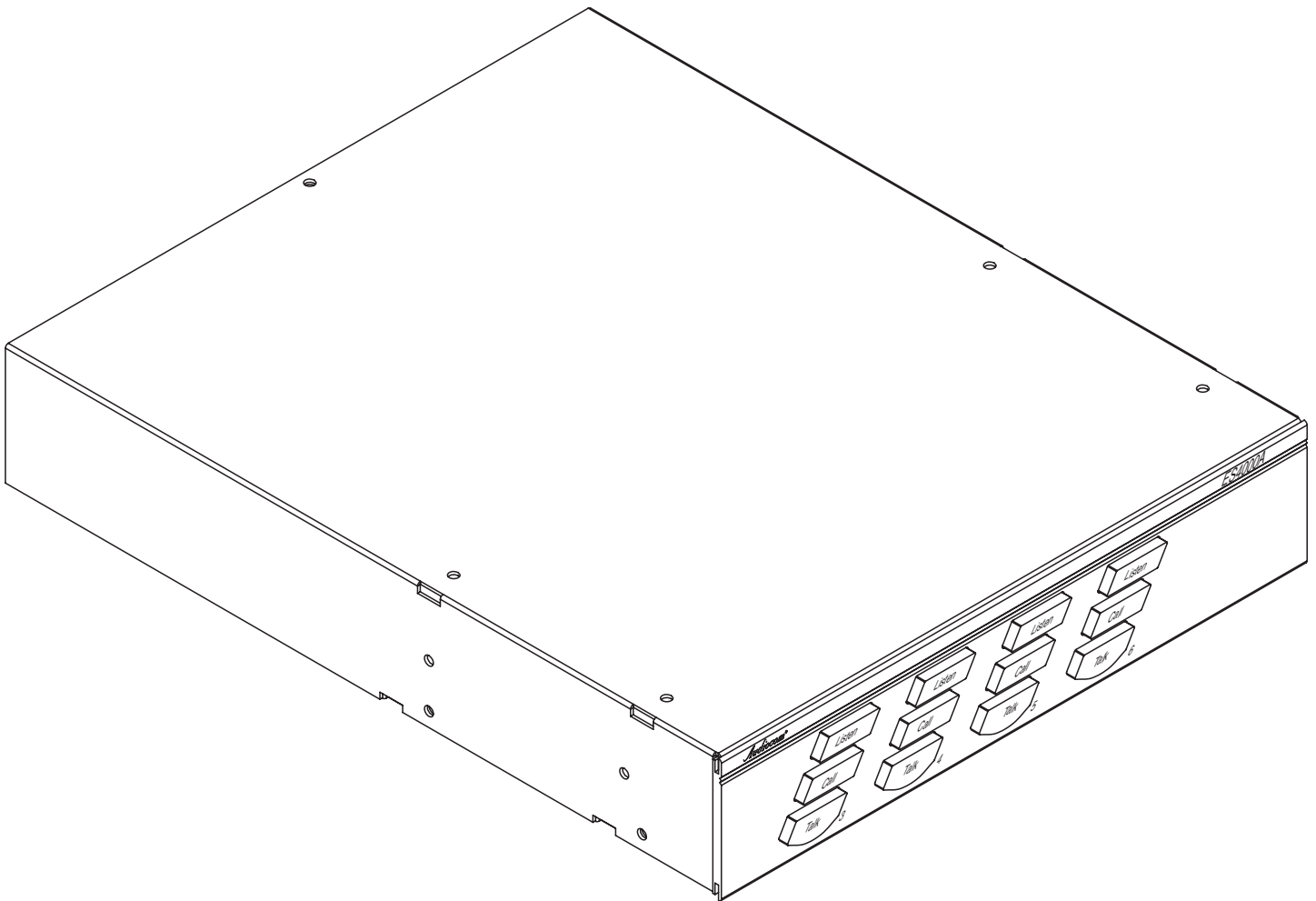


# *ES4000A*

## *Intercom Expansion Station*

### *User Instructions*



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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).

## **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

## **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 Directives 89/336/EEC.

# *TABLE OF CONTENTS*

## Chapter 1

Introduction .....	3
Description .....	3
Features .....	4

## Chapter 2

Installation .....	5
Unpacking .....	5
Configuration Pre-check .....	5
DIP Switches .....	5
Program Interrupt DIP Switches .....	5
Audiocom Call Send and Receive DIP Switches .....	7
Balanced/Unbalance Switch (SW2) .....	7
Direct Program Listen Enable / Disable Jumpers .....	7
Sidetone Trimmers .....	7
Mounting Configurations .....	7
Connection Notes .....	11
Cables .....	20

## Chapter 3

Operation and Specifications .....	23
Power-Up .....	23
Sidetone Adjustments .....	23
Operation .....	23
Specifications .....	24
Connector Pin Outs .....	24
12-15 VDC Jack .....	24
Addendum - Errata Sheet .....	26



# Introduction

## Introduction

Thank you for purchasing the Audiocom ES4000A Intercom Expansion 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 the ES4000A, please take a few moments to look through this booklet before using the Intercom Expansion Station for the first time.

## Description

The ES4000A is an Expansion Station for the US2000A User Station. It interfaces 4 additional intercom channels to the US2000A, and it provides talk, listen and call buttons for the 4 additional channels. There are also 4 additional program inputs on the back of the ES4000A, 1 for each added channel. Up to 4 ES4000A Expansion Stations may be connected to the US2000A to add up to 16 channels (18 channels total). The ES4000A typically utilizes the US2000A microphone and speaker (or microphone headset) for communication with the added channels. The ES4000A also has individual speaker outputs for independent monitoring of one or more of the 4 channels, if desired.

The US2000A / ES4000A combination can be used as a simple, multi-channel intercom user station. In this configuration, the program inputs (and possibly the PA output of the US2000A) are most likely not used, and the station operator has only talk, listen and call capability. It is also possible that advanced features of the US2000A, such as Mic Kill Send, might be turned OFF. Alternatively, the US2000A / ES4000A can be used as a master station. In this application, one or more program inputs and the PA output may be connected, and the program signals to the intercom channels can be turned ON or OFF from the US2000A. Additionally, the Mic Kill Send feature can be enabled, and microphones on any channels may then be turned OFF from the US2000A.

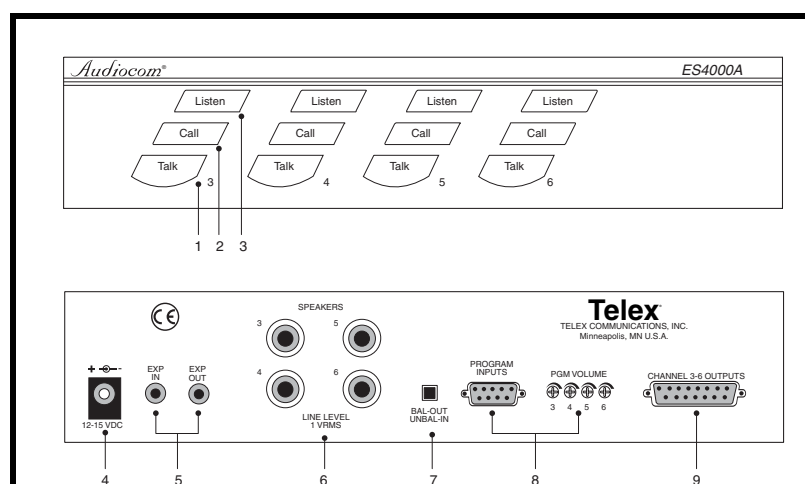


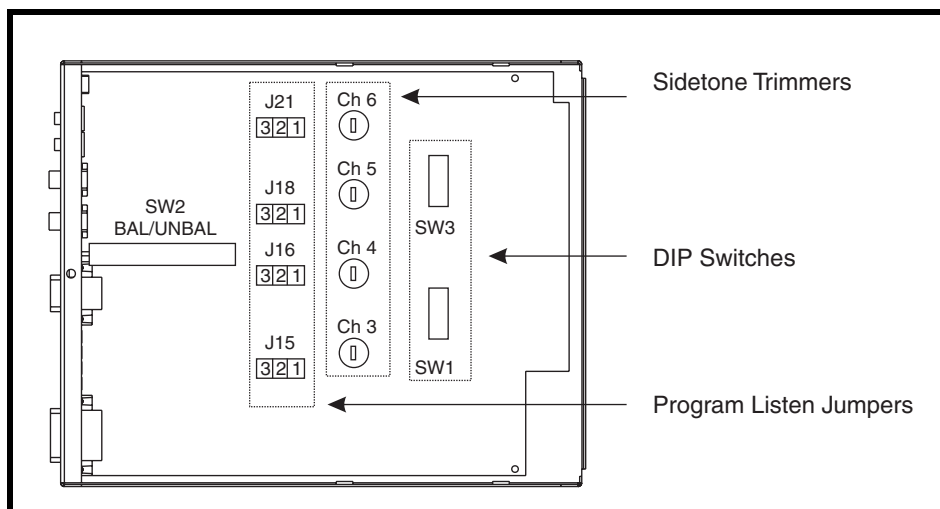
FIGURE 1. ES4000A Reference View (See numbered features on next page).

