

Go4Lo Instructions ***SECOND DRAFT ONLY***

Please let me know of any errors, things that need changing or clarifying.

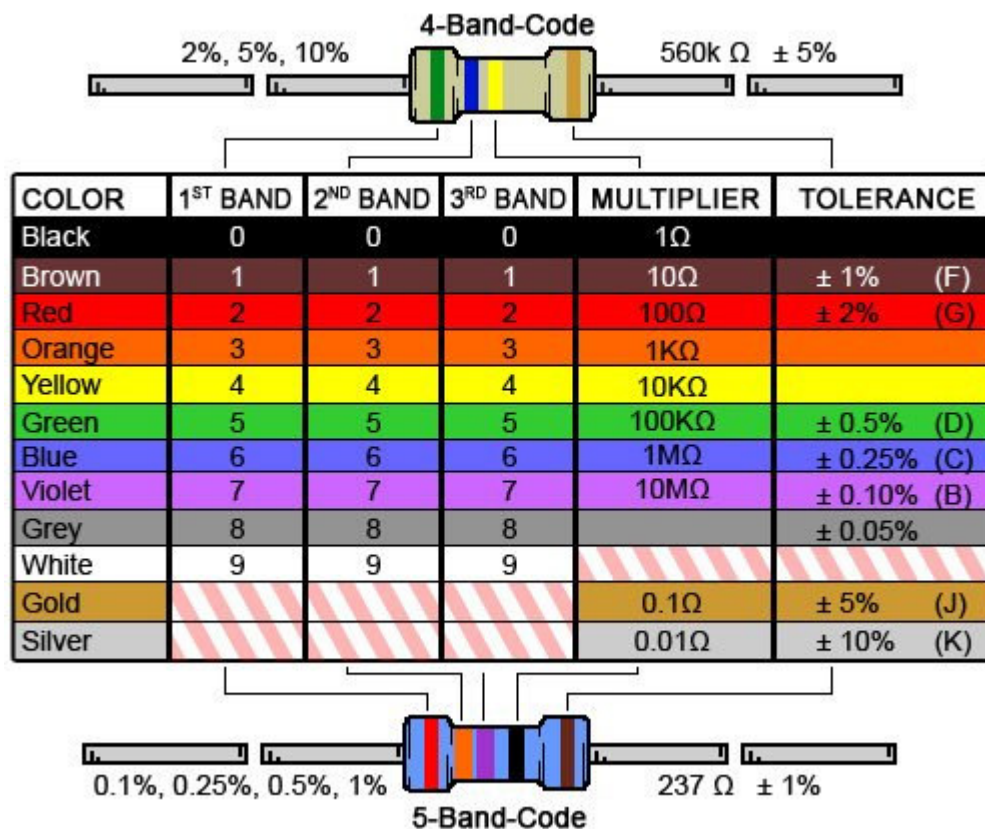
Always download the latest version of the instructions from www.sotabeams.co.uk/downloads

