CLEAR-COM ENCORE

RCS-2700 PROGRAMMABLE SOURCE ASSIGNMENT PANEL

INSTRUCTION MANUAL

RCS-2700 Programmable Assignment Panel Instruction Manual

Part Number 810500Z Rev. 1

Vitec Group Communications, LLC.
850 Marina Village Parkway
Alameda, CA 94501
U.S.A

Vitec Group Communications
7400 Beach Drive
Cambridge Research Park
Cambridgeshire
United Kingdom
CB25 9TP

Vitec Group Communications
Room 1806, Hua Bin Building
No. 8 Yong An Dong Li
Jian Guo Men Wai Ave
Chao Yang District
Beijing, P.R. China 100022

CONTENTS

IMPORTANT SAFETY INSTRUCTIONS

Please read and follow these instructions before operating this product.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Only use attachments/accessories specified by the manufacturer.
10. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
11. Unplug this apparatus during lightning storms or when unused for long periods of time.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. **WARNING:** To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

Please familiarize yourself with the safety symbols in Figure 1. When you see these symbols on this product, they warn you of the potential danger of electric shock if the station is used improperly. They also refer you to important operating and maintenance instructions in the manual.

This symbol alerts you to the presence of uninsulated dangerous voltage within the product's enclosure that might be of sufficient magnitude to constitute a risk of electric shock. Do not open the product's case.

This symbol informs you that important operating and maintenance instructions are included in the literature accompanying this product.

Figure 1: Safety Symbols

EMC AND SAFETY

The RCS-2700 Programmable Source Assignment Panel meets all relevant CE and FCC specifications set out below:

EN55103-1 Electromagnetic compatibility. Product family standard for audio, video, audio-visual, and entertainment lighting control apparatus for professional use. Part 1: Emissions.

EN55103-2 Electromagnetic compatibility. Product family standard for audio, video, audio-visual, and entertainment lighting control apparatus for professional use. Part 2: Immunity.

And thereby compliance with the requirement of Electromagnetic Compatibility Directive 2004/108/EC and Low Voltage Directive 2006/95/EC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

OPERATION

DESCRIPTION

OVERVIEW

- *"Sources" are typically the channels from a main or master station.*
- *"Destinations" are remote stations, beltpacks, or other devices that are assigned to channels of the source station.*

You can quickly and easily assign remote stations or beltpacks to the channels of a main intercom station with an RCS-2700 Source Assignment Panel. One RCS-2700 unit can program up to 24 "destinations" to 8 "source" channels. Using a Windows-based PC, or the optional RCU-67 Remote Control Unit, you can program source/destination assignments from a distance of up to 300 feet (91 meters) from the RCS-2700 unit.

- "Sources" are typically the channels from a 4-, 8-, or 12-channel main or master station.
- "Destinations" are typically remote intercom stations, beltpacks, or other interfaces, but can also be groups of such devices connected together.

The RCS-2700 unit can store up to 14 "presets"—sets of pre-programmed source/destination assignments—which can be selected to go into operation within seconds as needed, using either the handheld RCU-67 Remote Control Unit, a PC, a contact closure, or directly from the front panel of the RCS-2700. The front panel can be "locked" to prevent unauthorized tampering.

With a Windows-based PC (95/98/ME/2000) and its companion software program, RCS-WIN, you can create presets and store them in your computer for current or future use. The RCS-WIN software offers a user-friendly onscreen image of an assignment panel with slider buttons that you move up or down to change assignments.

- *You can program source/destination assignments with the RCU-67 Remote Control Unit or with a Windows-based PC.*

With the optional compact RCU-67 Remote Control Unit, you can select, create, and edit presets through its numerical LED readouts. The remote unit is compact, easy to store, and offers an alternative to using a PC.

The RCS-2700 requires very little electrical current to operate. Because of this, it operates from 30 VDC power, and no internal power supply is required. The unit can be powered by one of the channels of the main station or power supply that powers the system. In the event of a power loss, the latching relays in its switching matrix remain in position, maintaining the channel assignments.

REMOTE-CONTROLLED OPERATION

The RCU-67 and the PC can be located up to 300 feet (91 meters) away from the RCS-2700 main unit, connected with Category-5 cable. This provides not only convenience and flexibility in system control, but can also save money during installation: the assignment panel no longer needs to be located in the control room area. This shortens cable runs (often improving intercom system performance) and allows more flexibility in location of the RCS-2700 main unit—both potential money savers.

If desired, the PC or wired remote can remain connected during system operation to offer real-time remote control of the system, although it is not necessary that they remain connected for the RCS-2700 to continue to function as programmed. If a PC is always connected to the system, an operator can access the system from anywhere in the world through the Internet and the use of special remote program software.

- *"Presets" are sets of pre-programmed source-to-destination assignments that are stored in the RCS-2700's memory. They can be changed instantaneously by a single mouse click or push of a button.*

TYPICAL APPLICATIONS

Applications will typically include any facility with at least four channels of party line and twelve or more "drops" where the assignment setups change on a regular basis: performing arts facilities, broadcast studios and remote trucks, convention centers, and houses of worship. Additional applications include simultaneous language translation and virtual-reality gaming and teaching/training facilities that use groups in simulators.

The RCS-2700 unit is compatible with Clear-Com and other popular party-line intercom systems.

CONNECTING MULTIPLE RCS-2700 UNITS

Up to six RCS-2700 units can be wired together in various combinations for up to a 15-source by 72-destination system. There are six possible combinations of units.

A single RCS-2700 unit has 8 sources of audio and 24 remote destinations, as shown in Figure 1-1.

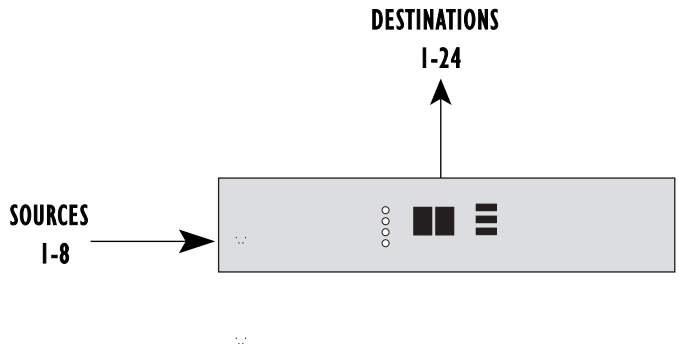

Figure 1-1: Sources and Destinations in a One-Unit Setup

Two RCS-2700 units can be connected together to provide either 15 sources of audio and 24 destinations or 8 sources of audio and 48 destinations as shown in Figure 1-2. The address switch on the rear panel of each unit must be set with the correct unit number to determine which configuration is chosen. Instructions for setting and changing unit numbers are provided in the Installation Chapter.

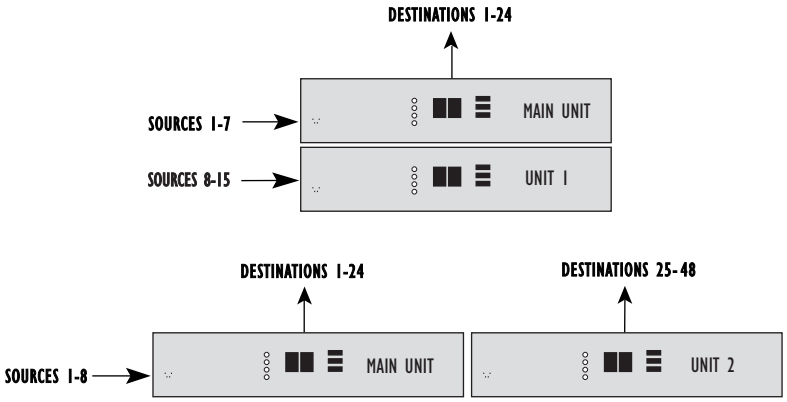

Figure 1-2: Possible Configurations with Two RCS-2700 Units

Other possible configurations include: 15 sources and 48 destinations (4 units), 8 sources and 72 destinations (3 units), and 15 sources and 72 destinations (6 units). Figure 1-3 illustrates all of the possible combinations of RCS-2700 units with the correct unit numbers for each configuration.

For information on installing and wiring expansion units, and for setting unit number addresses for each configuration, consult the Installation Chapter of this manual.

ISO CHANNELS AND GROUPS

A single RCS-2700 unit has eight source channels available for use. If the main source intercom station uses less than the eight available channels, the remaining channels can still be used. For example, if a 4-channel MS-704 intercom station provides the first four source channels, there will be four additional lines available as source channels on the 8-channel RCS-2700.

These “virtual source channels” are called “ISO(lated)” channels, and the destinations assigned to them are called “ISO” groups because they are not connected to the main source intercom station. This in effect gives you four extra channels to use, in addition to the four channels on the MS-704 source station, offering a cost effective way to expand the functionality of your intercom system.

A typical application of an ISO channel is to allow two or three destinations to talk to each other independently of the other destinations on a source channel. To accomplish this, you assign the chosen destinations to an ISO channel as a separate preset, or as a source/destination edit within the current preset.

A system can also be set up to work without a main station if all eight channels are ISO channels. Destinations would be connected in the usual way and assignments would be made between the eight ISO channels. System power is still required.

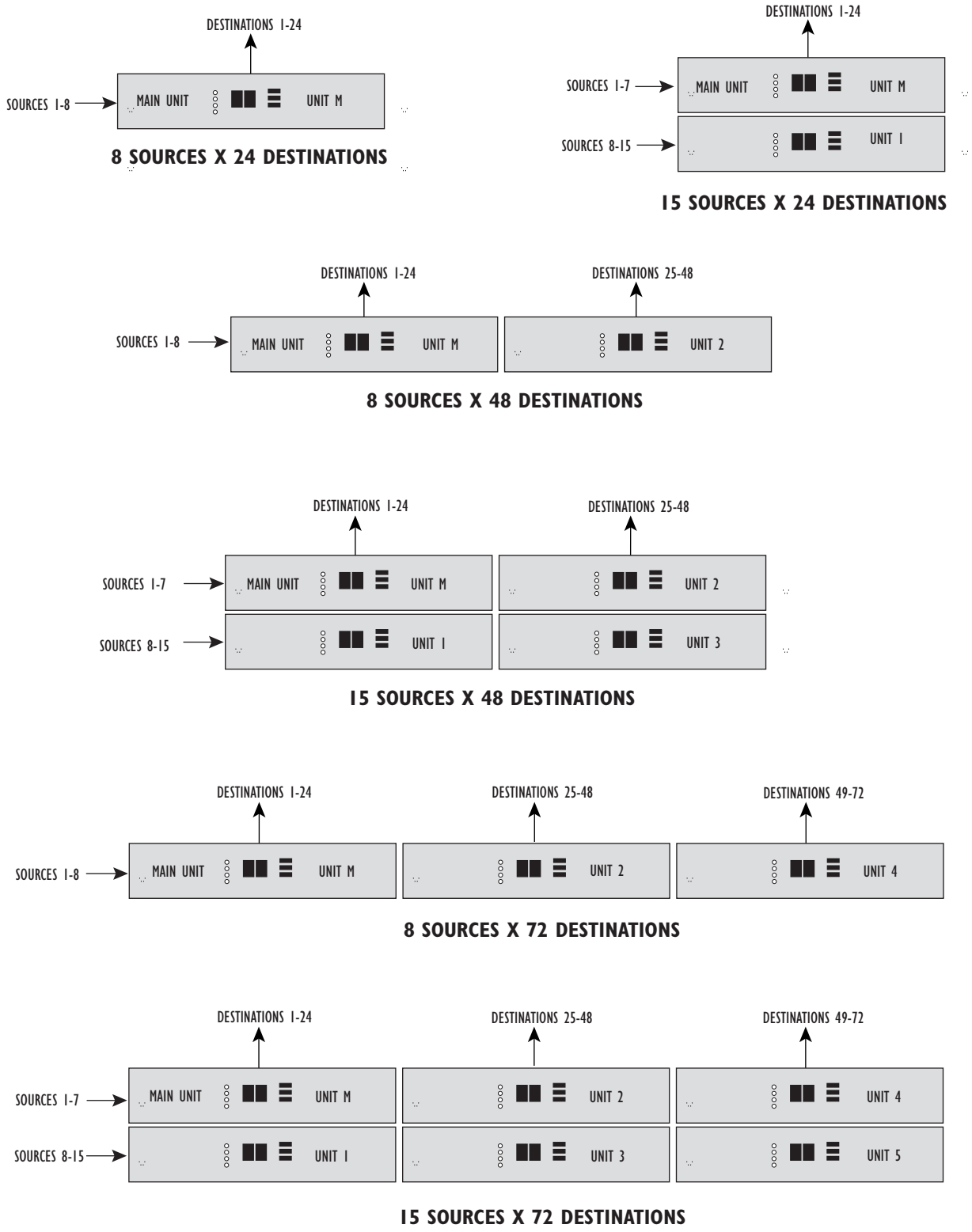

Figure 1-3: All Possible Configurations of RCS-2700 Units, with Unit Numbers for Each Configuration

POWERING THE SYSTEM

POWERING A SINGLE RCS-2700 UNIT

When a single RCS-2700 unit is powered, it goes through a start-up sequence that takes five seconds to complete. During this time the green Power light and red Fault light will be on. When the unit is ready for use, the green Power and Data lights will be on and the red Fault light will be off. The current preset number will appear on the front-panel display.

