Connecting Atlas Scientific Circuits to Robo-Tank

You can connect the following Atlas Scientific circuits to the controller.

- 2 pH Circuits
- 1 ORP Circuit
- 1 Dissolved Oxygen Circuit
- 1 Electrical Conductivity Circuit

To connect the circuits to the controller you need a shield provided by Atlas Scientific or WhiteBox Labs. They offer 3 shields explained below, each of them is isolated which is highly recommended so they don't interfere with each other. You can connect any of them to the controller at the same time.

You can connect these shields internally or mount in an external case and plug into port 14 on the controller. If you're using more than one shield you can connect them all together by connecting the grounds, 3.3v, SCL and SDA together coming from the different shields. They can all be connected to the same header pins on the board or port 14.

If you mount the shields in a different box the cable connecting them to port 14 shouldn't be longer than 6ft. With good cable 10' will work but may cause issues.

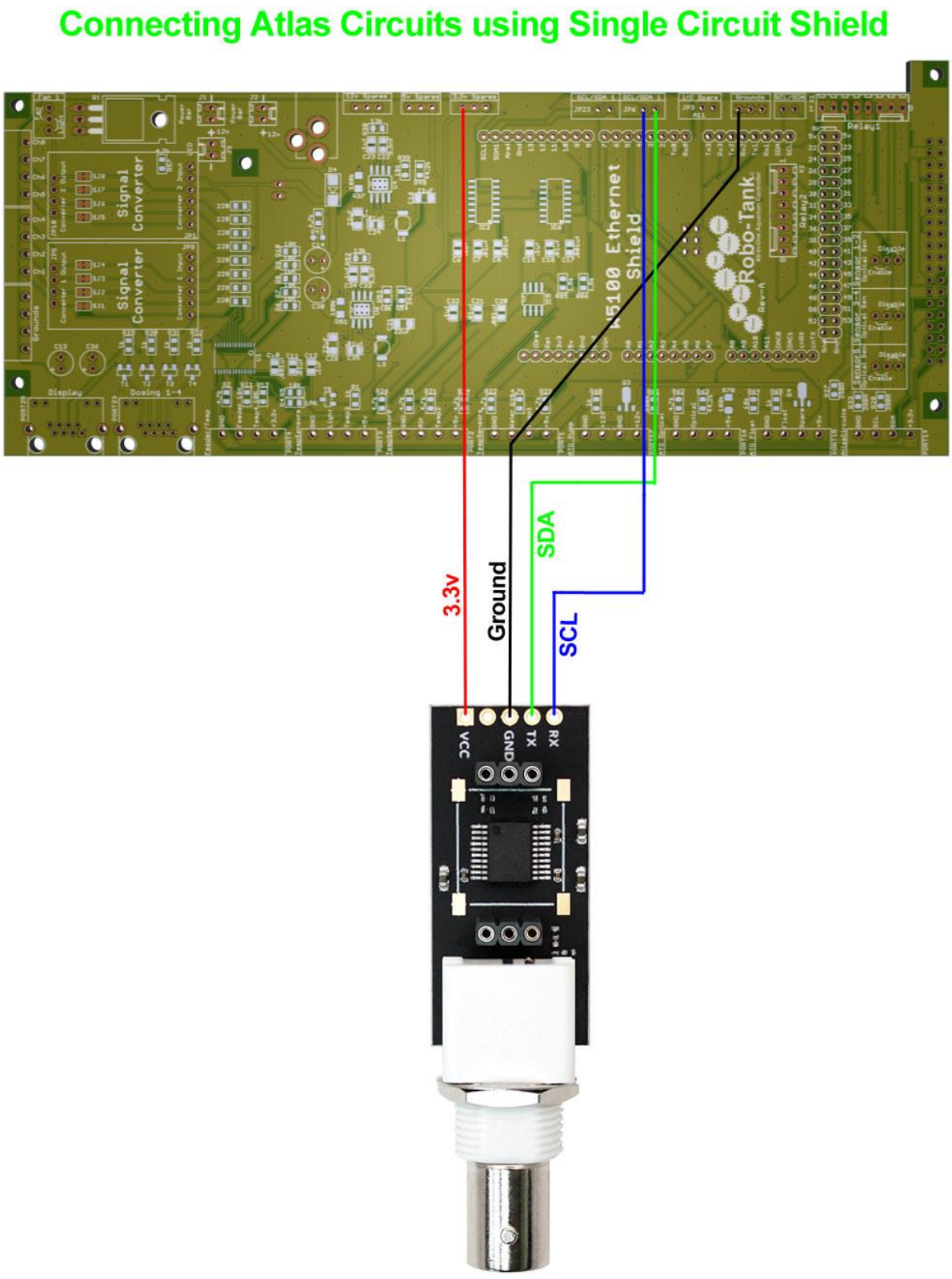
After you choose the shield you want to use for your circuits and before you can use them with Robo-Tank you have to change the mode they operate in from UART to I2C mode, here some info explaining how to do that.

https://www.whiteboxes.ch/tentacle/#switch-i2c

https://www.robo-tank.ca/forum/Thread-Setting-Up-The-EZO-Atlas-Scientific-Stamps-For-Robo-Tank?highlight=atlas

