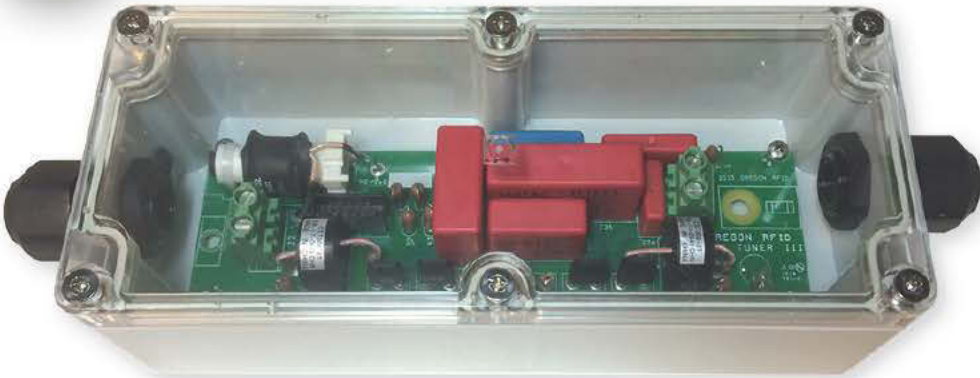


# EasyTuner and Slim Tuner Guide



March 29, 2015

The Oregon RFID EasyTuner and Slim Tuner produce a range of capacitance using shorting jumpers. The table of jumper combinations and their resulting values is in the appendix.

The capacitors are adjusted to tune the antenna to the international standard frequency for low frequency animal tracking, 134.2 kHz.

### **Differences between the EasyTuner and the Slim Tuner**

The EasyTuner is our standard capacitor shipped with readers. It can work with small to very large antennas. The capacitors are installed in pairs to share the power load and so can drive very high power antennas.

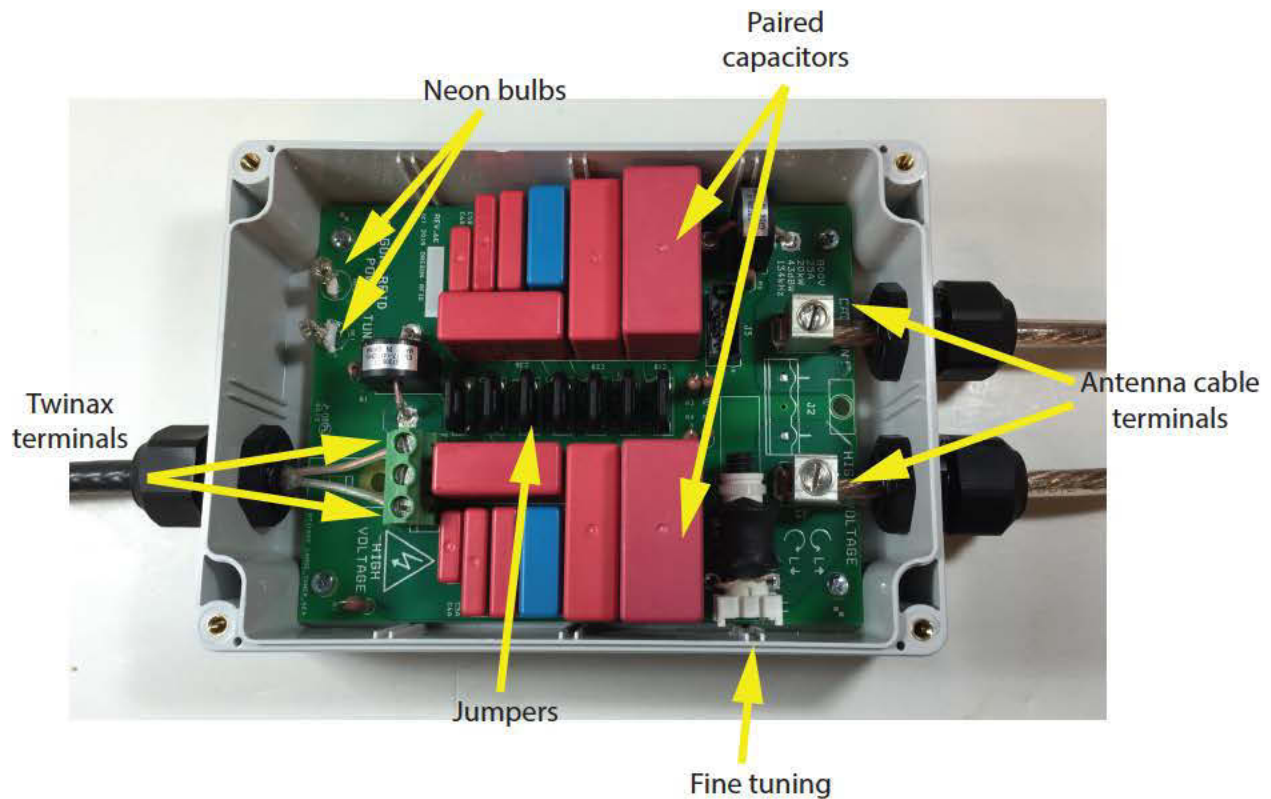
The Slim Tuner was designed to fit in 2" diameter pipe and is used in our pole antenna. It drives small antennas with lower voltages than the EasyTuner.

