

What's New at Dayton 2011?

A summary of some of the new products that made their first public appearance at Hamvention®.

HF Transceivers

One of the most attention-getting items at Hamvention was the new Elecraft KX-3 transceiver. The KX-3 is a 10 W, 160 to 6 meter rig with the option to add an external 100 W amplifier. The receiver is direct conversion, software-defined, with an I/Q output. Elecraft did not announce a selling price, but stated that production was scheduled to begin by the end of this year.



Elecraft KX-3 transceiver.

KX-3 Features and Specifications:

General

- 160-6 meter ham bands; general coverage from 1.6-30 MHz
- Current drain as low as 150 mA in receive mode
- High-performance 32-bit floating-point DSP
- Built-in PSK/TTY decode/encoder allows data mode operation without a PC; transmit in data modes using CW keyer paddle
- Low-noise synthesizer with 1-Hz tuning resolution
- Firmware updateable via provided application software
- All modes: SSB, CW, Data (four sub-modes), AM, FM
- Dimensions: 3.4 × 7.4 × 1.7 inches
- Weight: 18 oz

Receiver

- Quadrature down-sampling mixer compatible with PC-based SDR (software-defined radio) applications
- Receiver I/Q outputs for use with PC soundcard
- Narrow roofing filter option with four bandwidths (500 Hz, 1500 Hz, 2700 Hz, 3800 Hz)
- Switchable preamp (2 levels) and attenuator (2 levels)
- 8-band receive audio equalizer
- Dual watch over +/-10 kHz range; uses applicable roofing filter
- Passband Tuning (PBT) for shift/width/hicut/locut; roofing filters automatically track DSP filter settings
- Automatic and manual notch filtering; adjustable noise reduction and noise blanking; binaural audio effects for enhanced receive
- Center-tuning indicator for CW and data modes
- Built-in speaker; stereo jack for headphones/external speakers

Transmitter

- Adjustable output, 0.1 to 10 W+ (100 W+ with KXPA100 amp)
- SWR- and temperature-protected final amplifier stage
- Optional MH3 microphone with PTT and UP/DOWN functions
- Optional attached keyer paddle with spacing adjustment
- Switchable PA output impedance for efficient 5 W or 10 W use
- PIN-diode T-R switching – no relays
- DSP speech processing
- 8 band equalizer tailors passband to your voice and microphone

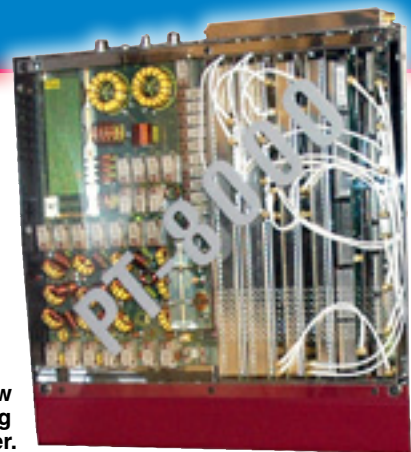
Other Features

- Built-in digital voice recorder (DVR) with two message buffers
- Internal CW keyer with 8-50 WPM range
- Six CW/DATA message memories
- 100 general-purpose memories store VFO A/B, modes, etc.
- Accessory/RS232 port for computer control using supplied cable
- Full remote-control command set
- One-click firmware upgrades via the Web (with free PC software)

HF Transceivers

Hilberling GmbH was at Dayton again this year, but with a new version of their PT-8000 160 through 6 meter transceiver. They anticipate making this high-end rig available in the US before the end of this year, but no retail price was available at press time.

An inside view of the Hilberling PT-8000 transceiver.



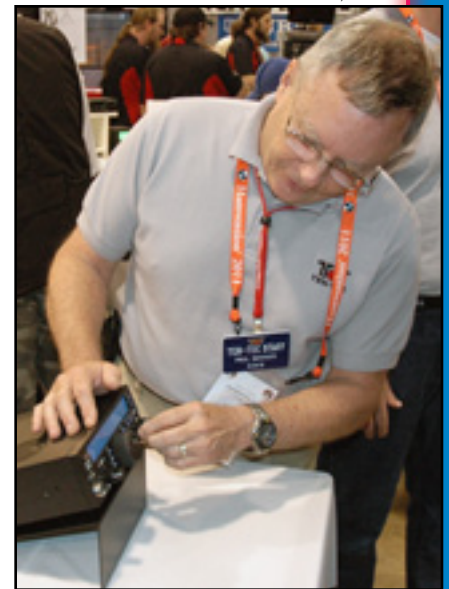
STEVE FORD, WB8IMY

Although it appeared in the marketplace several months beforehand, Dayton was the first chance many had to glimpse the new **Ten-Tec Model 599 Eagle** transceiver. This 160 through 6 meter rig is compact enough for mobile operation, yet packs all the necessary features for home use. The Eagle sells for \$1795; it is \$1995 if you add an automatic antenna tuner.

