

ELECRAFT BL1-1 WIDEBAND 1:1 BALUN

Rev B, November 10, 2006

The Elecraft BL1-1 is a general-purpose wideband balun with a 1:1 impedance ratio. It is intended to match balanced feedlines to the unbalanced antenna connection of an Elecraft or other manufacturer's transceiver or antenna tuner. It is very similar to the BL1 4:1 balun except in this case the secondary windings are connected in parallel rather than in series.

Specifications

Power Rating 150 watts maximum.
Bandwidth Input VSWR less than 1.2 when connected to a 50-ohm resistive load, 500 kHz to 55 MHz.

Assembly

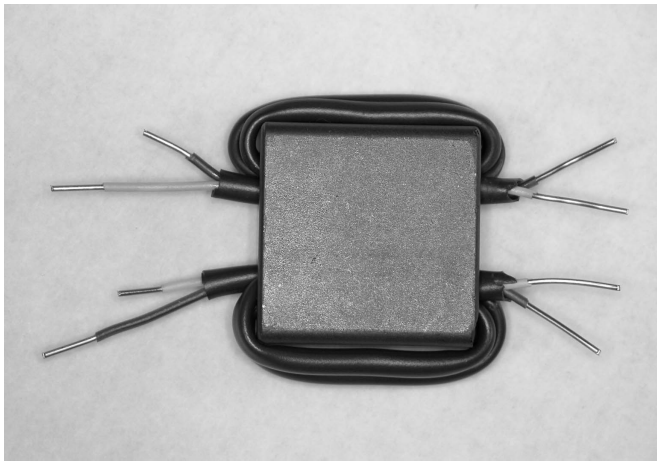
- Perform an inventory of all parts in the kit.

Parts List

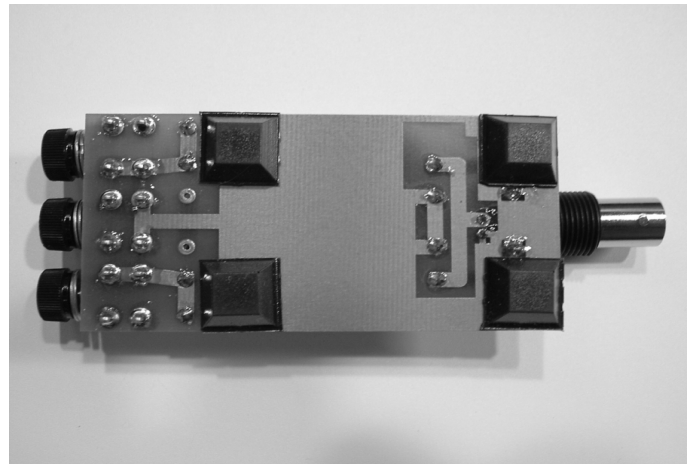
1 Balun Printed Circuit Board	1 Right-Angle PC – mount BNC Connector
20 inches of Balun Wire, brown or white sheath	3 Thumb Screws
3 Right-Angle Output Terminals	4 Self-Adhesive Mounting Feet
6 #6 Flat Washers	

- Install J1, the BNC connector, in the position indicated on the PC board silkscreen
- Cut the sheathed twisted pair cable into two 10-inch (25.4 cm.) lengths.
- Wind 3 turns of the cable through each of the balun core holes. The wire will completely fill the holes in the balun core. Leave about 1 1/2 inches (3.81 cm.) of cable exposed. Wind the turns tightly. The wire should be flat against the core. You will have to use a small screwdriver to press each turn against the inside of the core opening to get the third turn through. A few drops of rubbing alcohol as a lubricant can help get the last turn through. Be patient, it can be done. Use the photo as a guide
- Trim the cable (4 places) to about 1 1/4 inches (3.18 cm.).
- Remove the outer sheath from the trimmed ends of the cable and then strip the conductors so only about 1/4 inch (6.3 mm.) of the RED and WHITE colored insulation is exposed on one end of the core. Trim the wires on this end of the core so that the exposed conductors are about 1/4 inch (6.3mm) long. See the photo.
- The insulation on the wires on the other end of the core will be cut to different lengths. First remove the insulation from the WHITE wire on one side so that 1/4 inch (6.3mm) of insulation remains and then on the other side remove the insulation from the WHITE wire so that 1/2 inch (12.6mm) of insulation remains. Perform the same operation on the RED wires except the longer length of insulation on the RED wire must be on the same cable as the short length of insulation on the WHITE wire. Trim the wires at this end of the core so that the exposed conductors are about 1/4 inch (6.3mm) long. See the photo.
- Lightly tin the exposed end of each wire.

