

Lyons Prepared

External antenna setup for MURS radios

Important! This discusses using an external antenna for our MURS radios that is put up temporarily when needed. In this case, the external antenna should never be used when there is a chance of lightning. If the antenna is to be mounted permanently, then adequate lightning protection must be installed, which is beyond the scope of this doc.

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1. Antenna options

A. Firestik

This is the antenna that Frank and I use. I mount mine temporarily on bird feeder poles. I think Frank has his mounted permanently (presumably with lightning protection), so he can share more info about that.

MURS $\frac{5}{8}$ Wave Base Antenna

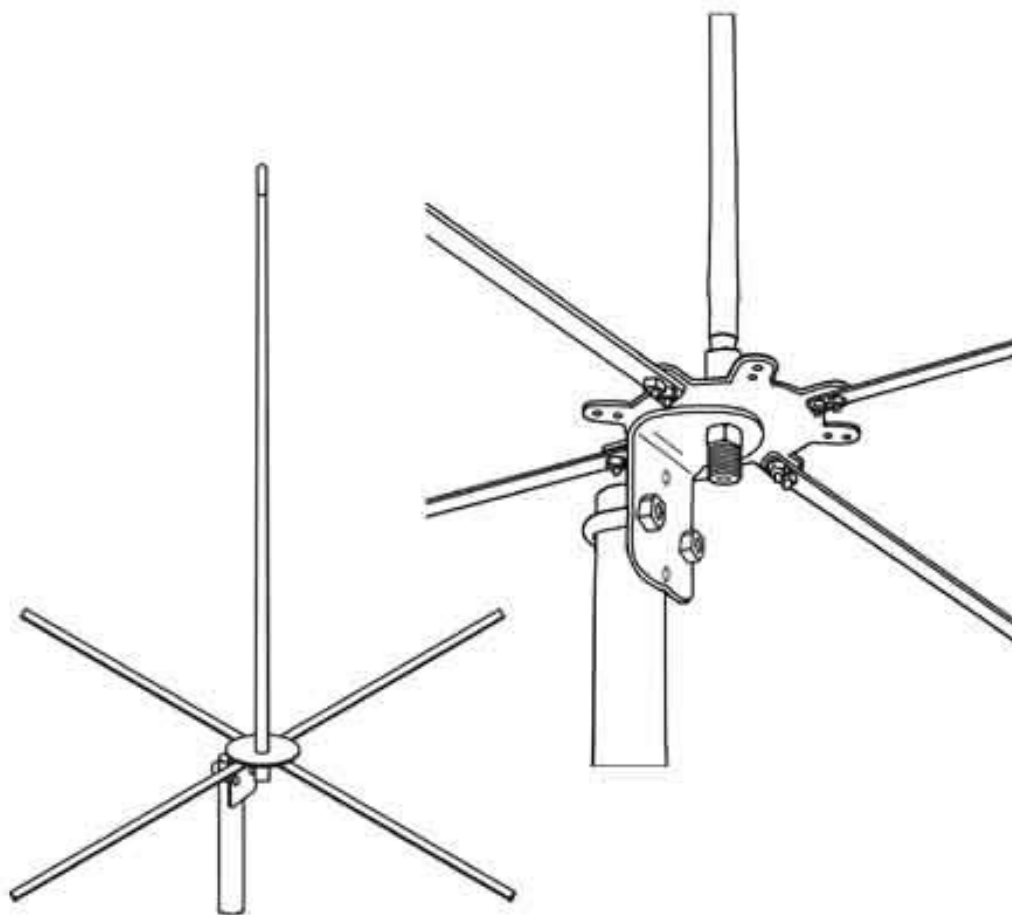
45" high with 4 20" long radials

http://www.firestik.com/Catalog/MURS_Base.htm

Also available from Truckers-Store.com

Part #: MURS-BASE

\$44



B. KB9VBR Antennas

This is the antenna that Keith uses for his MURS radio. He installed it in his attic by attaching it to a piece of PVC pipe with pipe clamps, and then drilling a hole in a piece of wood the diameter of the PVC and inserting the pipe into that.

