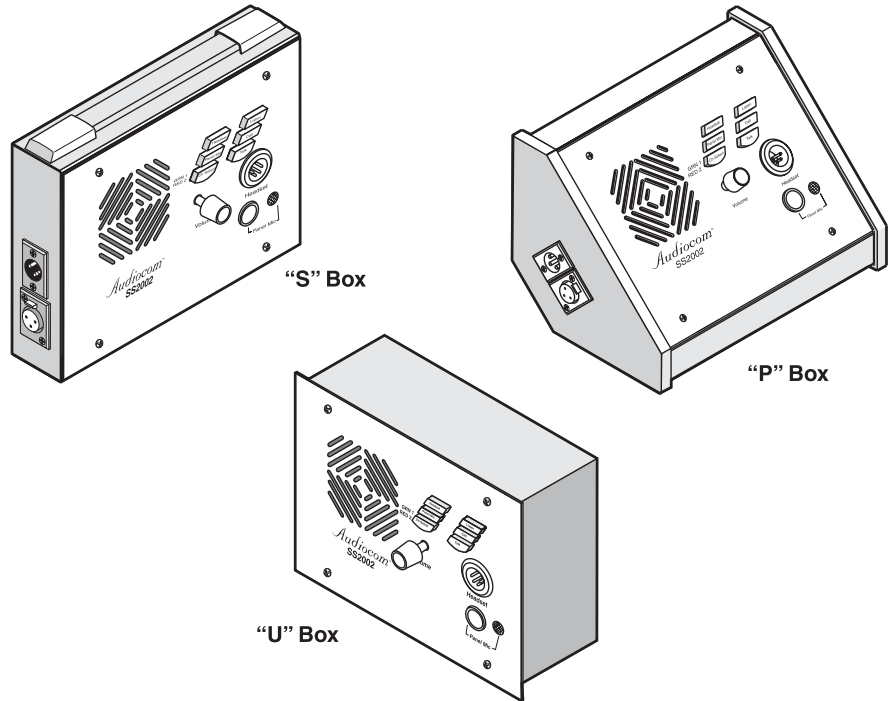
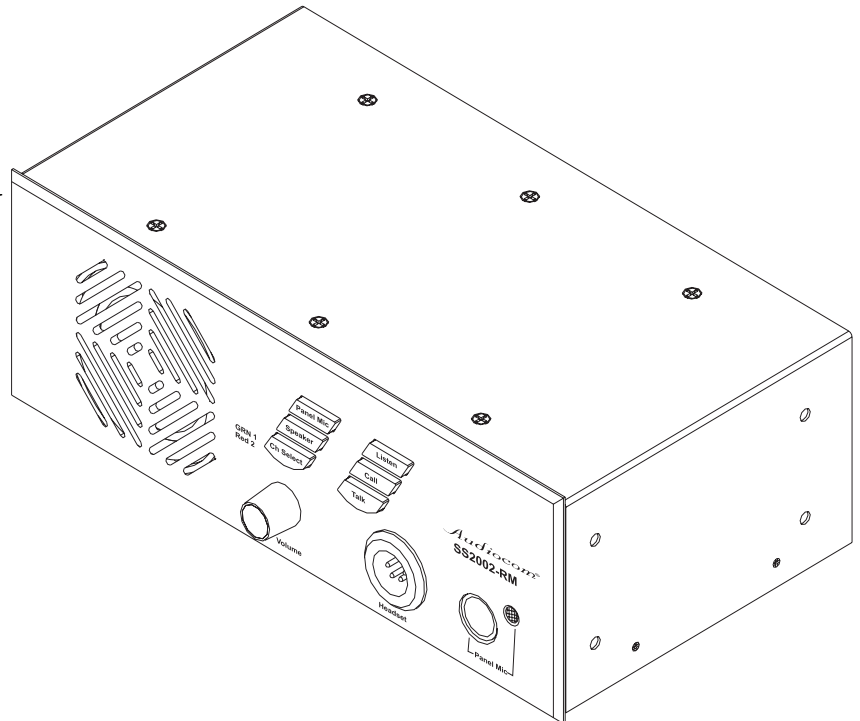


*Model SS-1002
Single Channel
Intercom Speaker
Station*



*Models SS-2002
Two Channel
Intercom Speaker
Station*



*Model SS-2002 RM
Two Channel Rack
Mount Intercom
Speaker
Station*

PROPRIETARY NOTICE

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WARRANTY NOTICE

See the enclosed warranty card for further details.

CUSTOMER SUPPORT

Technical questions should be directed to:

Customer Service Department
RTS/Telex Communications, Inc.
12000 Portland Avenue South
Burnsville, MN 55337 USA
Telephone: 800-392-3497
Fax: 800-323-0498
Factory Service: 800-553-5992

RETURN SHIPPING INSTRUCTIONS

Customer Service Department
Telex Communications, Inc. (Lincoln, NE)
Telephone: 402-467-5321
Fax: 402-467-3279
Factory Service: 800-553-5992

Please include a note in the box which supplies the company name, address, phone number, a person to contact regarding the repair, the type and quantity of equipment, a description of the problem and the serial number(s).

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 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

Shipping to the Manufacturer

All shipments of product should be made via UPS Ground, prepaid (you may request from Factory Service a different shipment method). Any shipment upgrades will be paid by the customer. The equipment should be shipped in the original packing carton. If the original carton is not available, use any suitable container that is rigid and of adequate size. If a substitute container is used, the equipment should be wrapped in paper and surrounded with at least four (4) inches of excelsior or similar shock-absorbing material. All shipments must be sent to the following address and must include the Proof of Purchase for warranty repair. Upon completion of any repair the equipment will be returned via United Parcel Service or specified shipper, collect.

