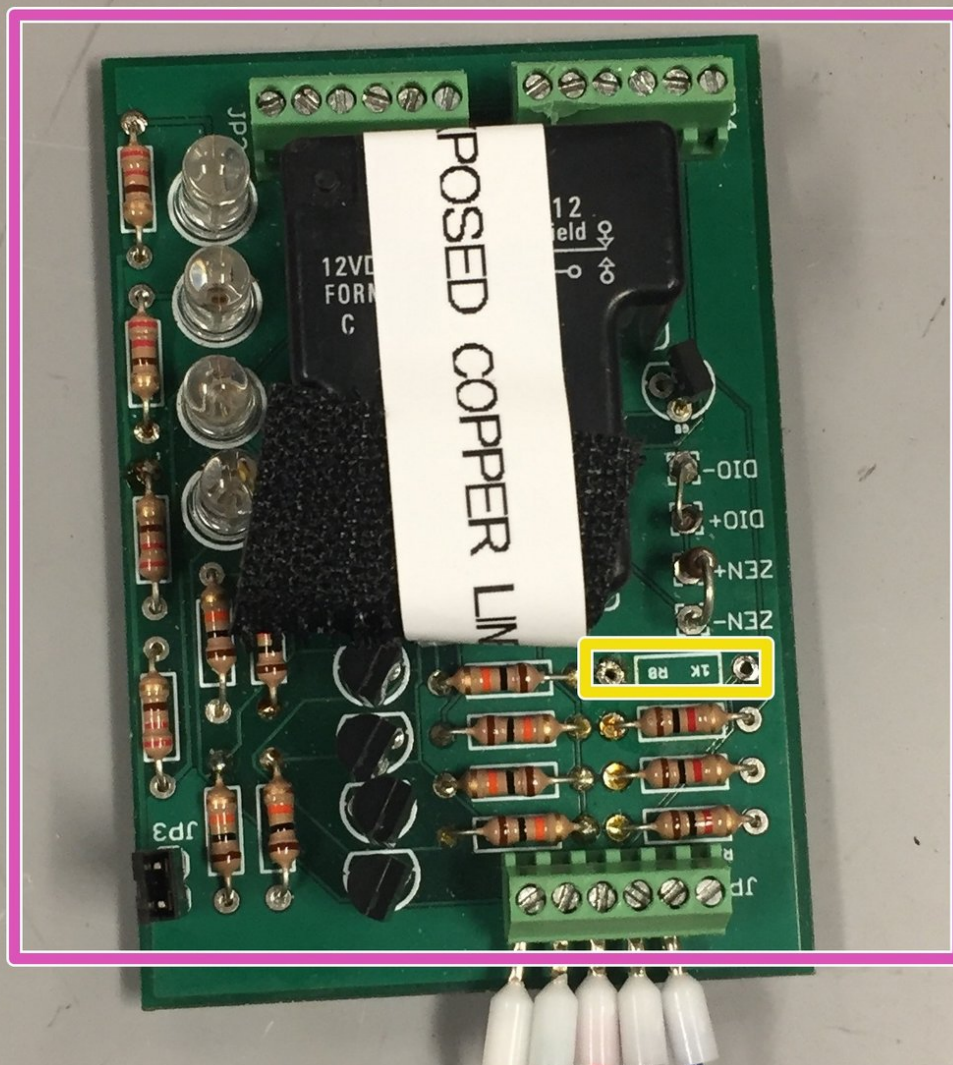




Autosampler Battery and Node Enclosure Assembly (2021)

This guide will outline how the autosampler board is built, connected, and tested from the current boards.

Written By: Gina Kittleson





TOOLS:

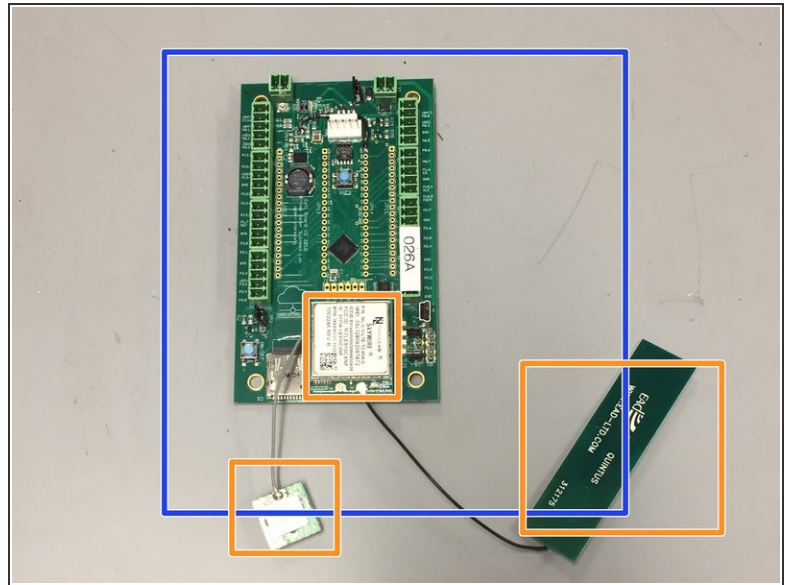
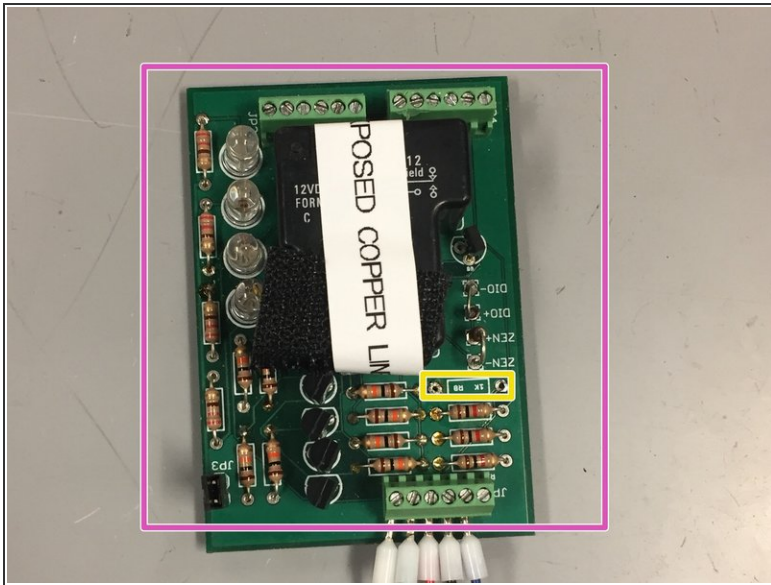
- [6-in-1 Screwdriver](#) (1)
- [Phillips #00 Screwdriver](#) (1)
- [Voltmeter](#) (1)



PARTS:

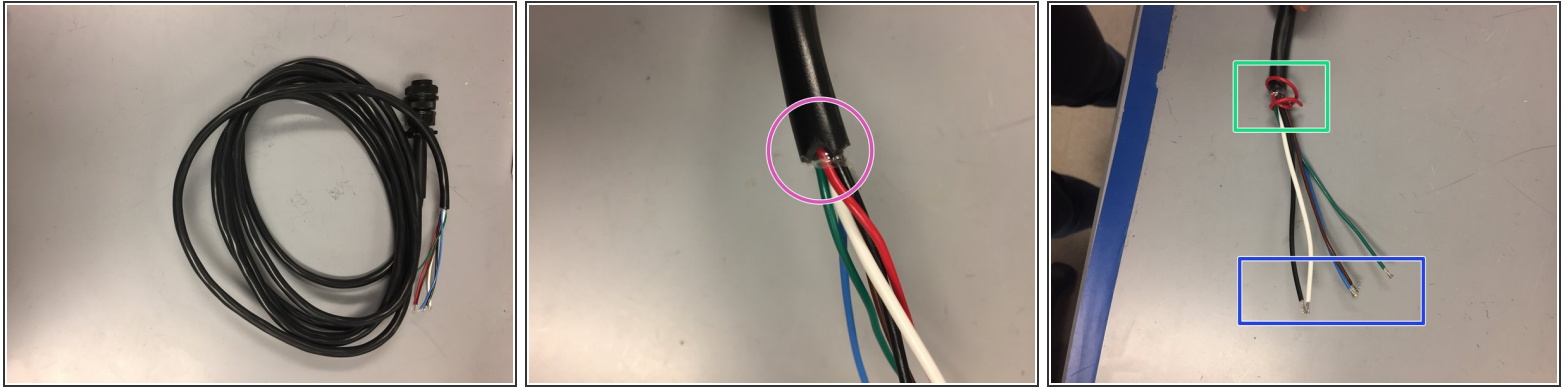
- [Open-Storm Board](#) (1)
- [Open-Storm Relay Board](#) (1)
- [GPS Unit](#) (1)
- [Internal PCB Dipole Antenna](#) (2)
- [Male-to-Male Jumper Wire](#) (5)
use a variety of colors
- [5-Wire Terminal Block Plug 3.5 mm](#) (1)
- [Male Crimp Connector](#) (2)
- [Female Crimp Connector](#) (10)

