



Signalink™ USB

154 Hillview Drive Grants Pass, Oregon 97527

Sales: (541) 474-6700 Fax: (541) 474-6703 www.tigertronics.com

Installation & Operation



- INTRODUCTION -

The Signalink USB combines the legendary performance of our SL-1+ with a state of the art built-in low-noise sound card. This innovative design offers many advantages over traditional sound card interfaces that must use the computer's sound card. These include optimal performance, greatly simplified installation and operation, and the ability to easily run multiple interfaces on one computer at the same time.

The Signalink USB supports virtually all sound card Digital and voice modes. This includes "legacy" modes such as RTTY, SSTV and CW, as well as today's most popular modes like FT8, JS8CALL, VARA and EchoLink. Performance on all modes has been optimized by the use of special low-noise parts and careful design techniques, while convenient front panel controls let you adjust your Transmit Audio, Receive Audio and Transmit Delay "on the fly".

The Signalink USB is designed and manufactured using only the highest quality components. Assembly is done using state-of-the-art robotic production equipment. Strict testing of every unit, and our high level of quality control insures you of a premium quality product that will provide many years of dependable service. A great deal of effort has gone into the design and manufacture of the Signalink USB, and we think you'll agree that we have offered a level of innovation, quality, and value that cannot be beat!

- INSTALLATION OVERVIEW -

The Signalink USB is easy to install and operate. However, if it is not installed and operated correctly, you will not realize its best performance and in extreme cases you can damage your other equipment. Therefore, it is very important that you take the time to read these installation instructions carefully to avoid any possible problems.

The Signalink USB will be installed in a few simple steps. First, you will configure it for use with your radio by installing one of our optional Plug & Play Jumper Modules, or the supplied jumper wires inside the unit. Next, you will connect the Signalink USB to your radio and then to your computer's USB port which will automatically start the driver installation. Once the driver installation has been completed you will configure Windows and the communication program, and then verify that your radio is setup properly. You'll then be ready to get on the air. If after completing the installation you have any difficulty, please refer to the "Troubleshooting" section at the end of this manual. It covers most of the common problems that you might run into. Technical Support for the Signalink is also available if you need it. Please see the "Technical Support" section of this manual for more information.

- WHAT YOU WILL NEED -

The Signalink USB is supplied with everything needed to connect it to your computer and radio. If you choose to configure your Signalink with the supplied jumper wires instead of one of our optional jumper modules, then you may find a pair of needle-nosed pliers to be helpful. If the jumper wire settings for your radio are not available on our web site, then you will need a multi-meter to verify your radio wiring. You will need a communication program to properly configure Windows and for testing when installation is complete. If you don't already have one installed, you can download one from the Signalink Software page of our website at www.tigertronics.com. The WSJT-X program for the FT8 digital mode is currently the most popular according to customer feedback.

- OPENING THE SIGNALINK USB CASE -

IMPORTANT – *To reduce the risk of damage by static electricity (ESD), we strongly suggest grounding yourself with an anti-static wrist strap before opening the Signalink. If you don't have an anti-static wrist strap available, then you can drain any static buildup that may be present by momentarily touching your computer or radio chassis.*

To open the Signalink USB, you will need to open the **front** of the unit while leaving the three front panel knobs attached. This can be done by removing the four front Allen screws with the supplied Allen wrench, and then **carefully** sliding the circuit board and front panel forward towards the front of the unit.

To avoid damaging the Signalink's front panel controls during installation of the jumper module or jumper wires, we suggest that you place the circuit board on a book or other raised insulated surface. The front panel should hang off the raised surface so that no pressure is put on it.

When you have completed the installation steps below and are ready to re-assemble the Signalink USB, *carefully* slide the circuit board back into the case making sure that all connectors on the back of the board fit into the rear plastic panel properly. *Note that the circuit board sits on the bottom most rail of the case.*

The front panel should align nicely with the front of the case and snap into place with very little pressure. If everything looks good, then re-install the four front Allen screws being careful not to cross-thread them. They should be snug but not over-tightened or you may damage the plastic panel. If you have any difficulty re-installing the front panel / circuit board assembly, you may find it easier to remove the rear panel and then re-install it once the front panel is in place.

- CONFIGURING THE SIGNALINK -

CAUTION – Before connecting the Signalink to your computer or radio, please read this entire section thoroughly. Both the Signalink and your radio can be damaged by improper installation. If you have already attached the Signalink to the computer or radio, then you will need to unplug those cables before installing the jumper module or jumper wires so that there is no power to the Signalink's circuit board.

The Signalink USB attaches to the radio through the RJ-45 "RADIO" connector located on the rear of the unit. This connector brings all of the required radio lines into the Signalink USB so that each line can be connected to the appropriate matching line inside the Signalink.

The Signalink USB uses the radio's Ground, PTT, Speaker and Mic lines (note that the equivalent signals are used when connecting the Signalink to a Data/Accy type port). Because the location of these signals on the radio connector varies from radio to radio, we have provided a "Programming Socket" inside the Signalink so that all signals can be properly connected. See "JP1" in Figure 14 (page 11) for the location of this programming socket.

The JP1 Programming Socket provides a convenient way to route the required signals from the Radio into the Signalink. This is accomplished by installing one of our optional Plug & Play Jumper Modules, or the supplied "press-in" jumper wires into the JP1 socket. In either case, **no soldering is required** (never solder to the Signalink's JP1 programming socket or you will damage it!).

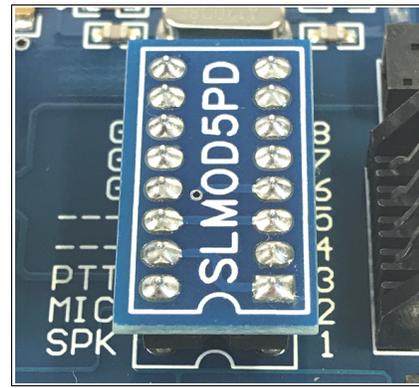


Figure 1 – Plug & Play Jumper Module properly installed notch to notch

Installing a Plug & Play Jumper Module

If you have purchased one of our optional Plug & Play Jumper Modules then you will be installing it inside the Signalink instead of using the supplied jumper wires. If you did not purchase a jumper module, then please skip to the "Installing Jumper Wires" section below.

To install the jumper module, carefully remove it from its protective plastic box and foam (do not to bend any of the pins!). Place it lightly on the Signalink's JP1 jumper socket as shown above in Figure 1 being careful to align the notch on the jumper module (white outline around the perimeter of the jumper module) with the notch on the Signalink's circuit board (white outline around the JP1 jumper socket). **Be sure that the module is aligned with the socket notch to notch as shown in Figure 1 above.** Carefully look at each pin to make sure that all pins are centered in the socket holes and then gently press down evenly on the module until it is seated securely in the socket.

If your Jumper Module has any special configuration jumpers on top of the module then you will need to check the Jumper Module page of our website at www.tigertronics.com/slmodules.htm to see if they need to be enabled for your radio. Be sure to check this if applicable to your installation or you may be unable to transmit or receive. Once you are confident that the jumper module is installed and configured correctly, you can put the Signalink's circuit board back in the case (see "Opening The Signalink Case" on page 1 of this manual) and skip to the "Connecting the Radio" section below.

Installing Jumper Wires

NOTE: The Signalink USB NEVER uses external power, so the JP1 socket does not have a "PWR" pin. When installing the jumper wires inside the Signalink USB, you can disregard the "PWR" jumper that is sometimes shown in our documentation (this is for earlier Signalink models only). All other jumpers should be installed as indicated.

Jumper settings for most common radios are provided on the Jumper Settings page of our website. Some of our radio

cables also include a printed document showing the required jumper settings. If jumper settings for your radio were supplied with your radio cable, then you should install the jumpers as shown on that document. If your cable did not include jumper settings, then please check the “Jumper Settings” section of our website at http://www.tigertronics.com/sl_wire.htm. If you find the settings for your radio listed there, then please double-check that you are looking at the correct radio model and cable type (some radio's have multiple cabling options). If we do not have the jumper settings for your radio connection available, then you can follow the “Detailed Jumper Installation Procedure” on our website at http://www.tigertronics.com/files/signalink_jumper_procedure.pdf, or send us a request for the jumper settings through our website at <http://www.tigertronics.com/email.htm> (we will need the pin-out and connector type information from your radio manual in order to help you).