## Features

1. Intercom Talk Keys: Momentary or latching (hands-free) operation possible.
2. Call Keys: Used to call intercom channels and to indicate incoming calls.
3. Intercom Listen Keys: Momentary or latching operation possible.
4. Local Power Jack: The ES4000A can be powered from the intercom channels via the CHANNEL 3-6 OUTPUTS connector (9). Alternatively, an optional PS-L wall-pack accessory may be used to power the ES4000A from an AC outlet. When power is sensed at the local power jack, the ES4000A automatically disconnects from channel power. This means more channel power is available for additional belt packs.

**IMPORTANT:** The Local Power Jack only provides power to the ES4000A: it cannot be used to power the intercom system.

5. EXP IN and EXP OUT Connectors: The EXP IN connector receives the microphone audio signal from the US2000A, and it sends the monaural mix of the four ES4000A channels to the US2000A speaker or headset. The EXP OUT connector connects to the EXP IN connector of an additional ES4000A. Up to 4 ES4000A Expansion Stations may be daisy chained with the EXP IN and EXP OUT connectors. An EXP IN/OUT cable is supplied with each ES4000A.
6. SPEAKERS: Usually, the listen mix of all 4 ES4000A channels is sent to the US2000A speaker or headset via the EXP IN connector. Alternatively speakers may be connected to one or more of the speaker outputs of the ES4000A.
7. BAL / UNBAL Switch: This selector switch sets the ES4000A for compatibility with either Audiocom or Clear-Com<sup>1</sup> channel connector pin-outs, channel power requirements, and call signaling requirements.
8. Program Inputs Connector and Trimmers: Each intercom channel has its own program input and level adjustment trimmer. For each program input, there is an internal jumper which routes the program either to the intercom channel only, or to both the intercom channel and the US2000A headset or speaker (default setting). Additionally, the program signal to the intercom channel may be turned ON or OFF via the US2000A front panel programming. There is also an intercom program interrupt DIP switch which selects either automatic program interrupt when the station operator activates a channel's talk key, or no program interrupt during talk. The ES4000A program inputs connector may be broken out to common 3-pin XLR audio cable using an option XP-4PGM Breakout Panel.
9. CHANNEL 3-6 OUTPUTS Connector: This connector provides the intercom channel audio input/output connects, as well as operating power when the ES4000A is being powered from the intercom channels. Depending on the application, this connector can connect to either a PS4000 Power Supply, or to an XP-ES4000 Breakout Panel. Examples of both connections are provided in the wiring diagrams which follow. A channel output cable is supplied with each ES4000A.
10. Configuration Switches, Jumpers, and Sidetone Controls: These let you customize the operation of the ES4000A to match your intercom system requirements. See "Configuration Pre-check" on page 5.



**FIGURE 2. Locations of configuration switches, jumpers, and sidetone controls. (Top cover removed.)**

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

---

### *Unpacking*

The ES4000A 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	ES4000A Expansion Station
1	Warranty and Registration card
1	User Instructions
2	Termination Plug
1	EXP IN/OUT Cable, with 1/8-inch (3.5mm) phone plugs
1	CHANNEL OUTPUT Cable, with 15-pin connectors
4	Rubber feet (apply to bottom of ES4000A for desktop use)

---

### *Configuration Pre-check*

Before making connections, read the configuration notes that follow, and make sure that all switches and jumpers are properly set for your intended usage. Locations of configuration switches and jumpers are shown in Figure 2 on page 4. Only the DIP switches and jumpers require internal access. If access is required, remove one screw from the top cover and 3 screws from each side.

---

### *DIP Switches*

DIP switches and their default settings are listed in Table 1 on page 6. The following paragraphs provide additional details.

#### **Program Interrupt DIP Switches**

Each Intercom channel has a dedicated program input. These can be used to feed background music, mix-minus audio (for broadcasting usage) etc. to the intercom channels. If external program sources will be connected to the ES4000A, you have a choice of whether or not you want the program audio to interrupt (shut off) on the intercom channel while the US2000A/ES2000A station operator is talking.

**TABLE 1.** Configuration Switch Settings

Switch Number	Description	Settings	Default Setting
<b>DIP Switch SW1 (Internal)</b>			
SW1-1	Program Interrupt, Ch 6	ON (Closed): Enabled OFF (Open): Disable	OFF
SW1-2	Program Interrupt, Ch 5	ON (Closed): Enabled OFF (Open): Disable	OFF
SW1-3	Program Interrupt, Ch 4	ON (Closed): Enabled OFF (Open): Disable	OFF
SW1-4	Program Interrupt, Ch 3	ON (Closed): Enabled OFF (Open): Disable	OFF
SW1-5	Audio Call Send, Ch 3 <sup>a</sup>	ON (Closed): Enabled OFF (Open): Disable	ON
SW1-6	Audio Call Send, Ch 3 <sup>a</sup>	ON (Closed): Enabled OFF (Open): Disable	ON
SW1-7	Audio Call Send, Ch 4 <sup>a</sup>	ON (Closed): Enabled OFF (Open): Disable	ON
SW1-8	Audio Call Send, Ch 4 <sup>a</sup>	ON (Closed): Enabled OFF (Open): Disable	ON
<b>Push-button Switch SW2 (BAL - UNBAL Switch on Back Panel)</b>			
Audiocom or Clear-Com operation		Out: Audiocom (Balanced) In: Clear-Com (Unbalanced)	Out
<b>DIP Switch SW3 (Internal)</b>			
SW3-1	Audiocom Call Send, Ch5 <sup>a</sup>	On (Closed): Enabled Off (Open): Disabled	On
SW3-2 <sup>a</sup>	Audiocom Call Receive, Ch5 <sup>a</sup>	On (Closed): Enabled Off (Open): Disabled	On
SW3-3	Audiocom Call Send, Ch6 <sup>a</sup>	On (Closed): Enabled Off (Open): Disabled	On
SW3-4	Audiocom Call Receive, Ch6 <sup>a</sup>	On (Closed): Enabled Off (Open): Disabled	On
SW3-5 <sup>a</sup>	Not Used	On (Closed): Enabled Off (Open): Disabled	Don't Care
SW3-6 <sup>a</sup>	Not Used	On (Closed): Enabled Off (Open): Disabled	Don't Care
SW3-7 <sup>a</sup>	Not Used	On (Closed): Enabled Off (Open): Disabled	Don't Care
SW3-8 <sup>a</sup>	Not Used	On (Closed): Enabled Off (Open): Disabled	Don't Care

a. These switches apply only when the BAL/UNBAL switch on the back panel (SW2) is set to the BAL position for Audiocom usage. When the switch is set to the UNBAL position, call send and receive are always enabled.



## **Audiocom Call Send and Receive DIP Switches**

By default, all channels of the ES4000A can send and receive Audiocom call signals. You can disable call send or call receive capability for selected channels, if desired.

**NOTE:** When the BAL / UNBAL switch on the back panel is set to the UNBAL position (for use with a Clear-Com Intercom system) the call send and call receive DIP switches have no effect. Call send and call receive are always ON for Clear-Com usage.

---

## *Balanced/Unbalance Switch (SW2)*

This switch must be set to the balanced (BAL) position for use with an Audiocom Intercom System. Set the switch to the unbalanced (UNBAL) position when using the US2000A / ES4000A with a Clear-Com Intercom System.

## **Direct Program Listen Enable / Disable Jumpers**

By default, each program input can be heard by intercom stations on the corresponding intercom channel. (This can be turned ON or OFF for each program input via the US2000A front panel programming. See “Turning Program Inputs On and Off” in the Operation section of the US2000A User Instructions.) Additionally, all program signals can be heard directly in the US2000A speaker or headset, and each program is output at the corresponding speaker jack on the back of the ES4000A. To disable direct program listening for a program input, reset the appropriate jumper as show in Table 2 . Locations of the jumpers are shown in Figure 2 on page 4.

**TABLE 2.** Direct Program Listen Enable / Disable Jumpers

<b>Jumper</b>	<b>Description</b>	<b>Settings for All Jumpers</b>
J15	Program 3 direct to Headset or Speaker	
J16	Program 4 direct to Headset or Speaker	Pins 2 & 3 Shorted: Enable
J18	Program 5 direct to Headset or Speaker	Pins 1 & 2 Shorted: Disable
J21	Program 6 direct to Headset or Speaker	

---

## *Sidetone Trimmers*

These trimmers are normally adjusted after all components are connected, and they can be access through the bottom cover (Figure 15 on page 23). Refer to the US2000A User Manual for the sidetone adjustment procedure.