Step 1 — Acquiring Boards



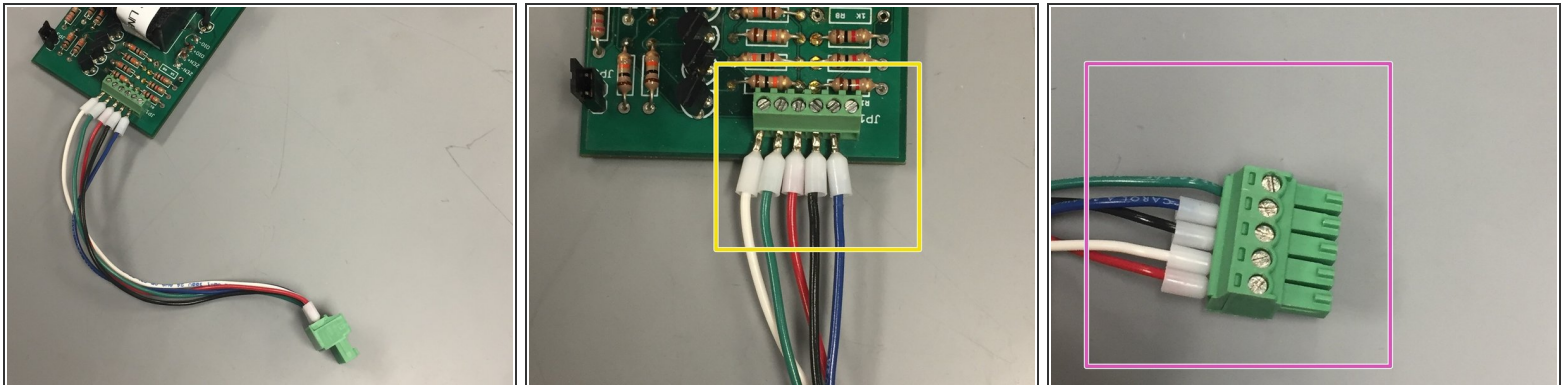
- Acquire a modified OpenStorm relay board.
- Ensure that the yellow-boxed resistor is removed.
- Acquire an OpenStorm motherboard.
- Attach an assigned and activated cellular modem, antenna, and GPS if not already attached.

Step 2 — Preparing the Wires



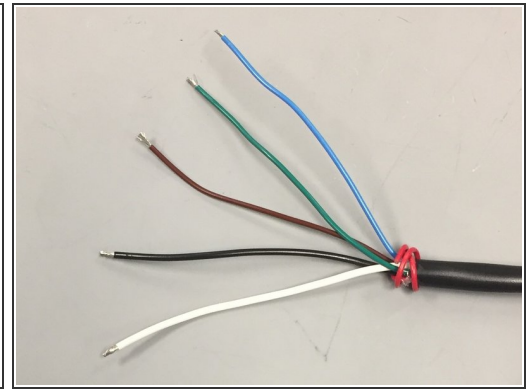
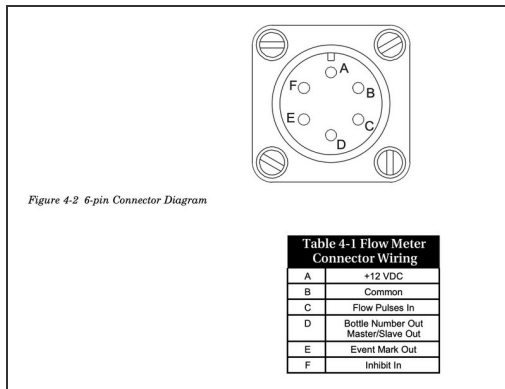
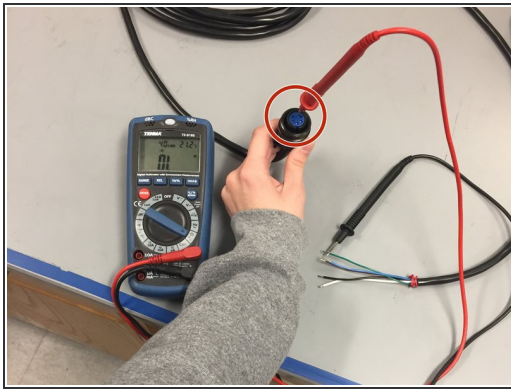
- Strip the 6 pin connector wire;
- Strip each of the 6 inner wires except for the red wire.
- Move the red wire out of the way of the rest of the wires.