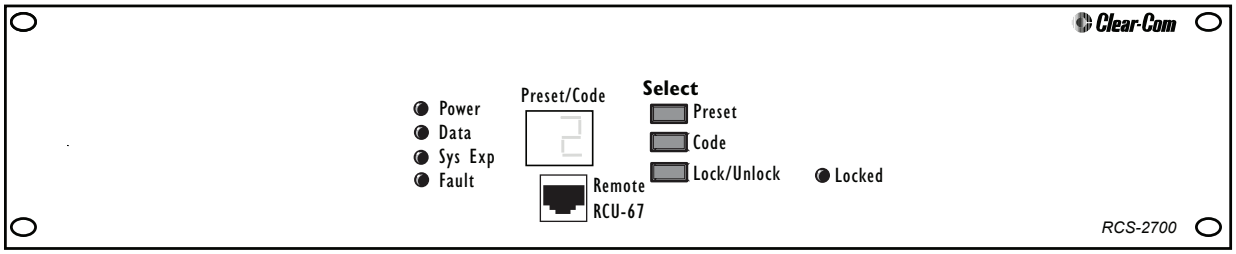

Figure 1-4: RCS-2700 Front Panel

POWERING MULTIPLE RCS-2700 UNITS

In a multi-unit configuration, the RCS-2700 main unit and all RCS-2700 expansion units must operate as one system, and therefore must all be powered from the same power supply.

When the RCS-2700 units are powered, each unit will go through a start-up sequence in which the system configuration is detected and validated. During this time, each unit's green Power light and red Fault light will be on. For the main unit this sequence takes about five seconds, and for each expansion unit it takes about two seconds.

At the conclusion of the start-up sequence, each expansion unit will display its unit number as set by the address switch on the rear panel. Each expansion unit's Fault light will be off and the green Power, Data, and System Expansion lights will be on.

When the main unit completes its start-up sequence successfully, it will display the current preset number. The main unit's Fault light will be off and its green Send and Data lights will be on. If there are expansion units connected to the main unit, the main unit's green System Expansion light will be on.

If the main unit detects an invalid system configuration during the start-up sequence, it will not complete the sequence. The main unit's green Fault light will be on and its green System Expansion light will flash. Expansion units will display their addresses. To correct this condition, turn power to the system off, adjust the address switches on the back of the expansion units according to the numbers shown in Figure 1-3, and turn the power back on.

FRONT PANEL

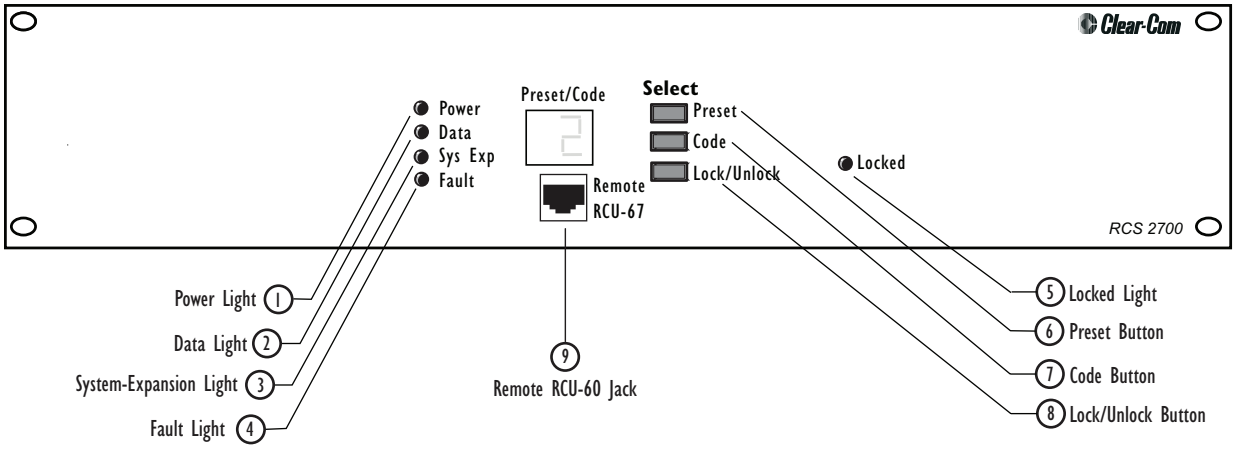

Figure 1-5: RCS-2700 Front Panel

LIGHTS

Power Light (1)

When the green Power light is on, the unit is receiving DC power from the intercom line or lines of a "source" intercom station or from an external power supply.

Data Light (2)

When the green Data light is slowly blinking, the unit is transmitting or receiving data from an attached RCU-67 Remote Control Unit or PC. When the unit is ready to transmit or receive data, the green Data light will be on solidly.

System Expansion ("Sys Exp") Light (3)

When the green System Expansion ("Sys Exp") light is on solidly, the RCS-2700 main unit and all expansion units are properly connected in a multi-unit setup and are communicating data. A blinking light, or no light, indicates a problem such as an incorrect unit number in the multi-unit setup.

Fault Light (4)

When the red Fault light remains on after the start-up sequence, there is a problem in a multi-unit setup such as a wiring problem or incorrect unit number.

Locked Light (5)

When the Locked light is on, the Preset button on the front panel of the RCS-2700 is locked, and presets cannot be changed from the front panel. Presets can be changed using an RCU-67 Remote Control Unit or a PC, however, even if the Preset button is locked.

- *You can change the current preset in one of four ways: from the front panel of the RCS-2700, with an RCU-67 Remote Control Unit, with a Windows-based PC, or with a contact closure.*

PRESET BUTTON (6)

Preset Configurations ("Presets")

A "preset" is a group of source/destination assignments that you store for current or future use. The RCS-2700 unit's memory can store 14 groups of source/destination assignments. Each group is called a "preset." Source/destination assignments are always made *within* one of the 14 presets. *The desired preset must be specified before making a source/destination assignment.*

The number of source/destination assignments within a preset can be as few as one destination assigned to one source or as many as 72 destinations assigned to 15 sources (in a multi-unit system).

When you receive your system, all 14 available presets are set to a default configuration in which each destination is assigned to a source in numerical order, as shown in Figure 1-6. You can then change the source/destination assignments within each preset to suit your needs.

If at some point you want to set the system back to the default presets, you can do so by using the Code-Reset button on the rear panel of the RCS-2700. See "Using the Code-Reset Button" in the Installation Chapter for further instructions.

DESTINATIONS

SOURCES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	x								x								x							
2		x								x								x						
3			x								x								x					
4				x								x								x				
5					x								x								x			
6						x								x								x		
7							x								x								x	
8								x								x								x

Figure 1-6: Default Source/Destination Assignments

You initially program presets using a handheld RCU-67 Remote Control Unit or a PC with RCS-WIN software. When you have programmed more than one preset, you can select between presets in one of four ways: with the preset button on the front panel of the RCS-2700; with a handheld RCU-67 Remote Control Unit; with a contact closure; or with a PC that has the RCS-WIN software installed.

This chapter gives instructions for selecting a preset from the front panel of the RCS-2700. For instructions on selecting or editing a preset with the RCU-67 Remote Control Unit, see the *RCU-67 Remote Control Unit Instruction Manual*. For instructions on selecting, editing, or creating a preset with a Windows-based PC, see the *RCS-WIN Software Instruction Manual*. For instructions on selecting a preset with a contact closure, see "Wiring the Preset-Select Contact Closure" in the Installation Chapter of this manual.

Selecting Presets from the Front Panel of the RCS-2700

- *The RCU-67 Remote Control Unit connects to the RCS-2700 main unit through up to 300 feet (91 meters) of cable. Category-5 cable is recommended.*

You can select which of the 14 presets will go into operation at any given time with the Preset button on the front panel of the RCS-2700.

To select a preset from the front panel of the RCS-2700 unit:

1. Repeatedly press the Preset button to progress through the available preset numbers until you reach the desired preset number.

   The display will progress from one preset to the next, starting at 1 and ending at 14. When it reaches preset 14, it will start again at preset 1.

2. When the desired preset number appears on the display, hold the Preset button down until the display goes blank, then release the button.

   Releasing the Preset button before the display goes blank will cancel the change. This feature prevents accidental changes.

The RCS-2700 main and expansion units will then change to the newly selected preset. When this change is complete, the main unit will display the new preset number in the "Preset/Code" window.

The change to the preset will take about two seconds for each main or expansion unit in the system. For example, changing a preset in a system with a main unit and two expansion units will take about six seconds.

Note: When you change a preset, the RCS-2700 will switch destination and source assignments within the unit, causing a clicking sound. This is normal.

CODE AND LOCK/UNLOCK BUTTONS (7 & 8)

You can lock the Preset button on the RCS-2700's front panel to prevent accidental or unauthorized changes to the selected preset from the front panel.

When you first receive your RCS-2700 unit, it is set to the factory default code of "0." When the code is set to "0" the RCS-2700's Preset button *cannot be locked*. If you do not want to use the lock feature, you can leave the RCS-2700 set to the factory default code of "0."

If you want to lock the RCS-2700's Preset button, you must first change the code from the "no-lock" code of "0" to another single-digit code called an "unlock" code, and then lock the unit. See the following section "Changing the Unlock Code" for instructions.

Changing the Unlock Code

The process of changing the unlock code is the same whether you are changing from the factory default code of "0" to an unlock code, or changing from one unlock code to another.

Note: If the RCS-2700 unit's Preset button is locked, you must unlock it first before changing the unlock code. See the following section entitled "Unlocking the RCS-2700" for instructions on unlocking the preset button. If the lock code is set to the factory default "no-lock" code of "0" you do not need to unlock it.

To change the unlock code:

1. Press and simultaneously hold the Lock and Code buttons on the main unit for three seconds until "L_" appears in the display. When "L_" appears in the display, release the buttons.
2. Repeatedly press the Code button until the desired new code appears in the display.
   - The unlock code is a single-digit character. Note that, in addition to the numbers 1-9, there are some alphabetic and special characters available when choosing a code.
   - If you release the Code button for three seconds before going on to the next step, the unlock-code change is cancelled.
3. When the desired new code appears in the display, press and release the Lock button.

   Within a few seconds, the current preset number will reappear in the display.

- *The preset button on the RCS-2700 can be locked to prevent unauthorized or accidental changes.*

The unlock code is now changed. Write down the unlock code and keep it in a safe place for future reference. If you forget or misplace the code, there are only a limited number of ways to unlock the Preset button. For more information, see the section entitled "Code-Reset Button" later in this chapter

- *When an RCS-2700 is purchased from Clear-Com, it is set to the "no-lock" code of 0 which disables the preset-button locking feature.*

Locking the RCS-2700

To lock the Preset button on the front panel of the RCS-2700:

- Press and hold the Lock button on the main unit for at least three seconds until the Locked light comes on.
- If the code is set to the factory default "no-lock" code of "0" you will not be able to lock the Preset button. When you press the Lock button, the Locked light will not turn on. You must first change the code from "0" to a single-digit unlock code, and then lock the unit. See the previous section entitled "Changing the Unlock Code" for instructions and more information.

The Preset button on the RCS-2700 is now locked. Note that the Lock button only locks the Preset button on the RCS-2700 unit. Presets can still be changed using the handheld RCU-67 Remote Control Unit or a PC even though the RCS-2700 Preset button is locked.

Unlocking the RCS-2700

To unlock the Preset button, you must use the Code and Lock/Unlock buttons on RCS-2700 unit's front panel to enter an unlock code.

To unlock the Preset button on the front panel of the RCS-2700:

1. Press and hold the Code button on the main unit for three seconds until "C_" appears on the display.
2. Repeatedly press the Code button until the correct unlock code appears.

If the Code button is released for three seconds before going to the next step, the unlocking procedure is cancelled and the RCS-2700 remains locked.

3. When the correct code appears, press and release the Lock button.

   Within a second or two, the Locked light will turn off and the current preset number will appear on the display.

- *If the lock light is on, you cannot change the preset from the front panel. For security reasons you cannot change the unlock code either. You must unlock the unit first.*

The Preset button on the RCS-2700 is now unlocked and you can select a new preset. To lock the Preset button again, and keep the same unlock code, simply press and hold the Lock button for three seconds.

REMOTE RCU-67 FRONT-PANEL JACK (9)

An RCU-67 Remote Control Unit can be plugged into the front-panel jack to provide additional programming capability. The RCU-67 connects to the RCS-2700 unit through Category-5 cable with RJ-45 connectors. The RCS-2700 unit will recognize the presence of the RCU-67 and will begin communicating with it after it has been plugged in for a few seconds.

While an RCU-67 is plugged into the front-panel jack, communication with a PC or with a rear-panel connected RCU-67 will be suspended.

