ELECRAFT® K•POD

CONTROL PANEL

OWNER'S MANUAL

Rev D, October 17, 2016

Key to Symbols and Text Styles

⚠   **Important – read carefully**

ℹ   **O**perating tip

CONFIG:SQ MAIN   **Typical K3/K3s menu entry**

Contents

⚠ Elecraft manuals with color images may be downloaded from
www.elecraft.com.

Introduction

The K-Pod control panel is an ideal companion to your Elecraft K3 or K3S transceiver, maximizing convenience and operating efficiency. It's small enough to be placed anywhere the action is, typically next to a computer keyboard. It's versatile enough to integrate multiple transceiver and station control functions.

Features include:

- A heavy, free-spinning knob that can be assigned to VFO A, VFO B, or RIT/XIT offset.

- Control of 16 functions using tap and hold operation of 8 programmable switches.

- Switch functions can be easily set up using *K3 Utility* to perform diverse functions such as selecting bands, modes, frequencies, or power levels; sending messages; clearing RIT; changing tuning rates, etc. Many examples are provided in this manual.

Additional capabilities will be provided with future firmware releases, such as direct control of the unit's three general-purpose relay drive outputs.

In the Box

- K-Pod module.

- DC Power Cable, 2.1 mm Barrel Connector to RCA Connector, 24" (61 cm), E850427

- K3S/K3 Data Cable, 6P6C Connectors, 30" (76 cm), E980326

- Cable, USB A to B Connector, 36" (91 cm), E850629

- Allen Wrench (for Knob Set Screw), 5/64" (2 mm), E980004

- K3 Modification Kit (for some older K3 Transceivers, see page 16), E850755

Installation

Placing the K-Pod

The K-Pod module may be operated in any position. A built-in tilt stand may be deployed by loosening the two thumb screws to hold it at a convenient angle (see image on page 1). In addition two threaded holes for 8-32 screws are provided for mounting it on a user-supplied bracket or support.

Adjusting the Knob Drag

Friction to limit the ease with which the knob turns is provided by two felt washers between the knob and the K-Pod panel, just as is done on the K3S or K3 VFO A knob.

To adjust the friction, remove the finger grip to access the set screw holding the knob on the encoder shaft. Place your thumbs on the center of the knob and pull forward on the edge of the grip to slide it off of the knob. Avoid using tools since they can scratch the knob finish.

Use the supplied Allen wrench to loosen the set screw and position the knob for the desired friction. A popular technique is to loosen the knob, lay the K-Pod flat on the desk, and then tighten the set screw. This allows the amount of friction to be determined by the weight of the knob. Then, if further adjustment is desired, loosen the set screw again and either press the knob toward the panel to increase the friction of move it slightly away to reduce the friction.

Data Connection

Connect the supplied data cable between the RADIO connector on the K-Pod and the data connector on your K3s or K3. The K3s/K3 data connector is on the bottom of the K3s/K3 near the front panel as shown in Figure 2. If you need a data cable length different from the 30" (76 cm) supplied, you can make your own as shown on page 19).

The data connector on a K3s serial number 10787 (kit) or 10801 (factory assembled) or later will power the K-Pod through the data cable, eliminating the need for providing power to the 12-15 VDC connector. Earlier K3s transceivers or any K3 can be modified to power the K-Pod through the data connector by changing one resistor inside the K3/ K3s. This is a simple mod that you can do yourself if you are equipped with a suitable soldering iron (see Appendix A on page 16), or you can have Elecraft do it for you (see Customer Service and Support on page 15).
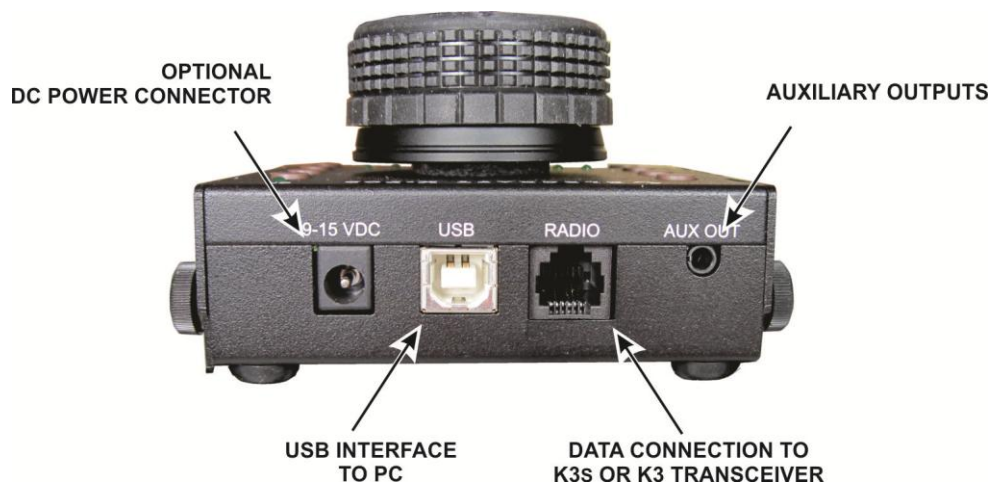

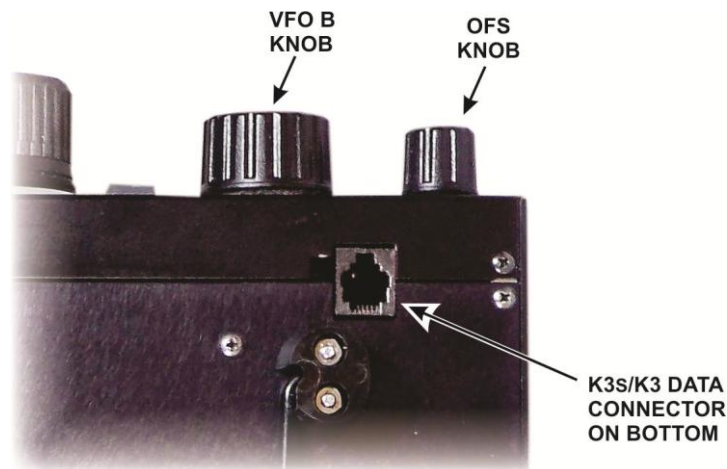
Figure 1. Interface Connectors.