We have provided pre-stripped jumper wires with the SignalLink USB. These wires are 24ga AWG and fit perfectly in the SignalLink’s jumper socket. ***If you use any other wire to configure the SignalLink, the wire MUST be 24ga AWG, or you will damage the SignalLink’s socket.*** Installation of the jumper wires can be done without any tools but you may find it easier to do with needle-nosed pliers. If you do use needle-nosed pliers, be sure to grip the wire close to the end that you are installing in the socket. When pushing the wires into the socket, push gently until the wire stops. Be very careful not to bend them back and forth or they might break. The wires are quite durable and can be removed and re-installed many times, if you are careful. If you break a wire off in the socket, there is no way to remove it, and you will have to have a new socket installed (not covered under warranty). This should not be an issue if you are just a little bit careful.

Once you have the jumpers installed please take a minute to look them over and note the following:

- The jumper wires should be securely seated in the socket. This can be confirmed by looking at the gap between the socket and the insulation on each end of each wire. This gap should be the same on all wires (approximately 1/16”). If you notice a larger gap on one or more wires, then the insulation might have slipped down and the wire is probably not pushed-in securely.
- The SignalLink USB doesn't use the PWR jumper so it should not be installed.
- The “SPK” jumper should be installed only if Speaker Audio / RX Audio is available on the radio connector that the SignalLink is attached to. If this signal isn’t available (this is a possibility with Mic jacks – Check your radio manual!), then this jumper should **NOT** be installed. Instead, you will need to connect the supplied audio cable as described in the “**Connecting The Radio**” section.

Once you are confident that the jumpers are installed correctly, you can put the SignalLink's circuit board back into the case (see “**Opening The SignalLink Case**” at the beginning of this manual).

- CONNECTING THE RADIO -



Figure 2 – SignalLink USB rear panel

NOTE: Most radio connectors are keyed to prevent incorrect insertion but it is still possible to install some incorrectly. For example, 13-pin DIN connectors can be plugged in upside-down. When connecting the radio cable in the step below, carefully look at the socket on the radio and the plug on the cable, and align the two properly. **Do not use any arrow or other markings on the cable for alignment!**

“RADIO” RJ-45 Jack

A radio cable with the appropriate connector for your radio was supplied with the SignalLink USB. The 8-pin modular end of this cable plugs into the SignalLink’s RJ-45 “RADIO” connector (see Figure 2 above), and the other end plugs into the radio’s Mic, Data, or Accessory jack. Using your radio manual for reference, carefully identify the connector on the radio that the radio cable should be plugged into. For Mic cables, this connection is virtually always on the front of the radio, and there's generally only one “Mic” connector. For Data or Accy port cables, this connection is virtually always on the back of the radio. There is usually only one matching connector that the cable will plug into, however there are often many different connectors on the back of the radio so you'll need to look carefully. The connection used by the SignalLink is usually called something similar to “Data” or “Accy”, such as “ACC”, “ACC1”, or “Data/RTTY”, but it may also be called “Packet”. Note that connectors labeled “RTTY” are virtually always for FSK use only and will not work with the SignalLink. Similarly, jacks labeled as “DVS2”, “Remote”, “CAT”, “Band Data” and “Patch” serve other purposes and will not work with the SignalLink.

Once you have identified the correct connector on your radio, carefully align the plug on the cable with the socket on the radio and insert it securely. Then, plug the RJ-45 end of the cable into the SignalLink's RADIO connector.

“SPKR” Audio Input Jack

NOTE: The Signalink's “SPKR” jack and related audio cable are not normally used if the Signalink is connected to the radio's Data/Accy port because these jacks usually provide the RX Audio signal. This is the case with virtually all Icom, Kenwood, and Yaesu radio's, as well as most other common brands, so you can generally skip this section if the Signalink is connected to the radio's Data/Accy port (check your radio manual if you're not sure). **Note that the audio cable is supplied and packaged with only those radio cables that may require it – it is not normally supplied with Data/ACC cables or others where it is not needed.**

The Signalink USB has a “SPKR” audio input jack on the rear panel that can be connected to the radio's External Speaker, Headphone, or other audio output jack for those installations where the RX Audio signal isn't available on the radio cable (see Figure 2 on page 3). As noted above, this generally applies to Mic connections only since Data and Accy ports almost always supply RX Audio along with the other required signals.

If the Signalink is connected to your radio's Mic jack, then you will need to check your radio manual to see if the Speaker Audio signal is available there. It is generally labeled as “AF Output”, “Speaker”, or “RX Audio”. If the Speaker Audio signal is not available on the Mic jack then you will need to connect the supplied audio cable between the Signalink's SPKR jack and the radio's External Speaker or Headphone jack (a fixed level audio output can also be used with the appropriate user-supplied adapter). Be sure that the cable is plugged in securely on both ends. **Note that we normally provide a MONO audio cable as this is what virtually all common radios use. If your radio provides a stereo output then you will need to use a stereo cable or the radio could be damaged (check your radio manual!).**

Note that you should NOT have the audio cable connected if either of the following are true:

- The Signalink is connected to the radio's Data or Accy port (see note above for non Icom / Kenwood / Yaesu radio models).
- The RX Audio signal is available on the radio's Mic jack and, as directed previously, you have already installed the SPK jumper wire inside the Signalink's JP1 socket, or enabled the SPKR jumper on the jumper module that you have installed in the JP1 socket.

“AUX” Audio Output Jack

The Signalink USB has an Auxiliary Audio output jack (“AUX”) on the rear panel that can be used to attach an external speaker, or headphones for monitoring receiver audio (see Figure 2 on page 3). This is especially useful if your radio's built-in speaker has been cut-off by a speaker/headphone connection to the Signalink. Note that the Aux jack can only be used with a speaker/headphones if

the Signalink USB is connected to high-level Speaker audio. If the Signalink USB is connected to your radio's Data or Accessory port, then you will not be able to use this output for monitoring because virtually all of these ports have low-level outputs.

NOTE: Attaching or removing an external speaker from the AUX jack will change the loading on the radio's audio output circuit, and likely cause a change in the audio level going to the Signalink. This may require you to re-adjust the Signalink's RX level control or the radio's Volume control to compensate.

“MON” Audio Output Jack

The Signalink USB has a Transmit Audio Monitor jack (“MON”) on the rear panel that can be used with amplified speakers or high-Z headphones to monitor the Signalink's Transmit Audio signal (see Figure 2 on page 3). The output level of this jack varies with the computer's software volume controls, and provides a maximum level of approximately 400mv p-p into 1Kohm. This is sufficient to drive most amplified speakers and high-Z headphones, but not un-amplified speakers. Note that the MON output jack is not isolated from the computer, so it may be possible to hear low-level power supply hum or noise generated by the computer or amplified speakers. This is normal and **not** an indication that your Transmit Audio is noisy. The actual Transmit Audio signal going to the radio is FULLY ISOLATED from the computer.

- CONNECTING THE COMPUTER -

IMPORTANT: You should connect the Signalink USB to your computer only AFTER you have installed the jumper module or jumper wires, and connected the radio cable.

The Signalink USB can be connected to a standard USB 1.1, USB 2.0 or USB 3.0 port using the supplied USB cable. On desktop computers we recommend attaching the Signalink to a rear panel USB port because some front panel USB ports may be unable to provide sufficient power (note that this does not apply to laptops). The use of an external USB hub, docking station, or USB extension cable should be avoided if possible. If you must use a USB hub, then it must be externally powered and designed for “high power” USB devices.

Before attaching the USB cable, Windows should be fully updated. The Signalink should be turned OFF, and your computer should be turned ON with Windows running and sitting idle. All other software should be closed. Your virus scanner can be running but not actively scanning.

The computer-end of the USB cable should be plugged in first, as this will help drain any static electricity off you and minimize the chance of static damage to the Signalink. The computer end of the USB cable has a flat rectangular shaped “A” type plug and will fit into the USB jack only one way. If it doesn't plug in, then you have either turned it the wrong

way, or you are trying to plug it into a non-USB jack. The Signalink end of the USB cable can be plugged in after the connection to the computer has been made. This end of the cable has a more square shaped “B” type connector and plugs into the Signalink’s rear panel “USB” jack. This connector is also keyed and will only fit one way.