Ten-Tec Eagle Specifications:

- Microphone Connector: 8-Pin
- Headphone Jack: ¼-inch stereo; accepts mono or stereo plug.
- External CW Key Jack: ⅛-inch stereo
- External Speaker Jack: ⅛-inch mono
- Aux DC Output Connector: RCA (2)
- Frequency Range TX: Ham Bands Only (160-6 meters)
- ACC DIN Connector: 8 PIN DIN Connector - Line In, Line Out, Aux PTT, Ext Key, Clock/Data/Enable, Ground
- DC Power Connector: Power Pole
- Fuse: Automotive Blade Style Fuse, 25 A, 32 V
- Frequency Range RX: 500 kHz to 30 MHz and 50 to 54 MHz.
- Tuning Step Size: 1, 10, 100, 1000, 10000
- Frequency Stability: Maximum +/- 0.5 PPM over operating temperature
- Antenna Impedance: 50 Ω nominal.
- Antenna Connectors: 1 x SO-239 transceiver
- Modes: USB, LSB, CW, AM (optional), FM (optional)
- Memories: 100
- Frequency Accuracy: +/-5 Hz @ 25°C, 1 Hz tuning resolution
- Supply Voltage Range: 13.8 Vdc +/-15%
- Operating Temp. Range: 0-50°C
- Dimensions 2.9 x 8.5 x 10.25 inches (excluding knobs and connectors)
- Weight: 7.25 lbs with all options
- PC Control Port: USB (using CCS USB to UART Driver)

STEVE FORD, WB8IMY



Demonstrating the new Ten-Tec Eagle transceiver.

MFJ proudly displayed their new **MFJ-9200 QRP transceiver** at their booth on the floor of Hara Arena. This 5-W CW rig covers 80 through 15 meters through the use of interchangeable band modules. The '9200 comes with one module of the buyer's choice, with additional modules available at \$29.95 each. The MFJ-9200 retails for \$249.95.

MFJ-9200 Specifications:

- Frequency Control: DDS, 60-MHz reference frequency
- Tuning Step: 100-Hz, 1-kHz, and 100-kHz
- RIT Step: 10-Hz
- VFO Memories: 8 per band
- VFO Display: LCD, 802-pixel, switched backlight
- VFO Display Frequency Resolution: 100-Hz, 10-Hz with RIT activated
- Operating Modes: Transmit - A1 (CW), Receive - A1, A3J (LSB or USB)
- CW Offset: ~700 Hz
- T/R Switching: Full QSK

STEVE FORD, WB8IMY



MFJ-9200 transceiver.

Receivers

Software Defined Radios were in high profile at Hamvention.

SSB Electronic demonstrated their new 4.0 version software for the Perseus SDR receiver as well as their new LAN SDR.



The new **WINRADIO WR-G33DDC** “Excalibur Pro” software defined receiver (SDR) made its debut as well. With coverage from 9 kHz to 50 MHz, the WR-G33DDC boasts a frequency stability of 0.5 ppm and a dynamic range of 107 dB. It also offers a 50 MHz wide real-time spectrum analyzer with a waterfall display. The selling price was unavailable at press time.