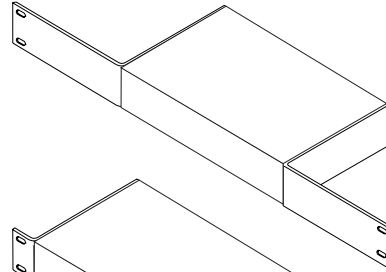
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## *Mounting Configurations*

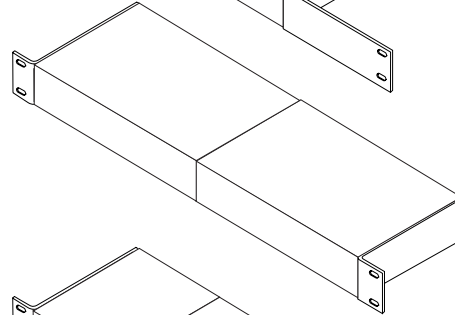
The ES4000A can be used on a desktop, or it can be rack mounted. For desktop use, install the 4 rubber feet supplied with the ES4000A. For rack mounting, use optional Audiocom RMK Rack Mount Kits (Figure 3 on page 8). Many configurations are possible when using the kits. Examples are show in Figure 4 on page 9 and Figure 5 on page 10.

**NOTE:** When rack mounting components, you may not be able to access the sidetone trimmers after the components have been mounted. In this case, you can position the components in the rack and make all required connections. Then, adjust the sidetone trimmers before installing and tightening all rack mount screws.

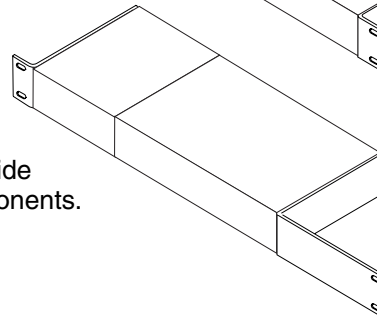
**RMK-S Single-Unit Rack Mount Kit**  
for one 1/2-rack wide Audiocom  
component\*



**RMK-D Dual-Unit Rack Mount Kit**  
for two 1/2-rack wide Audiocom  
components\*

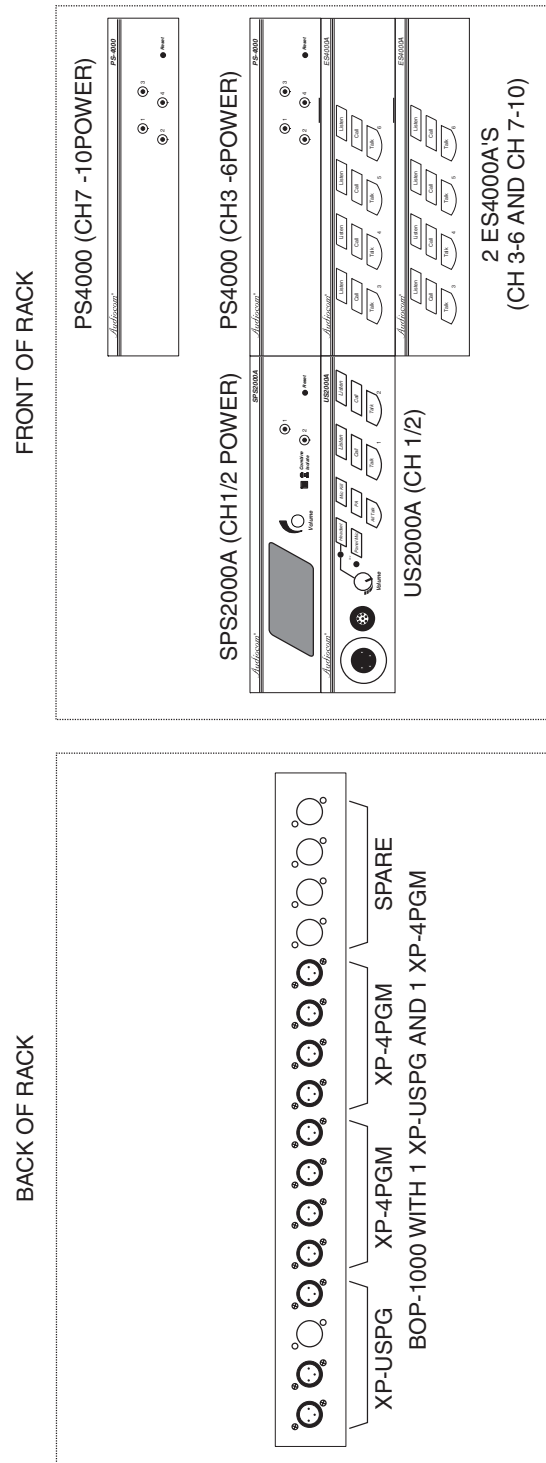


**RMK-M Multi-Unit Rack Mount Kit**  
for mixed 1/2-rack and 1/4-rack  
wide Audiocom components\*. Mounts  
one 1/2-rack wide unit with 1/4-rack wide  
components, or 3 1/4-rack wide components.

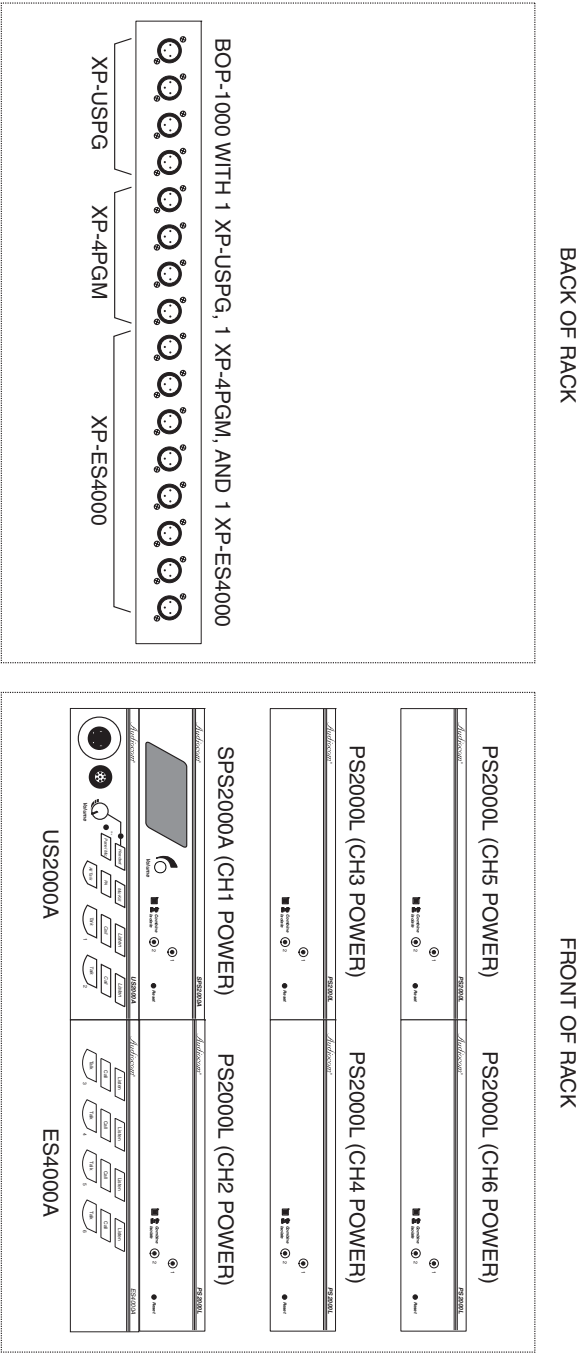


\* 1/2-rack wide components: US2000A, ES4000A, PS2000L, SPS2000A, PS4000, PS-X, SPK-2000, CIA-1000. 1/4-rack wide components: SPK-1000

**FIGURE 3. Audiocom RMK Rack Mount Kits**



**FIGURE 4. Typical Rack Mount Configuration for a 10 Channel Master Speaker Station with Minimum Power Supply Configuration.** The SPS-2000A provides power for channels 1 and 2, and also provides the listening speaker for all 10 channels. A microphone must be connected to the US2000A for talk on the 10 channels. Each PS4000 provides power for 4 intercom channels and also interfaces with an ES4000A to the intercom channels. The XP-USPG interfaces 2 external program inputs to the US2000A, and also interfaces the US2000A to an external PA system. Each XP-4PGM interfaces 4 external program sources to an ES4000A. Connections and further details for this configuration are shown in Figure 6. **NOTE:** An additional rack mount space is shown between the two PS4000 power supplies. This may be required to prevent power supply overheating when the ambient air temperature is high.



**FIGURE 5. Typical Rack Mount Configuration for a 6-Channel Master Speaker Station with Maximum Power Supply.** Each channel has a separate power supply, and the SPS-2000A on channel 1 also provides the listening speaker for all 6 channels. A microphone must be connected to the US2000A for talk on the 6 channels. The XP-USPG interfaces with 2 external program inputs to the US2000A, and also interfaces the US2000A to an external PA system. The XP-4PGM interfaces 4 external program sources to the ES4000A. The XP-ES4000 interfaces 4 of the PS2000L power supplies to the 4 channels of the ES4000A. The connection between the US2000A and the ES4000A, as well as the connections of the XP-USPG and the XP-4PGM, are show in Figure 6. The power supply connections for the US2000A are shown in Figure 7. the power supply connections for the ES40000A are shown in Figure . **NOTE:** Additional rack spaces are shown between the rows of power supplies. This may be required to prevent power supply overheating when the ambient air temperature is high.

