

Tablerock “Shortwave Daddy” Receiver Kit

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In the olden golden days of radio, experimenters would contrive simple receivers commonly called “breadboard” radios, reflecting the use of broad pieces of wood (often actual breadboards) used to screw down parts and wiring.

The closest thing we have now to breadboards are printed circuits with their miniature components soldered in place. The “Shortwave Daddy” is an excellent example of this latter architecture. It is available both as a kit of parts and as a fully factory-assembled model. A detailed, well-illustrated assembly/instruction manual is included. A case is not.

The receiver is intended to be used with a computer and is powered directly from that computer’s USB port and uses the computer’s sound system. No driver software is required, and the platforms of Windows 7, Vista, and XP as well as many legacy versions will work.

MAC (Apple) versions will work as well with the addition of the free LineIn program available from www.rogueamoeba.com/freebies.

Lacking driver software, there is no automatic recognition of the USB port into which the receiver is plugged. Step-by-step instructions lead the user through the process of choosing the port from the computer sound settings in its operating system.

A BNC connector and a 3.5 mm (1/8-inch) jack (this is not an audio connector) are provided for your choice of antenna plug.

The 1-inch x 3-inch, four line, 20 character LCD panel shows the receive frequency, relative signal strength, signal to noise ratio, FM call letters, and station type if transmitted (rock, classical, etc.).

The circuitry makes use of commonly-utilized chips found in automotive radios that cover the AM and FM bands. Since off-shore-manufactured radios are more likely to have shortwave coverage as well as extended AM and FM band limits, the chips enable this radio to cover 149 kHz – 30 MHz (AM) as well as 64-108 MHz (FM) in order to satisfy the requirements of the foreign automotive market.

In this receiver, AM/FM/shortwave reception is provided by a Silicon Labs S14735 chip that is, in turn, controlled by a Microchip PIC18F2550 microprocessor. Audio decoding is done by a PCM2906C codec IC.

For readers with boundless technical curiosity, SL’s programming guide for the receiver chip may be downloaded at www.silabs.com/Support%20Documents/TechnicalDocs/AN332.pdf. AGC attack and release rates, front-end AGC control, and many other functions may be massaged by reprogramming. This aftermarket capability will be covered more below.

Receive frequencies may be directly keyboard entered, or auto searched at the touch of a single pushbutton. The scan rate varied from 30-70 steps per second depending on the frequency range. Steps are 1-kHz AM, but larger for the wider-spaced FM channels which are separated by 200 kHz in the U.S.

A row of four separate pushbuttons select AM, AM seek, FM, and FM seek. When the auto tuning seek function has been selected, the radio will rapidly step in search of active channels, stopping on an occupied frequency for listening.

All frequency entries are made in a five-digit format followed by a press of the # key. 15000 kHz (15 MHz) would be entered as 15000; 5000 kHz as 05000; 650 kHz as 00650; and 95.1 MHz as 09510 (no decimal is necessary).

AM selectivity is keypad selectable in seven steps from 1- 6 kHz. But it’s not a simple matter of pressing the corresponding numeric key; it’s encoded just like the frequency entry. For example, a selection 3-kHz bandwidth would be made by pressing 00002. A chart is provided. FM selectivity is not adjustable. Should a functional glitch occur, a convenient reset button is provided to give the circuitry a fresh restart.

❖ The Bottom Line

There is no pretense about this radio; it’s not intended to compete with full radio receivers or SDR black boxes. Its primary goal is to satisfy those who would like to build a receiver that can be custom programmed for various settings.



The Shortwave Daddy is built around a professionally-laid-out PC board utilizing high quality components. All factory pre-drilled holes are “through hole” making soldering a more reliable process. The few connections for surface-mount connections, and the surface-mount parts themselves, are solder-plated for more secure attachment.

The well-written assembly steps, tutorial techniques, and illustrations are reminiscent of the high-quality Heathkit instructions that accompanied that company’s legendary kits.

The compact 7-inch x 4-inch board outline invites housing in a case, although that certainly isn’t necessary for satisfactory operation. Rear-edge connectors for the antenna and USB cord are very sturdily mounted.

The selectivity options certainly do help reduce adjacent-frequency interference on the shortwave bands. Naturally, high frequencies of the audio become attenuated with the tighter bandwidths.

Sensitivity throughout its reception range is excellent. On shortwave the sensitivity was on par with a \$5000 communications receiver.

We noticed some pumping of the audio on strong AM signals, especially at narrow bandwidths. Widening the selectivity minimized this while also increasing the audio in the treble (high frequency) range. This effectively reduces sensitivity by increasing the signal-to-noise ratio (SNR).

As previously mentioned, this is an experimenter’s radio, not a competitive DX machine. The manufacturer is planning to open-source its operating software, enabling computer-savvy technical types to do their own coding. ICs are plug-in, allowing substitutions to preserve original programming in the factory chips.

The resident program on the PIC18LF2550 is written in C language. An on-board, six-pin header allows the user to experiment with his own program using a tool like the Pikit 2 programmer.

We would not recommend the kit as a first assembly project for budding electronic hobbyists, but for skilled enthusiasts with a delicate touch, it awaits your soldering irons. And, if you’re too anxious to build one yourself, the factory-assembled version awaits.

The Shortwave Daddy is available in kit for \$234.99 and the factory assembled and tested model sells for \$289.99. U.S. shipping is \$10.95 from Tablerock Electronics Company, 2520 La Cumbra Circle, Rancho Cordova, CA 95670. Visit their website at shortwavedaddy.com.