When the USB connection between the Signalink and the computer is made, Windows will automatically detect it and install the required drivers (*the Signalink drivers are provided directly by Windows and other supported OS*). During this process you may see “New Hardware Found” messages as the driver is installed. Once the driver installation is complete (this usually takes just a minute) your computer may display a message indicating that your “Hardware is ready for use”. *Note that some computers will not display any messages. This is especially common with Windows 10 and it does NOT indicate a problem, so please do not be alarmed.*

Once the Signalink USB driver has been installed, you are now ready to configure Windows and the communication program. This is described in detail in the “Configuring Windows” section below.

- CONFIGURING WINDOWS -

NOTE: *These instructions are written for the current sound card chipset used in the Signalink USB but they will also work for the earlier chipset. The earlier chipset will be displayed in Windows as “Microphone – USB Audio Codec” instead of “Line – USB Audio Codec”, and the Recording Level slider will have a different range.*

TIP: *If you move the Signalink to a different USB port after you complete the Windows setup instructions below, Windows will re-install the Signalink driver. Once the drivers have been reinstalled for the new USB port, you must go through the Windows setup instructions again or the Signalink may not work properly.*

These configuration instructions are for Windows 10 only. If you are using an different version of Windows then please see the Signalink Support page of our website for those instructions. If you are using a different operating system, such as Linux or a Mac OS, then please note that our support for non-Windows OS' is limited. Support information for those Operating Systems is posted on the Signalink Support page of our website.

Default Sound Card Selection

Because the Signalink USB has its own built-in sound card, you will want to configure Windows to play “System” sounds through your computer’s sound card, not the Signalink USB. Your communication program will be configured to use only the Signalink USB. This will prevent any system sounds from being transmitted accidentally and allow your computer’s sound card to function as it normally would.

To configure Windows, carefully follow the steps below. Please double-check your settings as you go and do not skip any steps. If something doesn't look right, then please take a minute to go over it again as you have most likely made a simple mistake.

- As shown below in Figure 3, locate the speaker icon on the Windows task bar (lower right corner of the Windows desktop).
- Right-click the speaker icon and then click "Open Sound settings".

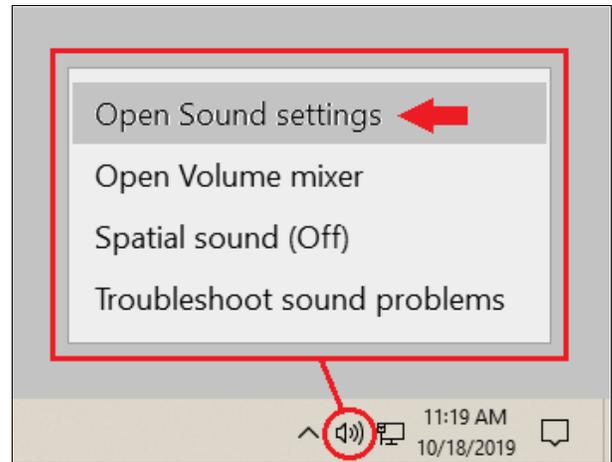


Figure 3 - Speaker icon

- In the “Settings” window that opens, click the “Sound Control Panel” link in the upper right corner of the window as shown below in Figure 4.

NOTE: *If you don't see “Sound Control Panel” in the upper right corner of the window, then scroll down and you'll find it near the bottom.*



Figure 4 - Settings window

- In the "Sound" window that opens, select the "Playback" tab as shown below in Figure 5.



Figure 5 - Sound window Playback tab

- In the list of displayed playback devices, select your **computer's sound card** by clicking on it one time. Note that your list may look different from our example, so be sure that you select your **computer's sound card**.
- With your **computer's sound card** selected (it should be highlighted), click the "Set Default" button to set your **computer's sound card** as the default playback device.
- Your **computer's sound card** should now have a green check mark next to it as shown above in Figure 5 and it will be marked "Default Device".

IMPORTANT: The above step determines which sound device is used for playing system sounds, music, etc. If you mistakenly select the Signalink's sound card as the default then you will no longer be able to hear sound from your computer's speakers, and you may also have unwanted and potentially illegal transmissions. Double-check this setting before proceeding!

TIP: If your computer's sound card shows an "Unplugged" status, then you will need to attach speakers to it or you will be unable to set it as the default playback device. Be sure that you do not disable any sound devices during the above step. This is not necessary and it will prevent you from using a sound device in the future.

TIP #2: If the Signalink's sound card is listed as the "Default Communication Device", that is OK. We have not noticed any negative affects from this.

- In the "Sound" window, select the "Recording" tab as shown below in Figure 6.

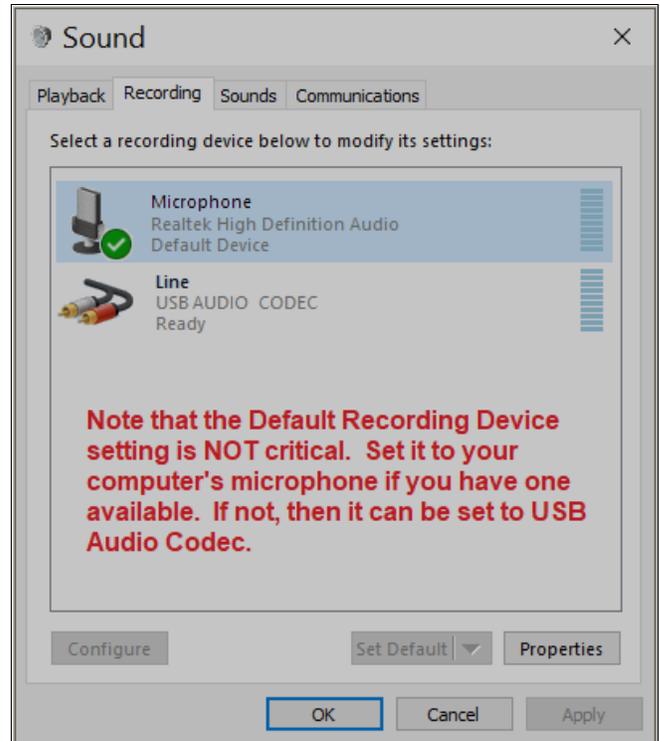


Figure 6 - Sound window Recording tab

- In the list of displayed recording devices, select your computer's microphone by clicking on it one time. Note that your list may look different from our example, so be sure that you select your computer's microphone.
- With your computer's microphone selected (it should be highlighted), click the "Set Default" button to set your computer's microphone as the default recording device.
- Your computer's microphone should now have a green check mark next to it as shown in Figure 6.
- Click OK to save the changes and close the Sound Window.
- Close the Settings window.

NOTE: You will be unable to select your computer's microphone as the default if it is unplugged. If this is the case with your computer, then you can leave the Signalink's "Line - USB Audio Codec" sound card as the default recording device. This is not critical and it will have no affect on the operation of the Signalink or computer.

The Window's default playback and recording devices should now be properly configured. System sounds, music, etc, will be sent to your computer's sound card. If plugged in, your computer's microphone will be used as the system default.

- SETTING THE AUDIO LEVELS -

Before you operate your Signalink USB on the air you will need to adjust the Window's Playback and Recording controls for the Signalink's sound card, as well as the Signalink's TX and RX controls. This procedure tells you how these controls should be set. Incorrect adjustment of any of these controls can cause poor performance or unreliable operation, so be sure to follow these instructions carefully.

Preliminary Setup

- Before you can adjust the audio levels, the Signalink USB must be connected to the computer and radio. Both the Signalink USB and the radio should be powered ON and a communication program that you have selected should be installed on your computer. Note that you will be using the communication program to generate the audio tones that are used to adjust the level controls, so CW programs should NOT be used unless they have a continuous "Tune" mode. The popular WSJT-X program for FT8 is ideal for making these adjustments.
- Set the Signalink USB's TX level control to minimum (**fully counter-clockwise**), and the RX level control to 50%. The DLY control can be set to minimum for now.

Communication Program Setup

TIP: If you need help configuring your communication program then please see the Signalink Support page of our website at <http://tigertronics.com/pgmsetup.htm> . The most popular communication programs are covered there, and a detailed "general" section applies to all communication programs.