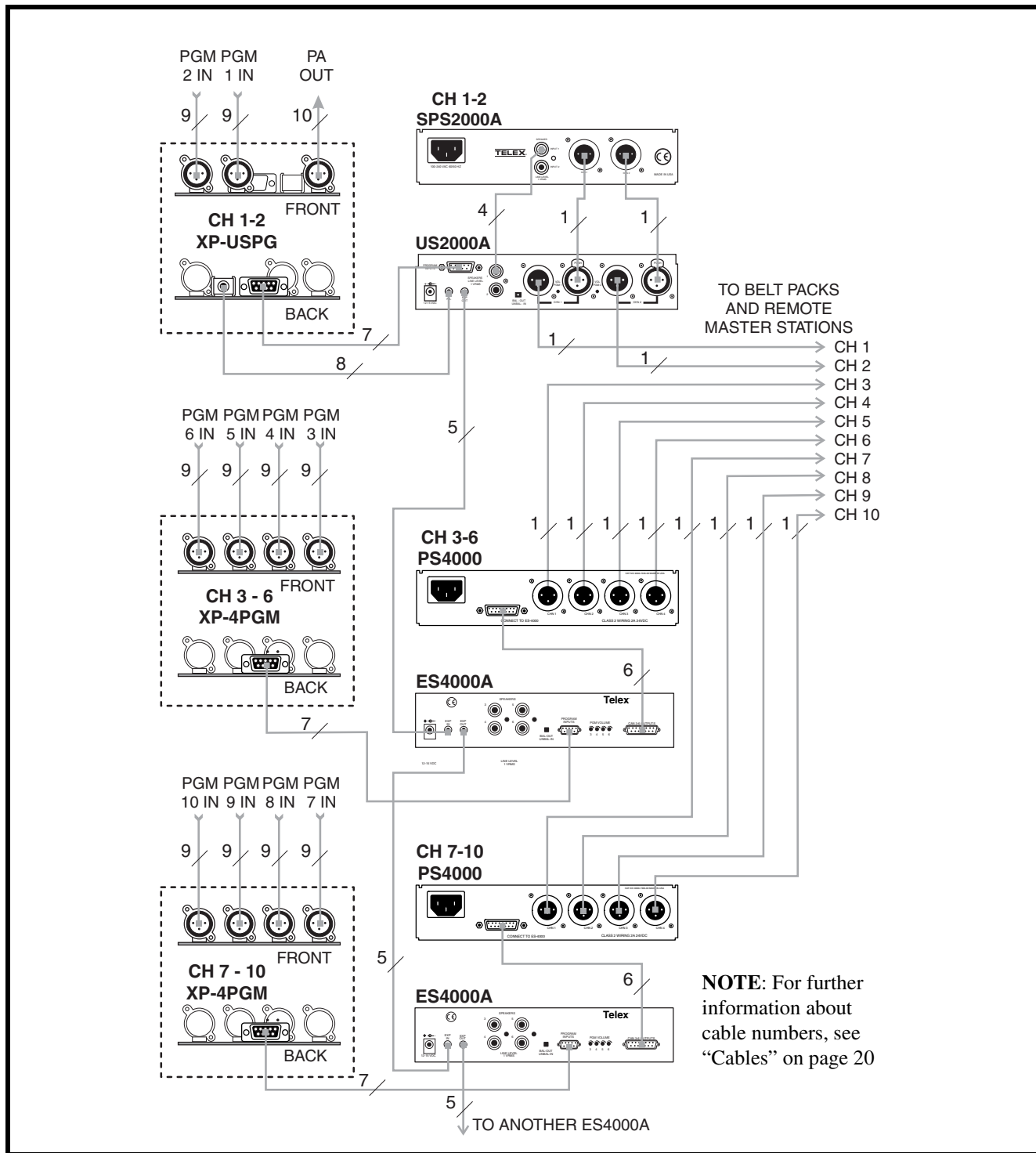
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## *Connection Notes*

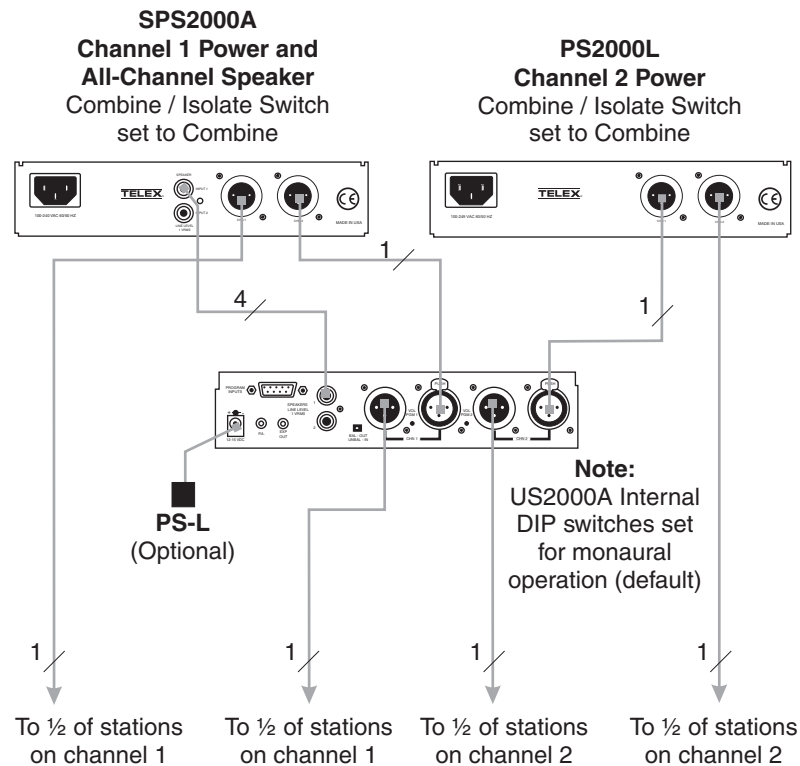
- Typical connections for the US2000A, ES4000A and various power supplies are shown starting with Figure 6. Select the configuration which most closely matches your intended usage.
- The US2000A and ES4000A normally draw operating power from the intercom channel power supplies (SPS2000A, PS2000L, etc.). Alternatively, you can use option PS-L Wall-pack Power Supplies. If you are using PS-L Wall-packs, connect them to the 12-15 VDC jacks on the back panels of the US2000A and ES4000A. When PS-L Wall-packs are used, the US2000A / ES4000A will not draw power from the intercom channel power supplies, leaving more power for belt packs.

**IMPORTANT:** The PS-L power supply only provides power for the station that it is connected to. You cannot use the PS-L to power the intercom channels!

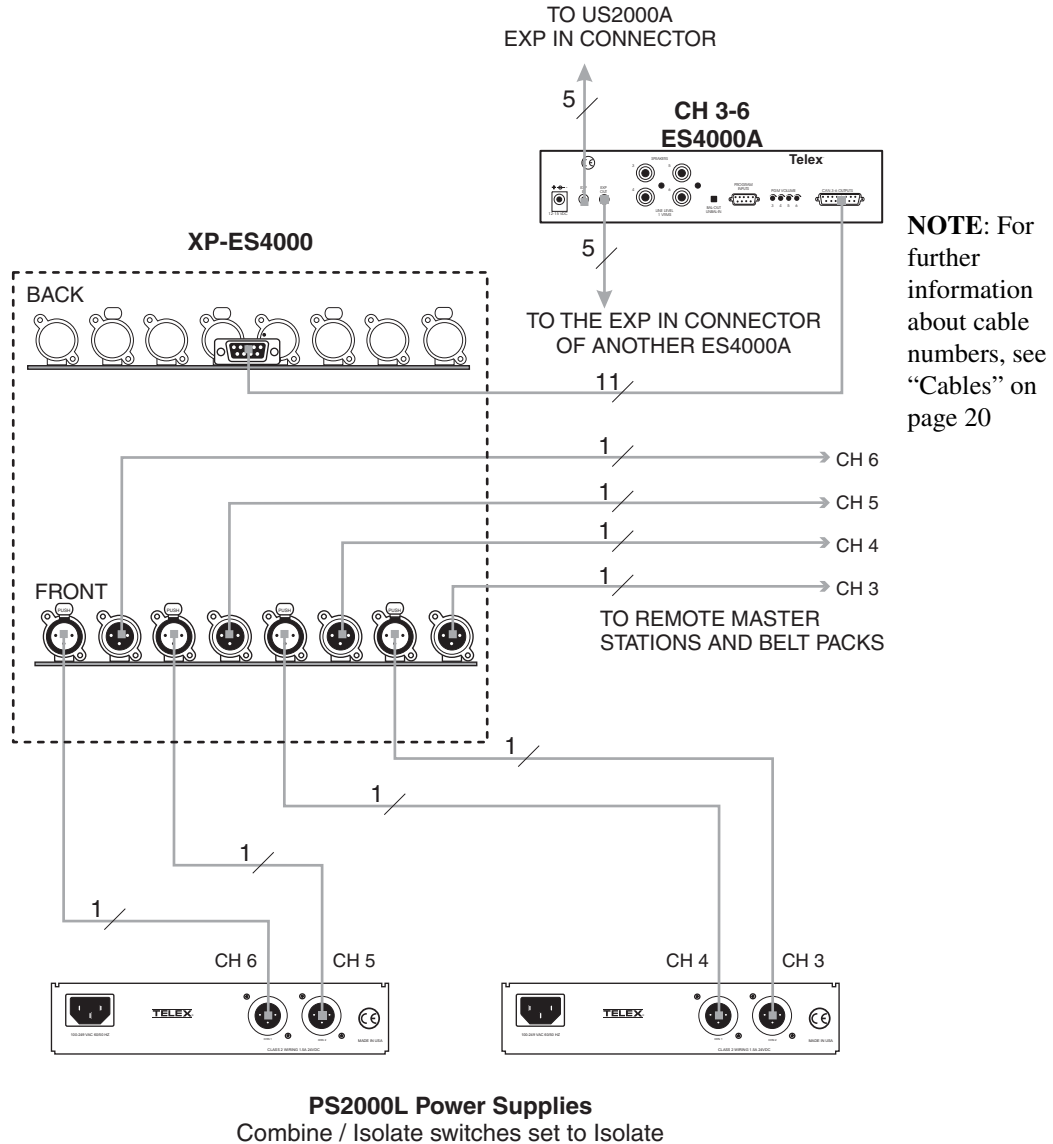
- Never connect more than 1 SPS2000A, PS2000L, or PS4000 Power Supply to the same intercom channel. This will cause poor audio quality and increased noise. Typically, all power supplies are located at a central location, such as a central master station. This lets the central master station operator turn off the intercom system when it is not being used.
- Termination Plugs: The ES4000A is supplied with 2 termination plugs for special applications where 1 or more channels are unpowered. Figure 12 on page 18 and Figure 13 on page 19 show example of how to use these plugs. If all of your incoming channels will be powered from an SPS2000A, PS2000L, or PS4000 power supply, the termination plugs are not needed.