Step 3 — Adding Jumper Wires



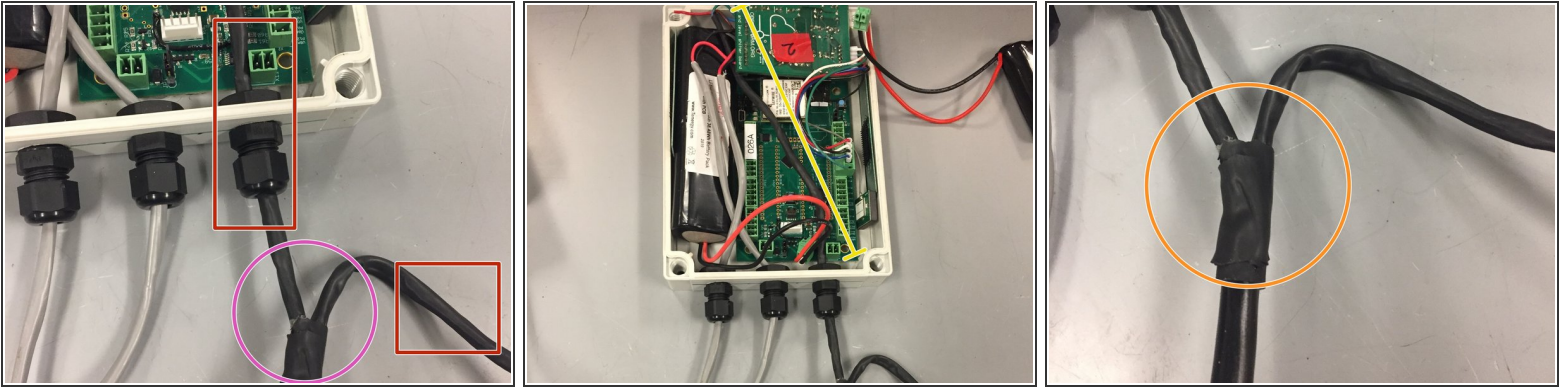
- Using 5 different colored jumper wires connect the 6 pin connector on the node board to a 5 pin connector.
- On the board, screw the jumpers into the terminals omitting the final terminal on the right.
 - In the order of (left to right): pulses to sampler (white), bottle count (green), power (red), ground (black), and event mark (blue).
- On the 5-pin connector, screw the jumpers into the terminal in the order of (bottom of screen to top): power (red), pulses to sampler (white), ground (black), event mark (blue), and bottle count (green).

Step 4 — Testing Wiring



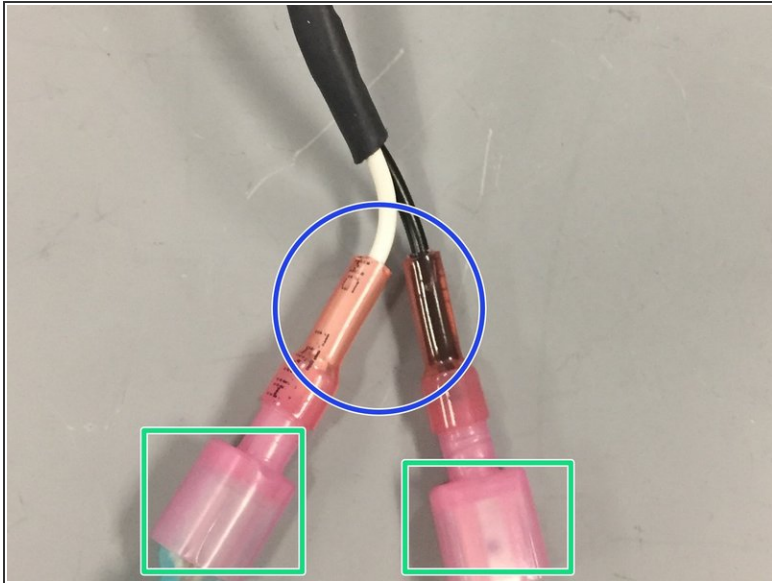
- Determine which wire is connected to which pin using a multimeter on the resistance setting.
- The pins as shown in figure 4-2 are the opposite of the pins circled in red. The figure is illustrating the pins as seen on the Autosampler rather than on the connector shown.
- The wire colors as determined by this test for this wire configuration are as follows: blue = bottle number, green = pulses to autosampler, brown = event mark, black = power, white = ground, red = inhibit.

