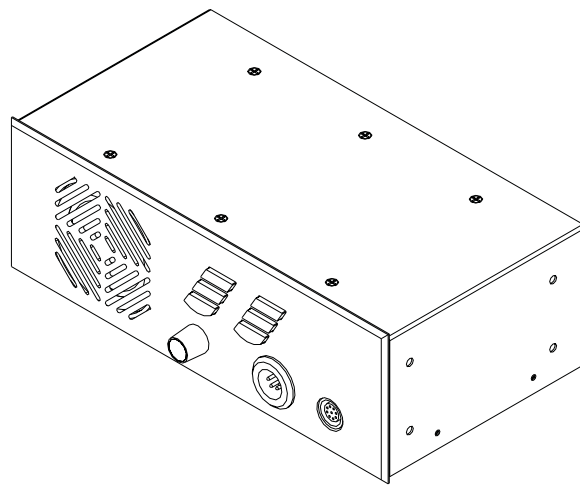


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## **User Instructions**



**Model SS2000-RM  
2-Channel, Rack-Mount,  
Intercom Speaker Station**

**Audiocom<sup>®</sup> Intercom Systems**

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**TELEX<sup>®</sup>**

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## **FCC Statement**

This equipment uses and can radiate radio frequency energy that may cause interference to radio communications if not installed in accordance with this manual. The equipment has been tested and found to comply with the limits of a Class A computing device pursuant to Subpart J, Part 15 of FCC Rules which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference which the user (at his own expense) will be required to correct.

 This product meets Electromagnetic Compatibility Directive 89/336/EEC.

## **Introduction.**

Thank you for purchasing the Audiocom SS2000-RM Intercom Speaker Station. We hope the many design features of this product will satisfy your intercommunication requirements for many years to come. To get the most out of your new intercom station, please take a few moments to look through this booklet before using the Intercom Speaker Station for the first time.

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### Description

The SS2000-RM Speaker Station provides switch-selectable access to either of two intercom channels, and it can be rack-mounted or placed on a desktop. (Rack mounting requires an optional Telex Model RM-14 Rack Mount Kit.) The SS2000-RM gives you several options for talk and listen configurations: Typically, the internal speaker is used for intercom listening, and a gooseneck microphone, such as any Telex EGM microphone, is mounted on the front panel for talkback. Or, a handheld microphone, such as the Telex Model NC-450A, can be used in place of a panel-mounted microphone. Alternatively, the speaker may be turned off, and a microphone headset or a telephone-style handset can be connected for private communication. The SS2000-RM is compatible with a wide variety of Telex headsets that have a 4-pin female connector (A4F). It is also compatible with the Telex Model HS-6A Telephone Handset.

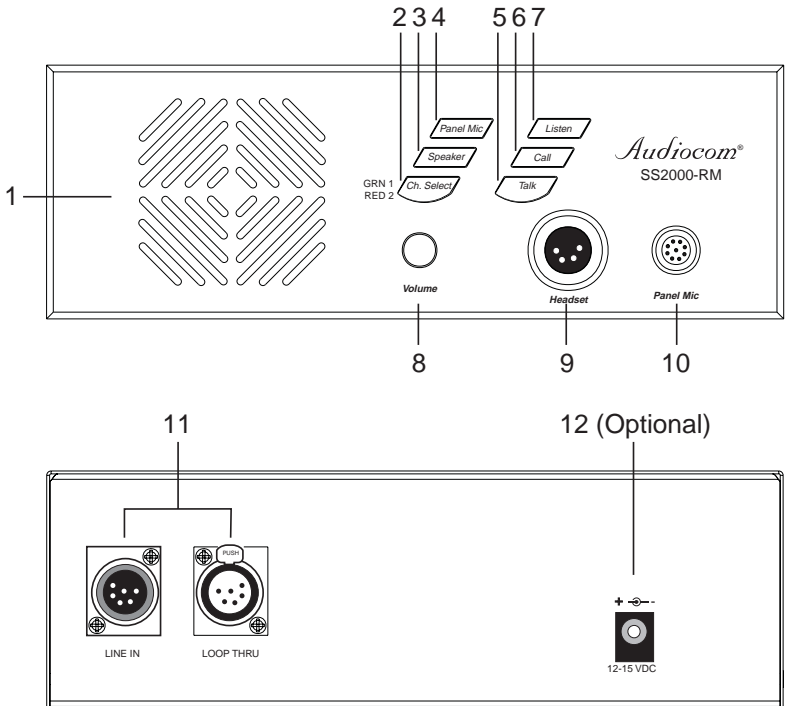



Figure 1. Front / Back Panel Reference View. (See numbered features list.)

