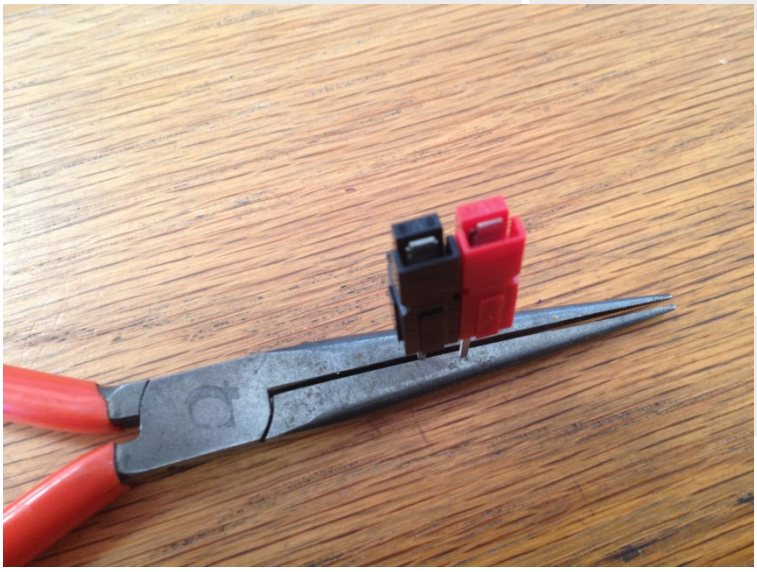
5. Slide the pins into the plug shells. This is best done with pliers. They **click** into place when seated correctly. Note that they only go in one way – see photo.

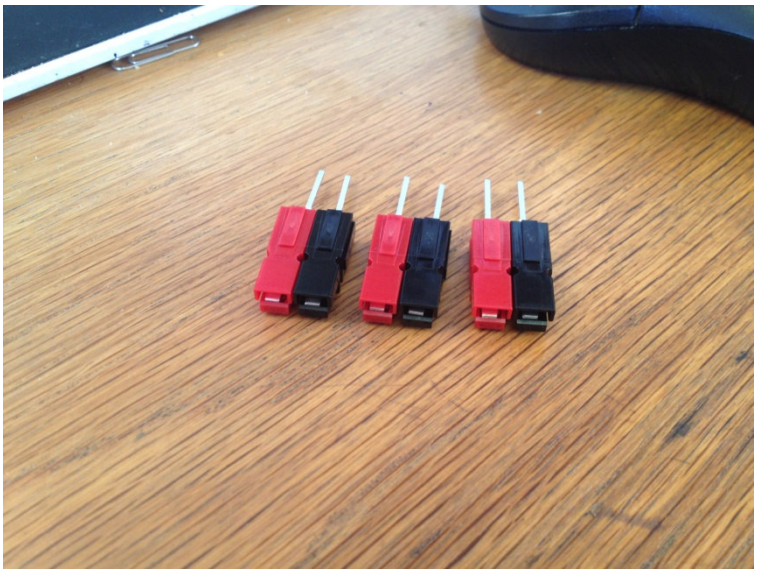






6. Pair up, the shells as shown, one black and one red. The shells will pair up in many ways so make sure that you get them right – as shown in the photograph. This is the "standard way" of using PowerPole connectors for ham radio use.





7. Insert the pairs into the PCB. Make sure that they are all the same way round and that the red shell is in the positive position as marked on the PCB.

8. Place the pcb on a flat surface making sure that the shells are sitting snug against the PCB and that all the pins are upright and parallel.

9. Solder all the pins.

10. Cut the surplus parts of the pins off – do not close-crop them – leave the solder intact.

11. Perform a visual inspection of all solder joints.

This completes the PCB assembly.

Testing the PCB

T1. Using an Ohmmeter, check that there is no short circuit across the input connector

T2. Connect a power source to the input and check that the LED lights green. Reverse the connections and check that the LED shows red.

This completes the testing.

Installing the optional mounting kit and enclosure

E1. Mount the nylon spacers on the upper side of the PCB with the nylon nuts on the underside. Do not over-tighten the nuts – nylon threads are easy to strip.

E2. Remove the protective film from the laser-cut panel (may have film on one side or both).

E3. Clean the panel with a soft cloth and plain water. Do not use any solvents.

E4. Remove the fuses from the assembled PCB.

E5. Put the front panel over the Powerpoles and make sure that it sits down on the spacers. This can be tricky. the Powerpoles have "shoulders" and will need to be moved slightly to get the cover to sit properly. ***Do not force the cover down.***

E6. Once the cover is down on the spacers, move the Powerpoles a little to get the mounting screw holes to line up. This can be tricky – patience is required. Exact alignment is not needed.

E7. Screw the cover to the PCB spacers using the nylon screws. Do not over-tighten the screws – nylon threads are easy to strip.

E8. Clean off any finger marks from the underside of the panel.

If you are going to screw the box to a wall, now is a good time to do that. The box has some indents in the back which will act as handy drilling points. Drill clearance holes carefully through the box first. I would recommend using 4 mounting screws.

E6. Finally attach the front panel of the Fuser-6 into the box using the four black self-tapping screws.

Your Fuser-6 is now ready to use.

Using your Fuser-6

It's pretty straightforward to use these units. We recommend putting the highest current device that you use, on the socket next to the input. The three sockets labelled "Lo" are suitable for loads of up to 10 Amps. The total current through the Fuser 6 should be limited to 30 Amps. Remember that your radios only draw significant current when transmitting.

The supplied fuses can be replaced with different values if you wish.

Modifications

Some folks have drilled a hole in the box and have mounted a flying lead for their Fuser-6. This can be soldered across the two buses to give six fused output connectors. Connect the flying lead to the end of the PCB closest to the socket labelled "INPUT"