

# Elecraft® KX3

## KXAT3 Wide Range Internal Antenna Tuner Installation Instructions

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E740168

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### Introduction

The KXAT3 antenna wide range tuner plugs into existing connectors inside the KX3. The KXAT3 stores the settings found for the best match at multiple points across each band, allowing for quick frequency and band changes. The KXAT3 also includes an automatically tuned filter for the AM broadcast band that tracks the VFO, improving image rejection for signals in the 0.3-1.0 MHz range.

### CAUTION

**The KXAT3 module and many components inside your KX3 may be damaged by Electrostatic Discharge (ESD) simply by touching them or a circuit board containing them unless you take specific steps to prevent such damage. See *Preventing Electrostatic Discharge Damage* on page 1 before opening the package containing the KXAT3 module or working inside your KX3.**

### Installing the KXAT3 Module

#### Preparing for Installation

##### *Preventing Electrostatic Discharge Damage*

ESD damage may occur with static discharges far too little for you to notice. A damaged component may not fail completely at first. Instead, the damage may result in below-normal performance for an extended period of time before you experience a total failure.

We strongly recommend you take the following anti-static precautions (listed in order of importance) to ensure there is no voltage difference between the components and any object that touches them:

- Leave the KXAT3 module in its anti-static packaging until you install it.
- Wear a conductive wrist strap with a series 1-megohm resistor that will constantly drain off any static charge that accumulates on your body. If you do not have a wrist strap, touch a ground briefly before touching any sensitive parts to discharge your body. Do this frequently while you are working. You can collect a destructive static charge on your body just sitting at the work bench.

### WARNING

**DO NOT attach a ground directly to yourself without a current-limiting resistor as this poses a serious shock hazard. A wrist strap must include a 1-megohm resistor to limit the current flow. If you choose to touch an unpainted, metal ground to discharge yourself, do it only when you are not touching live circuits with any part of your body.**

- Use a grounded anti-static mat on your work bench (see below).
- If you pick up a pc board that was not placed on an anti-static mat or in an anti-static package, touch first a ground plane connection on the board such as a connector shell or mounting point.
- If you use a soldering iron to work on a circuit board, be sure your iron has an ESD-safe grounded tip tied to the same common ground used by your mat and wrist strap.

### ***Choosing an Anti-Static Mat***

An anti-static mat must bleed off any charge that comes in contact with it at a rate slow enough to avoid a shock or short circuit hazard but fast enough to ensure dangerous charges cannot accumulate. Typically, a mat will have a resistance of up to 1 Gigaohm ( $10^9$  ohms). Testing a mat requires specialized equipment, so we recommend that you choose an anti-static mat that comes with published resistance specifications and clean it as recommended by the manufacturer. Testing has shown that many inexpensive mats that do not specify their resistance have resistance values much too high to provide adequate protection, even after they were cleaned and treated with special anti-static mat solutions.

Suitable anti-static table mats are available from many sources including:

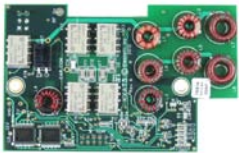

- U-line (Model 12743 specified at  $10^7$  ohms)
- Desco (Model 66164, specified at  $10^6$  to  $10^8$  ohms)
- 3M™ Portable Service Kit (Model 8505 or 8507, specified at  $10^6$  to  $10^9$  ohms)

### **Tools Required**

1. ESD Protection (see *Preventing Electrostatic Discharge Damage*, pg 1).
2. #1 size Phillips screwdrivers. To avoid damaging screws and nuts, a power screwdriver is *not* recommended.
3. Soft cloth or clean, soft static dissipating pad to avoid scratching the enclosure.

### **Parts Supplied**

Be sure you have the following components in your kit. If anything is missing, contact Elecraft customer support (pg 5).

