



PackTenna Mini  
End-Fed Random 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 random wire antenna has a 9:1 UNUN designed for use with radios that have an antenna tuner. To operate on any HF band you need a wide range tuner like the internal antenna tuner of an Elecraft KX2 or KX3 or an external tuner like an LDG AT-100 Pro II or an LDG Z11 Pro II. These tuners can tune a range from 25 to 800 ohms. While there are exceptions, the built-in tuner on most radios (Icom, Kenwood, Yaesu) are typically narrow range tuners that can handle a range from 25-150 ohms. This is not wide enough to handle all conditions.

This antenna uses a length of wire that is not resonant on any band. 29' works well if you need to keep it short. It also matches up nicely with the PackTenna telescoping mast. With this type of antenna, the feed point impedance is somewhere in the 500 ~ 1500 ohm range depending on the length of wire and the frequency you are operating on. The 9:1 transformer brings the impedance down within the tuning range of the radio's internal tuner.

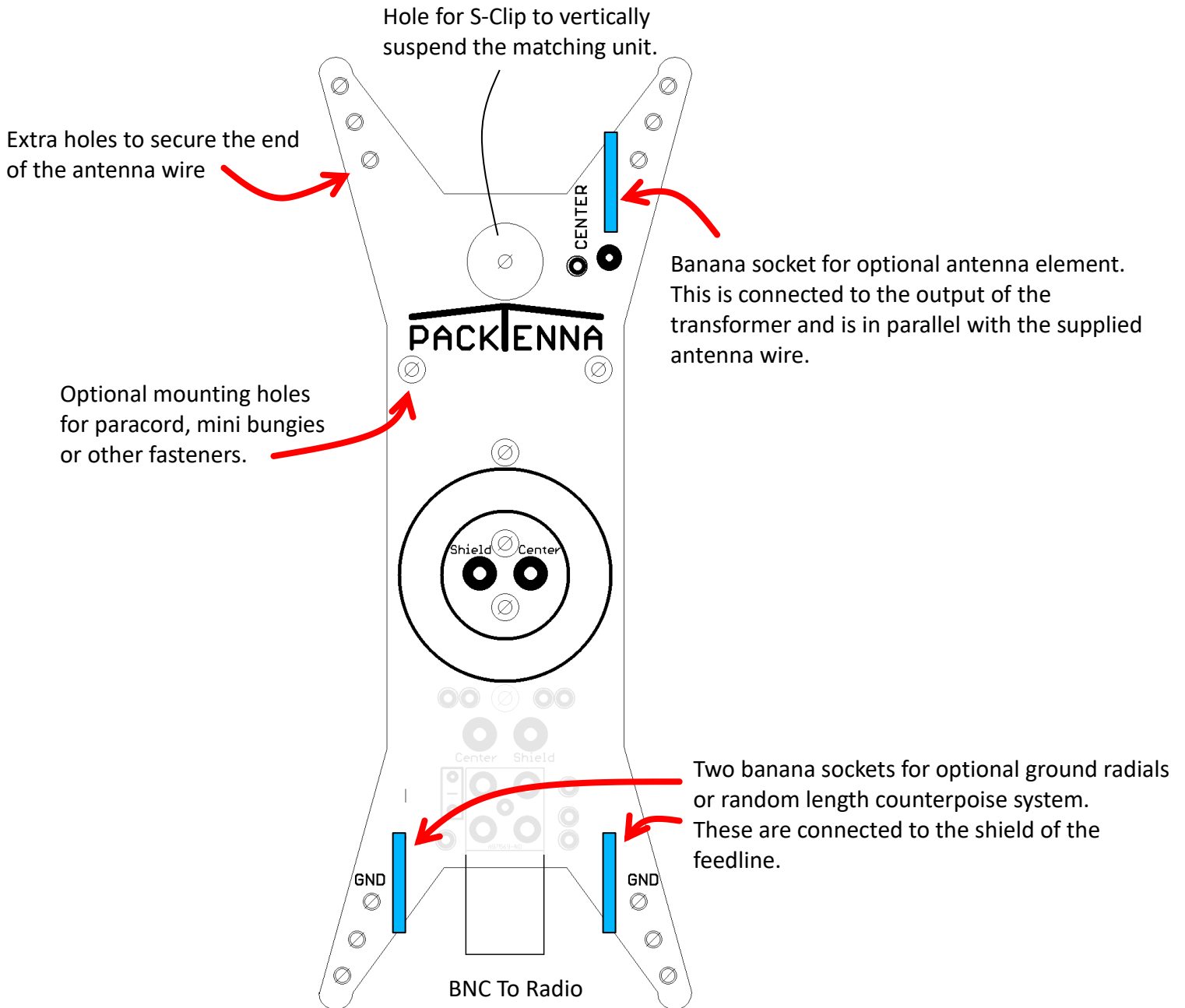
## Antenna Wire Length

**Use one of the following lengths: 29' 35.5' 41' 58' 71'.**

Generally speaking, the longer the better up to a quarter wave of the frequency of operation. For example on 80 meters, 29' will work fine and 58' would be better. For higher frequencies, shorter is fine. On 10 meters, 29' will be fine and a longer antenna generally is not worth the trouble.

## Additional Connections

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



## 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.