## Features

1. Internal speaker: Provides high output for area listening.
2. Channel Select Key: Selects intercom channel one or two. The key illuminates green for channel one and red for channel two.
3. Speaker Key: Selects the built-in speaker in the on position (illuminated green) or the Headset connector (9) in the off position.
4. Panel Mic Key: Selects the Panel Mic connector (10) in the on position (illuminated green) or the Headset connector (9) in the off position.
5. Intercom Talk Key: Both momentary (push-to-talk) and latching (hands-free talk) are possible.
6. Call Key: Sends call signals on the selected intercom channel and indicates incoming calls on the selected channel.
7. Intercom Listen Key: Both momentary (push-to-listen) and latching (hands-free listen) are possible.
8. Volume Control: Adjusts intercom volume to headphones or speaker, whichever is selected.
9. Headset Connector: Accepts a dynamic-mic headset or dynamic-mic telephone handset (for talk and listen) or a handheld dynamic mic (when using the internal speaker for listening) or monaural headphones (when using the panel mic jack (10) for talkback). There is an internal DIP switch to select balanced or unbalanced types of dynamic microphone.
10. Panel Mic / Electret-mic Headset Connector: Accepts an electret gooseneck microphone, such as the Telex Model EGM-12N or EGM-18N, or a monaural, electret-mic headset.
11. LINE IN and LOOP THRU Connectors: These connectors provide the intercom audio and system power connection. Two connectors are provided so you can quickly connect a string of 2-channel intercom stations using prefabricated intercom cables (daisy chain connection).  
 If the intercom system uses a mixture of 2-channel and 1-channel intercom stations, JB-2 Junction Boxes or special "Y" cables must be used to convert from 1-channel connectors to 2-channel connectors. See Figure 4, page 12, for an example.
12. Local DC Power Jack (optional on special order): Typically, power is supplied from a remote Audicom system power supply via the intercom cables. This is convenient, but there is a limit to the distance that power can be delivered on the intercom channel. Alternatively, a PS-L Wall Pack can be plugged into the DC jack to power the SS2000-RM from a nearby AC outlet. The SS2000-RM automatically disconnects from system power when a local power source is detected. Using a local power source lets you operate the SS2000-RM over greater distances.

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13. Configuration DIP switches (Figure 2): These control the following features:

**Mic Kill Receive Enable:** With this feature activated, the SS2000-RM talk key can be turned off from a remote master station.

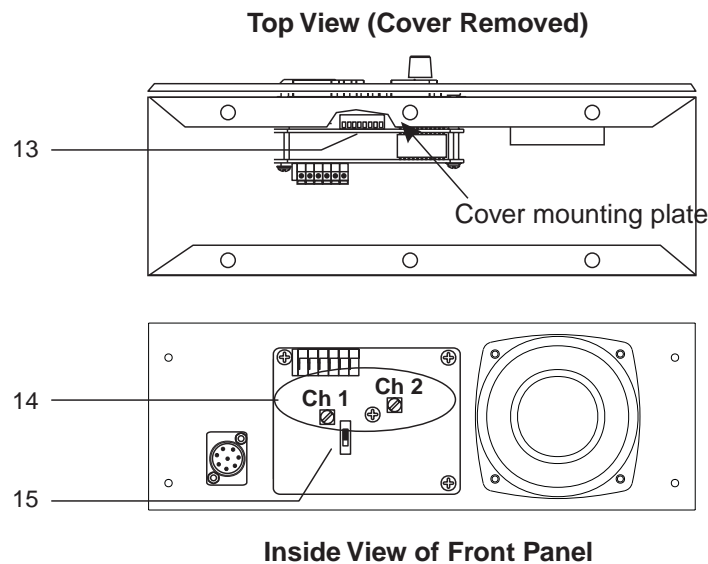
**Call Signal Select:** Selects compatibility with Audiocom or Clear-Com\* call signaling.

**Incoming Call Beep:** An optional call beep tone can be used for incoming call notification when using headphones. An additional switch also activates the beep tone to the speaker if desired.

