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What's Happening At Elecraft - K4 Shipping Update

By Eric Swartz

At Elecraft, like many of you, we are in our 10th week of shelter in place. This has been tough on all of us. Back on March 16th, when the initial California state and local orders were issued with an April 11 estimated end date, we suspected that it would last longer than that, but not as long as this. Most of our production team had to be furloughed immediately, with a few working from home. Most of our sales, support and the K4 engineering team have also been working from home. We allowed a minimal skeleton staff on site. (Less than you can count on one hand, with each operating alone in large separate areas.). We've been able to ship a subset of our existing radios and accessories from finished goods stock, which has kept cash flow coming in. We thank you for the continuing orders!

We have also spent this time totally reorganizing our sales, operations, production, and test areas for proper social distancing along with extreme cleaning and health screening procedures as per the new local and national COVID-19 guidelines for manufacturers. (Wearing masks at all times, Daily health screening upon entry to the building, additional spacing and partitions between workstations and 'you touch it, you clean it' procedures, etc.) This is a required change as per our local and State health departments.

Many of our local sub-contractors (sheet metal fabrication, circuit board assembly, etc.) have also been impacted by

shelter in place orders. Over the coming weeks, as the State and local health authorities slowly allow more activity, we should be able to get better delivery estimates from them as they are able to ramp back up. Like us, they are eager to get back online. National and international parts suppliers have been similarly impacted.

So, what does this mean for first K4 shipments? Prior to the Covid-19 pandemic, we were projecting first K4 deliveries beginning sometime in the April - May window this year. Obviously, the pandemic has thrown out those estimates. Based on a gradual reopening in California and other areas, our current feedback from suppliers, and taking into account unexpected delays, shortages, last-minute engineering changes, etc., my estimate is that the first K4 shipments will begin somewhere in a window of late July through the end of August 2020. We'll keep you informed as we get better information.



As a side note, I'd like to thank everyone who has ordered a K4 for your support. We anticipated seeing cancellations during this pandemic delay, but we have received very few. Our K4 order backlog has continued to increase over the past 9 weeks. Wow! You, as our supporters and customers, have continued to energize and amaze us as we have created new products for you these past 21 years. Thank you.

Also, as with all our products, our engineering team keeps designing new features during the product's lifetime. They certainly have not been idle on the K4 during the shelter in place order. (Our DSP S/W defined radio architecture allows us to continually give you a 'new' radio with each new sw release.

Keep an ear out for us on the air too. While making a few short test transmissions with my K4 this morning, I ended up in a very nice QSO on 20M SSB! If you hear me, or others on our team, please say "hello." We may be on a K4!

We hope you, your family and friends stay safe and healthy.

DPOTA (n): Deserted Parks on the Air

(This activity is not to be confused with anticovidespotism, an emerging movement to thwart lockdowns.)

By Wayne Burdick, N6KR

In the midst of all the fine Spring weather we're having, are you getting out, in both senses of the phrase? I'm finding no shortage of places to operate from. In northern California, at least, the trick is to follow obscure, little-used roads that lead to alternative entrances to parks, BLM land, etc. (Hints: Tunitas Creek road. Route 130 on the east side of Mt. Hamilton. There are many others.)

Happy adventuring! Stay 2 meters from other operators, keep a bandana handy for emergencies, and don't forget your KX-line radio :)

News & Updates

2020 Trade Show Schedule

Here's a list of trade shows that we plan on attending in 2020. If you're attending any of these events, come on by and say hello!

- October 16-18 - Pacificon, San Ramon, CA
- November 6-8 - Northeast HamXposition, Marlborough, MA

Subject to Change.

K4 Update

High-Performance Direct Sampling SDR



K4 Update

Wayne Burdick, N6KR

Greetings from locked-down California.... I hope everyone, near and far, is staying safe! I thought I'd take a break from playing with the K4 and tweaking firmware to give everyone a status report from the engineering side. (Eric has been keeping everyone informed about how Elecraft has been affected by the pandemic more generally.)

These musings are in no particular order. I hope they help satisfy those who recently posted with questions, info-cravings, etc.

Reference Oscillator

The K4 includes a stable internal TXCO, standard, as well as the ability to lock to an external 10 MHz reference. We just completed a round of testing on this feature.

The internal TCXO is accurate to within +/- .28 ppm with no calibration and no external reference connected. There's a menu entry for dialing this in as tight as +/- .02 PPM (+/- 1 Hz at 50 MHz). Connecting an external reference will hold it even closer, and of course keep it there over an even wider temperature range.

Panadapter Controls

Thanks to the efforts of our [working-at-home] software team, the panadapter controls just keep getting better. When you tap DISPLAY, you're presented with 14 easy to use display functions. But we took things a step further by allowing you to specify whether to adjust the current parameter on LCD, EXT, or both (when an external monitor is attached), and on main, sub, or both (when in dual-display mode). You can independently specify single or dual-pan for LCD and external monitor. For example, you could have dual-Pan on a large HDMI monitor, while setting the LCD to monitor just main or sub RX.

Stereo Audio

Receive audio provides independent left and right channels for both headphones and external speakers. When used in single-receive mode, this allows you to use simulated stereo or "pitch mapping"-- both very effective at relieving listening fatigue. I've been using this a lot in DXing and QRP work. Full stereo also comes into play in diversity mode, when listening to pileups, or just monitoring two separate bands. Even with a basic K4, the two receivers can be set to any two bands, and you can operate cross-band split. The K4D adds a second set of band-pass filters and a second A-to-D converter to greatly improve out-of-band rejection when monitoring different bands.

