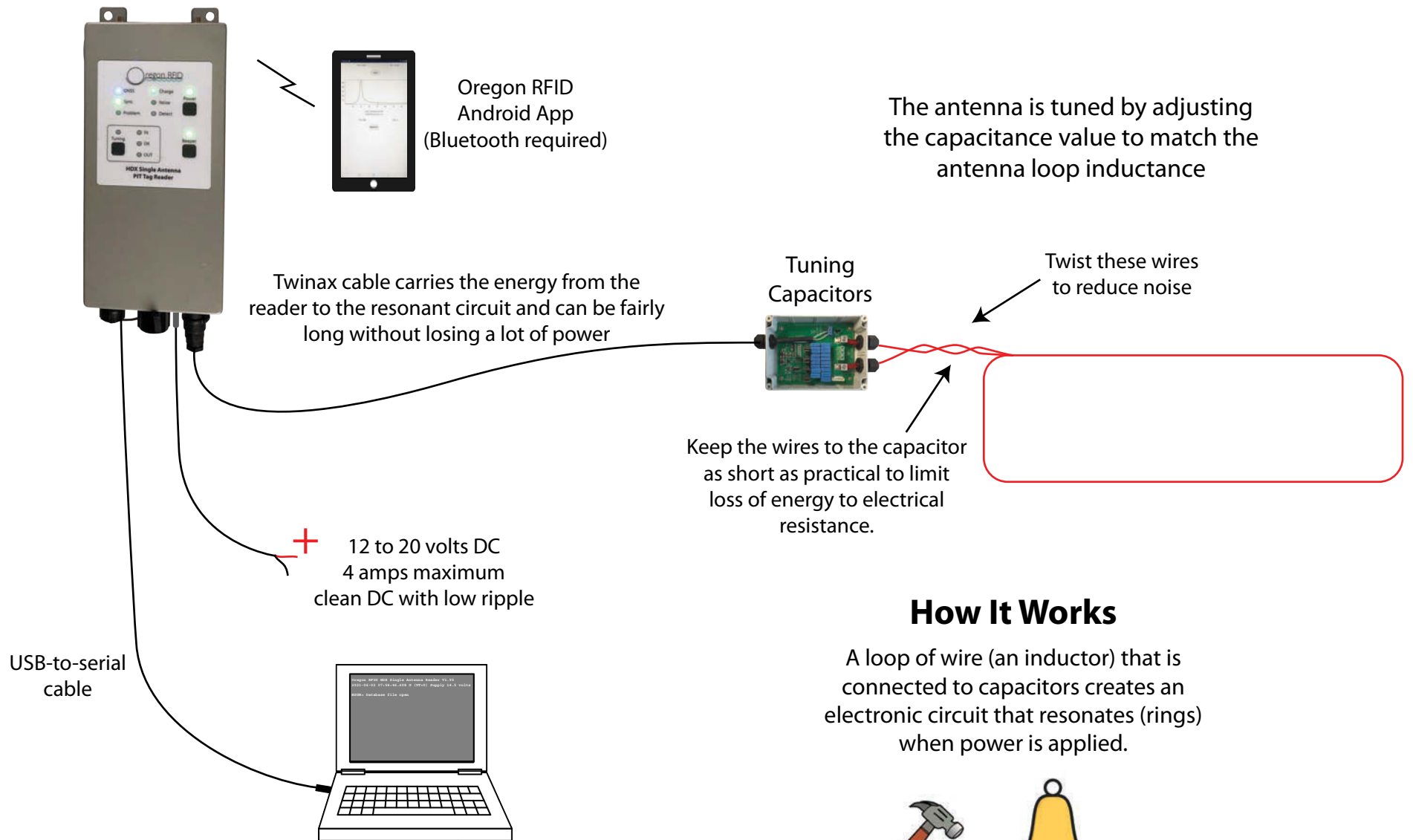
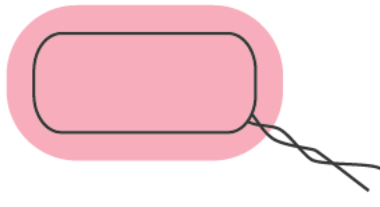


PIT Tag System Diagram

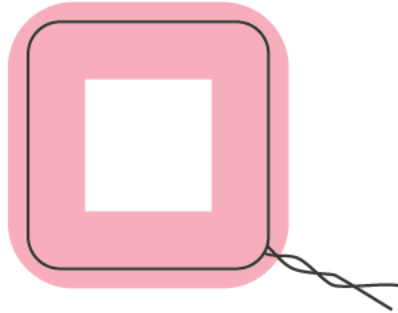


Antenna Design

Antennas can be wide and short or they can be tall and narrow. Antennas that are both tall and wide are difficult to design and often will have a signal hole in the middle where there are no detections, particularly with small PIT tags.



No hole in the field



Loop is too tall or wide

The antenna inductance should be in the range of 25 to 80 microHenries, which is related to the loop area. Increasing the loop size will increase the inductance.

A single loop of wire wider than approximately 30' across will have sufficient inductance to tune. At around 200' wide a single loop will have an inductance value at the top of the tuning range of our capacitors.

Smaller loops need more turns of wire to be within the inductance range. A one meter loop is three turns. Turns will increase as the loop area gets smaller. Small loops a few inches in diameter can have tens of turns of wire.

Antenna wires in multiple-turn loops should be held together with tie wraps or by placing it inside tubing. Some antennas will have better performance if the wires are evenly spaced like guitar strings.

Antenna Wire

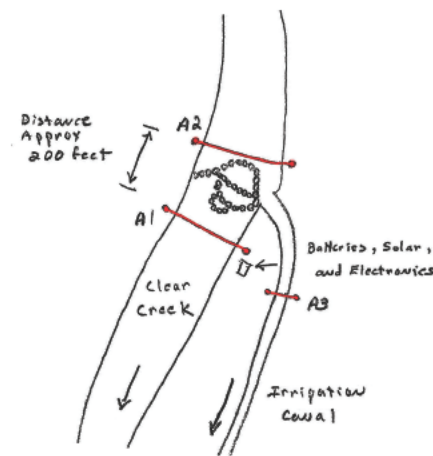
Larger loops use thicker wire to lower the electrical resistance due to the long wire length. The wire size is a primary factor in the field power from the antenna.

Wires are defined by the strand size and number of strands. A 10 gauge wire could be 1 thick strand or many fine strands. Contact Oregon RFID Tech Support for guidance.

To get the best performance it is wise to try larger and smaller alternatives to find the best design. For antennas under a few feet wide where there are multiple choices for the number of turns, try each one and compare to find the optimum design.

Technical Support

Contact Oregon RFID technical support at support@oregonrfid.com for assistance. Our online Help Desk has an extensive FAQ on many subjects at <http://support.oregonrfid.com/support/home>



We provide assistance when making antennas. Send drawings or photographs with dimensions and we can help with suggestions for wire sizes and construction methods.