DZKIT 2011

CATALOG 710/11

Transceivers and Shortwave Receivers

Handie-talkie

Coaxial Switches

Precision Keys

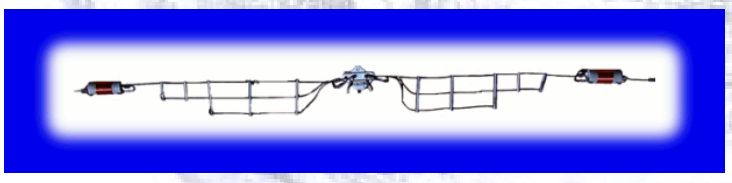
Microphones

Books

Mobile/Backpack Whip antennas

KIT LEADERSHIP FOR THE 21st CENTURY

SWR Meter



Wire Antennas

Lightning Arrestors

www.dzkit.com

WELCOME TO THE WORLD OF DZKIT 2011

It is a pleasure to send you this new 2011 DZKit catalog. It contains the complete line of DZKit equipment and related accessories...amateur radio transceivers, shortwave receivers, SWR meters, handie-talkies, precision keys (available in kit form or assembled), and some non-kit accessories too, including coaxial switches, lightning arrestors, wire antennas, mobile whip antennas, microphones and ARRL books. And the line will be expanding to include other exciting kits in the near future!

While some companies have chosen to eliminate the "chore" of soldering from their kits, we think that much of the fun of an electronic kit is in the soldering, so we've gone out of our way to provide kits that still have that ingredient. We even let you do some surface-mount soldering, although we've limited it to the larger parts that you can actually see.

There are many reasons people build kits - cost savings, the fun of building it yourself, learning about electronics. We think the learning aspect is very important, so we emphasize that in our manuals. One of our manual reviewers said, "The circuit descriptions are the best I've ever come across for *any* piece of equipment I've ever worked on. .Extremely well done." The spirit of ham radio involves constant learning, and we want to help you in that regard.

Our motto is "We'll make sure you succeed." We've tried to make our manuals easy to read, with large print, detailed instructions, color pictures and drawings, troubleshooting trees and much more. We're also setting up authorized "builders-for-hire" who can build or troubleshoot your unit so that you don't have to rely only on our factory. But if a problem does crop up, we're available nearly 24/7 via email and telephone to help you succeed.

Sincerely,

Brian Wood, W0DZ

Brian Wood, W0DZ
President

P.S. We will be happy to send your friends copies of the DZKit catalog...just jot their names and addresses on a piece of paper and enclose it in the order envelope, or send an email to sales@dzkit.com.

Can you build a DZKit? Yes! The key to your success...DZKit Manuals.

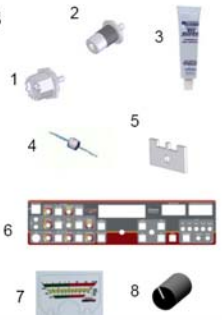
KIT-BUILDING PROCEDURES

The steps involved in building a kit are listed below. Be sure to follow them and you will have a lot of fun building, aligning, testing and using your kit.

1. **Do a parts inventory.** At each major section and in the Appendices, there's a list of parts used in that section (or that will be used shortly). Check off each part to be sure you are not missing anything. Our method of bagging parts is different from all other kit vendors and will make the task much faster and less error prone. But despite our valiant efforts, mistakes can happen. If you are missing any parts, call or email us and we'll rush replacements to you immediately.
2. **Pay attention to soldering techniques.** Keep your soldering iron clean by using a wet sponge, use appropriate heat and maintain heat

Chassis Parts

Item	Description	Qty
1	Connector — SO-239 RF chassis mount	2
2	Connector — RCA phono chassis mount - red	1
2	Connector — RCA phono chassis mount - black	1
3	RTV silicone adhesive	1
4	Gas discharge tube	3
5	Anderson Powerpole mounting clamp	1
6	Polycarbonate overlay - 1 meter	1
7	Meter face - Multipurpose	1
8	Knob-small	10
9	RIT Knob	1
10	Tuning knob	1
11	Foot - front 1.00 X .75"	2



until the tubing has shrunk around the contacts. No bare wires should be exposed.

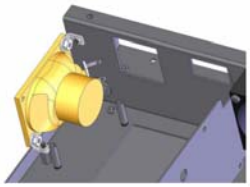
( ) Repeat the previous procedure for the second fan.

( ) Insert the fan cables through the hole in the back panel tray and up into top compartment.

If you purchased the 100W PA:

( ) Attach a fuseholder to the PS

brackets, one 6-32 x 1/2" hex male/female spacer, two 6-32 KEPs nuts and four 6-32 x 1/4" screws. See detail 3.



Safety First!

Your safety is of utmost importance to us. Please read this information before you get started, and remember these rules as you continue building and testing your Sienna.

1. Always have a healthy respect for electricity. While the voltages present inside the Sienna are not lethal, high currents are available (up to 30 Amps when the 100 Watt amplifier is used). Use a power supply with overcurrent foldback or crowbar protection so that in case of high currents the supply will shut down. Set the output current only as high as necessary for a given step.
2. When measuring voltages inside electronic equipment, it is generally a good idea to use only one hand, wear rubber-soled shoes and avoid areas with standing water. However, remember that slightly

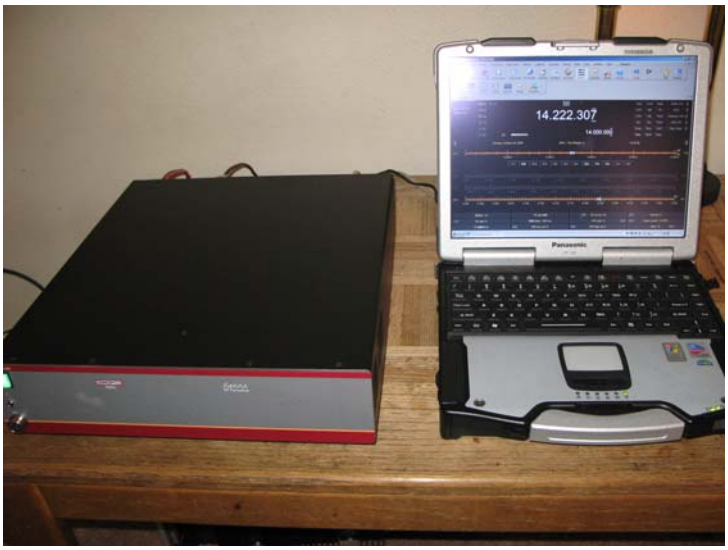
1. **Tips on kit-building.** Each DZKit manual has a number of pages at the beginning that explain how to solder safely and well, how to avoid static electricity that could damage sensitive electronics, how to sort parts, and how to follow the step-by-step instructions.
2. **Detailed Parts List.** Each board or chassis construction section has a list of parts along with a picture or drawing of the each part for easy identification.
3. **Simple Step-By-Step procedures.** Every step has a set of parentheses next to it so that you can check off the step as you finish it. The steps are written in non-technical, everyday language so everyone can understand.
4. **Detail drawings, pictorials, and color pictures** are used to show exactly what the board or chassis should look like.
5. **Exclusively with DZKit, parts bags are pre-sorted.** When parts look similar, they are placed in different bags. Each bag contains a printout of actual part names (C12, R22, etc.) and their values. Match the part with the silkscreened text on the board and you can't go wrong.
6. **Also exclusive to DZKit, if you have access to a nearby PC while building your kit, you can bring up the board layout using free software** and search for a part name. The software will show you exactly where the part goes.
7. **Operating/Troubleshooting Instructions.** Our more complex manuals are broken into three parts - assembly, operating and service/troubleshooting, and each of these are very detailed.
8. **Circuit Description, Block Diagram and Schematics.** If you are technically inclined, or interested in learning about electronics, you'll find the Theory section of the Service Manual very helpful as well as educational.
9. **Warranty.** DZKit warrants all kit parts against defects in workmanship and materials for a period of 90 days after shipment.

Want someone else to build your kit for you? Meet our "Builder-for-Hire"

Alan Wilcox, W3DVX
www.wilcoxengineering.com
(570) 321-1516

Alan has met DZKit standards for quality, but he does not work for us. We do not pay him, and he does not pay us. You work out details directly with him. He can build some or all of any of our kits, and can also service them if the need arises. If you would like us to drop-ship a kit directly to him, please let us know when you order!

DZKit *Sienna* HF Transceiver Sets "The State-Of-The-Art" for Engineering, Styling and Flexibility, and now you can have it "your way" with many upgrade choices, starting at only $1199!



Actual customer photo of a remote-control-only Sienna being operated from Ham Radio Deluxe software.