Factory Service Department
Telex Communications, Inc.
8601 East Cornhusker Hwy.
Lincoln, NE 68507 U.S.A.
Attn: Service

This package should include the following:

QTY	DESCRIPTION	PART NO.
1	SS-1002, 1 channel front plate assembly	9010-7741-000
1	SS-2002, 2 channel front plate assembly	9010-7741-001
1	User Manual	9350-7741-000
4	Screw, Flat Hd, 6-32 x 5/16"	51847-122
One of the following, depending on what was ordered:		
1	P-box, 1-channel	9010-7627-007
1	S-box, w/handle, 1-channel	9010-7627-008
1	P-box, 2-channel	9010-7627-009
1	S-box, w/handle, 2-channel	9010-7627-010
1	U-box	9010-7627-004
1	S-box, w/out handle, 1-channel	9010-7627-011
1	S-box, w/out handle, 2-channel	9010-7627-012
1	Warranty Card	38110-390
2	End Caps	9310-7620-001
1	Statement of Conformity	38109-675
SS-2002RM		
1	SS-2002RM Final Assembly	9010-7742-000
4	Foot, bumper, black	56471-001
1	User Instructions	9350-7741-000
1	Statement of Conformity	38109-675
1	Warranty	38110-390

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Introduction

Thank you for purchasing the Audiocom SS-1002/2002/2002RM 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 you new intercom stations, please take a few moments to look through this booklet before using the Intercom Speaker Stations for the first time.

Description

The Intercom Speaker Stations may be used with a headset, or with the built-in speaker and the panel microphone or an optional gooseneck microphone. Another alternative is to use headphones and either the built-in panel microphone or an optional gooseneck microphone. As an alternative to a headset, a telephone style handset may also be used. The SS-1002 is a single-channel station; the SS-2002 & SS-2002RM provide switch selectable access to either of two intercom channels. Both the SS-1002 and the SS-2002 com in three version to suit a variety of applications. The “S” box is a portable version. It has a carrying handle and dual “loop-through” intercom connectors which permit stations to be quickly interconnected using pre-fabricated cables. The “P” box is stationary version. It also has dual “loop-through” connectors for quick interconnection, but the case is designed for desktop or console-mount applications. The “U” box is designed for permanent, in-the-wall mounting. It uses push type wire terminals for connection to the intercom system. In addition, the SS-2002RM can be used on a desktop or mounted in a standard 19” equipment rack (using the optional RM-14 Rack Mount Kit).

Features

1. *Channel and Power Connections* - The “U” box uses quick release terminals to connect to audio and power wires. For the “S” box and “P” box versions, the terminal connections are brought out to the dual, loop-thru XLR connectors on the side of the box. These permit several stations to be connected in a string, or daisy-chain, using pre-fabricated intercom cables.
2. *Configuration DIP Switches* - These switches control the following features:

Call Beep: In addition to a flashing call key indication for incoming calls, an incoming call beep tone can also be used.

Headset Microphone Type Selection: Either a balanced or unbalanced dynamic microphone can be selected.

DC call enable: This may be turned on to use the intercom station with intercom systems that use DC call signaling.

3. *Panel Mic Key* - Selects the Panel Mic connector / Built-in Mic (11) in the ON position and the headset connector (10) in the OFF position.
4. *Speaker Key* - Selects the built-in speaker in the ON position and the Headset connector (10) in the OFF position.
5. *Channel Select Key (SS-2002 & SS-2002RM only)* - Selects intercom channel 1 or 2. The key lights green for channel 1 and red for channel 2.
6. *Volume Control* - Adjusts intercom listen volume to headphones or speaker.
7. *Intercom Listen Key* - Both momentary (push-to-listen) and latching (hands-free-listen) are possible.
8. *Call Key* - Used to send call signals on the intercom channel. Flashes for incoming calls.
9. *Intercom Talk Key* - Both momentary (push-to-talk) and latching (hands-free-talk) are possible. All models are also equipped with a “mic kill receive” circuit, which allows an operator at a remote master station (such as the US-2000A) to turn OFF the talk key on all stations on the intercom line.
10. *Dynamic-Mic Headset Connector* - 4-pin male XLR connector accepts headsets with monaural headphones and either a balanced or unbalanced dynamic microphone. Also accepts a telephone style handset. Can also be used with headphones when a Panel Mic is connected. Can also be used with a handheld microphone along with the internal speaker.
11. *Panel Mic Connector* - Accepts an electret gooseneck microphone such as the Telex MCP-90.
12. *Built-in Panel Microphone* - Active when the Panel Mic key is pressed and a gooseneck microphone is not inserted in the Panel Mic connector.
13. *Sidetone Trimmers* - These adjust the level of the user’s own voice in the headphones when using full-cushion headphones. (Eliminates the muffled sensation when talking with the ears completely covered.) When using the speaker or open-ear style headphones, the sidetone trimmers are adjusted to eliminate the user’s voice from the headphones or speaker. This helps to prevent feedback.
14. *Balanced / Unbalanced Selector Switch* - This switch sets the intercom station for compatibility with either Audiocom (balanced) or Clear-Com¹ (unbalanced) intercom systems.