**Headset Microphone Type Selection:** Selects balanced or unbalanced dynamic microphone.

14. Sidetone Trimmers (Figure 2): These adjust the level of the station operator's own voice when using full-cushion headphones. When using the speaker or open-ear style headphones, the sidetone trimmers are adjusted to eliminate the station operators' voice from the headphones or speaker to prevent feedback.

15. Balanced / Unbalanced Selector Switch (Figure 2): The selector switch sets the intercom station for compatibility with either Audiocom intercom channels (balanced) or Clear-Com intercom channels (unbalanced).



**Figure 2.** Reference view for configuration switches. (Top cover removed.)

\* Brand names mentioned are the property of their respective companies.

## Installation

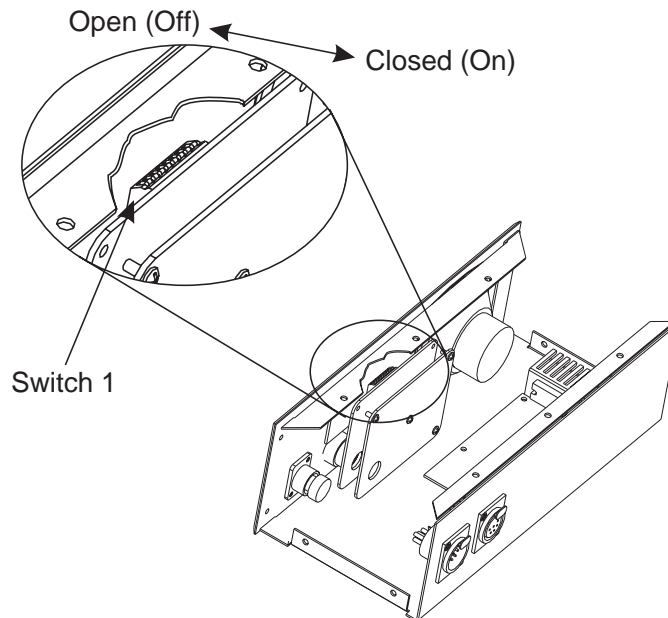
### Unpacking

The SS2000-RM is supplied with the following items. Contact the shipper or your Audiocom dealer immediately if anything is damaged or missing. Detach and fill out the registration card and return it to Telex to properly register your intercom station.

Quantity	Description
1	SS2000-RM Intercom Station
1	Warranty and registration card
1	User Instructions
4	Rubber feet (apply to bottom of SS2000-RM for desktop use)
1	PS-L Wall Pack Power Supply (units with DC jack option only)

### Configuration Pre-check

Before making connections, read the configuration notes that follow, and make sure that the SS2000-RM is properly configured for your intended usage. To access the configuration controls, remove the screws from the top and both sides, then remove the top cover. Figure 2, page 6, shows the locations of the configuration controls. Table 1, page 8, lists the DIP switch descriptions and factory default settings.



**Figure 3.** DIP Switch Positions

**Table 1. DIP Switch Settings**

Switch Number	Description	Settings	Default Setting
1	Mic kill receive	Closed: Disabled-no mic kill Open: Enabled-mic kill active	Open
2	Call signal compatibility	Closed: DC signaling (Clear-Com) Open: AC signaling (Audiocom)	Open
3	Incoming call beep	Closed: Disabled Open: Enabled	Open
4	Microphone type	Closed: Unbalanced Open: Balanced	Open
5	Speaker beep for incoming call	Closed: Enabled (DIP switch 3 must be set to Open position) Open: Disabled	Open
6	Not used	Don't care	Open
7	Not used	Don't care	Open
8	Not used	Don't care	Open

#### Mic Kill Receive (DIP Switch 1)

Audiocom master stations, such as the US2000A, can transmit an inaudible signal to turn off the microphones in all remote intercom stations (including the SS2000-RM) on an intercom channel. This is useful when a remote intercom station has been left unattended with the microphone on. The procedure to send a mic kill signal from a master station is a two-step process, so that it is very unlikely that microphones will ever be turned off by accident. However, you may wish to disable the mic kill receive feature at the SS2000-RM. You might do this, for example, if communications will be of a very critical nature where it is absolutely essential the microphone never be remotely deactivated.

#### Call Signal Compatibility (DIP Switch 2)

Leave this switch in the open position for Audiocom applications, and also leave the Balanced / Unbalanced switch in the Balanced position. For Clear-Com applications, set DIP switch 2 to the closed position and set the Balanced / Unbalanced switch to the Unbalanced position.