Start with a remote-control-only receiver kit and run it from your own PC, then add any of the following, *at any time*:

- Add an internal PC, freeing you from rig interface boxes, cabling messes, portability issues and much more. Get digital modes built-in!
- Add an internal 10W all-mode transmitter
- Add a 100W-rated internal antenna tuner
- Add an internal 100W all-mode amplifier (requires 10W transmitter)
- Add a front panel
- Add up to 8 crystal filters

Compare to "starter SDR" radios with no provision for a front panel.

(Monitor, keyboard, mouse, keypad, mic and key are not included. Shown running Ham Radio Deluxe rig control software, which is freeware and is included with the PC option.)

Remote-control models (blank front panel):

RECEIVER	10W TRANSCEIVER	10W XCVR w/Tuner	100W XCVR	100W XCVR w/Tuner
$1199 (S-100)	$2098 (S-100L)	$2287 (S-100E)	$2497 (S-100H)	$2686 (S-100X)

NOTE: The above models *require* a PC, either external or internal, for calibration and use!

Add the transmitter, 100W amp, or tuner *at any time* to upgrade one model to the next

ADD A FRONT PANEL KIT AT ANY TIME FOR $699
or buy a model with the front panel included (see below)

Front panel models:

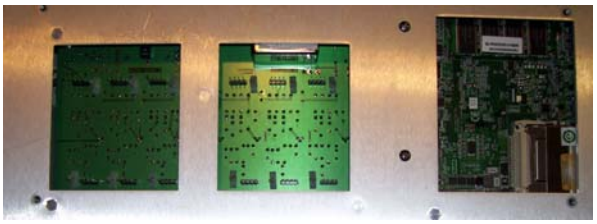
RECEIVER	10W TRANSCEIVER	10W XCVR w/Tuner	100W XCVR	100W XCVR w/Tuner
$1898 (SF-100)	$2797 (SF-100L)	$2986 (SF-100E)	$3196 (SF-100H)	$3385 (SF-100X)

The S-100 and SF-100 receiver can be used as a shortwave receiver or as a full-featured secondary receiver for a Sienna transceiver. No more fumbling around with dual-function controls on an internal sub-receiver.

ADD AN INTERNAL GOOD PERFORMANCE PC WITH LINUX OR WINDOWS AT ANY TIME TO ANY KIT FOR $899, OR AN INTERNAL HIGH PERFORMANCE PC WITH LINUX OR WINDOWS FOR $1499!

When you add a front panel to your Sienna, you get a well-thought-out control layout: Backlit buttons with a positive, non-squishy response. An easy to navigate menu system that uses plain language, not cryptic gobbledygook. A beautiful blue-green vacuum fluorescent display. Two analog meters. Controls that are grouped logically for easy use. Mic jack. Headphone jack. Separate paddles and manual key inputs.

- Dual microprocessors - one for keying and mic sampling, one for general control with web-updateable firmware
- Two choices for optional built-in PC - one with good performance, one with high performance
- Dual 10dB preamps and a 10dB attenuator
- Dual receive (control external secondary receiver from internal PC and route its audio to internal speaker)
- Dual displays (blue-green vacuum fluorescent on front panel, VGA on embedded PC)
- Dual keying (manual key and paddles active simultaneously with front and back panel access)
- Dual audio (headphones and speakers active simultaneously with separate volume controls)
- Dual analog backlit meters
- Dual passband tuning (at 9MHz 2nd IF and 455KHz 3rd IF)
- Dual antenna ports (plus receive antenna input)
- Dual-tone multi-color front panel for easy identification of groups of controls
- Dual band-change modes: External keypad has direct one-button band selection; Front panel has a "band" button, then use the rotary knobs to change VFO memories or bands, or use the up/down buttons.
- Dual mic inputs— one balanced input (150-600 ohms), and one unbalanced line level input. PC Line Out can also be fed into the transmitter audio mixer.

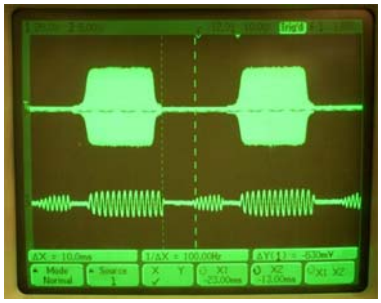


This bottom view shows how you get access to the PC memory (right) and IF filters. Simply remove a cover plate and the filters are easily snapped in. There are four IF filters at the 9MHz 2nd IF and four more at the 455kHz 3rd IF.

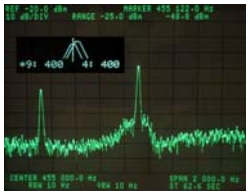
The back panel is laid out cleanly. On the upper left are connections to the optional external keypad, paddles, straight key and audio in and out. When the optional PC and MIO boards are installed, the connectors on the lower left add RS-232, Ethernet (10/100 LAN), PS/2 keyboard/mouse, VGA, USB, 6W stereo audio, DVI (digital video), S-video and composite video. Transmitter I/O is in the center, dual antenna jacks and power to the right.

Sienna Specifications. **Frequency range:** 10 kHz to 30 MHz. (Specs valid 500kHz-30MHz) **Modes:** SSB, CW, AM, FM and Digital (latter via optional embedded PC). **FM modulation:** frequency modulated carrier with 2122 Hz pre-emphasis; selectable deviations of +/-2, 4 and 5kHz. **FM receive IF:** 455kHz, includes two 4-pole +/-10KHz ceramic filters. **Sensitivity:** 0.5uV for 10dB S/N (preamps off, PSB™ off) [0.16uV with first preamp on]. **MDS (PSB off):** -110/-120/-130dBm (preamps: off/1/both). **MDS (PSB on):** -115/-125/-135dBm (preamps: off/1/both). **BDR:** >105dB at spacings greater than 1kHz, >125dB at spacings of 5kHz and greater (preamps off). **IMDDR3:** >87dB regardless of spacing. **Tx 2-tone IMD (ref PEP):** 3rd order: -28dB @ 100W, -38dB @ 10W; 5th order: -45dB @100W, -55dB @ 10W. **Noise Blanker:** Variable threshold, 2ms retriggerable pulse width. **Freq stability:** +/-1 ppm (0-50C) after 30 minute warm-up, using included TCXO. **Displayed resolution:** 1 or 10 Hz (internal resolution is sub-Hz). **Tuning step size:** 1, 10, 100, 1k, 10k Hz. **RIT, XIT range:** +/-16MHz, with two speeds. **Memories:** 147, including 85 programmable GP memories preset to desired bandplan, one scratchpad preset to WWV, 5 VFOA memories per band, one VFOB memory, ten 12-character CW memories with selectable Farnsworth mode output. **Mic input impedance:** 150-600 Ohms, balanced. **CW/SSB/AM IF frequencies (Rx):** 70.455 MHz, 9.0 MHz, 455 kHz. **CW/SSB/AM IF Filter selection:** 70.000MHz/15kHz roofing filter standard (70.455MHz/4.5kHz optional), 9.0015MHz/2.4kHz 4-pole SSB crystal filter standard, 455KHz/20kHz ceramic filter standard (can be replaced with Collins 5.8KHz filter); Choose up to three additional Inrad snap-in filters for 9.000, 9.0015 or 9.00075MHz; Choose up to three additional Inrad or Collins snap-in filters for 455kHz. **Broadband IF frequency output:** 455kHz +/-250kHz, 50 ohms. **Transverter output:** -30dBm to 0dBm (1mW, 50 ohms). **Stereo audio output power:** 1.5W/ch (available even while using headphones) (6W to external speakers using MIO board and internal PC). **Linear control outputs:** TX Enable in, TXGND out, TTL band data, fuse-protected 12V@250mA, Yaesu band data connector pinout via 8-pin mini-DIN connector. **External ALC input:** 0 to -5v. **DSP:** auto-notch (SSB only), variable bandwidth filters, NR, AGC software included with PC option. **DC power requirements:** 2.2A receive (11-15v), 6A transmit @10W (12-15V), 25A transmit @100W output (13.8-15V). **Dimensions:** 3.5"H x 14"W x 16"D (rubber screw-on feet located in a 12.25" x 14.0" area). **Weight:** 10 lbs without PC or 100W amplifier, 12 lbs with PC and 100W amplifier. **Preassembled boards:** Advantech Biscuit PC, ATX power supply, MIO-6254, controller. **Complete kit boards:** DC power distribution/tuner, RS232, IF filters, 100W amp, front panel. **Partially preassembled kit boards:** receiver, transmitter, receive bandpass filter, transmit bandpass filter, plug-in bandpass filters (tx and rx). Specifications subject to change without notice.

Think you can't have high performance in a kit radio? Think again!
Sienna offers top-notch performance for the most demanding operators!



World-class QSK! Hear between the dits at over 70 wpm. The top trace above is the RF output at the antenna jack, with Sienna sending two dits at 60 wpm. The bottom trace shows the Sidetone, and between the dits, received audio. You can see that the receiver recovery time is only 10ms. Also note the "clickless" audio (no glitches in the waveform), and the smooth rise and fall time of the RF envelope.