The Slim Tuner is available in a NEMA 4 box with waterproof grips. The grip limits antenna wire diameter 0.11" / 2.8 mm which is useful for antennas up to a few meters wide.



## Wiring the Capacitors

Connect the twinax cable to the outside terminals on the green connector. Tighten the black grip around the cable to keep water from leaking in.



Twist the tails of the antenna and attach them to the two cable terminals. The distance from the tuner to the antenna should be kept short to minimize power loss within the resonant circuit.

## Slim Tuner Cable Clamp

The slim tuner has a clamp option to grip the twinax. This is often needed for custom slim tuner enclosures.



## Tuning an Antenna

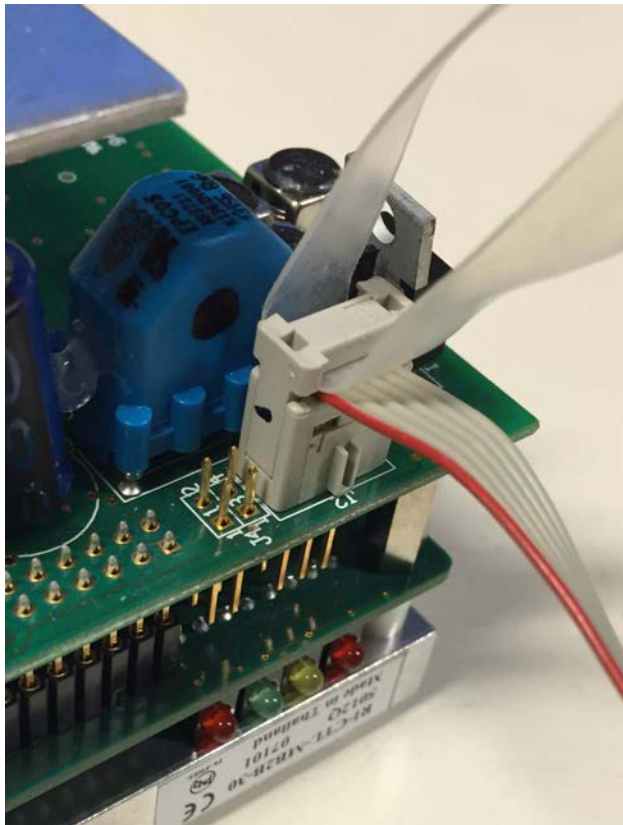
Remove all the shorting jumpers except S1 (S2 on the slim tuner).



Remove the rubber plug on the side of the box and turn the variable adjustment screw clockwise until the ferrite slug is about 1 cm or 1/4" out.



Connect the tuning indicator cable to J2 on the reader as shown below. Put the toggle switch in the "RESONANCE TUNING" position.