WR-G33DDC Specifications

- Receiver type: Direct-sampling, digitally down-converting software-defined receiver
- Frequency range: 9 kHz to 49.995 MHz
- Tuning resolution: 1 Hz
- Mode: AM, AMS, LSB, USB, DSB, ISB, CW, FMN, FSK, UDM (user-defined mode); DRM mode optional
- Image Rejection: 100 dB
- IP3: +31 dBm (preamp off); +21 dBm (preamp on)
- Attenuator: 0 - 21 dB, adjustable in 3 dB steps
- SFDR: 107 dB min. (preamp off); 103 dB min. (preamp on)
- Noise figure: 14 dB (preamp off); 10 dB (preamp on)
- MDS: -130 dBm @ 10 MHz, 500 Hz BW (preamp off); -134 dBm @ 10 MHz, 500 Hz BW (preamp on)
- Phase noise: -145 dBc/Hz @ 10 kHz
- RSSI accuracy: 2 dB typical
- RSSI sensitivity: -140 dBm
- Processing and recording bandwidth: (DDC bandwidth) 20 kHz - 4 MHz (selectable in 24 steps)
- Demodulation bandwidth: (selectivity) 1 Hz - 62.5 kHz (continuously variable in 1 Hz steps)
- Spectrum analyzers: Input spectrum/waterfall, 30 or 50 MHz wide, 1.5 kHz resolution bandwidth. DDC spectrum/waterfall, max 4 MHz wide, 1 Hz resolution bandwidth
- Channel spectrum, max 62.5 kHz wide, 1 Hz resolution bandwidth
- Demodulated audio, 16 kHz wide, 1 Hz resolution bandwidth
- ADC: 16 bit, 100 MSPS
- Sensitivity: (@ 10 MHz, with preamplifier)
 - ▶ AM -106 dBm (1.12 μ V) @ 10 dB S+N/N, 30% modulation
 - ▶ SSB -121 dBm (0.20 μ V) @ 10 dB S+N/N, 2.1 kHz BW
 - ▶ CW -127 dBm (0.10 μ V) @ 10 dB S+N/N, 500 Hz BW
 - ▶ FM -117 dBm (0.32 μ V) @ 12 dB SINAD, 3 kHz deviation, 12 kHz BW, audio filter 300-3000 Hz, de-emphasis -6 dB/oct
- Tuning accuracy: 0.5 ppm @ 25 °C
- Tuning stability: 0.5 ppm (0 to 50 °C)
- MW filter: Cut-off frequency 1.8 MHz @ -3 dB
- Attenuation: 60 dB min @ 0.5 MHz
- Preselection filters: 119 filters available in automatic or manual mode (14 high pass, 14 low pass and 91 bandpass) + bypass
- Antenna input: 50 Ω (SMA connector)
- Output: 24-bit digitized I&Q signal over USB interface
- Interface: USB 2.0 High speed
- Power supply: 11-13 V DC @ 510 mA typ. (preamp off); 11-13 V DC @ 620 mA typ. (preamp on); 11-13 V DC @ 55 mA typ. (power save)

Antennas and Tuners

COURTESY N6BT

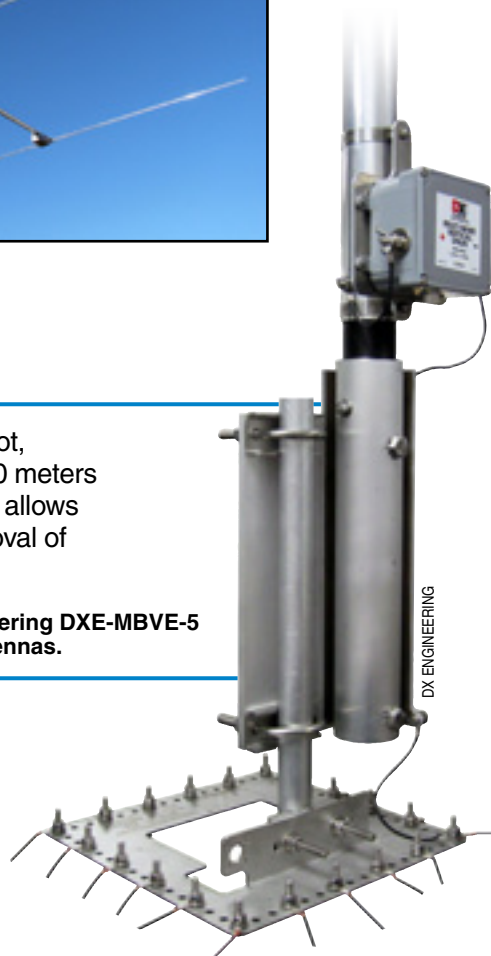
N6BT was showing off his new Bravo 7-band HF antenna (\$289) and his Q52 5-band 2-element Yagi antenna (\$549).



N6BT Q52 antenna.

DX Engineering displayed their new DXE-MBVE-5. It's a 43-foot, multiband high performance vertical antenna for 160 through 10 meters featuring the patent pending SAF-T-TILT™ tilt-over base, which allows safe raising and lowering of the antenna without complete removal of antenna mounting hardware. Package prices begin at \$194.95.

DX Engineering DXE-MBVE-5 series antennas.



Anticipating the return of better propagation on the higher HF bands, **MFJ** introduced the HyGain SPT-500 — a $\frac{5}{8}$ wavelength vertical antenna for 10 meters. \$59.95.

MFJ also debuted a portable 20-meter dipole known as the MFJ-2299, a $\frac{1}{2}$ wavelength antenna comprised of two telescoping elements. It also sells for \$59.95

In the antenna tuner category, **MFJ** showed two high-power, weatherproof, remote automatic antenna tuners. The MFJ-994BRT is rated at 600 W from 1 to 30 MHz and sells for \$499.95. The MFJ-998RT is rated at 1500 W from 1 to 30 MHz and is priced at \$769.95.

STEVE FORD, WB8IMY



The MFJ-998RT 1.5 kW antenna tuner.

Test Equipment

Bird Technologies showcased their new AT-500 handheld antenna analyzer covering 2 to 520 MHz. This \$1400-class product combines the functions of several instruments, providing SWR, field strength, match efficiency and return loss data.

AT-500 Specifications

- Frequency Range (MHz): 2 - 520
- Frequency Resolution: 20 kHz
- Frequency Accuracy (kHz): ± 50
- Number of Points: 100
- Rho: 0.000 to 1.000
- Match Efficiency: 0 to 100%
- Return Loss (dB): -32 to 0 dB
- Measurement Accuracy: $\text{Rho} \pm 0.04$
- Test Port: N(F) supplied. TNC, UHF, BNC, male or female available
- VSWR: 1.25 Max
- Directivity (dB): 32 dB typical
- Measurement Speed:
 - [Single Frequency Point] - 5 readings per second typical
 - [Frequency Sweep] - 1 sweep per second typical
- Field Strength: [Range] - 0 to 100%, relative [Sensitivity] - Fullscale deflection and 0.22 V/m @ 400 MHz using supplied antenna
- Interface: RS-232 protocol via DB-9 port
- Power Requirements: Rechargeable NiCd battery system. Unit may be re-charged while operating using a wall adapter (included)
- Dimensions: $8 \times 4\frac{5}{8} \times 1\frac{3}{4}$ inches
- Weight: 2 lbs



The Bird AT-500 analyzer.

Comet also had a new antenna analyzer to talk about: the CAA-500. It measures impedance and indicates SWR from 1.8 to 500 MHz using an analog crossed-needle meter. \$399.

CAA-500 Specifications

- Operating Range: 1.8 - 500 MHz
 - Band A Range 1.8 - 5 MHz
 - Band B Range 5 - 15 MHz
 - Band C Range 15 - 45 MHz
 - Band D Range 45 - 95 MHz
 - Band E Range 95 - 162 MHz
 - Band F Range 162 - 255 MHz
 - High Range 300 - 500 MHz
- Impedance Range: 12.5 - 300 Ω
- VSWR Range: 1:1 to infinity
- Oscillator Output: 113 dB μ /50 Ω
- External Power: 8-12 Vdc, 200 mA
- Size: 3.3 \times 6.9 \times 2.5 inches
- Weight: 28 oz

Comet CAA-500 antenna analyzer.



NCG/COMET

The new **Ten-Tec** 1225 SWR/wattmeter kit offers full scale ranges of 20 W, 200 W and 2000 W, measuring average and peak power, as well as SWR, from 1.8 to 30 MHz with an analog crossed-needle meter. \$159.

Ten-Tec 1225 Specifications

- Meter: Cross-needle, moving coil (100 μ A movements)
- Power Ranges: 20, 200 and 2000 W (Forward Power)
- Power: 4, 40 and 400 W (Reflected Power)
- Accuracy: 5% of full scale reading
- Frequency Range: 1.8 - 30 MHz
- Input Impedance: 50 Ω
- Power Requirement: 13 - 20 Vdc @ 150 mA (max)
- Size: 5.0 \times 4.5 \times 5.0 inches (HWD) excluding knobs and connectors
- Weight: 2 lb

Ten-Tec 1225 SWR/wattmeter kit.

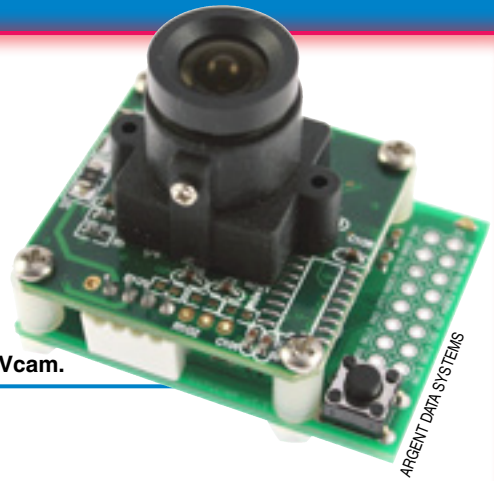


STEVE FORD, WB8IMY

Station Accessories

Argent Data Systems rolled out a unique product at Hamvention: their SSTVcam module. This is a 1.5 x 1.5-inch digital camera with a built-in slow scan encoder, great for sending up in high-altitude balloons or just monitoring your repeater site; no PC required. \$80.

