RJ-11 Microphone Switch

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Installation & Operation

- INTRODUCTION -

The Tigertronics Microphone Switch Model SW-RJ11 provides a simple yet effective way to connect both a microphone and a communication device (SignaLink, TNC, etc.) to your radio's 6-pin Modular RJ11/RJ12 Mic jack, and select between them without needing to disconnect / reconnect the microphone or cabling.

The switching of all six lines of the RJ-11/RJ-12 connector is provided, as well as the switching of stereo audio. No external power is required, and the installation and operation of the switch is very simple.

As with all of our products, the SW-RJ11 Microphone Switch 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.

- INSTALLATION OVERVIEW -

The SW-RJ11 Microphone Switch is ready to use out of the box without any configuration needed. However, options have been provided to allow you to ground the switch chassis to the radio chassis ground, and to enable RFI filtering on any of the six lines going to the radio. These options are covered in detail in the manual for those wishing to enable them but they are not necessary for the switch to function.

As simple as this product is to install and operate, we still suggest that you spend a little time familiarizing yourself with it. If after completing the installation you have any difficulty, please refer to the ñ**Troubleshooting**ò section at the end of this manual. It covers most of the common problems that you might run into. Technical Support is also available if you need it. Please see the ñ**Technical Support**ò section of this manual for more information.

- WHAT YOU WILL NEED -

The SW-RJ11 Microphone Switch comes supplied with the cabling that is needed to connect it to your radio. If you are using this switch with our SignaLink interface, then you should already have the radio cable (p/n SLCABRJ1) and audio cable that are needed to attach the SignaLink to the switch (both of these are supplied with the SignaLink). If not, then you will need to purchase these separately.

If you are attaching a different product to the switch (TNC, etc,) then you should already have the interface cable provided with that device, as well as an audio cable (if applicable). If not, then you will need to provide and/or build these cables.

A multi-meter will be needed to verify the location of radio chassis ground if you want to ground the switch chassis to the radio chassis ground, or enable RFI filtering.

- CONFIGURING THE SWITCH -

***NOTE:* If you do not want to ground the switch chassis to the radio chassis or enable RFI filtering, then you can skip to "CONNECTING THE SWITCH" at the top of page 3.**

Before opening the switch, we suggest that you drain any static off of your body by momentarily grounding yourself by touching your radio or computer chassis. To open the switch case you will need to remove the four *front* Allen screws using the supplied Allen wrench. Once the screws have been removed, gently remove the front cover by pulling it towards the front of the unit until it pops off. Be careful not to put pressure on the internal connectors or switch. Once the front cover has been removed, slide the circuit board out of the case and set it on a suitable work surface. An ESD safe work surface is preferred if available.

Grounding the Switch Chassis

***CAUTION:* Care must be taken when grounding the switch chassis to radio ground. Your equipment could be damaged if you ground the wrong pin!**

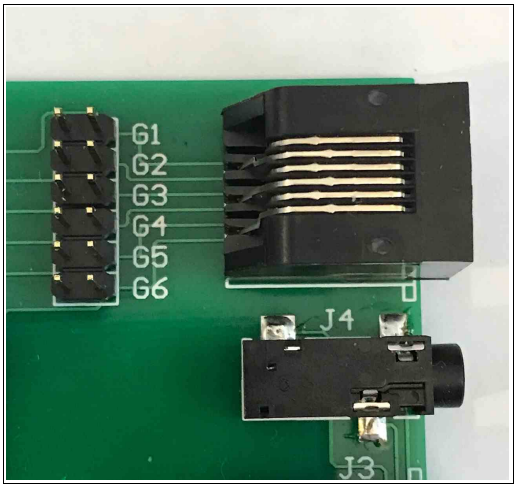

Figure 1 ï Ground Jumper Location
(shown without any jumpers enabled)

The switch chassis can be connected to radio chassis ground by enabling ***one*** of the six push-on Ground jumpers that are shown in Figure 1 above. These jumpers are labeled ñG1ò through ñG6ò, and correspond directly to pins 1 - 6 on the RJ-11 connector.