REAR PANEL

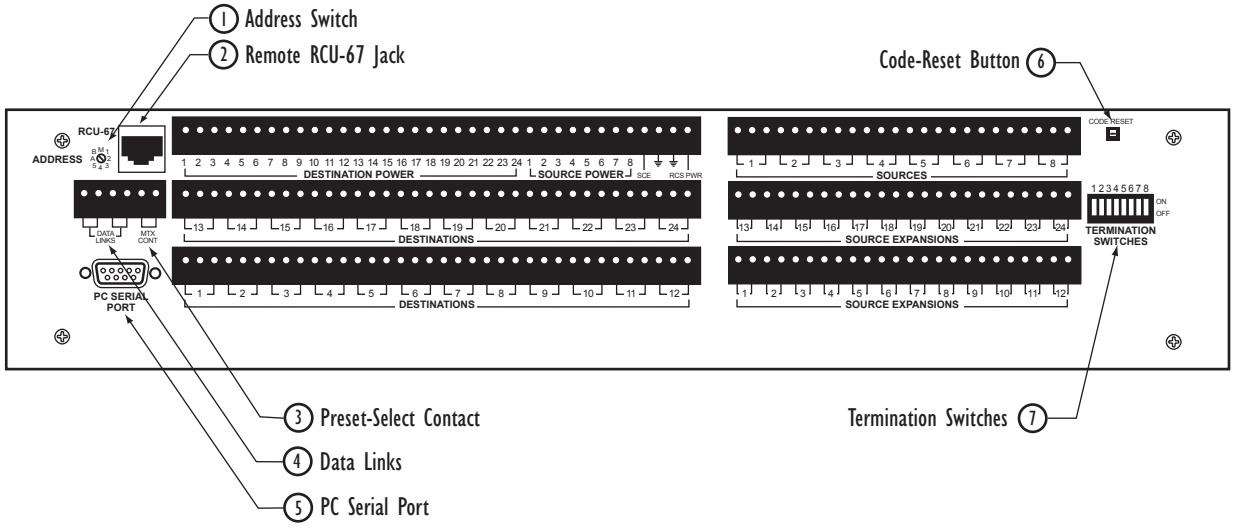

Figure 1-7: RCS-2700 Rear Panel

ADDRESS SWITCH (1)

An RCS-2700 unit's address switch is set when it is installed and should not be changed unless the system is being reinstalled or reconfigured.

The position of this switch can be determined from the RCS-2700 unit's front-panel display. If the address switch is set to "M," then the unit functions as

a main unit and displays the preset number. If the address switch is set to 1, 2, and so forth, then the unit functions as an expansion unit and displays the expansion unit numbers "U1," "U2," and so forth on its front-panel display.

In a multi-unit setup, the main unit is the only unit that will display the currently selected preset. All of the expansion units will display only their unit number in the multi-unit setup.

- *With the Code-Reset button you can set the RCS-2700 preset button back to a "no-lock" status.*

For more information on selecting or changing an address with the address switch, see the section entitled "Setting the Address Switch" in the Installation Chapter.

CODE-RESET BUTTON (2)

If you forget or misplace your unlock code, there are only three ways to unlock the RCS-2700 unit's Preset button without it:

- Try all 32 unlock codes.
- Use the Code-Reset button to restore all source/destination assignments to their factory default positions. This will also reset the unlock code back to the "unlock" code of 0. For instructions, see the section entitled "Using the Code-Reset Button" in the Installation Chapter.
- Use the Code-Reset button in conjunction with a PC and RCS-WIN software to set the unlock code back to the "unlock" code of 0 without changing the source/destination assignments back to their factory default settings. For instructions see the *RCS-WIN Instruction Manual.*

***Warning**: Do not connect a PC to the PC serial port while an RCU-67 is plugged into the jack on the rear panel.*

REMOTE RCU-67 REAR-PANEL JACK (3)

An additional RCU-67 Remote Control Unit can be connected to the rear panel of the RCS-2700 unit. It connects to the RCS-2700 with Category-5 cable terminated with RJ-45 connectors.

Only one RCU-67 Remote Control Unit can operate at any one time. Communication with an RCU-67 connected to the rear-panel will be suspended if an RCU-67 is plugged into the front-panel jack. The front-panel RCU-67 always takes precedence over the rear-panel RCU-67.

Warning:Do not connect a PC to the PC serial port while an RCU-67 is plugged into the rear-panel RCU-67 jack. Doing this will connect multiple serial ports on the rear panel which are not designed to be connected. Either one or both of the ports will not work.

- *The "preset-select" contact closure allows you to use an external device such as a wall- or panel-mounted button to change presets.*

PC SERIAL PORT (4)

For ultimate programming capability, you can connect a PC (Windows 95/98/ME/2000) to the PC serial port on the back of the RCS-2700 main unit. You can then program the RCS-2700 directly from the PC. The PC must have the RCS-WIN program installed.

Do not connect an RCU-67 Remote Control Unit while the PC is in use. If you connect a front-panel RCU-67, communication to the PC will be suspended. If

you connect a rear-panel RCU-67, you will have connected multiple serial ports on the rear panel and either one or both of the ports will not work.

Refer to the Installation Chapter of this manual for further information regarding the PC serial port.

PRESET-SELECT CONTACT CLOSURE (5)

You can wire the contact closure on the rear panel of the RCS-2700 so that you can select presets by pressing external buttons or other devices.

Refer to the Installation Chapter for more detailed information on the wiring and operation of this feature.

TERMINATION SWITCHES (6)

The termination switches are set by a technician when the RCS-2700 is installed and should not be changed unless a specific need arises. If these switches are not set correctly, very poor intercom operation can result. Refer to the section entitled “Setting Termination Switches” in the Installation Chapter for guidelines on setting these switches.

2 INSTALLATION

UNPACKING THE RCS-2700

When you unpack the RCS-2700 Source Assignment Panel, you will find the following items:

- RCS-2700 unit
- RCS-2700 manual
- 31 6-terminal Euro-block connectors

The Euro-block connectors press on to the rear-panel pins of the RCS-2700 unit. They are used to wire the unit to destinations and sources. You can install the connectors with the visible screws facing either upward or downward. However, facing the screws upward, so that they are visible from above, allows more flexibility in tightening the connections.

- *You connect the RCS-2700 unit to source channels, destinations, expansion RCS-2700 units, and power.*

WIRING OVERVIEW

Four sets of pins on the rear panel of the RCS-2700 connect the unit to source channels, destinations, expansion RCS-2700 units, and power.

An overview of the wiring is given below, with more detailed explanations and diagrams following later in the chapter.

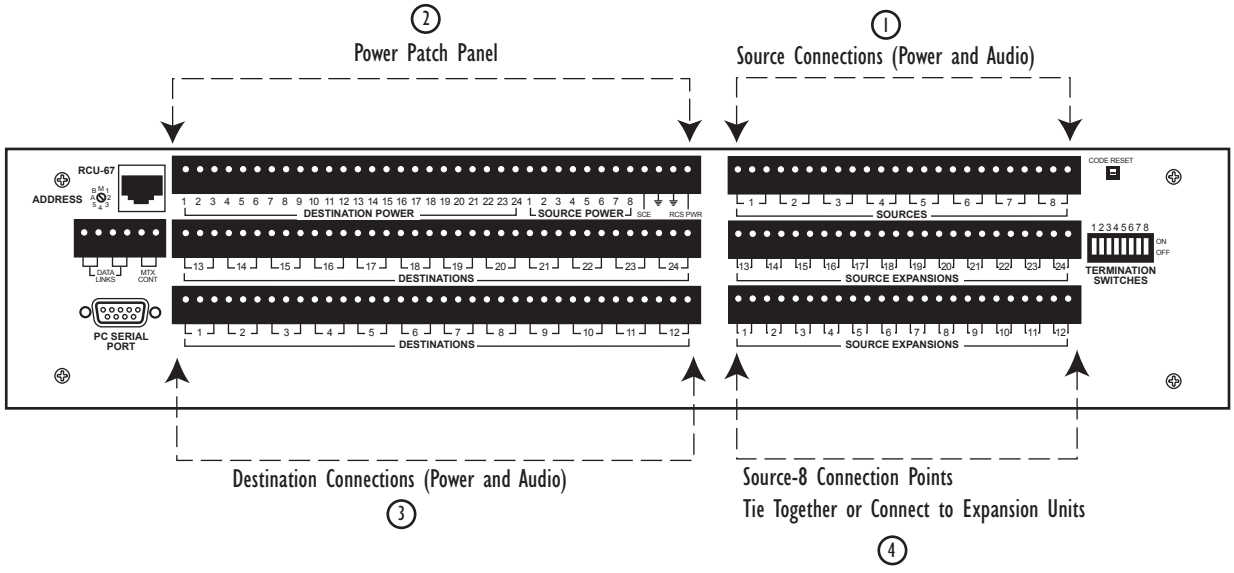

Figure 2-1: Four Sets of Connection Pins on the Rear Panel of an RCS-2700 Unit

SOURCE CONNECTIONS (1)

You wire power and audio connections from the channels of a source intercom station to the row of pins labeled “Sources” (1–8) on the rightmost upper corner of the rear panel of the RCS-2700.

POWER PATCH PANEL CONNECTIONS (2)

The power patch panel links power from sources to destinations. The leftmost upper two rows of pins on the rear panel of the RCS-2700 is the power patch panel. The pins are labeled “Destination Power” and “Source Power.”

DESTINATION CONNECTIONS (3)

You wire power and audio to remote stations and beltpacks on the two rows of pins labeled “Destinations” (1–24) in the rightmost lower corner of the rear panel of the RCS-2700.

SOURCE EXPANSION CONNECTIONS (4)

You wire source-8 connection points to each other or to expansion RCS-2700 units on the two rows of pins labeled “Source Expansions” in the rightmost lower corner of the rear panel of the RCS-2700.

You can wire these four sets of pins in any order. In multi-unit setups, however, layering the wiring by beginning with the lower-level pins and moving upward is more efficient.

- *In a multi-unit setup, the RCS-2700 main unit and all RCS-2700 expansion units must be powered by the same channel on the same power supply.*

POWERING THE RCS-2700 AND DESTINATIONS

POWERING FROM PARTY-LINE SOURCES

The first step in an installation is to determine how you are going to supply power to the RCS-2700 unit and its connected remote stations and beltpacks. The RCS-2700 unit and its connected remote devices are typically powered by one or more channels of a main station or power supply. The RCS-2700 unit itself uses very little power.

Although the system can be powered by one channel of a source station, this is usually not recommended, especially for complex systems. Using multiple channels to power the system provides for power redundancy in the case of outages.

The source intercom station is typically a 2-, 4-, 8-, or 12-channel main or master station. To power the entire system from a source station, the source station must have an internal power supply.

Examples of stations that can power an entire system are Clear-Com’s MS-702 2-channel main station or its MS-704 4-channel main station. Two or more stations can be used as source stations for one system if additional channels are desired. For example, two MS-704 4-channel stations can be used to provide 8 source channels.

A station without an internal power supply can still serve as a source station if an external power supply is added. For example, Clear-Com's RM-702 2-channel remote station can serve as a source station if you add PS-702 (2-channel) or PS-704 (4-channel) power supplies.

If expansion RCS-2700 units are added, the main unit and all expansion units must be powered by the same channel on the same power supply so that the main unit can correctly determine the size and configuration of the entire system.

Destinations can be powered from the power patch panel on the RCS-2700 or from external power supplies. Power from pin 2 of each source channel is connected internally to the respective "Source Power" connection in the power power patch area. Destination power connections for each destination are connected internally to pin 2 of the respective destination connections.

- *The data cables between expansion units should not exceed 6 feet (2 meters) each.*

The connection scheme is very flexible, so there are a number of ways that power can be patched. Strategies for providing power to the RCS-2700 main unit, expansion units, and destinations are discussed in the following sections.

Powering from Multiple Party-Line Source Channels

Figure 2-2 shows how multiple source channels can power the RCS-2700 unit and all connected remote destinations.

Each source channel powers three destinations. Power from the first source channel powers the RCS-2700 unit and destinations 1, 2, and 3; power from the second source channel powers destinations 4, 5, and 6; and so on through the eighth source channel which powers destinations 22, 23 and 24.

The advantage of this connection strategy is that if the power for one destination is shorted, it will only affect two others, assuming that the eight source power channels are individually short protected.

When power is monitored with the RCU-67 Remote Control Unit or with the PC, it will be possible to more closely detect which destination's power is shorted because the short can be isolated to one of eight groups of destinations.

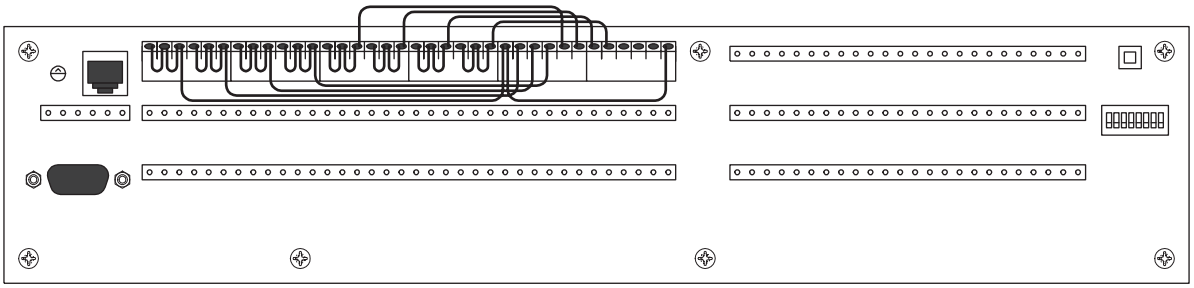

Figure 2-2: Powering the RCS-2700 from Multiple Source Channels

Powering from One Party-Line Source Channel

Figure 2-3 shows how power from one channel of the source intercom station can power the RCS-2700 unit and all connected remote destinations.

Power from the source intercom station's one channel is patched to the power connection for the RCS-2700 and to the power connections for all remote destination stations.

The main advantage of this wiring is its simplicity. The disadvantage is that a short on one destination's cable can bring the whole system down. When power monitoring is done with the RCU-67 or the RCS-WIN PC program, it will not be possible to detect which destination's power is shorted.

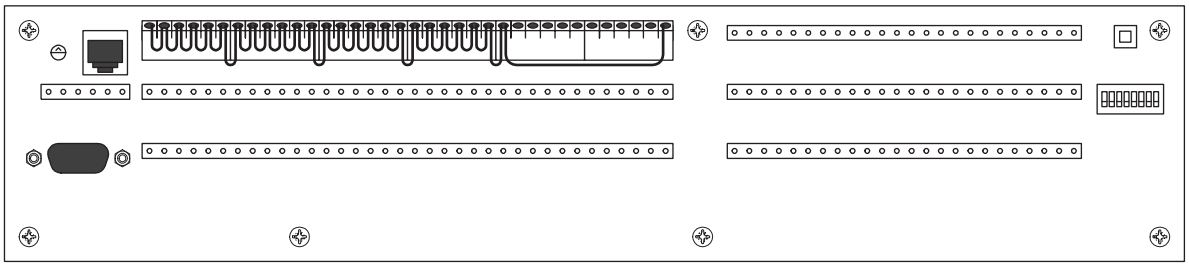

Figure 2-3: Powering the RCS-2700 from a Single Source Channel

Powering from a Separate Power Supply

The third way of connecting power involves the use of a separate high-current 30 VDC power supply. The power supply is connected directly to the RCS-2700's power input connector, and fuses or circuit breakers are wired as shown in Figure 2-4 to protect each destination's power circuit individually.

In this configuration, either an RCU-67 Remote Control Unit or a PC with the RCS-WIN program installed will be able to detect precisely which destination's power circuit is shorted.

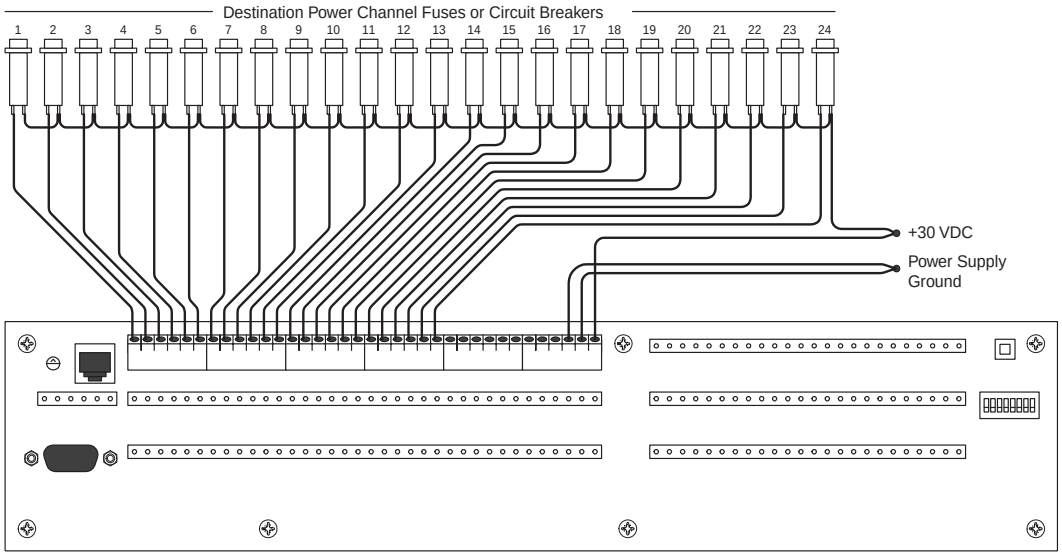

Figure 2-4: Powering the RCS-2700 from an Individual Destination

POWERING FROM TW PARTY-LINE SOURCES

You can operate the RCS-2700 using TW party-line sources provided that each source channel is powered. If power does not exist on every intercom channel, you can add it using TWC-701 or TWC-704 TW Adapters. The wiring is as shown in Figure 2-5. Because 2-amp relays are used, they can easily handle the DC current on the line as they switch.

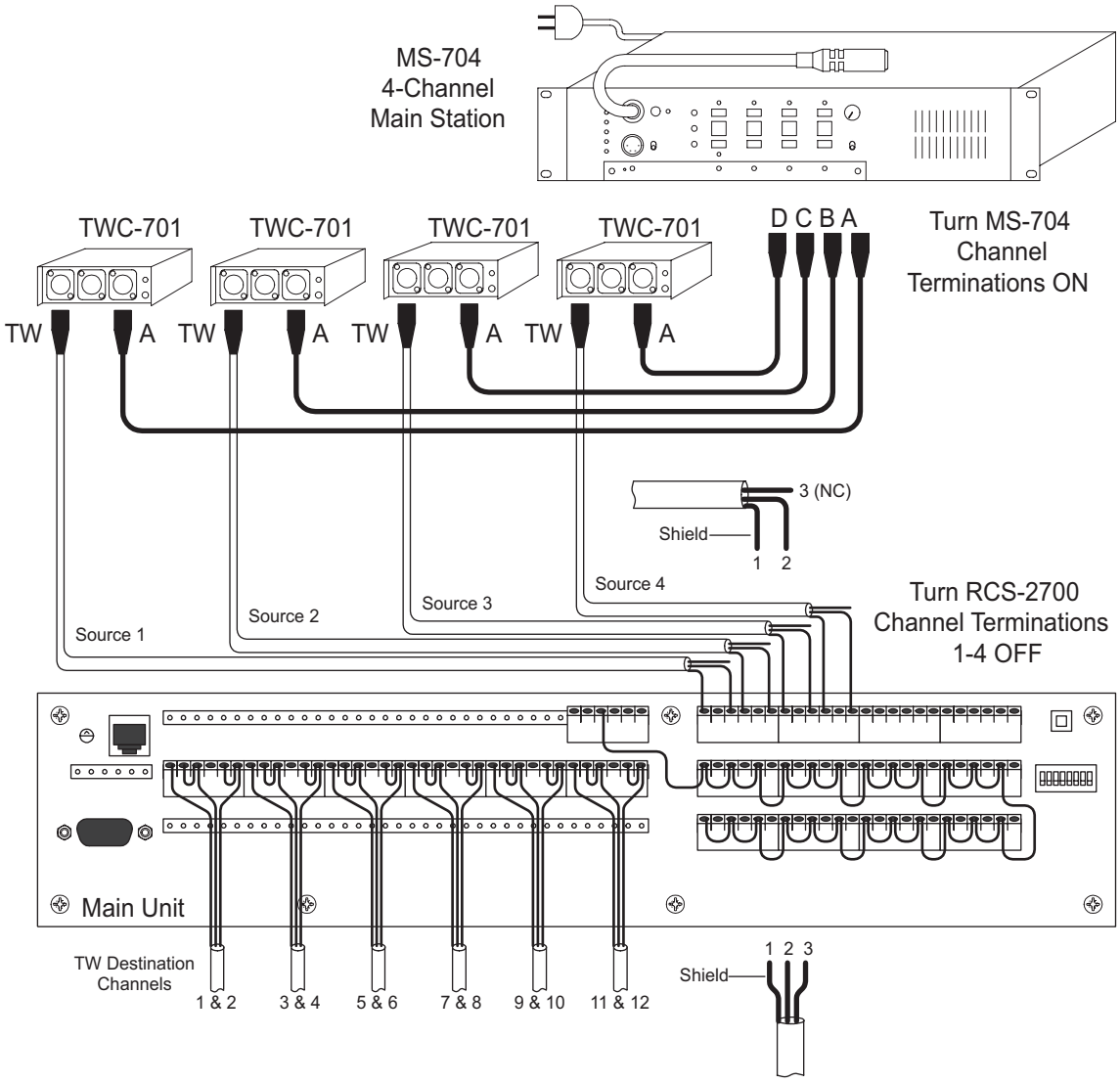

Figure 2-5: TW Source Wiring for a 4-Source System

When powering the stations this way, you should not connect the destination power block to the source power block. Instead, connect a jumper wire on each destination output using the connection options shown in Figure 2-5.

You can take RCS-2700 power from one of the source channels using the power patch panel. The current drain of the RCS-2700 is designed not to interfere with the audio on the powered source. You connect a jumper from the desired source

in the source power block to the RCS power connection. You must also add a jumper between the pin-2 and pin-3 (or the pin-5 and pin-6) connections for the selected source in the sources block. In Figure 2-6, power from Source 8 is being used to power the RCS-2700.

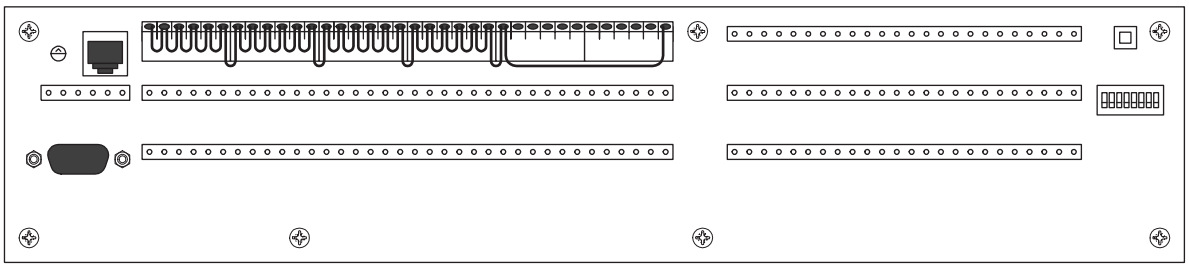

Figure 2-6: Powering the RCS-2700 from Source 8

Table 1 gives the pin assignments for wiring RTS source channels.

PIN#	FUNCTION
Pin#1	Ground
Pin#2	No connection
Pin#3	Channel B
Pin#4	No connection
Pin#5	No connection
Pin#5	Channel A

Table 2-1: Pinouts for Wiring RTS Source Channels

POWERING THE RCS-2700 FROM A SEPARATE POWER SUPPLY

It is not essential that you power the RCS-2700 unit from the same supply as the rest of the intercom system. Similarly, if you use the RCS-2700 to switch signals in a non-intercom application, there may be no intercom power supply and the destinations will not need +30 VDC power. The following figure shows the connections needed to power the RCS-2700 from a separate 30 VDC supply.

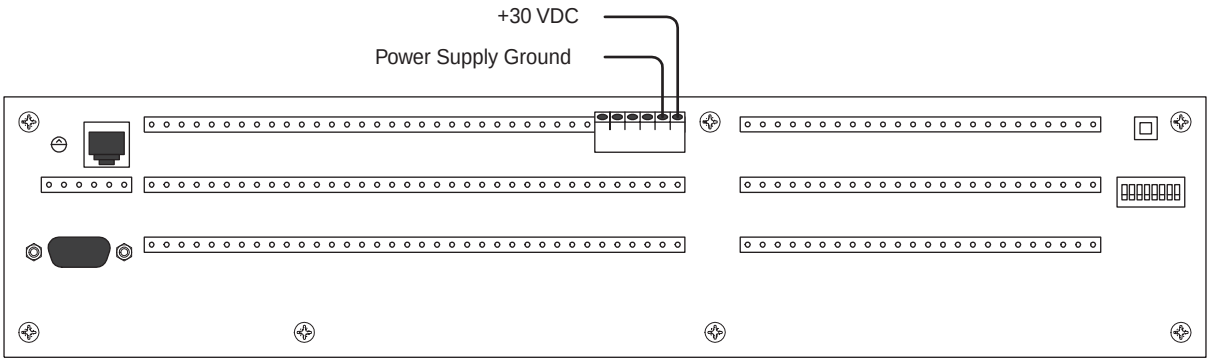

Figure 2-7: Powering the RCS-2700 from a Separate Power Supply

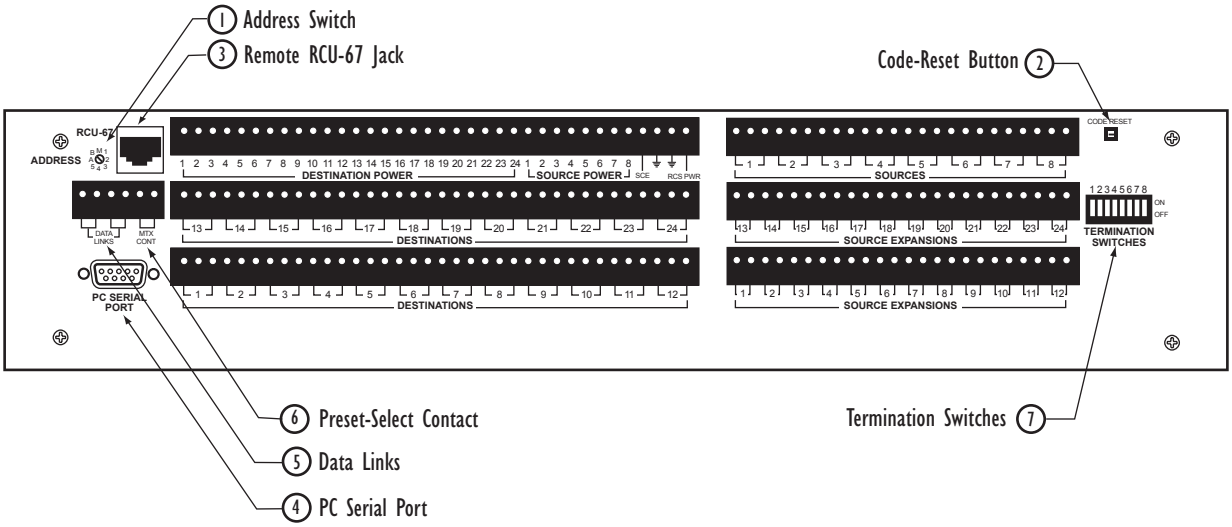

Figure 2-8: RCS-2700 Rear Panel

SETTING THE ADDRESS SWITCH (1)

Setting the Address Switch for a Single-Unit System

If you are using one RCS-2700 unit, the address switch should be set to "M" for main unit. This is the factory default setting that the unit is shipped with, so no changes are necessary to the address switch if you are using one RCS-2700 unit.

