Setup of an Expert 1K-FA with a Flex 3000
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The following is a description of the hardware interconnection and the software setup of a Flex 3000, and Expert 1K-FA using DDUtil and PowerSDR. Figure 1 shows my hardware arrangement.

20/15/10-Meter

80/40/17/12-Meter

6-Meter

Antenna Switch

Ant 3   Ant 1

Expert 1K-FA

Input 1 PTT   RS232

COM1   LPT1

Windows 7 PC

IEEE 1394
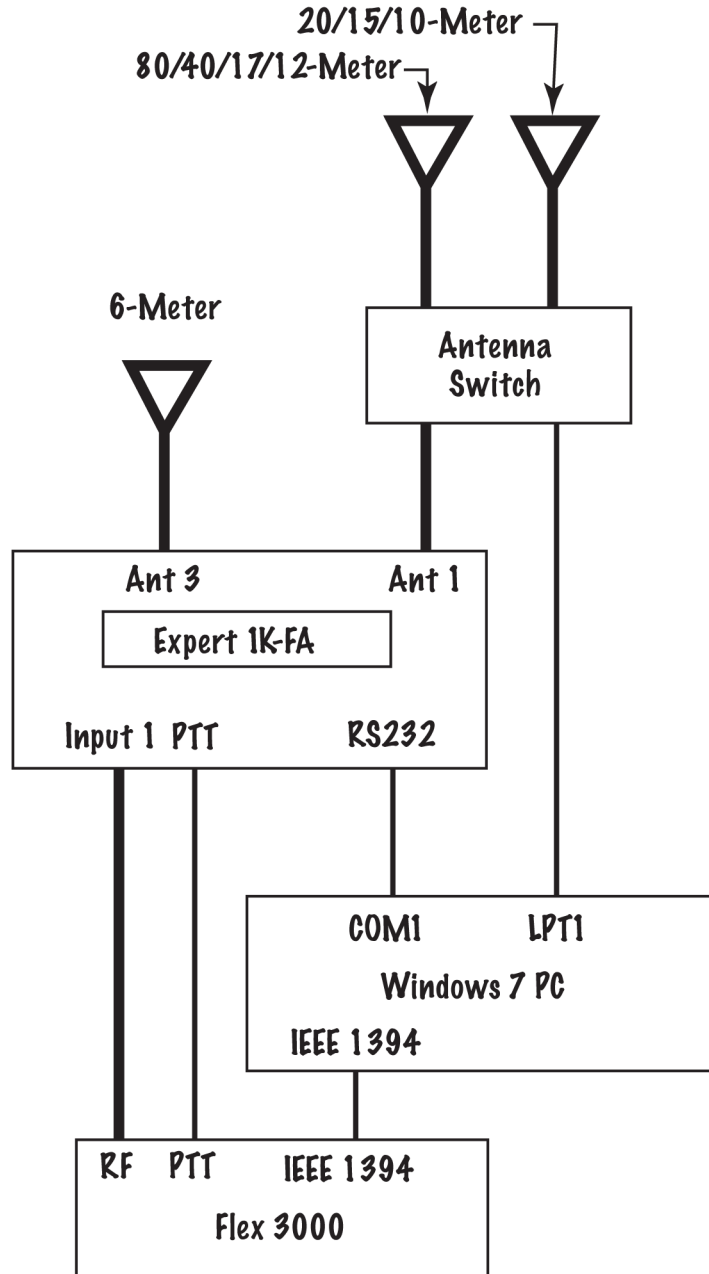
RF   PTT   IEEE 1394

Flex 3000

Figure 1.

The Windows 7 computer is wired to the Expert 1K-FA RS-232 connector using a standard serial cable connected to an RS-232 connector on the PC motherboard. This serial port is configured as COM1 by the operating system. A cable connects the PTT line on the Flex 3000 to the PTT connector on the "Input 1" section of the 1K-FA.

The LPT1 port was brought to the rear of the computer using a ribbon cable from the motherboard to a standard parallel connector. It is connected to a modified MFJ switch to allow computer-controlled selection of the antennas using DDUtil.