- Start your communication program and set its Transmit and Receive sound card setting to the Signalink USB's "Speaker - USB Audio Codec" and "Line - USB Audio Codec" sound card. This is normally done through the program's "Configure" or "Setup" menu. Note that these settings may be labeled as the "Input" and "Output", or "Playback" and "Capture" sound card, or something similar.
- The Signalink USB does **NOT** use a Serial Port (COM Port) for PTT or any other function, so you should **NOT** select one in your communication program. Serial Port selection should be set to "NONE", "COM0", or the equivalent. If your

program has you select the "PTT type", then this should be set to something like "VOX", "External", or "Alternate PTT Method" to allow the Signalink to control PTT.

Radio Setup

CAUTION – Before proceeding, be sure that your radio is connected to a low SWR antenna or dummy load.

Radio setup varies widely from one model to the next. We have tried to cover the most common setup items here but we may have missed something for your specific radio. Please check the "Digital Operations" section of your radio manual for any additional setup that may be needed.

- If the Signalink USB is connected to your radio's Mic jack, then set the radio to "USB" or "LSB" as needed. USB is used for FT8, PSK31, CW and most digital modes. LSB is used for RTTY and some other modes. Note that your radio's RTTY mode is for FSK only and will not work with the Signalink.
- If the Signalink USB is connected to your radio's Data or Accessory port, then you will likely need to select a special mode such as "Data", "USB-D", "LSB-D", "User", "Packet", "DIG", etc. If you are not sure which mode to use, or how to select it, then please consult your radio manual.
- Select a filter that is appropriate for the digital mode that you will be operating. FT8 and PSK31 use a wide filter (2.7kHz – 3kHz is ideal). Other digital modes use different bandwidths. If you're not sure which filter to use, then consult your program's documentation or an online resource.
- Set the radio's Mic Gain control to 50%. Note that if the Signalink is connected to the radio's Data or Accessory port, then this control may not have any effect on power output.
- Set the radio's RF Power control to provide maximum power. **This will be adjusted to a suitable level later using the Signalink's TX knob – you will NOT be transmitting at full power!**. Note that the RF Power control might be labeled "Forward Power" or "Carrier Power". Newer radios usually have a menu setting instead of a knob.
- The radio's Speech Processor / Compressor and VOX features must be turned OFF.
- All noise reduction (noise blanker, notch filter, DSP filtering, ANR, etc.) must be turned OFF, or you may be unable to decode any signals.

Transmit Audio Adjustment

- Put your communication program in Transmit. Note that a program that stays in Transmit until you manually switch it back to Receive is required for this step (the WSJT-X program for FT8 works well). This is because the Signalink's sound card must be in use when you open the software volume controls, or Windows may not display them properly. Modes that automatically switch back and forth between Transmit and Receive (VARA, Packet, EchoLink, etc.) are not recommended for this step.
- As shown below in Figure 7, locate the speaker icon on the Windows task bar (lower right-hand corner of the Windows desktop).

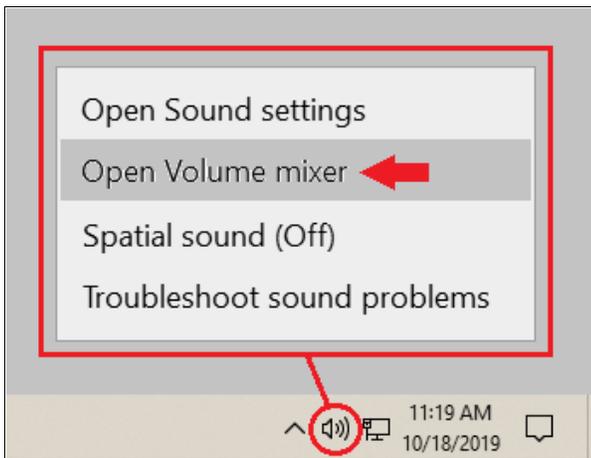


Figure 7 - Speaker icon

- Right-click the speaker icon and then click "Open Volume Mixer"
- In the Volume Mixer window that opens, click the drop-down menu below the Speakers icon and then click "Speakers (USB Audio Codec)" so that is selected as shown below in Figure 8.

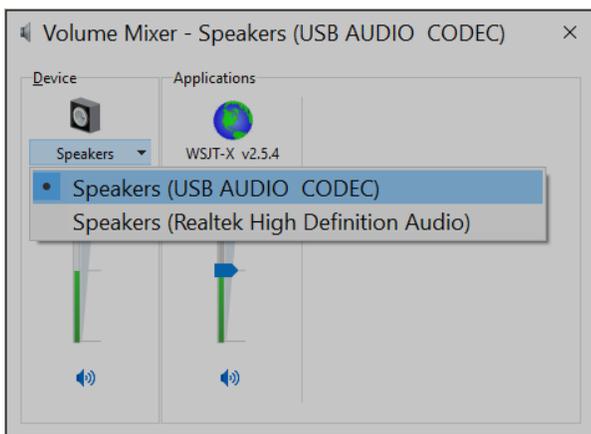


Figure 8 - Volume Mixer selection

- You should now see a volume mixer window similar to the one shown below in Figure 9. Note that the Applications volume control will display the name of the communication program that you are using or something similar (we've used the WSJT-X program for our example). If you do not see the Applications volume control, then you will need to close this window, put your program in Transmit and then re-open the window. If you still do not see the Applications volume control, then double-check that your communication program is properly configured and actually in Transmit (see "Communication Program Setup" on page 7).

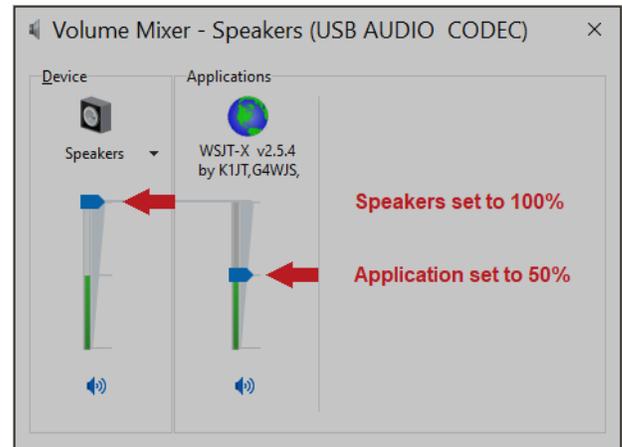


Figure 9 - Volume Mixer adjustment

- Adjust the Speakers and Applications volume controls as shown above in Figure 9. The Speakers volume control **MUST** be set to 100%, and the Applications volume control **MUST** be set to 50%. ***If these are not set correctly then the Signalink USB's PTT LED will NOT turn on and you will be unable to Transmit.***
- The Signalink's software Playback controls are now set to provide an audio level that will reliably activate the Signalink's PTT circuitry and provide a good Transmit Audio level for most radios.
- The Signalink's PTT LED should now be ON and your radio should be in Transmit. If the Signalink's PTT LED is not ON, then you may have the wrong sound card selected in your communication program or the software volume controls are not set correctly (double check the previous steps!). If you cannot get the Signalink's PTT LED to turn ON, then see the "Troubleshooting" section at the end of this manual.

- You should now be able to adjust the Signalink's "TX" level control for the desired transmit power level as shown on your radio's Power Output meter function or an external watt meter (*see important note below!*). If you cannot get adequate power, or if you have too much power or it is difficult to adjust, then please see the "Troubleshooting" section at the end of this manual.
- Turn your program's Transmit function OFF when you are finished making the TX level adjustment. The Signalink and radio should switch back to Receive.
- Close the Volume Mixer window.

IMPORTANT: We strongly suggest that you consult your radio manual to verify the recommended maximum transmit power level and duty cycle. **Most digital modes are 100% duty cycle and cannot be run at more than 50% of full power without damaging your radio.** Also, some modes typically require only 25 watts or less for reliable communication.

Receive Audio Adjustment

- As shown below in Figure 10, locate the speaker icon on the Windows task bar (lower right-hand corner of the Windows desktop).