Figure 2. K3s/K2 Data Connector

Optional Power Connection

If you are not powering the K-Pod through the data connector (see above), connect a 9-15 Vdc power supply to the optional dc power connector shown in Figure 1. The K-Pod requires about 50 mA. This power can be taken from the switched 12VDC OUT connector on the K3S/K3 rear panel. If you are powering other equipment such as a P3 Panadapter you can use a Y-cable to power both providing you do not exceed the current limit shown next to the connector. Some older K3 transceivers are limited to a maximum of 0.5A from this connector and will be labeled that way. A modification kit to increase the current limit to 1A is available, order the K312VMDKT, or you can have Elecraft do it for you (see *Customer Service and Support* on page 15).

Also you can power the K-Pod from any 9-15 Vdc power supply capable of providing 50 mA.

USB Interface to PC

This connector is not used currently except that it will power the K-Pod if connected to a live USB port. Future firmware updates will allow you to program the K-Pod and interface the K-Pod directly with your personal computer.

Auxiliary Outputs

A 3.5 mm tip-ring-ring-shield connector provides three programmable outputs to control external devices. Each output is an open drain connection to a ring contact that can handle up to 50 Vdc at 100 mA.

Controls and Indicators
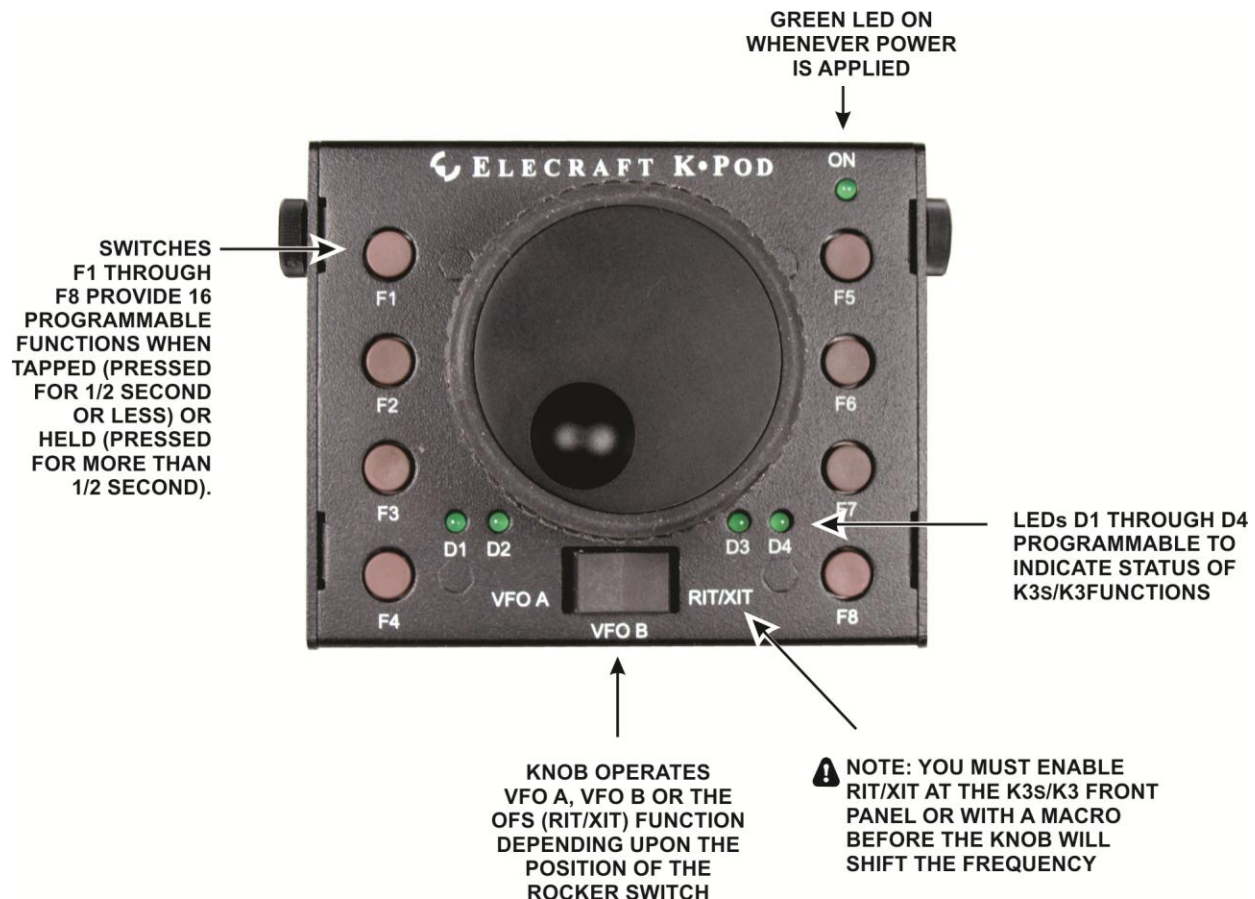
Operating the K-Pod

Controlling a K3ꜱ/K3 from the K-Pod

⚠ **Your K3ꜱ or K3 must be equipped with firmware version 5.54 or later and your K-Pod must be equipped with firmware version 1.06 or later. See your K3ꜱ or K3 owner's manual for how to check and download the firmware. See *Firmware Upgrades* on page 14 to check and update your K-Pod firmware.**

Connecting the data cable to you K3ꜱ/K3 (see *Data Connection*, page 6) immediately gives you control over the K3ꜱ/K3VFOs and OFS (RIT/XIT) controls depending upon the position of the rocker switch. Also the LEDs indicate the control selected: D1 for VFO A, D2 for VFO B and D3 for RIT/XIT (OFS).