ILLUSTRATION	DESCRIPTION	QTY.	ELECRAFT PART NO.
	KXAT3 Module <b>⚠ ESD SENSITIVE! Leave it in its anti-static envelope until it is installed.</b>	1	E850500
	4-40, 3/16" (4.8mm) Black Pan Head Screw	2	E700172
	#4 Lock Washer, Split Ring	2	E700004

## Installation Procedure

- Disconnect all cables attached to the KX3 and remove the KXPD3 paddles if installed.
- Open the KX3 just as you would to install or remove batteries (see *Internal Batteries* in your Owner's Manual for details about how to do this).
- Remove the internal batteries (if present).
- The KXAT3 mounts over the exposed area of the RF board in the bottom cover next to the battery holders. It plugs into two connectors and is supported by two standoffs already installed in the KX3 (See Figure 1).

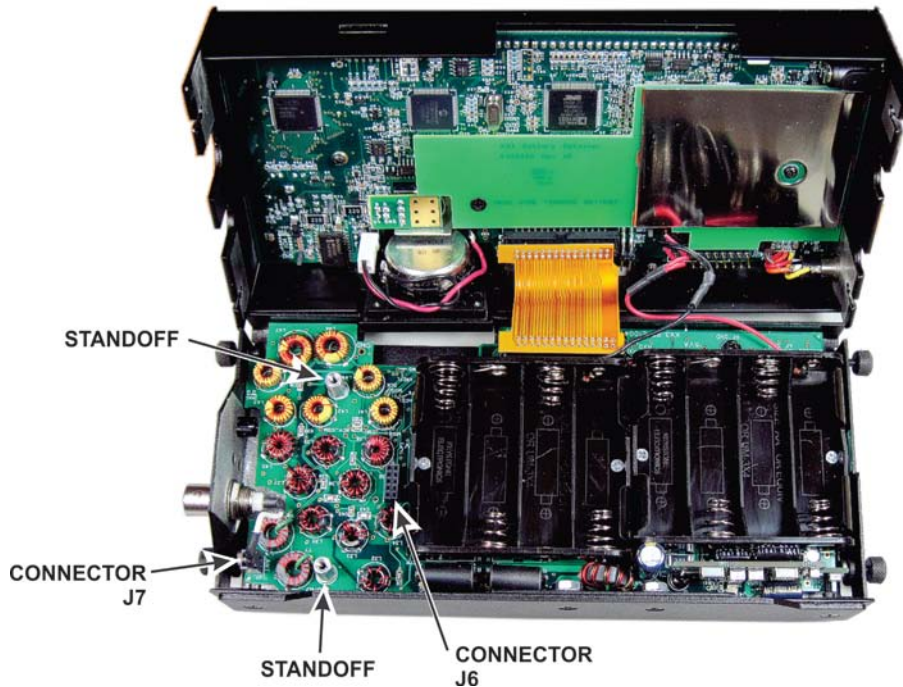


Figure 1. KXAT3 Installation Location in the KX3.

- Unplug the cable to the BNC antenna connector from J7 on the KX3 RF board (see Figure 2)

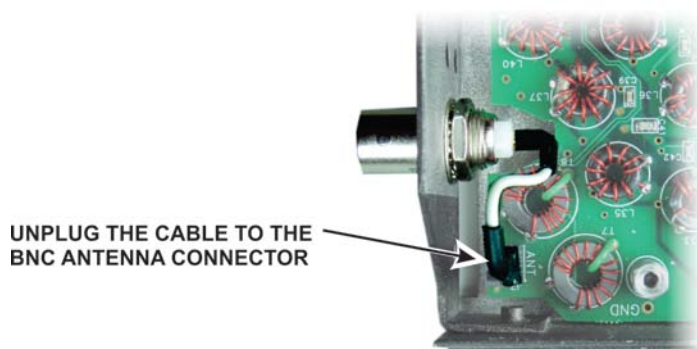


Figure 2. Disconnecting the Cable to the Antenna BNC.

Taking ESD precautions remove the KXAT3 board from its packaging and mount it on the KX3 RF board as shown in Figure 3. Be especially careful to ensure that all the pins of both connectors engage with their opposites on the RF Board. You may find it easiest to engage P2 with J6 (near the battery holder) first so you can see the pins more clearly. It is normal for part of the length of the pins on P2 to be visible when the connectors are properly mated.

