

## Antenna Centre + 1:1 BALUN KIT ASSEMBLY INSTRUCTIONS

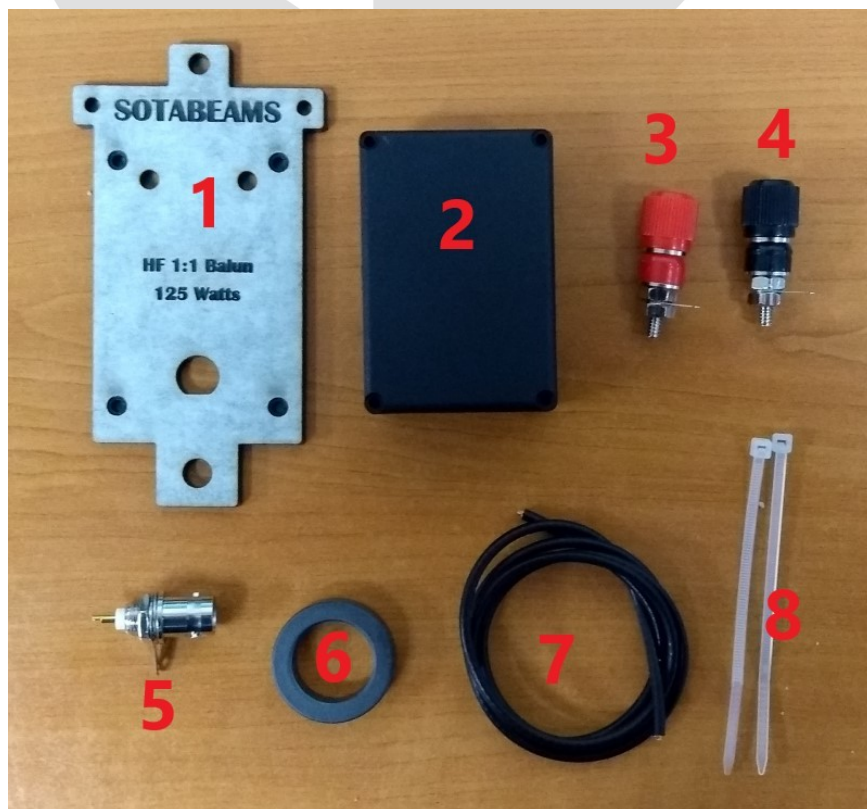
### Revision History

20 Dec 2021                      Updated instructions.

### 1:1 BALUN Packing List

It's a good idea to check that you have all the parts before you get started: If anything is missing, just get in touch for help.

Ref	Item	Qty	Comments
1	Front panel	1	Remove protective plastic before use
2	Black ABS box	1	Self tapping screws inside box (4 off black)
3	4mm binding post (red)	1	
4	4mm binding post (black)	1	
5	BNC bulkhead socket	1	
6	Toroid	1	grey
7	RG-174 cable	1	65 cm (4 ½"), thin black co-axial cable
8	cable ties	2	Zip ties



## Assembly Instructions

The 1:1 balun kit is easy to make and you will end up with a very useful and effective balun.

Step by step instructions together with lots of photographs will make it easy to build your balun. It will take around 40 minutes work. As with any construction project, as soon as you feel tired, stop. If you don't mistakes will follow!

For all the assembly work, find a light place to work with plenty of room. A tea tray is useful to work on as the raised sides stop small parts rolling away.

## Spotted a mistake or need help?

Please let us know if you need help! Email [support@sotabeams.co.uk](mailto:support@sotabeams.co.uk)

## Tools needed

- 1 Small screwdriver (cross head)
- 2 Soldering iron and solder
- 3 Long nosed pliers
- 4 craft knife
- 5 Small spanners
- 6 Ruler (cm)
- 7 Wire cutters



## Mounting the hardware

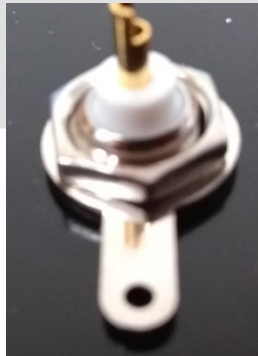
- ☐ Remove the protective film from both sides of the front panel. Use a soft cloth to clean any residue.