Other functions are controlled from the K-Pod using macros stored in the K3ꜱ/K3 transceiver. Macros are very simple to create and store. If you are not familiar with the process, a primer for creating macros to emulate operating the remaining K3ꜱ/K3 front panel switches and controls is provided in Appendix C (page 20).

 Some popular macros are provided below, ready to be stored in your K3S or K3.

Store the macros you wish to launch from the K-Pod in memory locations 1 through 16 on your K3ꜱ/K3 using the K3 Utility program as follows:

- Be sure you have K3 Utility Program rev. 1.16.3.11 or later installed on your personal computer (older versions will not allow you to store macros 9-16).
- Connect your K3ꜱ or K3 to your personal computer and run the K3 Utility Program.
- Click on the Command Tester/K3 Macros tab.
- In the window that pops up, click on the Edit Macros button
- Enter the macros and macro labels in the spaces provided. Note that your macro label cannot exceed seven characters including spaces.
- Click on Write to K3 to store the macros in the K3.

Macros are launched at the K-Pod using tap and hold presses of switches F1 through F8 just as you tap and hold front panel switches on your K3ꜱ/K3:

- Holding switches F1 through F8 for 1/2 second or more launches K3ꜱ/K3 macros 1 through 8.
- Tapping switches F1 through F8 (holding for less than 1/2 second) launches K3ꜱ/K3 macros 9 through 16.

The following sample macros are divided into groups popular for contesting, chasing DX and operating a DX-pedition station in CW or SSB modes. In addition are sample macros for RTTY and PSK operation and general macros that are useful in any operating environment. To use them, copy the desired macros into the K3 Utility Macro editor as described above. The suggested macro label may be changed as long as you observe the seven-character limit described above. The Command Sequence lists the commands included in each macro in the order they execute.

Contest Operation Macros

Transfer VFO B to VFO A Including Filter Selection and Preamp Setting,

Suggested Macro Label:	B>A
Command Sequence:	Exchange VFOA and VFO B frequencies. Copy VFO B to VFO A, Copy VFO B filter and preamp settings to VFO A.
Macro:	SWT11;SWT13;SWT11;

Enter Split Mode and Move the Transmit Frequency (VFO B) up 2 kHz

Suggested Macro Label:	SPLIT+2
Command Sequence:	Copy VFO A frequency to VFO B. Copy VFO A filter and preamp settings to VFO B. Move VFO B up 2 kHz. Clear any RIT setting. Clear any XIT setting. Lock the VFO A frequency.
Macro:	SWT13;SWT13;FT1;UPB5;RT0;XT0;LK1;

Work Stations Calling

Suggested Macro Label:	RUN
Command Sequence:	Copy VFO A frequency to VFO B. Copy VFO A filter and preamp settings to VFO B. Transmit on VFO A. Turn on RIT. Clear any XIT setting. Clear any RIT offset. Normalize any filter shift.
Macro:	SWT13;SWT13;FT0;RT1;XT0;RC;SWH58;

DXer Macros

Calling on CW up 2 kHz

Suggested Macro Label:	CW UP2
Command Sequence:	Set CW Mode. Set both VFOs on same frequency. Set filter and preamp settings the same for both VFOs. Enable split. Set xmit frequency up 2 kHz. Clear any RIT setting. Clear any XIT setting. Lock VFO A frequency. Toggle filter bandwidth.
Macro:	MD3;SWT13;SWT13;FT1;UPB5;RT0;XT0;LK1;SWT58;

Calling on CW up 5 kHz

Suggested Macro Label:	CW UP5
Command Sequence:	Set CW Mode. Set both VFOs on same frequency. Set filter and preamp settings the same for both VFOs. Enable split. Set xmit frequency up 5 kHz. Clear any RIT setting. Clear any XIT setting. Lock VFO A frequency. Toggle filter bandwidth.
Macro:	MD3;SWT13;SWT13;FT1;UPB7;RT0;XT0;LK1;SWT58;

Calling on SSB up 5 kHz

Suggested Macro Label:	SSB UP5
Command Sequence:	Set both VFOs on same frequency. Set filter and preamp settings the same for both VFOs. Enable split. Set xmit frequency up 5 kHz. Clear any RIT setting. Clear any XIT setting. Lock VFO A frequency. Toggle filter bandwidth. Set bandwidth to 2.1 kHz
Macro:	SWT13;SWT13;FT1;UPB7;RT0;XT0;LK1;SWT58;BW0210;

Calling on SSB up 10 kHz

Suggested Macro Label:	SSB UP10
Command Sequence:	Set both VFOs on same frequency. Set filter and preamp settings the same for both VFOs. Enable split. Set xmit frequency up 10 kHz. Clear any RIT setting. Clear any XIT setting. Lock VFO A frequency. Toggle filter bandwidth. Set bandwidth to 2.1 kHz
Macro:	SWT13;SWT13;FT1;UPB7;RT0;XT0;LK1;SWT58;BW0210;

DX-Pedition Macros

Receive 2 kHz above Xmit Frequency

Suggested Macro Label:	RX UP 2
Command Sequence:	Set both VFOs on same frequency. Set filter and preamp settings the same for both VFOs. Set receive frequency up 2 kHz. Clear any RIT setting. Clear any XIT setting. Lock VFO B (xmit) frequency.
Macro:	SWT13;SWT13;FT1;UP5;RT0;XT0;LK$1;

Receive 5 kHz Above Xmit Frequency

Suggested Macro Label:	RX UP 5
Command Sequence:	Set both VFOs on same frequency. Set filter and preamp settings the same for both VFOs. Set receive frequency up 5 kHz. Clear any RIT setting. Clear any XIT setting. Lock VFO B (xmit) frequency.
Macro:	SWT13;SWT13;FT1;UP7;RT0;XT0;LK$1;

Set VFO A on VFO B Frequency

Suggested Macro Label:	B = A
Command Sequence:	Transfer VFO B frequency to A .Copy VFO A frequency. Transfer VFO B frequency to A.
Macro:	SWT11;SWT13;SWT11;

Data Mode Macros

RTTY Setup

Suggested Macro Label:	RTTY
Command Sequence:	Switch to Data Mode A. Switch to RTTY. Enable dual passband.
Macro:	MD6;DT1;SWH29;
	NOTE: Sending this macro repeatedly toggles between dual passband and normal passband.

