



PackTenna Mini
End-Fed Half Wave
Wire Antenna
Owners Manual

Overview

The PackTenna Mini series of compact, trail-friendly wire antennas are designed for backpacking, SOTA, day hiking, camping, travel and any time you want a small HF antenna system that can easily fit into backpack.

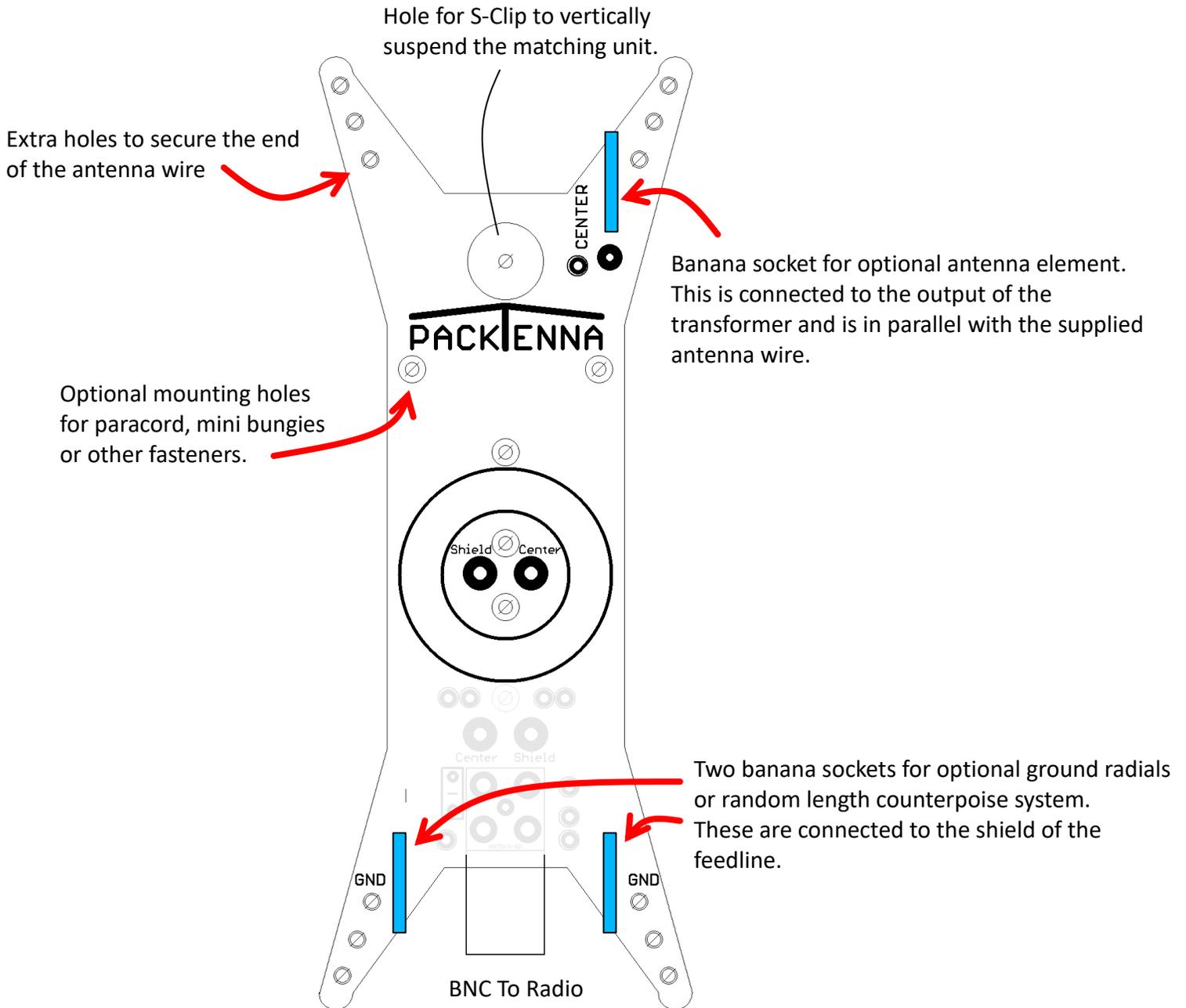
The design is a combination wire winder + matching circuit + antenna wire all in one little package you can toss into your backpack. When I operate in the field, I want something that is quick to set up and quick to put away that is also fairly robust. The PackTenna Mini fits the bill.