Sienna has up to 4 selectable IF filters at the 2nd IF, and 4 more at the 3rd IF. Each IF can be "slid" back and forth against the other to effectively narrow the bandwidth. Above left, you can see the front panel display with both filters centered and the resulting spectrum plot of a signal in the passband. On the right, one filter has been slid over 200Hz, and you can see the resulting smaller bandwidth.

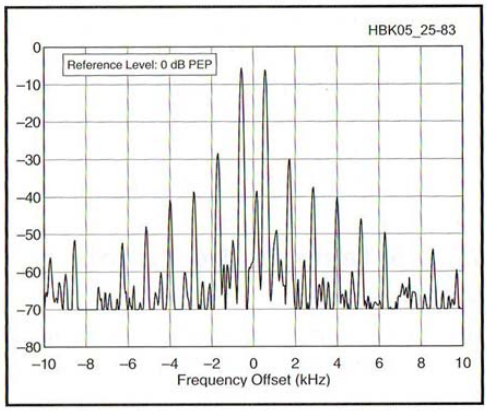
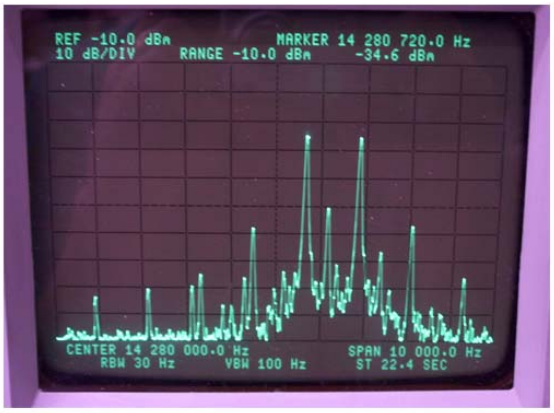


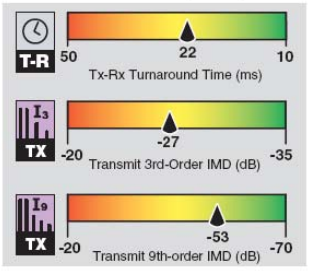
Fig 25.83 — An SSB transmitter two-tone test as seen on a spectrum analyzer. Each horizontal division represents 2 kHz and each vertical division is 10 dB. The third-order products are 30 dB below the PEP (top line), the fifth-order products are down 37 dB and seventh-order products are down 40 dB. This represents acceptable (but not ideal) performance.

-- Page 25.47, 2010 ARRL Handbook

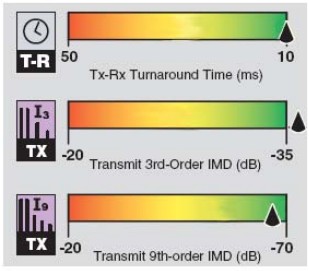


Sienna SSB transmitter two-tone test. Reference is not at the top, but 6dB above the top of the two-tones. Carrier is at center of grid (14.280 MHz) (-62dB PEP). Horiz. divisions are 1 kHz. Power was at 10W output (absolute level is not accurate). 3rd order products are down about 40dB. 5th order products are down about 56dB. 7th order products are down about 61dB. This represents excellent performance.

ARRL measurements (competitive product):



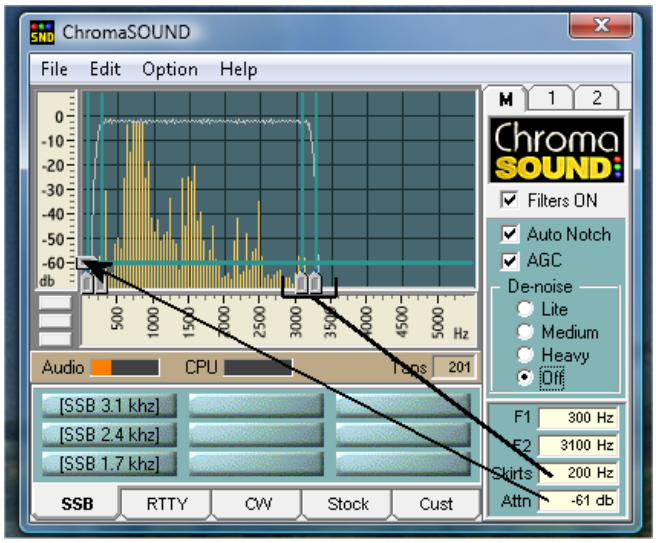
Sienna (10W) DZKit measurements:



(-40)

Add DSP to your Sienna

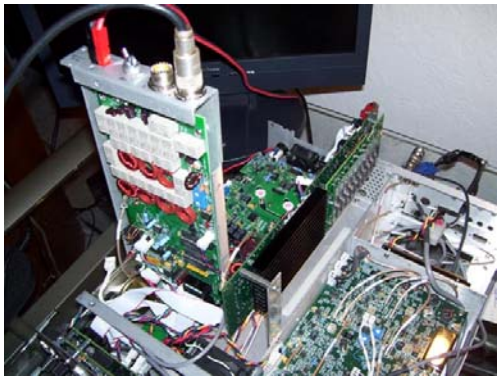
ChromaSound, provides audio DSP capabilities. Available from Silicon Pixels (www.barberdsp.com) for $50, it is included free when you buy the internal PC option.



- SSB "de-noise", for reducing static on SSB signals
- Automatic notch filter, for removing tones, heterodynes, and those pesky carriers
- Bandpass, Low-Pass, High-Pass, and Band-stop (manual notch) filters
- User-defined filters, using the built-in ***Graphical Filter Designer.*** Just drag your filter from the design window to an empty button!
- Selection of pre-defined filters,
- AGC, or *Automatic Gain Control* for operation under varying conditions

---

Built-in serviceability makes assembly and troubleshooting easy!



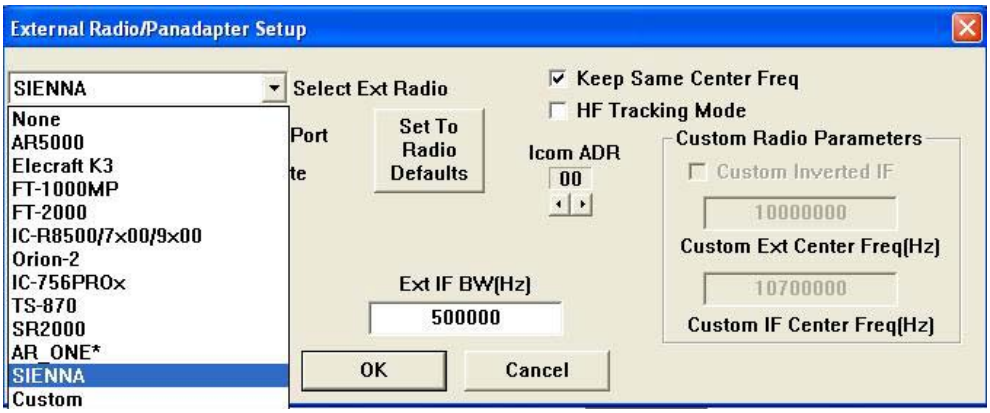
The DC power and tuner tray rotates up for access to the 100W amp. The 10W transmitter can be lifted out of its compartment. These are just two of the many features that make it easy to build and service your Sienna.

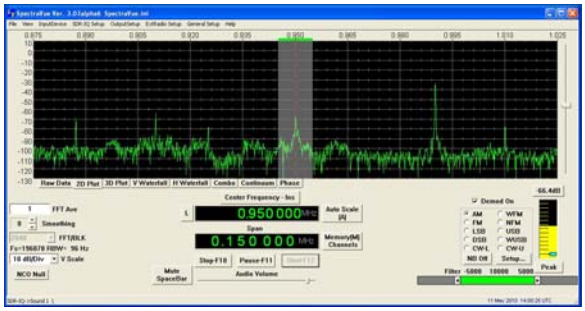
This switch puts a 70dB attenuator in the transmit oscillator path, allowing it to be used as an S9 signal source for receiver S-meter calibration.

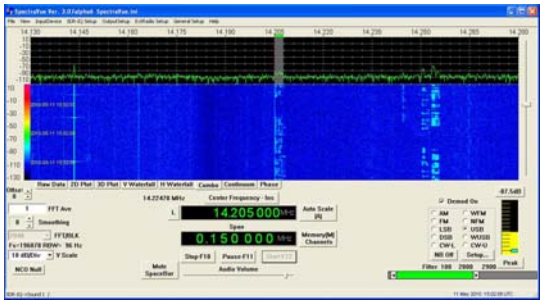
This optional Test Board can be used to verify functionality of the IF filter and Receive Bandpass Filter/Preamp board prior to stacking them with the Receiver board. If you have a receiver-only version of Sienna, this board is required, as it provides connections for unused cables, fan and power supply voltage monitoring sensors.

Add a panadapter or secondary receiver to your Sienna.

Made by RFSpace, the SDR-IQ is a software defined radio (SDR) receiver that connects to the 455kHz IF Output jack on Sienna's back panel. or to a separate receive antenna. Connect the USB cable to your PC (either an external one or Sienna's optional internal model), select SIENNA from the list of supported radios, and you'll be able to monitor up to 190kHz of spectrum around your operating frequency. As you change frequency, the SDR-IQ keeps up with you, and if you click on a signal of interest, the SDR-IQ will re-program Sienna to go to that frequency.







You can view the spectrum either as a traditional spectrum analyzer, or as a horizontal or vertical "waterfall".

DZKit does not sell the SDR-IQ. It must be purchased through other retailers. It typically sells for about $500.

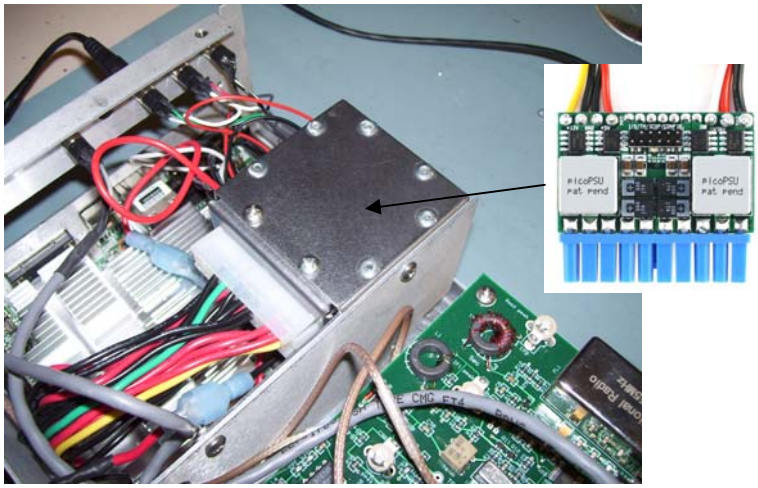
Why an internal PC?

We've all gotten used to the various forms of PC -- palmtop, laptop, desktop. But "embedded"? What's that? Turns out they are very common things, and you've probably used them without even realizing it. An embedded PC is simply a tiny, rugged PC that is meant to be installed inside an instrument. Oscilloscopes, spectrum analyzers and other products often use internal PCs

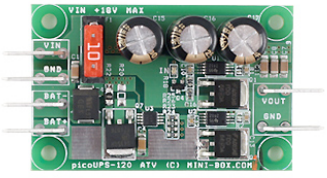
Embedded PCs have these advantages over laptops and desktops:

1. *They have a much smaller Operating System kernel, so large disks are not required.*
2. *Embedded PCs do not take long to do a shutdown sequence before power is removed, and they also start up quicker.*
3. *Because the embedded PC is inside the instrument, its wiring and power connections are all done for you.*
4. *You get to choose the screen size.*
5. *Backups and virus protection are not necessary unless you also use it as your main home PC.*
6. *The hardware platform of an embedded PC is very stable.*
7. *Because they are dedicated to a given application, the speed of the processor is not critical.*

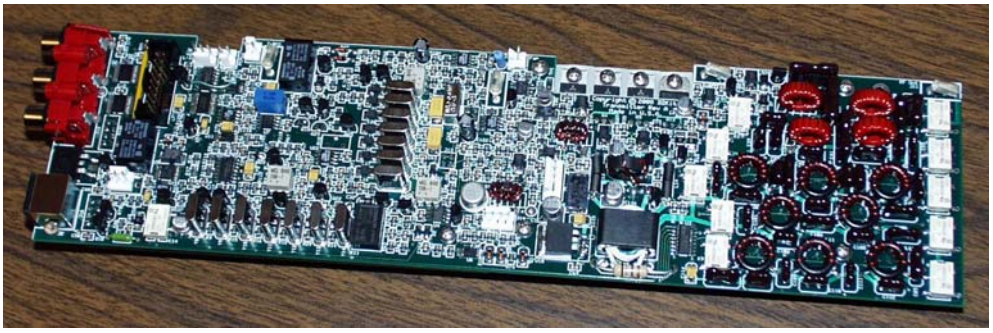
Sienna does not depend on the PC. Some other manufacturers who sell radios with embedded PCs rely on the PC to do all of the work. With the Sienna, we believe that you prefer to use the PC to augment the radio, not to BE the radio. Sienna uses its own microprocessors to control its circuitry. The PC only ADDS the same functionality that you would use in an external PC, but built-in.



A steel shield keeps radiated energy from the tiny switching power supply from getting into the receiver. The PC compartment houses the PC and this power supply. Shown below is a small uninterruptible power supply that can be installed in 10W Siennas, and you can then use the 100W power amplifier compartment to house a sealed lead-acid battery to act as a backup if you lose power.



Add these options to your Sienna for peak performance



Option 101. 10W Transmitter. Add this 10W full-duplex 1.8MHz-29.7MHz transmitter (software limited to bands appropriate for your license) to the S-100 or SF-100 Sienna receiver at any time to turn your receiver into a transceiver. (Included in all transceiver models). Full-duplex means you can use the transmitter and the receiver at the same time. Balanced mic input and line level input. 12th order 2.5kHz crystal filter for SSB, 7th order 5kHz filter for AM/ESSB. Includes an RF speech processor. Push-pull finals with five bands of toroid filtering produce a clean output signal. All small surface-mount parts are pre-loaded. You add all through-hole parts and larger surface-mount parts, attach the heatsink and pre-assembled bandpass filters. Includes mic input, PTT, XVT and linear control outputs. Total assembly time about 12 hours. Cannot be used outside the Sienna enclosure. Requires internally generated control signals and local oscillators. Also includes power meter circuitry for DCD/Tuner board, A/B antenna switch and related back panel connectors . **Kit, 2 1b……..……$799.00**
(Note—if ordered to upgrade a receiver to a transceiver, also requires main controller upgrade, $200.00)

Option 102. Internal Antenna Tuner Kit. Handles 100W. A switched-L-style matching network tunes 6-800 ohm antenna impedances via the antenna A/B SO-239 antenna connectors at full rated power. Not intended to match long-wire antennas without baluns. Internal memory allows retunes every 32kHz. The kit consists of relays, toroids, Polythermaleze magnet wire and capacitors that you add to the DCD/Tuner board. No additional firmware to load. Just add the parts and you're ready to go. Each of the five VFO-A memories on each band maintains current tuner settings. *Requires transmitter option.* **Kit , 1 lb ……$189.00**

Option 104. 100 Watt Output (CW/SSB) Power Amplifier. Also provides 25W carrier power on AM and FM. Mounts inside the Sienna. Fuse and fan protected. Thermistor detects heat rise and increases fan speed when necessary. Cannot be used outside the Sienna enclosure - requires built-in firmware and control lines. Uses two 2SC2879A RF power transistors in push-pull. *Requires transmitter option.* **Kit, 3 lbs……..……..…….$399.00**

Option 105. Embedded PC. This fully assembled and tested PC comes with either Microsoft Windows XP or Linux on an 8GB CompactFlash card. No disk is needed, or use the external USB port with flash drives or large hard disks. Includes 1GB of SODIMM RAM. CPU is a 1GHz Celeron. Software includes license for ChromaDSP audio DSP software from SiliconPixels. Includes mini-ATX power supply, steel shield and all necessary cables.
Assembled, 2 lbs…….……..……..…….…….....$899.00
ATX power supply, steel shield and cables available separately. 1 lb…….…….$199.00

Option 110. High performance PC. Same as option 106, but has 2GHz Core 2 Duo processor, 2G 667MHz DDR2 RAM, 8G CF, fan. **Assembled, 2 lbs.…….....…….....….$1499.00**

Option 111. MIO-6254 Board. Attaches to PC, adds DVI, S-Video and composite video outputs (use two video displays at the same time—one from the standard VGA and one from the DVI). Also adds 6 Watt stereo speaker outputs and line-in.
Assembled, 1 lb……..…..……..….$99.00

Option 112. Internal Micro-UPS (for use with Receiver or 10W Siennas only. (Allows use of internal sealed lead-acid battery for PC backup power) **Assembled, 1lb……..$49.00**

Choose one of three styles of overlay—burgundy/yellow/gray with color wheels around knobs, gray on gray with minimal color, or gray on black with no two-tone group highlights.

Now also available with green, yellow, red and/or blue LEDs and gray/frosted, white/colored or white/white key caps.

Option 103. Front Panel. This kit consists of two precision, "velvet-touch" rotary pulse generators (for the tuning controls), two analog meters (one for transmit functions, one for receive), vacuum fluorescent graphics display, lighted pushbuttons with a positive tactile sensation (not "squishy"), pots, mic/headphone/key jacks, PC board, cables, knobs, steel sub-panel and polycarbonate overlay. To add this to an existing Sienna model, you build the simple front panel board and attach it to the new sheet metal sub-panel along with the meters and vacuum fluorescent display. You then remove the controller board from the existing blank front panel and snap it onto the new assembly. Entire assembly procedure takes about 5 hours.
Front Panel. **Kit, 2 lb……...$699.00**

Receiver options: The receiver accepts up to 11 bandpass filter modules covering 500kHz to 30MHz. Pick any combination of bands for $20 each, or the complete set for $185. The filters can be bypassed, so are not required, but they are recommended. Also, you can purchase a “Test Board” for $100 which can be returned after use for a $75 credit, or you can purchase a returned and refurbished test board (if available) for $75, not returnable. Test boards are required for receiver models, but are optional for all transceiver models. When upgrading a receiver to a transceiver, you must purchase a controller board upgrade for $200 (board exchange), or $600 (new board). You can order the upgrade with purchase of a receiver to avoid having to exchange controllers later.

Option 201, IF Filter Package #1. 8-pole 400Hz CW filters for the 9MHz and 455KHz IF's in the Sienna. Highly recommended for CW operation. These are Inrad 759 and 703 crystal filters on snap-in Yaesu FT-1000MP style "C" boards.
Fully assembled, 1 lb……..……..$270.00

Option 202. IF Filter package #2. 8-pole 250Hz filter for the 455KHz IF. It is mounted on a Yaesu FT-1000MP style "C" board. **Fully assembled, 1 lb……..…$155.00**

Option 203. IF Filter package #3. 9.0015MHz and 455KHz 8-pole 1.8 kHz SSB filters mounted on Yaesu FT-1000MP style "C" boards. **Fully assembled, 1 lb…….…..$270.00**

Option 204. Upgrades standard 20KHz ceramic filter to 5.8KHz Collins mechanical filter (455KHz IF). **Fully assembled, 1 lb..…….…….…...……...…….$105.00**

Option 205. 9.0015MHz 10-pole 2.4 kHz SSB filter mounted on Yaesu FT-1000MP style "C" board. Use in place of standard 4-pole filter for better selectivity. Can also be installed with standard filter, but occupies a filter slot that you may wish to use for other filters. **Fully assembled, 1 lb….……..……....$145.00**

Option 206. 6-pole 70.455MHz 4.5kHz roofing filter. This filter really improves blocking dynamic range. Compatible with AM as well as CW/SSB. Has no effect on FM modes. A highly recommended option!**.....$125.00**

Option 207. 9.0000MHz 8-pole 6 kHz AM filter. Required for AM modes. (You can listen to AM using an SSB filter by zero-beating the carrier, but this filter gives a more natural sound to AM broadcasts.) Includes a free bandpass filter for the AM BCB.
Fully assembled, 1 lb……..……..……....$115.00

HM-17 SWR Meter Kit

Specifications: Impedance: 50 ohms, unbalanced. **Frequency coverage**: 160-6M. **Max Power**: 2KW PEP, 1KW CW. **Meter movement**: 100uADC full scale. **Accuracy:** 5% **Dimensions**: 6 1/4" W x 3 1/2" H x 5 1/2" D. **Weight**: 2 lb.

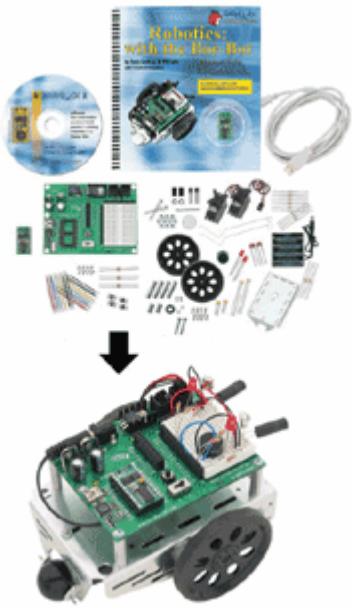
SWR meters are used to help you understand how well your transmitter is matched to your antenna. We looked around for a low cost, nice-looking, no-frills, high-power SWR meter made in the U.S., with solid construction, and that wouldn't flip over when you attach coax to it. We couldn't find one, so we made our own! Now, you can have a basic SWR meter for HF/6M that will handle 2KW, at an affordable price. Apply power, set the sensitivity to read max on the meter, flip the switch to reverse, and read SWR directly and reflected power as a percentage of forward power.

The HM-17 sets a new standard in ruggedness and value, and is a quick 3-hour project. The extruded aluminum case provides a solid feel with excellent shielding, and the black plastic bezels and front-weighted polycarbonate-on-steel front panel means that it won't flip up from the weight of the cables attached to it. Widely spaced, screwed-on rubber feet help hold the meter securely as opposed to "stick-on" feet, one of which always seems to get lost on cheaply-built meters.

Those of you who remember building kits without PC boards will really enjoy this one. All internal wiring is point-to-point, with no circuit boards! And as with all DZKits, the manual explains in detail how SWR meters work, with complete schematic diagram, theory of operation, installation and operation sections.

HM-17 Kit, 1 lb…….……..……$99.95

USB Boe-Bot(R) Robot Kit.



The Robotics text includes 41 new activities for the Boe-Bot robot with structured PBASIC 2.5 source code support and bonus challenges with solutions in each chapter. Starting with basic movement and proceeding to sensor-based projects, customers quickly learn how the Boe-Bot is expandable for many different robotic projects. No previous robotics, electronics or programming experience is necessary. Parallax offers the most complete, clear and interesting support for this kit. Over 90,000 Boe-Bot robots are in use by hobbyists, educators and students around the world, which provided lots of feedback for improvements to this popular kit along the way.

The Boe-Bot robot is built on a high-quality brushed aluminum chassis that provides a sturdy platform for the continuous rotation servo motors and BASIC Stamp's USB Board of Education. Many mounting holes and slots may be used to add custom robotic equipment or off-the-shelf Parallax add-ons. The rear wheel is a slider ball held in place with a cotter pin. Drive wheels are molded to fit precisely on the servo spline and held in place with a small screw.

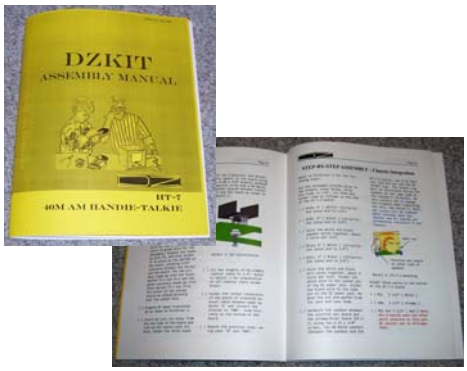
The Boe-Bot robot takes about 1-2 hours to put together, though each project in the Robotics text provides a unique new experience of wiring and source code tuning. Completing the entire set of projects takes 50 hours and is suitable for anybody over 12 years of age. The USB Board of Education (and BS2-IC) may also be removed to be used as your platform for the other kits in the Stamps in Class series.

BOEBOT Kit, 1 lb…….$139.95

HT-7 40M AM Handie-Talkie Kit!

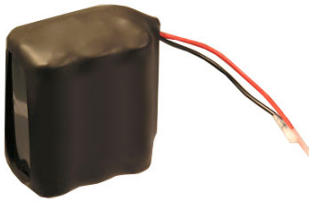
Join the increasing AM activity!

Use as a handheld with internal battery and whip antenna OR as a base AM transceiver connected to an external power supply, microphone and larger antenna for extended range!



DZKit manuals are designed to bring back memories of the kits of long ago!

HTA-2 Extendable 57" whip (made by Miracle Antenna in Canada)



HTA-3 Inline tuner (Ducker I/L made by Miracle Antenna in Canada)

HTA-1 11.1V/4 Amp-Hr Lithium Ion battery slides into bottom of HT-7 and can be charged in place with an external 12V power supply. Includes Includes built-in overcharge, overdischarge, overdrain, short-circuit and reversed polarity protection.

AM operation used to be the only phone mode on the amateur bands. Today, although most HF phone communication is SSB, there are still many people using the AM calling frequencies on 80M, 40M, 20M, 15M and 10M. The HT-7 is a 2 Watt AM transceiver with a fixed 40M frequency (7.290MHz) that you can build in a few hours and that will let you re-kindle those days of yesteryear. Connect it to a bigger antenna such as a Outbacker Joey whip antenna or an Alpha-Delta dipole and see how far 2 Watts will carry. Or simply use two of them as walkie-talkies with limited range with a whip antenna. Direct conversion receiver and transmitter. Push-to-talk button on side. Volume control, headphone jack, mic jack, external power input and BNC antenna jack are on top. Rugged painted sheet metal case can handle abuse and looks great. Amateur radio license required.