Setting Address Switches in a Multi-Unit System

In a multi-unit system, each RCS-2700 unit must be defined as a main unit or an expansion unit in the switching array. Since all RCS-2700 units are identical electronically, setting their address switches is the only way to define their unique functions in a multi-unit setup.

When the system is installed, you turn the address switch to the unit numbers shown in Figure 2-9.

Main Unit Sources 1–8 (1–7*) Destinations 1–24	Unit 2 Sources 1–8 (1–7*) Destinations 25–48	Unit 4 Sources 1–8 (1–7*) Destinations 49–72
Unit 1 Sources 8–15 Destinations 1–24	Unit 3 Sources 8–15 Destinations 25–48	Unit 5 Sources 8–15 Destinations 49–72

* If Unit 1 exists, then the Main Unit and Units 2 and 4 connect to Sources 1–7 instead of 1–8.

Figure 2-9: Unit Numbers

Note: Before setting an address switch to the desired unit number, you must turn the power to the system off. When the system is powered back up, the changes to unit numbers take effect.

To set the address switch to the desired unit number:

1. Turn the power to the RCS-2700 unit off.
2. Use a small flat-bladed screwdriver to turn the rotary address switch to the correct unit number.
3. Set the switch to "M" for the main unit, "1" for expansion unit 1, "2" for expansion unit 2, and so on.
   - The "A" and "B" positions should not be used. They are reserved for factory testing.
   - Note that the small arrow on the shaft of the switch indicates the selected position. For example, in the figure shown below, the switch is set to "M." It is not set to "2" or "A."

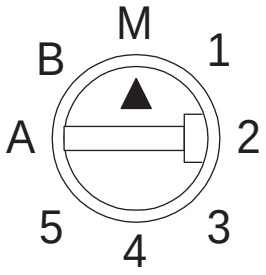

Figure 2-10: Address Switch

4. Turn the power to the unit back on.

   The front-panel "Preset/Code" window will indicate whether the unit is a main or expansion unit. A main unit will show the current preset number in the display. An expansion unit, however, will always show only its unit number on the front-panel display.

USING THE CODE-RESET BUTTON (2)

The Code-Reset button has two functions. You can use it to set the RCS-2700 back to a "no-lock" status if you have forgotten your unlock code. To do this you

need a PC with the RCS-WIN program installed. For detailed instructions, see the *RCS-WIN Instruction Manual*.

The second function of the Code-Reset button is to return a main or expansion unit to its factory default settings. If there are presets defined and set, or source and destination names entered, they will all be erased when this function is used. This function must therefore only be performed with careful consideration. This function only affects the main or expansion unit it is performed upon; it does not affect an entire system. Setting a unit back to its factory default settings will also set the unlock code for that unit back to the "no-lock" code of 0.

Warning:The following steps will completely erase all programmed settings and return the main or expansion unit to the factory default settings.

To return an RCS-2700 unit to the factory default settings:

1. Turn power to the unit off.
2. Press and hold the Code-Reset button.
3. Turn power to the unit on while continuing to hold the Code-Reset button.
4. Release the Code-Reset button when the front-panel display reads "CC."
5. If the Locked light remains on, turn power to the unit off and then on again.

After a few seconds, the start-up sequence will begin and the factory default settings will be restored.

CONNECTING A REMOTE RCU-67 (3)

For additional programming capability, you can connect an RCU-67 Remote Control Unit to the rear-panel jack provided for it. The RCS-2700 will recognize the RCU-67 and begin communicating with it a few seconds after it is connected.

Only one RCU-67 Remote Control Unit can operate at any one time. If at any one time two RCU-67s are connected, only the front-panel RCU-67 will operate. The RCU-67 connected to the front-panel jack always takes precedence over the RCU-67 connected to the rear-panel jack.

***Warning**: Do not connect a PC and an RCU-67 Remote Control Unit to the RCS-2700 unit at the same time.*

Warning:Do not connect a PC to the PC serial port while an RCU-67 Remote Control Unit is plugged into the jack on the rear panel. Doing this will connect multiple serial ports which are not designed to be connected. Either one or both of the ports will not work.

CONNECTING A PC (4)

For ultimate programming capability, you can connect a PC to the PC serial port on the back of the main RCS-2700 unit. You can then program the RCS-2700 directly from the PC. The PC must have the RCS-WIN program installed.

Communication with the PC will be suspended if an RCU-67 Remote Control Unit is plugged into the front-panel jack.

Warning:Do not connect an RCU-67 Remote Control Unit to the rear-panel jack while a PC is connected to the serial port. Doing this will connect

multiple serial ports which are not designed to be connected. Either one or both of the ports will not work.

The communication interface is RS-232D and the settings are:

- 19200 baud
- 1 start bit
- 8 data bits
- 1 stop bits
- no parity

The RS-232D interface has a distance limitation of 300 feet of cable (91 meters), but this is subject to the quality of the wiring used and the presence of electrical noise and interference along the cable run. The pinout of the DB-9F serial port connector on the rear panel is shown in the Table 2-2 below:

PIN	SIGNAL	FUNCTION
1	CF	Received Line Signal Detector (not used)
2	RXD	Serial data from the RCS-2700 to the PC
3	TXD	Serial data from the PC to the RCS-2700
4	DTR	Data Terminal Ready (connected to DSR)
5	GND	Signal ground
6	DSR	Data Set Ready (connected to DTR)
7	RTS	Request to Send (connected to CTS)
8	CTS	Clear to Send (connected to RTS)
9	RI	Ring Indicator (not used)

Table 2-2: Pinout of DB-9F Serial Port Connector

WIRING THE DATA-LINKS CONNECTORS TO EXPANSION UNITS (5)

Two data-link pairs are provided on the rear panel of each RCS-2700 for connecting expansion units to the main unit. A single-pair connection between the main unit and each expansion unit is required so that the main unit can direct the operation of the system as a whole. This is a bi-directional, parallel connection, and the two data-link pairs are connected together internally, so there is no “in” or “out” connection per se. Note the location of the ground and data connection pins in the following diagram.

- *The data links pairs connect the main unit to expansion units.*

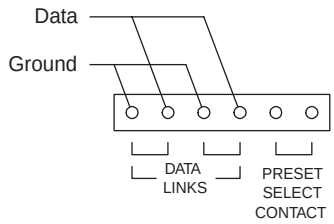

Figure 2-11: Ground and Data Connections for Linking RCS-2700 Units

You can "daisy-chain" the connections from unit to unit to connect all of the units together. Use wires of two different colors to connect the ground and data pins from unit to unit. You can use twisted pair or shielded wire. If you use shielded wire, connect the shield to the ground pin.

The length of each section of wire between units should be less than 6 feet (2 meters), although typically less than a foot of wire (30 centimeters) should be all that is necessary. The units should be linked as shown in the Figure 2-12. It does not matter in what order the main and numbered expansion units are connected, although connecting the units in numbered order should result in an installation that is more organized.

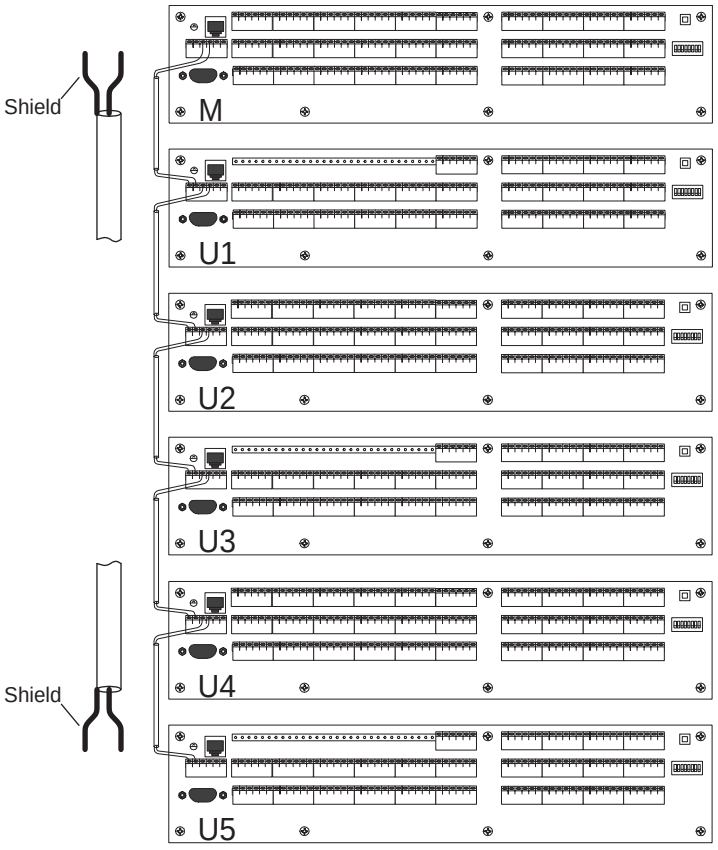

Figure 2-12: RCS-2700 Units are "Daisy-Chained" Together

WIRING THE PRESET-SELECT CONTACT CLOSURE (6)

- *You can use button or relay contacts to select presets.*

The contact closure on the rear panel labeled "Preset-Select Contact" allows you to wire button or relay contacts to select presets. To use this feature, connect normally open button or relay contacts, or a +5 VDC (active low) logic output, to these contacts. For logic connections, note the ground and signal connections shown in Figure 2-13.

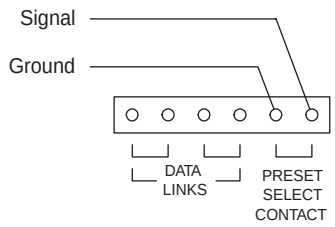

Figure 2-13: Ground and Signal Connections for a Logic-Output Device

To select a preset with a contact closure:

1. Close the contact the number of times that equals the desired preset number. Close the contact once for preset 1, twice for preset 2, and so on.
2. Hold each connection for at least three seconds.
3. Release the contacts.

   The RCS-2700 will change to the selected preset.

If the sequence of contact closures stops with an open condition for two seconds, the change is cancelled. Each time a new sequence of contact closures is initiated, the counting begins from "1." Selecting a preset with a contact closure in this way allows you to know which preset you have selected without visual indicators.

The timing of the contact closure is as follows:

- Counting contact closure: .25 to 1 second
- Release time between counting contact closures: .25 to 1 second
- Contact closure time required to enable preset change: 3 seconds or more

Note that all Clear-Com PL main stations and some remote stations have a contact closure triggered by the stage announce button. If the stage announce button is not being used for other purposes, it can serve as a preset-select connection for the RCS-2700.

You can select a preset with a preset-select contact even when a PC or RCU-67 is connected to the RCS-2700 unit at the same time. You can also select a preset when the RCS-2700 unit's front-panel preset button is locked.

SETTING TERMINATION SWITCHES (7)

Each Clear-Com party-line channel requires one and only one termination. The RCS-2700 provides switchable terminations at the source connections. Therefore, terminations for party-line channels coming from main stations or power supplies should be turned off at those sources to allow the RCS-2700 to provide the terminations. There will be less crosstalk and noise on the intercom

lines if the terminations are located at the RCS-2700 rather than at the main stations or power supplies.

Terminations for each source channel should be switched on only at the RCS-2700 main unit and expansion unit 1. Termination switches on all other RCS-2700 expansion units should be switched off.

If there are unused source channels on any unit, the terminations to those source channels should be turned on.

When the RCS-2700 is used for general switching of devices other than Clear-Com party lines, the termination switches on all of the units should be turned off.

DEVICE	TERMINATION SWITCH
Main source station	off
Power supply	off
RCS-2700 main unit	on
RCS-2700 expansion unit 1	on
All other RCS-2700 expansion units	off
Any unused source channel on any unit	on

Table 2-3: Termination Switch Settings

WIRING SOURCE CHANNELS

- *Source-8 pins must be wired together in a single-unit system, or wired to another RCS-2700 unit in a multi-unit system.*

BASIC SWITCHING THEORY

Figure 2-14 is a schematic diagram of an RCS-2700 switching block. Under microprocessor control, the switching block can move a destination between sources 1 through 8.

