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Extreme QRPp using the KX2, KX3, K3, or K3S

Wayne Burdick, N6KR

Power output on the KX2, KX3, K3 and K3S can be set as low as 0.1 W directly using the PWR control. However, you can actually set power output to much lower levels (< 1 milliwatt), with fine control, by turning off ALC in the menu and adjusting the drive level manually.

Here's the recommended procedure for accurately setting power to levels below 0.1 watt:

1. Connect an external milliwatt meter between the transceiver and the antenna or dummy load. If you don't have such a meter, you can alternatively connect a dummy load (such as the Elecraft DL2) then use an oscilloscope or an RF voltmeter. (The DL2 includes a rectifier so you can just use a DC voltmeter. The manual for the DL2 provides a translation from DC volts to power level.)
2. For most accurate results, bypass the ATU. This is done in the menu on the KX2 and KX3. The K3/K3S has an ATU switch function on the front panel for this purpose.
3. Start with PWR set to 0.1 W and verify that you hit about this level on the external meter. Hold TUNE to generate a continuous carrier. (This automatically switches to CW mode temporarily, even if you're using a different mode.) Then exit TUNE by tapping XMIT.

Note: The 0.1-W level is not well-calibrated at the rig's internal wattmeter, because this only forward-biases the rig's SWR detector diodes by a small amount. Also, the SWR (shown on VFO A) will appear as "--", because reflected power will be too low to accurately calculate it.

4. Go into the menu and turn off TX ALC. This is done using the TX GAIN menu entry on the KX2 (page 41 of the manual) or KX3 (page 49). Use the CONFIG:TX ALC menu entry on the K3 or K3S (approx. page 66).

Note: On all of the rigs, the TECH MD menu entry must be set to ON in order to see the TX GAIN or TX ALC menu entries. This is a precaution to make sure such menu settings are not changed unintentionally. On the KX2 and KX3, you also need to UNLOCK the ALC on/off feature as explained in the manual (MENU section).

5. With ALC turned OFF, the PWR control now directly controls the transmit drive level in fine increments. I just tested my lab KX2 and found I could set the power smoothly down to as low as about 1/2 milliwatt.

When you have ALC turned off, the PWR display (on VFO B) will include an asterisk (*) as a reminder. It will not show actual power level for reasons described above. An external metering method will be needed to dial in the desired level.

News & Updates

Steve, wGOAT, Shares an Adventure...and a Great Photo!

Some Ham Radio OPs prefer to sit in their warm basement to operate their gear while watching NFL playoffs ...but then there's Steve/K7PX, who instead likes to play radio at 14,110' in sub zero temps (-20F) in 20-40 knot winds (where you're barely able to stand up much less breath!) making contacts for Summits on the Air?

"Fun" is in the eye of the beholder - someone once said.



Photo of Steve/K7PX taken by Steve, wGOAT.

Steve/K7PX

Pikes Peak January 28, 2018

Equipment: KX2 (ATU) to 85' EF-wire + 25'CP
sloping 15' above summit rock to OP
SFI:65 SN:0 24-QSOs 30m/40m!

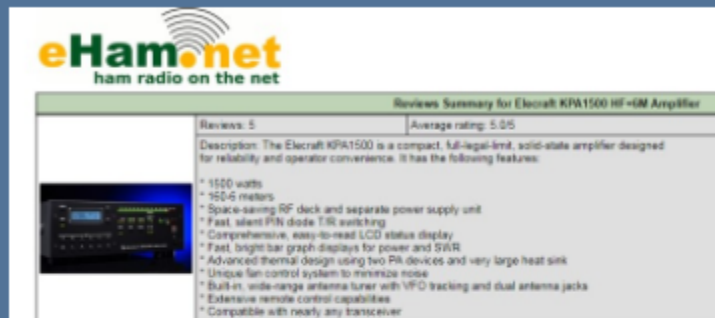
Trade Show Calendar

Below is a list of trade shows that we're planning to attend. We'll let you know if we add any more shows to our list. If you're attending any of these events, come on by and say hello!

- March 31 - RARSfest, Raleigh, NC.
- April 19-22 - International DX Convention, Visalia, CA.
- May 18-20 - Dayton Hamvention, Xenia, OH.
- June 1-3 - SeaPac, Seaside, OR.
- June 1-3 - Ham Radio, Friedrichshaven, Germany
- June 8-10 - Hamcon, Plano, TX.
- August 18-19 - Huntsville Hamfest, Huntsville, AL.
- Sept 7-9 - Boxboro Hamfest, Boxborough, MA
- Oct 19-21 - Pacificon, San Ramon, CA.