### Incoming Call Beep (DIP Switches 3 and 5)

Incoming calls are always indicated by a red-flashing call key. You can also select a beep tone for incoming call notification. If you want incoming call beep in headphones, but not in the speaker, set DIP switch 3 to the Open position (default) and also set DIP switch 5 to the Open position (default). If you want incoming call beep in the speaker, leave DIP switch 3 in the Open position, and set DIP switch 5 to the Closed position.

### Microphone Type (DIP Switch 4)

If you are using the headset connector (Figure 1, item 9) to connect a dynamic-mic headset, or dynamic-mic handset, or a hand-held dynamic microphone, check the specifications for the microphone. If the specifications indicate the microphone type is balanced, leave DIP switch 4 in the Open position (default). If the specifications indicate an unbalanced microphone, set DIP switch 4 to the Closed position. If you don't know, leave DIP switch 4 in the Open position. Or, experiment with both settings during operation, and use the position that produces the best output level at other intercom stations, with the lowest noise.

### Balanced/Unbalanced Switch

This switch is set at the factory to the Balanced position for use with Audiocom intercom channels. Set the switch to the Unbalanced position for use with a Clear-Com intercom system.

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### Headset Connector Notes

If you are using a monaural, dynamic-mic headset, or a monaural, telephone-style, dynamic-mic handset, or a hand-held dynamic microphone, plug it into the Headset Connector (Figure 1, item 9). You can also use this connector with monaural headphones for listening when you are using a panel microphone for talkback.

☞ For microphone and headphone specifications, see page 18.

☞ For best results in noisy environments, a noise canceling (directional or cardioid) microphone is highly recommended.

☞ Make sure that DIP switch 4 is properly set for balanced or unbalanced microphone. See Table 1, page 8.

### Panel Mic Connector Notes

As an alternative to a headset or telephone-style handset, you can use the panel mic connector (Figure 1, item 10) to connect a Telex model EGM-12N or EGM-18N panel microphone. Use this microphone for talk back, then use the internal speaker for listening, or connect a pair of headphones to the Headset Connector for private listening.

☞ To insert the Telex model EGM-12N or EGM-18N panel microphone, line up the arrow on the top of the microphone with the top of the panel mic connector on the SS2000RM.

☞ For panel microphone specifications, see page 18.

## Intercom Channel Connections

### Clear-Com Notes

To use the SS2000-RM in a Clear-Com Intercom System, set the Balanced / Unbalanced switch to the Unbalanced position and set DIP switch 2 to the Closed position. In this mode, the LINE IN and LOOP THRU connectors will be compatible with Clear-Com cables and connector pin-outs. And, the SS2000-RM will work with the Clear-Com call signaling method.

### Audiocom Connections

The SS2000-RM can be connected in a variety of ways using "daisy-chain" or "home-run" connection. Examples are shown on the following pages.

### Audiocom Cables

The numbers below correspond to the cable numbers in the connection examples on the following pages.

1. 1-channel intercom cable. Sold separately. Use Telex "ME" cables, below. Or, build per Figure 6, page 14.

ME-25: 25' (7.6 m) cable with Male and Female 3-pin XLR connectors.

ME-50: 50' (15.2 m) cable with Male and Female 3-pin XLR connectors.

ME-100: 100' (30.4 m) cable with Male and Female 3-pin XLR connectors.

