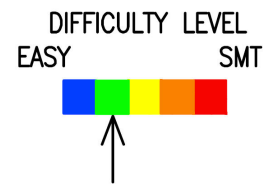




QRPBuilder 4:1 Balun



First, familiarize yourself with the parts and check for all the components. If a part is missing, please contact us and we will send one. To request a part email grpbuilder@gmail.com.

Please read all the instructions before starting the assembly.

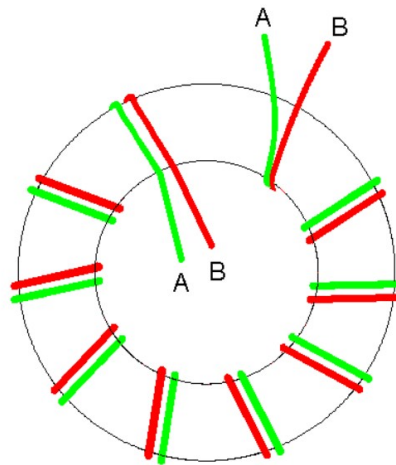
Parts List

- 1 – QRPBuilder 4:1 Balun pcb
- 1 – T1, FT82-43 toroid (black)
- 2 – 12" each of two different color 24AWG Thermaleze® magnet wire
- 1 – J1, BNC PCB horizontal connector
- 1 – J2, 2 position pushbutton terminal block
- 2 – nylon tie wrap

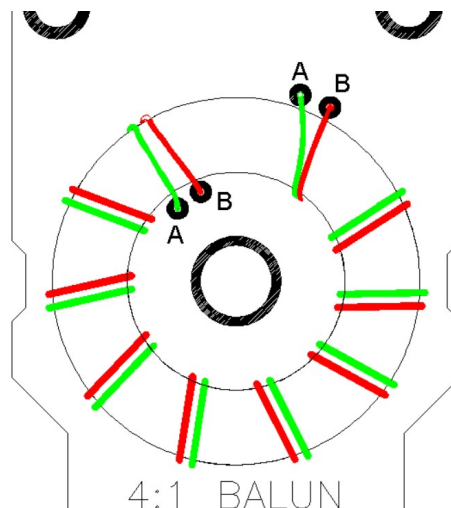
First to install is T1 that must be wound as shown below.

If a winding does not end up as shown below or is not wound in the same direction as shown below, T1 will not align up with the pads on the pcb. Note that the ends of the windings must be over or under the core as shown. If the wires are crossed and don't line up with the holes, wind it again like the instructions.

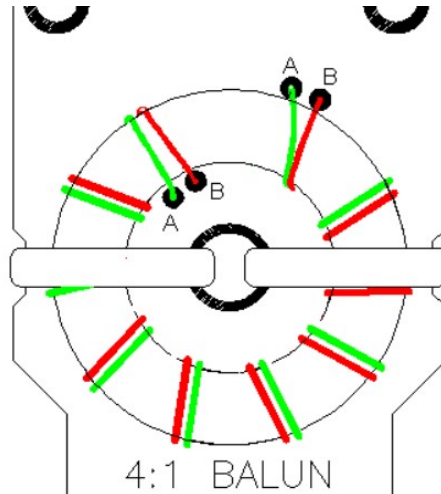
Wind a total of "ten" turns for each color. Space the turns evenly. Remember every time a wire goes thru the center is one turn. You can wind the "A" winding then wind the "B" color on left side. You will receive two different color wires.



The magnet wire is Thermaleze. The enamel coating can be removed with a hot soldering iron with a blob of solder, and can be tinned easily with a hot iron. Bend the wires down and pre-tin the wire in preparation to soldering them to the board. Do not pull the wires through the board past where you have tinned them. Solder the toroid mounted flush with the top of the board. Shown below is how it should look when soldered into the board.



- [] Secure T1 with the two nylon tie wraps as shown below.



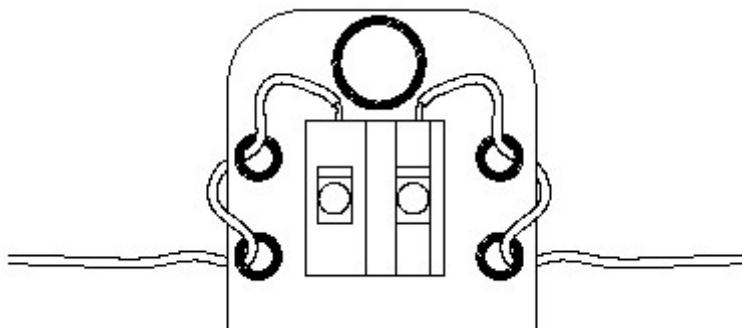
- [] Install the push button terminal block on the top side of the board, with the wire entry holes to the top.
- [] Install the horizontal BNC connector on the top side of the board.

This completes the assembly

Using the balun:

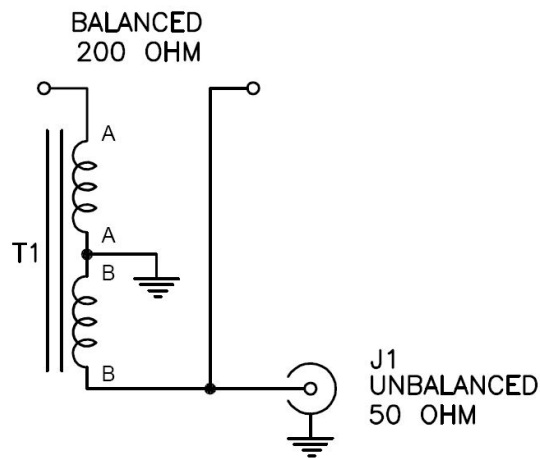
Use all the normal cautions throwing wires up in the air near power lines.

The QRPGuys 1:1 Balun covers the HF bands and is good for at least 20 watts. The builder supplies the wire for the dipole elements. You can use 20awg to 26awg depending what you have available for both wires. There is a BNC female connector for the 50 ohm input from your radio or tuner. Route the element wires through the two strain relief holes and to the pushbutton terminal strip as shown.



Route antenna elements as shown

Schematic:



Reference:

When to Use a 4:1 Balun

Impedance matching: It steps down a 200-ohm balanced load to match a standard 50-ohm unbalanced transmitter.

Antenna types: Ideal for symmetrical antennas with higher feed point resistance, like folded dipoles, loops, and certain beam antennas.

Reduced tuner stress: Lowers the reactance and stress on your antenna tuner by bringing the impedance closer to 50 ohms.

When to Use a 1:1 Balun

Equal impedance: Used when the antenna feed point is already close to 50 ohms, such as a standard resonant half-wave dipole.

Choking common-mode current: Acts primarily as a line isolator or current choke to keep RF off the outside of your coaxial cable shield.

Notes:
