

Elmers Corner: Radio Kits

By Robert Gulley AK3Q

I confess fall and winter months bring me thoughts of what kits I am going to build, and what interesting projects I can explore. In this edition of The Elmers Corner I would like to explore some of the more interesting radio kits which have come on the market in the last few years, and maybe, just maybe, tickle the builder hiding within!

Digital SWR Kit

A kit by [Radio-Kits](#) allows the user to build a nice HF SWR meter which can be used for QRP or for 100+ watts depending on power supply. Like many kits the user supplies their own case, and this can be quite convenient for ensuring the size and weight of the case can match QRP needs, if that is the intended use. The company actually offers two display options which is a nice touch, one high contrast and one a more soothing blue/white combination.

An interesting kit which could be quite useful while learning CW (as well as learning to zero-beat a tone) is the [Son of Zerobeat](#). This board has 7 LEDs which graphically indicate the frequency of a received CW audio tone. By adjusting the transceiver's frequency until the center green LED lights up, the signal will be within +/- 10 Hz of zero beat with the transmitting station. The kit comes complete except for a few user-supplied parts: metal enclosure, +12V power jack, audio jack and a switch to complete the kit. The offset frequency is adjustable from 400 to 1200 Hz by cycling a switch, and the unit has a default offset frequency of 600 Hz.

Another kit which I have on the shelf waiting for a cold winter's day is the [QRP Labs Ultimate 3](#) QRSS/WSPR kit. The Ultimate3 transmitter kit transmits QRSS, Hell, Opera, PI4 and WSPR slow-signal modes on any HF or MF band. The kit comes with one plug-in low pass filter module. Additional plug-in low pass filter modules are available for any of 12 HF or MF bands from 2200m to 10m. The kit can transmit on any frequency up to over 40MHz, and changing bands is a matter of plugging in the appropriate low pass filter kit to attenuate unwanted harmonic output.

The Opera mode is of particular interest to me as some of the utility boards I monitor talk about this mode extensively, but I have never been able to give it a try. With a kit like this well under \$50 (US), one can afford to experiment a bit without breaking the bank. And there is always the thrill of using something you built yourself!

Single band radios are a great kit value, and in addition to the more common CW kits, there are some SSB kits starting to show up such as the KN-Q7A SSB Transceiver Kit by [CRKITS](#). There is a 20m or a 40m option kit, with 10 watts PEP for 40m, and 5 watts PEP for 20m.

MST2

The Minimalist Sideband Transceiver 2 ([MST2](#)) 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.

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

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!).

EA3GCY also offers a QRP tuner kit, the ILERTENNA 40m-15m end-fed QRP tuner:

- Frequency Coverage: 40-15m (30-10 m modified).
- Antenna type: "end-fed" or "zeppelin"
- 5 watts CW 10 watts P.E.P.
- LED SWR indicator
- Only weighs about 100 gr.
- Connectors and controls: Tune, Tuning/Operate switch, Antenna sockets, BNC to Radio
- Size: 80 x 50 x 22 mm.
- All components, Box, PCB, knob and connectors included

An end-fed antenna is a great option for portable work, needing only one end to be fastened to a tree or other high point, and a counterpoise along the ground. The small size of this tuner makes it easy to pack, and of course it can be used for other antennas as well.

For lighter fare, [Oak Hills](#) makes a kit for adding a digital display to older radios like my Realistic DX-160, or any other radio needing a digital display for accurate tuning.

From the company's product description:

The DD-1 is a six digit counter, and the counter will operate with tube or solid state equipment having a variable oscillator system up to 50 MHz. It will accommodate cases where the oscillator tunes in reverse with respect to operating frequency. Direct frequency readout can be displayed with any IF offset as long as the frequency being measured is 50 MHz or less. These displays are often used with QRP kits such as TenTec and MFJ, as well as the QRP kit offered by Oak Hills.

The company also offers a wattmeter kit, the WM-2, which is specifically designed for QRP work. One of the difficulties in using regular wattmeters is that the accuracy at low power levels is often lacking, to say the least. The WM-2 is designed to be accurate at QRP levels. It can measure power levels (both forward and reflected) down to 5mW.

Olde Thyme Radios

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 single-tube 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.

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).

Wrap-Up

These kits are reasonably priced, a good educational tool, and something of which to be proud for being home-brewed. While I do not get the opportunity to build as many things as I would like, every piece of equipment, just like every antenna I build, brings with it a great sense of satisfaction.

Web Address of links above:

http://www.radio-kits.co.uk/swr_meter/index.htm

<http://wb9kzy.com/zerobeat.htm>

http://www.qrp-labs.com/index.php?route=product/product&path=59&product_id=50

<http://www.ozqrp.com/index.html>

<http://ea3gcy.blogspot.com.es/2013/03/iler-20-4-5w-qrp-ssb-monoband.html>

<http://www.ohr.com/>

<http://www.pastimeprojects.com/transmitterkits.html>