

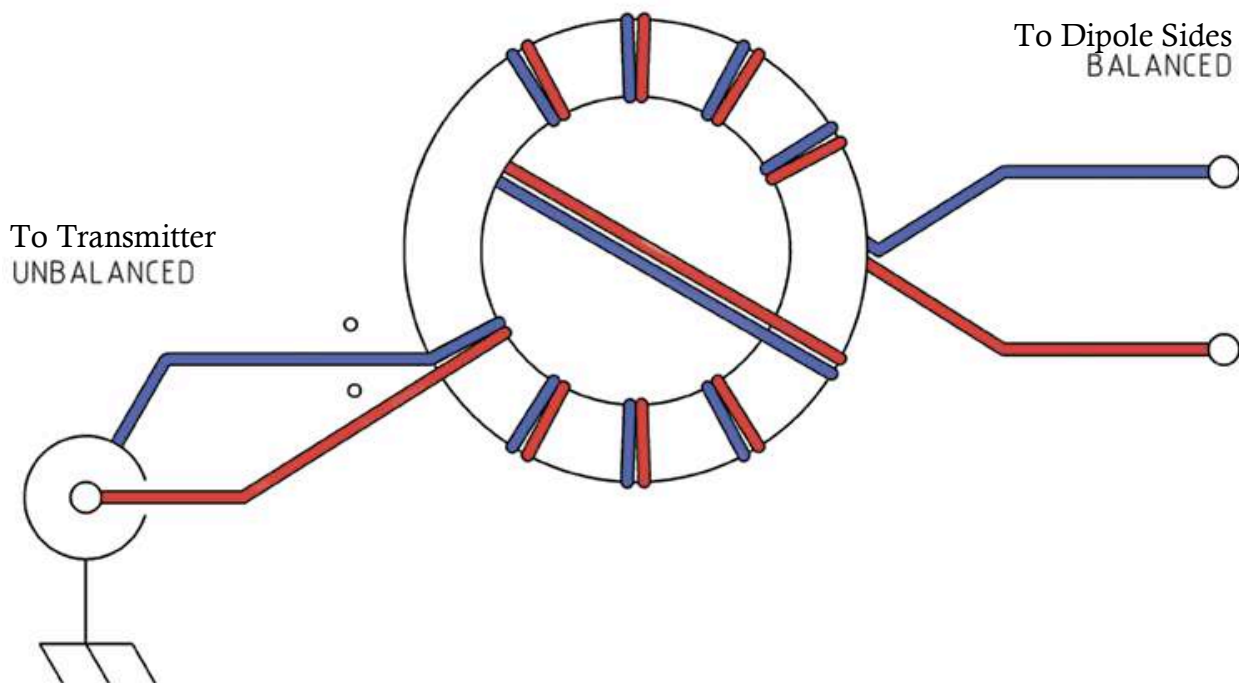
# 1:1 Balun

## Materials

- ABS Plastic Black Electronics Enclosure or Project Box 3.9x2.1x1.7 inches O.D., JPM Supply, sku 44241
- SO239 Jack Panel Mount, JPM Supply, sku 90100
- Binding Posts, 4 Pcs Terminal Binding Post M8 Threaded Diameter Binding Post JR2069 at Amazon.
- 2 – 1" x 1/4" Stainless Steel Eye Bolts
- 4 – 1/4" Stainless Steel Nuts
- 4 – 1/4" Stainless Steel Flat Washers
- 2 – 1/4" Stainless Steel Lock Washers
- Toroid: If target frequencies are 20 meters and below (MHz), use FT-140-43 Ferrite Toroid, JPM Supply sku 38023. If target frequencies are 20 meters and above (MHz), use T-130-2 Iron Powder Toroid, JPM Supply sku 38031.
- 70" – 18 AWG Enameled Copper Magnet Wire, available at Amazon.
- 2 – 5/16" ring terminals
- 1 – 16-14 ring terminals
- solder

JPM Supply, <https://www.jpmsupply.com/>

## Schematic



## Construction

- Step 1. Drill holes in plastic enclosure for all hardware.
- Step 2. Attach all hardware to the plastic enclosure.
- Step 3. Cut magnet wire into two 35" lengths. Color-code the end portions of each wire using a Sharpie to be able to identify the wires.
- Step 4. Cut small heat shrink tubing into quarter inch lengths. Pair the two wires side by side. Slip a heat shrink piece to the center and shrink into place. Continue this process placing the heat shrink tubing about six inches apart. This will help keep the wires parallel to each other.
- Step 5. Wind the toroid core following the schematic diagram leaving at least 4" leads. Once the first wrap is formed, use a small tie-wrap to hold in place. After completing the wraps, put a small tie-wrap at the end to hold in place.
- Step 6. Temporarily place the wrapped toroid into the enclosure. Cut the leads to appropriate lengths. Sand off the enamel at the ends of the leads. One method to do this is to first use a hobby knife to scrape off the enamel and then sand with sand paper.
- Step 7. Crimp and solder ring terminals to the appropriate leads.
- Step 8. Solder the appropriate lead to the center of the SO-239 connector attached to the enclosure.
- Step 9. Attach the appropriate lead to one of the mounting screws of the SO-239 connector.
- Step 10. Attach the two remaining leads one each to the binding posts inside the enclosure.
- Step 11. Test connections with a multimeter.
- Step 12. Seal the enclosure lid onto the enclosure base.

## Photos