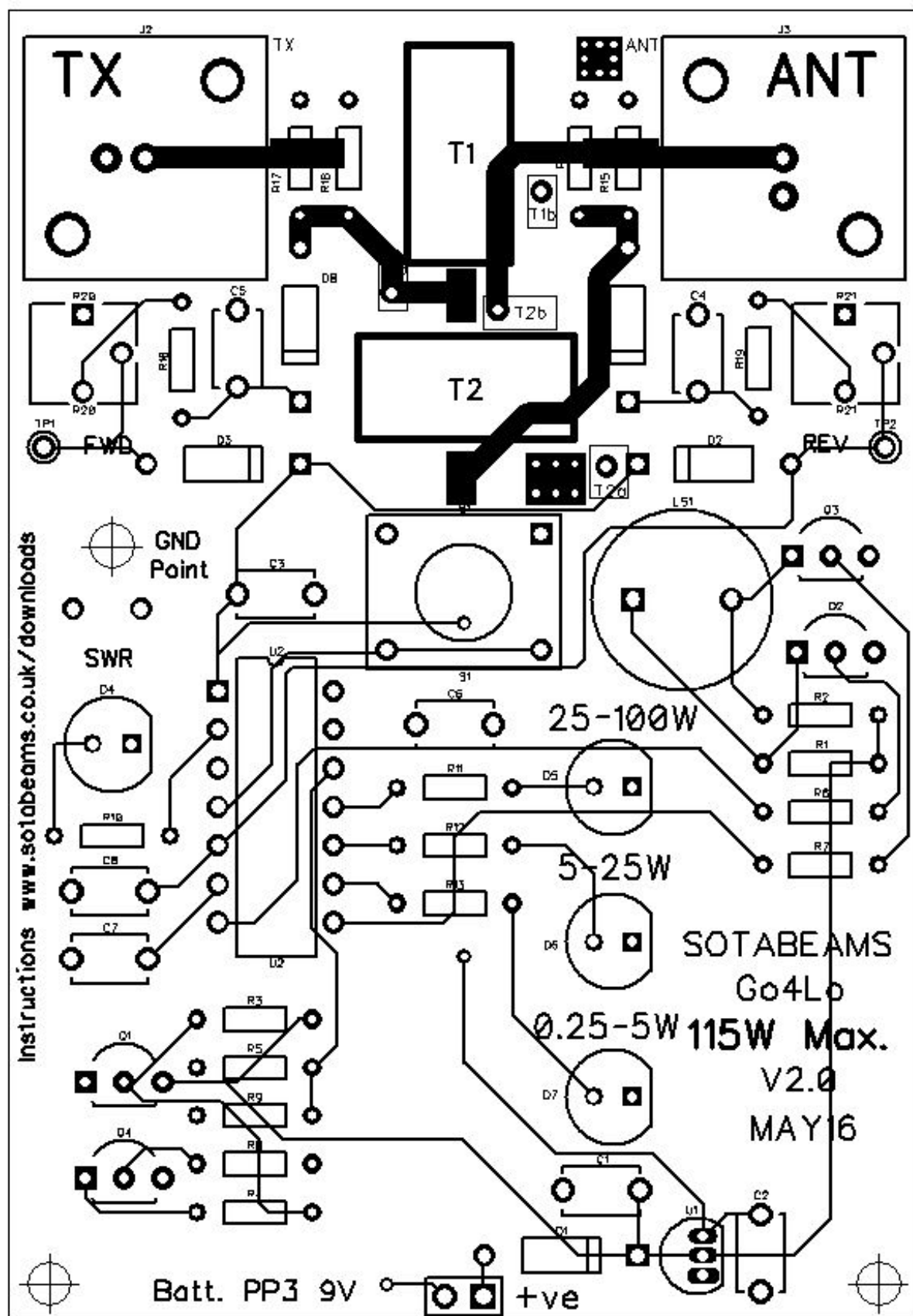
The date of the last update is at the bottom of each page.

Read the instructions in conjunction with the circuit diagram if you get stuck.

The Go4lo is straightforward to build. All you need is a fine tipped soldering iron, side cutters and pliers. A magnifying glass may prove helpful for component identification.

RESISTORS – easiest to identify with Ohm meter...





1. **ON THE REVERSE SIDE OF THE BOARD** (the side with no writing) and solder R17, R18, R14 and R15. All 100 Ohms 1% (By TX and ANT).