Step 5 — Separate Sampler Wires



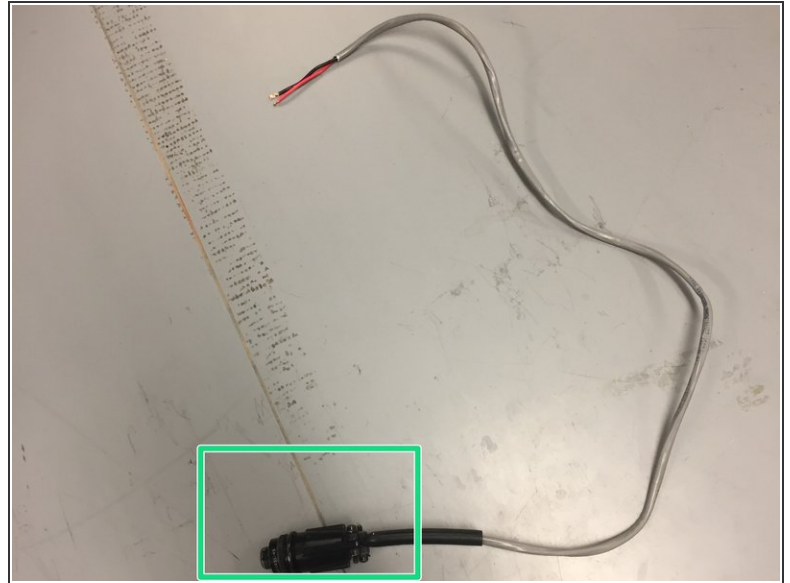
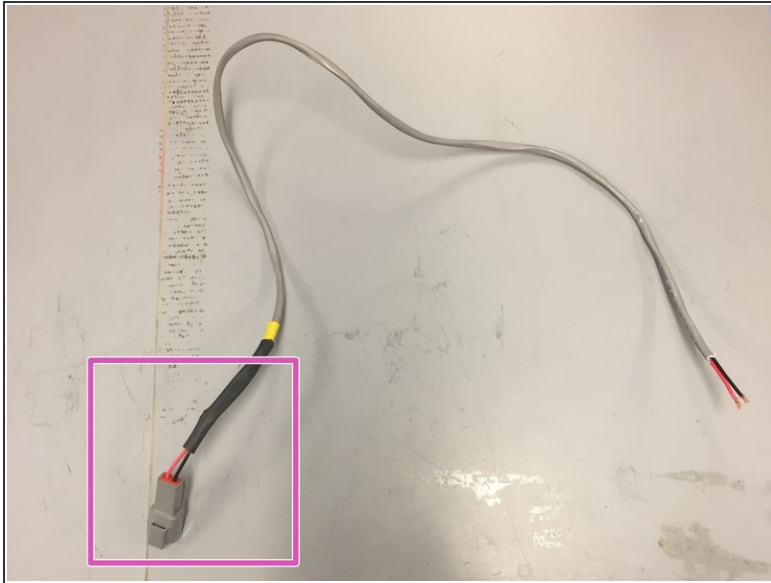
- Pull the power(black) and ground(white) wires separate from the signal wires(all others).
- Cut the black casing down as done earlier to expose the wires for testing until the wires can reach through the entire node box.
- Feed the two groups of wires for signaling and for power through two separate sheaths of heat shrink wrap.
- Cover the joint with a larger section of heat shrink cable.

Step 6 — Add Connections to Power and Ground



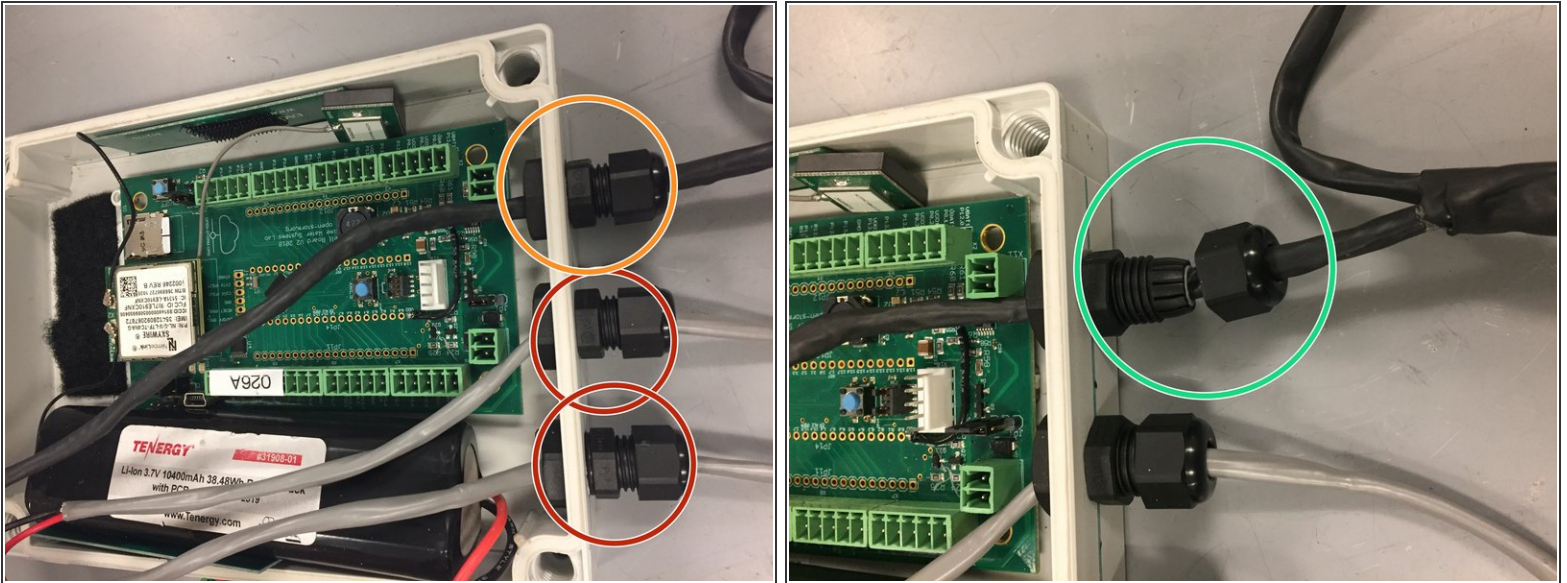
- Acquire heat shrink female connectors.
- Crimp the heat shrink connectors at the point just below the widening on the power(black) and ground(white) wires of the 6-pin autosampler wire.
- Use the heat gun to shrink the connector to touch the wire.