HT-7 Kit, 1 lb……..…….……..……$149.95
Pair of HT-7's, kit, 2 lb……...…….……...……$289.95
HTA-1 11.1V/4AH Lithium Ion Battery pack. 1 lb…….……..……..…$45.00
Pair of HTA-1 batteries, 1 lb……...……..…$85.00
HTA-2 Whip antenna. 1 lb……..…..$30.00
HTA-3 In-line mechanical antenna tuner. Assembled. 1 lb……..……...……...…….$124.95

Specifications: Transmit power: 2W. **Spectral purity:** -50dBc. **Frequency:** 7.290MHz fixed. **Receiver:** Direct-conversion with full-wave detector, high pass filter to reduce broadcast-band interference. **Sensitivity:** 1uV.

"The package was in excellent shape. There were no shortages. It took me about 5-1/2 hours to complete building the kit. The instructions and documentation are excellent. I found the transmitted audio to be very good and the receiver to be very sensitive. Thanks for a quality kit . I expect to be building more of your kits in the near future." — *Jim, W3WA*

Every amateur and professional radio station needs quality microphones and Heil is world-renowned for its excellent broadcast, amateur and vocalist microphones.

PR-781. Using one of the dynamic elements from the Heil broadcast division, this beautifully engineered microphone offers wide frequency response while keeping that traditional Heil Sound articulation of the speech pattern, something ALL microphones seem to lack and that has been the mainstay of the Heil Sound line up. The PR 781 comes with the SM 3 mount. Impedance: Balanced 600 ohms. Pattern: Cardioid. Output level: -55dBm. Frequency response: 50 Hz to 16kHz. Weight: 14 oz.
PR-781..…….$176.95

GM-4/GM-5.1. The GM is a unique, innovative microphone renowned for its gorgeous audio production. Its crystal clear response made it an instant best-seller, and it is the microphone of choice in thousands of Ham shacks around the world today. The GM is equipped with Heil Sound's full-range "Pro" broadcast mic element, plus your choice of the HC-4 "DX Dream" dynamic element (GM-4) or the HC-5.1 tailored dynamic element (GM-5.1). The "broadcast" element has a broad response of 50 Hz to 13 kHz, with a +4 dB peak at 2000 Hz for excellent articulation, along with a big bottom end that produces outstanding, studio-quality fidelity. The GM includes the Heil-exclusive "Light Touch" momentary PTT switch, and is encased in a beautifully-finished high-gloss black lacquer enclosure. The GM is fitted with a 4-pin XLR connector compatible with the Heil CC-1 Series of adapter cables. The GM Series Microphones are shipped with a windscreen and microphone clip.
GM-4, GM-5.1……...……$143.95

HM-4. Even the best microphone element, when mounted in a typical clamshell enclosure, will make your voice sound like you're talking from the bottom of a barrel. The Handi Mic, by contrast, has its element mounted in an open enclosure, seated on a rugged shock mount, and the resulting audio is the clearest, cleanest, most articulate audio you'll ever experience. The low handling noise and exceptional cardioid pattern make the Handi Mic ideal for mobile or portable use.
HM-4……...……...……$83.95

Accessories that mate perfectly with the Sienna

A. FS-2 is a unique footswitch specially designed for controlling two devices simultaneously, such as a transceiver and an amplifier. Ergonomically correct with the hinge under your heel which requires much less effort and relaxes the shin muscles during long periods of operation. Plugs into the 1/4" PTT connector of the CC-1Y mic cable (E).……..**$39.95**

B. Pro Set | Pro Set Plus. This comfortable dual earmuff headphone/mic is the choice of top DX and contest operators worldwide. The Pro Set model comes with either the HC5 or HC4 elements (specify "-4" or "-5" when ordering). The Pro Set Plus includes both elements. Requires AD-1Y adapter for use with Sienna and some Yaesu radios.
Pro Set-4, -6…….……..**$138.95**
Pro Set Plus……..…….……..……**$212.95**
C. CB-1 PTT. Beautiful classic style microphone base with a push to talk switch. ……..……..……..……..**$68.95**
D. CC-1Y. Connector cable—4-pin XLR to 8-pin with 1/4" PTT jack (Use with GM and HM mics)…….....**$33.95**
CC-1-XLR-Y. Connector cable—3-pin XLR to 8-pin with 1/4" PTT jack (use with PR-781 mic)…….....**$33.95**
E. AD-1Y. Adapter for Pro Set and Pro Set Plus headsets……...……..…..**$19.95**

A

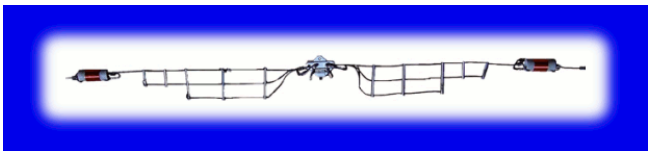
B

C

D

E

ALPHA DELTA COMMUNICATIONS, INC.



DX-A Twin-sloper: A top low frequency DX antenna. Combines the tremendous DX firepower of the 1/4-wave sloper with the wide bandwidth of the 1/2-wave dipole. One leg is 67 ft., the other 55 ft. Installs like an Inverted-V with ground return accomplished thru tower or down-lead. Unlike the usual trap antenna, there are no capacitors to break down under high RF voltages. "lSO-RES" inductors & 12 ga. insulated solid copper wire tolerate full-legal power. 50 Ohm direct coax feed; tuner usually not required when operating in resonant bands, but may be used for multi-band. **$89.95**

DX-B Sloper: 1/4-wave DX sloper - A single wire with high performance on 160, 80, 40 & 30 meters. Designed for limited space installations where room doesn't allow for the DX-A twin sloper. Requires only 60 ft. overall and provides amazing DX performance at installation heights of only 35 ft., and with the low end at only 8 ft. Pre-assembled & Pre-tuned. – just put it up and start enjoying low band operation. Utilizes stainless-steel hardware, 12 gauge solid copper wire and efficient Alpha Delta "Iso-Res" RF choke coils. To gain the same broad-banded performance like the DX-A, the DX-B is also designed to be used with a wide range antenna tuner, so no trimming or tweaking is necessary. 50 Ohm coax feed, rated for full legal power. **$99.95**

DX-CC Parallel wire dipole: "No-Trap" 80-40-20-15-10 meter dipole or inverted-V. Overall length is 82 ft. Great for overall use, especially short range. **$144.95**

DX-DD Parallel wire dipole: "No-Trap" 80 and 40 meter dipole or inverted-V. Overall length is 82 ft. **$116.95**

DX-EE Parallel wire dipole: "No-Trap" 40-20-15-10 meter dipole or inverted V. Also covers 30-17 & 12 meters with an antenna tuner. Overall length is 40 ft. **$125.95**

DX-LB Low-band single wire dipole: Low Band Dipole Covers 160-80-40 meters with an overall length of only 100 ft. Antenna performance and 2:1 VSWR bandwidth is site dependent and varies with height above ground and surrounding objects. The typical band-width is: 160M – 20kHz • 80M – 40 kHz • 40M – 300 kHz Full band coverage can be accom-plished with an antenna tuner. Built with insulated 12ga. wire, stainless steel hardware and uses the Model DELTA-C static protected center insulator and CIN end insulators. Use coax or open wire line and configure as a dipole or inverted-V. Assembled and ready to go! **$144.95**

DX-LB PLUS: Same as Model DX-LB but adds parallel wires for operation on 20 thru 10 meters. One of Alpha-Delta's most popular antennas. **$169.95**

DX-SWL: SWL Broadcast Sloper - Covers the 13, 16, 19, 21, 25, 31, 41, 49, 60, 90, and 120M short-wave bands plus the AM broadcast band. Sloper design provides outstanding reception of low-angle DX signals. Multi-band 2KW transmit capability (ham band use only) with an appropriate antenna tuner. Overall length is 60 ft. **$107.95**

DX-ULTRA: Design and construction same as the Model DX-CC (see next page), but slightly retuned to favor HF shortwave. This Shortwave Dipole Antenna Covers AM Broad-cast through 30MHz. Provides efficient, low-noise, broadband performance for Medium Wave, Tropical, International SW, Military, Government, Embassy, Maritime, Aircraft, Com-mercial and Utility frequencies. ISO-RES inductors, parallel wire elements and the exclusive DELTA-C Center Insulator with the built-in ARC-PLUG® Static Electricity Protector. Over all length is 80 ft. May be installed as a dipole, inverted-vee, or full sloper. It can be used with an antenna tuner as a transmit antenna. Connectors will accept either coaxial cable or balanced line. Fully assembled, ready to go! **$144.95**

Single-band dipoles. $62.95 each:

DX-20: Dipole for 14 MHz (20M band), 33ft. long.
DX-40: Dipole for 7 MHz (40M band), 66 ft. long
DX-80: Dipole for 3.5MHz (75-80M band), 133 ft. long.