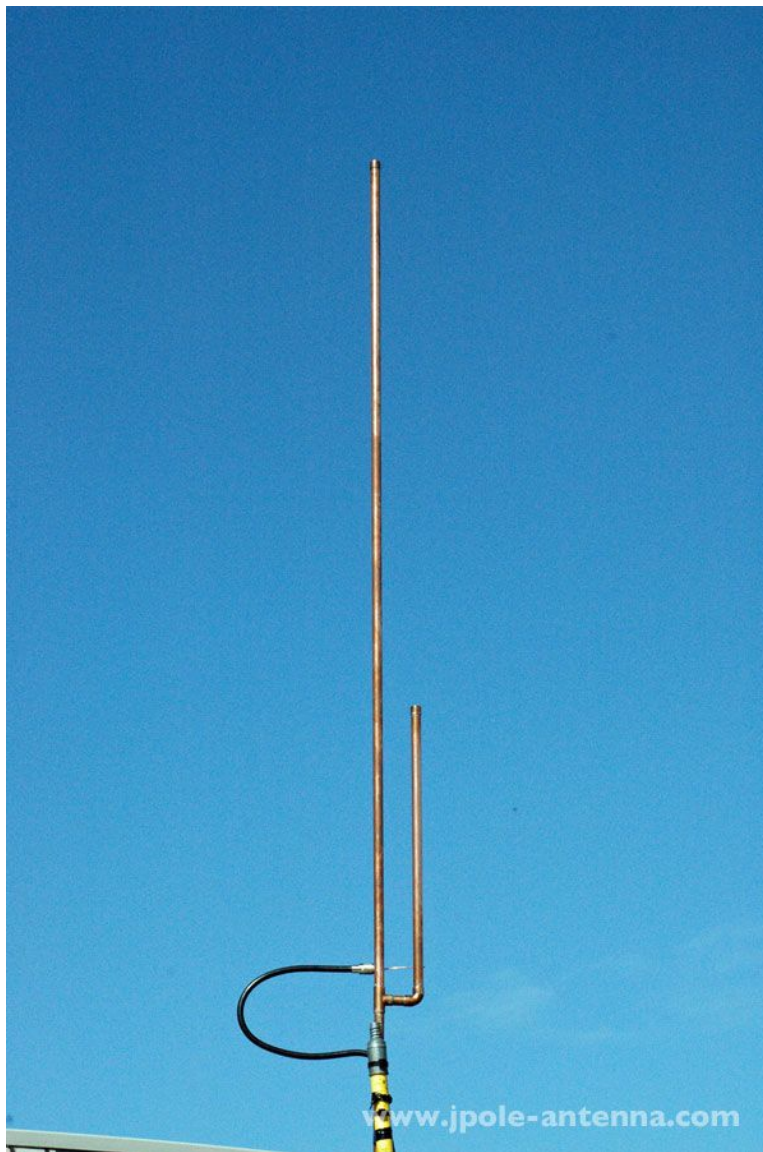
MURS 151-154 MHz Land-Mobile J-Pole Antenna

65" high

<http://www.jpole-antenna.com/shop/murs-151-154-mhz-land-mobile-j-pole-antenna/>

Part #: JPOLEMURS-SO239

\$34



C. Arrow Antenna

This antenna has the advantage of being easier to store (when it has the 2-piece element option). It can be mounted easily on bird feeder poles or other poles.

OSJ-VHF & MURS

54" high

Doc: <http://www.arrowantennas.com/inst/OSJ-VHF-Marine.pdf>

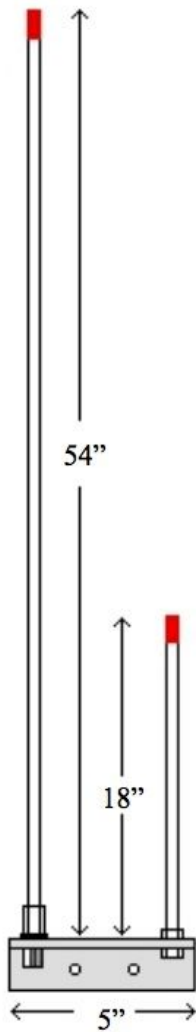
Order: <http://www.arrowantennas.com/osj/j-pole.html>

Order: OSJ - Business Band, Marine Band & MURS 150-162 MHz

Part #: OSJ-VHF

\$49 + \$10 extra to supply the long element as a 2-piece element (easier storage)

Note: I have one of these (with a 2-piece element) that I'm happy to give to someone.