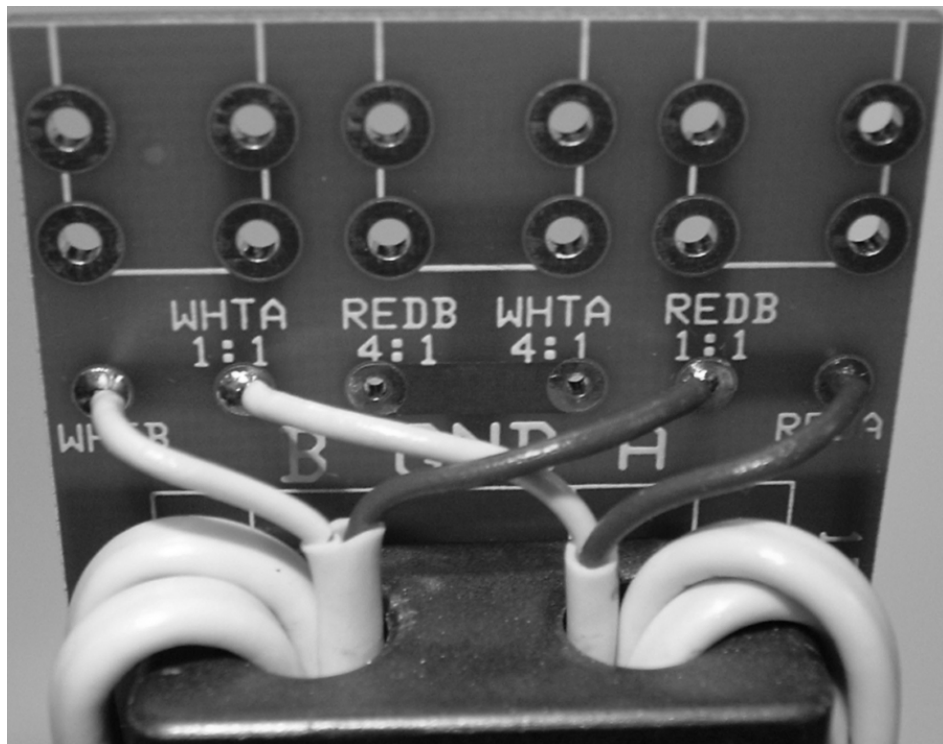
- Mount the completed transformer in the space indicated on the PCB. Starting with the end of the board with the BNC connector pass each wire through the hole marked with its color and solder these four wires to the board.
- At the opposite end of the board, solder the longer RED wire to the hole labeled “REDB 1:1”.
- Solder the longer WHITE wire to the hole labeled “WHTA 1:1”.
- Solder the shorter RED wire to the hole labeled “REDA”.
- Solder the shorter WHITE wire to the hole labeled “WHTB”. See the photo.
- Install the right angle output terminals in the 3 places indicated on the PCB.
- Install a thumb screw and 2 flat washers into each right angle output terminal
- Turn the PCB over and install mounting feet as shown in the photo.



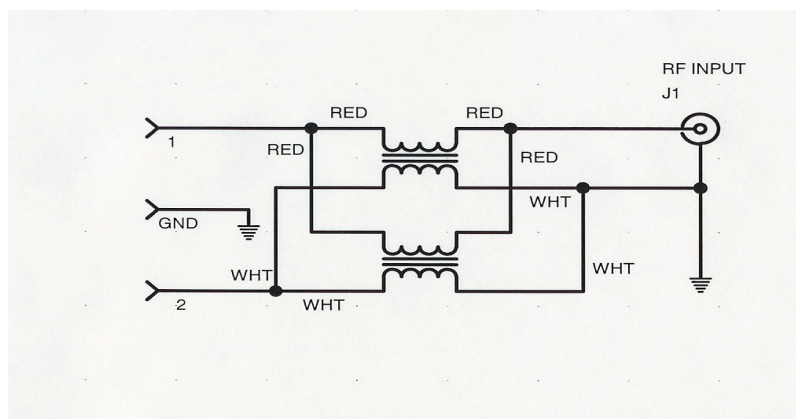
Transformer Winding



Mounting Feet Locations



Secondary Wiring to PCB



1:1 Balun Schematic