BEFORE enabling a ground jumper, it is critical that you know for certain which pin on your radio's RJ-11 Mic connector is ground. We have provided a simple and virtually fool-proof way for you to do this using a multi-meter. Due to differences in pin numbering among radio manufacturers, and in some cases, no numbering at all, we strongly suggest that you use the procedure outlined below instead of trying to match up our pin numbers with the radio manufacturer's pin numbers. ***Your equipment could be damaged if you ground the wrong pin!***

Confirm Radio Chassis Ground Location

TIP: *If you are connecting this switch to a Yaesu radio, pin #4 of the RJ-11 Mic jack is usually ground. This corresponds to grounding jumper "G4". Using the instructions below, you might want to check G4 for ground first, as it is likely the ground connection.*

Follow the steps below to confirm the location of radio chassis ground:

1 ï Confirm that the radio is powered OFF. ***The radio MUST be OFF when locating the ground connection or you could damage your equipment.***

2 - The switch must be properly connected to the radio using the supplied RJ-11 to RJ-11 cable (refer to the connection block diagram shown in Figure 4 on page 3). ***No other cables should be connected to the switch at this time.***

3 - Set your multi-meter to read resistance and confirm that it is working properly.

4 - Place one multi-meter probe on the radio's exposed (non-painted) metal chassis. The metal around the antenna connector or a non-painting chassis screw is usually a good location for this.

5 - Using the picture shown in Figure 1, locate the ñG1ò through ñG6ò grounding jumpers on the switch circuit board.

6 - Starting with jumper G1, place the other multi-meter probe on the ***right-most pin*** of the jumper header. Note that this is the pin closest to the ñG1ò label.

7 - Check the resistance reading on your multi-meter. A resistance of a few ohms or less indicates that this pin is tied to chassis ground, so the jumper for it can be enabled. To enable the ground jumper, simply install the supplied push-on jumper shunt across the two pins corresponding to the jumper location you are testing.

8 ï If the resistance reading is more than a few ohms then the pin you are probing is ***not*** tied to chassis ground, so you'll need to continue checking for ground by probing the right-most pin of the remaining jumpers, G2 through G6.

9 - Once you have located chassis ground and enabled the corresponding jumper, please take a minute to double-check your work with your multi-meter again to make sure that you have it correct. ***Your equipment can be damaged it you ground the wrong pin.***

Enabling RFI Filtering

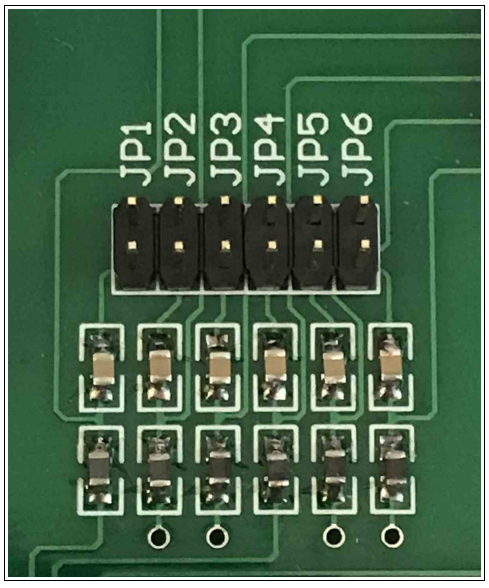

Figure 2 ï RFI Filter Jumper Location
(shown without any jumpers enabled)

NOTE: *If you enable RFI filtering then you must also ground the switch chassis to the radio chassis as outlined in the "Grounding the Switch Chassis" section above, or the filtering will not be effective.*

RFI filtering consisting of a ferrite bead and 0.01uf bypass cap be enabled for any or all of the six lines that connect to the radio's mic jack by enabling the jumpers shown in Figure 2 on page 2. These jumpers are labeled ñJP1ò through ñJP6ò, and they correspond directly to pins 1 - 6 on the RJ-11 connector. To enable RFI filtering, simply install the supplied push-on jumper shunt across the two pins corresponding to the jumper location that you wish to filter.

- CONNECTING THE SWITCH -

Figure 3 ï Switch Rear View

Instructions for connecting this switch to a SignaLink or other communication device (TNC, etc.) are shown below. Please pick the instructions that match your application and follow the steps provided.

SignaLink Installation

Follow the instructions in this section if you will be using this switch with your radio and a SignaLink.

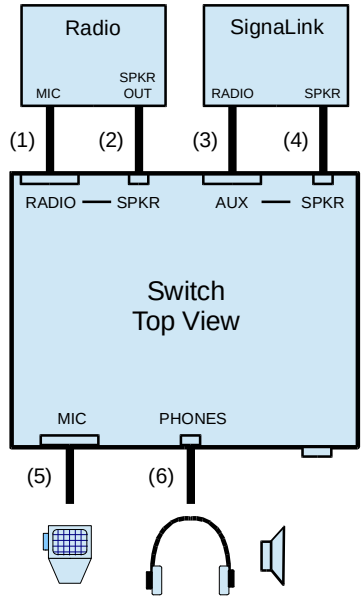

Figure 4 ï SignaLink Installation

See Figure 4 for a block diagram of this installation. Note that the cable connections shown in the diagram are marked "(1)", "(2)", "(3)", etc., and correspond directly to the steps below.