PSK Setup

Suggested Macro Label:	PSK
Command Sequence:	Switch to Data Mode A. Switch to PSK D. Set bandwidth to 250Hz. Turn on Fine tuning for ease of tuning. Turn on RIT so received station tuning can be adjusted without changing transmit frequency.
Macro:	MD6;DT3;IS 0600;BW0025;SWT49;RT1;

General Use Macros

Return Settings to Normal

Suggested Macro Label:	Cleanup
Command Sequence:	Transmit on VFO A. Clear any RIT setting. Clear any XIT setting. Unlink VFOs. Turn off squelch. Set both VFOs on same frequency. Set filter and preamp settings the same for both VFOs. Noise blanker off. Sub receiver or dual watch off. Both VFOs unlocked.
Macro:	FT0;RT0;XT0;LN0;SQ000;SWT13;SWT13;SWH58;NB0;NB$0;SB0; LK0;LK$0;

Enable Diversity Reception

Suggested Macro Label:	Divrsty
Command Sequence:	Clear split operation. Unlink VFOs. Unlock VFOs. Enable sub receiver. Clear any RIT setting.
Macro:	FT0;LK0;LK$0;SB1;DV1;RC;

Clear RIT

Suggested Macro Label:	RIT Clr
Command Sequence:	Clear RIT
Macro:	RC;

Controlling the K-Pod LEDs and Auxiliary Outputs

Two commands control the K-Pod LEDs and the Auxiliary Outputs at the K-Pod AUX OUT connector. These commands are added to the macros stored in the K3/K3s. The K3/K3s stores the state of all K-Pod LEDs and Auxiliary outputs so they are restored to their last condition after a power off/on cycle. So you need not send them again once set, although you may include them in your macros to be resent to ensure the LEDs or auxiliary outputs are in the desired state.

⚠ **When testing these commands by executing them directly in the K3 Utility Program Command Tester/K3 Macros window, a delay of up to 2 seconds may occur before the change is reflected at the K-Pod, instead of the about 200 ms normally experienced when the command is part of a macro executed by pressing a switch at the K-Pod.**

Place the command at the beginning of a macro string to be sure it is acted upon even though the K3 may be in the process of a lengthy operation such as a band change.

Controlling the K-Pod LEDs

By default LEDs 1, 2 and 3 indicate the rocker switch position, VFO A, VFO B and RIT/XIT respectively. LED 4 is always under user control.

KPLED4ON; turns LED 4 on, and KPLED4OFF; turns led 4 off.

The command KPLEDROFF; overrides control of LED's 1, 2 and 3 so you can assign them to other uses like LED 4. Note that you can reassign all three LEDs or leave all three controlled by the rocker switch; you cannot reassign only one or two of them.

Once you have overridden the rocker switch control of the LEDs with KPLEDROFF; you can control LEDs 1 through 3 with the command KPLEDnON; or KPLEDnOFF; where n is the number of the LED 1, 2 or 3.

Use the command KPLEDRON; to resume rocker switch control over LEDs 1, 2 and 3.

Controlling the K-Pod Auxiliary Outputs

Three auxiliary outputs are available at the ring connections on the K-Pod AUX OUT connector referenced to the shield (ground). Each output can handle up to 50 Vdc and sink up to 100 mA.

Output 1 is the tip connection, output 2 is the first ring behind the tip and Output 3 is the second ring. Each output is controlled independently

In the off state each output is a high impedance (open drain) circuit. When turned on each output is a closure to ground that can be used to activate a relay, etc.

To turn an output on, use the command KPOUTnON; where n is the output number 1, 2 or 3.

To turn an output off, use the command KPOUTnOFF; where n is the output number 1, 2 or 3.

Examples of Controlling the Auxiliary Outputs

1. **Control an external device such as an external antenna switch, amplifier, transverter, etc. with Auxiliary Output 1 and have a K-Pod LED light when it is on.**

   As described earlier, a macro in position 1 through 8 will be enabled by a tap on the corresponding K-Pod switch and a macro in positions 9 through 16 will be enabled by a hold of K-Pod switches 1 through 8. So you can have the same K-Pod switch turn the function on and off with a "tap" and off with a switch "hold". To do that the macros to turn the external device on and off must be assigned macro positions 1 and 8, 2 or 9, 3 and 10, and so on.

   Turn on the external device with Auxiliary Output 1 and light LED 4 by tapping F1 on the K-Pod:

   KPOUT1ON;KPLED4ON;

Turn off the external device and LED 4 by holding F1 on t he K-Pod:

KPOUT1OFF;KPLED4OFF:

If you want to use LEDs 1, 2 or 3, you must shut off control of the rocker switch of those LEDs, so the macros would be:

KPOUT1ON;KPLEDROFF;KPLEDnON;

And

KPOOUTOFF;KPLEDnOFF;

Where n is 1 through 3 corresponding to D1 through D3 on the K-Pod.

To restore normal operation of LEDs D1 through D3 with the rocker switch, send:

KPLEDRON;

2. **Turn the K3/K3S RIT function on and off at the K-Pod and have LED D4 on when RIT is active.**

The process is identical to Example 1 except instead of a command to turn an Auxiliary Output on and off, you use a command to activate RIT.

Turn RIT and LED 4 on,

RT1;KPLED4ON;

Turn RIT and LED 4 off,

RT0;KPLED4OFF;

You can put both commands on the same K-Pod switch and use other LEDs as described in Example 1.

