

# Elecraft K3-to-Yaesu Quadra (VL-1000) HF Amp Interconnections

08 January 2010

This document describes one method of interconnecting the K3 to the Yaesu Quadra (VL-1000) HF amp.

## **IMPORTANT WARNING REGARDING THE 8-PIN DIN (BAND DATA 1) CONNECTOR**

The 8-pin DIN plug required to mate with the Yaesu Quadra Band Data 1 connector is NOT a standard '270-degree' pin pattern device. It is a '262-degree' pin pattern device, commonly referred to as a 'horseshoe pattern' 8-pin DIN plug. If you attempt to forcibly insert a 270-degree pattern plug into the Quadra's Band Data 1 receptacle, chances are that you will break the socket! you MUST obtain a 262-degree 8-pin DIN plug for this application. See "CONNECTOR AVAILABILITY (SOURCES)" on page 2.

As shown, the illustration includes an ALC connection for those who feel the need to use this feature. The following is Elecraft's position with regard to using the K3's ALC with most QRO amplifiers: (quoting Wayne Burdick, N6KR)

**ALC activation can cause splatter, so we recommend NOT letting ALC control your power level. Instead, we recommend adjusting the K3's power output to a point just below where the amplifier's external ALC starts to activate.**

Quoting from the K3 Owner's Manual, rev.D2, Jan. 2009...

### **External ALC**

**⚠ External ALC should only be used to protect your amplifier during operation into a failed load, or during a prolonged overdrive condition. ALC should not be used as a way to clip or compress fast voice peaks, or as a primary means of amplifier or K3 power output control.**

**⚠ DO NOT set the K3's power level to maximum and adjust amp output using the amp's ALC control. This will result in splatter and key clicks. Instead, adjust the drive on each band so it's just below ALC activation level.**

### **Preparing the K3 for use with External ALC**

**⚠ You may need to modify the K3 to use external ALC, depending on its date of manufacture.** Please refer to our K3 Modifications web page. If you turn on external ALC without making necessary modifications, power will be reduced to a very low level during transmit.

### **External ALC Setup**

External ALC is set up using the CONFIG:EXT ALC menu entry. EXT ALC defaults to **OFF**. To turn it **ON**, tap [1]. 6 meter external ALC can be turned on/off separately from HF.

The *EXT ALC* menu entry provides a default ALC threshold of **-4.0V**, used by many amplifiers.

If you select **CMP/ALC** metering at the K3, external ALC activity is indicated by 8 or more bars. If you select **SWR/RF** metering, the **CMP/ALC** meter icons will flash during external ALC activity to make you aware of the condition.

Some experimentation may be required to determine the proper setting of the amplifier's ALC output control, if one is provided. Start with the control set for minimum ALC output. Then adjust the K3's power output such that the amplifier is just reaching its maximum level on voice peaks (in SSB mode) or peak CW power in CW mode.

Next, adjust the amplifier's ALC output control upward until ALC action just begins (or adjust the K3's ALC threshold with the *EXT ALC* menu entry). Finally, reduce the K3's drive power just slightly to provide some safety margin. The goal is to have no amplifier ALC action during normal operation. If you see an ALC indication at the K3 or the amplifier, reduce the K3's power output.

### ***Per-Band Power Control***

If the *CONFIG:PWR SET* menu parameter is set to **NOR**, power output on all bands follows the present setting of **PWR**. If you change *PWR SET* to *PER-BAND*, the power level will be saved independently on each band. This is especially useful with transverters and external amplifiers, or for those who use QRP levels on one band and QRO on another.

When per-band power control is used with an external amplifier, you can adjust the drive ideally on each band to prevent external ALC activation during normal operation.

### ***TUNE Power Level***

If *CONFIG:TUN PWR* is set to **NOR**, power output during [**TUNE**] will follow the present setting of **PWR**. If you change the *TUN PWR* parameter to a fixed power level, that level will be used during **TUNE**, whether or not you've selected per-band power control (see above).

### ***Connector Availability (Sources)***

The following connectors required for fabricating the interface cable(s) can be obtained from Mouser Electronics:

(1) RCA Phono Plug PHONO BLK INSULATOR	Mouser # 171-0530
(1) RCA Phono Plug PHONO RED INSULATOR	Mouser # 17PP051
(1) Phone Plug PHONE 1/4 MONO BLACK	Mouser # 171-1204-EX
(1) D-Submin Conn 25-Pin Male Solder Cup	Mouser # 523-G17S2510110EU
(1) D-Submin Conn 15-Pin High-Density Male Solder Cup	Mouser # 523-17EHD-015P-AA000

As of 07 JAN 2010, a fully WIRED 8-Pin 262-degree DIN plug is available from Larry Riley, W8MIS, at: <http://rileysaccessories.tripod.com/> for \$10.00 postpaid, check for availability.

A bare (unwired) 8-Pin 262-degree pin pattern DIN Plug, may also be available from one or more of the following sources who, as of this writing (07 JUL 2009) indicated that they stock the device:

Yaesu Parts, and Yaesu dealers

The RF Connection, <http://www.therfc.com/dinconn.htm>

Show Me Cables, <http://www.showmecables.com/DIN-Plug.html>

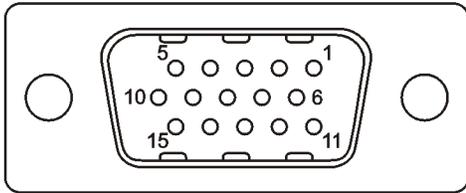
NKC Electronics, <http://www.nkcelectronics.com/8-pin-262-degree-circular-din-conne.html>

Universal Radio, <http://www.universal-radio.com/catalog/parts/dinconn.html>

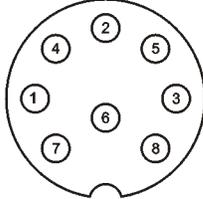
# K3-to-Yaesu Quadra HF Amp Inter-wiring

NØSS 23 August 2009

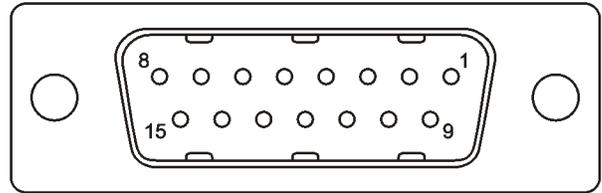
K3 ACC  
DEMA15P (Hi-Density)  
(MALE)



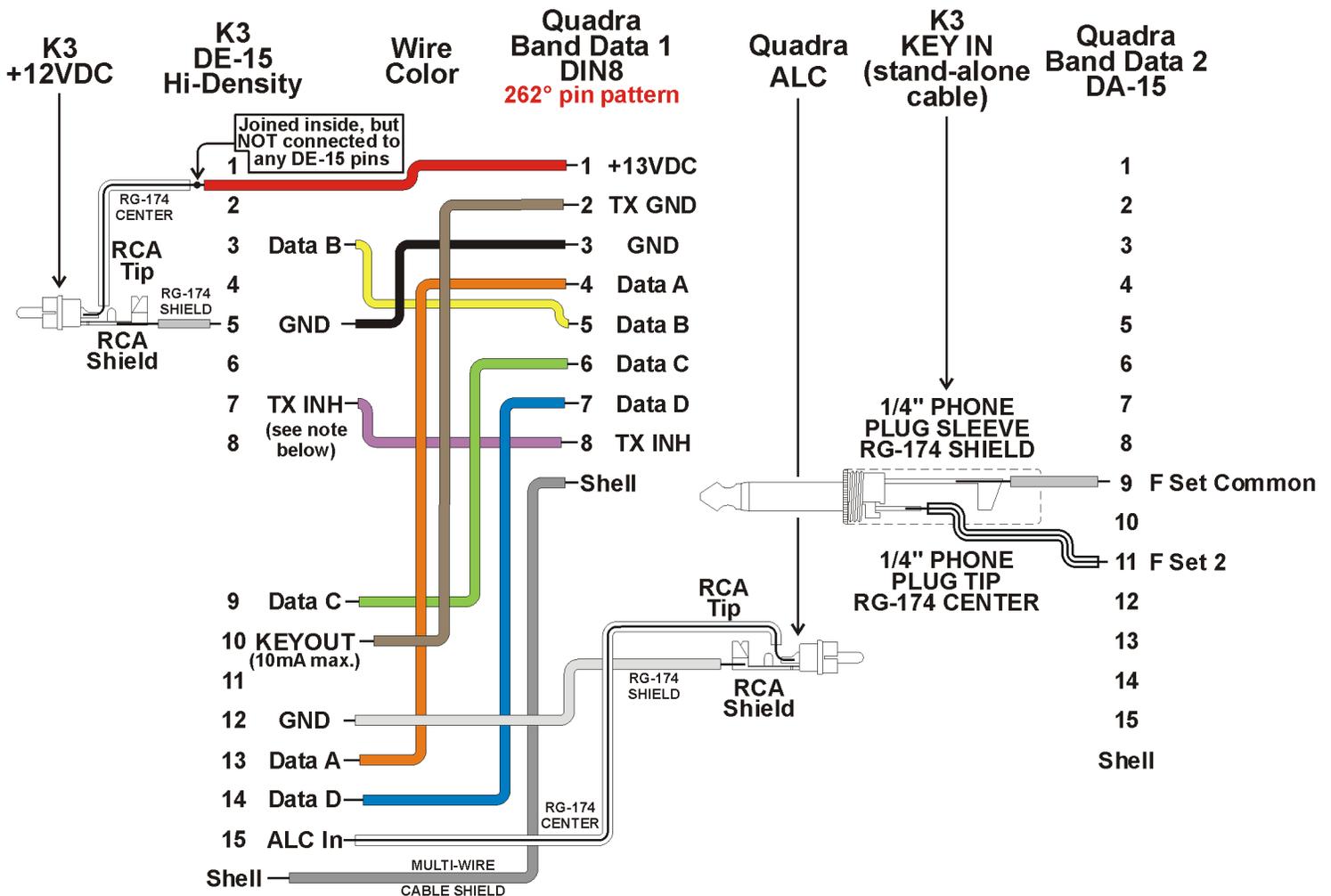
Quadra Band Data 1  
DIN8  
(262° pin pattern)  
(MALE)



Quadra Band Data 2  
DA15P  
(MALE)



ALL CONNECTORS, AS VIEWED FROM THE REAR OF THE CONNECTOR



## IMPORTANT NOTE REGARDING THE 8-PIN DIN PLUG & TX INHIBIT

The 8-pin DIN plug **REQUIRED** for this connection is **NOT** a 'standard' pin configuration. It is a **262-degree pin pattern**, commonly referred to as a **'horseshoe pattern'** pin pattern DIN plug. If you attempt to use the more commonly available 270-degree pin patterned 8-pin DIN plug, you will risk breaking the socket in the Quadra when you have to force the out-of-pattern pins into the holes.

**TX INHibit** is often NOT REQUIRED in many situations, so inclusion of this control line is left up to the user.

## Elecraft K3 to Yaesu Quadra HF Amp Interconnections (see accompanying illustration for specific wiring)

