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HP-48 TO CONTROL NRD 535 - By Tom Napolitano

What follows are some thoughts on the subject of computer control of receivers. One would have to have been asleep for the past decade not to have noticed that most high end receivers today are made with the option of computer control, or at least have within them the provision for adding this at a later date. The solution that is usually proposed is to attach a personal computer to the receiver to handle the control functions from the keyboard. I describe here a different approach, one that suggests that smaller is better. Instead of a full fledged personal computer, I use a hand calculator as the controlling device.

Nerd is a program (actually a series of programs) that enables the Hewlett-Packard HP48s/sx/g/gx series of handheld calculators to be used with the Japan Radio nrd535 shortwave receiver as both a controller and a data manager. After using the nrd535 for a few hours, one notices that many of the features are controlled by very few pushbutton switches. The problem is that switches are expensive and many do double duty by cycling through several options in a cyclical manner. This gets old fast. Another, more basic problem with the 535 is the fact of only 200 internal memories to work with. 1000 would have been a better number and with the price of RAM these days, it would have been cheap to add.

After listening to shortwave for onto 35 years now, and using a computer to keep files of hot frequencies, I've found that maintaining electronic lists is a lot easier than paper. In practice, there are two types of lists I maintain, those that are time of day sensitive and those not. An example of the first is a list of FAX frequencies any of which may be active at any time of day. Another is a list of aircraft frequencies. The second type of list is one of time periods and the frequencies a station is known to broadcast on at that period. With these concerns in mind, I attempted to manage my frequency data files, interface with the receiver and make some of the more cumbersome features of the machine more convenient. Data files are maintained in one of two formats, depending upon their nature as just described. Data can be downloaded from any computer that supports the HP48 data transfer protocol; this includes most every computer ever made.

The HP48 series of handheld calculators come with from 32k to 128k of memory and can be fitted with as much as 4megabytes of ram in its latest incarnation, the HP48GX. I've found that within the 288k I have, I can implement all the features I need, and still have room left over for a MUF program, a graphical sun terminator program and several personal information management files.

The commands available are:

nerd -- will download a list of frequencies to the nrd535 including the filter selection and mode.

nrdlist -- will take a range of UTC times and search through a data file to extract those frequencies within that range for later use by the "nerd" command.

sort -- to sort a frequency list before sending it to the receiver.

user -- downloads the user setable options.

putusr -- the opposite of "user", used to recover your custom settings after a power line hit.

In addition, numerous simple commands are dedicated to various calculator buttons such as tapeon and off, turning the receiver power off and on, logging the current frequency, storing to a receiver memory and loading a frequency from the display directly to the receiver vfo. One handy feature is the ability to change mode with a single dedicated button that simultaneously changes the filter. This is all made possible by the ability to redefine any of the calculator's 52 buttons to generate any command. Typically, I will listen to stations, scanning with one hand and holding the calculator like a remote control that enhances the ergonomics of the nrd535. Here are some of the commands I use regularly.

usb,lsb,am -- change mode with the push of a single button, while simultaneously switching in the proper filter.

ton,toff -- turn the tape recorder on/off.

logg -- log the current receiver settings into the HP48 for posterity.

freq -- dump the currently displayed HP48 frequency to the receiver.

stn -- store the current receiver information to a designated receiver location.

on,off -- power on/off the receiver.

clr -- clear all receiver storage locations

As you can see, this turns your calculator into a dedicated remote control, although you still need the hard wired rs232 connection. No IR yet, but watch this space for further developments.

Within the HP48 is a clock and an alarm system that allows one to run any program at a given time or repeated at intervals. Thus any of the commands I've defined can be made to run at any time for the ultimate in tape recorder control.

One last thing, for all you folks with problems with rf interference with computers. You can lay the hp48 right on top the receiver without a bit of ipterference. The controlling hp48 is as mobile as you want to be. Its battery powered, stands alone, and can go wherever you and your receivers go. As for availability, I wrote this to test the waters for any interest in computer control software among the members. I will be happy to share any of this software with others who may be contemplating using or writing control software of their own.