

ELECRAFT AX3

30-10 METER WHIP ANTENNA

OWNER'S MANUAL

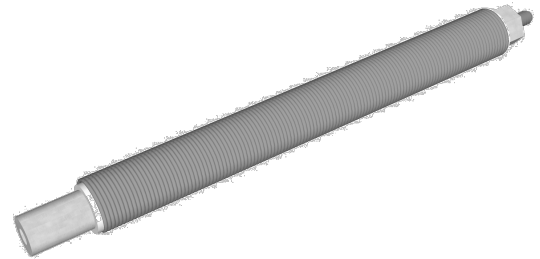
The AX3 is an extremely versatile whip antenna system. It's ideal for park and campground outings, getting you on the air quickly with its small table-top footprint and built-in tripod.

Here's a summary of the AX3's benefits:

- **Covers up to six bands**, working with your transceiver's antenna tuner (ATU). The AXE1 (shown at right) extends coverage to 40 m.
- **No need for coil tap adjustments**; change bands using the AX3's low-resistance, 4-position jumper block. *For further details on performance, refer to **AX3 Theory of Operation**, available on our AX-line web page.*
- **Includes built-in mini-tripod** for table-top use (removable)
- **1/4-20 threaded mount** in base works with taller tripods, hiking poles
- **Easy to pack** – Disassembles into 6" (15 cm) pieces; includes water-resistant pouch for antenna, tripod legs, radial wire, and coax cable
- **Convenient radial wire attachment points** – both a binding post and a mini-banana jack are included. A 13' (3.3 m) radial wire is supplied.

There are jumper block positions for 10, 14, 18, and 21 MHz. The 21 MHz position is used for 21-29 MHz.

AXE1 40 M EXTENDER



AXC3 COAX CABLE

3' (90 cm) – Recommended
for table-top use



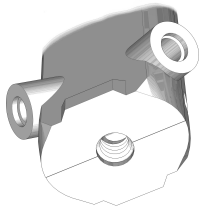
High-Reliability, Low-Loss
Band-Select block

Ground Binding
Post + Mini-Banana

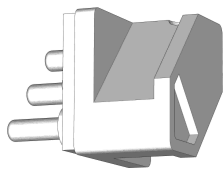
Right-angle BNC for
easy coax connection

1/4-20 Threaded
Mount

AX3 Setup



- **If the AX3's 6" (15 cm) tripod legs are to be used**, insert them into their grommets in the base as far as they'll go. Two of the three angled leg holes are shown at left. It's helpful to twist the legs slightly as they're inserted. *For safety reasons, tripod legs are isolated from both the whip and ground.*
- **If a camera tripod or hiking pole is to be used**, thread its 1/4-20 bolt into the nut at the lower end of the base unit (shown at left). Some hiking poles can be stacked to increase height. **If guy wires are needed**, you can route them through one or both of the isolated, transverse, 0.1" (2.5 mm) diameter holes in the base. One is near the tripod legs; the other is near the band-select block.
- **For 40 m operation, attach an AXE1 Extender** as described below.
- **Attach the telescoping whip** to the base unit (or to the AXE1), then extend it.
- **Connect a short length of coax cable** between the AX3 and the transceiver. Recommended coax length is 1' to 3' (60 to 90 cm). The AXC3 cable is 3' (90 cm) long. **Avoid long coax cables running on the ground, as this may increase loss whenever the antenna is not inherently resonant at the operating frequency.**
- **To select bands, plug the jumper block (shown at left) in at the required position.** The recessed arrow should point at the associated MHz value on the base unit: 10 MHz (30 m), 14 MHz (20 m), 18 (17 m), > 21 (15, 12, 10 m).
- **ATTACH AT LEAST ONE COUNTERPOISE WIRE** (or radial) to the AX3's ground binding post, or to the mini-banana jack using an Elecraft **KX2GNDPLUG** or equivalent. **Without a counterpoise, your transmit signal will be ~10 to as 30 dB weaker (worse on lower bands). Insulated counterpoise wires with a spade lug at one end are supplied with the AX3 and AXE1.**
- Match the antenna to the transceiver using an ATU as described below.