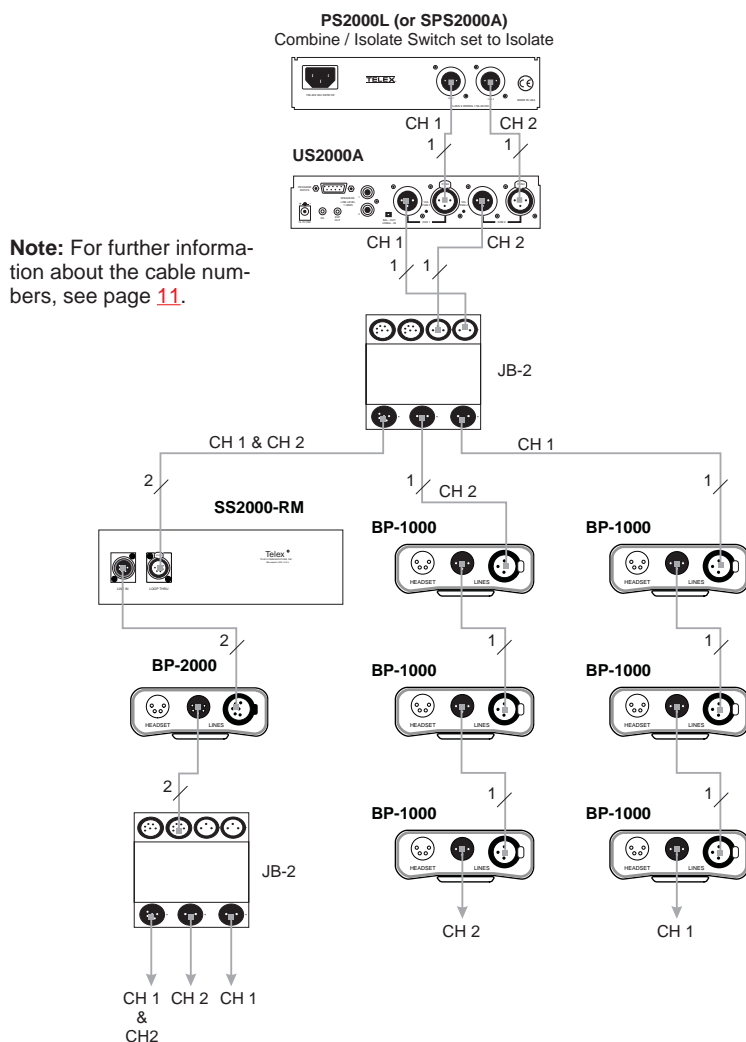
2. 2-channel intercom cable. Sold separately. Use Telex "ME /2" cables, below. Or, build per Figure 6, page 14.

ME-25/2: 25' (7.6 m) cable with Male and Female 6-pin XLR connectors.

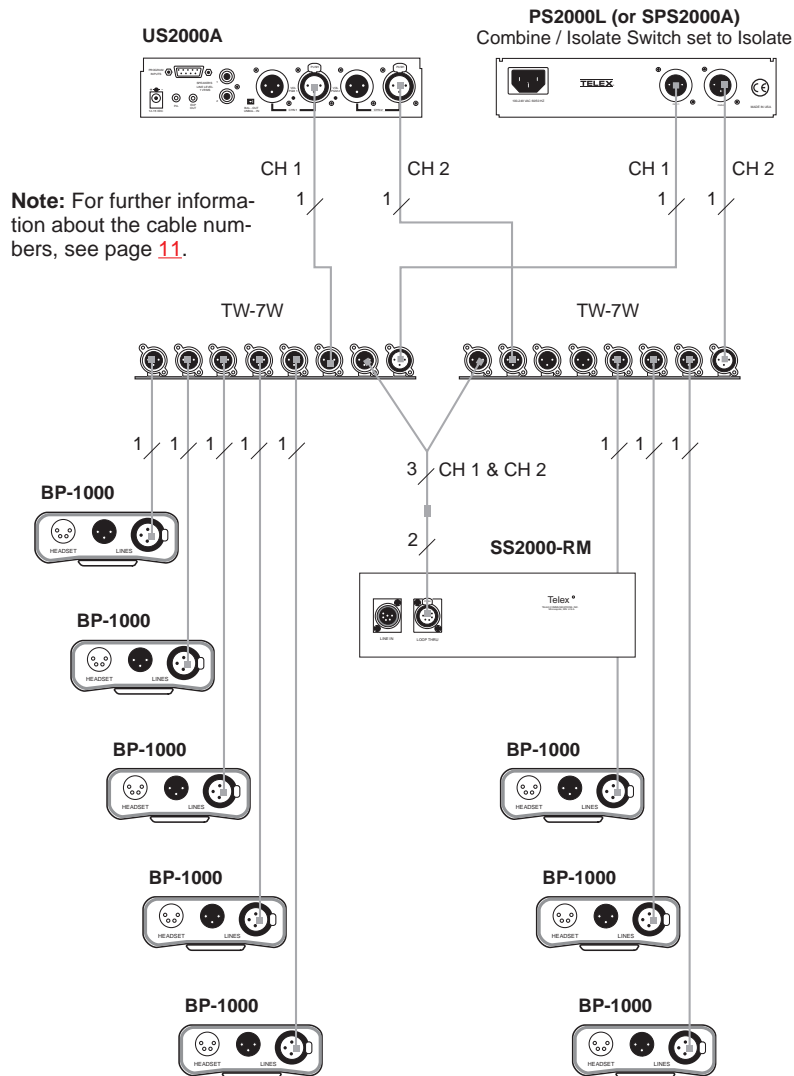
ME-50/2: 50' (15.2 m) cable with Male and Female 6-pin XLR connectors.

