

# Multi-Band Linked Vertical Antenna

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Fifteen years ago I lost interest in ham radio, so much so that I donated my HF station to the local Red Cross chapter. Then, for reasons I can't explain, I bought myself a Yaesu FT-891 for Fathers' Day in 2019. A couple months later, I discovered POTA, and that became the catalyst for renewed interest and enjoyment of the hobby. POTA is basically Field Day any day you want. More importantly, it lets you operate where there's virtually no man-made noise and can be a solution for HOA-restricted hams.

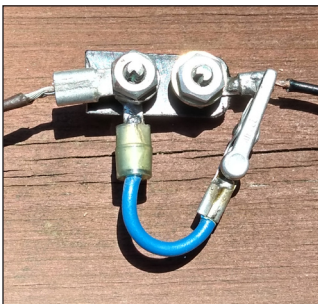
My first portable antenna was a 40m/20m linked dipole, usually in the inverted-V configuration. While this worked quite well, it was a chore to set up and a pain to change bands. It also required a fairly sturdy support for the long feedline going approximately 35 feet up to the elevated midpoint of the antenna.

My newest portable antenna addresses several issues. It covers more bands and is easy to change between them. The feedline can be shorter which saves both weight and cost. It offers high efficiency with low SWR across each band on a tight budget.



**Tri-Band Antenna with 2 Links**

You can get started with just 50 feet of speaker wire. When zipped in half for 2 sections, you'll have enough wire to make the antenna and some radials. It can be as light as 20 gauge or lighter for SOTA. You could make it even lighter using non-insulated 20# copper trolling line. For POTA or Field Day, I recommend something heavier for more durability like 14 or 16 gauge wire.

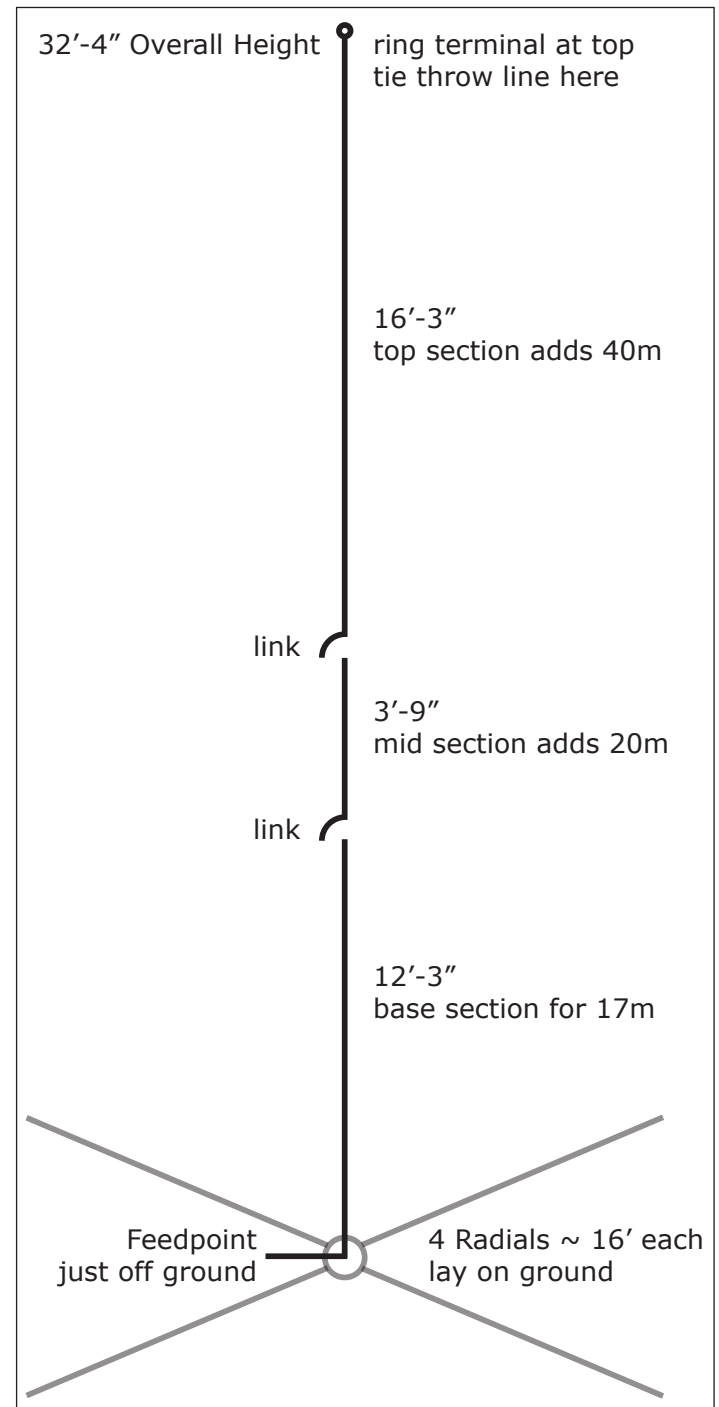


**Link via Small Alligator Clip**

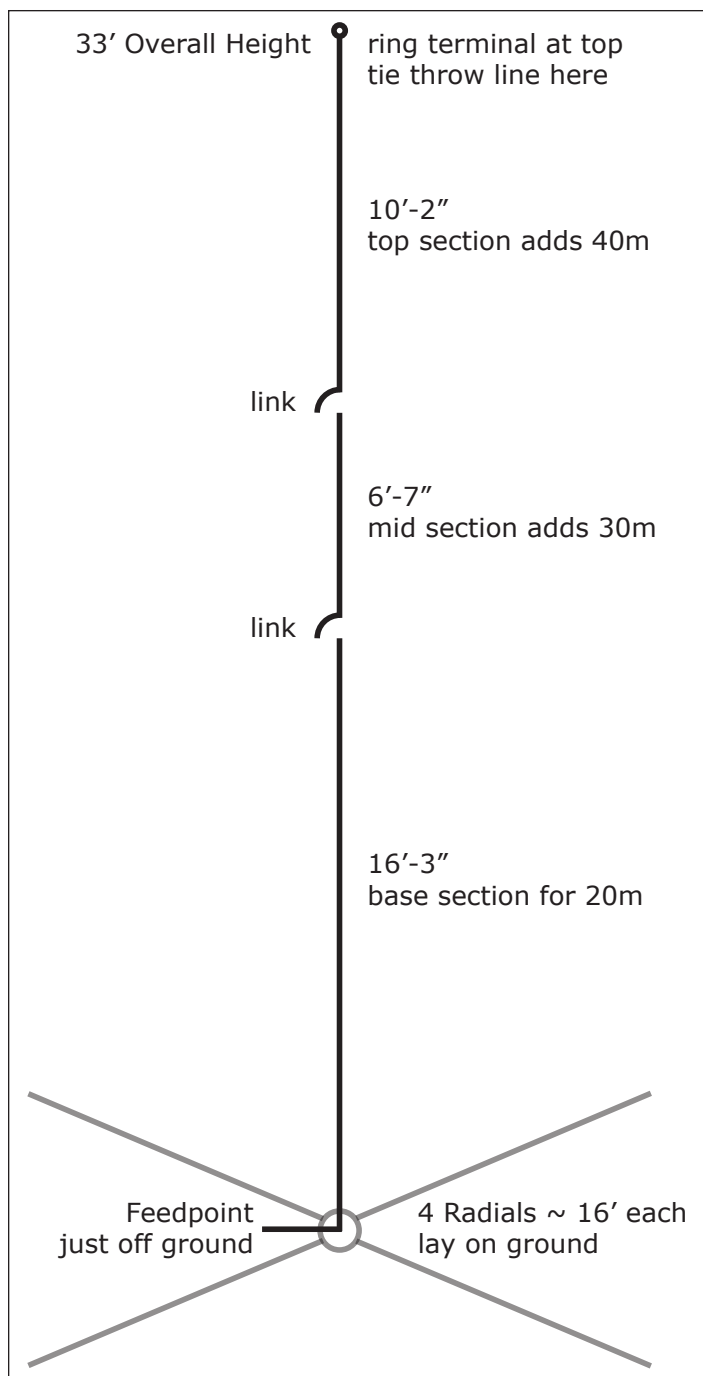
You can use either connectors or alligator clips for the links. I'll provide a couple examples later in this article. I know some readers will head right for Powerpole® connectors but I went with small clips for simplicity which can also be changed one-handed. Besides, these were on-hand in my "junk box" and begged to be used.

I'm offering 2 designs: one for 40/20/17m SSB and another for 40/30/20m CW or digital operation. Of course, you could change the wire lengths or add more links for other bands if you wish.

Understand that most POTA activity is on 40m and 20m, but I added a third band for weekends when contests clog up the non-WARC bands. Note that the 40m configuration also works on 15m with a tuner so you get that band for free! It is also possible to use a coil to add 80m if desired, and my website has details.



**40/20/17m Linked Vertical for SSB**



**40/30/20m Linked Vertical for CW/Digital**

#### A few words on radials:

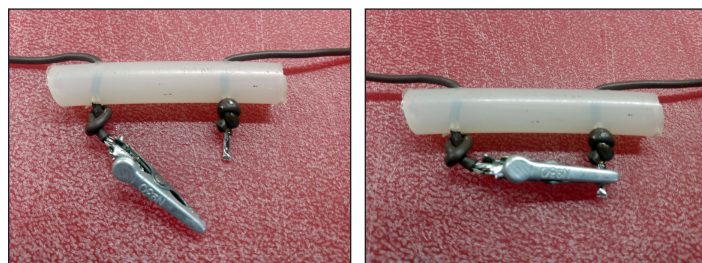
Vertical antennas generally require a counterpoise system, J-poles excepted. For my linked vertical I often use regular unmodified extension cords for “free” radials! I cover this tip in detail in my book *Successful POTA* as well as on my website [WV1W.US](http://WV1W.US) so I won't cover it here. They are heavy, so fine for POTA, not SOTA.

On vacation, I carry a simple kit with several 18-foot long wires attached to an alligator clip for radials. How many you will need depends on your ground conductivity. Sandy soil like at the beach can require more radials than the moist soil I have near home. It's simple: if your SWR is high, you probably need more radials. Of course, you could “cheat” and use a tuner, but that would be less efficient and adds another piece of gear (and weight) to your kit.

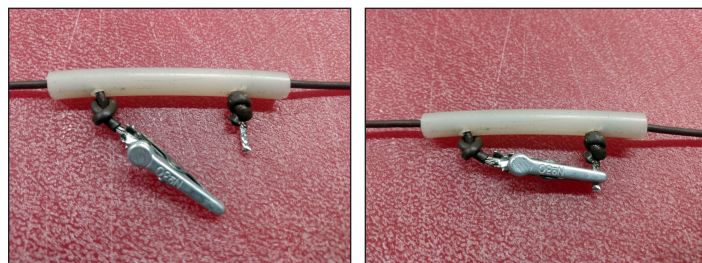
To deploy, toss your throw line over a branch about 35 feet up. Tie the free end to the ring terminal and hoist the antenna until the bottom is just off the ground. Tie a loop in the throw line about a foot above the ground and attach your throw weight with a carabiner for a counterbalance. Attach your feedline and radials.

To change bands, detach the weight and pull down the antenna to open/close links. Pull it back up and reattach the weight. With a little practice, this entire process should take less than a minute.

There are many ways to make links between sections. Here are a couple more examples using poly tubing and alligator clips with knots in the wire for strain relief and tinned wire for the contact:

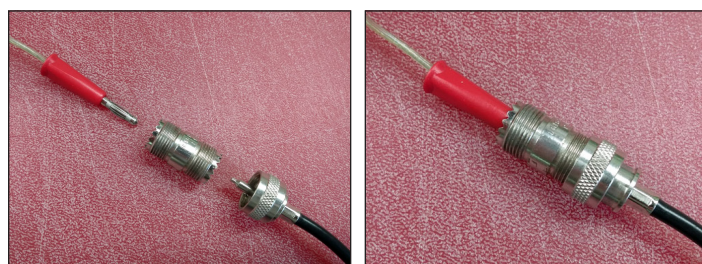


**3/8" poly tubing with cross holes for wires**

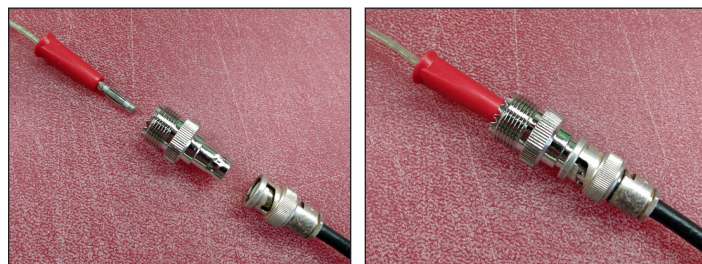


**1/4" poly tubing with single holes for wires**

Some examples for the antenna connection to coax feedline:



**Banana Plug on Antenna with PL-259 Plug on Coax**



**Banana Plug on Antenna with BNC Plug on Coax**

Check out my book *Successful POTA* for a large section on portable antennas and lots of tips for getting more contacts. There's even a dedicated section covering QRP POTA!