Any function you control at the K3/K3S can be associated with an LED in the same way. Also, you can combine functions, controlling a function at the K3/K3S and an output, such as:

KPOUT1ON;RIT1;KPLED4ON;

To turn on RIT at the K3/K3S and activate Auxiliary Output 1. Similarly,

KPOUT1OFF;RIT0;KPLED4OFF;

To turn RIT and Auxiliary Output 1 off.

Controlling your PC from the K-Pod

Future firmware for the K-Pod that can be downloaded from www.elecraft.com will allow you to control your personal computer from the K-Pod through the USB interface. Your computer will recognize the K-Pod as a human interface device such as a keyboard or mouse.

Firmware Upgrades

New features and improvements are available to K-Pod owners via firmware upgrades as they become available..
Please visit the Elecraft K3 software page (www.elecraft.com) to obtain our free firmware download application, *K-Pod Utility*.
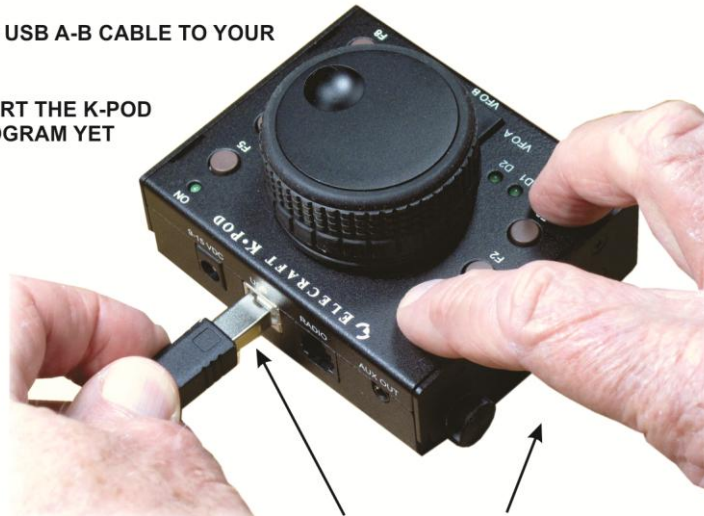
Connecting the K-Pod To your Computer

Be sure you have the K-Pod Utility program installed on your computer, but **<u>do not</u>** run the Utility Program until instructed to do so.

Figure 3. Connecting the K-Pod to Your Computer to Update Firmware.

When you insert the USB connector the green ON LED should light and LED D4 should blink (see Figure 4). D4 may blink slowly at first until your computer recognizes the K-Pod, then D4 will start blinking rapidly. The K-Pod is now ready to receive firmware. If D4 is on but not blinking, you did not have both the F1 and F4 switches depressed when you plugged in the USB cable.

Start the K-Pod Utility program on your computer. On the main screen near the center is Installed in K-Pod giving you the version of the firmware currently installed and under Available the version of any new firmware.

To update your firmware, click on Copy New Files from Elecraft. When the download is complete, click on Send New Firmware to K-Pod to update the K-Pod. When the download is complete, you can reconnect the K-Pod to your K3/K3s.
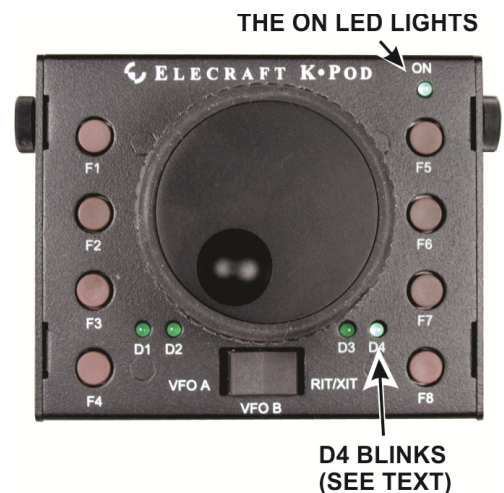

Figure 4. LED display when K-Pod is Communicating with Computer.

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. 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 (We want to make sure everyone succeeds!)

If necessary, you may return your Elecraft product to us for repair or alignment. (Note: We offer unlimited email and phone support to get your kit running, 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 turn around 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's 1-Year Limited Warranty

This warranty is effective as of the date of first consumer purchase (or if shipped from factory, date product is shipped to 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 to Elecraft at time of order to insure 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 Elecraft for warranty repair. Elecraft will pay shipping to return the repaired equipment to you by UPS ground service or equivalent to the continental USA and Canada. Alaska, Hawaii and outside U.S. and Canada actual return shipping cost paid by 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 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.

Appendix A: Modifying Earlier K3S and K3 Transceivers to Power the K-Pod through the Data Connector.

Introduction

The data connector on a K3S serial number 10787 (kit) or 10801 (factory assembled) or earlier cannot power the K-Pod through the data cable. This mod describes a simple change that will allow you to power the K-Pod through the data cable instead of using the separate dc power cable.

The modification involves soldering a resistor onto your K3 or K3S front panel board.

 If you would like Elecraft to install this modification for you, contact Elecraft technical support at k3support@elecraft.com or call 831-763-4211.

Parts and Tools Required

Two resistors are supplied with the kit so you can install the type that is easiest for you:

⚠ **Use only one of these resistors as described in the following procedure.**

Description	Elecraft Part Number
6.8 Ohm, 1/10 W SMD (0603 size).	E500661
6.8 Ohm, 1/8 W Leaded Resistor	E500393

You will need the following tools:

1. A temperature-controlled ESD-Safe soldering station and fine solder.

2. #0 and #1 size Phillips screwdrivers. To avoid damaging screws and nuts, *do not use a power screwdriver*. Use the screwdriver that best fits the screw in each step.

3. Blade screwdriver (see Figure 7).

4. Diagonal cutters.

5. Fine-tipped needle nose pliers or tweezers are handy for positioning small parts, especially the SMD.

Procedure

Removing the K3 or K3S Front Panel Assembly

⚠ **A grounded wrist strap and ESD dissipating mat are recommended whenever you work inside your K3 or K3S. Optionally, touch a bare metal ground frequently while working.**

☐ Disconnect power and all cables from your K3.