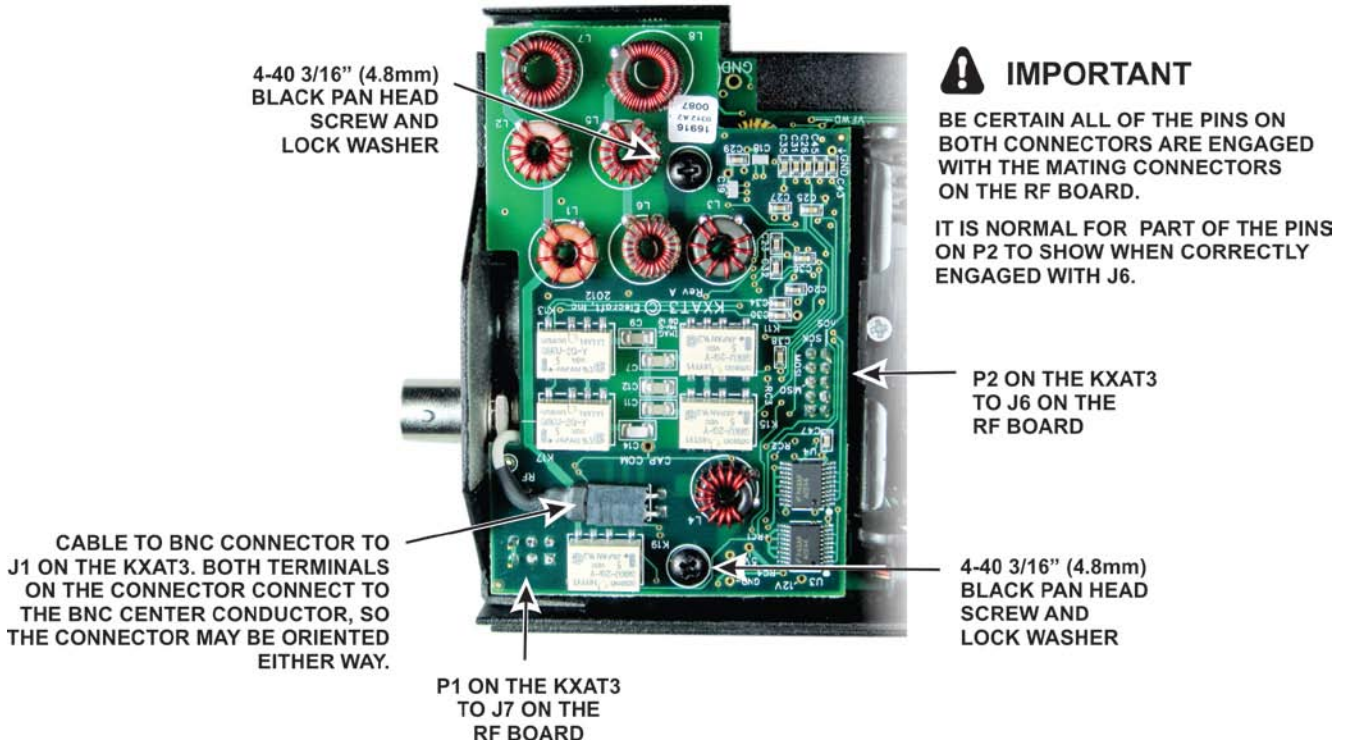


Figure 3. Installing the KXAT3.

- Be sure you have plugged the cable to the BNC antenna connector into J1 on the KXAT3 module (see Figure 3).
- Replace the internal batteries, (if applicable).
- Close the case and tighten all four thumb screws.
- Turn to *Option Module Enables* in the Owner’s manual to enable the KXAT3. The KXAT3 will not operate until this is done. Operating instructions and antenna recommendations are also included in the KX3 Owner’s manual.

**That Completes Installation of the KXAT3.**

# Customer Service and Support

## *Technical Assistance*

You can send e-mail to [k3support@elecraft.com](mailto:k3support@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](mailto: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 unlimited 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 authorization for the return, what 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 to Elecraft 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, battery leakage or corrosion, 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 responsibility of 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.