Coaxial Switches

DELTA-4B **DELTA-2B** **DELTA-ASC**

SO-239 models are good through 500 MHz. N cpnnector models are good through 1.2 GHz. Precision machined switch shaft and quadrant rotating mechanism for more accurate and stable switching performance. High strength, low resistance silver bearing solder. Excellent housing durability and abrasion resistance with powder coat finish. Brass ARC-PLUG (tm) housing. Low loss micro-strip cavity design, positive detent switching, master antenna ground function, front panel removable ARC-PLUG (tm) surge protection module and excellent HF thru UHF perform-ance. The ASC model is a desk console that features a powder coated steel housing and a solid brass ground buss, with #10 wire attachment hardware across the rear of the housing providing a common ground point for all station equipment and accessories.

DELTA-2B: SO-239 connectors, SPDT……..……..**$54.95**
DELTA-2B/N: N-connectors, SPDT…….……...**$68.95**
DELTA-4B: SO-239 connectors, SP4T……...….**$79.95**
DELTA-4B/N: N connectors, SP4T……...…….**$88.95**
ASC-4B: SO-239 connectors…….……..…**$139.95**
ASC-4B/N: N-connectors……..…….**$149.95**

Lightning Arrestors

Excellent broadband performance from DC thru 3 GHz, compared to the narrowband DC blocked or stub designs. Typical dB loss: 0.1@1GHz; 0.2@2GHz; 0.5@3GHz. Innovative impedance compensated thru-line cavity design allows control voltages to pass thru the device, instead of the "wire around" requirement of DC blocked designs. This design allows "in-circuit" cable sweeps. Innovative fast acting gas tube replaceable ARC-PLUG module can be removed and replaced in the field in about one minute with no tools required, and without having to remove the protector from the circuit. The "O" ring sealed knurled knob does the trick! The ARC-PLUG module and connectors are "O" ring sealed for complete weatherproofing. UL Listed to spec 497B. The Defense Logis-tics Agency (DLA) has assigned National Stock Numbers (NSN) to the Model TT3G50 Coax Surge Protector (NSN 5920 01 5470278) and the 3G50 ARC-PLUG (tm) cartridge (NSN 5325 01 5466841). This is a result of extensive testing and approvals within the military organiza-tions.

ATT3G50U (200W) (SO-239 connectors)…...…..$44.95
ATT3G50UHP (2KW) (SO-239 connectors)…....$44.95
ATT3G50 (200W) (N connectors)…….....$53.95
ATT3G50HP (2KW) (N connectors)…...……..…$53.95
3G50 replacement cartridge for "U" models…...$13.95
3G50HP replacement cart. for non-"U" models..$13.95

Made in Australia, all Outbacker HF antennas are coated with the latest, strongest and most technologically advanced thermal setting plastics. Coatings have been well proven over 30 years, from the extreme cold winters in Alaska to the harsh boiling temperattures of the Australian desert. Coatings have a lifetime guarantee against flaking or peeling while still maintaining maximum flexibility, durability and ruggedness. These antennas are in high demand and are hard to get! **Allow 6-8 weeks for delivery.**

OUTBACKER 'Joey' Backpack Antenna.

Frequencies included: 80 - 75 - 40 - 30 - 20 - 15 - 12 - 10 - 6M

The efficient "Outbacker Joey" QRP HF/VHF Portable Antenna System will really brighten up your QRP rig and provide "Big Signal Performance!" Perfect for your 10W Sienna and other QRP radios.

Joey...1 lb…….....…….$289.95

OUTBACKER OB8 SPLIT

The go-anywhere mobile antenna - the unquestioned, all season, all climate, all terrain, HF mobile champion. This 1.8 meter tall antenna, (990mm when packed) covers 80-75-40-30-20-17-15-12-10m, and mates perfectly with all modern, 50 Ohm, HF transceivers. No antenna tuning unit or base matching device is needed. When combined with Outbacker's heavy-duty spring base (OSB), the OB8 makes a very rugged and professional installation which will last for years. Maximum power 300 Watts PEP.

OB8...3 lbs……...…….$299.00

OUTBACKER SPRING BASE

3/8" x 24 tpi (unf) thread suitable for mounting all Outbacker series antennas. Base has 1/2” x 1” bolt and lockwasher, with side-mounted SO-239. Extremely rugged.

OBSB...4 lbs……..…….……$129.00

OUTBACKER PERTH.

The PERTH antenna covers 80m to 10m. The length is 1.8M (fully extended) 950mm main shaft with a 90cm tuning tip. Bands are 80-75-40-30-20-17-15-12-10M, and mates perfectly with all modern, 50 Ohm, HF transceivers. No antenna tuning unit or base matching device is needed. When combined with Outbacker’s heavy-duty spring base (OSB), the Perth makes a very rugged and professional installation which will last for years. Maximum power 150 Watts PEP.

Included with the Outbacker Perth are:

* 950mm main shaft
* Extendable 90mm stainless steel tip
* 80mm Wander lead

Packing length for travel 1.05m.

Perth...3 lbs…….…….……$309.95
Perth Plus (incl 6/2 meters)……$329.95

OUTBACKER OB8 TRI-SPLIT.

3 piece split antenna with carry bag. ideal for the traveling executive wanting to stay in touch.

The go-anywhere mobile antenna - the unquestioned, all season, all climate, all terrain, HF mobile champion. This 1.8 meter tall antenna, (600mm when packed) covers 80-75-40-30-20-17-15-12-10m, and mates perfectly with all modern, 50 Ohm, HF transceivers. No antenna tuning unit or base matching device is needed. When combined with Outbacker's heavy-duty spring base (OSB), the Classic makes a very rugged and professional installation, which will last for years. Maximum power 300 Watts PEP.

OB8 Tri-Split...3 lbs……..……...…..….$309.95

OUTBACKER OUTREACH.

Ten bands 160-80-75-40-30-20-17-15-12-10M. Bumper or bar-tow bar mountable. Packs down to 1M for easy transportation and storage.

Only 3.0 meters tall. Exceptional performance - 10, 12, 15m are 5/8 wave. All bands are center loaded for peak performance. Compared to any other whip you have used, you'll be amazed. 150 watts PEP.

Split 2.0 meter shaft and 1 meter tuning spike; this antenna breaks down to a 990mm length for easy portability and terminates in a standard 3/8 x 24 base. The Outreach can also be used as a portable antenna system provided sufficient ground system or counterpoise is used.

Outreach…(300W PEP)...4 lbs……..….$399.95

Outreach 500 (500W PEP)...4 lbs…...…$419.95

OUTBACKER STEALTH PLUS.

A 0.9 meter long Outbacker antenna for 80-75-40-30-20-17-15-12-10-6-2M.

The STEALTH Plus is fitted with a 150 mm adjustable tuning spike and has all the same specifications as its brothers other than its length. The STEALTH Plus is perfect for packing in a (long) suitcase, or mounting on tall vehicles, such as RVs. Maximum power rating 100 Watts PEP.

Stealth Plus...2 lbs…….…….$299.95

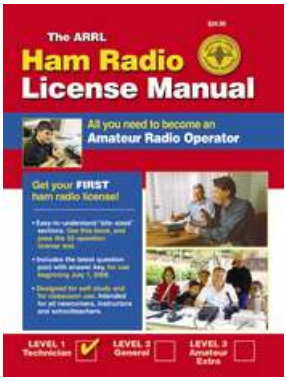
ALPHA-DELTA OUTPOST

Rugged tripod for ground-mounting any Outbacker.

Outpost...15 lbs….$250.00

Whether you're just getting started or an old-timer, ARRL has publications to serve all your needs.

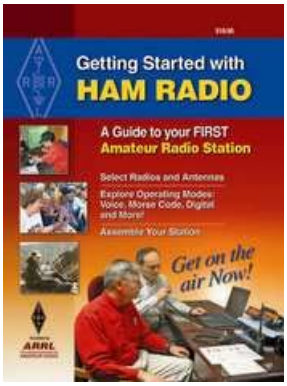
Note: All books shown are softcover



The ARRL Ham Radio License Manual

All you need to become an Amateur Radio Operator. Get your Technician, General or Extra Class license! **Easy-to-understand "bite-sized" sections. Includes the latest question pool with answer key. Designed for self-study and for classroom use.** Intended for all newcomers, instructors and schoolteachers. This is the most popular introduction to Amateur Radio! **The ARRL Ham Radio License Manual** is your ticket to joining the ranks of "ham" radio operators and upgrading to General or Extra.