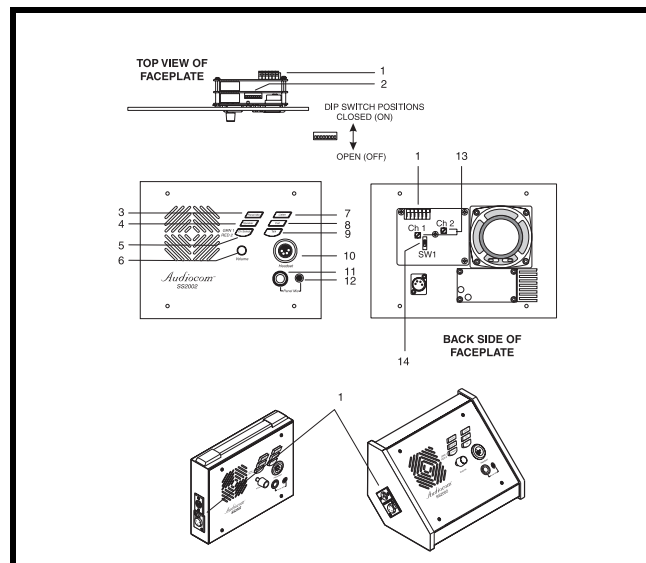


FIGURE 1. SS-1002/2002 Features

1. Brand Names mentioned are the property of their respective companies.

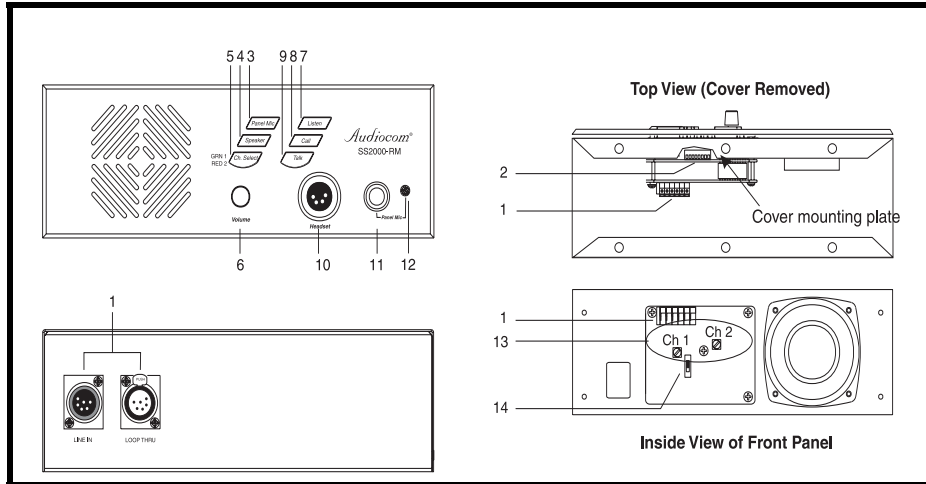


FIGURE 2. SS-2002RM Features

Configuration Pre-check

Before making connections, read the configuration notes that follow, and make sure that all internal controls are properly set for your intended usage. If you need to access the internal controls, remove the four screws on the front that secure the intercom station faceplate to the mounting box, then lift out the faceplate for all versions except the RM version. To access the internal controls for the RM version, remove the 10 screws securing the cover on the box and then lift the cover.

DIP Switches

Table 1 lists DIP Switch descriptions and factory default settings.

Switch Number	Description	Settings Open = OFF; Closed = ON	Default Settings
1	Mic Kill Receive	Closed: Disabled, No Mic Kill Open: Enabled, Mic Kill Active	Open
2	Call Signal Method	Closed: DC (SW1 set to UNBAL) Open: Audiocom (SW1 set to BAL)	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) Open: Disabled	Open
6	Not Used	Not Defined	Open
7	Not Used	Not Defined	Open
8	Not Used	Not Defined	Open

Mic Kill Receive

Audiocom intercom stations, such as the US2002A can transmit an inaudible signals turn off the microphones in all remote intercom stations 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 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 intercom unit. 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. To enable the mic kill receive function, set DIP switch 1 to the OPEN position. To disable the mic kill function set DIP switch 1 to the closed position.

Call Signal Compatibility

For Audiocom setup, leave this switch in the open position, and also leave the Balanced / Unbalanced switch in the Balanced position. For Clear-Com setup, set DIP switch 2 to the CLOSED position to set the Balanced / Unbalanced switch to the Unbalanced position.

Incoming Call Beep

Incoming calls are always indicated by a red-flashing call key. If you also want incoming call beep in the headphones, set DIP switch 3 to the OPEN position (default). DIP switch 33 must also be in the OPEN position if you want to activate incoming call beep to the speaker using DIP switch 5.

Microphone Type

If you will be using a headset, telephone-style handset, or dynamic handheld microphone, and the specifications indicate the microphone type is balanced, leave DIP switch 4 in the OPEN (default) position. If the specifications indicated an unbalanced microphone, set this switch to the CLOSED position. If you are not sure, leave the switch in the OPEN position for now, then try both positions during the operations. Use the position that produces the best audio quality at other stations.

Speaker Beep for Incoming Call

Set DIP switch 5 to the CLOSED position if you want to hear incoming call beep in the speaker. Note, DIP switch 3 must be in the OPEN position.

Balanced / Unbalanced Switch

This switch is set at the factory to the Balanced (BAL) position for use with Audiocom intercom systems. Set the switch to the Unbalanced, or UNBAL position for use with a Clear-Com intercom system.

Sidetone Trimmers

These are normally adjusted after all connections are completed. See Sidetone Adjustment.

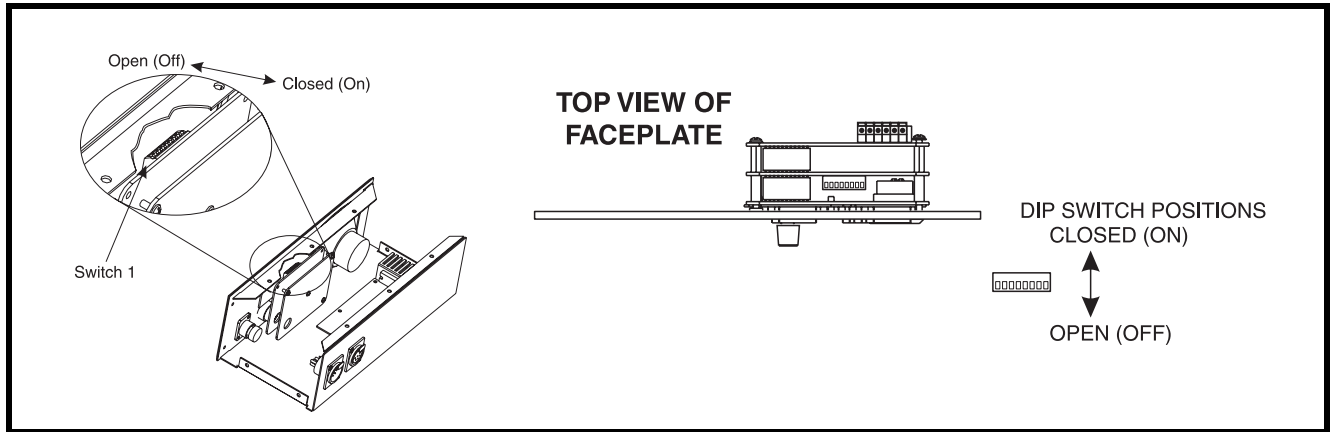


FIGURE 3. DIP Switch location RM version (left), SIP switch location S, U, and P Versions (right).

Headset Connector Notes

If you are using a monaural, dynamic-mic headset, or a monaural, telephone-style, dynamic-mic hands, or a handheld dynamic microphone, plug it into the Headset connector. You can also use this connector with monaural headphones for listening when you are using either the built in panel microphone or the optional gooseneck microphone for talk back.