☐ Remove the three screws on the top lip of the front panel (see Figure 5)
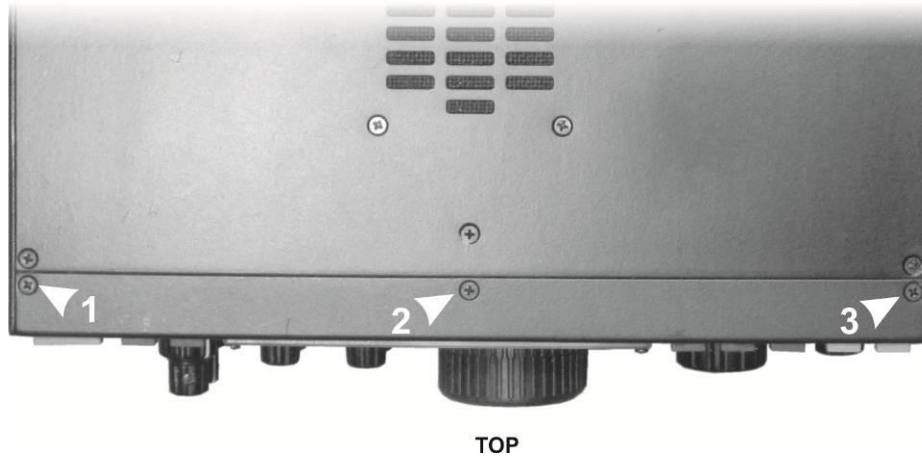

Figure 5. Removing the Top Front Panel Screws.

☐ Turn the K3/K3s over and remove the two screws on the bottom shown in Figure 6
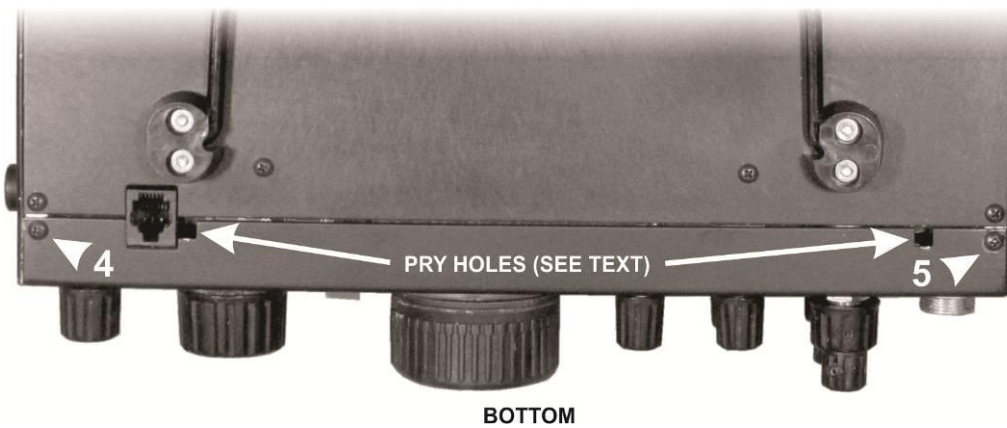
Figure 6. Removing the Bottom Front Panel Screws.

☐ Be sure all five screws have been removed, and then pry the front panel loose as shown in Figure 7. There are four multi-pin connectors between the front panel assembly and the main chassis. Work carefully, loosening one end a bit and then the other.

PART OF THE BOTTOM COVER REMOVED TO SHOW THE INSIDE . YOU DO NOT NEED TO REMOVE THE COVER.

PLACE A SCREWDRIVER IN THE NOTCH PROVIDED AT EACH END OF THE FRONT PANEL SO IT PRESSES AGAINST THE EDGE OF THE RF BOARD TO PRY THE FRONT PANEL ASSEMBLY LOOSE.

⚠ DO NOT INSERT THE SCREWDRIVER TOO DEEPLY OR YOU MAY DAMAGE COMPONENTS ON THE PC BOARD.

Figure 7. Disengaging the Front Panel Assembly.

Installing the Modification and Reassembling the Transceiver.
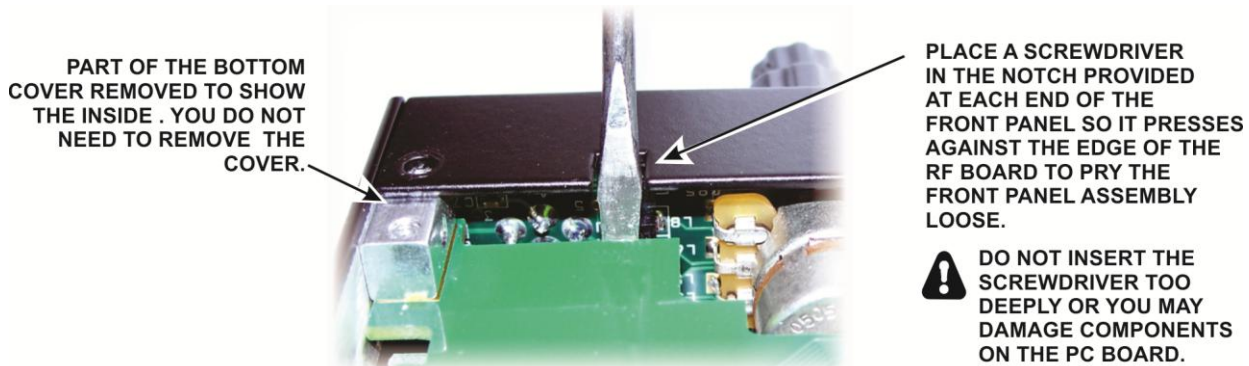
☐ Install either the leaded resistor or the SMD resistor across R82 on the back of the front panel assembly as shown in Figure 8. If installing the leaded resistor, position it as shown to avoid it interfering with the main RF board when you reassemble the K3/K3s.