Matching (ATU Required)

Short whip resonance may be affected by terrain, height, radial length, and coax length. An ATU is required, on transmit, to ensure a low-SWR match.

To match using an ATU: Set the AX3's band-select block to the desired band as described above, using the 21 MHz position for 21-29 MHz and the 14 MHz position for 40 m (with AXE1). Tap the ATU tuning switch on the radio or tuner.

Note: All Elecraft transceivers have optional ATUs compatible with the AX3. (With most Elecraft transceivers, a 2nd tap of the ATU switch tries more L-C combinations.) External ATUs can also be used, such as the Elecraft T1.

AXE1 40 Meter Extender

The AXE1 adds 40 m capability, and in some cases 60 m. **To set up the AXE1:**

- **Use the AX3's 20 meter jumper block position** when operating on 40 m. On 60 m, use the AX3's 30 meter position. (SWR may be higher on 60 m.)
- **Attach the supplied 33 ft (10 m) radial wire** to the AX3's ground binding post mini-banana jack. The 30-10 m radial may be left attached as well.
- **If possible, elevate the AXE1's radial a few feet (1 m) or more** by stringing it across foliage, rocks, picnic tables, etc. This will improve your transmit signal.
- **Thread the AXE1 extender onto the AX3 base** in place of the whip. Then thread the whip onto the extender. *Do not overtighten; this may make disassembly more difficult and can damage threaded fittings.*

Adding Radial Wires

Adding 1/4-wavelength radials for preferred bands may improve efficiency. The wire length is: $L \text{ (feet)} = 234 / F \text{ (MHz)}$, or $L \text{ (meters)} = 71.3 / F$. Fine-tuning radial length to achieve resonance is not necessary since an ATU is used for matching.

Operating Tips

- **The AX3 is not intended for permanent outdoor or vehicle installations.**
- **To avoid damage to the whip, keep it collapsed when not in use.**
- **Always use at least one radial.** This improves transmit efficiency by up to 30 dB. Adding more radials may improve performance (see pg. 2).
- **For storage of radial wires, wind them in a figure-8 pattern** (on your fingers) to eliminate kinks and allow the wire to be deployed quickly.
- **The band-select block can optionally be secured to the AX3 base unit with a lanyard** (user-supplied). The jumper block has a small hole for this purpose.
- **To improve signal strength, elevate the AX3** (by placing it on a table or mounting it to a tall tripod). If possible, elevate radial(s) as well.
- **If the antenna tips due to wind**, add weight to the base or secure the legs.
- **Use higher bands when they're open** (e.g. 10, 12, and 15 meters). Electrically short antennas will be more efficient as you go higher in frequency.
- **Answer strong stations who are calling CQ or just completing a QSO.**
- **Try operating during contests, when there's lots of activity.** DX stations often use very high-gain antennas, improving your signal as well as theirs.
- **Try QRP, HF-Pack, and SOTA calling frequencies.** Operators who frequent these "watering holes" will be listening for weak signals.
- **CW and data modes will have an advantage** over SSB at low power levels.
- **QRP operation with a short whip can be both rewarding and challenging.** For times when conditions are poor, we recommend also carrying a lightweight wire antenna made from two 25' (7.5 m) lengths of #26 "Silky" insulated, stranded wire (thewireman.com). Toss one wire into a tree and lay the other on the ground, or into a second tree. Attach the wires to the rig via a BNC-to-binding post adapter, such as our model BNC-BP. Elecraft ATUs will usually match this antenna on 40 through 10 m.