ME-100/2: 100' (30.4 m) cable with Male and Female 6-pin XLR connectors.

3. Y adapter cable. Two female, 3-pin XLR connectors to one male, 6-pin XLR connector. Sold separately. Use Telex CA-23-16. Or, build per Figure 6, page 14.

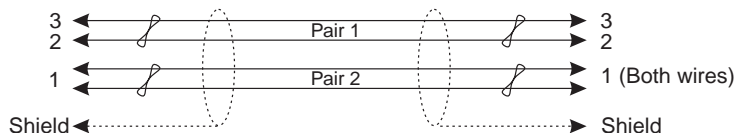


**Figure 4.** An example of daisy-chain connections, with a mixture of 1-channel and 2-channel stations. The LINE and LOOP connectors on the intercom stations are used to quickly interconnect the stations using prefabricated cables. Note that the PS2000L Power Supply and the US2000A User Station use separate 3-pin connectors for each channel, while the SS2000-RM combines 2 channels on one 6-pin connector. The BP-1000 Belt Packs only connect to 1 channel and use 3-pin connectors. The illustration shows how JB-2 Junction Boxes provide for both 3-pin and 6-pin connections. The JB-2 can combine two 3-pin connectors into a 6-pin connector (top) and it can also split a 6-pin connector into two separate 3-pin connectors (lower-left). The advantage of the daisy-chain connection over the home-run connection (next page) is that less equipment and cable are required. The disadvantage is that each intercom station that is added to the end of the chain receives less operating power than the previous station.



**Figure 5.** An example of home-run connections. The cable from each intercom station runs all the way "home" to the power supply. Each TW-7W splitter connects to a single channel of the PS2000L power supply, and provides direct connection for 7 intercom stations. The advantage of the home-run connection over the daisy-chain connection (previous page) is that each intercom station has a chance to receive equal power from the power supply, and stations may be operated at a somewhat greater distance from the power supply. The disadvantage is that more equipment is required (the TW-7W splitters) and more cable is also required. In this example, a special "Y" cable is used to combine channels 1 and 2 into a single 6-pin connector for connection to the SS2000-RM. For home-run connection, this is more economical than using a JB-2 Junction Box.

**TYPICAL 1-CHANNEL CABLE WIRING**



Cable Type: 22AWG Stranded, 2-Pair Twisted-wire, with Shield

Connector Type: 3-Pin XLR Audio (Neutrik or Switchcraft)\*

Pin 1: Common

Pin 2: Channel Audio / Power

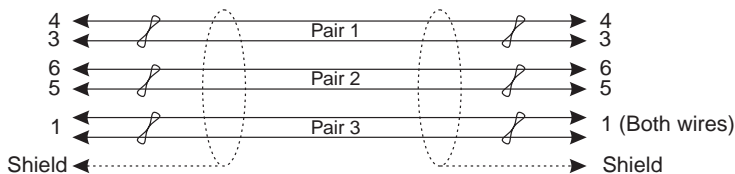
Pin 3: Channel Audio / Power

Shield: Earth ground

Denotes twisted pair.

Denotes shield.

**TYPICAL 2-CHANNEL CABLE WIRING**



Cable Type: 22AWG Stranded, 3-Pair Twisted-wire, with Shield

Connector Type: 6-Pin XLR Audio (Neutrik only, not compatible with 6-pin Switchcraft)\*

Pin 1: Channel 1 & 2 Common

Pin 2: No connection

Pin 3: Channel 1 Audio / Power

Pin 4: Channel 1 Audio / Power

Pin 5: Channel 2 Audio / Power

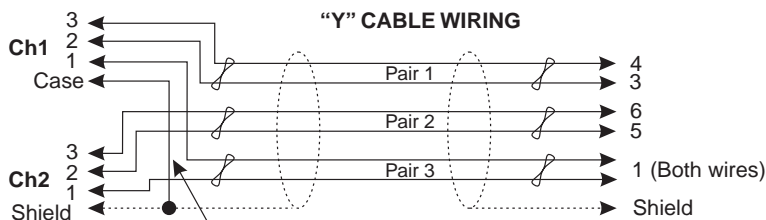
Pin 6: Channel 2 Audio / Power

Shield: Earth ground

Denotes twisted pair.