> ⚠ **The existing resistor R82 is a 10k ohm resistor. The new resistor is 6.8 ohms, so it can be placed across the 10k ohm resistor with no impact on performance. However, if you have de-soldering tools and wish to do so, you can remove the existing R82 and replace it with the 6.8 ohm resistor supplied.**

⚠ ESD SENSITIVE!

SOLDER THE LEADED RESISTOR ACROSS R82   OR   SOLDER THE SMD RESISTOR ON TOP OF R82

⚠ INSTALL ONLY ONE RESISTOR.
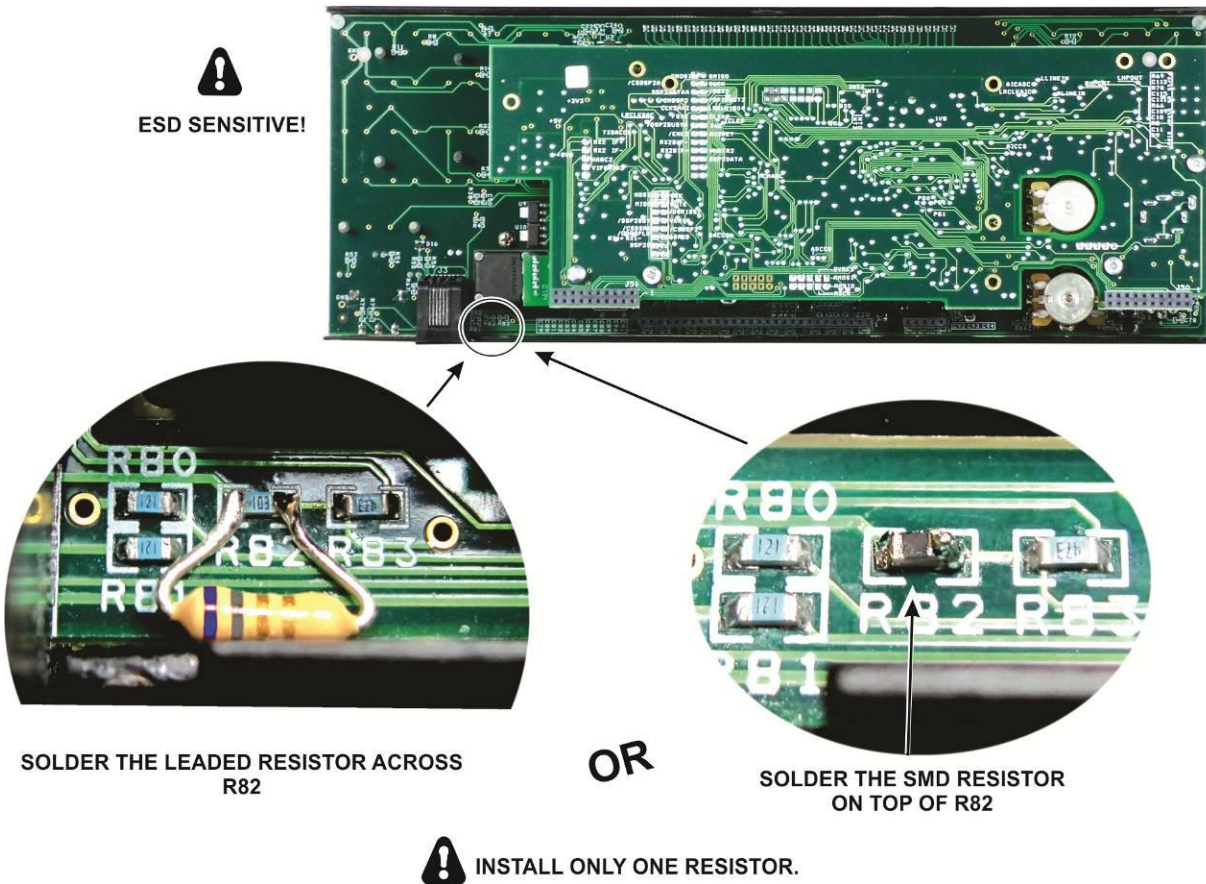
Figure 8. Installing Resistor Across R82.

☐ Inspect the installation carefully for solder bridges and, if the leaded resistor is used, to ensure the leads are not shorted to any nearby pads.

☐ Replace the front panel assembly. Be sure the two bottom connectors are aligned correctly before you press the front panel in place, and then replace all five screws. Note that the two round (pan) head screws go on the bottom and the three flat head screws go on the top.

That completes the modification.

Appendix B: Data Cable Wiring

You can make your own data cable if you need one with a different length than the cable supplied. The cable uses two 6P6C modular male connectors and requires 5 conductors.

⚠ **Do not use a common RJ12 cable unless you modify it to disconnect the wire to pin 1. If you disconnect the wire at only one end, be sure that end is plugged into your K3s or K3.**

MALE 6P6C CONNECTOR

PIN 6 →

← LATCH

PIN 1
NO CONNECTION
TO THIS PIN
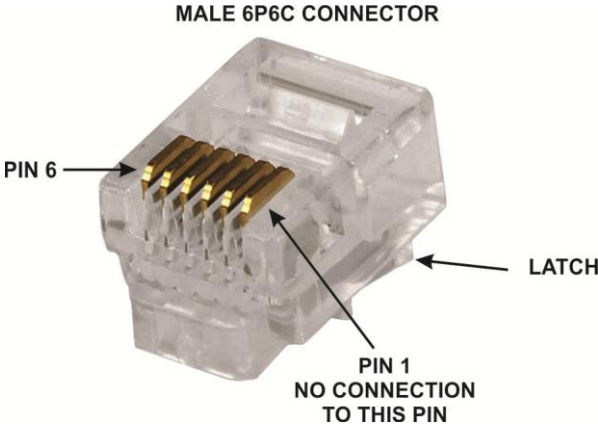
The connectors are wired pin-to- pin from one connector to the other as shown below:

MALE 6P6C CONNECTOR PIN	WIRING	MALE 6PC6 CONNECTOR PIN
1	NO CONNECTION	1
2	←——————→	2
3	←——————→	3
4	←——————→	4
5	←——————→	5
6	←——————→	6

Appendix C: K3S/K3 Macro Basics

A macro (short for "macroinstruction") allows you to perform multiple operations on our K3S or K3 with a single button press. Macros are key to controlling your K3S or K3 with the K-Pod.