The antenna wire is 26 AWG copper clad steel wire with a great “silky” jacket. This makes keeps the weight and bulk down while delivering a very strong antenna element.

The end-fed half wave antenna uses a matching transformer with a high transformation ratio, around 50:1. This is necessary because the feed point impedance of a half wave wire is about 3,000-5,000 ohms. We need to bring it down to 50 ohms for our radios. The big advantage of the end-fed half wave is that once the impedance is brought down to 50 ohms, no antenna tuner is required on the band for which the wire is cut.

Additional Connections

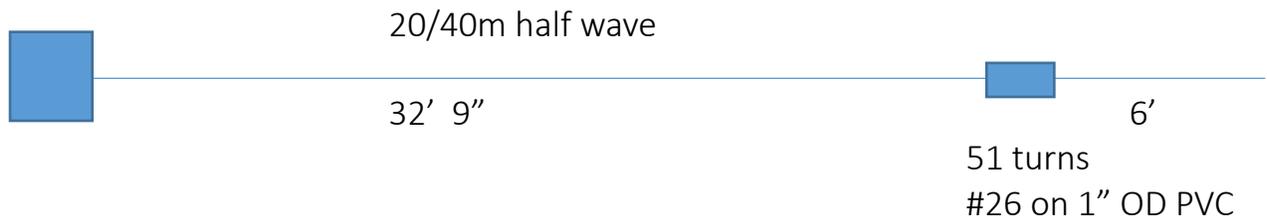
Like the other feedpoints in the PackTenna family, the PackTenna Mini includes extra connection points for antenna elements and a counterpoise system.



Homebrewing a Multi-Band ½ Wave Antenna

With the end-fed half wave version of the PackTenna Mini you can make it a multiband antenna by adding a loading coil toward the end of the wire. You can use a 3" piece of 1" diameter PVC and about 50 turns of 26 AWG magnet wire. In addition to the coil, you have to add another 5 or 6 feet of wire off the end. This makes the antenna less than 40 feet long and works on both 20 and 40.

You will want to use an antenna analyzer to trim the outer wire segment of the antenna to the proper length looking for the best match.



Homebrew 40m coil



Using an In-Line Choke

While no extra ground or counterpoise is typically required when running at low power, it is generally recommended to add a counterpoise to ensure a better match and keep common mode currents from flowing back to the radio along the outside of the coax cable's shield.

It is generally recommended to use an in-line choke with higher power levels. Typically this is not necessary at QRP levels up to 10 watts or so. At high power levels, typically 50-100 we recommend an in-line choke. When operating in the 5-50 watt range, an in-line choke may or may not be necessary depending on many other factors including the frequency of operation, sensitivity of equipment to interference, objects in the near field, etc.

Mounting and Support Ideas

Little holes on the PackTenna board give you a convenient place to place the end of the wire through to keep it from unraveling when you are all packed up. There are multiple holes for paracord or bungee cord if you want to mount it to something. You can also connect a wire element to the top banana jack and use the S-clip as a strain relief or to one of the bottom banana jacks for a ground radial or counterpoise.



The Super Useful S-Clip

At the end of the wire element, there is a plastic “S-clip”. This is a super useful gadget because you can thread the antenna wire through a few holes providing a secure connection to the clip and it makes it really easy to trim the antenna length to the perfect length. You can even use these clips for many other things including guy line tensioners. They are a real multi-tasker.

