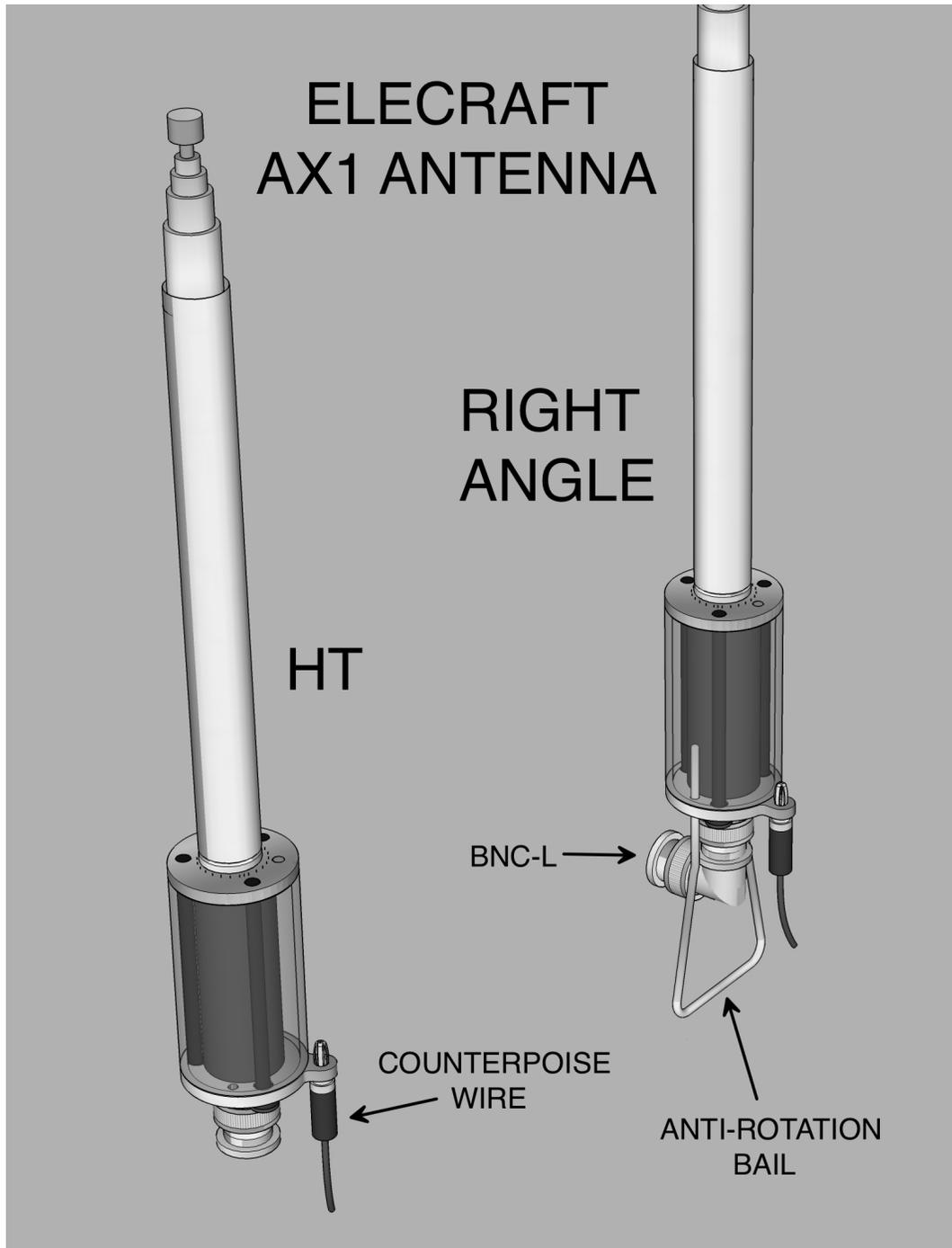


Elecraft AX1 Ultraportable 17/20 Meter Antenna System (FAQ)

NOTE: This information is preliminary and subject to change. Price and delivery are TBD, as well as whether the unit will be available as a kit, fully assembled, or both.

Q: What is the AX1?

A: The AX1 is a dual-band (20 and 17 meter) compact antenna system based on an optimized 2-piece whip. It intended for use with lightweight transceivers such as the Elecraft KX2 an KX3 that are equipped with an internal antenna tuner. The AX1 can be configured for HT-style or right-angle use as shown below.



Q: What type of operation is the AX1 designed for?

A: The AX1 is ideal for pedestrian mobile (/PM), where the radio is used hand-held (HT), or for lightweight “HF Pack.” It can also be used during table-top or trail-friendly (TFR) operation, thanks to the supplied BNC-L and anti-rotation bail. No poles, trees or other supports are required, so the AX1 can be deployed in seconds. 17 and 20 meters are excellent bands for this purpose. With 5 to 10 watts, moderately good propagation, and some patience, 1000 to 2000 mile contacts are commonplace, and DX contacts can also be achieved. We’ve made many contacts with Europe and Japan from Northern California using the AX1 attached to a hand-held KX2 or KX3.