Specifications

Resonant Frequencies	AX3: ~10 MHz (30 m), ~14 MHz (20 m), ~16-18 MHz (for 17 m), ~24-26 MHz (for 15, 12, and 10 m). AXE1: ~7 MHz (40 m); use AX3's 14 MHz setting. <i>Note: Resonant frequencies will vary with actual inductance, antenna height, radial length, coax length, and surrounding terrain. An ATU will compensate for these factors. (For further information, refer to the AX3 Theory of Operation, available on our AX-line antenna page.)</i>
Supplied Radial Wire	AX3: 13 feet (3.3 m) long. AXE1: 33 feet (10 m). Wire has pre-installed lug for attachment to the AX3's ground screw.
Max. Power	30 Watts, 50% duty cycle. <i>If RFI symptoms are observed, reduce power or use a balun.</i>
Construction	Corrosion-resistant whip and hardware; nylon base unit; high-Q inductors wound with high-temp enamel wire.
Dimensions	Whip: 6" (15 cm) collapsed, 45" (115 cm) extended. Base and plug-in tripod legs: 6" (15 cm) long.
Weight	AX3, less coax: 5.0 oz. (140 g). AXE1: 2.0 oz. (55 g).

Customer Service and Support

Technical Assistance

You can send e-mail to support@elecraft.com and we will respond quickly – typically the same day Monday through Friday. If you need replacement parts, send an e-mail to parts@elecraft.com. Telephone assistance is available from 9 A.M. to 5 P.M. Pacific time (weekdays only) at 831-763-4211. Please use e-mail rather than calling when possible since this gives us a written record of the details of your problem and allows us to handle a larger number of requests each day.

Repair / Alignment Service

If necessary, you may return your Elecraft product to us for repair or alignment. (Note: We offer email and phone support, so please try that route first as we can usually help you find the problem quickly.)

IMPORTANT: You must contact Elecraft before mailing your product to obtain a **Return Servicing Authorization (RSA)**, the address to ship it to, and current information on repair fees and turnaround times. (Frequently we can determine the cause of your problem and save you the trouble of shipping it back to us.) Our repair location is different from our factory location. We will give you the address to ship your kit to at the time of repair authorization. *Packages shipped without authorization will incur an additional shipping charge for reshipment to our repair depot.*

Elecraft 1-Year Limited Warranty

This warranty is effective as of the date of first consumer purchase (or if shipped from the factory, the date the product is shipped to the customer). It covers both our kits and fully assembled products. For kits, before requesting warranty service, you should fully complete the assembly, carefully following all instructions in the manual.

Who is covered: This warranty covers the original owner of the Elecraft product as disclosed to Elecraft at the time of order. Elecraft products transferred by the purchaser to a third party, either by sale, gift, or other method, who is not disclosed to Elecraft at the time of original order, are not covered by this warranty. If the Elecraft product is being bought indirectly for a third party, the third party's name and address must be provided at time of order to ensure warranty coverage.

What is covered: During the first year after date of purchase, Elecraft will replace defective or missing parts free of charge (post-paid). We will also correct any malfunction to kits or assembled units caused by defective parts and materials. Purchaser pays inbound shipping to us for warranty repair; we pay shipping to return the repaired equipment to you by UPS ground service or equivalent to the continental USA and Canada. For Alaska, Hawaii, and other destinations outside the U.S. and Canada, actual return shipping cost is paid by the owner.

What is not covered: This warranty does not cover correction of kit assembly errors. It also does not cover misalignment; repair of damage caused by misuse, negligence, or builder modifications; or any performance malfunctions involving non-Elecraft accessory equipment. The use of acid-core solder, water-soluble flux solder, or any corrosive or conductive flux or solvent will void this warranty in its entirety. Also not covered is reimbursement for loss of use, inconvenience, customer assembly or alignment time, or cost of unauthorized service.

Limitation of incidental or consequential damages: This warranty does not extend to non-Elecraft equipment or components used in conjunction with our products. Any such repair or replacement is the customer. Elecraft will not be liable for any special indirect, incidental or consequential damages, including but not limited to any loss of business or profits.