D. Slim Jim

This is a very portable antenna. It can be rolled up for storage, and then when you want to use it, you can unroll it and hang it from something (for example, a tree or porch ceiling).

Dual band MURS / GMRS

60" high when unrolled.

Info: <http://www.n9tax.com/Slim%20Jim%20Info.html#flagmast>

Order:

<http://www.2wayelectronix.com/Dual-band-MURS-GMRS-Slim-Jim-Antenna-DUAL-MU-GM-ST-D.htm>

\$23 without a coax cable

\$28 with a coax cable



E. Comet mobile antenna

This is a good solution for a mobile antenna that handles MURS frequencies (as well as amateur radio VHF and UHF). It can be mounted on a trunk/hatch mount, or a mag mount, which makes it usable as a home antenna, too.

Info: <http://www.cometantenna.com/amateur-radio/mobile-antennas/ma-dual-band/>

Order: <http://www.americanradiosupply.com/>

or

<https://www.hamradio.com/detail.cfm?pid=H0-001424>

\$70

If using for mobile, it's good to get the optional spring for ~ \$21 - \$23:

<https://www.hamradio.com/detail.cfm?pid=H0-013249>

or

<http://www.americanradiosupply.com/>

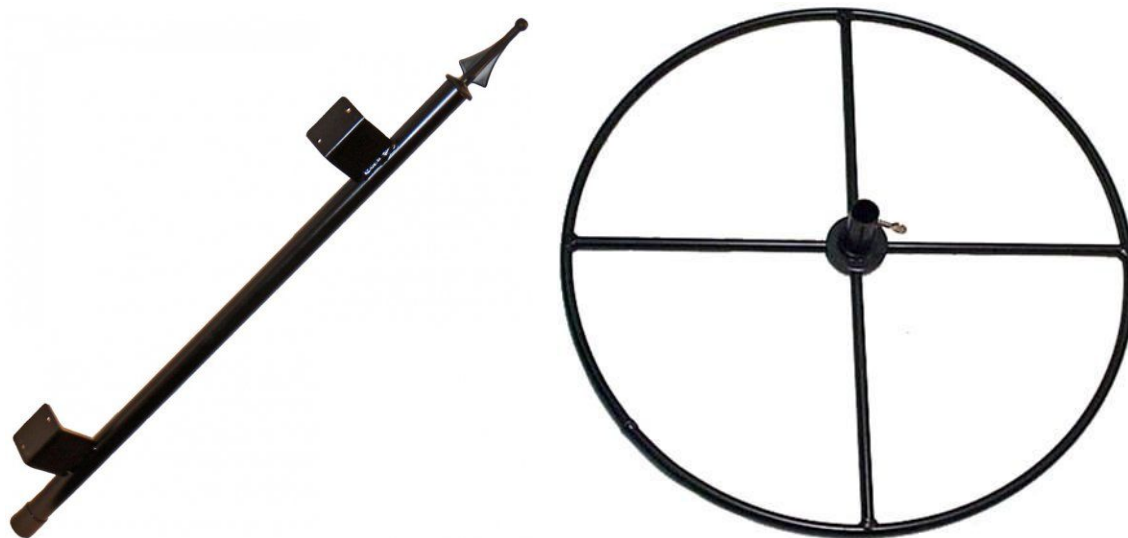
A good base is the OPEK AM-1025B - SO-239 UHF-Female Mobile Antenna Magnetic Base Mount, ~ \$50:

<http://www.americanradiosupply.com/>



2. Mounting the antenna (temporarily)

I temporarily mount my antenna to my deck using strong 1" diameter steel bird feeder mounting poles made in the U.S. by Erva. I have used this method for both the Firestik and Arrow antennas. Not sure if it would work with the J-Pole antenna (Keith will know).



A. **Base.** Use a Wall Mount Pole attached (permanently) to a railing post (the pointy piece comes off) or a Patio Base that sits on the deck itself and can be put away.