Connecting Single Circuit Shield

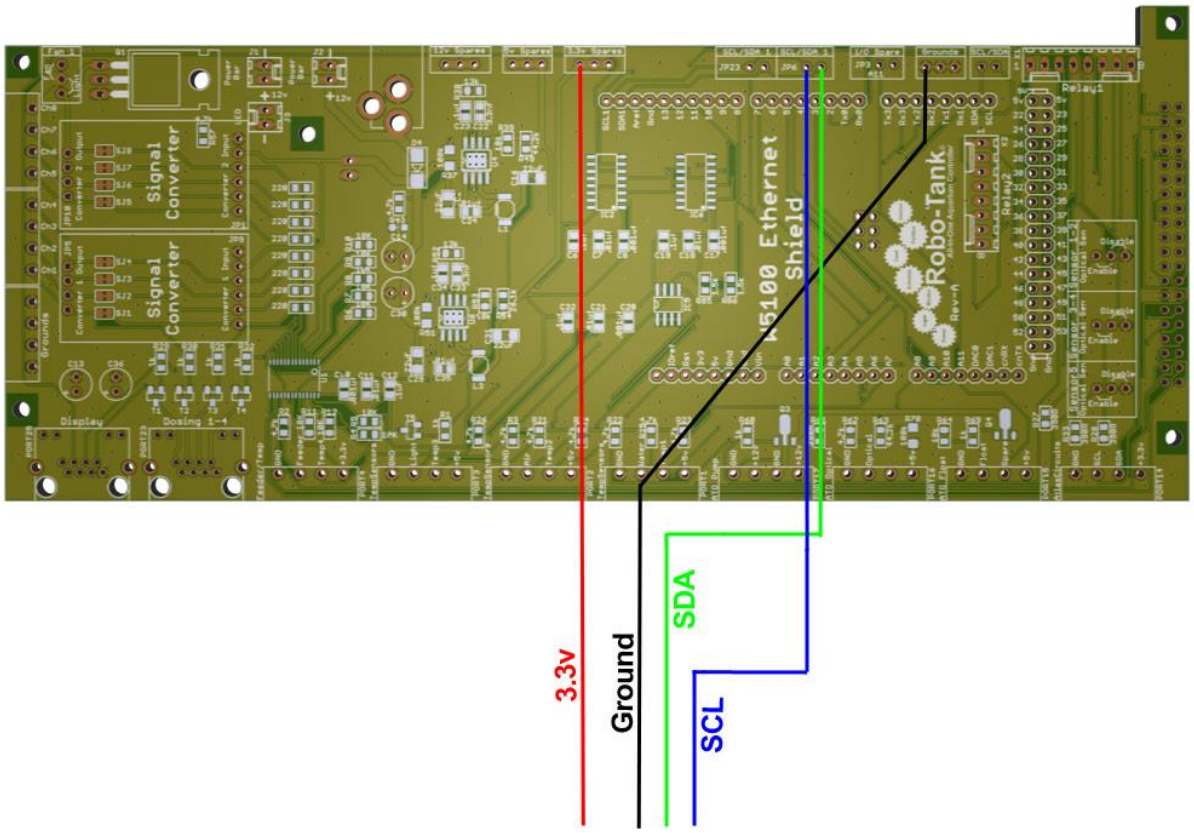
The board below is for a single circuit, you can connect 5 to run all the circuits if you want to upgrade slowly. The Atlas circuit plugs into this board which connects directly to the controller using 4 wires. You can connect internally as shown below or you can connect to port 14 on the controller. (refer to wiring diagrams for pinouts)
https://www.atlas-scientific.com/product_pages/components/single_carrier_iso.html

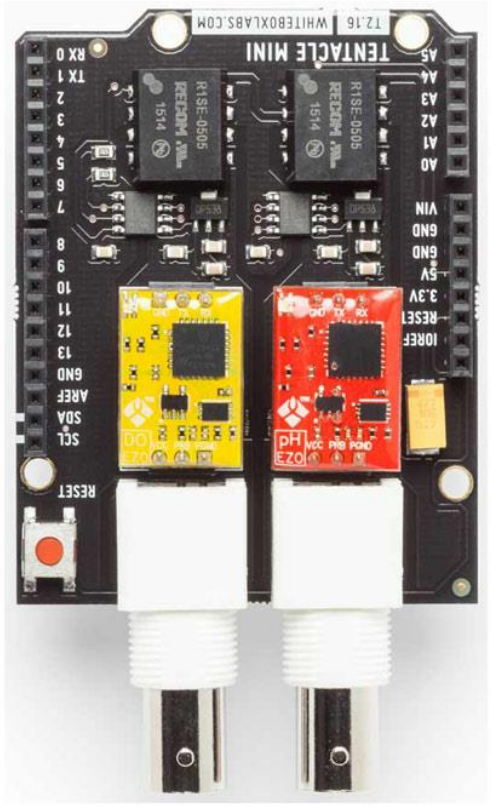


Connecting Tentacle-Mini Shield

The board below is for two circuits, you can connect 3 to run all the circuits if you want to upgrade slowly. Any 2 Atlas circuits plugs into this board which connects directly to the controller using 4 wires. You can connect internally as shown below or you can connect to port 14 on the controller. (refer to wiring diagrams for pinouts)
https://www.atlas-scientific.com/product_pages/components/tentacle-shield-mini.html

Connecting Atlas Circuits using Tentacle Mini Shield





Connecting Tentacle Shield

The board below is for 4 circuits, you can connect 2 to run all circuits but the maximum that work with the controller is only 5 circuits so 3 spaces would be unused. This board only works with 5v, because of that an I2C logic level shifter is required. This converts the 5v single from the shield down to 3.3v so the controller won't be damaged. Here's a link with the part.
https://www.adafruit.com/product/757

You can connect this shield internally as shown below or you can connect to port 14 on the controller. (refer to wiring diagrams for pinouts)
https://www.atlas-scientific.com/product_pages/components/tentacle-shield.html