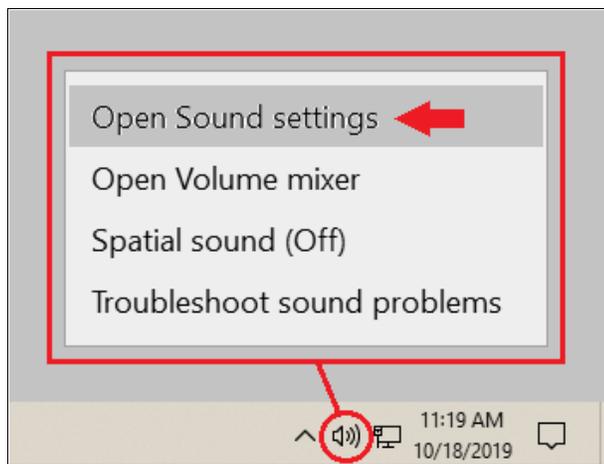


Figure 10 - Speaker icon

- Right-click the speaker icon and then click "Open Sound Settings"
- In the "Settings" window that opens, click "Sound Control Panel" on the upper right side of the screen as shown in Figure 11.

NOTE: If you don't see "Sound Control Panel" then scroll down and you'll find it near the bottom of the window.

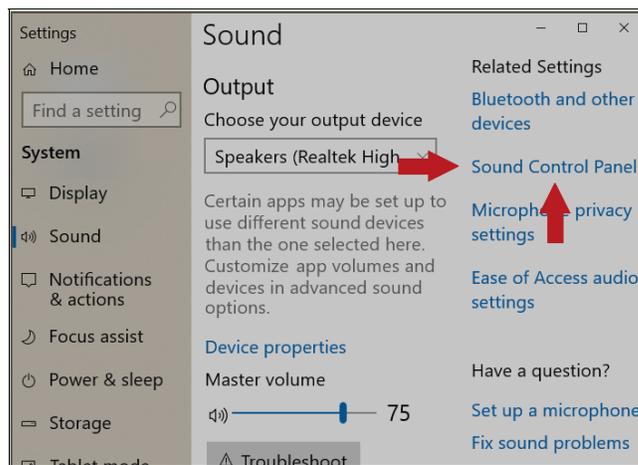


Figure 11 – Settings Window

- In the Sound window that opens, select the "Recording" tab as shown below in Figure 12.

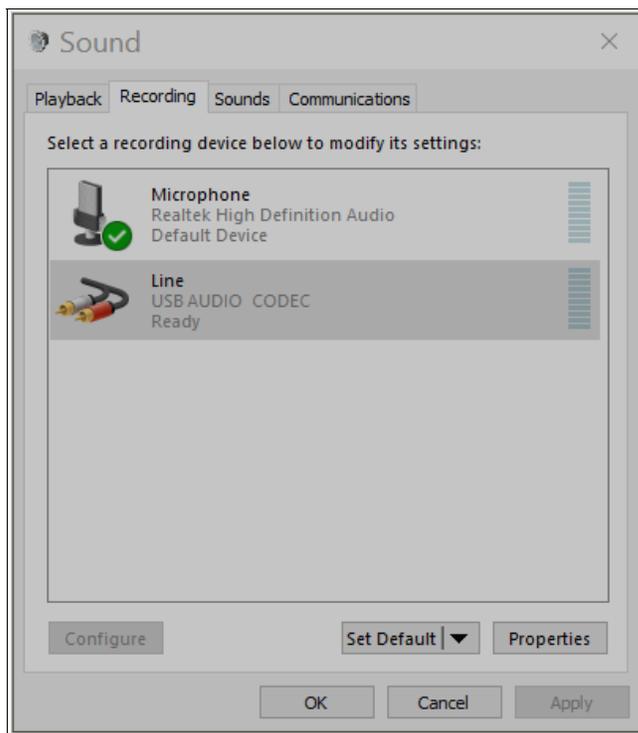


Figure 12 - Sound window Recording tab

- In the list of displayed recording devices, click one time on the Signalink's "Line - USB Audio Codec" sound card to select it (it should be highlighted).
- Next, click the "Properties" button.

In the "Properties" window that opens, select the "Levels" tab as shown below in Figure 13.

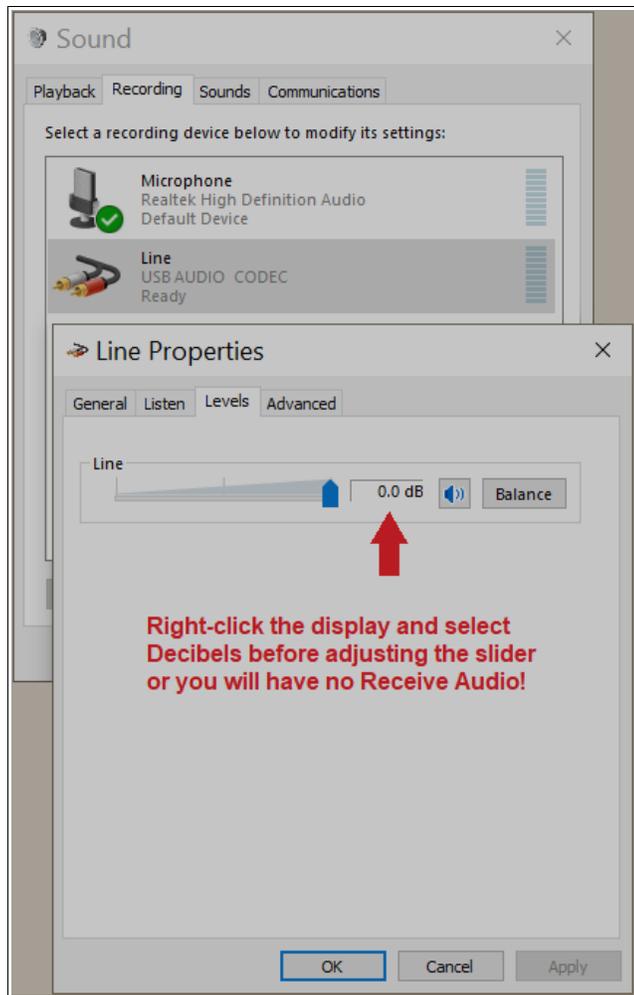


Figure 13 – Levels Tab

- Right-click the numerical display to the right of the level slider and select "decibels".
- Adjust the slider for a setting of "0.0db" or as close as the operating system permits.
- When you are done adjusting the slider, click the OK button to close the Line Properties window. Click OK again to close the Sound window.
- Close the Settings window.

The SignaLink's software recording control is now set to provide a good receive audio level for most installations. You should now be able to adjust the SignaLink's RX knob for a good level as shown in your program's waterfall or spectrum display. If you're not sure what this level should be then you'll need to consult your program's documentation, but a setting of 50% is usually a good starting point. If you're unable to get a sufficient audio or if the RX knob has no affect on your program's display, then see the "Troubleshooting" section at the end of this manual.

Ready to Operate!

This concludes the setup of the SignaLink USB, radio and computer. At this point the system should be ready to use. If you are new to digital operation, then we suggest starting with FT8 using WSJT-X or a similar program. FT8 is currently the most popular mode and it works great with low power. The 20 meter FT8 frequency of 14.074MHz is usually loaded with DX. Set your radio to USB (or USB-Data if needed), select a wide filter (~2.7Khz) and be sure all noise reduction on the radio is turned OFF. Please take some time to read your communication program's documentation and seek help from an online source or a fellow Ham if you need help getting started. If you experience a problem with the SignaLink USB, then please see the "Troubleshooting" section at the end of this manual.

- SIGNALINK CONTROLS AND INDICATORS -

PWR Switch – This turns power ON/OFF to the SignaLink's Transmit and Receive circuits, but it does not power down the built-in sound card. The SignaLink's sound card will power down automatically with the computer when the computer is shutdown, or put into sleep mode. *We suggest that you turn the SignaLink OFF when it is unattended or not in use so that the unit cannot switch the radio into transmit.*

PWR LED – This green colored LED will be ON when the computer is powered up and the SignaLink's "PWR" switch is depressed. Note that if the computer enters sleep mode and shuts off power to the USB port, then this LED will turn OFF even if the SignaLink's power switch is turned ON.

PTT LED – This red colored LED is ON only when the SignaLink is transmitting.

TX Control – This knob adjusts the Transmit Audio (modulation) level going to the radio, which directly affects the radio's RF power output level during SSB/Data-SSB operation. Turn this knob clockwise for more power and counter-clockwise for less. As noted earlier in this manual, the radio's RF Power control should typically be set to 100% full power and then the SignaLink's TX knob is adjusted until the desired RF power level is measured on a watt meter or the radio's Power Output meter function.