The Expert 1K-FA antenna selection is configured as described in the Users Manual in pages 50-51. 80-meters through 10-meters are configured for Antenna 1 and 6-meters is configured for Antenna 3. The RS-232 CAT settings are configured as described on page 57 and shown in Figure 2.
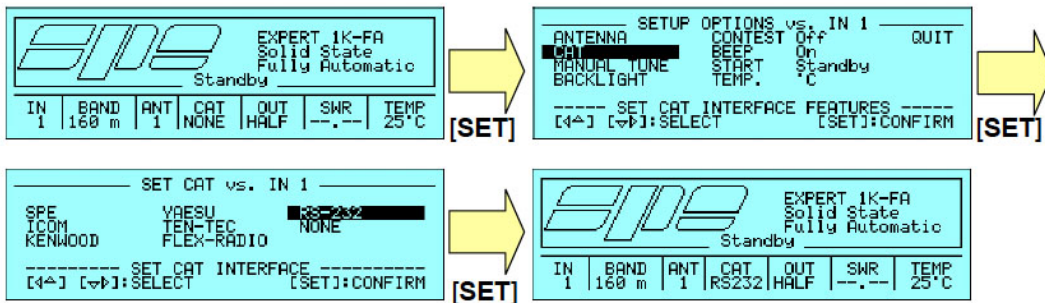
Figure 2.

DDUtil is configured as described in the following tabs: The Ports tab is shown in Figure 3. The Radio CAT port uses a virtual COM port directed to the CAT control of PowerSDR. The Passive Listen port, COM3 is a USB/RS-232 hardware port connected to a Palstar AT-AUTO Antenna Tuner not shown in Figure 1.

The RCP1 CAT port is connected to the "Commander" module of the DXLab Suite and serves as an alternate to PowerSDR for control of the Flex 3000.

The Parallel Port LPT1 with Port Number 888 is used to control the modified MFJ Antenna Switch.