KPA1500

We're receiving a lot of positive feedback from KPA1500 owners! There are also reviews posted on [eHam](#)...check them out [here](#).



eHam.net
ham radio on the net

Reviews Summary for Elecraft KPA1500 HF+6M Amplifier

Reviews: 5 | Average rating: 5.05

Description: The Elecraft KPA1500 is a compact, 100-watt, solid-state amplifier designed for reliability and operator convenience. It has the following features:

- 1500 watts
- 100-6 meters
- Space-saving RF deck and separate power supply unit
- Fast, silent PTT dots T/R switching
- Comprehensive, easy-to-read LCD status display
- Fast, bright bar graph displays for power and SWR
- Advanced thermal design using two Peltier devices and very large heat sink
- Unique fan control system to minimize noise
- Built-in, wide-range antenna tuner with VFO tracking and dual antenna jacks
- Extensive remote control capabilities
- Compatible with nearly any transceiver

We're continuing to ship orders from August 24th - Yes, there are a lot of them! We did experience a short shipping delay due to shortage of a couple of parts. That being said, our production is ramping up, but it's still hard to give exact delivery estimates due to the large number of orders.

Please note that KPA1500 orders were received simultaneously via the website, emails, mail, trade shows and phone calls, so order numbers will not indicate exactly where you are in the delivery queue. We also received a very large number of KPA1500 orders each day during the first several weeks, so orders with the same order date will ship spread over a large number of days. Please also check our [Shipping Status Page](#) for the latest updates.

We will email everyone who ordered a KPA1500 to reconfirm orders and shipping addresses prior to shipping. Please respond by email that information is correct or provide us with correct shipping address and other details. Learn more about [KPA1500 here](#).

The Elecraft KX2

Still Redefining “Ultraportable”

When we designed the KX2, we had two clear-cut goals: (1) make the world’s smallest all-HF-band/all-mode radio, and (2) don’t compromise on features. It had to feel and perform like a desk-top radio, yet fit in the palm of your hand.

A recently announced competing product only serves to highlight, again, how successfully our newest transceiver has met these requirements.

Here’s how the KX2 stacks up against this closest competitor:

Half the size...

The KX2 occupies just 24 cubic inches. With dimensions about that of a medium-sized HT, the KX2 is truly pocket-sized.

Half the weight...

At just 13 ounces, the KX2 typically saves hikers or backpackers over a pound of total weight. The light weight of the KX2 is also compatible with extended hand-held operation.

Twice the power output...

The KX2 puts out up to 12 watts on 80-20 m and 10 watts on 17-10 m. This is roughly twice that of other QRP portables. The KX2 also includes highly effective speech compression. Taken together, these advantages translate to more QSOs, especially in difficult conditions.

50% more battery power...

The internal battery on typical competing radios is rated at about 18 watt-hours. The KX2’s internal battery has much greater capacity -- 24 watt-hours. This extra 50% allows you to operate longer between recharges.

One third the current drain...

Receive-mode current drain of the KX2 averages 150 mA. Other all-band portables, at about 400 mA, consume nearly three times more. The KX2’s lower current, combined with the larger battery size, works out to over 4 times longer operating time RX-only, or 2 to 3 times longer for typical transceive operation.

Built-in ATU...

The KX2 has a wide-range internal ATU option that allows multi-band use of ad-hoc field antennas, whips, etc. There’s no need to carry a separate antenna tuner, loading coils, or even coax: just attach a wire or collapsible whip directly to the radio, and let the ATU do the work.



DSP..

Unlike legacy QRP rigs, the KX2 includes digital signal processing (32-bit I.F. DSP). This provides a wide range of features typically found only on desktop radios, including: adjustable noise reduction and noise blanking, auto-notch, variable filter bandwidth/shift, audio peaking filter for CW, full stereo receive, and RX/TX EQ. You can even listen on both VFO A and B frequencies at the same time (dual watch).

Built-in data modes...

The KX2 offers built-in PSK31, PSK63, RTTY, and CW encode/decode, with text displayed on its alphanumeric LCD. CW and data-mode QSOs can even be logged internally, then sent to a PC when you return from a field outing. A computer can be connected to the KX2 via the supplied USB cable (for text display/keyboard) or via the headphone/mic jacks (for FT8 and other audio-based data modes).

Built-in mic, keyer paddle, and tilt stand...

You can use either an external mic (MH4) or the KX2's internal mic. The internal mic is positioned optimally for HT-style operation. In CW and DATA modes, you can use an external paddle, or directly attach our KXPD2, which weighs only one ounce and uses the rig itself as the base. For table-top use, the KX2 features a fold-out tilt-stand. This creates a 3-point mount that also works well on rough surfaces (ground, rocks, etc.).

Large, easy-to-read display...

The KX2's display is five times larger than tiny display on most field-oriented rigs,



with separate VFO A and B fields, S/RF-meter and DSP passband graphic, icons showing operating state, and alphanumeric text capability. In addition, the KX2's LCD is transreflective; it is highly readable in direct sunlight. The backlight is highly efficient and can be turned off to further increase battery life.

The KX2 starts at \$769, factory assembled. For additional details, visit [KX2 on our website](#).

A few notes on the KX3

The KX3 is a bit larger than the KX2, though still smaller/lighter than competing all-band portables. It includes the following additional features: 160 and 6 meters; 2 or 4 meter optional internal transverter; nearly twice as many direct controls; and RX I/Q outputs for use with our PX3 panadapter or computer sound cards. The KX3 is available factory assembled or as a no-soldering kit. [See KX3 details here](#).



Our Most Popular K3S Configurations Packaged to Fit Your Operating Style!



*Monthly specials not valid in combination with any other discounts. Offer ends March 31, 2018. Subject to change.

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