1 ï Using the supplied double-ended RJ-11 cable, plug one end of this cable into your radio's 6-pin RJ-11 microphone jack. Plug the other end of this cable into the jack labeled ñRADIOò on the back of the switch.

2 ï Using the supplied 3.5mm audio cable, plug one end of the cable into your radio's External Speaker / Headphone jack. Plug the other end of this cable into the jack labeled ñRADIO --- SPKRò on the back of the switch. ***See the tip below before connecting this cable. It should only be connected if your radio does not supply speaker audio on the Mic jack. If speaker audio is available on the mic jack, then do NOT connect this cable.***

3 ï Using the SLCABRJ1 radio cable that was supplied with your SignaLink, plug the 8-pin RJ-45 end of the cable into the jack labeled ñRADIOò on the back of the SignaLink. Plug the 6-pin RJ-11 end of the cable into the ñAUXò jack on the back of the switch.

4 - Using the audio cable that was supplied with your SignaLink, plug one end of the cable into your jack labeled ñSPKRò on the back of the SignaLink. Plug the other end of this cable into the jack labeled ñAUX --- SPKRò on the back of the switch. ***See the tip below before connecting this cable. It should only be connected if your radio does not supply speaker audio on the Mic jack. If speaker audio is available on the mic jack, then do NOT connect this cable.***

<u>TIP:</u> *If your SignaLink works directly with your radio using the mic connection only (no audio cable), then the audio cable is not required with this switch either, and it should not be connected.*

5 ï Plug your microphone into the jack labeled ñMICò on the front of the switch.

6 ï Plug headphones or an external speaker into the jack labeled ñPHONESò on the front of the switch

This completes the installation. Please skip to the ñSwitch Operationò section below for details on using the switch.

TNC / Other Comm Device Installation

Follow the instructions in this section if you will be using this switch with your radio and a non-SignaLink communication device such as a TNC.

To connect a TNC or other communication device to this switch, you will need a cable wired with a 6-pin RJ-11 plug on one end, and whatever connector is required by your communication device on the other end. If you don't already have this cable available from your current installation then you will need to build or acquire one. We can also provide an unterminated cable with an RJ-11 plug on one end for a

modest charge (please contact us).

Please note that we are unable to provide cable wiring instructions for non-SignaLink communication devices. However, this should be a simple matter to figure out. The SW-RJ11 Mic Switch switches all connectors ñstraight throughò (1-1, 2-2, 3-3, etc.), so the 6-pin RJ-11 ñAUXò jack on the switch provides the same pin-out as the connected radio. This means that you simply need to wire your cable as if it is going to plug directly into the radio's mic jack. Once you have wired your cable, please double-check your work (***your equipment could be damaged by incorrect wiring!***) and then follow the steps below to complete the installation.

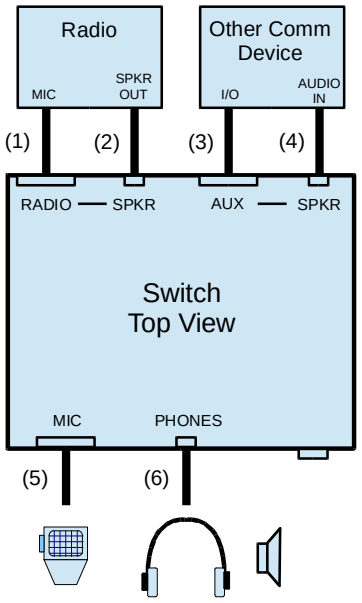

Figure 5 – Other Comm Device Installation

See Figure 5 above for a block diagram of this installation. Note that the cable connections shown in the diagram are marked "(1)", "(2)", "(3)", etc., and correspond directly to the steps below.

1 ï Using the supplied double-ended RJ-11 cable, plug one end of this cable into your radio's 6-pin RJ-11 microphone jack. Plug the other end of this cable into the jack labeled ñRADIOò on the back of the switch.

2 ï Using the supplied 3.5mm audio cable, plug one end of the cable into your radio's External Speaker / Headphone jack. Plug the other end of this cable into the jack labeled ñRADIO --- SPKRò on the back of the switch. ***See the tip below before connecting this cable. It should only be connected if your radio does not supply speaker audio on the Mic jack. If speaker audio is available on the mic jack, then do NOT connect this cable.***

3 ï Using the cable for your communication device mentioned at the beginning of this section, plug one end of the cable into the appropriate jack on your communication device. Plug the 6-pin RJ-11 end of the cable into the ñAUXò jack on the back of the switch.