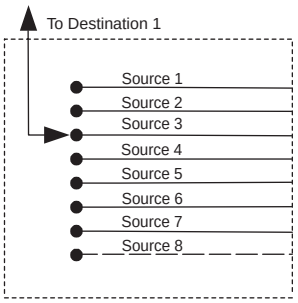

Figure 2-14: Basic RCS-2700 Switching Block

Connection points for sources 1 through 7 are internally wired together. Connection points for source 8 are not internally wired together, but are wired outward instead, to pins on the rear panel of the RCS-2700 unit. This is done so that source 8 can serve as a bridge to an expansion RCS-2700 unit, if necessary.

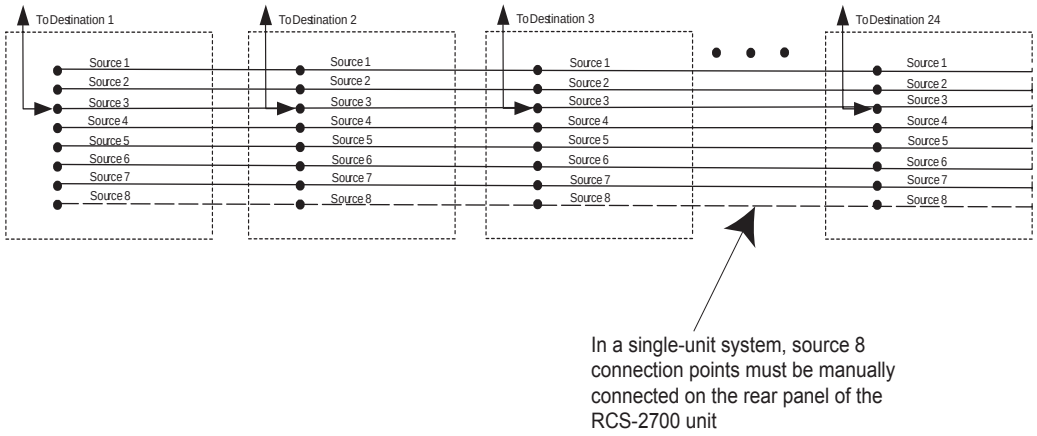

Figure 2-15: Multiple Switching Blocks in One RCS-2700 Unit

In a single-unit system, the source-8 pins on the rear panel of the RCS-2700 must be manually wired together in order for source 8 to work properly. In a multi-unit system, the source-8 pins on the first, or main, unit must be wired to source-connection pins on the next RCS-2700 unit in the system, and so on, to allow for expansion of the number of sources.

- *The RCS-2700 can be used for switching applications not limited to intercom.*

When an RCS-2700 main unit is connected to one expansion RCS-2700 unit, the resulting system will be able to switch 24 destinations to 15 sources. The switching blocks in the two units combine as shown in Figure 2-16. Note that the source-8 connection points on the main unit (the upper unit in the diagram) are not connected together, but are connected instead to the source connection points on the expansion unit (the lower unit in the diagram). Note also that the source-15 connection points on the expansion unit are not connected in the diagram, to indicate that they must be manually wired together on the rear panel of the expansion unit. (See Figure 2-17 and Figure 2-18 for examples of rear-panel wiring.)

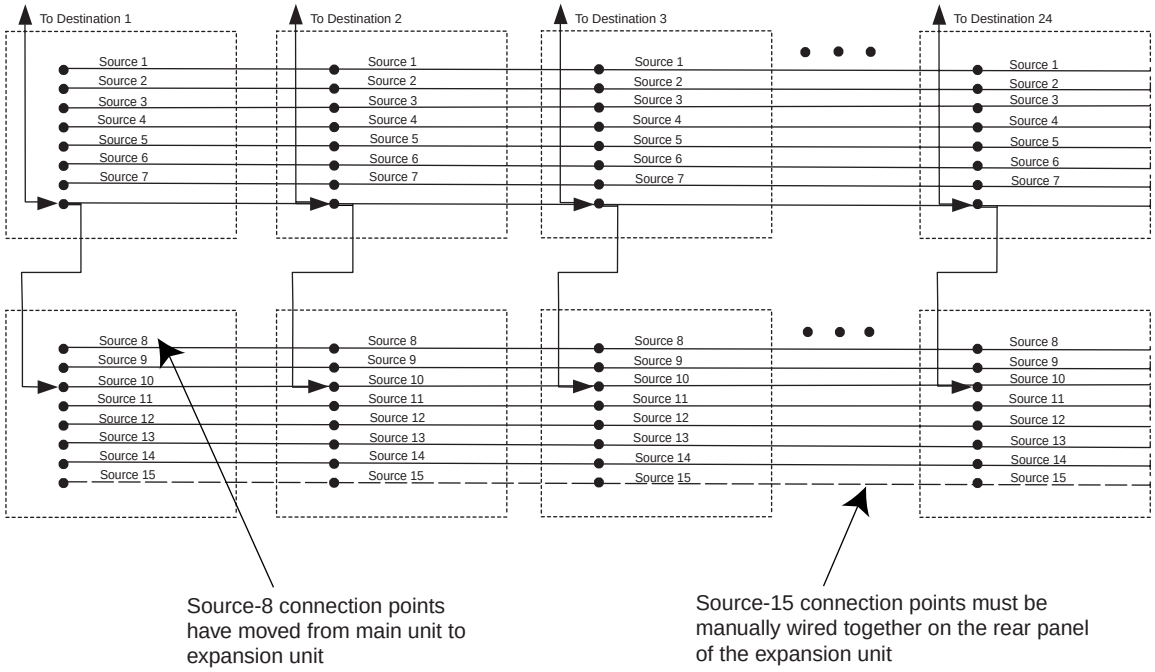

Figure 2-16: Switching Block Configuration in a Two-Unit System

All source/destination connections are maintained even when the RCS-2700 is not powered. The switched connections are isolated from any other internal wiring and are rated at two amperes. Consequently, the RCS-2700 can be used for switching applications not limited to intercom. In addition to party-line intercom, other applications include 70-volt speaker switching and industrial applications limited only by the designer's imagination.

WIRING SOURCE CHANNELS IN AN 8-SOURCE SYSTEM

Wiring Source Channels

In 8-source systems, the source channels are wired as shown in Figure 2-17. The pinout to the XLR cables connecting to main stations or power supply channels is simply 1-2-3 from left to right. Pin 3 is the switched connection.

Wiring Source-8 Connection Points

The source-8 connection points, which have been wired out to pins on the rear panel labeled "source expansions" (as explained in the previous section, "Basic Switching Theory") must now be wired together as shown in Figure 2-17. The leftmost wire coming from the source expansion connector in the diagram connects the joined sources to source 8 and its termination. The same source wiring applies to expansion units 2 and 4, if they are used.

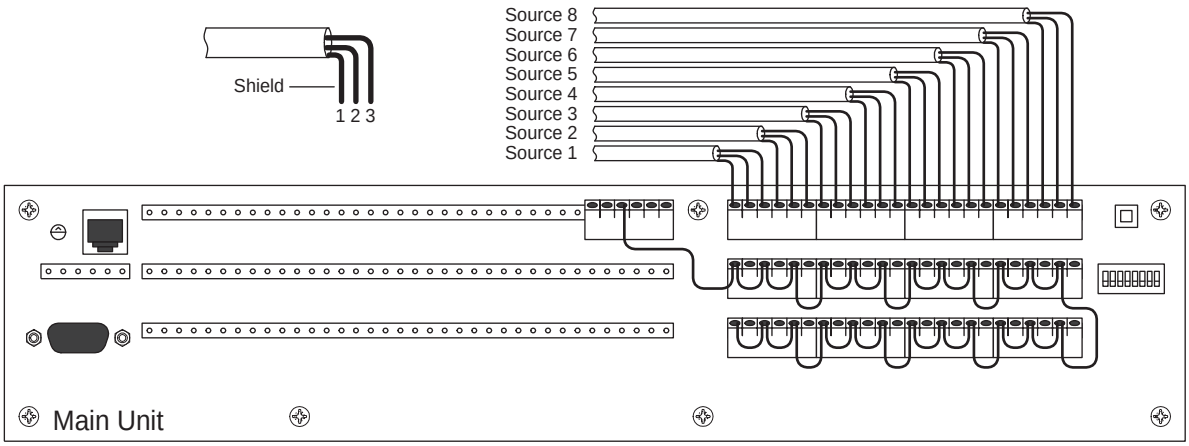

Figure 2-17: Source Wiring for an 8-Source System

WIRING SOURCE CHANNELS IN A 15-SOURCE SYSTEM

Wiring Source-8 Connection Points to Expansion Unit 1

Figure 2-18 shows how 15-source systems must be wired. The source-expansion pins of the main unit must be wired to expansion unit 1. Source 8 connects to unit 1 and the source-8 connections on the main unit are left disconnected. This wiring also applies to expansion units 2 and 3, as well as expansion units 4 and 5, if used. Also shown in Figure 2-18 is the data-link connection between the main unit and unit 1.

WIRING SOURCE CHANNELS IN A 48- OR 72-DESTINATION SYSTEM

Wiring Source-8 Connection Points to Expansion Units

In 48- or 72-destination systems, the wiring shown in the Figure 2-19 must be added to join the sources of the main unit to the sources of unit 2. In 72-destination systems, this wiring must also be added between unit 2 and unit 4. Also shown in the diagram is the data-link connection between the units. Note that the termination switches should be turned on in the main unit only, not in unit 2 or unit 4.

In 15-source systems with 48 or 72 destinations, this wiring should also be added between units 1, 3, and 5. Similarly, the termination switches in unit 1 should be turned on, while the termination switches in units 3 and 5 should be turned off.