NOTE: *When operating with FM modulation (VARA Narrow or Wide, 1200 baud Packet, EchoLink, etc.), the TX knob affects deviation, not RF power. Set the radio for the desired power level using the radio's RF Power setting and then adjust the TX knob until a clean signal is heard on a nearby radio.*

RX Control – This knob adjusts the Receive Audio level that goes into the SignaLink and is displayed on the communication program's waterfall or spectrum display. Turn this knob clockwise for more audio and counter-clockwise for less. 50% is a good starting point. Most programs have a level indicator that shows when the program has adequate audio.

DLY Control – This knob adjusts the Transmit “Hang Time” for the Signalink USB’s Auto-PTT™ circuit. With the DLY knob set to minimum (fully counter-clockwise), the radio will remain keyed for approximately 28 ms after Transmit Audio has stopped. This setting is suitable for modes that require fast turn-around times like VARA or Packet. It is also the best position for most other digital modes like FT8 and PSK31. A longer delay of up to 3 seconds can be selected by turning the control clock-wise. A delay of approximately 2 seconds is adequate for most Voice modes such as EchoLink. For slow AFSK CW, you will usually want a delay of around 500 ms to 1 second.

- SPECIAL JUMPERS -

The Signalink USB has three special jumpers that can be enabled to provide higher Transmit and Receive Audio levels, and increase the unit’s PTT sensitivity. These jumpers are described below and their location is shown in Figure 14. To enable a jumper, simply remove it from the single metal pin that it is installed on and then reinstall it across the two visible metal pins. When removing the jumper, be sure to pull it straight up. Do not twist it or it may be damaged.

JP2 – This jumper can be enabled to increase the Receive Audio signal going into the Signalink. This affects the audio level that you see on the waterfall or spectrum display of your communication program. If you cannot get sufficient RX Audio by adjusting the Signalink's RX knob and the radio's output level control (if available), then you can enable this jumper.

JP3 – This jumper can be enabled to increase the Signalink's Transmit Audio Signal. When enabled, the Signalink USB can provide up to 2Vp-p into 600 ohms. *Note that this jumper is **NOT** needed for most radios.* If you are unable to get sufficient RF power output, then please check the “**Troubleshooting**” section at the end of this manual before enabling this jumper.

JP4 – This jumper can be enabled to increase the sensitivity of the Signalink USB’s Auto-PTT™ circuit. This is not necessary for Data modes, but it can offer increased performance for voice applications by minimizing issues where the radio's RX/TX switching time causes the first part of a voice transmission to be cut off.

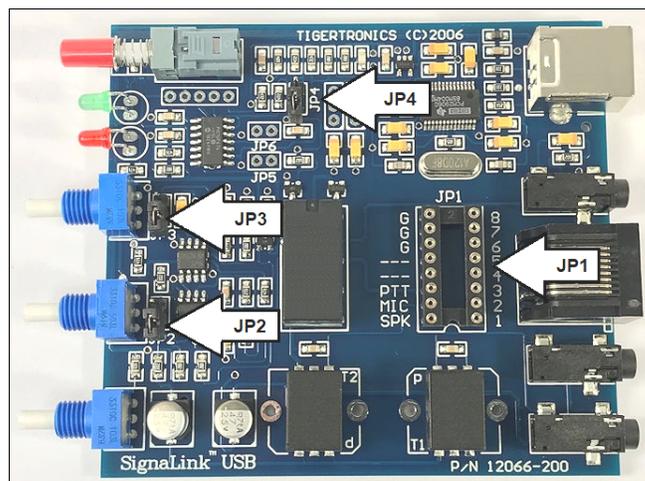


Figure 14 – Location of the JP1 programming socket and special jumpers JP2, JP3 and JP4.

- VISIT US ON THE INTERNET -

www.tigertronics.com

Our website contains the latest news about Tigertronics’ products, support information, and other information of interest to Hams and SWLs. This is also the best source for downloadable programs that work with our products. We also have all of our distribution software and documentation available for download as well. The site is updated often, so stop in on a regular basis to get the latest news and updates.

- YOUR COMMENTS WELCOME -

We have made every effort to make the Signalink USB the best product possible. We welcome any comments or suggestions that you would like to make. Please drop us a note to let us know about your experiences, tips you would like to share with other users, or how we might do a better job for you.

- LIMITED WARRANTY -

Tigertronics warrants the Signalink USB to be free of defects in material and workmanship for a period of 90 days from the date of shipment. Tigertronics will repair or replace, at its option, any parts found to be defective during the warranty period. This warranty does not include any unit that has been subject to misuse, neglect, improper installation or operation. This warranty is in lieu of all others, express or implied, and no person or representative is authorized to assume for Tigertronics any other liability in connection with the sale or use of this product. Tigertronics will not be responsible for any expense or loss of revenue or property incurred by the user due to operation or malfunction of this equipment. Tigertronics reserves the right to make any changes including but not limited to the circuit, components or firmware, or to incorporate new features, at any time, without obligation.

- RETURN POLICY -

A Return Material Authorization Number (RMA#) must be obtained before any product will be accepted for return or repair. Items received without an RMA# clearly marked on the OUTSIDE of the package WILL BE REFUSED. Items being returned must be sent prepaid. Returned items should include a note showing the RMA#, customer name, return address, phone number, email address, and action requested. Units returned for warranty repair must be accompanied by a copy of the original invoice showing the date of purchase.

Customers wishing to return a product for REFUND, for ANY REASON, must receive an RMA# within 15 days from the shipping date shown on the original sales invoice. Customers returning products for refund will be charged a Restocking Fee equal to 20% of the purchase price, to cover the cost of re-testing and re-stocking. Products that have been damaged or modified in any way may not be returned. Contact our Technical Support department for the RMA#.

- TECHNICAL SUPPORT -

BEFORE YOU CALL – *The vast majority of technical issues can be resolved with the information that is available in this manual and on our web site. If you thoroughly investigate these resources you will probably never need to call. Please take some time to read through this manual, and then check the online support resources to be sure that you have the most current software and documentation available. Thank you.*

If you encounter a problem that you cannot resolve with the Signalink (not software) and you have gone through the troubleshooting information available in this manual and on our website, then please contact our Technical Support Staff at (541) 862-2639. **They are available every Monday, Wednesday, and Friday, from 1PM to 5PM Pacific Time (4PM to 8PM Eastern).** Be sure to have your equipment available for testing when you call. Please DO NOT mail, email, or fax your technical inquiries. We realize that calling is a little more expensive, but more can be accomplished in a few minutes on the phone than can be done in hours of writing!

- FCC STATEMENT -

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the users authority to operate the equipment.

- GENERAL SPECIFICATIONS -

Freq Response:	200Hz to 4+kHz
Sampling Size/Rate:	16 Bit, All standard rates are supported up to 48kHz.
Computer OS:	Windows 98SE/ME/2000/XP Windows Vista/7/8.x/10/11 MAC OS 9.1 or later MAC OS X 10.00 or later Linux
Radio In/Out Z:	600 Ohm (nom). TX/RX Levels are fully adjustable for compatibility with Hi-Z and Low-Z radio connections.
Auto-PTT™ Delay:	Adjustable "Hang Time" 28 ms to >3 seconds
PTT Circuit:	Relay, 1A @ 24VDC (max) 0.5A @ 120VAC (max)
Radio Connector:	TX/RX Audio,PTT,GND - RJ-45 RX Audio/Spkr - 3.5mm Mono
Computer Connector:	USB 1.1/2.0/3.0 Compatible Standard USB "A" type Conn.
Other Connectors:	Aux. - 3.5mm Mono Mon. - 3.5mm Mono
Case:	Extruded Aluminum - 6061T4
Dimensions:	1.6" x 3.2" x 3.6"
Operating Temp:	-30C to +60C

NOTE: *The MON, AUX and SPKR jacks use stereo connectors but they are wired for mono operation (signal on the tip of the plug, ring not connected, and ground on the sleeve). This allows for compatibility with both mono and stereo cables.*

- TROUBLESHOOTING -

This section covers the most common issues that you may experience with the Signalink USB. If your problem is not covered here then please see the Signalink Support page of our website at http://www.tigertronics.com/sl_suprt.htm for more troubleshooting information. If you are still unable to resolve the issue, then please see the “**Technical Support**” section on page 12 of this manual for instructions on contacting our Technical Support Staff by telephone.