4 - Using the audio cable that was supplied with your communication device, plug one end of the cable into the Audio Output jack on the comm device. Plug the other end of this cable into the jack labeled ñAUX --- SPKRò on the back of the switch. ***See the tip below before connecting this cable. It should only be connected if your radio does not supply speaker audio on the Mic jack. If speaker audio is available on the mic jack, then do NOT connect this cable.***

TIP: If your communication device works directly with your radio using the mic connection only (no audio cable), then the audio cable is not required with this switch either, and it should not be connected.

5 ï Plug your microphone into the jack labeled ñMICò on the front of the switch.

6 ï Plug headphones or an external speaker into the jack labeled ñPHONESò on the front of the switch

This completes the required cable connections. Please see the **"Switch Operation"** section below for details on using the switch.

- SWITCH OPERATION-

Operation of the SW-RJ11 Mic Switch is very simple. The front panel ñMic/Auxò switch is used to select the device that you want to use with the radio at any given time. Simply push the switch button IN to select the SignaLink / Aux device. Push the switch button again so that the button is OUT to select your microphone. If you experience any problems using the switch, then please see the ñ**Troubleshooting**ò section at the end of this manual.

- SWITCH CONTROLS AND CONNECTORS -

Front Panel

MIC ï This jack is where you plug in your microphone. It accepts a standard 6-pin RJ-11/RJ-12 modular plug.

PHONES ï This jack is where you plug in your headphones or an external speaker. It accepts a standard 3.5mm (1/8ò) stereo or mono audio plug (tip, ring and sleeve are all switched).

AUX / MIC SWITCH ï This push-button switch is used to switch the radio between the microphone/headphones and the aux communication device (SignaLink, TNC, etc.). When the switch button is pressed in, the Aux communication device (SignaLink, TNC, etc.) is connected to the radio. When the switch button is out (not pressed in), the microphone and headphones are connected to the radio.

Rear Panel

AUX ï This jack is where you attach the aux communication device (SignaLink, TNC, etc.). It accepts a standard 6-pin

RJ-11 / RJ-12 modular plug.

AUX-SPKR ï This 3.5mm audio jack connects to the aux communication device (SignaLink, NC, etc.) where applicable. It accepts a standard 3.5mm (1/8ò) stereo or mono audio plug (tip, ring and sleeve are all switched).

RADIO ï This 6-pin RJ-11/RJ12 jack attaches to the radio's mic jack.

RADIO-SPKR - This 3.5mm audio jack connects to the radio's External Speaker / Headphone audio output jack where applicable. It accepts a standard 3.5mm (1/8ò) stereo or mono audio plug (tip, ring and sleeve are all switched).

- VISIT US ON THE INTERNET -

www.tigertronics.com

Our website contains the latest news about Tigertronicsô 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. 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 SW-RJ11 Microphone Switch 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 SW-RJ11 Microphone Switch 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 ï *The vast majority of technical issues can be resolved with the information that is available in this manual. Please take some time to read through it.*

If you encounter a problem that you cannot resolve 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. Unless you are located over-seas or have extenuating circumstances, 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!

- TROUBLESHOOTING -

This section covers the most common issues that you may experience with this product. If your problem is not covered here then please see the Support pages of our website at www.tigertronics.com. If you are still unable to resolve the issue, then please see the ñ**Technical Support**ò section of this manual for instructions on contacting our Technical Support Staff by telephone.

My microphone or SignaLink (or other communication device) does not work when connected through the switch. If you have grounded the switch chassis then you may have grounded the wrong line by mistake. Please see ñ**Grounding The Switch Chassis**ò on page 1 of this manual and use the steps there to double-check your work. You can also try removing the ground jumper to see if that resolves the issue. If it does, then you have most likely installed the ground jumper incorrectly.

If you have enabled RFI filtering by means of the JP1-JP6 jumpers, then you can try removing them to see if it affects the problem (see ñ**Enabling RFI Filtering"** on page 2 of

this manual). The built-in RFI filtering should not normally cause any issues regardless of the microphone or device you're using. If you believe that this is the cause of the issue then please contact us with the details.

If the above steps do not resolve the issue, then try plugging the microphone (SignaLink, TNC, etc.) into the radio directly to confirm that it works with a direct connection. If the problem persists when the microphone or device is directly connected to the radio, then the issue is most likely due to a problem with the microphone or device (not the switch).