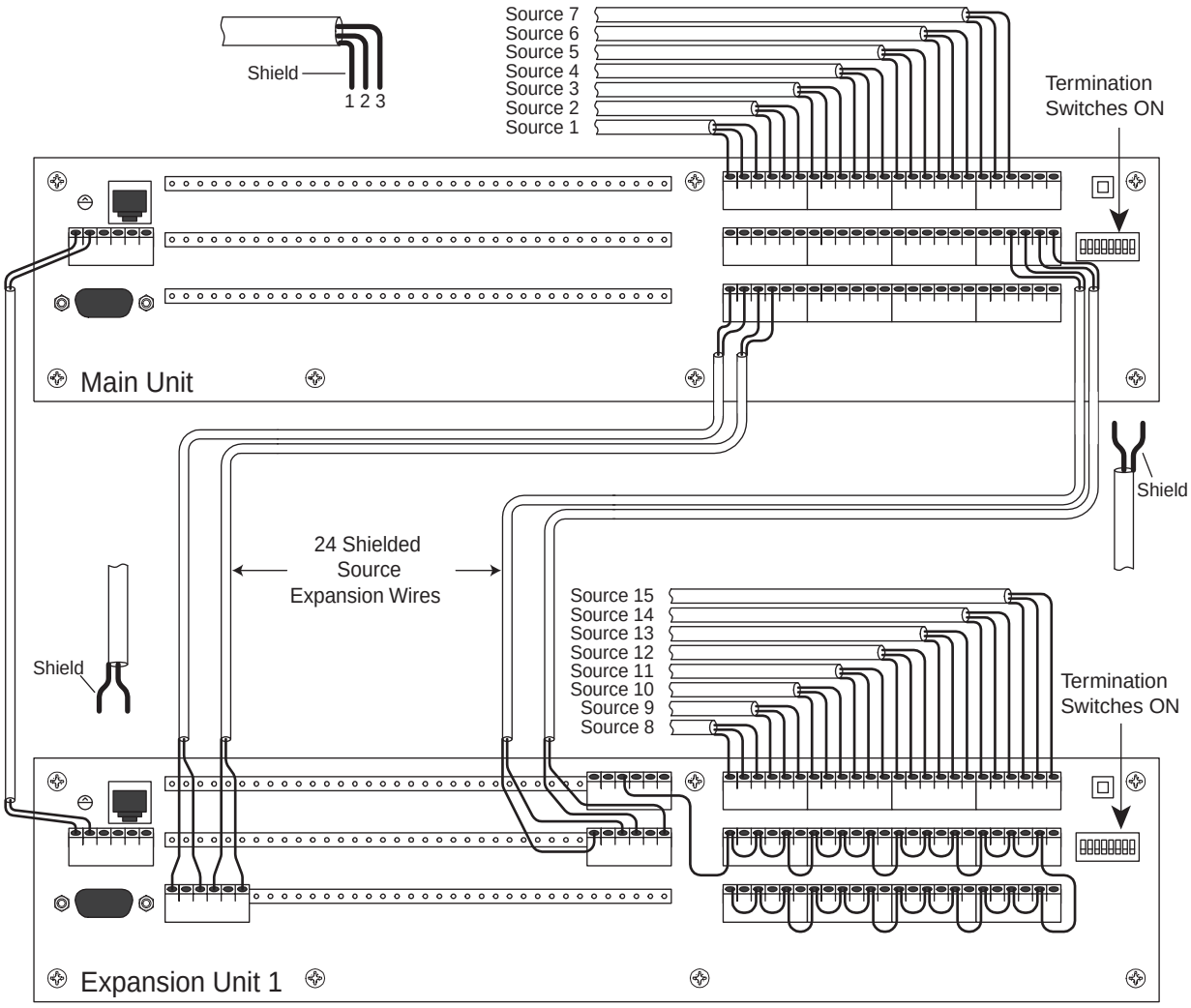

Figure 2-18: Source Wiring for a 15-Source System

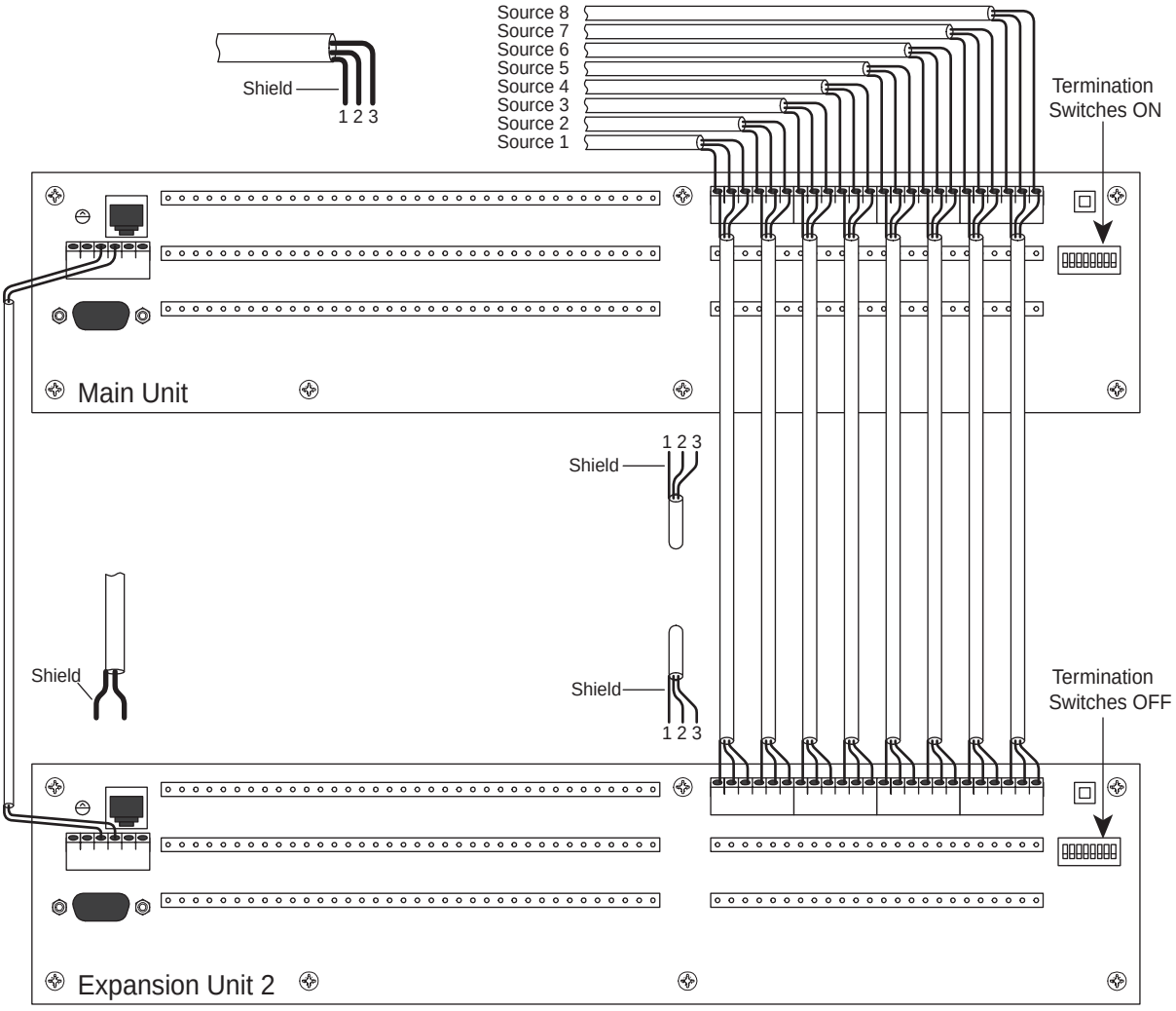

Figure 2-19: Source Wiring for a 48- or 72-Destination System

WIRING DESTINATIONS

You wire destinations to the main unit and to expansion units 2 and 4, if they exist. The pinout to the XLR cables connecting to beltpacks and other stations is simply 1-2-3 from left to right. Pin 3 is the switched connection.

You use the 3-pin XLR connector in 2-wire intercom systems for cabling stations and beltpacks together. Pin 1 is ground, pin 2 carries power (and sometimes audio), and pin 3 carries audio (and sometimes power). When a destination is connected to the RCS-2700, the RCS-2700 is actually switching the destination's pin-3 audio connection to one of the sources. The pin-2 connections (which carry power) and the pin-1 connections do not switch.

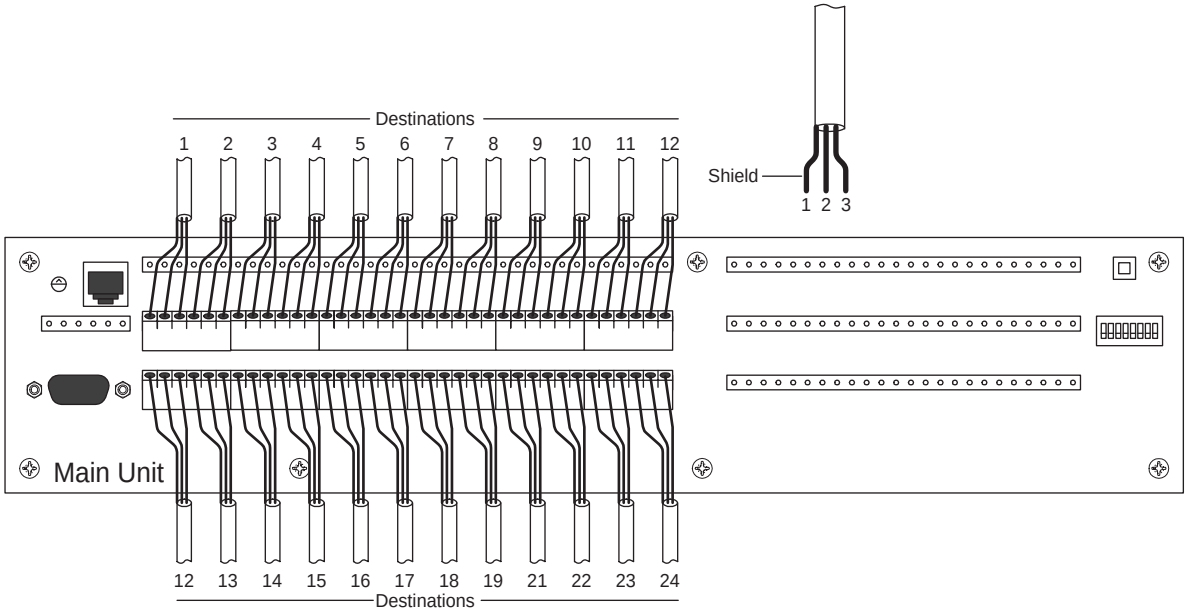

Figure 2-20: Connection Wiring to Destinations

You can wire the destination connections for conventional single-channel Clear-Com party lines or for two-channel TW party lines. The wiring difference is as follows:

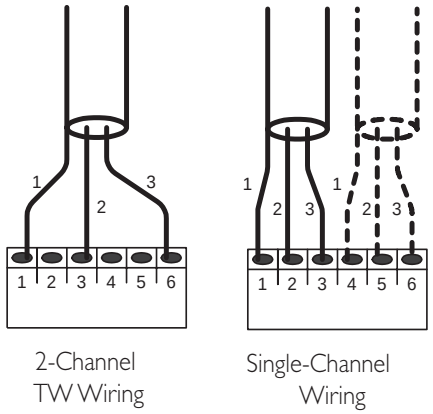

Figure 2-21: Connection Wiring for 1-Channel and 2-Channel Destinations

Note that if you want to monitor power with RCS-WIN or with an RCU-67, you must jumper pin 3 to pin 2, and jumper pin 6 to pin 5.

WIRING SUMMARY FOR 8-SOURCE SYSTEMS

The following table shows the basic groups of connections that form various sized 8-source systems. Check that the wiring indicated for each topic has been performed. Refer to wiring diagrams elsewhere in this chapter for the detailed connections.

BASIC WIRING FOR 24-DESTINATION, 8-SOURCE SYSTEM		ADDITIONAL WIRING FOR 48 DESTINATIONS	ADDITIONAL WIRING FOR 72 DESTINATIONS
	MAIN UNIT	UNIT 2	UNIT 4
ADDRESS	M	2	4
SOURCES	1–8	1–8	1–8
DESTINATIONS	1–24	25–48	49–72
TERMINATION SWITCHES	On	Off*	Off*
SOURCE EXPANSIONS	Tied together	Tied together	Tied together
DESTINATION POWER (SINGLE CHANNEL)	+30 VDC	+30 VDC	+30 VDC
DESTINATION POWER (2-CHANNEL TW)	No connection**	No connection**	No connection**
RCS POWER	+30 VDC	+30 VDC	+30 VDC
DATA LINK	To Unit 2	To Unit 4	Last connection

Table 2-4: Wiring Configurations for an 8-Source System

*Exceptions are unconnected source channels, which should be set to on.

**If you want to monitor power with RCS-WIN or with an RCU-67 Remote Control Unit, you must jumper pin 3 to pin 2, and jumper pin 6 to pin 5.

WIRING SUMMARY FOR 15-SOURCE SYSTEMS

The following table shows the basic groups of connections that form various sized 15-source systems. Check that the wiring indicated for each topic has been performed. Refer to wiring diagrams elsewhere in this chapter for the detailed connections.

BASIC WIRING FOR 24-DESTINATION, 15-SOURCE SYSTEM			ADDITIONAL WIRING FOR 48 DESTINATIONS		ADDITIONAL WIRING FOR 72 DESTINATIONS	
	MAIN UNIT	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5
ADDRESS	M	1	2	3	4	5
SOURCES	1–7	8–15	1–7	8–15	1–7	8–15
DESTINATIONS	1–24	Source expansions from main unit	25–48	Source expansions from unit 2	49–72	Source expansions from unit 4
TERMINATION SWITCHES	On	On	Off*	Off*	Off*	Off*
SOURCE EXPANSIONS	To unit 1 destinations	Tied together	To unit 3 destinations	Tied together	To unit 5 destinations	Tied together
DESTINATION POWER (SINGLE CHANNEL)	+30 VDC	No connection	+30 VDC	No connection	+30 VDC	No connection
DESTINATION POWER (2-CHANNEL TW)	No connection**	No connection**	No connection**	No connection**	No connection**	No connection**
RCS POWER	+30 VDC	+30 VDC	+30 VDC	+30 VDC	+30 VDC	+30 VDC
DATA LINK	To unit 1	To unit 2	To unit 3	To unit 4	To unit 5	Last connection

Table 2-5: Wiring Configurations for a 15-Source System

* Exceptions are unconnected source channels, which should be set to “on.”

* *If you want to monitor power with RCS-WIN or with an RCU-67 Remote Control Unit, you must jumper pin 3 to pin 2, and jumper pin 6 to pin 5.

3 MAINTENANCE

TROUBLESHOOTING TIPS

Listed below are some of the more common problems the RCS-2700 may experience, their possible causes, and suggested solutions.

SYMPTOM	CAUSE	SOLUTION
RCS-2700 fault light remains on after start-up sequence and system expansion light is blinking.	System configuration is set up incorrectly.	1. First, turn power to the system off. 2. Check that address switches are set to correct unit numbers. See Figure 1-3 in the Operations Chapter for correct unit numbers.
If destination does not change to source that you intended.	Incorrect power input.	Make sure power input is 30 V ± 10% (27–33 V) at all times. You can power the unit from a separate 30 VDC power supply.