Panel Mic Connector Notes

As an alternative to a headset or telephone-style handset, you can use either the built-in panel microphone or an optional gooseneck microphone. To connect a Telex MCP-90 gooseneck microphone, insert the 1/4" RTS connector into the panel microphone connector and screw the microphone in. When a gooseneck microphone is inserted in the panel microphone connector, the built-in panel microphone is automatically bypassed. Use either of these microphones for talk back, then use the internal speaker for listening, or connect a pair of headphones to the headset connector for private listening.

Intercom Channel Connections

The method of connection depends on the type of box. The "S" box, "P" box, and RM versions connect to the intercom system using pre-fabricated cables in a phantom-powered configuration. The "U" box version is designed for permanent installation, and it can be either phantom powered or locally powered.

Description of Phantom-Powered Connection

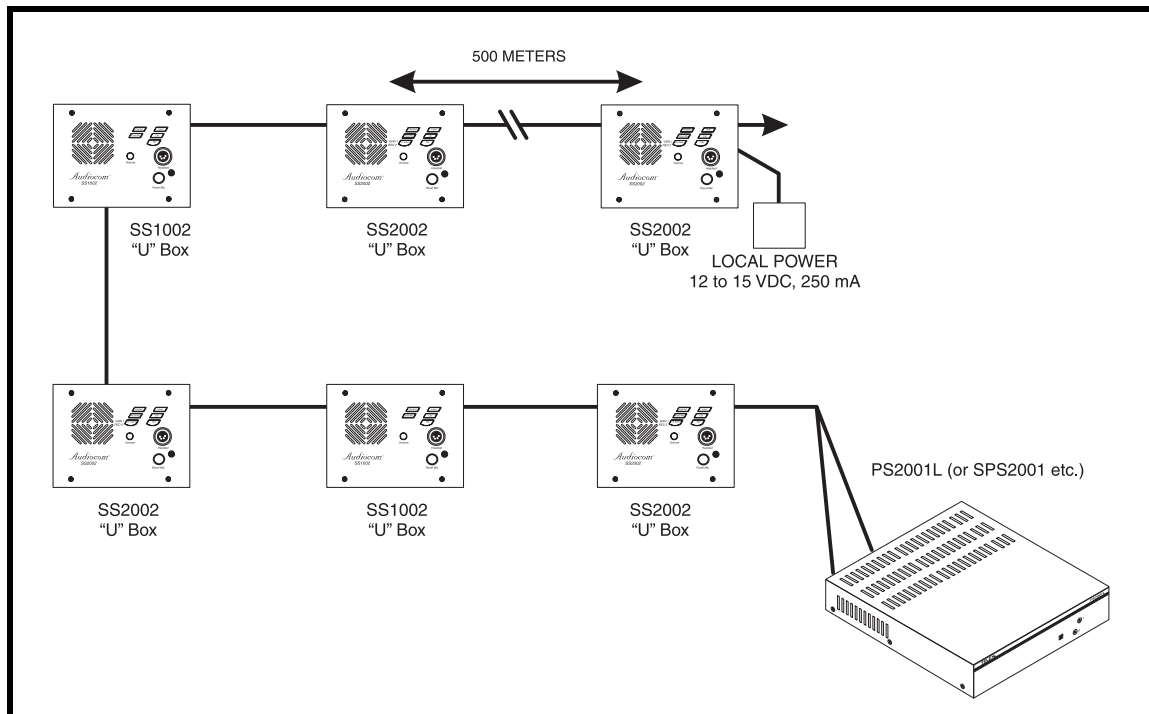


FIGURE 4. An example of a phantom-powered system. In this system a PS-2001L power supply is set to isolate mode. In this mode each channel is a separate party line and current per channel is limited to 1 amp. Note, both single and two-channel intercom stations may be connected by using “Y” cables (or JB2 Junction boxes). Pre-fabricated cables may be used, or cables may be constructed using the diagrams in Figure 10 on page 14.

In this method, operating power and intercom audio for the entire system are carried over the same wires. The advantage of this method is simplicity of connection. The system power supply (PS-2001L, SPS-2001A, etc.) automatically provides what is known as a terminating impedance for the intercom system. Without this terminating impedance, the sound quality will be distorted, and the levels will shift every time additional stations are connected. The disadvantage of the phantom power method is that some operating power is lost over very long intercom cables, and performance at distant intercom stations may be reduced. Generally, if intercom stations are within a few hundred feet from the system power supply, phantom power will be sufficient. Also, note that increasing the number of stations will reduce the overall operating distance. Phantom power is generally the only method that will be used to connect the “S” box, “P” box, and RM versions. Figure 4 illustrates a phantom power intercom system.

NOTE: The distance over which power can be delivered is less than the distance over which audio can be delivered. Audio can be delivered for several miles to locally powered stations as described below.

Description of Locally Powered Connection

Using this method, an intercom station is connected to the intercom line just like any phantom-powered intercom station, except that a local power supply is also connected. This local power supply is located with the intercom station and provides power for that station only. Since power loss on the intercom lines is no longer an issue, the operating range is now limited only to the audio transmission range, which is several miles. Another advantage to this method is that more stations can be connected to the intercom channels. When local power is supplied to an intercom station, the station detects this and automatically disconnects from the systems’s phantom-power supply.

Figure 5 illustrates an intercom system with both phantom powered and locally powered “U” boxes. As long as a system power supply (PS2001L, SPS-2001, etc.) is located somewhere in the intercom system, the proper terminating impedance will still be supplied for all stations. However, if all stations are locally powered, and there is not system power supply, a special line termination must be installed.