Figure 4 shows the BCD tab and shows part of the setup of the data for control of the Antenna Switch depending on the frequency of operation.
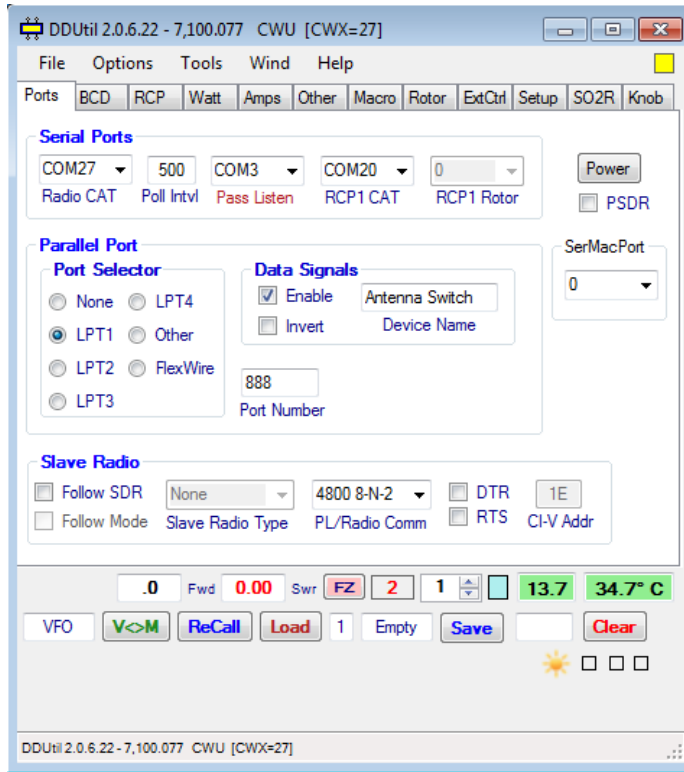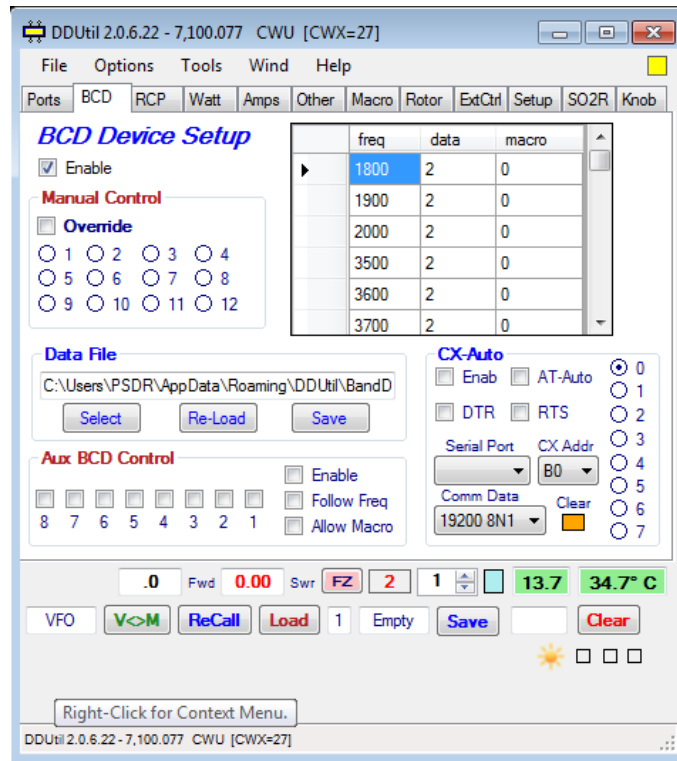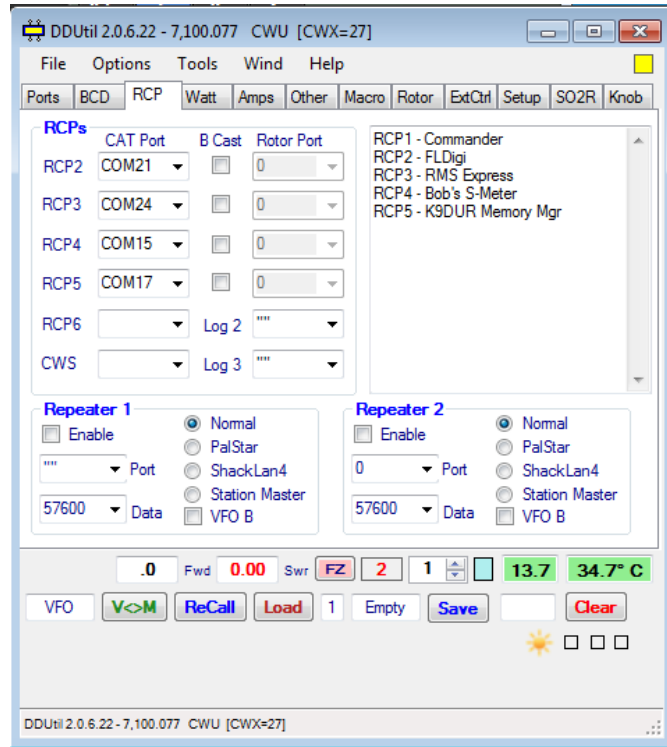
Figure 3.

Figure 4.

Figure 5.

Figure 5 shows the different Virtual Com ports used by other programs used in connection with the Flex 3000.

Figure 6 shows the DDUtil "Amps" tab and the use of the COM1 Serial Port for connecting to the Expert 1K-FA. Note that the SPE 1K-FA is shown in a "Power-On" state and a temperature of 31° C is indicated for the amplifier.

Finally, Figure 7 show the "Other" tab that uses the Auto Drive capabilities of DDUtil that prevents overdriving the input of the Expert 1K-FA by automatically reducing the output power of the Flex 3000 when the yellow STBY button is activated. _One should follow the DDUtil instructions for presetting the lower drive settings for the amplifier._

Note that the appropriate bands are checked, and 1 Key Line, the Manual TX, and the BOBC items are checked also. The "Amp Follows Both" and the 1 Key Line don't really apply to this situation, but selecting them is not harmful. The Manual TX disables DDUtil's control over the PTT line that is not needed because the PTT lines of the Flex 3000 and the Expert 1K-FA are hardwired.