Step 7 — Acquiring Node to Sampler and Battery Wires



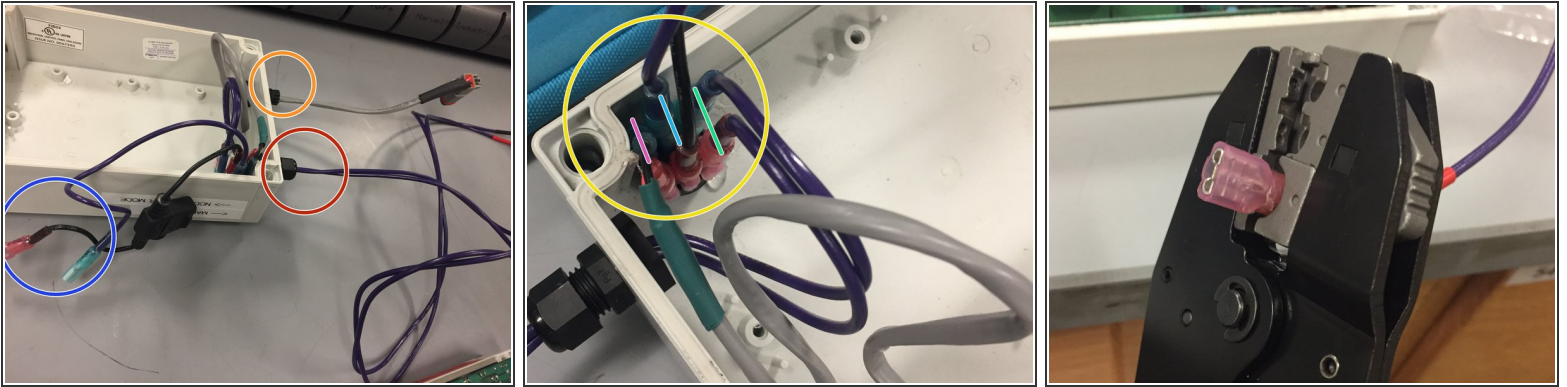
- Acquire a 2-pin amphenol battery box connector, or refer to the Autosampler Node Assembly (For New Version) ifixit guide to create a new one. Male side used in node box and female side used in battery box.
- Acquire a 2-pin amphenol connector, or refer to the Autosampler Battery Enclosure Assembly (For Old & New Versions) guide to create a new one.

Step 8 — Feed Wires Through the Node Box



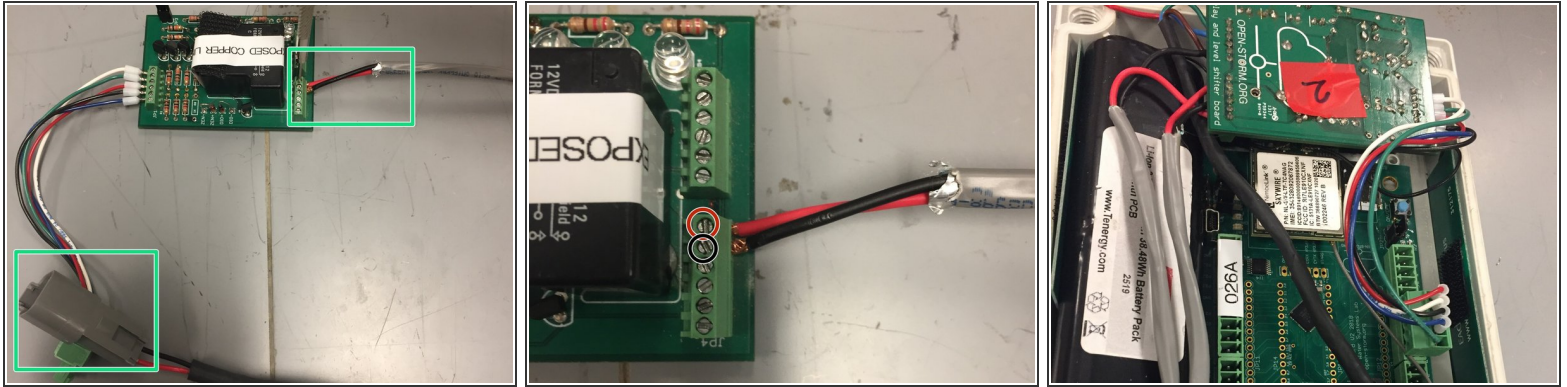
- Pull the battery connection wires that go to the 2-pin amphenol battery box connectors through the middle port.
- Pull the battery connection wires that go to the 2-pin amphenol autosampler batter connector through the bottom port.
- Pull only the portion of the autosampler wires through the top port that has the signal wires (e.g. the bottle count and pulses).
- Twist the outer side of the port down until it fits snugly around the wire.

