

Robert AK3Q

HF Radios on the Cheap

- Buying used can often save hundreds of dollars off the original cost
- Sites like qrz.com, eham.net, ebay and other auction sites can have really good deals, or they can be over-priced rip-offs.
- Ham fests, swapmeets, local clubs all can have opportunities to buy used gear at a significant savings
- Estate sales are also good options but you may have to wait a while as these are not as common
- With any used equipment there is always the caveat that you have some idea of what you want and what price you are willing to pay
- Also research is your best friend, not just features of a radio, but also common used prices for excellent, good, moderate, and the "needs work" radios
- A radio does not have to be in excellent cosmetic shape to work, and functionality is more important than looks, but if you can find a radio in which has been taken care of physically, then it is usually, but not always, more likely to work better
- Always test a radio whenever possible, either yourself or with someone knowledgeable about radios
- If buying from a swapmeet site or auction site, try to use either references, ratings, or personal contact over the phone or email to get a sense of the person selling the equipment
- Some sites which accept paypal payments will have a buyer guarantee that if an item is described deceptively or is not what you ordered, paypal will work with you to resolve a problem or even refund your money
- Another thing to look for if an item is expensive is insured shipping – that way if the item is damaged in shipment there is insurance to cover your loss
- If you are willing to learn about tube radios, some real deals can be found for well under \$300
- Similarly some of the least expensive radios (new) are the Yaesu FT-450D, Icom 718, and the Alinco SR8T – all of these pop up on used sites regularly and can be bought for \$300+ and are great starter or lifetime radios

Some current sample QRZ.com used HF rigs

- 275\$ for the ICOM 745/ PS35 QRZ
- Icom IC-745 & MFJ Tuner \$350 QRZ
- Icom 745 HF Transceiver w/ built -in power supply \$425 shipped

[BITX40](#)

Work the world on 40 meters (\$59 USD)

The BITX40 board is a two board, 40 meter SSB transceiver module kit with digital control! Inside an evening, you can be on-air with this digital SSB transceiver, chatting with the local gang or chasing DX. Plug in the earphones, the included electret mic, tuning and volume controls and you are on air! Included are high quality connectors, all the needed sockets and jacks, tuning and volume controls, mounting hardware, etc.

Raduino is an Arduino Nano powered, small, hackable board based on the rock steady Si5351 synthesizer with a clean 16x2 frequency display, free and open source code, 6 analog ports, three oscillators and six digital lines.

- Very little soldering involved, and the instructions seem pretty straight-forward. This is not a traditional looking radio, but it is something which has a good reputation, gives some pride of building, and is certainly a good price!

Xiegu X1M Pro QRP Transceiver \$360

Frequency range RX & TX: 100 kHz ~ 30 MHz*

Modes: USB & LSB & CW

Power output: 5 Watts

Operating voltage: 12 vdc

Operating current: 0.35 ~ 1.2 amp

Receiver Preamplifier: Yes

Memory Channels: 100

RIT Function: Yes

Automatic Internal CW Keyer: Yes

Backlight On/Off: Yes

Keyboard lock: Yes

[YouKits](#)

[HB-1B MK3 4 band QRP CW transceiver fully assembled and tested](#)

\$299.00

2015 New version with SWR indicator, Comes with 18650 lithium battery pack and charger QSK - full break-in, New IC and hardware upgraded, Assembled unit, tested and ready to use. 5 amateur band in one rig, no module needed.

Youkits new EK1C 3 band CW transceiver!
 Working on 20m,30m and 40m band. \$189.00

Youkits SK-1A 40M single band SSB CW Transceiver fully assembled and tested
 \$189.00

MFJ Radios – too many to list all, but here are some representative samples:

MFJ-9020	20 METER CW TRANSCEIVER	\$209.95	
	MFJ-9030	30 METER CW TRANSCEIVER	\$209.95
	MFJ-9040	40 METER CW TRANSCEIVER	\$209.95
	MFJ-9120B	DELUXE 20 M. CW XCVR STATION	\$384.

This buys complete CW stations. Includes CW Transceiver; MFJ-971 tuner, MFJ-4114 power pack, Portable antenna...

MFJ-9320K	QRP CUB TRANSCEIVER KIT, 20 METERS	\$99.95	
	MFJ-9320W	QRP CUB TRANSCEIVER 20 METERS ,WIRED	\$149.95

	MFJ-9330K	QRP CUB TRANSCEIVER KIT, 30 METERS	\$99.95
	MFJ-9330W	QRP CUB TRANSCEIVER 30 METERS, WIRED	\$149.95
	MFJ-9340K	QRP CUB TRANSCEIVER KIT, 40 METER	\$99.95
	MFJ-9340W	QRP CUB TRANSCEIVER 40 METERS, WIRED	\$149.95
MFJ-9420	TRANSCEIVER, SSB, 20-METER	\$259.95	
	MFJ-9420X	TRANSCEIVER, SSB 20-METER WITH MICROPHONE	\$269.95
	MFJ-9440	TRANSCEIVER, SSB, 40-METER	\$259.95
	MFJ-9440X	TRANSCEIVER, SSB 40-METER WITH MICROPHONE	\$269.95
	MFJ-9475	TRANSCEIVER, SSB, 75-METER	\$259.95
	MFJ-9475X	TRANSCEIVER, SSB 75-METER WITH MICROPHONE	\$269.95

[QRP Labs](#)

Ultimate3S QRSS/WSPR kit - The Ultimate3S QRSS/WSPR Transmitter Kit transmits various QRSS, Hell, Opera, PI4 and WSPR slow-signal modes on any LF, MF, HF or VHF band (all amateur bands from 2200m to 2m or 222MHz). This kit includes:

- Main U3 PCB with LCD module and all components
- Si5351A or OCXO/Si5351A (see note below) synthesiser module kit (Si5351A chip is pre-soldered at the factory)
- Low pass filter module kit for one band (choice of any band from 2200m to 222MHz)

The kit supports the following modes:

- - QRSS mode (plain on/off keyed slow CW)
- FSK/CW mode (frequency shift keyed slow CW)
- DFCW mode (dual frequency CW)
- WSPR mode (Weak Signal Propagation Reporter)
- WSPR-15 experimental WSPR mode with 15-minute frames
- Opera modes (8 speeds)
- PI4 beacon mode
- JT9 modes (5 speeds)
- Slow-Hellschreiber (frequency shifted slow-Hell)
- Full-speed Hellschreiber
- Half-speed ("DX") Hellschreiber
- CW (plain CW)
- FSK (0-999Hz shift, fast-speed FSK CW)
- Customisable FSK patterns
- manually-keyed CW/FSK transmitter
- JT65 modes
- ISCAT-A and B

Deluxe set contents:

The Ultimate3S QRSS/WSPR Transmitter Kit transmits various QRSS, Hell, Opera, PI4 and WSPR slow-signal modes on any LF, MF, HF or VHF band (all amateur bands from 2200m to 2m). This set comprises:

- Base U3S kit with LCD module, microcontroller with latest firmware, and all board-mounted components
- Si5351A synthesiser module kit (Si5351A chip is pre-soldered at the factory)
- Relay-switched 6-band Low Pass Filter extension kit
- Low pass filter kits for 10, 15, 20, 30, 40 and 80m
- QLG1 high-sensitivity GPS receiver kit
- 2 extra BS170 transistors, as spares or in case you want to try higher power output
- Ultimate3 enclosure kit, drilled, printed, and with controls, connectors and accessories. Shipped separately from China by airmail

The kits are easy to build, with through-hole components only (no surface mount soldering). Additional plug-in low pass filter modules are available for any of 13 amateur bands from 2200m to 6m. The kit can transmit on any frequency up to 150MHz, with the appropriate low pass filters.

[Pacific Antenna](#)

MBDC Transceiver: 200.00 -- 80-160m CW 5.5watt transceiver; receive 100 kHz-21.5 MHz

KD1JV Tri-Band CW Transceiver –

- Any three ham bands, 80, 40, 30, 20, 17 or 15 meters, choose at time of order.
- 5 watts output on all bands with 13.8V supply
- Built in Iambic keyer with 5 to 40 wpm code speed, selectable Iambic A or B modes and two 63 character message memories.

MST2

The Minimalist Sideband Transceiver 3 (**MST3**) is designed in Australia by Leon Williams VK2DOB, along with a digital display kit and SWR meter kit as options. MST2 can be built for 20m, 40m, or 80m, with 5W PEP power output using a power MOSFET output stage. It is a Superhet receiver using a 5 pole 10MHz crystal filter. Price ~ \$200

ILER SSB by EA3GCY

Another SSB radio kit is the [ILER-20](#) 4-5watt QRP SSB monoband transceiver. This kit is also available in a 40m version, and the frequency coverage range can be selected according to operating preference
Specifications according to the manufacturer:

- Frequency Coverage: VXO tuning 20 a 100KHz segment in 20M band (60-70KHz for better stability). Bandwidth range is selected according L6 value in the VXO circuit. (ILER-DDS optional).
- Frequency Control: high stability VXO oscillator.
- Option A: two 11.000MHz. crystals (upper limit approx. 14.276MHz)
- Option B: two 11.046MHz. crystals (upper limit approx. 14.320MHz)
- Variable capacitor tuning
- Antenna: 50 ohms.
- Power: 12-14VDC, 35mA receive (no signal), 100mA max. receive. 800-900mA on transmit
- Parts: 51 resistors, 77 capacitors, 3 adjust resistors, 1 trimmer capacitor, 1 potentiometer (volume), 9 IC's, 8 transistors, 12 inductors, 6 RF transformers, 1 variable capacitor tuning, 7 crystals.
- Controls: tuning, volume, RX switch attenuator
- Connectors: micro/PTT, phone jack, antenna, DC in.

This radio is great for simple QRP work with a receive power drain of 35mA or less, and a TX drain of 800mA. The receiver is a simple single conversion superheterodyne and balanced mixer design, and requires a dynamic 600 Ohm microphone. The construction is through-the-board, with no surface mount parts (that's a plus if you're like me!).

For a taste of the past there are a number of kits available for building radios which reflect the early days of amateur radio. A simple kit which can serve as a code practice transmitter is the LOOK MA Qrp CW TX Low Voltage Tube transmitter oscillator breadboard kit from [Pastime Projects](#). This singletube design is a great introduction to tube-type radios using a crystal. The extreme low power means it will not go much farther than the shack, which makes it a great code practice radio. I plan on using this as I learn code this winter, a lot more fun than just using a modern Morse code practice oscillator kits, and not much more expensive, either!

The company also offers a more traditional QRP kit for 40m or 80m, the 6V6 Transmitter kit, based on designs common in the 1940s. This radio puts out 2-5 watts and so can be used as a standard QRP rig, but with a real olde thyme design, including nails and sucker sticks! It is crystal controlled, but changing bands requires re-soldering a coil, therefore it will typically be used only on one band. There is also a companion power supply, the PPS—1, which can be used with any radio, not just the 6V6 (120 VAC primary voltage output as supplied; approximately 200 VDC max; transformer rated at 250 VCT @ 130 ma and 6.3 VAC @ 2A).

Todd (KY4TS) mentioned Elecraft which makes some amazing kits – as he mentioned, they are fairly expensive, but they do have a great reputation, and used, can have prices which are more approachable.