Q: Is an ATU required?

A: Yes. An ATU is required to resonate the antenna’s high-Q loading coil on each of the two bands. The nominal resonance is in the 15 to 16 MHz range, allowing the ATU to achieve resonance at either 14 or 18 MHz (20 or 17 meters) with a low SWR. Both the KX2 and KX3 have internal ATUs that store network settings per-band, allowing you to change bands instantly. (The ATUs have model numbers KXAT2 and KXAT3 respectively.) Other whip antennas generally require changing coils or taps to cover more than one band.

Q: Can the AX1 be used on other bands besides 20 and 17 meters?

A: There are two parts to this answer:

(1) If you’re willing to experiment with different loading coils, you could set the AX1’s resonance to any desired frequency. This requires an antenna analyzer. Enamel wire with a 180-200 C rating must be used to handle more than just a few watts. Standard enamel wire is rated at only 130-150 C.

(2) As designed, the AX1 *may* be usable on 30 and 15 meters—at reduced efficiency—because of the wide matching range of the KX2 and KX3 internal ATUs. Achievable SWR on these bands will vary with the length of the counterpoise wire and other factors.

Q: In what way is the AX1 “Ultraportable”?

A: The AX1’s base unit (2.5” long x 1” diameter) and telescoping whip (6” collapsed) are separate, allowing the entire antenna system to fit into a small pocket or in very small carrying cases such as our CS40 and CS60. Total weight is just 4.0 ounces. During operation, the AX1 can be attached directly to a radio being used hand-held (HT-style), or used with a BNC-L and the supplied anti-rotation bail for table-top use.

Q: What is included with the AX1 antenna system?

A: The AX1 comes with:

- 3” base/loading coil with male BNC connector and
- counterpoise wire socket (for mini-banana plug)
- rugged 44” telescoping whip with 3/8”-24 threaded mount; collapses to 6”
- anti-rotation bail for table-top use
- BNC-L adapter for table-top use
- mini-banana plug for use with a counterpoise wire

Q: How is the anti-rotation bail used?

A: If you're operating the radio on a flat surface, the AX1 is attached via a BNC-L adapter. The anti-rotation bail is then installed so that it contacts the flat surface, thus preventing the whip from pivoting on the BNC-L connector. The anti-rotation bail and BNC-L are not needed for hand-held (HT style) radio use.

Q: How does the AX1 compare to other portable antennas?

A: The AX1's performance is similar to that of other electrically short (~4 foot) whips. But it is more versatile because it covers two bands, breaks into two small pieces for transport, has an attachment point for a counterpoise wire, and includes an anti-rotation bail for table-top use. (Note: A modest-length wire-in-a-tree antenna will generally outperform a short whip, and can be matched on more bands with the radio's ATU. So we recommend that, along with the AX1, you always carry two ~25-foot lengths of stranded/insulated wire and a BNC-to-binding-post adapter. Use the wire antenna if you have time...and a tree!...and you need maximum performance from your station.)

Q: Do I need a counterpoise wire? How long?

A: For transmit, you must use at least one counterpoise wire, for both safety and efficiency reasons. Without one, your transmit signal will be typically 20 dB lower, and there may be more RF on the radio's chassis. We recommend a 13' insulated/stranded "dragged" counterpoise wire for pedestrian mobile use.

Q: How much power can the AX1 handle?

A: The suggested maximum is 15 watts, though we've successfully tested it at 25 watts.

Q: Can the AX1 be used with other whips?

A: The AX1 will work any whip having a 3/8"-24 threaded base. If the whip is 44" long, the AX1's normal resonance will be preserved. A longer whip could be used to move the resonance point closer to 20 meters, offering a slight improvement in performance. Resonant frequency must be determined experimentally.

Q: Could multiple AX1s be used to make a dipole, Yagi, etc.?

A: In theory, multiple AX1s could be used to make more complex antennas, and we may experiment with this idea ourselves. However, since the AX1's radiator is electrically short, performance will not be comparable to full-size antennas, even it were elevated to 1/4 wavelength above ground (the minimum recommended for parasitic arrays). Also, the AX1 is intended to be used with an ATU. If used in a coax-fed antenna of any type, the base loading coil would have to be carefully trimmed to achieve resonance on a single band. Any parasitic elements would have to be adjusted as well.

Q: Can the AX1 be used in bicycle or mobile applications?

A: Bicycle mobile—yes. But not on any vehicle moving faster than about 20 MPH. The AX1 uses a BNC connector and a telescoping whip, components that are not compatible with high wind loads.