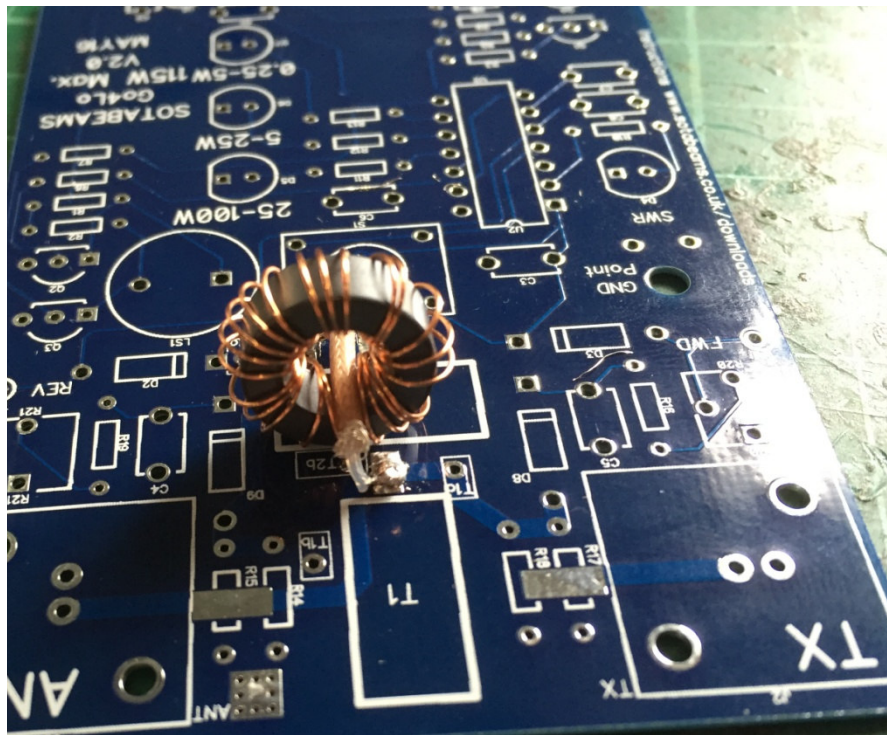
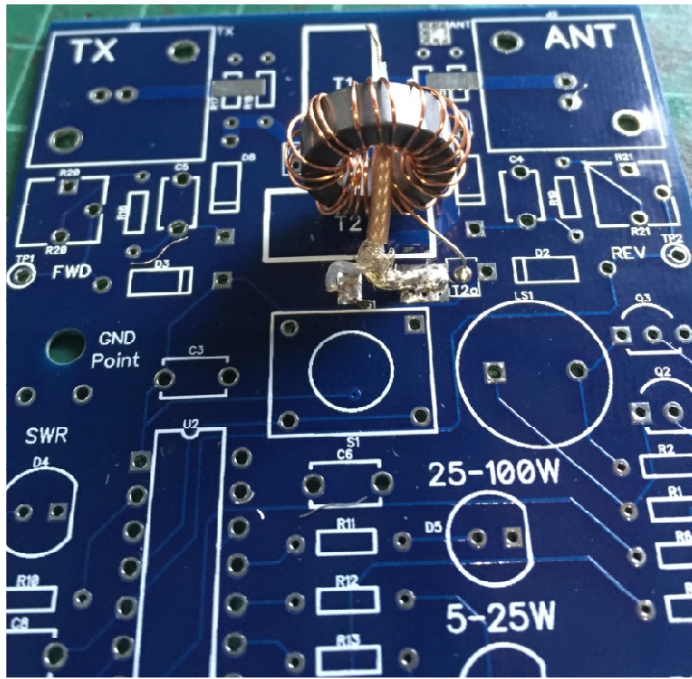
2. Wind T2 (secondary = 23 turns) with the enamelled copper [note we recommend installing T2 before T1]
3. Tin the wire and solder in (T2a & T2b).
4. Make the coupling line using 3.5cm RG187 co-axial cable as shown.

From one end:

- 5mm stripped centre
- 5mm insulated inner
- braid twisted as shown
- 15mm unstrapped (with brown jacket)
- 5mm insulated inner
- 5mm stripped centre

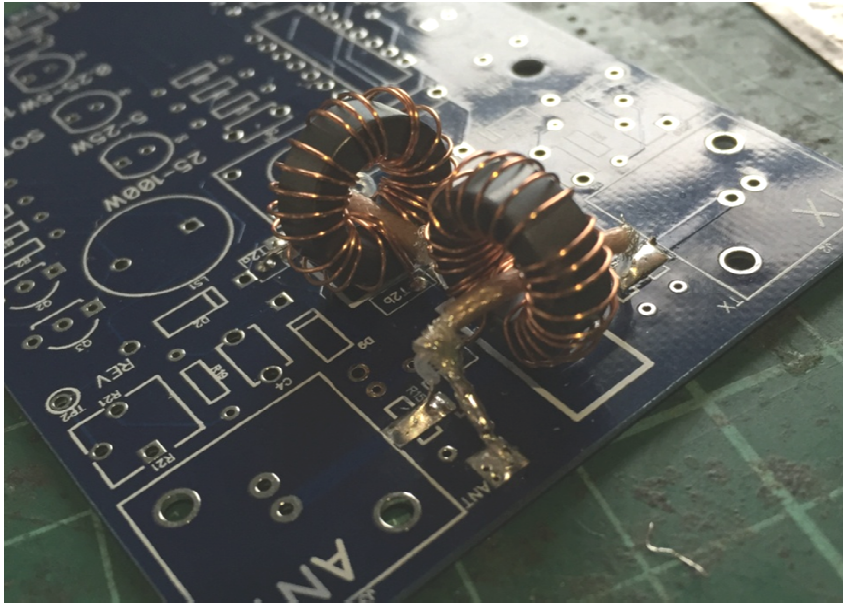


5. Tin the ends and the braid.
6. The coupling line connects through T2. The rectangular pad adjacent to T2a is for the braid. The two long smooth pads above and below T2 are for the inner of the coupling line.