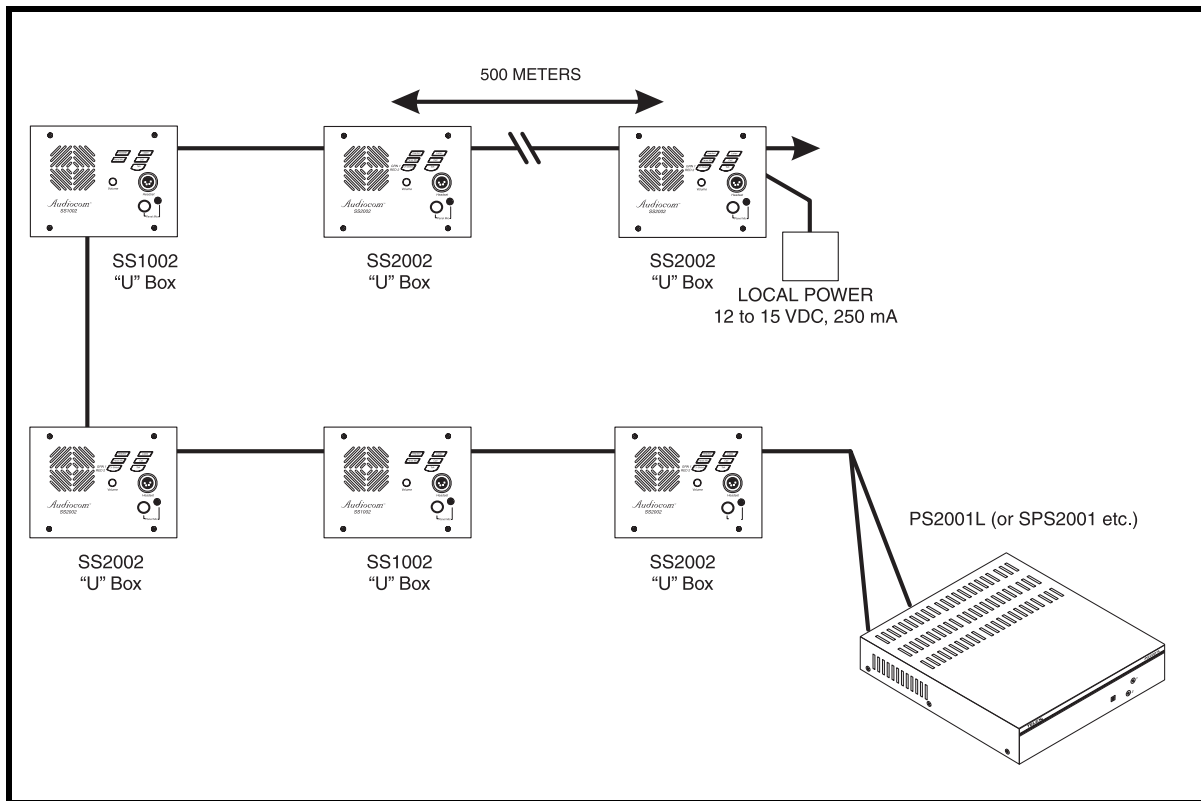


FIGURE 5. A two-channel Audiocom intercom system using a PS2001L power supply. The PS2001L is set to isolate mode. In isolate mode, each intercom channel is a separate party line, and total current for each channel is limited to 1 amp. Note, both SS-1002 and SS-2002 stations may be connected depending on each location’s need to communicate with one or two channels. SS-1002 stations may be connected to either channel one or two. Also, note that locally powered stations may be connected. This is recommended when stations are installed at remote locations. Since the PS2001L provides termination for the intercom channels, no user-installed termination is required.

All Locally Powered Intercom Stations (Dry Lines)

If intercom stations are widely distributed, you can dispense with a system power supply (OS2001L, SPS-2001, etc.) and use local power for each station. When no power is delivered on the intercom channels, this is known as dry-line operation. Since a system power supply is not used, a line termination must be inserted in each intercom channel for proper operation. Again, not that only the “U” box has provisions for local power. The 3-pin connectors on the “S”, “P”, and RM version do not permit this type of connection. Figure 6 illustrates an intercom system using all locally powered “U” boxes.

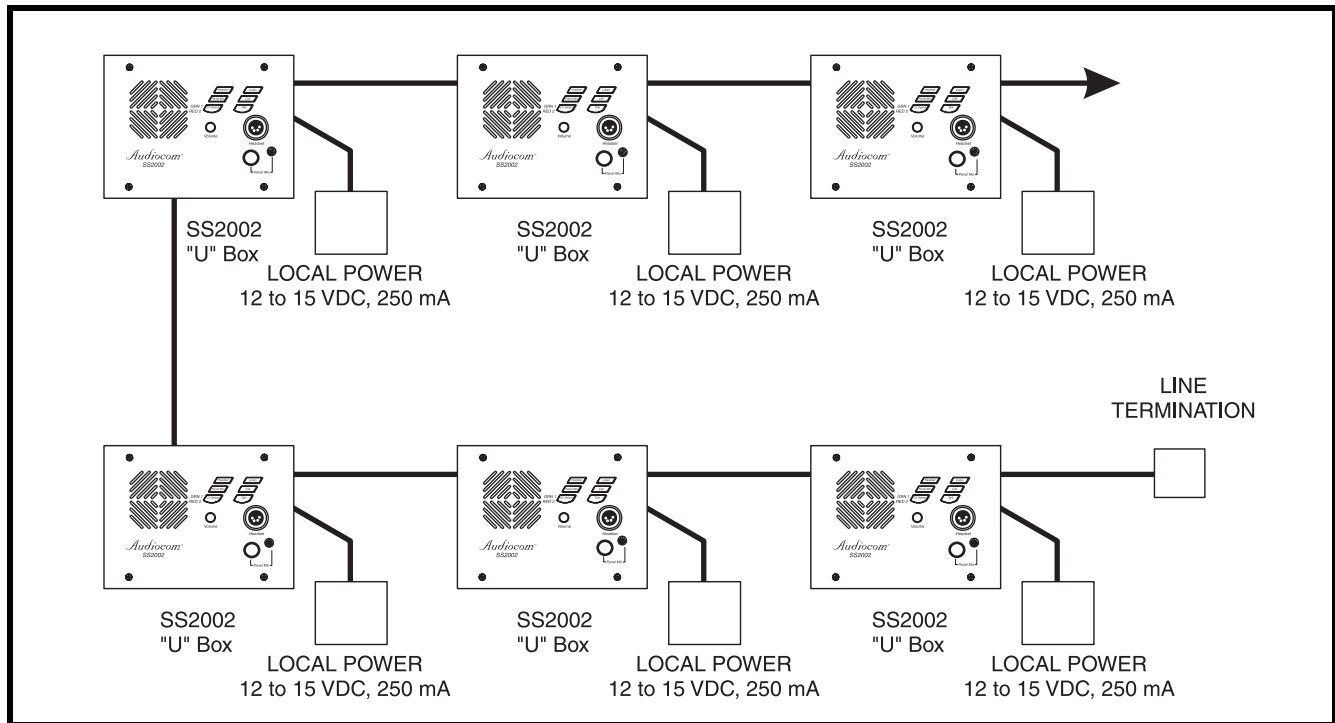


FIGURE 6. An example of an Audiocom intercom system using all locally powered “U” box stations, with no power being distributed on the intercom channels (dry lines). Since an Audiocom power supply is not used, the installer must connect a line termination somewhere in each channel for proper operation.