Receive Antenna Controls

We recently made some improvements in this area. In addition to main RX ant and sub RX ant selection switches, there are now separate icons showing which antennas are in use: one for main RX, one for sub RX, and one for TX antenna. Main and sub receivers default to the TX antenna, but you can select any of the antenna jacks for assignment to each receiver independently. This updates the icons accordingly. You can also assign names to antenna ports using a pop-up alphanumeric keyboard. On my K4, I have names for the three antennas connected to my KAT4 ATU, as well as "SIG GEN" for the RX ANT IN 1 jack and "LOOP" for RX ANT IN 2.

RF Gain Controls

The ATTN switch brings up a selection tool that allows you to turn the attenuator on/off and select attenuation from 0 to 21 dB in 3-dB steps. (As with all receive and transmit controls, these settings are stored per-band and per-receiver.) You can also dial in per-receiver RF GAIN (0 to -60 dB, with digital readout) and preamp setting (off/pre1/pre2). All gain settings are now taken into account when calculating S-meter and panadapter reference levels.

Miscellaneous Controls

Compared to the K3S, the K4 has numerous additional controls, resulting in a lot less use of the menu. Each receiver has a collection of per-mode settings (tap MAIN RX or SUB RX, respectively), as does the transmitter (tap the TX button). There are dedicated switches for TUNE LP (user-specified low-power TUNE setting), REM ANT (for future control of remote antenna switches, rotators, etc.), VFO B>A (in addition to the usual A>B), AUTO spot (in addition to SPOT), PF1-PF4 (plus another 14 user functions, Fn 1-14, via a touch function), and a separate audio BALance knob function, the behavior of which could be adapted to various operator needs in the future.

Touch Controls

We're sure you'll find, as we have, that the K4's touch screen interface is fast and convenient to use. To capitalize on this, we've been adding new touch features. To highlight a few: Tapping the RIT/XIT offset window turns RIT on/off (per receiver). Tapping the antenna icons brings up their selection widgets, with planned custom behavior for quick A/B testing. The Status Area of the LCD normally shows time and date, but you can tap it to select from various alternatives, including system parameters (like supply voltage/current) or per-receiver absolute signal levels in dBm. Tapping the per-RX filter graphics switches between per-mode FL1/2/3 settings.

New K4 feature: Dual APF Bandwidths (Audio Peaking Filter)

CW ops, especially those doing weak-signal DXing, contesting, and DXpedition work, will now benefit from a second APF filter bandwidth in the K4. The original bandwidth is 30 Hz, which is good for code speeds up to about 30 WPM. The second bandwidth selection is 50 Hz, which allows copy up to about 50 WPM.

On the air, I'm finding this a great addition to the receiver toolbox, especially for close-spaced, fast CW contests. Adjacent signals just seem to disappear.

APF has a narrow bandwidth only for the first several dB from its peak, then flares wider below that. This can dramatically improve S/N for weak signals right at the noise floor: it brings up the signal without "boxing up" band noise into a very narrow bandwidth. That's what causes ringing with "brick wall" filters.

PSK31, RTTY, and CW -- All Conversational Modes, All Alive and Kickin'

Recently I've been testing and enhancing the K4's built-in text decode/encode. This feature is very convenient on the K4, with multiple lines of received text, and the ability to use a keyboard (wired or wireless) at any of the three USB-A jacks. You can also transmit in any of these modes by sending CW with the keyer paddle.

At present the K4 can handle PSK31, RTTY, and CW, as on our other transceivers. We hope to add other in-box text modes in the future.

I was happy to discover lots of activity in all three modes over the past week. PSK31 -- which provides below-the-noise-floor copy -- is found primarily on 20 meters from 14070-14073, and I've also heard it on 80, 40, and 15 meters. RTTY is common (especially during weekend contests) around 14080-14090 or higher. And of course there's CW at all times of the day or night. Weekly CWT contests are a big draw these days.

Each of these modes has its idiosyncrasies. But one thing they all have in common is that they're conversational -- you can carry on real QSOs. They can also be used in contests, with no "canned" limitations on exchanges as with heavily automated data modes.

I encourage everyone to give these modes a try. If you have a K3, K3S, KX2, or KX3, you can use all three. Decoded text is scrolled across the VFO B display as signals are tuned in. Refer to your owner's manual for further details.

4 S-meter characteristics

The S-meters in the K4 have been upgraded from the K3/K3S:

- Separate, color-coded S-meters for VFO A and B
- Higher resolution (twice as many bars)
- More accurate calibration, maintained over a wider range of input signals

The two S-meters are calibrated at S9 = -73 dBm (50 uV). As you change receiver front-end gain settings (preamp off/1/2, attenuator 0 to 21 dB) the S-meter level remains virtually constant. Calibration also takes into account the main/sub receiver -3 dB splitters (if engaged) and any slight variations in per-band BPF loss. The upshot is that you get a very accurate signal level indication. (As you crank up your signal generator from -73 to -13, the S-meters will read precisely S9+60.)

In addition to the S-meters, the K4 provides a convenient way to see signal levels directly in dB (relative). Typically you'd zero the reference level on band noise, then tune to a signal to see the dB increase (S+N / N). This is useful for comparison tests. The numeric values for dB, both main and sub, are shown in the status area of the display, so they don't overwrite VFO B as on the K3/K3S.

In conjunction with these changes, we're updating the "SMH" remote-control command (high-resolution S-meter read) so that it reads directly in dBm.

The S-meters can also be tapped to show the "mini-pan," the K4's high-resolution tuning aid.

I have to admit that it's frustrating to be sequestered at home, making only the occasional quick trip to the office or to visit coworkers. Work, like life, has become more challenging for all of us. But the good news for everyone waiting for a K4 is that a handful of testers are using them every day, so that when you do get your hands on one, it'll be rock-solid.

Believe me, we're just as anxious for that day to arrive as you are. Maybe more :)

Listen for us on the air - We'll likely be on a K4!