For example, do the following:

- Connect your K3S or K3 to your personal computer and launch the K3 Utility Program. Be sure it is Version 1.16.6.25 or newer[1]. The version is shown at the top of the Utility program screen.

- With your K3S or K3 turned on and communicating with the Utility program, note which band is selected at the K3S or K3. It can be any band.

- At the Utility program click on the Command Tester/K3 Macros tab.

- In the text space near the top of the screen that opens, type: SWT09

- Now add a semicolon after the 9, and watch what your K3S or K3 does. If you entered it correctly your K3S or K3 just changed bands.

That is an example of a simple macro. You can make up longer instructions by entering a string of commands. You must enter a semicolon after each command to execute it before going on to the next command. The commands must be entered in the order you want them executed at your K3S or K3.

The macros are stored in the K3S/K3 memory and executed from the K-Pod as described under *Controlling the K3S/K3 from the K-Pod* in the K-Pod Owner's manual.

Switch Macros

Every switch on the K3S or K3 front panel is assigned a number. Since most switches respond differently to a tap or a hold, each switch macro begins with SWT for a "tap" command or SWH for a "hold" command. So every switch macro consists of either SWT or SWH followed by two digits (nn) and ends with a semicolon (;). Table 1 is a list of all the front panel switches including those actuated by pressing on the encoder knobs. The column "nn" is the number for each switch.

Table 1. K3S/K3 Switch Macro Numbers.

TAP	HOLD	nn	TAP	HOLD	nn	TAP	HOLD	nn
BAND V	VOX	09	FREQ ENT	SCAN	41	CWT (0)	TEXT DEC	40
BAND Λ	QSK	10	FINE	COARSE	49	AFX ◄┘	DATA MD	43
MODE V	ALT	17	RATE	LOCK	50	V►M	AF REC	15
MODE Λ	TEST	18	SUB	DIV	48	M►V	AF PLAY	23
MENU	CONFIG	14	A/B (1)	BSET	11	M1	M1 (repeat)	21
XMIT	TUNE	16	REV (2)	--	12	M2	M2 (repeat)	31
RX ANT	--	25	A ►B (3)	SPLIT	13	M3	M3 (repeat)	35
DISP	METER	08	PRE (4)	ATT	24	M4	M4 (repeat)	39
ATU TUNE	ATU	19	AGC (5)	OFF	27	REC	MSG BANK	37
ANT	ANT(name)	26	XFIL (6)	APF	29	RIT	PF1	45
SHIFT/LO	NORM	58	NB (7)	LEVEL	33	XIT	PF2	47
WIDTH/HI	I/II	59	NR (8)	ADJ	34	CLR	--	53
SPD/MIC	DELAY	57	NTCH (9)	MANUAL	32			
CMP/PWR	MON	56	SPOT (.)	PITCH	42			

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[1] You can download the latest K3 Utility Program from http://www.elecraft.com/software/elecraft_software_page.htm

Knob (Encoder) Macros

The knob on the K-Pod controls the VFO A, VFO B and OFS (RIT/XIT) knob functions. The following settings of the remaining knobs can be made as follows.

> ℹ For knobs with switches, use the macro commands described in Table 1 above to assign the desired function to the knob before adding a macro command to set the value.

Table 2. K3 Knob (Encoder) Macros.

KNOB FUNCTION	MACRO FORMAT	NOTES
SHIFT	IS∗nnnn	nnnn is the AF center frequency in Hz. Must be a space before the frequency where the ∗ is shown.
WIDTH	BWnnnn	nnnn is bandwidth in 10 Hz steps: 0000 to 9999 but may be range limited depending upon operating mode
SPEED	KSnnn	Keyer speed: nnn = 008 (8 wpm) to 050 (50 wpm)
MIC	MGnnn	Microphone Gain: 000 (lowest gain) to 060 (maximum gain).
CMP	CPnnn	Speech Compression:. 000 no compression to 040
PWR	PCnnn	Power (Requested) 000 to 012 (no KPA3 100 W enabled) 000 to 110 (KPA3 enabled) 000 to 1.5 mW (if transverter band with low level output enabled).
MON	MLnnn	Monitor Level: 000 (no output) to 060 (maximum)
AF	AGnnn	Main receiver audio gain: 000 (minimum) to 255 (maximum)
SUB	AG$nnn	Sub receiver audio gain: 000 (minimum) to 255 (maximum)
RF/SQL	RGnnn	Main receiver RF gain: 000 (min gain/-60 dB attenuation) to 250 (max gain, 2 dB attenuation).
	SQnnn	Main receiver squelch level: 000 to 029 (see note below).
	SQ$nnn	Sub receiver squelch level: 000 to 029 (see note below).
SUB	RG$nnn	Sub receiver RF gain: 000 (min gain/-60 dB attenuation) to 250 (max gain, 2 dB attenuation).

Note: Squelch control behavior depends upon K3S/K3 configuration menu settings. If *CONFIG:SQ MAIN* is set to a numeric value (000 to 029), then SQnnn applies to the main receiver and SQ$nnn applies to the sub receiver. If *CONFIG:SQ MAIN* is set to = *SUB POT*, an SQnnn or SQ$nnn command will apply to both receivers and a sub receiver RF gain command (RG$nnn) will control both receivers as well.

Other Macros

These are only the macro commands you will likely use with your K-Pod. A complete reference guide is available on line at http://www.elecraft.com/manual/K3S&K3&KX3&KX2%20Pgmrs%20Ref,%20F8.pdf