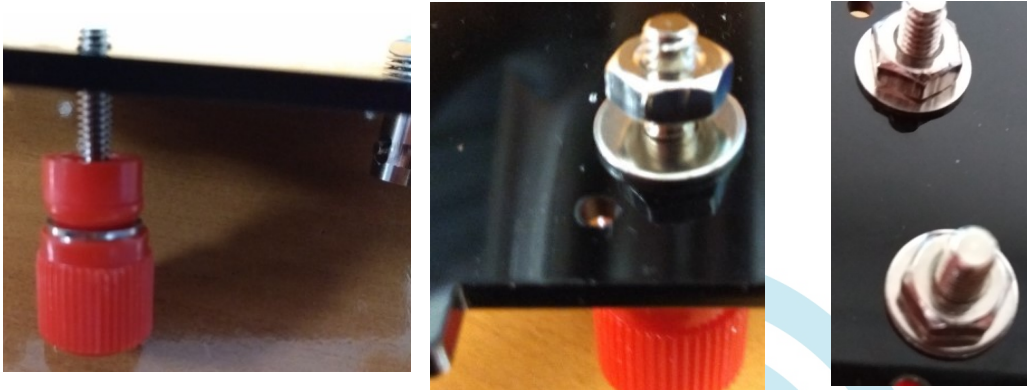
- ☐ Mount the BNC socket from the front of the panel.



On the rear of the panel. The serrated washer goes on first, then the solder tag and finally the nut. Do not over tighten the nut as you could crack the front panel.



- ❑ Mount the two 4mm binding posts (one red, one black).  
The red ones should be on the right when viewed from the front.  
The plastic parts are on the front of the panel. The washer and nut fits on the rear.



Top Tip:- Unscrew the plastic tops of the binding posts a few turn before tightening the nut. Tighten the nut whilst holding the plastic post closest to the panel. Do not over tighten, otherwise the panel may crack.  
Fit the solder tag and nut to each post angling the solder tag.



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## Winding the toroid

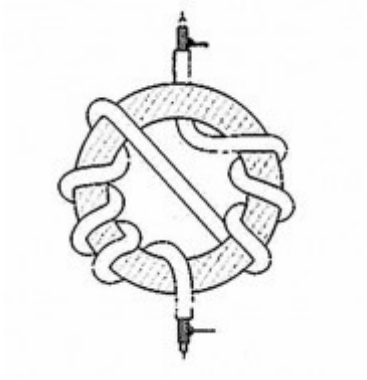
The toroid is wound using the RG-174 coaxial cable.

Every time the winding cable/wire passes through the toroid, that is one turn.

- ☐ Put one end of the coaxial cable 5cm (2") through the toroid and fasten with a cable tie. This counts as one turn.



- ☐ Wind a further six turns then thread through the centre to the other side as shown in the figure below (this figure shows 4 turns on one side and 3 turns on the other).



**Winding Technique** (ref: <https://myantennas.com/wp/tech-info/about-baluns/>)





- ❑ Wind 6 turns on the other side of the core (7 one side, 6 the other).



- ☐ Fasten the end with a cable tie.
- ☐ Adjust the turns to make them even. Trim the spare from the zip tie.



- ☐ Trim the ends to 4cm (1 ½") length.
- ☐ Dress both ends of the coaxial cable.



- ☐ Solder the coaxial cable to the solder tags on the binding posts as shown (the inner core of the coaxial cable to the red terminal). You may find it easier to remove the tag from the post whilst you solder.



- ☐ Solder the other end of the coaxial cable to the BNC socket as shown.



- ☐ The toroid can now be laid flat onto the faceplate. In our pre-built version we glue the toroid to the faceplate and waterproof the coax connections. This is optional however.
- ☐ Using a multimeter, check that there is not a short between the two binding posts. If there is a short check for problems.
- ☐ Attach the base of the plastic box over the toroid using the four self tapping screws (tight). Note that the lid of the plastic box is not required.
- ☐ Your balun is now ready for use.
- ☐ Optionally you can run a bead of silicone sealant round the joint between the box and the faceplate.