My Signalink USB was working but now will no longer Transmit - This is the most common problem that we hear about and it is virtually always due to the Windows software volume controls being reset. This can happen after a Windows update or if you unplug the USB cable. Changing the default sound card in Windows or accidentally muting the Signalink's Playback controls can also cause this issue. *Please check your Windows software volume controls carefully.* As outlined in this manual, the "Speaker" control should be at 100% and the "Application" control should be at 50%. Be sure that you select "Speakers - USB Audio Codec" when checking this or you will be adjusting the wrong sound card.

Radio doesn't switch to transmit. The Signalink's PTT LED is OFF (check the status carefully!).

- Verify that the Signalink's PWR LED is ON. If it is not, then confirm that the PWR switch is depressed and that the USB cable is connected to the computer and the Signalink.
- Verify that your communication program is properly configured to use the Signalink USB's sound card (see “**Communication Program Setup**” on page 7 of this manual). “Speakers - USB Audio Codec” and “Line – USB Audio Codec” must be selected as the sound card for both Transmit and Receive.
- Verify that the Windows PLAYBACK software volume controls for the Signalink USB are set according to the “**Setting The Audio Levels**” procedure on page 7 of this manual. If they are too low, then the Signalink USB will NOT transmit.
- If the Signalink is plugged into a USB hub, docking station or USB extension cable, then remove it and plug it directly into the computer until the problem is resolved. If using a desktop computer, then the Signalink should be plugged into a rear panel USB port. Note that both unpowered hubs and powered hubs that are not specifically designed for “high power” USB devices, cannot supply enough power for the Signalink to operate properly. Receive will usually work, but Transmit will not. The same issue can occur with docking stations, USB extension cables, and front panel USB ports on desktop computers only. *Note that if you unplug the USB cable, you must go through the “Configuring Windows” and “Setting The Audio Levels” procedures again to ensure that those settings are correct.*

Radio doesn't switch to transmit. The Signalink's PTT LED is ON (check the status carefully!).

***TIP** - Be sure that the radio is actually stuck in Receive. If the radio is switching to Transmit but just doesn't have any power output, then you'll want to check the next problem listed on page 14; “Radio switches to transmit but there is no RF power output, or it is too low.”*

***TIP #2** - Be sure that the radio cable is properly inserted into the correct jack on the radio. 13-pin DIN plugs can be inserted exactly upside-down even though they are keyed, so be sure to look at the jack on the radio and position the plug accordingly. Do NOT use any arrow or other markings on the cable for alignment!*

- If the Signalink is configured with jumper wires, then you may have installed the "PTT" or "G" jumper incorrectly. The jumper may be installed in the wrong location or it may not be pressed in all the way. If the Signalink is connected to your radio's Mic jack, then be sure you have installed the SPKR jumper wire **ONLY** if your radio has Speaker Audio on the Mic jack, or PTT may not work properly (check your radio manual!). Please go back and double-check ALL jumpers carefully making sure that you are using the correct settings for your cable. Most radios have multiple cable options with different jumper settings, so be sure you've selected the correct one. See the “**Installing Jumper Wires**” section on page 2 of this manual for details.
- If you have installed a jumper module inside the Signalink instead of jumper wires, then double-check that you have the correct module installed, that it is properly configured, and that it is properly inserted in the jumper socket. See the “**Installing a Plug & Play Jumper Module**” section on page 2 of this manual for details.
- If the Signalink is attached to your radio's Data or Accy port, then the radio might not be configured properly or in the correct mode. Most radios must be in a "digital" mode when using a Data or Accy port connection, and the digital mode must be properly configured in the radio's menu system. Please see the “**Radio Setup**” section on page 7 of this manual for details.
- If the Signalink is attached to your radio's Data port and you are not running the VARA Wide mode, then you need to check that the radio's “9600 Baud Mode” setting (if available) is OFF. If the radio has a “Packet Rate” or similar setting instead, and you are NOT running the VARA Wide mode, then it must be set to “1200 baud”. If you are running the VARA Wide mode, then the above settings should be ON or set to 9600 baud, respectively. *Note that if you see other baud rates listed besides 1200 and 9600 baud, then you are looking at the wrong menu item.*
- If the Signalink is plugged into a USB hub, docking station or USB extension cable, then remove it and plug it directly into the computer until the problem is resolved. If using a desktop computer, then the Signalink should be plugged into a rear panel USB port. Note that both unpowered hubs and powered hubs that are not specifically

designed for “high power” USB devices, cannot supply enough power for the Signalink to operate properly. Receive will usually work, but Transmit will not. The same issue can occur with docking stations, USB extension cables, and front panel USB ports on desktop computers only. *Note that if you unplug the USB cable, you must go through the “Configuring Windows” and “Setting The Audio Levels” procedures again to ensure that those settings are correct.*

Radio switches to transmit but there is no RF power output, or it is too low.

- If the Signalink is configured with jumper wires, then you may have installed the "MIC" or "G" jumper incorrectly. The jumper may be installed in the wrong location or it may not be pressed in all the way. Please go back and double-check ALL jumpers carefully making sure that you are using the correct settings for your cable. Most radios have a couple different cable options with different jumper settings, so be sure you've selected the correct one. See the “**Installing Jumper Wires**” section on page 2 of this manual for details.
- If you have installed a jumper module inside the Signalink instead of jumper wires, then double-check that you have the correct module installed, that it is properly configured, and that it is properly inserted in the jumper socket. See the “**Installing a Plug & Play Jumper Module**” section on page 2 of this manual for details.
- Confirm that your radio is attached to a known good antenna or dummy load, and that your SWR is good.
- Confirm that your position in the waterfall or spectrum display is within the audio band-pass of your radio. This is typically 500-2500Hz but it can be wider on newer radios (or much narrower if you have a narrow filter selected!). *If you are too far left or right in your program's waterfall or spectrum display, then your radio will be unable to pass the modulation and you'll have little to no RF power.*
- If you are operating CW, please note that most radios will need to be in either USB or a digital USB mode if the Signalink is attached to the radio's Mic jack, Data port or Accy port. You can generally only use the radio's CW mode if the Signalink is attached to the radio's Key jack.
- If you are using a CAT/CIV interface to control your radio and the Signalink is attached to the radio's Data or Accy port, then you need to disable CAT/CIV control of PTT in your communication program so that the Signalink can key the radio. This is necessary because most radio's will only look at the Mic jack for Transmit Audio if the radio is switched into Transmit by a CAT command. See “**Communication Program Setup**” on page 7 of this manual for tips on PTT setup.
- Verify that your radio's RF Power control (sometimes called “Forward Power” or “Carrier Power”) is set to maximum. This is often a menu setting on newer radios.
- If the Signalink is attached to your radio's Data or Accy

port, then the radio might not be configured properly or in the correct mode. Most radios must be in a "digital" mode when using a Data or Accy port connection, and the digital mode must be properly configured in the radio's menu system. Please see the “**Radio Setup**” section on page 7 of this manual for details.

- If the Signalink is attached to your radio's Mic jack, then try increasing the radio's “Mic Gain” control. This affects the Transmit Audio level going into the radio. If it is too low then you'll have no power.
- If the Signalink is attached to your radio's Data or Accy port, then try increasing the radio's menu-based Transmit Audio Input level adjustment (if available). This affects the Transmit Audio level going into the radio. If it is too low then you'll have no power. Note that the “Mic Gain” control may also affect the Data/Accy port on some radios, so it is also worth checking.
- If your radio has its own built-in USB connection, then you need to be sure that the radio's "Modulation Source", "Transmit Audio Source" or similarly worded menu item is set to "ACC", “Data”, or whatever setting connects it to the jack that the Signalink is attached to. Check your radio manual for details.
- The Windows Playback “Application” control can be adjusted higher than the recommended 50% level. This will increase the Transmit Audio to the radio which will increase the RF power output.
- See the “**Special Jumpers**” section on page 11 of this manual and enable jumper JP3. This will significantly increase the Signalink's Transmit Audio level. Note that this is ***NOT*** needed for most radios, so you really need to be sure that everything else has been checked before doing this.
- If the Signalink is attached to a Kenwood 13-pin Accessory port, then you may have set the PTT jumper incorrectly. Double-check the document that was supplied with your radio cable or our online support information to see what configuration your radio requires.