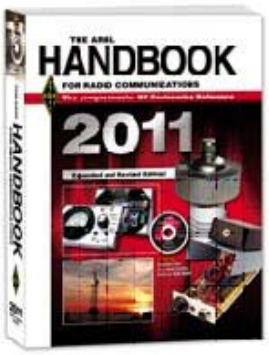
HBLM-1 (Technician Class) ……..……..……..$21.95
HBLM-2 (General Class) ……...……...……..……..…….$21.95
HBLM-3 (Extra Class) ……...……...……...……..……..$21.95



Getting Started with Ham Radio

Get on the air now! A guide to your first Amateur Radio station. Shows how to select radios and antennas, explore operating modes: voice, Morse code, digital and more, and how to assemble your station. Already have your license? Now you can get on the air with confidence. Here, in one place, is help getting started in just about any ham radio activity. Includes sections on **Your First Radio. The Antenna--The Most Important Part of Your Station. Propagation--The Science of How Signals Travel. Using Your Voice on the HF Bands. Code Conversations. The Digital Universe. Chasing Contacts and Wallpaper (awards). FM: "No Static at All." "Weak" Signals and the World Above 50 MHz.**

HBGS-1……..……...……...……..$17.95



The ARRL Handbook for Radio Communications.

LATEST EDITION. Known worldwide by the old moniker "The Radio Amateur's Handbook", or simply "The Handbook", this comprehensive reference book has been a "must have" for every amateur radio operator since the book's inception in 1926. Covers all phases of theory, construction and operating principles as well as numerous charts and reference data for electronic components. Includes "plain-talk" sections covering everything from basic electronics through the latest digital techniques, including SDR. The CD-ROM at the back of the book includes all of the fully searchable text and illustrations in the printed book, as well as companion software, PC board templates and other support files.

HBHB-1..……...……...…….$39.95

Vintage Radio

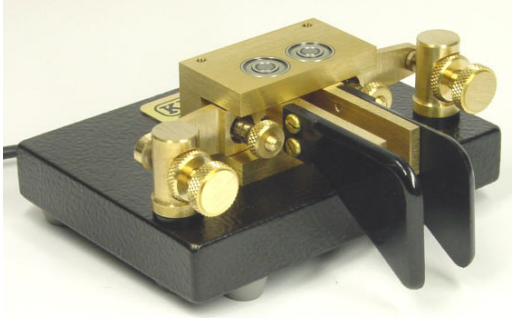
Sporting a picture of DZKit founder Brian Wood on the cover working on a Heathkit DX-100 restoration, this book is a trip down memory lane. Revisit the ham radio of yesteryear! ARRL's Vintage Radio is a collection of articles published in **QST** magazine from 1977 through 2003 describing vintage equipment and restoration. Included are personal experiences and interesting points in the history of Amateur Radio as well as a selection of classic QST ads from the '20's through the '70's.

HBVR-1……..……...……...…….$17.95

We can order any ARRL publication for you at 10% off list price. Just ask!

KENT Precision keys

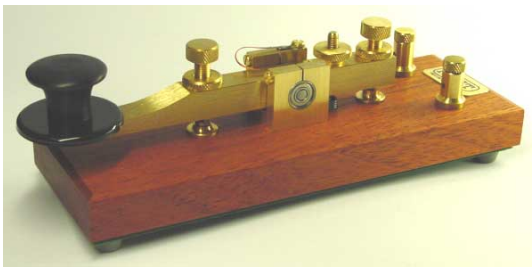
The Kent Engineers are based in England. They've handcrafted a set of Morse code keys and paddles that are of extremely high quality. They have a great "feel", compared to the somewhat "squishy" feel of other popular keys.



The Kent twin paddle Morse key has been designed and precision engineered to the highest standards. The key is machined from solid brass having a solid steel base with non slip feet for stability. Ball race bearings, silver plated contacts and fine pitched screw threads with instrument knurled heads allow precise and individual adjustment on each of the two contacts and springs. **KENT TP-1, 4 lbs……..…….$139.95**

The Kent single paddle key is designed to allow each individual operator total flexibility in setting adjustment. This is achieved partly by a unique spring arrangement, which allows independent left and right spring tensions with finger tip adjustment. The use of precision made contact screws with instrument knurled heads and locking nuts to allows for precise and positive gap setting. The smooth operation of the key is due to the high quality shielded ball race bearing, not found in any other key of this type. All machined parts are manufactured by Kent from solid brass and mounted on a powder coated heavy steel base for stability.
KENT SP-1, 4 lbs……...……..…..$129.95

The Kent professional KT-1 Morse key is produced from brass components which have been individually selected and hand assembled by an experienced work force. The steel base ensures high rigidity and stability in use while high precision ball race bearings and silver plated contacts ensure smooth, reliable, trouble-free operation under the most arduous conditions. **KENT KT-1, 4 lbs……..……...…….$139.95**

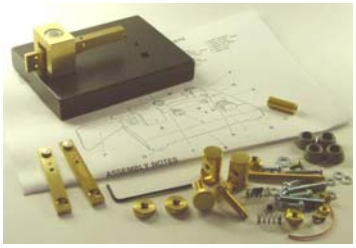


The Kent SK-1 is engineered to the highest specification from solid brass. A superior lasting and trouble-free performance is achieved by the use of silver contacts and sealed instrument ball race bearings, which ensure a totally free pivot movement with minimum friction and side play. Contact adjustment is achieved by fine pitched threaded screws with instrument knurled heads giving micro precision adjustment. The machined wood base is weighted for stability, individually polished, and the underside is trimmed with green baize, non-slip feet and is hand finished. **KENT SK-1, 3 lbs……..…….$119.95**

Note: Kent products are manufactured in England and Germany, and can take up to 8 weeks to obtain if we are out of stock, so please allow up to 8 weeks for delivery.

The TP-1, SP-1 and SK-1 are also available as kits. These kits will take about an hour to assemble. Some soldering is required.

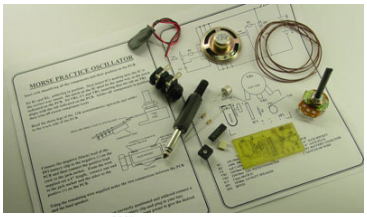
KENT TP-1K, 4 lbs……...…….$129.95



KENT SP-1K, 4 lbs……..…..……119.95

KENT SK-1K, 3 lbs……...…….$109.95

The Kent Morse practice oscillator is a light-weight portable unit internally powered by 1 PP3 battery and is based on the well known Cmos 4047 multi vibrator. The variable pitch oscillator is adjustable from 500Hz to 3Khz and is amplified to give an output of approximately .25 watt. An ideal oscillator to practice sending Morse code and improve your speed. Excellent for learning and teaching Morse code.
KENT MPO, Assembled, 1 1b……..…….$39.95



The Morse practice oscillator kit consists of a full set of components, hardware and PCB, requiring only a case to complete. This kit is well within the scope of the beginner and is ideal as a novice project. Variable pitch 500Hz to 3Khz. 4V to 12V.
KENT MPOK, Kit, 1 lb…….…….$19.95

The Kent touch key and keyer is a twin paddle key and electronic keyer combined. The key is all electronic with no moving parts. The KEY/KEYER combination, although small, is still within the building capabilities of a novice constructor using only a few basic hand tools and a small soldering iron. The compact size and light weight makes this the ideal portable unit while the relative low cost makes a perfect introduction to electronic keying. All components are supplied together with a hardware pack and base. **Kit, 3 lbs……..…….$49.95**

The DZ Company, LLC
www.dzkit.com

When in northern Colorado, visit our retail store, offices and DZKit manufacturing plant, known locally as

Valley Ham Shack
4321 W. Eisenhower Blvd.
Loveland, CO 80537
www.valleyhamshack.com

Call toll free: 877-HAM-SHACK

The Story of DZKit

From the early 1900's on, kit-building has been a way of life for many people. In the post-WWII era, there were many companies making electronic kits. One was Heathkit® , a large company ($100M in sales in 1979) based in Benton Harbor, Michigan. They made kits of every kind, from simple learning tools to organs, color TVs, stereos, CB radios, test instruments, marine electronics, darkroom equipment, garage door openers and amateur radio equipment. The large influx of imported electronics in the mid-1970's along with the computer phenomenon starting in the late 1970's caused many American electronics businesses to fail. Heathkit became another victim of the day, bought and sold numerous times until only its educational products remained. Although they remain in business, they no longer sell kits.

In 1965, a 14-year old ham radio enthusiast named Brian Wood discovered Heathkit products and eagerly built many of them. His interest in electronics led him into an electrical engineering career at Hewlett-Packard®, and then to Agilent Technologies®, which was spun off of HP in 1999. Eager to show the fun of kit-building to a new generation, and after 33 years of "training" at HP/Agilent, Brian retired at 55 and, with 3 other hams, formed The DZ Company, based on the last two initials in his amateur radio call letters (W0DZ). The first product, in development for five years, was the Sienna, an all-mode HF transceiver with an industry first — a built-in compact PC to handle the chores normally done by laptops and desktop computers without the associated abundance of interconnect boxes and cables.

Thus was laid the groundwork for DZKit products — no "me too" products, but rather products that make a contribution to the industry by offering features not available elsewhere, with solid engineering and excellent customer support. We also believe strongly in avoiding outsourcing wherever possible. All of our products are designed and built in the U.S., and we also have distributor agreements with certain companies in the U.S., England and Australia which we know to make high quality products.