

## Before Operating (or attempting to) PSK31 **PLEASE READ THIS DOCUMENT!**

With PSK31, the first thing I do is set my transceiver for normal single side-band (USB) operation. I turn off any speech processing and after I have the microphone level properly set for PSK31, I don't change this setting again.

All future levels are set into and out of the sound card using the volume and wav controls built into the PC sound card "control panel" software. Set the transmit audio level so the transceiver "Transmit Drive" level is reduced low enough so that **no ALC action** is observed. This is how I avoid creating phase distortion or overdriving the input to my transceiver.

If you cannot use the sound card "Control Panel" in Windows to decrease the output level of your sound card to meet the level requirements of your microphone or accessory data I/O input, then use the coarse level control built into the **BUX ISO** interface. This is a variable potentiometer (pot) inside the ISO interface used to reduce the LINE OUT level to your transceiver MIC or accessory port.

The idea is to keep your signal level low enough to have a clean PSK31 signal on the air. As an example, if your transceiver is rated at 100 watts output, set the transmit audio so that your power output is at or below half power, or between 30 and 50 watts. Believe me, this is enough power to make all the PSK31 contacts you can handle... even on "field day."

You can use "Settings" icon from the menu in WinPSK or the "configure" icon in DigiPan II to select "Rx Level", or "Spectrum Drive" to set the receive level to the sound card **LINE IN**.

While we're discussing sound card I/O levels, in case of feedback (usually "motorboating"), which may be caused by the common ground of the soundcard input and output, "MUTE" the "line in" ON THE "VOLUME CONTROL" panel under Windows or in your PSK31 software at configure/transmit/check 'Mute'. This change will stop the sound in your PC speakers, but it may also stop the motor-boating of your PSK31 transmit signal.

The Microphone and Line inputs on the Volume Control panel, controls the SOUND to the speakers (not the spectral display) and muting these inputs will render no sound (receive) from the computer speakers, but the *transceiver* speaker can still be used to audibly monitor the PSK31 signal if you so desire.

If you are using the external speaker jack for receive audio to the sound card, then a 3.5 MM plug and two-jack splitter may be required to feed both an external speaker and the sound card. This is because the internal *transceiver* speaker will be muted by the closed-circuit (opened) jack.

As mentioned above, the Volume Control is used both to direct the direction and levels of your received and transmitted PSK31 signals. What follows below is step-by-step instructions on what controls what, and how to configure it.

Before we get into actually using it, we must make sure the Volume Control is configured to display and control the devices and audio streams we're going to use for PSK31 and/or SSTV.

- 1) Load the Windows Volume Control. On most systems, you can load it by double-clicking on the small "speaker" icon at the far right of the Task Bar.
- 2) From the Options menu, select Properties.
- 3) In the window that appears, there will be a "Adjust Volume For" frame. *Select the Recording option.*
- 4) In the list of available controls, make sure the LINE or MIC control is selected, (whichever you're using) and that the "Wave In", "Wave Record", and "Record Control" controls are selected, if available. Then, click the OK button.
- 5) The second window will disappear, leaving you with a window titled "Recording Control". This is where you'll set which device to use for the recording stream. (receive)
- 6) Make sure the checkbox for the LINE, MIC, or 'Auxillary' devices is selected, (whichever you're using) the "Volume:" slider for that control is set to 50% to 75%, and that the "Balance" slider is centered. At this point, you may want to disable recording on unused inputs, to reduce noise. You can do that by clearing the checkbox for each input as desired. You're now finished with the initial setup to receive PSK31.
- 7) Again from the Options menu, select Properties. This time, though, select "Playback" in the "Adjust Volume For" frame, then click the OK button.
- 8) Make sure the "Wave" checkbox is NOT selected. (muted) Set this control to roughly 50% to 75%, and center the "Balance" slider. The "Wave" slider, in combination with the "Volume Control" slider, controls the playback, or transmit level. This completes the initial configuration.

## Fine Tuning our initial receive and transmit adjustments:

Now that we've made the initial adjustments, we can fine-tune the Volume Control for best operation with your PSK31 program, sound card, and radio. Here are the basic things to keep in mind :

- \* The "Wave" slider controls the transmit level, in combination with the "Volume Control" slider.
- \* The Volume Control slider controls both the level going to your computer speakers, (receive or transmit) and the overall transmit level.
- \* The MIC, LINE IN, or AUXILLARY controls the receive level.

Notice that running the software Volume Control slider up and down will change the level of the receive audio going to your speakers, but it does not change the actual level of the recording (receive) stream. If you mute the input you're using to receive PSK31 from, the audio will no longer be delivered to the speakers, but it will still be delivered to your PSK31 program.

This feature can be used to break the feedback loops that can occur if you use the phone patch or external audio connections on the rear apron of your transceiver.

## SOFTWARE SETUP FOR PSK31:

UP FRONT; I do not endorse one PSK31 program over the other. Many operators find one feature that suits their PSK application better than others, thus they select the program of their liking.

Since many PSK31 software programs are setup in similar fashion, I'll use WinPSK as an example for the program setup procedure.

Before going on the air, you should enter your call sign using the "**Settings**" -- "**General Setup**" (In some programs, it may be called the "**CONFIG**") menu. Here you can enter your call and some other program setup items such as the COMport PTT settings. Your call sign should now appear at the top of the WinPSK screen instead of the text "Call Sign Not Set".

**Next; Turn OFF... set OFF, do not use..... etc..... Above all; Make sure all, Mic audio processors, speech processing, and ALC controls are set OFF! With the latter, be sure there is NO ALC action when you begin operating PSK31.**

Most of the settings including last used TX and RX frequencies, display settings, etc. are automatically saved upon program exit. (These settings are placed in the system registry under "\HKEY\_CURRENT\_USER\Software\HamRadio\WinPSK" see NOTE 1, below.)

The size of the RX Text Receive windows, the TX Text Receive window, and the overall window frame can be customized by the user and the sizes will also be saved upon exit.

It's a good idea to make sure your sound card is installed properly and is working correctly before trying to operate PSK31. You can do the soundcard level setup using the Tx and Rx levels shown under the "**Settings**" menu. Use the built in wave file player and recorder to get familiar with your sound card's mixer settings and capability. The mixer control is used to set both the receive audio level to the PSK program as well as set the "coarse" level setting to your transmitter. If you are using the MIC input, you should use the radio's mic gain for precise level adjustments..

It is also a very good idea to disable all the various Windows sounds if you have only one sound card, especially if you are using VOX PTT control.

### NOTE 1:

**If you installed the program and selected the wrong comport of just wish to start fresh, just delete the registry entry "WinPSK" in HKEY\_CURRENT\_USER\Software\HamRadio and run WinPSK again. It will start up using the default settings. CAUTION; Is the watchword when using Regedit or making any changes in your "registry."**

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For more info about PSK31 setup, on the Web, VISIT: <http://www.packetradio.com/bbbb.htm>  
For PSK31 Diagrams and interface information go to: <http://www.BucksCommCo.com>

FYI, A good frequency to begin operating PSK31 is at: **14.070 MHz USB**