Step 9 — Feed Wires Through the Battery Box



- Feed two power rated wires through the lower hole unconnected to any previously referred to wires.
 - Feed the female end of the battery amphenol connector through the upper hole.
 - Add male crimp connectors to the ends of the power rated wires and the battery amphenol connector wires that are inside the battery box.
 - Plug in the purple battery wires to the switch
 - Plug in the amphenol battery wires to the switch.
 - Take two more short power rated wires and add male crimps to both ends of the wires. One wire will connect to the ground of a battery and the other the power of the battery. Place a fuse in the center of the power wire.
 - Plug one side of the doubly male crimped wires into the switch.
- ⚠ Plug all of the power wires into the right side of the switch (the pink connectors in the image) and the ground into the left side (the blue connectors in the image).

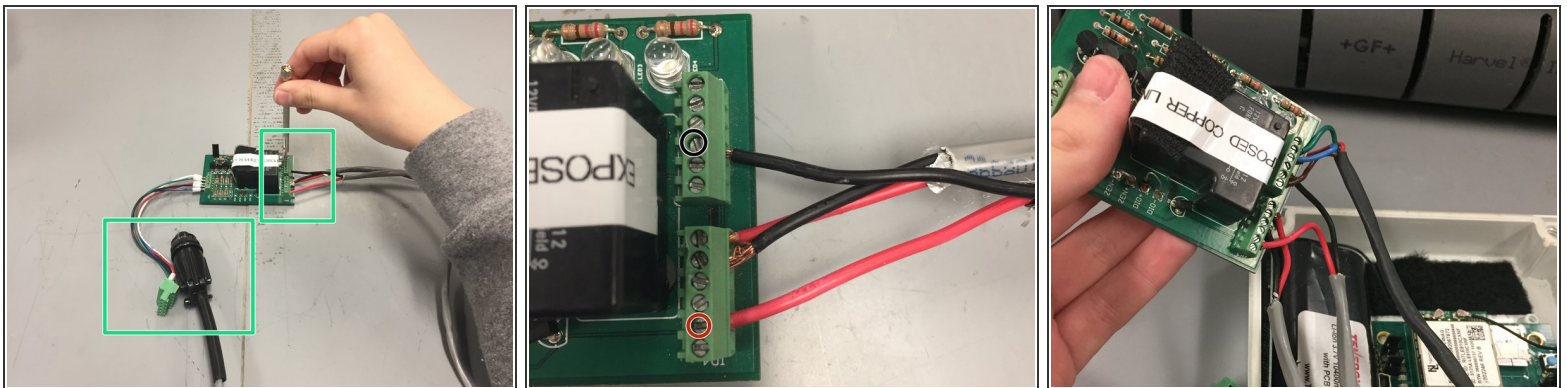
Step 10 — Attach the Battery Wire to the Board



- Take the two wires from the 2-pin female amphenol battery box connector and screw them into the board.
- Screw the red power wire into the topmost terminal on the bottom 6-pin connector.
- Screw the black ground wire into the terminal directly below the red wire.