**FIGURE 6. Central Master Station with simple power supply configuration.** This 10-channel provides all of the channel power and program input connections for the intercom system. This configuration should only be used at one point in the intercom system. It is ideal for smaller intercom systems with fewer remote intercom stations. For optional power configurations that permit more stations, see Figures 7 through 10. **NOTE:** The SPS2000A power supply includes a speaker and is typically used for intercom listening, with a gooseneck microphone connected to the US2000A for talk-back. Alternatively, a headset with a microphone may be used. In this case, no speaker is needed, and a PS2000L power supply may therefore be used in place of the SPS2000A.

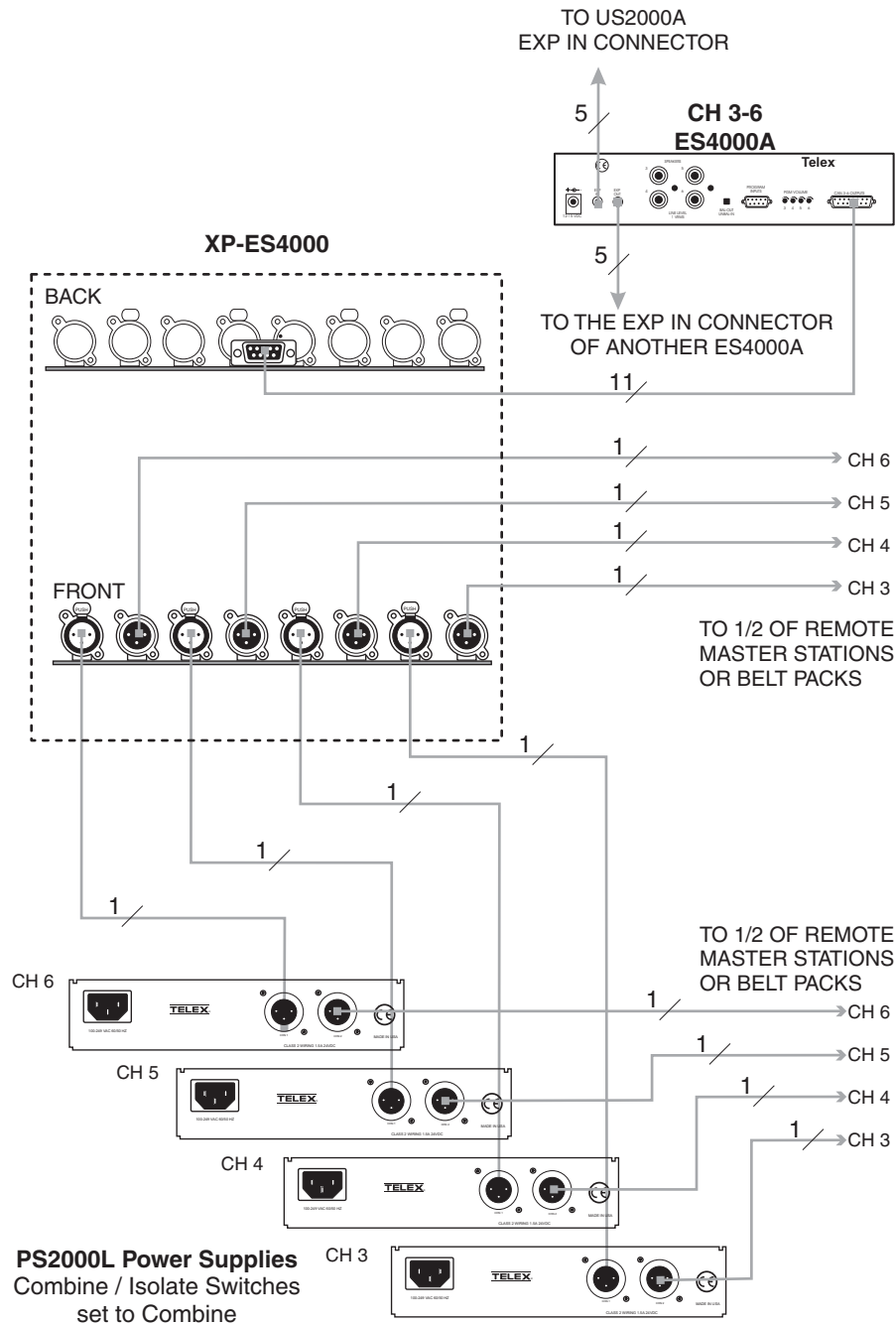


**FIGURE 7. Maximum Power Configuration for Channels 1 and 2.** This power supply configuration should only be used at one point in channels 1 and 2. Typically, it is set up at the central master station. This configuration permits about twice as many remote stations on channels 1 and 2 than the configuration shown in Figure 6 on page 12. **NOTE:** A PS2000L may be substituted for the SPS2000A for headset-only operation.



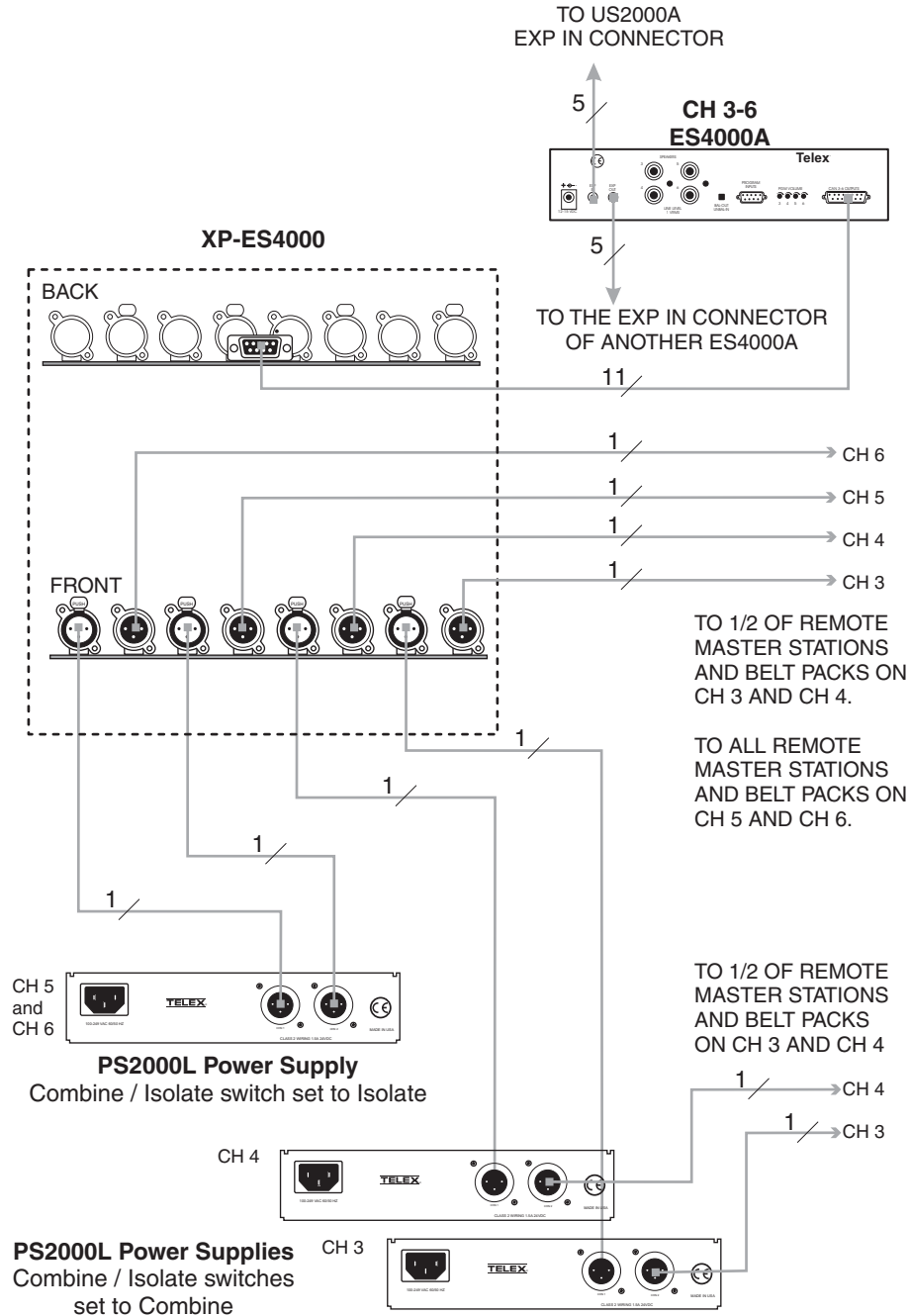
**FIGURE 8. Intermediate Power Configuration for Channels 3-6 (or 7-10, 11-14, etc.).** This power supply configuration should only be used at one point in each group of 4 channels. Typically, it is set up at the central master station. It permits about twice as many remote stations on the 4 channels than is possible with the power supply configuration shown in Figure 6.





