

2-Meter Portable Roll-Up J-Pole Application & Usage Suggestions

Thank you for purchasing this antenna! It has been carefully constructed with the finest materials available. I hope it performs well for you and gives good service! Please feel free to contact me with your suggestions and comments – Dave Stansbury, KB3KAI – dave@kb3kai.com

The J-Pole is an end-fed half-wave dipole, using a quarter-wave matching section. It does not require ground counter-poise. Gain is comparable to a dipole, about 2.5 dB.

Materials and Construction:

“Window Design” style ladder-line twin-lead 300-ohm balanced line is used to make the antenna. It is a dense poly-clad open wire design rated for full power handling. Conductor is 19 strand, 18 AWG copper-clad steel. (Traditional TV twin-lead is 20 AWG) This is a very strong, rugged wire that should give long, reliable service.

Coax is RG-174/U. 7 strands .0063" copper-clad center conductor with poly dielectric & type IIA non-contaminating jacket. Nominal impedance 50 Ohm; velocity of propagation 65.9%; outer diameter .100", 98% tinned copper braid. Rated for power input up to 80 watts; I recommend keeping power below 70 watts. Attenuation over 6 feet at 150 MHz is approximately 0.63 dB. Coax is securely soldered to the twin-lead wire, sealed with “liquid tape” insulating coating, secured with a wire tie, then the joint is covered with heat shrink for durability.

Male BNC connector is a true 50-ohm type. 3-piece crimp-on connector is carefully installed with a professional crimp tool. Heat shrink is added over the connector and coax joint to provide stress relief and longevity.

The antenna is then tested from 144 to 148 MHz with a VSWR meter, and trimmed as necessary to achieve VSWR of less than 1.5:1 across the 2-meter band.

This lightweight, flexible antenna is easily rolled up for compact storage. You can string the antenna from a support like a tree; slide it inside PVC pipe and mount like a traditional antenna; or even hang it out a window or over a deck railing. The beauty of this antenna is in its flexibility! You should note that while the antenna is flexible and sturdy, you should handle it with some care. Avoid physically damaging the wires and coax. Do not step on it or set heavy objects on top of it. Do not kink, tie or cut the coax, and do not loop it while in use. Treat it gently!

Application Suggestions:

As with all antennas, it will perform best in “open air”, away from objects, walls and structures which can attenuate your signal. Stay clear of nearby metal objects, which can cause unwanted interference and RF reflection. *Absolutely stay away from electrical lines!*

Unroll the antenna and coax. For best performance this antenna should be mounted straight and vertical. It can be tilted slightly with acceptable results. It will work poorly if curled up, left on its side or if it is laying on the ground.

The ideal way to use the antenna is suspended in the open air. Using non-conductive line such as kite string, fishing line, etc. the antenna can be supported from a suitable object. Avoid metal flag poles, etc. You could hang it from a tree branch, boat mast, porch overhang or other suitable object. *Avoid electrical wires!* It can be used indoors with some performance loss. Suspend it from the ceiling, keeping away from ceiling fans. Tacking the antenna to a wall will work but with some power attenuation and SWR rise. Avoid using high power while indoors, keep in mind the RF exposure to you and others. The antenna will work very well with a handheld radio at lower power levels, yet is quite capable of handling higher mobile radio power.

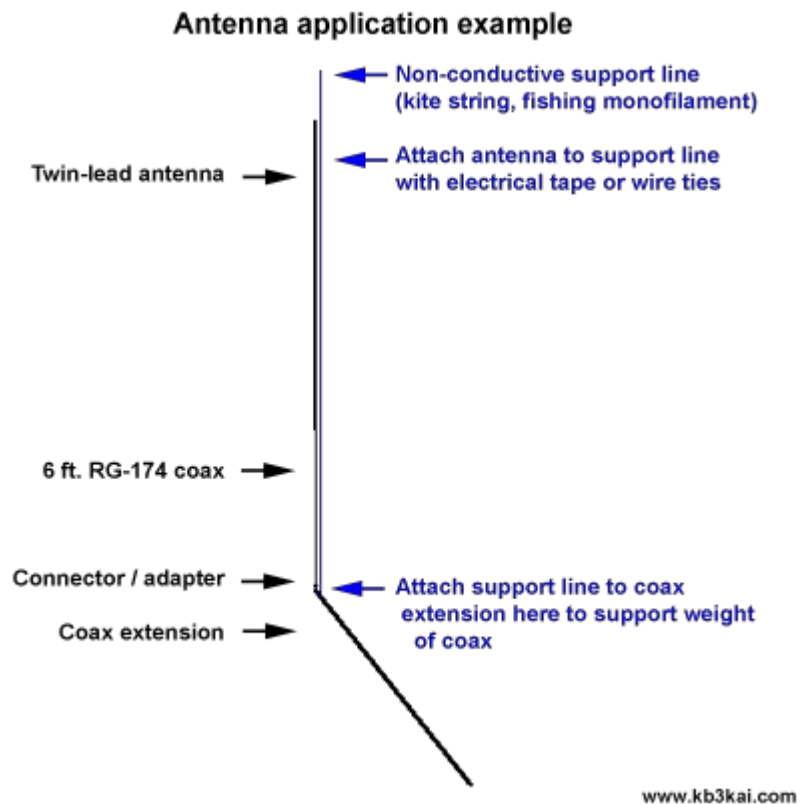
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A more permanent mounting suggestion is to install the antenna inside a PVC pipe. This will give you additional mounting options, such as attaching to a mast or tripod. Attach the antenna inside the PVC with contact cement, string or elastic so that it is gently pulled straight, but not strained. Cap the top end of the PVC pipe to keep moisture out, perhaps seal the bottom to fend off nesting insects. Note that installation inside dielectric PVC pipe may lower the resonate frequency. You should test the SWR and, if necessary, gradually trim the top of the antenna to achieve an optimal SWR prior to fixed installation.

You can attach the male BNC connector directly to many handheld radios. Use a suitable adapter to convert the BNC to the required radio connector for other applications, such as coax extensions, a mobile radio PL259 or handheld SMA type. Check with me regarding adapters – if I do not have one you can purchase locally, online from www.hamstop.com or others.

Coax extensions can be attached to the antenna. RG8X (or RG8 mini) can be outfitted with a male BNC connector, and using a double female BNC barrel connector, attached to the antenna. Or use suitable low-loss coax with the proper connector or BNC adapter.

Take care not to use the antenna to directly support the weight of coax extensions, as this may damage the RG178 coax connections. Coax extensions should be supported separately. For example, if you are using kite string to raise the antenna, attach the string to the coax extension first. Then attach the antenna along side the string using wire ties or electrical tape. Your antenna should then be vertical along the string with the coax weight being held directly by the string. See example image below.



Do you have more application tips or examples? Drop me a line at dave@kb3kai.com