Available directly from Erva via their Nature House website: www.naturehouseinc.com

- [Erva WMT Wall Mount Pole](#) (24" long): \$34
- [Erva PAT1 Patio Base](#) (24" diameter): \$58

B. **Extension poles.** Use 2 - 4 20" extensions to raise the antenna 40" - 80" above the deck. Permanently attach the antenna to a shorter (7" or 12") extension in order to mount it to the other extensions.

Available directly from Erva via their Nature House website: www.naturehouseinc.com

- [Erva TE20 20" Bird Feeder Pole Extension](#): \$9 ea
- [Erva TE14 12" Bird Feeder Pole Extension](#): \$7
- [Erva TE9 7" Bird Feeder Pole Extension](#): \$6

3. Cable

Some good quality coax cable with PL-259 connectors is needed for bridging between the antenna and the radio. In my case, I use two, one between the antenna and the exterior wall of the house, and the second between the interior wall and the radio. The cable comes in various lengths, for example, I use one 18' for between the antenna and the exterior wall, and one 9' for between the interior wall and the radio.



ABR Industries 218XATC-PL cable available via Ham Radio Outlet (www.hamradio.com). Some sample lengths:

- 30 ft - [218XATC-PL-30](#): \$33
- 18 ft - [218XATC-PL-18](#): \$27
- 12 ft - [218XATC-PL-12](#): \$25
- 9 ft - [218XATC-PL-9](#): \$22

4. Going through the wall

There are two options that I know of.

A. **Bulkhead connector.** This is a coax connector that goes through the wall and has SO-239 connectors on each side (which is what PL-259 connectors connect to). This connector is installed permanently through the wall. It comes in [various lengths from 4" to 12"](#) so you custom fit it to your wall. It should stick out about an inch or so on each side.

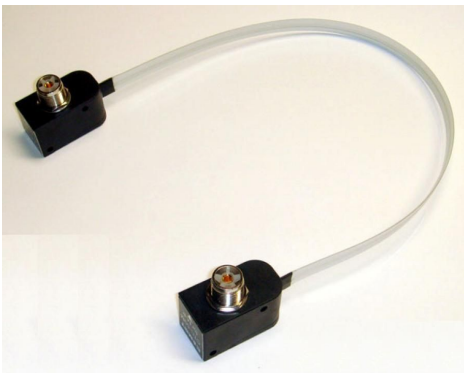
- 8" Bulkhead connector - [ARS-G518-8](#): \$17



- Dust caps with chain for bulkhead connector - [UHF-DSTCP-P](#): \$5 ea
- Dust caps for bulkhead connector - [ARS-G510-UHF](#): \$2 ea
- Oversized washers for bulkhead connector - [ARS-WASHER-U-B](#): \$2 ea
- Star washers for bulkhead connector - [ARS-ISW-625U](#): \$6 for 10 (min quantity)
- Inline lightning surge protector - [OPEK LP-350B - Arc-Gas Lightning Transient Voltage Surge Protector](#): ~\$33

B. **Window gap coax extension jumper.** This option enables you to be able to temporarily run the coax through a window or door, and still be able to shut the window or door.

Comet CTC-50M Flat Window / Door Feed-Thru Coaxial Cable SO-239 - [CTC-50M](#): \$50



5. Connecting to the radio

The SMA antenna connector on the MURS radio is a smaller type connector (compared to the standard SO-239 connectors on coax cable). This has two implications: first, you need an adapter between the two types, and second, the connector on the radio is a bit delicate. Connecting the coax cable, which tends to be a bit stiffer, directly to the radio via an adapter can cause you to easily put too much stress on SMA connector as you move the radio around.

The best adapter solution is a more flexible jumper cable that has an SO-239 connector on one end and a male SMA connector on the other end (also called a reverse SMA connector). Comet-NCG Reverse SMA to SO-239 18 inch cable - [HM-05-JSJ](#): \$16



6. A couple photos

These are from my ham radio antenna, but the setup for my MURS antenna is the same (except for the antenna itself, everything else is interchangeable).

Here's the antenna on the bird feeder poles that are attached to my deck post. The perspective skews things a bit, but the deck railing is about 6' above the ground, the extension pole totals about 7'. So the base of the antenna is about 13' above the ground. It has withstood 30 mph wind gusts with no problem, but I recently rigged up some guy-wires to give it added strength.



Here's the exterior view of one of the coax cable connected to one of my bulkhead connectors:

