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Torrestronics TK-1 Digital Display Kit

by Randy Tomer

During the endless rains last winter I passed some of the time by assembling a Torrestronics digital display kit to use with my HQ-180A. I selected the Torrestronics kit because of its reasonable price ($100) and because of its versatility--it can be programmed to work with almost any communications receiver simply by exchanging the settings on four DIP switches. It can also be connected to two different receivers at once, reading the frequencies of either one at the flick of a switch, providing the receivers are not triple conversion (and both receivers not running at the same time, I presume). When used with a multiple conversion rig like the HQ-180 it can only accept one receiver without having to reset the DIP switches.

The TK-1 uses 3 red MAN-72 LED's for displaying kHz, and a single green MAN-52 for showing the nearest 0.1 kHz. No MHz is displayed. The unit is housed in a not-so-attractive black metal cabinet and contains its own AC power supply. It will count frequencies on receivers with IF frequencies ranging from 100 kHz to 50 MHz.

Assembly wasn't too difficult, but I've had plenty of experience in kit building. I definitely would not recommend the TK-1 kit for the first-time kit builder unless he is well inclined mechanically, as the assembly instructions aren't quite up to Heathkit standards for clarity. Anyone at all familiar with digital circuitry will have no problem.

PERFORMANCE: Fantastic on the Broadcast Band. The TK-1 introduced little or no QRM on BCB frequencies and could be left on continually, even when using a loop antenna located near the receiver. Shift in oscillator frequency due to adding the oscillator output cable to the receiver was absolutely minimal. In short, great for BCB!

On shortwave frequencies it was a whole different story. I don't know which was worse, the loud popping noise it introduced (which covered all weak DX) or its large degree of de-tuning due to oscillator shift. After tuning to a weak station and measuring its frequency, the station would totally disappear when the TK-1 was switched off, and quite a bit of retuning was required to find the same station again. I assume this problem could easily be corrected by introducing more isolation between the HQ-180's oscillator output and the TK-1, but I simply followed Torrestronics' recommendations, which apparently do not provide enough isolation in my particular receiver. The QRM on shortwave was totally unacceptable to me, so I returned the unit to Torrestronics for testing. A month later it was returned to me stating that it "exceeded all specs" as I had assembled it but that they had added a couple of tantalum capacitors to improve the noise level. I could detect little improvement. Included with the TK-1 this time were instructions for a better way of coupling the display to older tube receivers. This way appears to have much more isolation, but I haven't tried it yet. Ask for these instructions "Mating the TK-1 to Very Old Receivers" if you plan to use the unit with an older tube receiver. I should add that most of the shortwave problems occur in the HQ-180's triple conversion bands, so a simpler single or dual conversion rig would probably have fewer problems with this counter.

There is one other complaint I have about the Torrestronics counter. When switching it on or off, it makes a very loud RF pop that really pins the receiver's S-meter hard. I have developed the habit of turning the RF gain down before switching the counter on or off, but I'd still rather have it not happen to begin with.

All in all I have found the TK-1 to be a very acceptable and affordable performer on the BCB, but not quite so good on the SW bands. It also worked well with my Realistic TRF. It is also available in assembled form (the WTK-1) for $135. I recommend it especially for use with older receivers with poor dial calibration on the BCB but otherwise having good BCB performance. The operating manuals that come with the TK-1 are excellent. A detailed theory of operation is given, as are detailed instructions for hookup to various receivers. The instruction manual covers hookup mainly for the common ham transceivers, but instructions are also provided for the HQ-180, Drake SPR-4 and R-4C, Yaesu FRG-7, HRO-60, SP-600, and the DX-160. Instructions will be provided for any receiver not in the operating manual. I should add that Al Torres of Torrestronics was very friendly and helpful in answering my questions over the phone. The TK-1 is available from: Torrestronics Inc., 4850 Hollywreath Court, Dayton, OH 45424. Phone (513) 236-2534.