7. Install T1 (also 23T) and its coupling line in the same way as T1.

This completes the fiddly bits!



8. Install 3 remaining x 100 1% Ohm resistors R10,11,12
9. Install 5 x 1K Ohm 1% resistors, R1,2,9,16,19
10. Install 4 x 10k Ohm resistors, R4,8,6,7
11. Install 1 x 220 Ohm resistor, R13
12. Install 1 x 3k3 Ohm 1% resistor, R5
13. Install 1 x 100k Ohm resistor, R3
14. Install 2 x trimmers 10k (blue 103), R20,21

This completes the installation of the resistors.

CAPACITORS

1. Install 3 x 100n disk ceramics (brown 104), C3,4,5
2. Install 3 x 10n disk ceramics (brown 103), C6,7,8
3. Install 2 x 1uf (yellow 105), C1,2

This completes the installation of the capacitors.

DIODES

4. Install 5 x BAT42 diodes, D1,D2,D3,D8 and D9 (ensure that they are the right way round)

NOTE: The LEDs look identical so they are attached to a business card and coded RD=RED, YW=YELLOW, GN=Green.

The LEDs can be stood up off the board if you wish but the top of the LED should not be more than 14mm from the board if using our enclosure).

5. Install 2 x RED LEDs, D4, D5 (short lead in square pad)
6. Install 1 x YELLOW LED, D6 (short lead in square pad)
7. Install 1 x GREEN LED, D7 (short lead in square pad)

This completes the installation of the diodes.

ACTIVE COMPONENTS

8. Install 1 x IC socket IC2 (orientate correctly)
9. Install 3 x transistors BC547B, Q2,3,4 (orientate correctly)
10. Install 1 x transistor BC556B, Q1 (orientate correctly)
11. Install 1 x regulator MPC1702, U1 (orientate correctly)
12. **Do not install U2 at this stage.**

This completes the installation of the active components.

OTHER COMPONENTS

13. Install 1 x switch S1
14. Push the cap on the top of the switch (may be supplied attached)
15. Install the piezo sounder LS1 (round black device)
16. Install 2 x BNC sockets J2,3 (made sure they are straight and flush against the PCB).
17. Cut the leads of the battery clip to 4cm, strip and attach to the bottom of the board in the holes marked "Batt. PP3 9V". Make sure that the red lead is in the hole marked "+ve".

This completes the installation of the active components.

18. You may wish to install a loop of tinned copper wire through the two pads labelled "GND Point" as this makes testing easier. A resistor lead is ideal for this.

At this stage the only holes not filled should be test points TP1 and TP2 along with three mounting holes.

Alignment

The Go4Lo is easy to set up and does not need power or U2 to be installed for alignment. It does require the use of a **50 Ohm load** and a transmitter set to **5 Watts** output together with a voltmeter.

First connect the transmitter to the TX socket and the load to the ANT socket. Connect a voltmeter between TP1 and ground. Key up the transmitter and adjust R20 to read 0.5 +/- 0.05 Volts. The more accurately you do this the better your Go4Lo will perform.

Next attach the transmitter to the socket ANT socket and the load to the TX socket. Connect a voltmeter between TP2 and ground. Key up the transmitter and adjust R21 to read 0.500 Volts.

This completes the alignment of your Go4Lo.

Finishing off

Carefully install U2 in its socket – making sure that it is the correct way round.

Some people stick the toroids to the PCB using a sealastic or similar.

Connect a 9 volt battery to the battery clip.

Using the Go4Lo

Connect your transmitter to the TX socket and antenna to the ANT socket.

Tap the switch and the Go4Lo will turn on. It will now take measurements as long as RF is applied. The faster the bleeps, the higher the SWR. The number of bleeps per second is the SWR x 2 so 1:1 is 2 bleeps per second, 2:1 is 4 bleeps per second. Above 10:1 the tone is continuous.

You can turn it off either by tapping the switch again or just leave it and it will switch off automatically after a few seconds.

The battery can be left connected as the unit only draws a few micro amps on standby.

If the unit makes a different bleeping sound and all the LEDs flash when you turn the unit on, it indicates that the battery is low and should be changed.

A standard alkaline 9 Volt battery is a good choice.

I hope that you will enjoy your Go4Lo. We have had fun developing it!

Need help? Give me a call!

73 Richard G3CWI
Richard@sotabeams.co.uk

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