BLOCK DIAGRAM

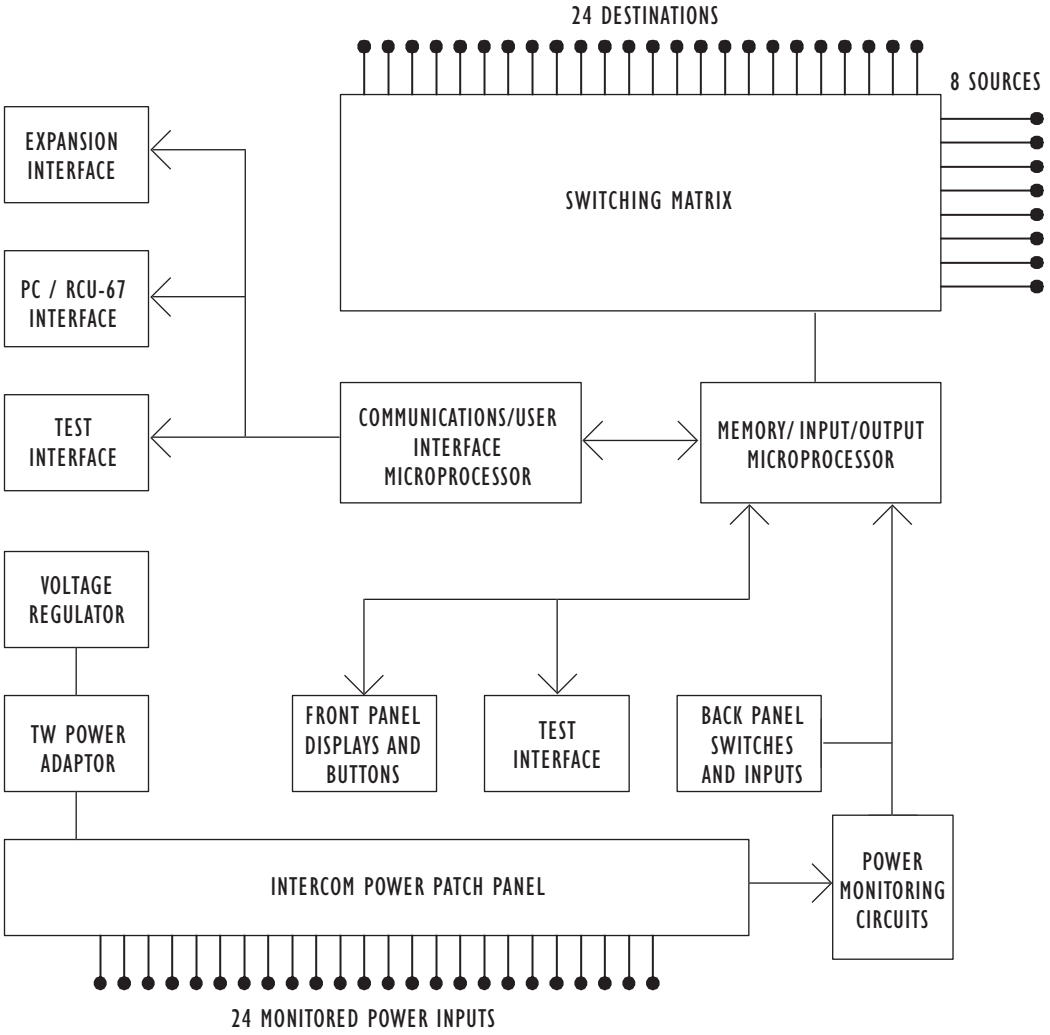

Figure 3-1: RCS-2700 Block Diagram

4 GLOSSARY

Channel: A two-way talk path.

Destination: An intercom station, beltpack, or interface (or group of such devices connected together) which is assigned to a source channel of a central intercom station. Destination stations do not have their own power supply, and are typically powered by the central intercom station.

Download: In traditional computer terminology, to download data means to transfer data from a large computer's memory to the memory of another device, usually a smaller computer. In this manual, to download data specifically means to transfer data from the RCS-2700 unit's memory to RCS-WIN where it will display on the computer screen.

ISO: The ISO function allows a member on a party line to speak privately to another member on the party line.

Main Station: A multi-channel intercom station with an internal power supply which can provide power both to itself and to all of the remote stations connected to it.

Master Station: A multi-channel intercom station with an internal power supply which can provide power to itself but not to any of the remote stations connected to it.

Null: (noun) 1. Adjustment that controls the amount of sidetone heard by the user. 2. The degree of sidetone adjustment. (verb) To adjust the amount of sidetone heard by the user.

Online: In general computer terminology *online* means connected to a computer or telecommunications system. Specifically in this manual it means that RCS-WIN is connected to the RCS-2700 unit so that data can be transferred between them.

Offline: In general computer terminology *offline* means not connected to a computer or telecommunications system or operating independently of such a system. Specifically in this manual, *offline* means that RCS-WIN is not actively connected to the RCS-2700 and therefore cannot send data to and from the RCS-2700 unit. Even though RCS-WIN is offline to the RCS-2700 unit, it can still be programmed with source/destination assignments that can be applied when it goes online to the RCS-2700 unit.

Party Line: Intercom channel on which each member can both listen and speak to every other member on the channel. Analogous to a telephone conference call with its two-way, full duplex communication.

Preset: A preset is a group of source/destination assignments that you create for current or future use. The RCS-2700 Source Assignment Panel can store up to 14 presets. All source/destination assignments are made within a preset.

Preset Button: A button on the Source Assignment Screen that you click to select a particular preset.

Remote Station: See Destination.

Sidetone: The sound of your own voice transmitted through an earphone as you speak.

Source: One of the channels of a main or master station to which remote stations or beltpacks (generally one or two-channel devices) are assigned. Once a remote station is assigned to a source channel, that station's operator can both talk and listen to all other stations on the channel.

Source/Destination Assignment: The assignment of a destination to a particular source channel.

Upload: In traditional computer terminology, to upload data means to transfer data from a microcomputer to a remote computer, usually through a modem. In this manual, to upload data specifically means to transfer data from RCS-WIN to the RCS-2700 unit's memory.

5 SPECIFICATIONS

0 dBu is referenced to 0.775 volts RMS

RCS-2700 PROGRAMMABLE SOURCE ASSIGNMENT PANEL

Audio

Party-line intercom (passive switching)	20 - 20KHz

RS-232 Data

Baud rate	19.2 Kbps
Start Bits	1 start bit
Stop Bits	1 stop bit
Parity	no parity

Crosstalk

<-70 dB

Frequency Response

Port-Port	20Hz - 20KHz

Switching Matrix Latching Relays

Switching Current	<=2A

Power Requirements

Input Voltage:	27-33 VDC
Input Current (max)	<= 80mA

Rear Panel Connectors

RJ-45 (1)
DB-9 for RS-232 (1)

Euro-block pins for:

- Sources
- Source expansions
- Source power
- Destinations
- Destination power
- RCS power
- Source 8 continuation
- Data links
- Matrix/contact closure

Rear Panel Controls	Reset button Unit address switch Termination switches (8)
Front Panel Connector	RJ-45
Front Panel Controls	Preset Code Lock/Unlock
Front Panel Indicators	Double-digit, 8-segment LED readout LEDs for Power, Data, System Expansion, Fault, Lock
Environmental	32° to 122° F (0° to 50° C)
Dimensions	19 in. x 3.5 in. x 10.75 in. (48.3 cm x 8.9 cm x 27.31 cm)
Weight	5.5 lb. (2.5 kg)

RCS-2700 SYSTEM

Sizes

Single frame, 1x2, 2x1, 2x2, 1x3, 2x3

Maximum RCS-2700 Units

6 RCS-2700 units for a 15-source by 72-destination system

Storage

14 presets with labels (maximum size systems)
Non-volatile memory system maintains all settings and switching matrix connections when powered off

Notice About Specifications

While Clear-Com makes every attempt to maintain the accuracy of the information contained in its product manuals, that information is subject to change without notice. Performance specifications included in this manual are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.

LIMITED WARRANTY

Vitec Group Communications (VGC) warrants that at the time of purchase, the equipment supplied complies with any specification in the order confirmation when used under normal conditions, and is free from defects in workmanship and materials during the warranty period.

During the warranty period VGC, or any service company authorized by VGC, will in a commercially reasonable time remedy defects in materials, design, and workmanship free of charge by repairing, or should VGC in its discretion deem it necessary, replacing the product in accordance with this limited warranty. In no event will VGC be responsible for incidental, consequential, or special loss or damage, however caused.

VGC offers 24 x 7 customer support if you have an Extended Warranty or Service Contract.

Return Material Authorization (RMA) numbers are required for all returns.

Both warranty and non-warranty repairs are available.

WARRANTY PERIOD

The product may consist of several parts, each covered by a different warranty period. The warranty periods are:

- Cables, accessories, components, and consumable items have a limited warranty of 90 days.
- Headsets, handsets, microphones, and spare parts have a limited warranty of one year.
- UHF wireless IFB products have a limited warranty of one year.
- UHF wireless intercom systems have a limited warranty of three years.
- All other Clear-Com and Drake brand systems and products, including beltpacks, have a limited warranty of two years.

The warranty starts at the time of the product's original purchase. The warranty start date for contracts which include installation and commissioning will commence from the earlier of date of the Site Acceptance Test or three months from purchase.

TECHNICAL SUPPORT

To ensure complete and timely support to its customers, VGC's User Support Center is staffed by qualified technical personnel. Telephone and email technical support is offered worldwide by the User Support Center.

The User Support Center is available to VGC's customers during the full course of their warranty period. Telephone support during the warranty period will be offered at no charge between 09:00 and 17:00 according to the customer's local time zone.

In addition, for customers who purchase an Extended Warranty or Service Contract, 24-hour customer support is offered immediately upon purchase of

such agreement. For more information, contact your authorized dealer, distributor, or sales representative.

Instructions for reaching VGC's User Support Centers are given below.

Telephone for Europe, Middle East and Africa: +49 40 6688 4040

Telephone for the Americas and Asia: +1 510 337 6600

Email: vitec.support@AVC.de

Once the standard warranty period has expired, the User Support Center will continue to provide telephone support if you have purchased an Extended Warranty or Service Contract. In these cases, you will have access to telephone support 24 hours per day, 7 days per week.

WARRANTY REPAIRS AND RETURNS

Before returning equipment for repair, contact a User Support Center to obtain a Return Material Authorization (RMA). VGC representatives will give you instructions and addresses for returning your equipment. You must ship the equipment at your expense, and the support center will return the equipment at VGC's expense.

For out-of-box failures, use the following contact information:

Europe, Middle East and Africa

Tel: +44 1223 815000 Email: customerservicesEMEA@vitecgroup.com

North America, Canada, Mexico, Caribbean & US Military

Tel: +1 510 337 6600 Email: customerservicesUS@vitecgroup.com

Asia Pacific & South America

Tel: +1 510 337 6600 Email: customerservicesAPAC@vitecgroup.com

VGC has the right to inspect the equipment and/or installation or relevant packaging.

NON-WARRANTY REPAIRS AND RETURNS

For items not under warranty, you must obtain an RMA by contacting the User Support Center. VGC representatives will give you instructions and addresses for returning your equipment.

You must pay all charges to have the equipment shipped to the support center and returned to you, in addition to the costs of the repair.

EXTENDED WARRANTY

If you purchase an Extended Warranty, you are also given access free of charge to the User Support Center 24 hours a day, 7 days a week.

You can purchase an extended warranty at any time during the first two years of ownership of the product. The purchase of an extended warranty extends to five

years the warranty of any product offered with a standard two-year warranty. The total warranty period will not extend beyond five years. Any purchase of an extended warranty provides 24 x 7 customer support in addition to the warranty immediately upon purchase of the warranty extension.

Note: VGC does not offer warranty extensions on UHF wireless intercom systems, or on any product with a 1-year or 90-day warranty.

SERVICE CONTRACT

VGC also offers service contracts that provide 24 x 7 telephone support, advance replacements, training, proactive maintenance, on-site visits, and no charge for repair or replacement of equipment. For more information, contact your authorized dealer, distributor, or sales representative.

LIABILITY

THE FOREGOING WARRANTY IS VGC'S SOLE AND EXCLUSIVE WARRANTY. THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY OTHER REQUIRED IMPLIED WARRANTY SHALL EXPIRE AT THE END OF THE WARRANTY PERIOD. THERE ARE NO OTHER WARRANTIES (INCLUDING WITHOUT LIMITATION WARRANTIES FOR CONSUMABLES AND OTHER SUPPLIES) OF ANY NATURE WHATSOEVER, WHETHER ARISING IN CONTRACT, TORT, NEGLIGENCE OF ANY DEGREE, STRICT LIABILITY OR OTHERWISE, WITH RESPECT TO THE PRODUCTS OR ANY PART THEREOF DELIVERED HEREUNDER, OR FOR ANY DAMAGES AND/OR LOSSES (INCLUDING LOSS OF USE, REVENUE, AND/OR PROFITS). SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR THE LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. IN ANY EVENT, TO THE MAXIMUM EXTENT PERMITTED UNDER APPLICABLE LAW, VGC'S LIABILITY TO CUSTOMER HEREUNDER SHALL NOT UNDER ANY CIRCUMSTANCES EXCEED THE COST OF REPAIRING OR REPLACING ANY PART(S) FOUND TO BE DEFECTIVE WITHIN THE WARRANTY PERIOD AS AFORESAID.

This warranty does not cover any damage to a product resulting from cause other than part defect and malfunction. The VGC warranty does not cover any defect, malfunction, or failure caused beyond the control of VGC, including unreasonable or negligent operation, abuse, accident, failure to follow instructions in the manual, defective or improperly associated equipment, attempts at modification and repair not approved by VGC, and shipping damage. Products with their serial numbers removed or defaced are not covered by this warranty.

This warranty does not include defects arising from installation (when not performed by VGC), lightning, power outages and fluctuations, air conditioning failure, improper integration with non-approved components, defects or failures

of customer furnished components resulting in damage to VGC provided product.

This limited warranty is not transferable and cannot be enforced by anyone other than the original consumer purchaser.

This warranty gives you specific legal rights and you may have other rights which vary from country to country.