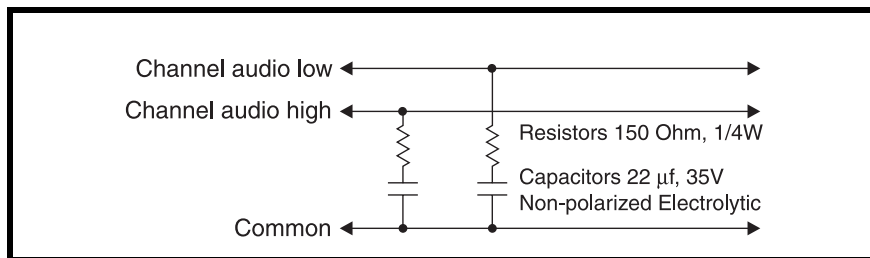


FIGURE 7. Audiocom mode line termination for dry-line operation. (One required for each channel). The termination is available via P/N 9020-7550-000.

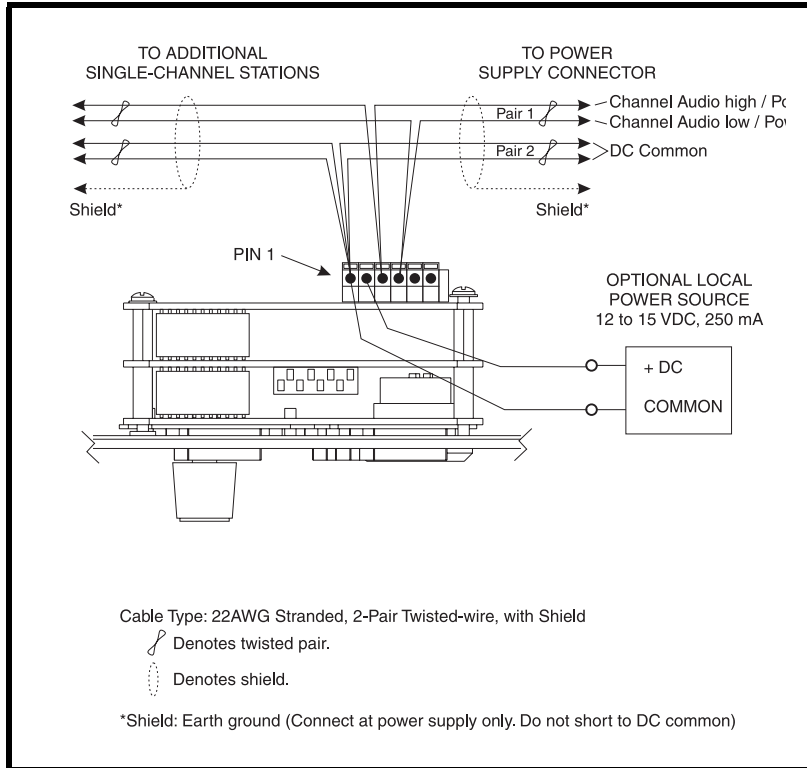


FIGURE 8. Audiocom mode connections for an SS-1002 Intercom Stations in a “U” box. Note, for Clear-Com connection, use the Unbalanced Mode Intercom Channel pin-out information listed in the Specifications section.

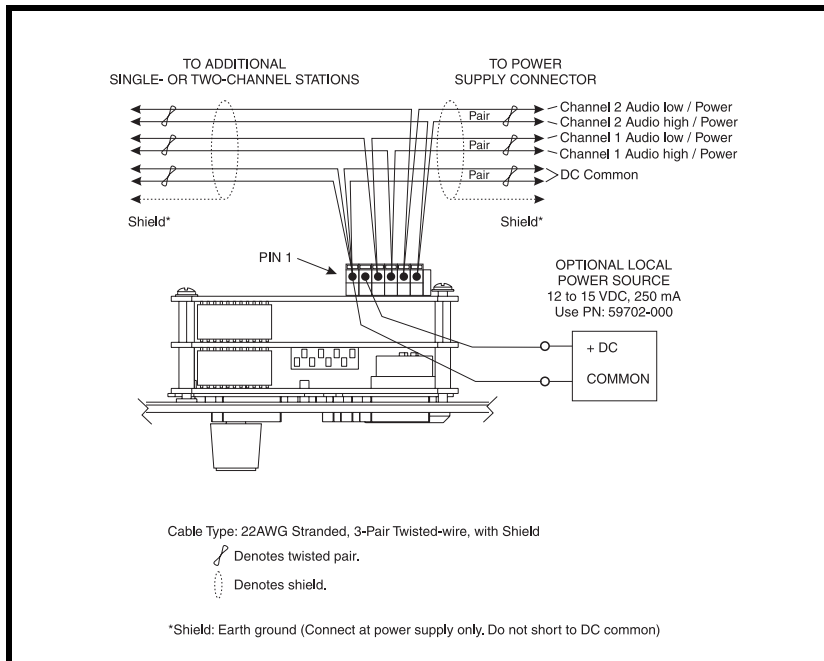


FIGURE 9. Audiocom mode connections for an SS-2002 Intercom Station in a “U” box. Note, for Clear-Com connection, use the Unbalanced Mode Intercom Channel pin-out information listed in the Specifications section.

