

# THE JAC-3 PORTABLE VERTICAL STICK ANTENNA

## OPERATING MANUAL v1.0

### DESCRIPTION

The JAC-3 is a multiband vertical antenna for field or temporary use. "Small, lightweight and high performance" is the main topic of this antenna. With a collapsed length of 34.5cm, and 410cm in fully extended length, it's really small for portable and temporary operation. All of the antenna parts could be fit into the supplied cordura bag, it only weighs about 1.4kg including the bag, so it's lightweight. The main part of the antenna consists of 4 interconnectable aluminum tubes, an adjustable loading coil and a 2.5m telescopic whip. The loading coil is placed in the central part of the antenna, this structure enables the higher efficiency in performance and better in mechanics compared to the bottom loaded verticals. This is what we called "High performance".

### FEATURES

1. Small in size, light weight and easy to carry with.
2. Different hamband operatable.
3. Easy and quick to set up.
4. Fast and quick band switching.
5. Suitable for field or temporary use.
6. Stainless telescopic whip, length up to 2.5m.
7. High Q loading coil, with 1mm tin plated wire, wounded on a specially designed coil form.
8. Specially designed base, enable a straightforward ground mounting.
9. A cordura bag is also provided for accommodating all of the antenna parts.

### SPECIFICATIONS

1. Rated Max Power: 150W
2. Impedance: 50 ohm
3. Band: 40m/30m/20m/17m/15m/12m/10m/6m (7-50MHz)
4. Type: Ground Mounted Vertical
5. SWR: less than 1.3
6. Collapsed length: 34.5cm
7. Fully extended length: 410cm
8. RF connector: SO239
9. Weight: 1.4Kg

### PACKING LIST

1. Antenna base with SO239 connector ×1 (Material: Aluminum)
2. Adjustable coil ×1 (40m-10m, Form material: Nylon)
3. Black aluminum tube ×4 (19 X 280mm)
4. Telescopic whip ×1 (fully extended length: 2.5m)
5. Ground anchor ×1 (10×24mm, Aluminum rod)
6. A short jumper wire ×1 (for band switching)

7. Coil clip ×1 (for holding the jumper wire on the preset turns of the coil)
8. Ribbon ground wire ×1
9. Antenna bag ×1

### JAC-3 ASSEMBLY CHART



### JAC-3 ASSEMBLY GUIDELINES

1. Do not forget to insert a washer into the thread end of the ground rod, also put the ground wire with the ring end into the ground rod. Then, thread the ground with the ground wire into the base unit tightly. Locate the place where you want to put up the antenna, insert the tip end of the ground rod into the real ground deeply.

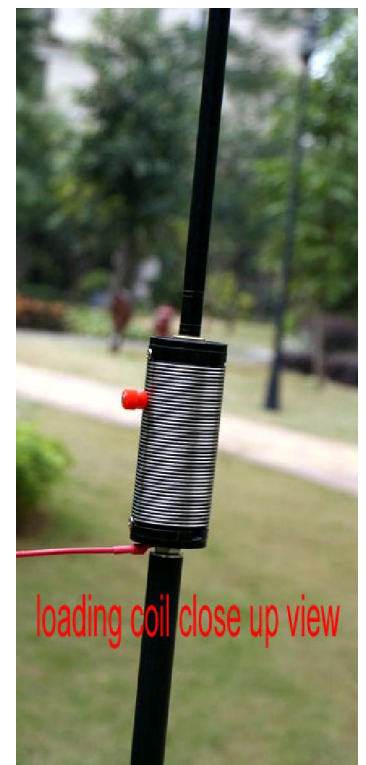
2. Thread 4 aluminum tubes together, and then thread them into the base unit, do not forget put a washer between them.

3. Find out the coil, and put the coil onto the top arm of the aluminum tube, then thread them together tightly.

4. Find out the telescopic whip and extend it to the full length. Put the telescopic whip onto the coil, and thread them tightly.

5. Connect a coax to the SO239 port on the base unit, extend the radial wire to the full length. We use the ribbon cable (10 wires) as the radial wire for this antenna, you may need to break them apart into 3 sets with 3-4 wires in one set, for the first use. Lay the separated 3 sets of radial wires on the ground with a separation angle of 120 degrees.

6. Connect the coax to your transceiver, place a tap to the loading coil or collapse the telescopic whip to make the antenna tuned to your desired band. Now you are "on the air". We highly recommend to use an antenna analyzer while tuning this



antenna. Please make sure to note down the tapped turns of the loading coil or the collapsed sections of whip antenna, you do not need to tune the antenna in each time.

**OTHER NOTICE**

1. The radial may greatly affect the SWR value, so you may have to adjust the separation angle of the radial wires laying on the ground for a best SWR value.
2. The more radials, the better efficiency of the antenna. You may add more wires as the radials in the future use.
3. Please keep away from the antenna for 5-7 meters while transmitting, this may also affect the SWR.
4. The end sections of the whip antenna are really weak, please be carefully while extending these sections.
5. While tuning the antenna by an antenna analyzer, locate the lowest SWR point firstly. If the point is higher than you desired frequency, you need to extend the whip section or add turns to the coil. If it is lower than your desired frequency, you may have to reduce the length of the whip antenna or decrease the turns on the coil.
6. If you do not have an antenna analyzer, it could still be tuned by your transceiver. Make sure to put your transceiver to the FM, AM or RTTY mode, and reduce the RF power to 10 watts or below. Tune the transceiver to your desired band, and then put the PTT on, tune the tuning knob of your radio to make the frequency up or downon while monitoring the SWR value. Keep tuning your radio while the PTT is on until the lowest SWR is found. If the point is higher than you desired frequency, you need to extend the whip section or add turns to the coil. If it is lower than your desired frequency, you may have to reduce the length of the whip antenna or decrease the turns on the coil. Recheck the SWR value by keying down the PTT. Now you are "on the air".
7. Below is a table for the suggested tapped turns on the loading coil and the collapsed sections of the whip antenna on the normal bands.

<b>Bands</b>	<b>Coil or not</b>	<b>Whip antenna in section</b>	<b>Tapped turns on the loading coil</b>
40	Yes	10 sections (full length)	8 turns counting from the top arm of aluminum tube
20	Yes	10 sections (full length)	6 turns counting from the beginning end of the whip antenna
15	No coil	7 sections+10cm	-----
10	No coil	9.5 sections	-----