Radio switches to transmit but the RF power level is too high, or difficult to control with the Signalink's TX knob.

NOTE: *Be sure that the Signalink's TX knob is actually affecting the RF output level before proceeding. If it has no affect whatsoever, then skip to the next problem; “Radio switches to transmit and puts out power, but the Signalink's TX knob has no affect on the power level”*

- Verify that special jumper JP3 is ***NOT*** enabled inside the Signalink.
- Verify that the Windows Playback “Application” control for the Signalink's USB's sound card is set at 50%.
- Verify that the radio's speech processor/compressor is

turned OFF.

- If the Signalink is attached to your radio's Mic jack, then lower the radio's Mic gain control. Too much Mic gain can make adjustment of the Signalink's TX knob touchy.

- If the Signalink is attached to your radio's Data or Accy port, then the radio may have a "Transmit Input Level" (or similar) menu setting that you can lower. Note that the Mic Gain control may also affect the Data/Accy port on some radios so it is also worth checking.

- Some radios such as the IC-746PRO, IC-7000 and FT-450D have a very sensitive Data port and require different settings to allow smooth control of the RF power level. For these radios we suggest that you do ALL of the following:

1 – Install special jumper JP4 inside the Signalink (see the "Special Jumpers" section of this manual on page 11).

2 – Set your radio's RF Power setting 10 watts higher than the desired power level. For example, if you want to run 10 watts for FT8, then set the radio for 20 watts.

3 – With your communication program in Transmit and the Signalink's DLY knob OFF (fully counter-clockwise), lower the Windows Playback "Application" control for the Signalink's sound card all the way down to 0%. The Signalink's PTT LED should turn OFF. Next, very slowly adjust the Application control back up until PTT just turns ON. Note this threshold point and then adjust the Application control 15-20% higher. The goal is to have the Application control set as low as possible while maintaining reliable PTT activation. You may want to repeat this step a few times to be sure you have correctly identified the threshold point. Note that if you set the Application control too low, PTT will be intermittent or not function at all.

Radio switches to transmit and puts out power, but the Signalink's TX knob has no affect on the power level - This is virtually always because the radio is in an FSK mode instead of AFSK. Please see the "Radio Setup" section on page 7 of this manual for help selecting your radio's AFSK mode.

Transmit signal is "wide" or distorted – This is virtually always the result of over-driving your radio. The most common cause of this problem is adjusting your RF Power output with the radio's RF Power control instead of the Signalink's TX knob. Please see the problem; "*Radio switches to transmit but the RF Power level is too high, or difficult to control with the Signalink's TX knob*" on page 14 and go through the steps listed there.

I can't seem to receive. Waterfall or spectrum is blank or dark (Receive Audio is NOT present).

- Confirm that the Signalink USB is powered ON and set

the Signalink's RX Knob to 100% (you'll need to readjust this later once the problem has been resolved).

- Confirm that your radio's squelch is open (noise should be heard in the speaker even with no signal present).

- If the Signalink is connected to the radio's Mic jack, then set the radio's Volume control to 50% (you may need to adjust this later once the problem has been resolved).

- Verify that your communication program is configured to use the Signalink's "Speakers - USB Audio Codec" and "Line - USB Audio Codec" sound card for both Transmit and Receive.

- Verify that the Window's Recording level slider for the Signalink's "Line - USB Audio Codec" sound card input is set properly and NOT muted. See the "Setting The Audio Levels" section on page 7 of this manual for details.

- The radio's Receive Audio signal may not be getting to the Signalink. Go back through the "Configuring the Signalink" (page 2) and "Connecting the Radio" (page 3) sections in this manual to check this. Pay careful attention to whether or not the audio cable needs to be connected, or if you need to install the SPK jumper wire inside the Signalink, or enable the SPKR jumper on the jumper module.

- If the Signalink is attached to your radio's Data or Accy port, then the radio may have a menu-based RX Audio level control that needs to be turned up (check your radio manual).

- If the Signalink is attached to your radio's Data port and you are not running the VARA Wide mode, then you need to check that the radio's "9600 Baud Mode" setting (if available) is OFF. If the radio has a "Packet Rate" or similar setting instead, and you are NOT running the VARA Wide mode, then it must be set to "1200 baud". If you are running the VARA Wide mode, then the above settings should be ON or set to 9600 baud, respectively. *Note that if you see other baud rates listed besides 1200 and 9600 baud, then you are looking at the wrong menu item.*

Receive audio is present in the waterfall/spectrum display and adjustable with the Signalink's RX knob, but it is too low. – Verify that the Signalink's RX knob is turned up (clockwise). Verify that the Window's Recording level slider for the Signalink's "Line - USB Audio Codec" sound card input is set properly and NOT muted (see the "Setting The Audio Levels" section on page 7 of this manual for details). If the Signalink is attached to your radio's Mic jack then try increasing the radio's Volume control. If the Signalink is attached to your radio's Data/Accy port, then try increasing the radio's menu based RX Audio output level control if available (check your radio manual). Special jumper JP2 may need to be enabled inside the Signalink to increase the RX Audio level. See the "Special Jumpers" section on page 11 of this manual for details.

Receive audio is present in the waterfall/spectrum display and adjustable with the Signalink's RX knob, but it is too high even with the RX knob set near minimum. – Verify that special jumper JP2 is not enabled inside the Signalink. If the Signalink's is connected to the radio's Mic jack, then lower the radio's Volume control. The Signalink's "Line – USB Audio Codec" Level slider can be lowered as needed from the initial 0db setting.

I can't seem to receive or decode any signals. Waterfall or spectrum looks good (Receive Audio is present) - No matter how good your antenna and radio are, there will always be some stations that you cannot copy (even with strong signals!). While the reason for this may be because of operator error (wrong mode or baud rate, off frequency, noise blanker or other noise reduction turned on, etc.), radio wave propagation problems can sometimes prevent you from receiving. Some modes are more susceptible to this than others. For example, even though PSK31 usually works very well with weak signals, sometimes even strong PSK31 signals cannot be copied at all because of multipath and Doppler Shift propagation problems. Other modes like RTTY do not work well with weak signals and are susceptible to multipath and Doppler Shift. If you're running FT8 or another time sensitive mode, then be sure that your time synchronization utility is actively running and working (if you don't have one installed, there are a number of free ones including the popular "Dimension 4" program). *FT8 requires your computer clock to be synchronized to within 2 seconds of GMT or you will be unable to communicate.*

If you are having trouble receiving other stations then we suggest testing with the WSJT-X program using the FT8 mode (see important note above about your system clock!). The 20 meter FT8 frequency of 14.074MHz is usually the most active frequency during the day, with 7.074MHz being the most active at night (check other bands too!). Set your radio to USB (or USB-Data if needed) and select a wide filter (~2.7Khz). All noise reduction on the radio must be OFF.

Windows System Sounds cause the Signalink to transmit – This will NOT happen if you configure Windows to use the *computer's sound card* as the default sound card. See the "Configuring Windows" section on page 5 of this manual to resolve this problem.

I can no longer hear sound out of my computer's speakers (no sound from music, etc.) – This will NOT happen if you configure Windows to use the *computer's sound card* as the default sound card. See the "Configuring Windows" section on page 5 of this manual to resolve this problem.

Adjusting the Windows Volume Control Panel has no effect – If this happens, then you are almost certainly

adjusting the volume controls for the wrong sound card. Please go back to the "Setting The Audio Levels" procedure on page 7 and pay careful attention to the sound card that you have selected. It must be "Speakers – USB Audio Codec" for Playback or "Line – USB Audio Codec" for Recording. Another possibility is that you have selected the wrong sound card in your communication program. See the "Communication Program Setup" section on page 7 of this manual to check this.

Every time I open the Windows Volume Mixer, it always displays the computer's sound card – This is normal. Windows always shows the default sound card when the Volume Mixer is opened. If you have configured Windows properly, then the computer's sound card is the default sound card, and it will always be displayed when the Volume Mixer is opened. To adjust the Signalink's sound card, simply follow the steps in the "Setting the Audio Levels" section on page 7 of this manual.

Additional troubleshooting and product support information is available on the Signalink Support page of our website at:

http://www.tigertronics.com/sl_suprt.htm.