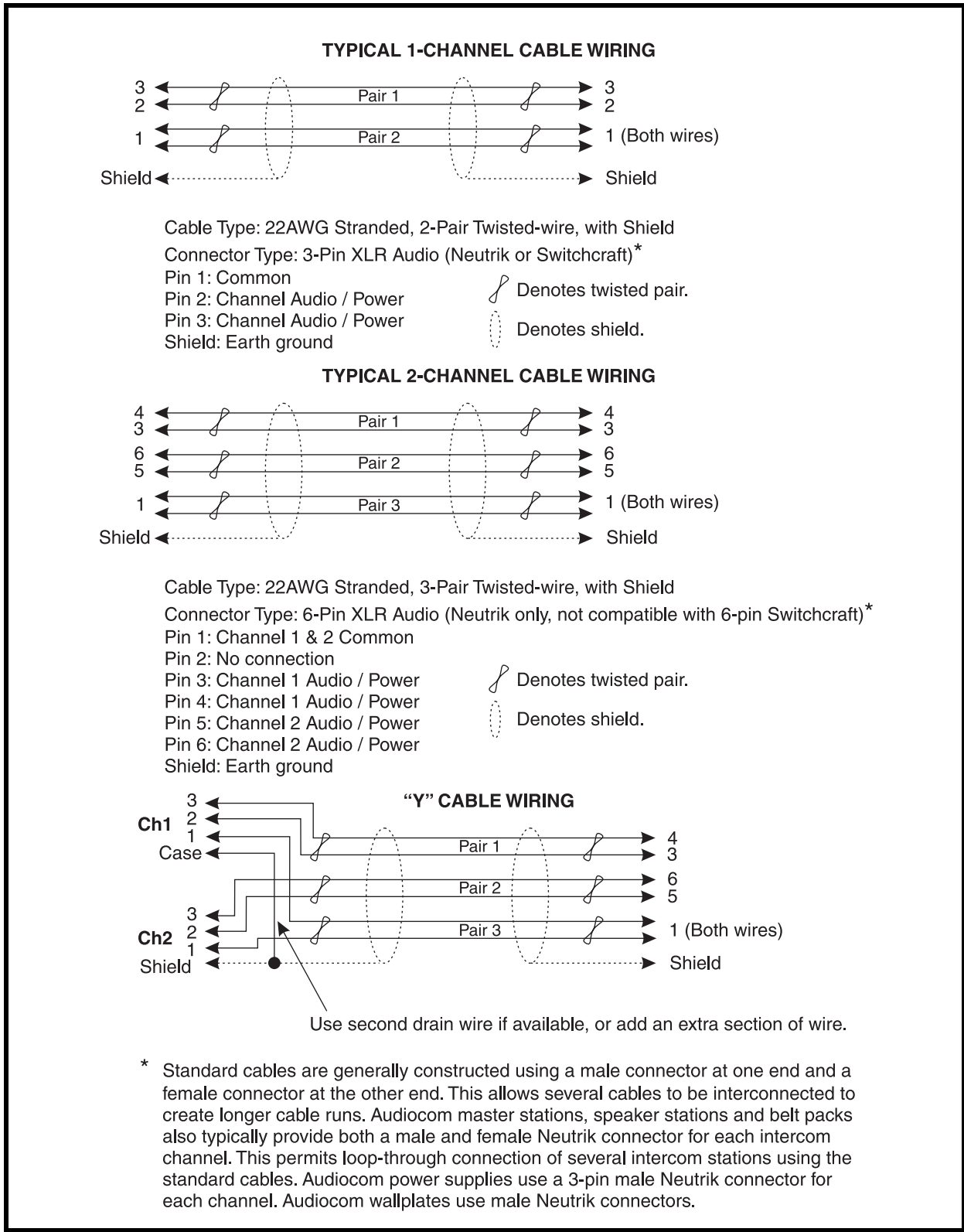


FIGURE 10. Audiocom cable wiring diagrams

Operation and Specifications

Power Up

Make sure any local power supplies are plugged in, then turn on the power switches of any phantom power supplies (PS-2001L, SPS-2001, etc.).

Sidetone Adjustment

The SS-1002/2002 and the SS-2002RM use 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 you also hear your own voice back, as will a telephone. If you are using the built-in speaker for listening and either a panel microphone or handheld microphone for talkback, you could experience unwanted feedback since the microphone may pick up your returned voice audio from the speaker and re-amplify it. This could also happen if you are using a headset or headphones with open-ear style earmuffs. On the other hand, if you are using earmuffs that completely enclose the ears, the microphone is not likely to pick up the returned audio. A certain amount of your own voice level is desirable to overcome the muffled sensation when talking. The sidetone adjustment is different for these operating conditions:

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. SS-2002 & SS-2002RM only: activate channel 1 as described in the operating instructions.
2. Activate talk and listen as described in the operating instructions.
3. Slowly increase the volume to maximum while talking into the microphone.
4. Using a small, flat-bladed screwdriver, adjust the channel 1 sidetone trimmer to minimize your voice level in the headphones.
5. SS-2002 & SS-2002RM only: activate channel 2 and repeat the above steps to adjust the channel 2 sidetone.
6. Install the intercom station mounting screws after completing the adjustments. The stations is now ready for use.

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

1. SS-2002 & SS-2002RM only: activate channel 1.
2. Activate talk and listen.
3. Set the volume control to the normal listening level for intercom audio.
4. While talking into the microphone, use a small, flat-bladed screwdriver to adjust the channel 1 sidetone trimmer so that you can hear your own voice in the headphones at an acceptable level.
5. SS-2002 & SS-2002RM only: activate channel 2 and repeat the above steps to adjust the channel 2 sidetone.

Channel Select (SS-2002 & SS-2002RM Only)

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

Headset/Headphone/Speaker/Microphone Selection

- To use a headset or telephone style handset, set the Speaker and Panel Mic keys to OFF.
- To use headphones with the built-in panel microphone, set the Speaker key to OFF, set the Panel Mic Key to ON, and make sure a gooseneck microphone is not inserted in the panel microphone connector.
- To use headphones with a gooseneck microphone, set the Speaker key to OFF, set the Panel Mic Key to ON, and make sure a gooseneck microphone is inserted in the panel microphone connector.
- To use the speaker with a handheld dynamic microphone, set the speaker key to ON and set the Panel Mic Key to OFF.
- To use the speaker with the built-in panel microphone, set the Speaker and Panel Mic keys to ON, and make sure a gooseneck microphone is not inserted in the panel microphone connector.
- To use the speaker with a gooseneck microphone, set the Speaker and Panel Mic keys to ON, and make sure a gooseneck microphone is inserted in the panel microphone connector.

Receiving Calls

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.

NOTE: The incoming call indication is provided only for the currently selected intercom channel in the case of SS-2002 & SS-2002RM models.

