

OpenEVSE

How to Build a GFCI coil with self test

This guide describes how to build a GFCI Current Transformer with a self test coil for use with an OpenEVSE Electric Vehicle charging station.

Written By: Christopher Howell



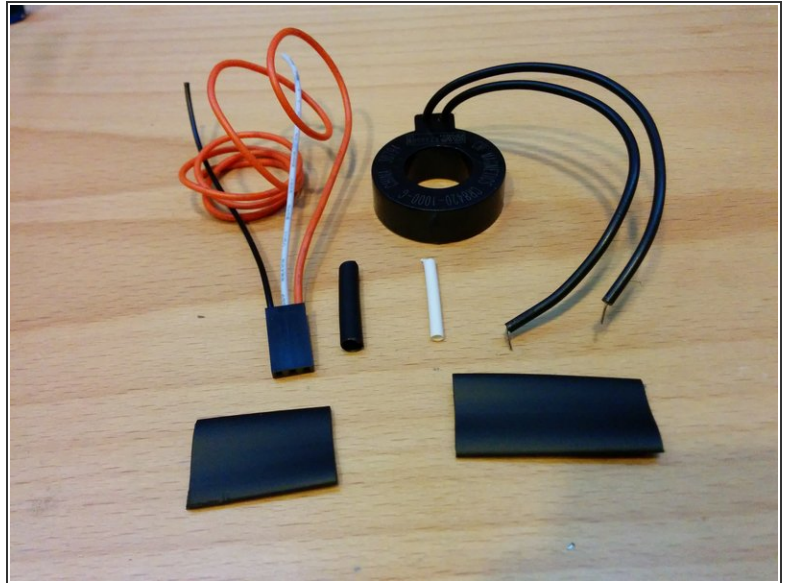
**TOOLS:**

- [Soldering Iron](#) (1)

**PARTS:**

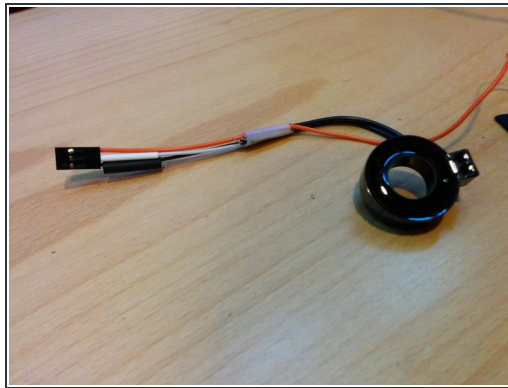
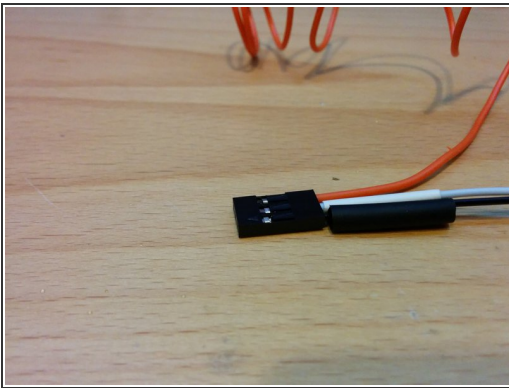
- [Current Transformer](#) (1)

Step 1 — How to Build a GFCI coil with self test



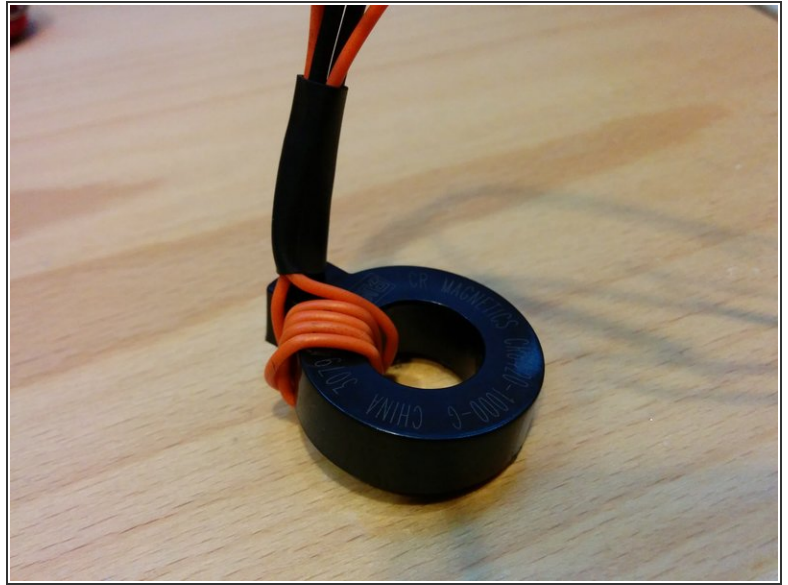
- Unpackage the GFCI coil and components.

Step 2 — Preparing 3 pin connector



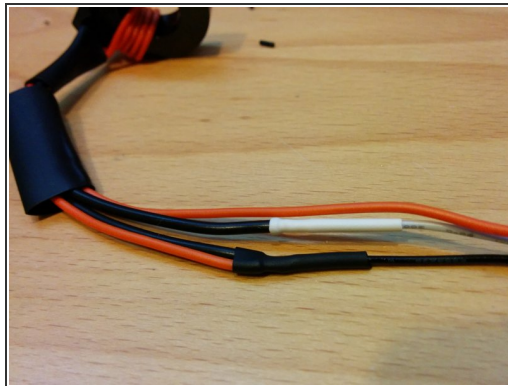
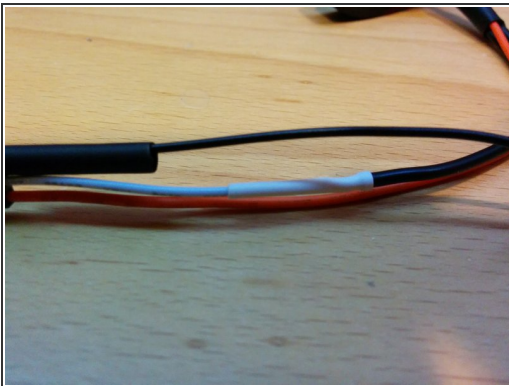
- Prepare 3 pin connector by sliding shrink wrap tubing onto the white and black wire.
- Temporarily tape the GFCI coil wires to the connector wires overlapping by 3/4" to 1".
- Place a large piece of shrink tubing at the end of the CT wires run the orange wire through.

Step 3 — Wrap the self test wire



- Wrap the orange wire self test wire through the CT 5 times then back to the shrink tubing.
- Shrink the tubing with a heat gun or very carefully with a lighter to ensure the wires stay in place.

Step 4 — Solder the CT



- Cut the white wire to length leaving one quarter inch overlap and solder to 1 CT wire. Shrink the tubing.
- Cut the black wire to length leaving one quarter inch overlap and solder to both the orange wire and the other lead from the CT. Shrink the tubing.
- Shrink a large piece of shrink tubing over the connections to finish your GFCI coil with self test.

Step 5 — Test Connections/Connect to OpenEVSE



- Test connections with a multimeter set to measure resistance. Orange to Black should measure 0 ohms. White to Black should read 42 to 50 ohms.
- Connect to OpenEVSE board. Ground (Black wire) should be closest to the board edge.