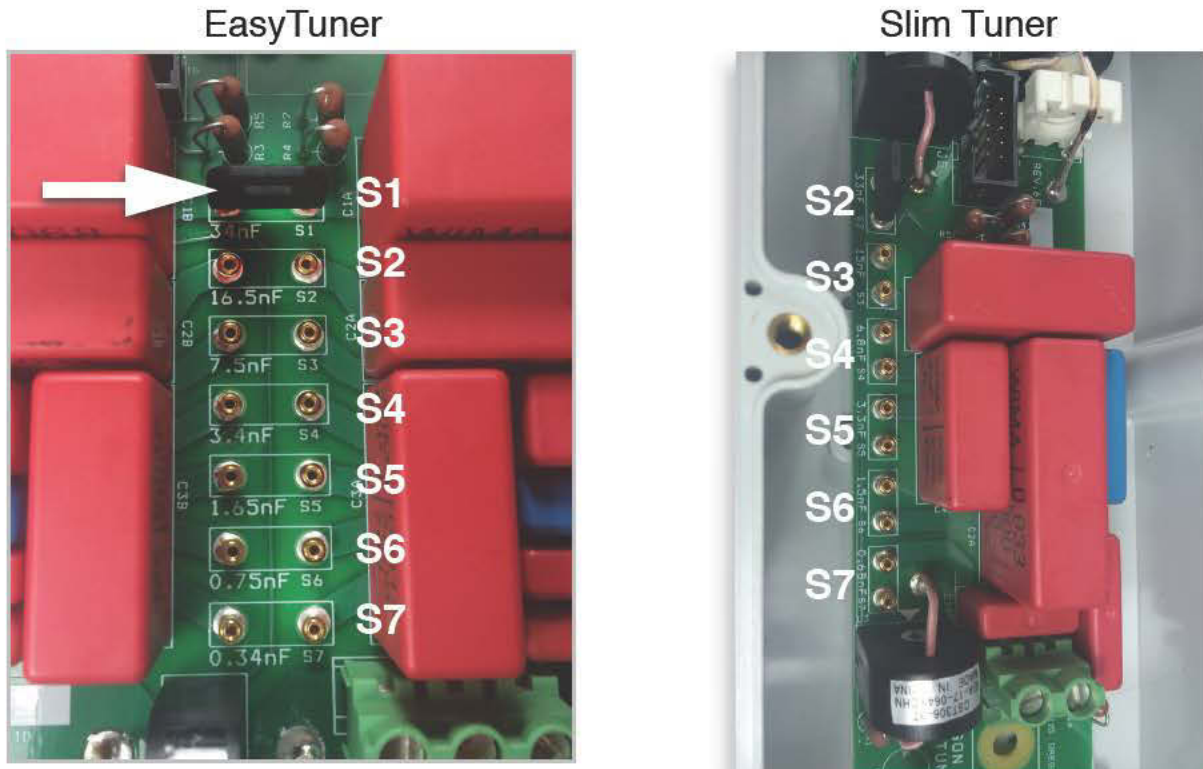




## Convergence Tuning Method

Turn the reader on. If using a multiple antenna reader, select the antenna to tune with the MX command or on the Setup screen of the PDA.

If the tuning indicator shows “OUT”, remove it.



Place a jumper in the next position. If the tuning indicator shows OUT, remove it. Repeat this for the rest of the jumpers, one at a time.

Turn the fine tuning adjustment until the green OK LED is brightest. The neon bulbs should flash brightly when the antenna is in tune. It is okay if the IN and OUT flash.

When finished, turn the reader off and remove the tuning indicator. Turn the reader back on, enter the antenna sequence to enable the antennas.



# Slim Tuner Jumper Values

	S2	S3	S4	S5	S6	S7	$\mu\text{H}$
1						█	2067.6
2					█		937.3
3					█	█	645.0
4				█		█	426.1
5				█		█	353.3
6				█	█		292.9
7				█	█	█	256.6
8			█				206.8
9			█			█	188.0
10			█		█		169.4
11			█		█	█	156.6
12			█	█			139.2
13			█	█		█	130.4
14			█	█	█		121.2
15			█	█	█	█	114.5
16		█					93.7
17		█				█	89.7
18		█			█		85.2
19		█			█	█	81.8
20		█		█			76.8
21		█		█		█	74.1
22		█		█	█		71.0
23		█		█	█	█	68.7
24		█	█				64.5
25		█	█			█	62.5
26		█	█		█		60.3
27		█	█		█	█	58.6
28		█	█	█			56.0
29		█	█	█	█	█	54.5
30		█	█	█	█		52.9
31		█	█	█	█	█	51.5
32	█						42.6
33	█					█	41.7
34	█				█		40.8
35	█				█	█	40.0
36	█			█			38.7
37	█			█	█	█	38.0
38	█			█	█		37.2
39	█			█	█	█	36.5
40	█		█				35.3
41	█		█		█	█	34.7
42	█		█		█		34.0
43	█		█		█	█	33.5
44	█		█	█			32.6
45	█		█	█	█	█	32.1
46	█		█	█	█		31.5
47	█		█	█	█	█	31.1
48	█	█					29.3
49	█	█				█	28.9
50	█	█			█		28.4
51	█	█			█	█	28.0
52	█	█					27.4
53	█	█		█	█	█	27.0
54	█	█		█	█		26.6
55	█	█		█	█	█	26.3
56	█	█	█				25.7
57	█	█	█			█	25.3
58	█	█	█		█		25.0
59	█	█	█		█	█	24.7
60	█	█	█	█			24.2
61	█	█	█	█		█	23.9
62	█	█	█	█	█		23.6
63	█	█	█	█	█	█	23.3
	33	15	6.8	3.3	1.5	0.68 nF	