



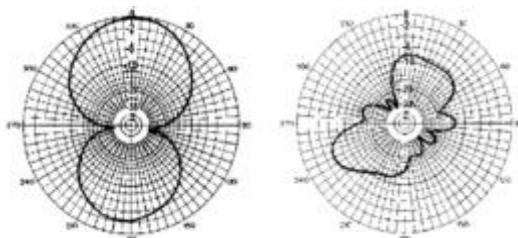
TECHNICAL DATA

This is a **current** balun and has the widest operating frequency range, lowest core stress and provides the best overall balance of any balun for given cost, size, and weight. This balun is the best type to balance currents on each side of a 1/2 wave dipole or the driven element of a yagi while providing the perfect transition from a balanced antenna to unbalanced coax feedline.

Installing this balun will not affect antenna matching **unless the feedline is acting as part of the antenna**. This is, of course, not a desirable situation and installing this balun will **correct the problem if one exists with the antenna**. In beam installations, using a 1:1 balun in series with the antenna's feed system can substantially improve the antenna's front-to-back and front-to-side ratios. It does this by providing the antenna's driven elements with balanced current at the feedpoint and by preventing the feedline from acting as part of the antenna.

It is a seldom appreciated fact that feedlines, which are not adequately decoupled, can act as efficient vertical antennas degrading an otherwise excellent radiation pattern. The addition of a 1:1 balun can significantly reduce feedline radiation and dramatically decrease RFI and TVI. Beam antennas especially benefit from improved balanced drive and superior feedline isolation, but even simple dipoles benefit from properly selected and installed 1:1 current baluns. Receiver noise may also be reduced by eliminating signal pickup by the coax shield.

Here are plots of the same dipole with and without a balun, notice how the pattern is distorted without the feedline being isolated by the balun:



Design features:

- Construction utilizes specifications of Jerry Sevick, W2FMI, the authority on baluns. His spec utilizes a bifilar Guanella current balun which he modified to provide higher

Product Specification Balun 1115e

efficiency. By utilizing a new toroid mix and heavier gauge Thermaleze wire, both **bandwidth and power handling of his design have been increased.**

- Special mix toroid with low permeability allows broad frequency coverage. Toroid is also coated for durability.
- This balun has **significantly higher common-mode impedance** and **larger effective core area** than other similar designs. It is much more effective than types with ferrite rods, ferrite beads or air wound coax baluns.
- Windings are heavy gauge **Thermaleze wire with a minimum of 2000v breakdown voltage each.** This is **NOT** the less expensive enameled wire like many of my competitors use. It may appear similar but both windings are coated with an expensive Polyimide covering. I also wrap one winding in an additional layer of Polyimide tape to ensure a **uniform winding impedance of 50 ohms.** When combined with the Polyimide tape, **total breakdown voltage is increased to over 7500 volts.**
- **Typical insertion loss is less than 0.2 dB**
- Power handling of 3kw continuous 7kw intermittent. May be used to 50 mhz with reduced efficiency (1-2%).
- SO-239 connectors are **silver plated with teflon insulation.**
- **All hardware is stainless steel.** Studs are 1/4"
- **N connectors, top eyebolt hanger and mounting options** are available in **accessories.**
- Very high efficiency. Will not heat up or saturate like the typical cheap current baluns using ferrite bar, beaded or open air wound coax.
- All Baluns are sealed in weatherproof 4" X 4" X 2" Nema Box which makes an excellent outdoor enclosure.

One Exception!!!

It must be pointed out that a 1:1 balun should never be used on the second harmonic of a half-wave center-fed dipole with coax feedline (like an 80 meter dipole being used on 40 meters). The impedance can be as great as 10,000 ohms creating very high voltages which can bring about voltage breakdown and/or excessive heating.

Also, please note that although this balun will tolerate very high SWR, efficiency drops markedly if your SWR is 3:1 or above.

You can see from the pictures there are two versions. One with closed eyebolts to provide anchors for dipoles or with studs. Both designs can be mounted on a mast or other support using the Balun Mounting Clamp in the accessories section. The balun can also be built with studs on top or sides of the enclosure for use with yagis or applications that require this design. A closed eyebolt can also be added to the top of the enclosure as a hanging support.

This balun will handle continuous power and tolerate high SWR for extended periods.

It will not heat up at rated power, extended duty cycles or stressing load conditions.