**NOTE:** For further information about cable numbers, see "Cables" on page 20

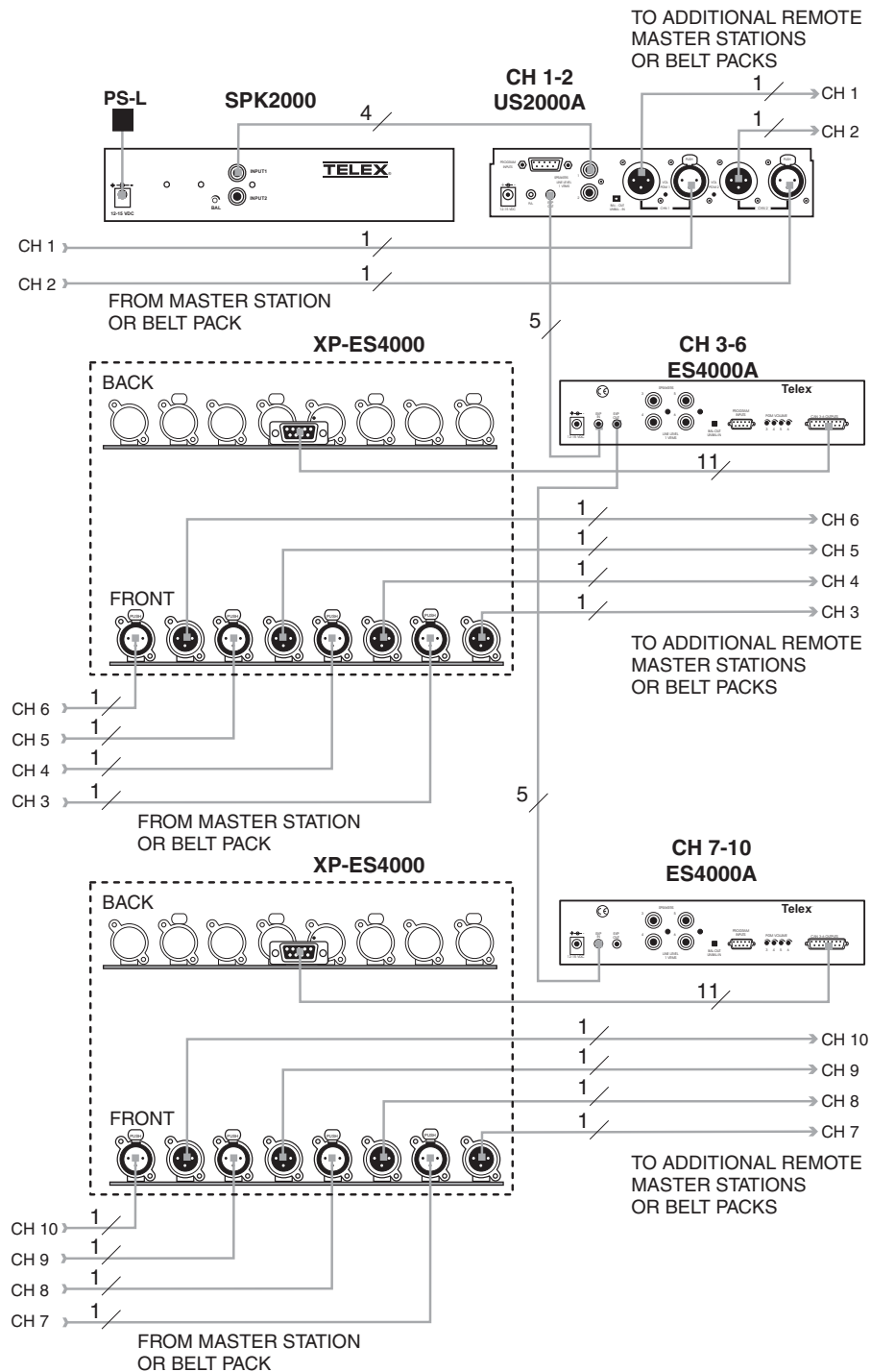
**FIGURE 9. Maximum Power Configuration for Channels 3-6 (or 7-10, 11-14, etc.).** This power supply configuration should only be used at one point in each group of 4 channels. Typically, it is set up at the central master station. It permits about four times as many remote stations on the 4 channels than is possible with the power supply configuration shown in Figure 6.



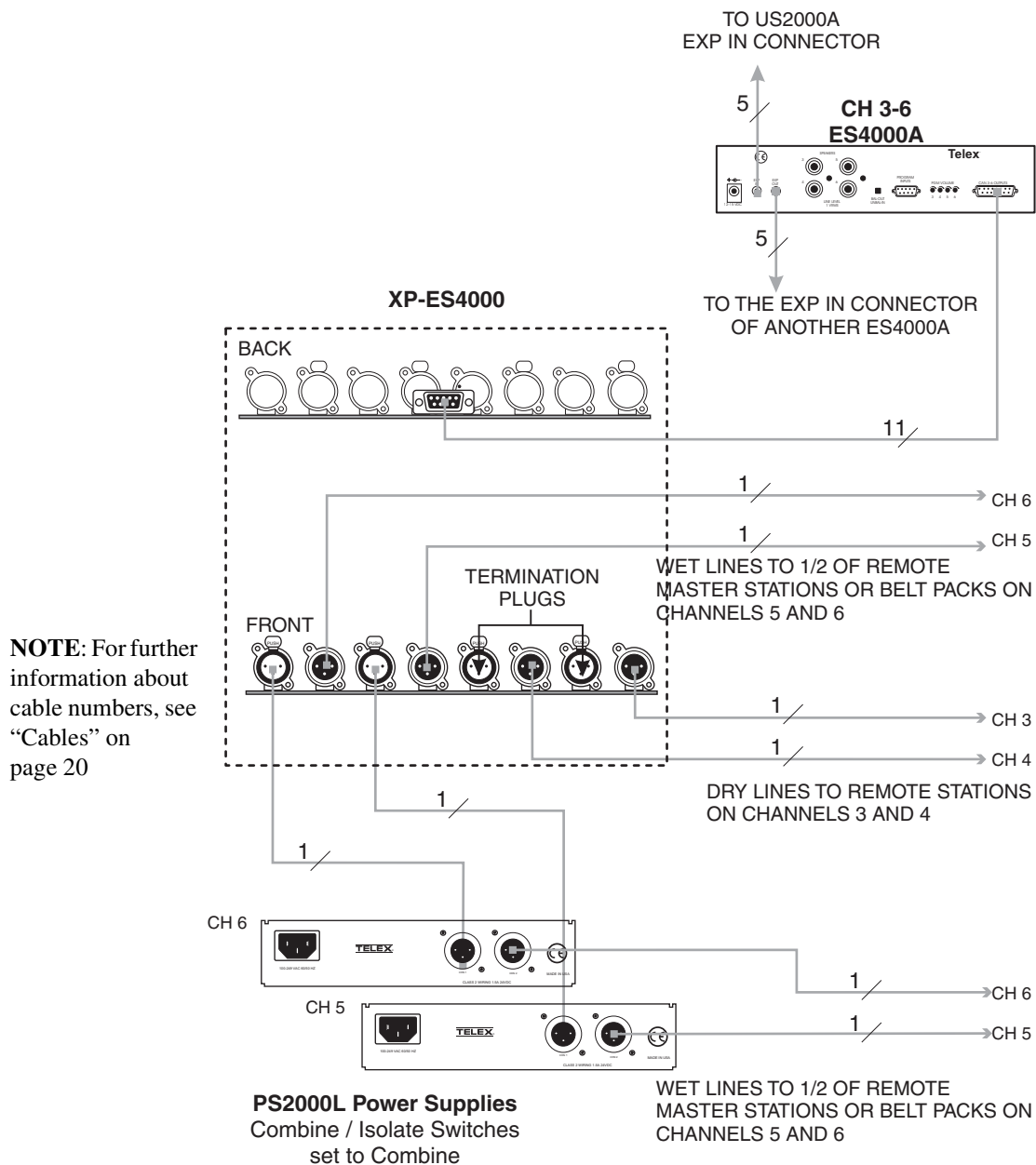
**NOTE:** For further information about cable numbers, see “Cables” on page 20

**FIGURE 10. Mixed Intermediate and Maximum Power Configuration for Channels 3-6 (or 7-10, 11-14, etc.).** This power supply configuration should only be used at one point in each group of 4 channels. Typically, it is set up at the central master station. In this example, channels 3 and 4 have about twice the capacity of channels 5 and 6, while channels 5 and 6 have about twice the capacity as the configuration shown in Figure 6.