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

NOTE: You can turn the talk and listen keys on in either momentary or latched mode. For momentary operations, 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. SS-2002 & SS-2002RM only: 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.

Specifications

General

Power Requirements

Phantom Power: ± 24 VDC nominal, 175 mA

Local Power: +12 to +15 VDC, 250 mA

Dimensions

See Dimensions Drawings (Figure 11 on page 18)

Environmental Requirements

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

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

Dynamic-mic Headset/Handset

Microphones

50 to 200 ohms, 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

Built-in Microphone

2.2k ohms, electret (-44 dB nominal), Omnidirectional

Gooseneck Microphone

Connector Type: 1/4" Threaded TRS, 5k ohms, electret (-47 dB nominal)

Tip Microphone High (+12 VDC)

Ring Common

Sleeve Common

Compatible with MCP-90 Series Microphones

Intercom Channels, Balanced Mode (SW1 set to BAL position)

Output Level

1 VRMS nominal

Input Impedance

300 ohms

Bridging Impedance

greater than 10k ohms

Sidetone

-40 dB, 35 dB adjustable range

Call Signaling

Send

20 kHz ± 100 Hz, 0.5 VRMS $\pm 10\%$

Receive

20 kHz ± 800 Hz, 100 mVRMS

Mic Kill Detect Frequency

24 kHz ± 800 Hz, 100 mVRMS

Noise Contribution

less than -70dB

Common Mode Rejection Ratio

greater than 50 dB

Connector Type: Six-position push type terminal block

Pin 1 - Audio and DC Common

Pin 2 - Local power (+12 to +15 VDC), if needed

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

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

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

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

Intercom Channels, Unbalanced Mode (SW1 set to UNBAL position)

Output Level

0.70 VRMS $\pm 10\%$

Input Impedance

200 ohms

Bridging Impedance

greater than 10k ohms

Sidetone

-40 dB, 35 dB adjustable range

Call Signaling

Pin 1 - Common

Pin 2 - Local Power (-12 to +15 VDC), if needed

Pin 3 - Power +30 VDC

Pin 4 - Intercom channel 1 audio and DC call signaling

Pin 5 - Power +30 VDC

Intercom channel 2 audio and DC call signaling

Speaker Output Power

4W max @ 8 ohms

Dimensions

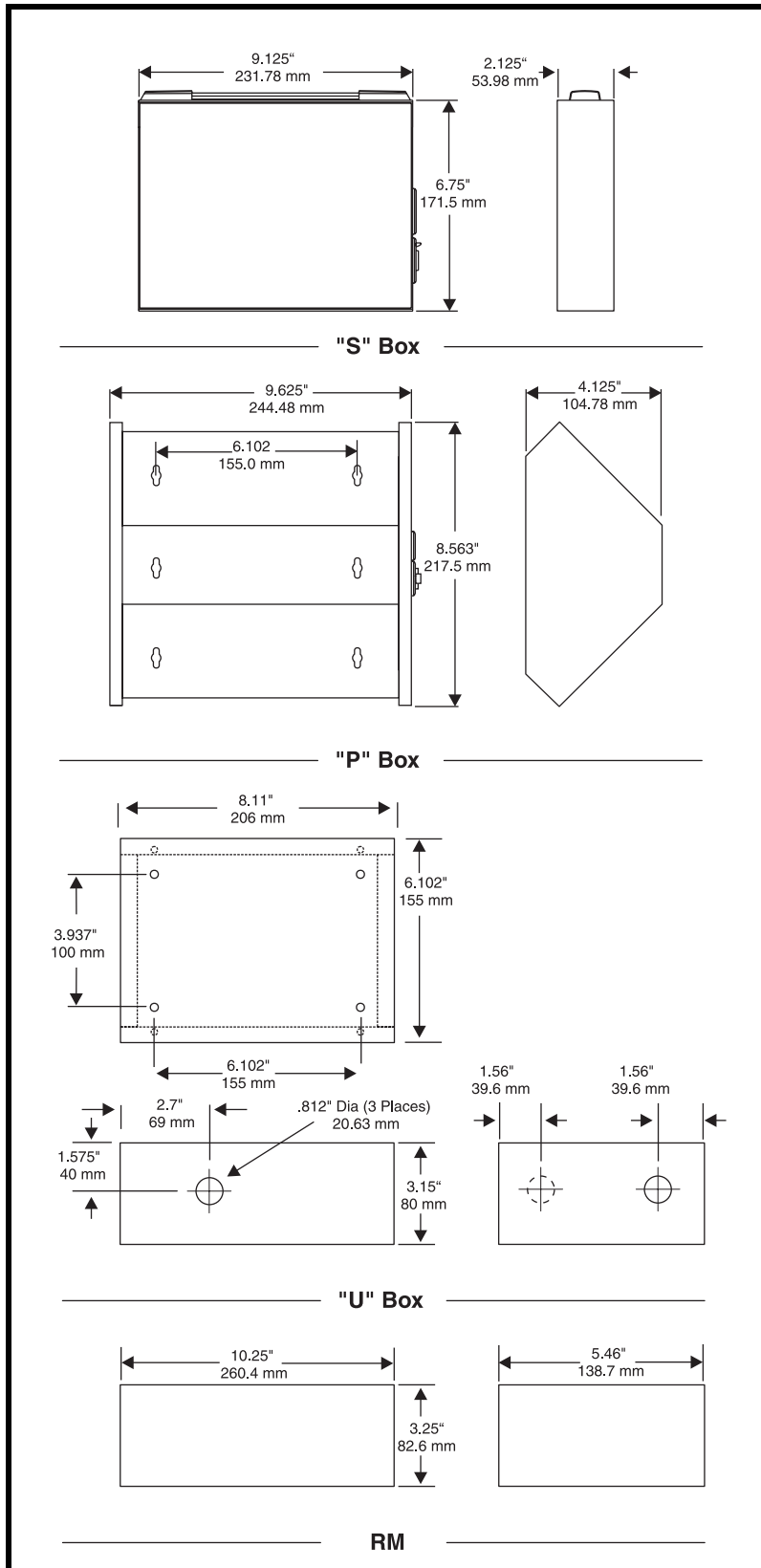


FIGURE 11. Dimensions

Notes