The BOBC (Bypass on Band Change) box is also checked which causes the PTT line to go to "Stand By" during band changes. This may not be needed since the Manual TX is checked.
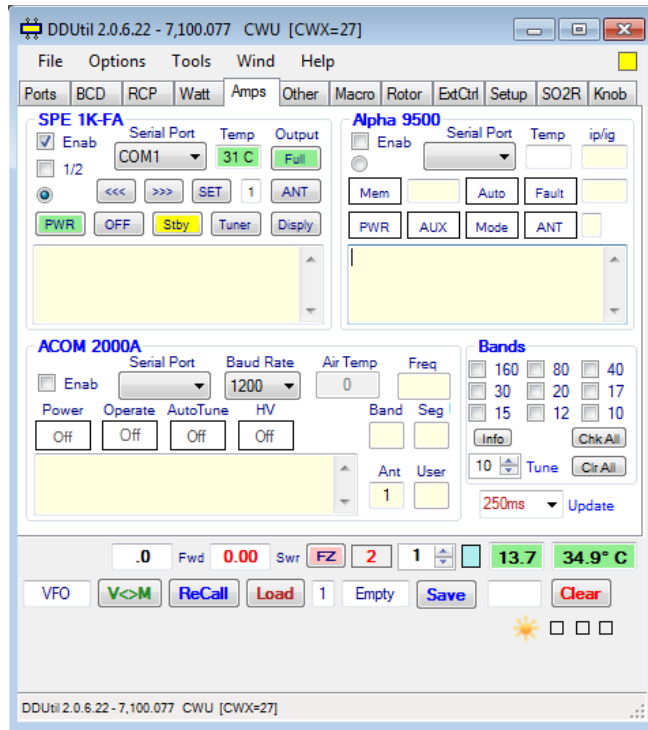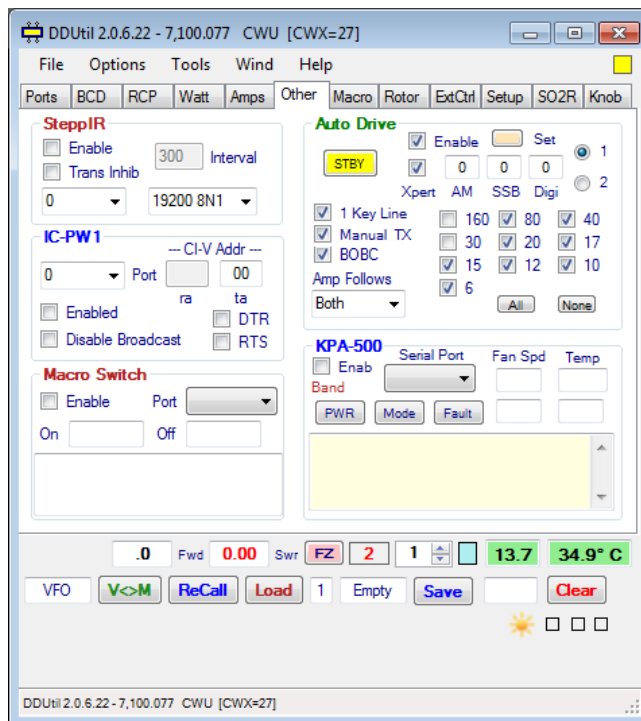
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Figure 6.

Figure 7.

In order to energize the Expert 1K-FA, the operator first goes the DDUtil Amp tab and selects the PWR button that turns green. In this state, the 1K-FA will change bands when a different band is chosen in PowerSDR. If the Flex 3000 is in the low-power "Tune" mode, one can push the "Tune" button on the 1K-FA front panel to cause the antenna tuner to adjust for minimum SWR.

To "activate" the amplifier the operator should go to DDUtil's "Other" tab and select the STBY button that will turn "green." This will reduce the PowerSDR "Drive" slider to an amount previously established on a band-by-band basis.

Then the "activation" of 1K-FA can be completed by going to DDUtil's "Amp" tab and selecting the yellow STBY button that will turn green. Now the amplifier will be keyed whenever the PowerSDR keys the Flex-3000.

One important note: One should go to the PowerSDR "General" setup window under the "Options" tab and set the "Enable TX Output Delay" to at least 20 (msec) which makes sure that the PTT line is activated slightly earlier than RF is applied to the amplifier.