Denotes shield.

**“Y” CABLE WIRING**



Use second drain wire if available, or add an extra section of wire.

\* Standard cables are generally constructed using a male connector at one end and a female connector at the other end. This allows several cables to be interconnected to create longer cable runs. Audiocom master stations, speaker stations and belt packs also typically provide both a male and female Neutrik connector for each intercom channel. This permits loop-through connection of several intercom stations using the standard cables. Audiocom power supplies use a 3-pin male Neutrik connector for each channel. Audiocom wallplates use male Neutrik connectors.

Figure 6. Audiocom cable wiring diagrams.

## Optional Local Power Connection

If your SS2000-RM has the optional DC jack, you can plug in a Telex Model PS-L Wall Pack Power Supply. This lets you power the SS2000-RM from a local AC wall outlet instead of from the intercom system (this applies to both Clear-Com and Audiocom intercom systems). Locally powering the SS2000-RM lets you operate the station over a greater distance.

## Power-Up

Make sure any local power supplies are plugged in, then turn on the power switches of any system power supplies (PS2000L, SPS2000A etc.).

☞ If you are using a large number of locally powered intercom stations, you should plug in their local power supplies before activating any system power supplies. Otherwise, you may get an overload indication on one or more of the system power supplies. In this case, either reset the power supply, or momentarily turn it off, then on.

## Sidetone Adjustment

The SS2000-RM uses full-duplex audio (the same as conventional telephone lines) in which the talk and listen audio are sent and received on the same wires. Thus, when you talk on a channel, you will also here your own voice back in the headphones. If you are using the internal speaker for listening, this could cause unwanted feedback, since the microphone may pick up your returned voice audio and re-amplify it. On the other hand, if you are using headphones that completely enclose the ears, a certain amount of your own voice level is desirable to overcome the muffled sensation when talking. The sidetone adjustment is different for these two situations.

**If you are using the speaker with a panel microphone, or if you are using an open-ear style headset or headphones, adjust sidetone as follows:**

1. Remove the top cover.
2. Activate channel 1 as described in the operating instructions (page [17](#)).

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3. Activate talk and listen as described in the operating instructions.
4. Slowly increase the volume to maximum while talking into the microphone.
5. Using a small flat-bladed screwdriver, adjust the channel 1 sidetone trimmer (Figure 2) to minimize your voice level in the headphones.
6. Activate channel 2 and repeat the above steps to adjust the channel 2 sidetone.
7. Reinstall the top cover. The station is now ready for use.

**If you are using headphones that completely enclose the ears, adjust sidetone as follows:**

1. Remove the top cover.
2. Activate channel 1 as described in the operating instructions (page 17).
3. Activate talk and listen as described in the operating instructions.
4. Set the volume control to the normal listening level for intercom audio.
5. While talking into the microphone, use a small flat-bladed screwdriver to adjust the channel 1 sidetone trimmer (Figure 1) so that you can hear your own voice in the headphones at an acceptable level.
6. Activate channel 2 and repeat the above steps to adjust the channel 2 sidetone.
7. Reinstall the top cover.



## Operation

### Channel Select

Tap the Ch Select key to select channel 1 or 2. The key is green when channel 1 is selected and red when channel two is selected.

### Headset / Headphone / Speaker / Microphone Selection

- To use the speaker with a panel microphone, set the Speaker and Panel Mic keys to on.
- To use a microphone headset or telephone-style handset, set the Speaker and Panel Mic keys to off.
- To use headphones with a panel microphone, set the Speaker key to off and set the Panel Mic key to on.

### Receiving Calls

1. When there is an incoming call signal the Call key will flash red. There will also be a beep tone in the headphones or speaker if the beep feature is activated (page 8).

☞ Incoming call indication is provided only for the active channel.

2. Turn on the Talk and Listen keys and begin your conversation. Turn the keys off when finished.

☞ You can turn the talk and listen keys on in either momentary or latched mode. For momentary operation, press and hold the key. For latched operation, tap the key to turn it on. Then tap it again to turn it off when finished.

