EMWIN II, model EM-P1 Receiver Set up

Step 1. Check the switches on the receiver's back panel. The **ANT PWR** switch should be **ON**, and the **MODE** set to:

- **FSK** for legacy EMWIN (GOES-11 and GOES-12).
- **QPSK** for EMWIN-N (GOES-13 and up).

[To receive the current test signal from GOES-10, set to **QPSK** and insert the special RJ-45 plug into the **AUXILIARY** connector.]

Step 2. Referring to the diagram below, connect the power supply, antenna, and stereo cable to the EMWIN II receiver. Connect the stereo cable to the PC's <u>LINE</u> input on its sound card (this should be the blue jack). Note that it is not necessary to connect the stereo output cable just for antenna alignment. Snug up the antenna's coax cable connector using the 5/16" wrench, but do not overtighten.
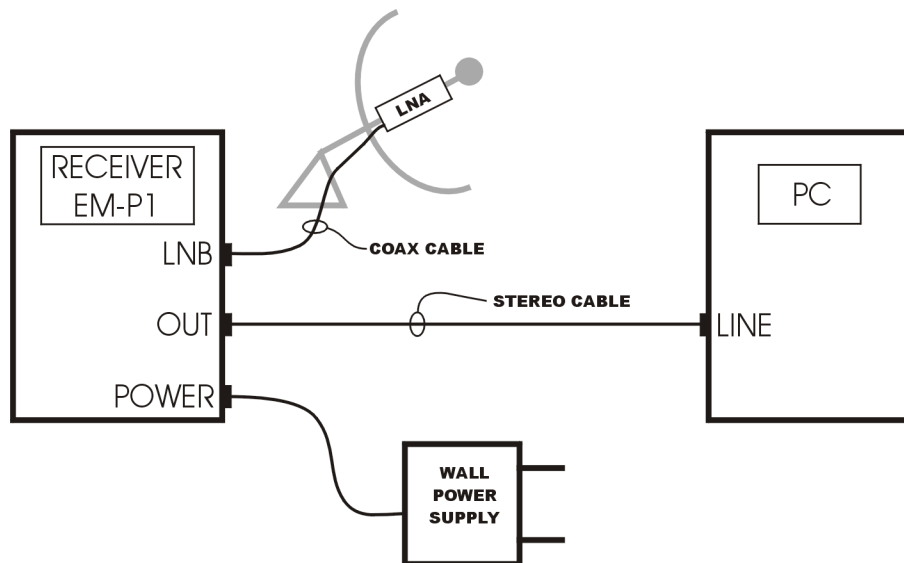


Step 3. Turn on the receiver and verify:
- The front panel display shows the correct mode – FSK, QPSK, or TEST.
- The signal strength is between 80 and 120.

May 2008

EMWIN II, model EM-P1 Receiver Set up

Step 4. Load and run the demodulation software. Located on the EMWIN CD in folder Demodulator Software is the program EMWIN_Version_1.1.012_Install_Shield.zip. Double click on this and it will load and run the NOAA provided software from AvTech. Re-start the PC. [Note that this is the current software as of this date. Check with the NOAA EMWIN website for updates.]

**Step 5.** Setting up the demodulation software. There are two aspects to the demodulator software.

1. Whether you're using one of the legacy satellites (FSK mode) or EMWIN-N satellites (QPSK mode).

    a. If you're using one of the legacy satellites, FSK mode, you don't have to do anything with the demodulator software set-up. Its default mode is FSK.

    b. For EMWIN-N satellites, GOES-13 & up (or testing with GOES-10), you will need to switch the demodulator software to QPSK mode. This is done by clicking on START→ Programs → EMWIN Demodulator →EMWIN Configure. Then click on the tab marked "Demodulator Service." This will bring up the following display.
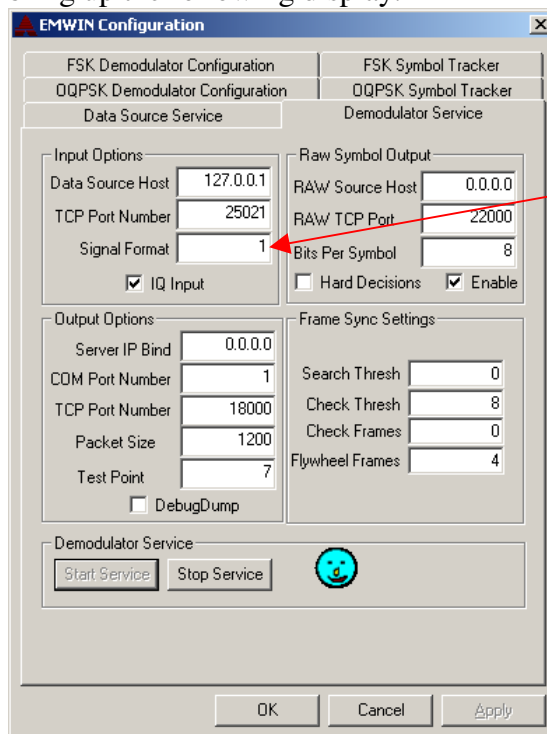
    c. Where it says 'Signal Format', set this to a '1' for QPSK (set to '0' for FSK).

    d. Click 'Stop Service', wait a few seconds, then click 'Start Service' (or re-boot the computer). The Demodulator software will now be in QPSK mode. Click 'OK' to close the window.