The Argent Data Systems SSTVcam.



STEVE FORD, WB8IMY

Begali Keys was present at the show with new finishes for their popular keys. Prices were not available at press time.

Begali Keys was proud to show off the new finishes on their popular line of products.



Hagerty Radio attracted attention with a new VFO driver amplifier kit. Cost is \$39 complete. It is specifically designed to drive a vacuum tube rig. To make the point Jim Hagerty was demonstrating it with an old Hallicrafters HT-40 transmitter at the show.

The Hagerty Radio VFO driver amplifier kit controlling a Hallicrafters HT-40 transmitter.



WARD SILVER, N0AX

Heil Sound introduced several new products at Dayton. The Gold Elite dual-element microphone, with selectable wide and narrow response ranges, sells for \$160. The HM-12 microphone, part of the new Genesis product line, features an open frame full range dynamic element that will work with most amateur transceivers. The HM-12 will carry a retail price of \$70. The Heil HB-1 Economy Boom is an articulated arm using a substantial steel channel structure and balanced with four external springs. The HB-1 is capable of supporting up to a 2.5 pound microphone and will fit all standard Heil microphone boom mounts and hardware. It will sell for \$70. The FS-3 single channel footswitch features an all-steel design and retails for \$25. Finally, the PRO MICRO headset is available in two modes: the PMS-6 single side and the dual headphone model PMD-6. Retail prices are \$79 and \$99, respectively.



The new Heil Sound Gold Elite microphone.

Station Accessories

STEVE FORD, WB8IMY

SSB Electronic launched its new low-loss Ecoflex coaxial cable series at Hamvention. The new coax will be available for sale in the US this summer.



International Radio unveiled its new 150 W triplexer that can allow three radios on 20, 15, and 10 meters to share a common antenna with up to 2:1 SWR. Price and availability were unknown at press time.

Trey Garlough, N5KO, and the new International Radio triplexer.



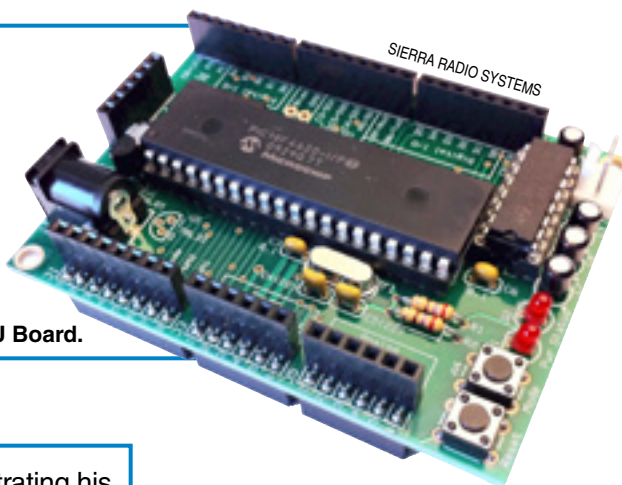
N3ZN Keys introduced the newly updated ZN-SLR series single lever paddle. The ZN-SLR is now on a 3½-inch diameter, 7/8-inch thick base and weighs 3 pounds, 5 ounces. The brass and painted versions sell for \$365 and the Bronze Special edition sells for \$385.

N3ZN Keys introduced the newly updated ZN-SLR series single lever paddle.



Sierra Radio Systems rolled out their new HamStack platform intended specifically for amateurs who want to design and program their own microcontroller projects. The HamStack starter pack includes a solderless breadboard, USB in-circuit programmer, a guide book and software — all for \$124.95 at www.hamstack.com/hamstack.html.

The HamStack CPU Board.



At **HamGadgets** Dale, NØXAS, was busy demonstrating his new Master Keyer MK-1. Right alongside were updated automatic keyers (ID-O-Matic III) and the Universal Keying Adapter 3 for interfacing with the high negative voltage of vacuum tube keying circuits.

**~ Steve Ford, WB8IMY
QST Editor**