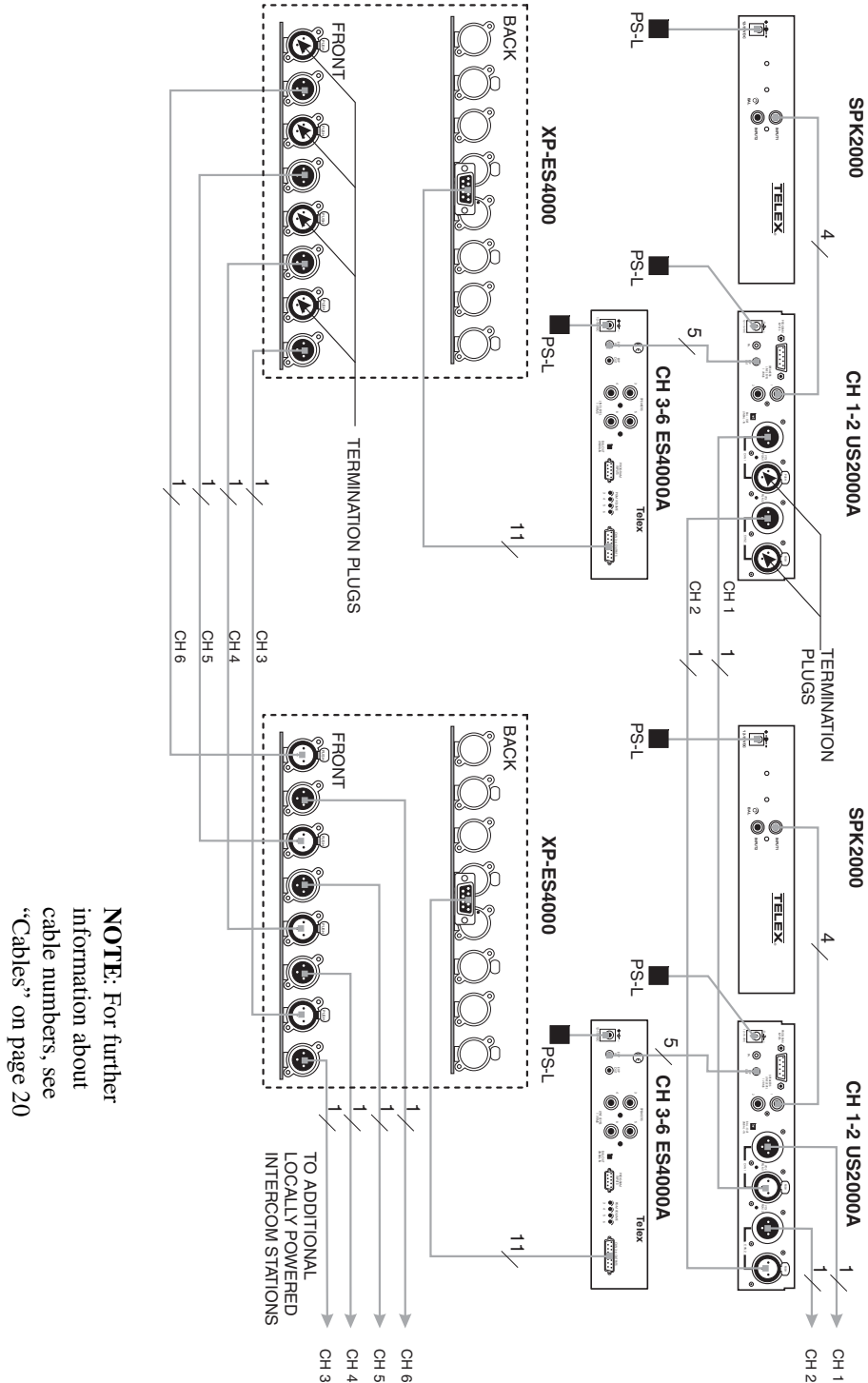
**NOTE:** For further information about cable numbers, see “Cables” on page 20



**FIGURE 11. Typical remote 10-channel master station or user station.** This intercom station can have the same functionality as the central master station shown in Figure 6. Alternatively, you can disable some of the advanced features, such as Mic Kill, program inputs, etc. This will limit the station’s functionality to be a common user station with multi-channel talk/listen capability.



**FIGURE 12. Using the termination plugs supplied with the ES4000A for mixed wet- and dry-line operation.** In this example, channels 5 and 6 are powered from a PS2000L Power Supply (wet lines), while channels 3 and 4 are operated without power (dry lines). Any remote station connected to channel 3 or 4 must supply its own power. For example, a US2000A that is powered by a PS-L Power Supply could be connected to channels 3 and 4. The advantage of dry-line operation is that intercom stations may be operated over a much greater distance.



**FIGURE 13. Using termination plugs for all dry-line connection.** In this example, all components use local power supplies, and no power is supplied on the intercom channels. All stations may be operated over a much greater distance than is possible when using powered channels. **IMPORTANT:** there should only be one termination plug used in each channel.

---

## *Cables*

The numbers below correspond to the cable numbers in the connection drawings on the previous pages.

1. 1-channel intercom cable. Sold separately. Use Telex “ME” cables, below. Or, build per Figure 14 on page 21.  
ME-25: 25’ (7.6m) cable with Male and Female 3-pin XLR connectors.  
ME-50: 50’ (15.2m) cable with Male and Female 3-pin XLR connectors.  
ME-100: 100’ (30.4m) 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 14 on page 21.  
ME-25/2: 25’ (7.6m) cable with Male and Female 6-pin XLR connectors.  
ME-50/2: 50’ (15.2m) cable with Male and Female 6-pin XLR connectors.  
ME-100/2: 100’ (30.4m) cable with Male and Female 6-pin XLR connectors.
3. Y adapter cable. Sold separately. Use Telex CA-23-16. Or, build per Figure 14 on page 21.
4. 3ft. (0.91m) speaker cable with RCA plugs. One supplied with each SPS2000A, SPK-1000, and SPK-2000.
5. 18” (457mm) CHANNEL OUTPUT cable, stereo miniplug to stereo miniplug. One supplied with each ES4000A.
6. 18” (457mm) CHANNEL OUTPUT cable, 15-pin Male Dsub to 15-pin Female Dsub. One supplied with each ES4000A.
7. Shielded patch cable, 9-pin Male Dsub to 9-pin Female Dsub. Customer, local purchase: available at most electronic stores. Note: All pins must be connected straight through: do not use an RS232 computer cable.
8. Shielded patch cable, stereo miniplug to stereo miniplug. Customer, local purchase: available at most electronic stores.
9. Shielded audio cable. Must have male 3-pin XLR connector at one end for connection to the XP-USPG or XP-4PGM program inputs. Pin-out for program inputs is as follows:

Pin 1: common

Pin 2: + program input

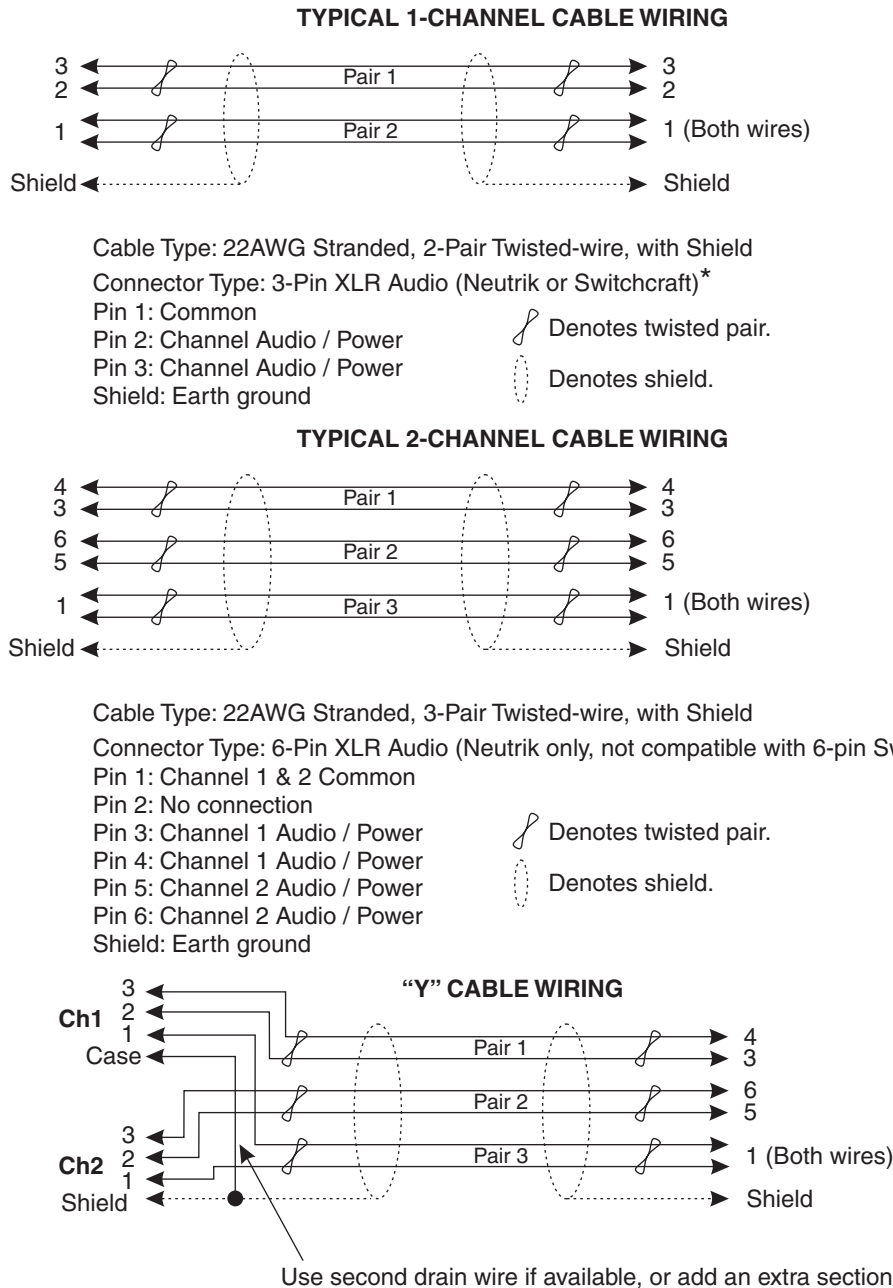
Pin 3: - program input

10. Shielded audio cable. Must have male 3-pin XLR connector at one end for connection to the XP-USPG output. Pin-out for PS output is as follows:

Pin 1: common

Pin 2: + program output

Pin 3: - program output



\* 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 14. Audiocom Intercom cable wiring diagrams**





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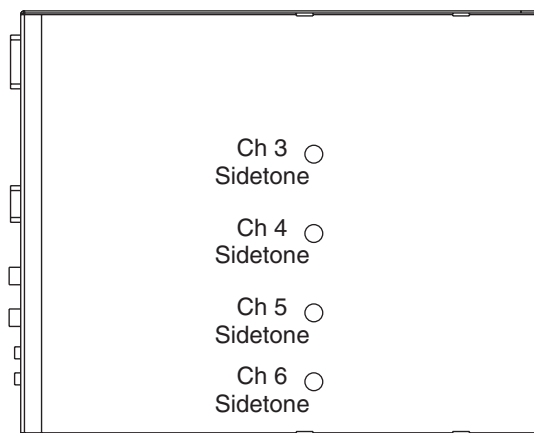
## *Operation and Specifications*

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### *Power-Up*

The ES4000A channels power-up identically to channels 1 and 2 of the US2000A. Refer to the US2000A User Instructions for all power-up information.



**FIGURE 15. Sidetone Trimmer Access on Bottom of ES4000A**

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### *Sidetone Adjustments*

Use the sidetone adjustment procedure as described in the US2000A User Instructions, except substitute channel 3, channel 4, etc. The locations of the ES4000A sidetone trimmers are shown in Figure 15.

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### *Operation*

The ES4000A channels operate identically to channels 1 and 2 of the US2000A. Refer to the US2000A User Instructions for all operating information.

## Specifications

### General

#### Power Requirements

##### Voltage

Phantom Power: 24VDC nominal (12 to 30VDC)

Local Power (with PS-L Wall-pack Power Supply or equivalent): 14 to 15 VDC

Current: 65mA, quiescent; 150mA maximum

#### Dimensions

1.75" (44.5 mm) high, 8.25" (209.6mm) wide, 10.0" (250mm) deep

#### 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

### Intercom Channels, Balanced Mode (BAL/UNBAL switch set to BAL position)

#### Output Level:

1VRMS nominal

#### Input Impedance

300 ohms

#### Bridging Impedance

greater than 10,000 ohms

#### Sidetone

-40dB, 35dB, adjustable range

#### Call Signalling

##### Send:

20kHz  $\pm$  100Hz, 0.47VRMS  $\pm$  2dB

##### Receive:

20kHz  $\pm$  800Hz, 100 mVRMS

#### Mic Kill Frequency

##### Send

24kHz  $\pm$  100Hz, 0.5VRMS  $\pm$  2dB

##### Receive

24kHz  $\pm$  800Hz, 100 mVRMS

#### Noise Contribution:

less than -70dB

#### Common Mode Rejection Ratio:

greater than 50dB

### Intercom Channel, Unbalanced Mode (BAL/UNBAL switch set to UNBAL position)

#### Output Level

1 VRMS  $\pm$  10%

#### Input Impedance

150 ohms

#### Bridging Impedance

10,000 ohms  $\pm$  5%

#### Sidetone

-40dB, 35dB  $\pm$  10% adjustable range

#### Call Signalling:

##### Send:

11  $\pm$  2VDC

##### Receive:

4 VDC

### Speaker Output

#### Level

1.0 VRMS  $\pm$  2dB (0dB nominal)

#### Impedance

1000 ohms nominal

### Program Input

Voltage Gain Adjustment Range (program input to channel output, with 100 mVRMS input):

25  $\pm$  3dB (2.6 VRMS maximum, unit is factory-set to 1.0 VRMS)

#### Input Impedance:

Balance 75k ohm  $\pm$  10%

Unbalanced 38k ohm  $\pm$  10%

### Frequency Response

EXP IN to/from Channel, EXP to/from EXP OUT, Channel to Speaker:

200Hz to 8kHz  $\pm$  1/-3dB

#### Total Harmonic Distortion:

Less than 0.5%

## Connector Pin Outs

### 12-15 VDC Jack

Connector Type: 2.0mm DC jack

Internal Pin: +12 to 15 VDC

External Ring: Common

### EXP IN Jack

Connector Type: 1/8" (2.0m) stereo phone jack

Tip: Listen Input

Ring: Talk Output

Sleeve: Common

### EXP OUT Jack

Connector Type: RCA Phono Jack

Tip: Talk output

Ring: Listen input

Sleeve: Common

### SPEAKER Jacks

Connector Type: RCA Phono Jack

Tip: Speaker Output High

Sleeve: common

**PROGRAM INPUTS Connector**

Connector Type: DB9F Female, 9-pin D-sub

Pin 1:	Common
Pin 2:	Channel 3 program in low
Pin 3:	Channel 4 program in low
Pin 4:	Channel 5 program in low
Pin 5:	Channel 6 program in low
Pin 6:	Channel 3 program in high
Pin 7:	Channel 4 program in high
Pin 8:	Channel 5 program in high
Pin 9:	Channel 6 program in high

**CHANNEL 3-6 OUTPUTS Connector**

Connector Type: DB15F Female, 15-pin D-sub

Pin 1	Channel 3 intercom audio input/output high
Pin 2	Channel 3 intercom audio input/output low
Pin 3	Common
Pin 4	Channel 5 intercom audio input/output high
Pin 5	Channel 5 intercom audio input/output low
Pin 6	Common
Pin 7	Common
Pin 8	Common
Pin 9	Common
Pin 10	Channel 4 intercom audio input/output high
Pin 11	Channel 4 intercom audio input/output low
Pin 12	Common
Pin 13	Channel 6 intercom audio input/output high
Pin 14	Channel 6 intercom audio input/output low
Pin 15	Power (30 VDC)

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## *Addendum - Errata Sheet*

Document Affected: ES4000A User Instructions, Publication Number 9350-7551-000 Rev. B.

Errata Number: 1

General Instructions: Use this errata with Revision A of the user instructions. This information will be included in Revision C.

Page 6, item 6: The description should be 18" (457mm) CHANNEL OUTPUT cable, 15-pin Male Dsub to 15-pin Male Dsub. One supplied with each ES4000A.

Pages 16-21: All cables labeled with number 6 should be labeled with number 11. The description for cable number 11 is 18" (457mm) CHANNEL OUTPUT cable, 15-pin Male Dsub to 15-pin Male Dsub. One supplied with each ES4000A.

### **NOTES:**

- When you are connecting an ES4000A to a PS4000 Power Supply, use the CHANNEL OUTPUT cable that is supplied with the ES4000A (cable 6).
- When you are connecting the ES4000A to an XP-ES4000, use the CHANNEL OUTPUT cable that is supplied with the XP-ES4000 (cable 11). The CHANNEL OUTPUT cable that is supplied with the ES4000A is not used.