May 2008

EMWIN II, model EM-P1 Receiver Set up

2. How the demodulator software interfaces to your display software.
    a. If your display software uses a serial port for data input (ingest), you don't have to do anything with the demodulation software set-up. Its default mode will output to serial port 1. Set your display software to input on serial port 2 and connect a criss-cross cable between the two serial ports. Set the display software for 9600 baud (FSK mode) or 19200 (QPSK mode), N,8,1. Note that for this, you need a computer with 2 serial ports.
    b. The better way, if your display software supports it, is to use a TCP/IP port. For this you need to set the IP address in Demodulation software to match that in the display software. This is done the same way as in 1b. above, by clicking on START→ Programs → EMWIN Demodulator →EMWIN Configure. Then click on the tab marked "Demodulator Service." This will bring up the following display.
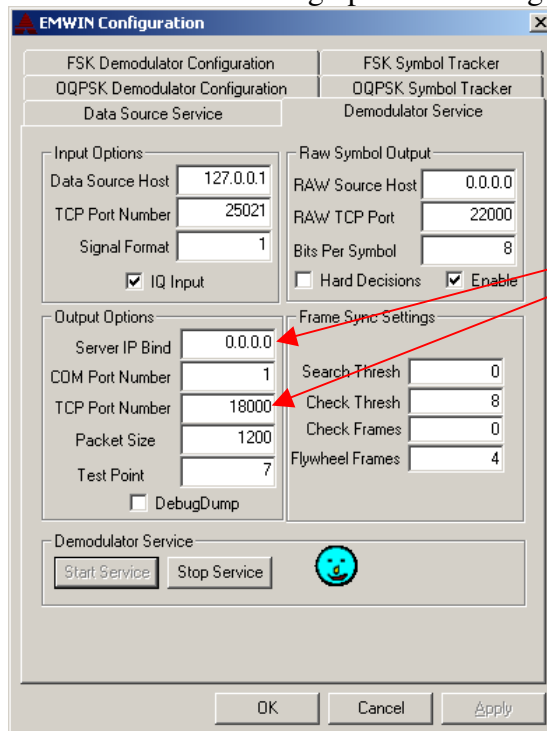
    c. Set 'Server IP Bind' and 'TCP Port Number' to match that in your display software. For example, set 'Server IP Bind' to 127.0.0.1 with TCP port at 18000. Note that this interface method does not require a computer with any serial ports, and provides an easier and more error free interface.
    d. Click 'Stop Service', wait a few seconds, then click 'Start Service' (or re-boot the computer). The Demodulator software will now be in QPSK mode. Click 'OK' to close the window.
    e. Check with your display software provider for help with this.

©Werner Labs Inc   May 2008

EMWIN II, model EM-P1 Receiver Set up

Step 6. Verify that the data stream is being received correctly. Your display software will have a "Show Ingest" (or something similar) window. Open this and verify that you are receiving the data stream. Check with your display software provider for help with this. Note, you may have to wait up to 5 minutes for the demodulator software to lock to the data stream. That's it, you're up and running!

You don't need to re-set up the demodulator software every time your PC is started. The set up parameters are saved. Do check the EMWIN website occasionally for software updates and/or tweaks to the demodulator software parameters.

IN CASE OF TROUBLE.

First check all connections and set-up to be sure everything is set properly. Then check to see that your firewall (if you're running one) program, like Zone-Alarm, is not blocking the EMWIN data stream. A good check for this is to bring up the Windows Task Manager by simultaneously pressing the 'Ctrl-Alt-Del' keyboard buttons. Then click on "Processes" and look for emwinDataSource.exe and DemodulatorService.exe. Verify their CPU times do not stay at zero. If both of these are displaying usage, at least sometimes, then the PC is receiving and processing the data, and the fault is with the interface to the display program.

Should you encounter problems with setting up the demodulator software, there is a folder on the EMWIN CD with trouble-shooting utilities – 'Trouble'. It contains two programs:
1. Audacity. This is a general purpose audio program that you can use to monitor your sound card input to verify the data stream is being received. Load the program, run it and click on "Edit-Preferences". Set the channels to 2, OK. Set the box in the middle of the window to "Line-In". In the upper right hand corner is the input monitor. Click on the little down arrow and select "Monitor Input". The 'L' and 'R' bar graphs should advance toward '0' and should be about the same level. If this is true, then the satellite data is being received properly.
2. DLLtest.zip. This is a test version of the demodulator software that shows the internal workings of the program. When you run it, it opens a window that updates every 3 seconds with this data. Contact NOAA EMWIN support for help in running this software with using this data.

 In the CD's Documentation folder is AvTech's "EMWIN-OQPSK Specifications Final.doc" that gives more information on their software, and on the EMWIN-N system in general.

.

May 2008