### Calling an Intercom Channel

1. Tap the Ch Select key to select the desired intercom channel.
2. Press and hold the Call key. An inaudible call signal will be sent, and the Listen key will automatically turn on.
3. When you hear a response, release the Call key and activate the Talk key.
4. Turn off your Talk and Listen keys to end the conversation.

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## Specifications

### General

Power Requirements:

Phantom Power: 24 VDC nominal (12 to 30 VDC), 175 mA

Local Power: 12 to 15 VDC, 250 mA

Dimensions: See Figure

Environmental Requirements:

Storage: -20°C to 80°C; 0% to 95% humidity, non-condensing

Operating: -15°C to 60°C; 0% to 95% humidity, non-condensing

### Headset Connector

Microphone: 50 to 200 ohm, dynamic (balanced or unbalanced)

Headphones: 150 to 600 ohm, monaural

Connector Type: XLR-4M

Pin 1 Microphone low

Pin 2 Microphone high

Pin 3 Headphone high

Pin 4 Headphone low

### Panel Microphone Connector

Microphone: 5 kohm, electret (-57 dB)

Connector Type: NTRK-8F

Pin 1 Common

Pin 2 Microphone high

Pin 3 +12 VDC microphone bias

### Intercom Channels, Balanced / Unbalanced switch set to Balanced

Output Level: 1 Vrms nominal

Input Impedance: 300 ohms

Bridging Impedance: greater than 10,000 ohms

Sidetone: -40 dB, 35 dB adjustable range

Call Signaling:

Send: 20 kHz  $\pm$ 100 Hz, 0.5 Vrms  $\pm$ 10%

Receive: 20 kHz  $\pm$ 800 Hz, 100 mVrms

Mic-Kill Detect Frequency: 24 kHz  $\pm$ 800 Hz, 100 mVrms

Noise Contribution: less than -70 dB

Common Mode Rejection Ratio: greater than 50 dB

Connector Type: Neutrik XLR6F and XLR6M Audio Connectors

Pin 1 Audio and DC Common

Pin 2 Local power (12 to 15 VDC, 65 to 150 mA)

Pin 3 Intercom channel 1 audio low and +24 VDC phantom power

Pin 4 Intercom channel 1 audio high and +24 VDC phantom power

Pin 5 Intercom channel 2 audio low and +24 VDC phantom power

Pin 6 Intercom channel 2 audio high and +24 VDC phantom power

**Intercom Channel, Balanced / Unbalanced switch set to Unbalanced**

Output Level: 1 Vrms  $\pm$ 10%

Input Impedance: 150 ohms

Bridging Impedance: greater than 10,000 ohms

Sidetone: -40 dB, 35 dB adjustable range

Call Signaling:

Send: 11  $\pm$ 3 VDC

Receive: 4 VDC minimum

Connector Type: Neutrik XLR6F and XLR6M Audio Connectors

Pin 1 Common

Pin 2 Local power (12 to 15 VDC, 65 to 150 mA)

Pin 3 Channel 1 +24 VDC input

Pin 4 Channel 1 Intercom audio high and DC call

Pin 5 Channel 2 +24 VDC input

Pin 6 Channel 2 Intercom audio high and DC call

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## **Factory Service and Parts Information**

When returning equipment for repair include your return address, telephone number and proof of date of purchase, along with a description of the problem.\*

The address for Audiocom equipment returns and parts information is:

Service Department  
Telex Communications, Inc.  
West 1st Street  
Blue Earth, Minnesota 56013 U.S.A.  
Telephone: (507) 526-3205  
(Collect calls not accepted)

Warranty Repairs - If in warranty, no charge will be made for the repairs. Equipment returned for warranty repair must be sent prepaid and will be returned prepaid.

Non-Warranty Repairs - Equipment that is not under warranty must be sent prepaid to Telex. If requested, an estimate of repair costs will be issued prior to service. After your approval and completion of the repairs, the equipment will be returned on a collect basis. Collect charges may be avoided by sending a signed check for payment in full along with your signed estimate approval form (shipping charges are included in the estimate).

\* For sales / technical support and system design contact:

Pro Audio Sales Department  
Telex Communications, Inc.  
9600 Aldrich Avenue South  
Minneapolis, Minnesota 55420 U.S.A.  
Telephone: (612) 884-4051  
(Collect calls not accepted)

## NOTES

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## **NOTES**

## NOTES

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