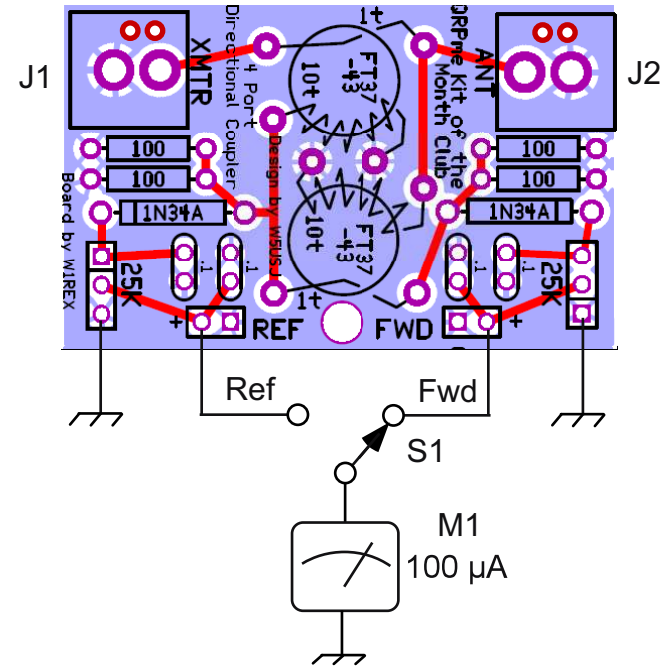
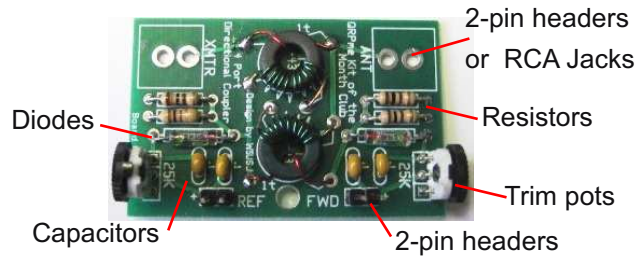
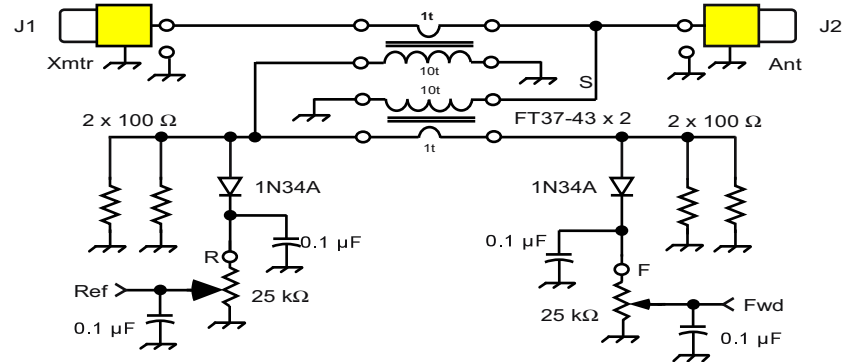


KotMC 4-Port Directional Coupler Assembly v1

W5USJ Drawing 10 Mar 2012



Assembly

- Install 4 ea 100 ohm resistors Brn Blk Brn
- Install 4 ea 0.1 uF Capacitors 104
- Install 2 ea 1N34 diodes, observe polarity
- Install 2 ea 2-pin male headers
- Wind and install two toroid transformers
- Install one of the options for RF input and output connectors.
 1. Two RCA Jacks
 2. Two 2-pin male headers
 3. One RCA and one 2-pin header

Note: the choice of input and output connections depends on how you will connect your devices. You may want 2-pin header connections to the RF source. And an RCA connection to the RF load. Possibly to a tuner or direct to an antenna or dummy load.

Torroid Transformers

Wind 10 turns of #24 magnet wire around both of the FT7-43 toroids. Cut the leads to 1/2 inch. Strip the leads back to 1/8 inch of the toroid.

Cut two lengths of magnet wire to 13/16 inch. Strip and tin 1/8th inch from both ends. Solder one end into the hole marked 1t and route to the center of the diagram and bend up.

Position the toroids over the diagram as shown in the picture and insert the leads into the holes. Dress leads as shown. Solder and trim leads.

Adjustment and Testing

Turn both 25 k trim pots to mid range
 Connect a signal source that will deliver a Watt or so to the XMTR port. Then connect a 50 Ohm dummy load to the ANT port. Turn on the signal source. You should see some reading on the meter with the switch in the Fwd position. There will be little or no reading in the Ref switch position. With the switch in the Fwd position adjust the trim pot for maximum scale. Now switch the XMTR and ANT connections and perform the same process with the REF trim pot. You are now ready to measure VSWR (aka SWR).

$$VSWR \sim= V_{fwd} / V_{ref}$$