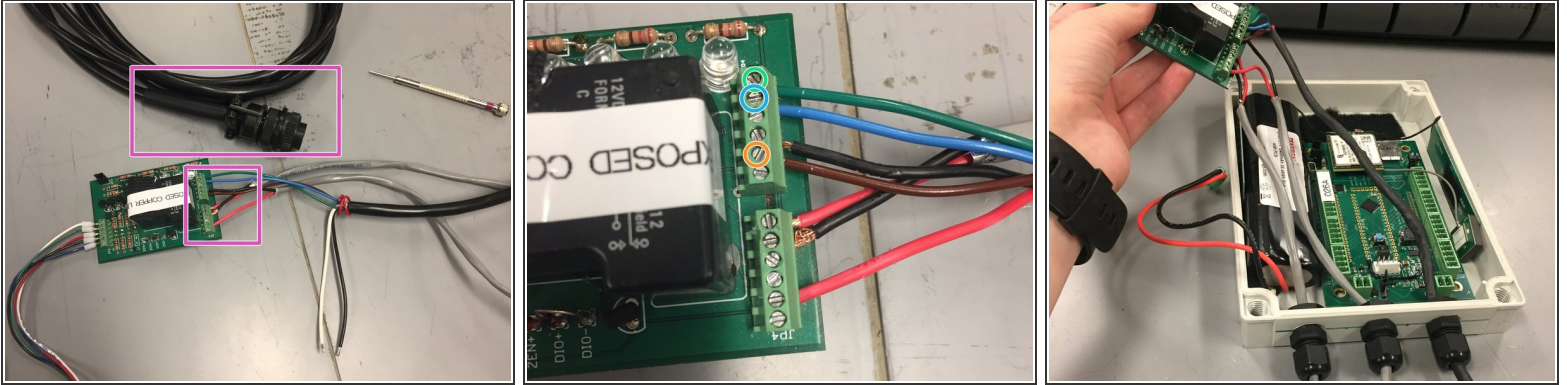
⚠ Ensure that the exposed copper portions of the wire are secure and do not touch.

Step 11 — Attach the 2-pin Sampler Wires to the Board



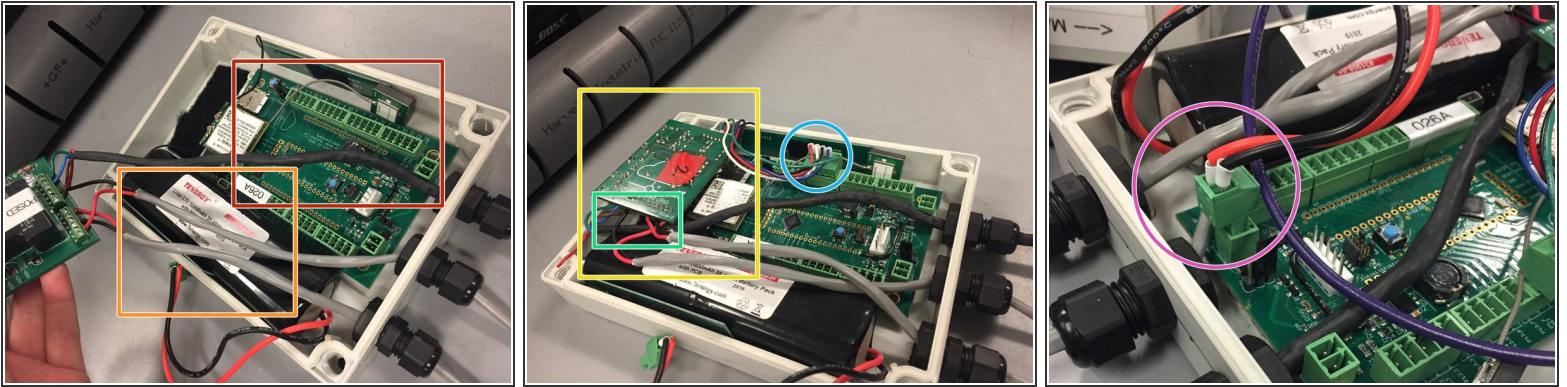
- Screw the red power and black ground wires into the board from the 2-pin amphenol connector that attaches directly to the sampler.
- Screw the black ground wire into the terminal 2 up from the bottom terminal of the top connector.
- Screw the red power wire into the terminal 1 up from the bottom of the bottom connector.

Step 12 — Attach the Wires from the 6-pin Connector to the Board



- Attach the blue, green, and brown wires from the 6-pin connector to the board. These wires have been fed through the box previously and are heat shrink wrapped.
- Screw the green wire into the topmost terminal on the top connector.
- Screw the blue wire into the terminal directly below the green wire
- Screw the brown wire into the terminal directly below the black wire on the top connector.

Step 13 — Fit the boards into the node box



- Slide the open storm board into the node box on the right pushed up as close to the ports as possible.
- Slide the 3-4V battery into the enclosure on the left side.
- Carefully fold the connected relay board over so that it fits within the enclosure snugly.
- Check to make sure that the connections remained secure.
- Plug the 6 pin connector into the port on the open storm board that is the second from the left side of the board in the image near the SD card port.
- Check that the battery port is exposed for deployment, but do not plug in the battery until the sampler is ready to begin sampling.