Symetrix

460 Presentation Audio Mixer

U S E R   G U I D E

**460 Presentation Audio Mixer
User's Guide**

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Symetrix 460 Presentation Audio Mixer User's Guide

Before You Begin

| **What Ships in the Box** | **Getting Help** | **Optional Accessories** | **Notational Conventions in this User Guide** | Operator Safety Summary | Equipment Markings

What Ships in the Box

☑ The 460 unit

☑ One PS-3 or PS-3E (export version) power supply

☑ This user's guide

☑ A warranty card (USA only)

You can register online at symetrixaudio.com.

When you register the 460, you get 4 extra years of warranty coverage.

Getting Help

If you have questions beyond the scope of this guide, contact our Technical Services Group in the following ways:

T   (888) 349-3222 or (425) 787-3222

6:00 am to 5:00 pm Monday through Friday, Pacific Time

F   (425) 787-3211

tech@symetrixaudio.com

symetrixaudio.com

Optional Accessories

MODEL	ITEM	DESCRIPTION
USC-1	Security Cover	Fits 1 U (19 in. x 1.72 in.) products.
RC-2	Remote Control	Controls one volume channel and 3 presets.
RC-3	Remote Control	Controls one volume channel.

Contact your dealer or Symetrix for purchasing information.

Notational Conventions in this User Guide

Note	Identifies information that needs extra emphasis. Generally supplies extra information to help you to better use the 460.
CAUTION	Identifies information that, if ignored, may cause damage to the 460 unit or other equipment in your system.
WARNING	Identifies information that, if ignored, may be hazardous to your health or that of others.
CAPS	Controls, switches or other markings on the chassis of the 460.
Bold Face	Indicates menu option in the 460 LCD display.
<u>Underline</u>	Indicates topic in a section where you will find additional information.

Symetrix 460 Presentation Audio Mixer User's Guide

Before You Begin

| What Ships in the Box | Getting Help | Optional Accessories | Notational Conventions in this User Guide | **Operator Safety Summary** | **Equipment Markings**

Operator Safety Summary

Follow all warnings and instructions. Install in accordance with the manufacturer's instructions.

Power Source This product is intended to operate from a Symetrix PS-3 or PS-3E power supply.

Grounding The chassis of this product is grounded through the grounding conductor of the PS-3 or PS-3E power cord. To avoid electric shock, plug the power cord into a properly wired receptacle before making any connections to the product. A protective ground connection, by way of the grounding conductor in the power cord, is essential for safe operation. Do not defeat the safety purpose of the grounding plug. The grounding plug has two blades and a third grounding prong. The third prong is provided for your safety. When the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Danger from Loss of Ground If the protective ground connection is lost, all accessible conductive parts, including knobs and controls that may appear to be insulated, can render an electric shock.
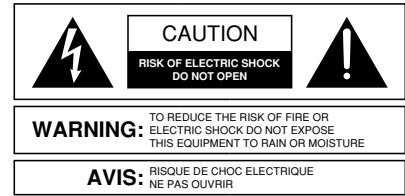
Proper Power Cord Use only the power cord and connector specified for the product and your operating locale. Use only a cord that is in good condition. Protect the power cord from being walked on or pinched, particularly at the plug, convenience receptacle, and the point where the cord exits from the apparatus.

Operating Location Do not operate this equipment under any of the following conditions: explosive atmospheres, in wet locations, in inclement weather, improper or unknown AC mains voltage, or if improperly fused. Do not install near any heat source such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Unplug this apparatus during lightning storms or when unused for long periods of time.

Stay Out of the Box To avoid personal injury (or worse), do not remove the product covers or panels. Do not operate the product without the covers and panels properly installed. Only use accessories specified by the manufacturer. Clean only with a damp cloth.

User-Serviceable Parts There are no user serviceable parts inside the 460. In case of failure, refer all servicing to the factory. Servicing is required when the 460 has been damaged in any way, such as when a 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.

Equipment Markings

⚡	CAUTION	⚠
	RISK OF ELECTRIC SHOCK DO NOT OPEN	

WARNING:	TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE

AVIS:	RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR

SEE OWNERS MANUAL. VOIR CAHIER D'INSTRUCTIONS.
No user serviceable parts inside. Refer servicing to qualified service personnel.
Il ne se trouve a l'interieur aucune piece pouvant etre reparée l'usager.
S'adresser a un reparateur compétent.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons. The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product (i.e., this user guide).

CAUTION
To prevent electric shock, do not use the polarized plug supplied with the unit with any extension cord, receptacle, or other outlet unless the prongs can be fully inserted.

THE SYMETRIX 460 PRESENTATION AUDIO MIXER is the hub of the presentation system. Two mono mic/line inputs for speech and voice sources, 4 stereo line-level inputs (–10 dBV or +4 dBu) handle a wide range of sources.

Two independent stereo outputs accommodate routing control for separate playback and voice systems. Flexible remote control options offer easy access to master volume control and preset recall.

Easy Configuration	Streamlined menus on the front panel LCD to configure mixing, routing, level, dynamics settings, and 8 nonvolatile presets.
Input Controls	2 mono mic/line inputs for speech and voice sources.
	4 stereo line-level inputs handle a wide range of sources for easy connections from professional or consumer (–10 dBV) level devices.
	Levels from any input to the 2 outputs are separately adjustable.
	Fully Assignable Inputs—Stereo input channels can route signal into the 2 internal stereo buses. Both mono input channels, when operating independently, can route their signal into both sides of the stereo bus identically. When operating as a stereo pair, they function like the stereo input channels.
	Filtering and Downward Expansion—Mono inputs have 6 dB/octave low pass and high pass filters available at 125 Hz and 8 kHz respectively, plus selectable downward expansion with threshold adjustment.
Output Controls	Dynamics Processing—Choose AGC, compression, or limiting, and set the active threshold. AGC helps maintain a consistent output level. The compressor features a moderately fast attack, slower release, and a moderate compression level. The limiter is peak sensing, with fast attack and release times.
	EQ—Each stereo output section has 6 dB/octave shelving filters with a boost/cut range of +/– 12 dB. Each section also has a sweepable parametric equalizer with a +/– 12 dB boost/cut range, 16 Hz to 20 kHz frequency range, and a bandwidth adjustable between 0.05 and 3 octaves.
	Gain—Each stereo output has stereo level controls.
	Mono/Stereo Selection—Each stereo output may be set to provide two mono sums of the signals assigned to it.
Remote Control Options	Rear panel RS232 and RS485 ports allow Panja™ or Crestron controllers to select presets, change levels, routing, and other parameters.
	Inputs for remote selection of presets.
	Inputs for remote rotary pot level controls.
Tamper-proof	Front panel lockout mode.

Checklist of Tasks for Hardware Connections and System Setup

	REQUIRED	RECOMMENDED	OPTIONAL	TASK TO DO	
HARDWARE CONNECTIONS	●			Connect input devices	
	●			Connect output devices	
			◆	Connect serial devices	
			◆	Input and output level strapping	
			◆	Connect remote program change switches	
			◆	Connect remote volume control pots	
			◆	Connect to Panja or Crestron control systems	
	●			Connect to AC power supply	
SYSTEM SETUP			◆	Assign **Device Address**	**S**
			◆	Assign **Serial Port Type**	**S**
			◆	Select **Interface Baud**	**S**
			◆	Adjust remote control input (**CTL Pot Offset**, **CTL Pot Mult**)	**S**
		■		Select **Channels 1&2 Mode**	**S**
			◆	Select **FP Control Mode**	**S**
		■		Select **Powerup State**	**S**
	●			Set **Input High Pass**	**M**
	●			Set **Input Low Pass**	**M**
	●			Set **Input Gate Threshold**	**M**
	●			Set **Input Gate Depth***	**M**
	●			Set Input Level (**Bus 1**, **Bus 2**)	**M**
	●			Set **Output Low Shelf**	**M**
	●			Set **Output Mid Frequency**	**M**
	●			Set **Output Mid BW**	**M**
	●			Set **Output Mid Gain**	**M**
	●			Set **Output High Shelf**	**M**
	●			Set **Output Dynamics Mode**	**M**
	●			Set **Output Level**	**M**
	●			Select **Output Mode**	**M**
			◆	**Test Oscillator***	**M**
		■		**Edit Program Name**	**M**
		■		**Specify Control Destination**	**M**
SECURITY		■		**Specify Front Panel Lock**	

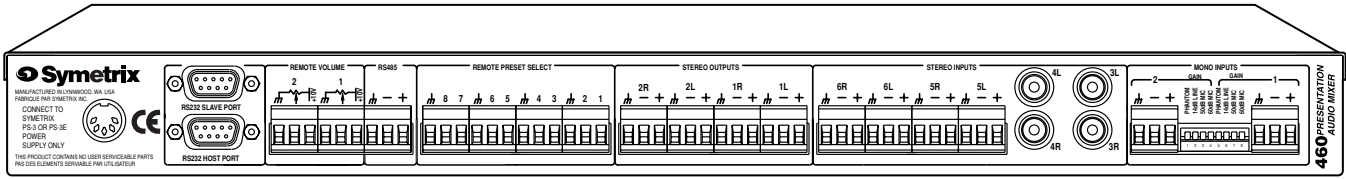For serial devices

For Inputs 1 and 2

S   Security Control Setup and Options menu

M   Main menu

* Available when **Expert** is selected for **FP Control Mode** in the Serial Control Setup and Options menu.

Making Hardware Connections

Overview of Rear Panel Connectors | Basic Connection for a Boardroom Presentation System | Connecting a Remote Control for Preset Selection | Connecting a Remote Volume Control | Connecting a Panja or Crestron Control System | Connecting Serial Devices | Input and Output Connector Wiring | Input and Output Level Strapping

Overview of Rear Panel Connectors

CONNECTION	CONNECTOR TYPE	WHAT IT DOES
Power Input	7-pin DIN female	Accepts power only from Symetrix PS-3 or PS-3E power supply.
RS232 SLAVE PORT	DB-9 male	Serial data port connects downstream 460s.
RS232 HOST PORT	DB-9 female	Serial data connects remote systems such as Panja or Crestron.
REMOTE VOLUME	Euroblock	Connections for 2 potentiometers, 10 k to 100 k value, linear taper. Use to remotely control the output level of each output channel of the 460. (This is a DC control signal; there is no audio present here.)
RS485	Euroblock	RS485 serial data port. (Select either the RS232 ports or the RS485 port.)
REMOTE PRESET SELECT	Euroblock	8 active low inputs for momentary SPST (single pole single throw) switching to ground.
STEREO OUTPUTS	Euroblock	Delivers a differential balanced output at 300 ohms source impedance. The output stage is a pair of opamps, with the (+) and (−) output terminals at 180° anti-phase with each other. It emulates a grounded center-tap transformer. The series build-out resistors are 150 ohms in each leg. If connecting unbalanced sources, see in this section Input and Output Connector Wiring. To change the outputs to deliver −10 dBV levels, see in this section, Input and Output Level Strapping.

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Making Hardware Connections

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Overview of Rear Panel Connectors continued

CONNECTION	CONNECTOR TYPE	WHAT IT DOES
STEREO INPUTS 5 and 6	Euroblock	Balanced inputs intended for professional +4 dBu signal levels. (20 k ohms balanced bridging line inputs.)
		If connecting unbalanced sources, see in this section Input and Output Connector Wiring.
		To change the inputs to accept −10 dBV levels, see in this section, Input and Output Level Strapping.
STEREO INPUTS 3 and 4	RCA female	Unbalanced inputs intended for consumer devices operating at −10 dBV signal levels.
MONO INPUTS 1 and 2	Euroblock	Balanced bridging inputs for the 460. These inputs can accept microphone level signals as well as line-level signals.
		12 V phantom powering is available (switched) to these inputs.
GAIN Switches	8-pole DIP switch	Adjusts gain for Mono Inputs 1 and 2 to accommodate mic or line-level sources. The dB numbers refer to the amount of gain supplied by the input amplifier.

Setting DIP Switches

SWITCH	SWITCH POSITION	ACCOMMODATES
Phantom (12 V)	DOWN	Condenser microphones and other devices
All switches	UP	+4 line-level sources
14 dB line gain	DOWN	−10 dbV line-level sources
50 dB mic gain	DOWN	For high output mics
60 dB mic gain	DOWN	For low output mics

Making Hardware Connections

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Basic Connection for a Boardroom Presentation System

2

Connect your line-level sources.

Panja or Crestron control systems

PowerPoint presentation

DVD player

VCR

Connect to AC power

4

amp

lectern mic

wireless mic

1

Connect microphones.
Set the DIP Switches as required.

wall playback speakers

voice speakers

3

Connect outputs to amplifiers, EQs, etc.

Making Hardware Connections

Connecting a Remote Control for Preset Selection

You can wire a remote switch or the Symetrix RC-2 Remote Control to the 460. The RC-2 allows you to recall 3 of the 8 presets.

The 460 saves control settings to 8 preset programs. These programs can be recalled by using the rear panel REMOTE PRESET SELECT connections. There are 8 individual connections.

Each active low input accepts a momentary contact closure to ground, causing the 460 to load the saved preset program.

You can disable remote switching. To do this, see in System Setup, the topic Front Panel Lock.

Connecting a Remote Switch Controller

Cropped Rear Panel View of 460

Remote Switch Controller

- - - - **Select your preset program**
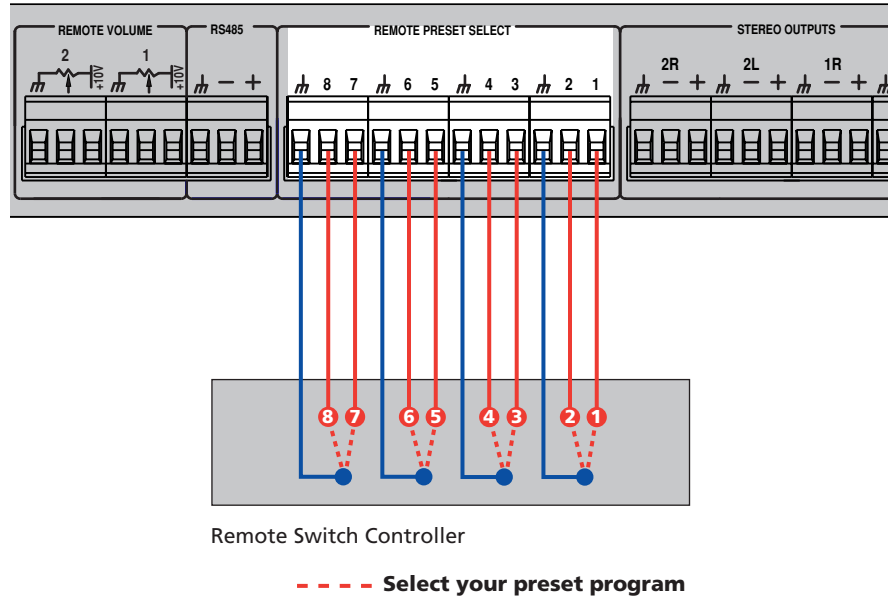
Connecting the Symetrix RC-2 Remote Control

Cropped Rear Panel View of 460
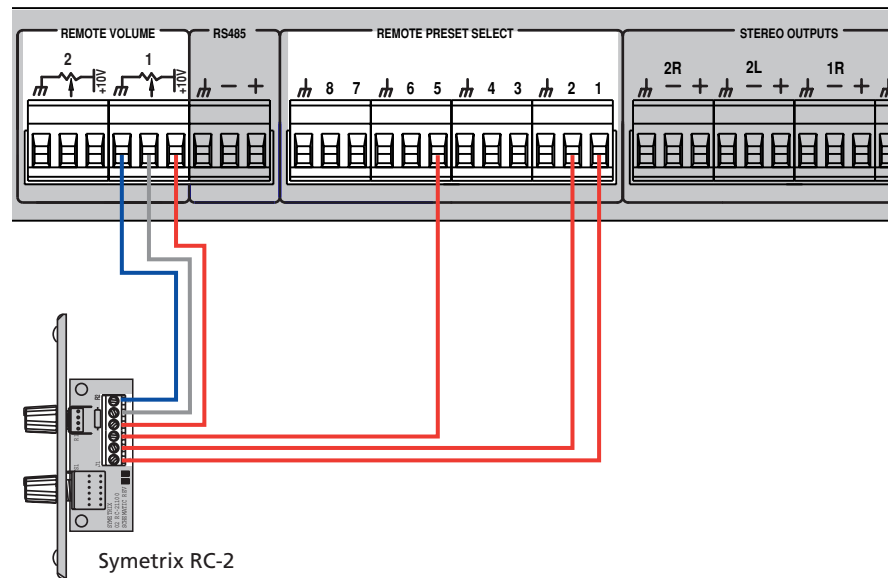
Symetrix RC-2

11

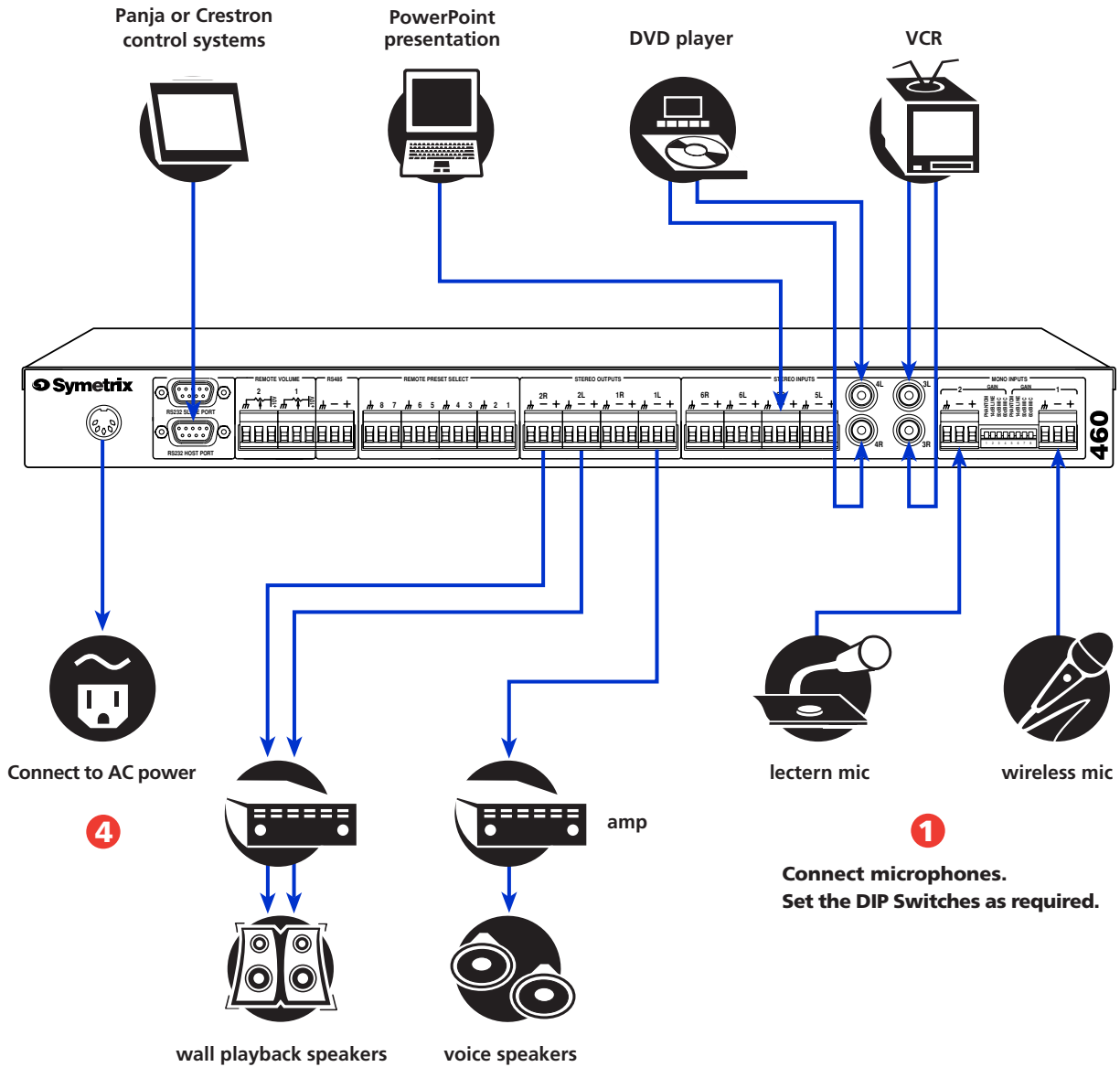**Symetrix 460 Presentation Audio Mixer User's Guide**

Making Hardware Connections

Overview of Rear Panel Connectors | Basic Connection for a Boardroom Presentation System | Connecting a Remote Control for Preset Selection | **Connecting a Remote Volume Control** | Connecting a Panja or Crestron Control System | Connecting Serial Devices | Input and Output Connector Wiring | Input and Output Level Strapping

Connecting a Remote Volume Control

Each of the two stereo outputs and all inputs may have their gain remotely controlled. You can connect a potentiometer or the Symetrix RC-3 Remote Control to the REMOTE VOLUME connectors.

Select the Output or Input to Control

From the LCD menu display, select in the Main menu the option **CTL Destination.** Select mic/line mode, either **Separate Mono** or **Combined Stereo**, and then select which inputs or outputs to control. You can control one or two ports simultaneously (following choices are found in Separate Mono mode.):

1 Out 1 Gain

2 Out 2 Gain

3 Out 1 and 2 Gain

4 In 1 Gain

5 In 2 Gain

6 In 1 and 2 Gain

7 In 3 and 4 Gain

8 In 5 and 6 Gain

9 In 3 to 6 Gain

Remote Volume Inputs Accept DC Control Voltage

Connect a potentiometer or another device which generates voltage between the 10 V output and ground of the 460. The value of the potentiometer isn't critical; anything between 10 k and 100 k (linear taper) will do. For best accuracy, use the supplied 10 V reference at Pin 1 of the connector to drive the high side of the potentiometer.

Output of an External Source Can Be Scaled

The LCD menu display has provisions for scaling the output of an external source from whatever it is to 10 V. To do this, see in the section System Setup under the topic Serial Control Setup and Options Menu, the menu options **CTL1** and **CTL2 Offset** and **Mult**.

Cropped Rear Panel View of 460
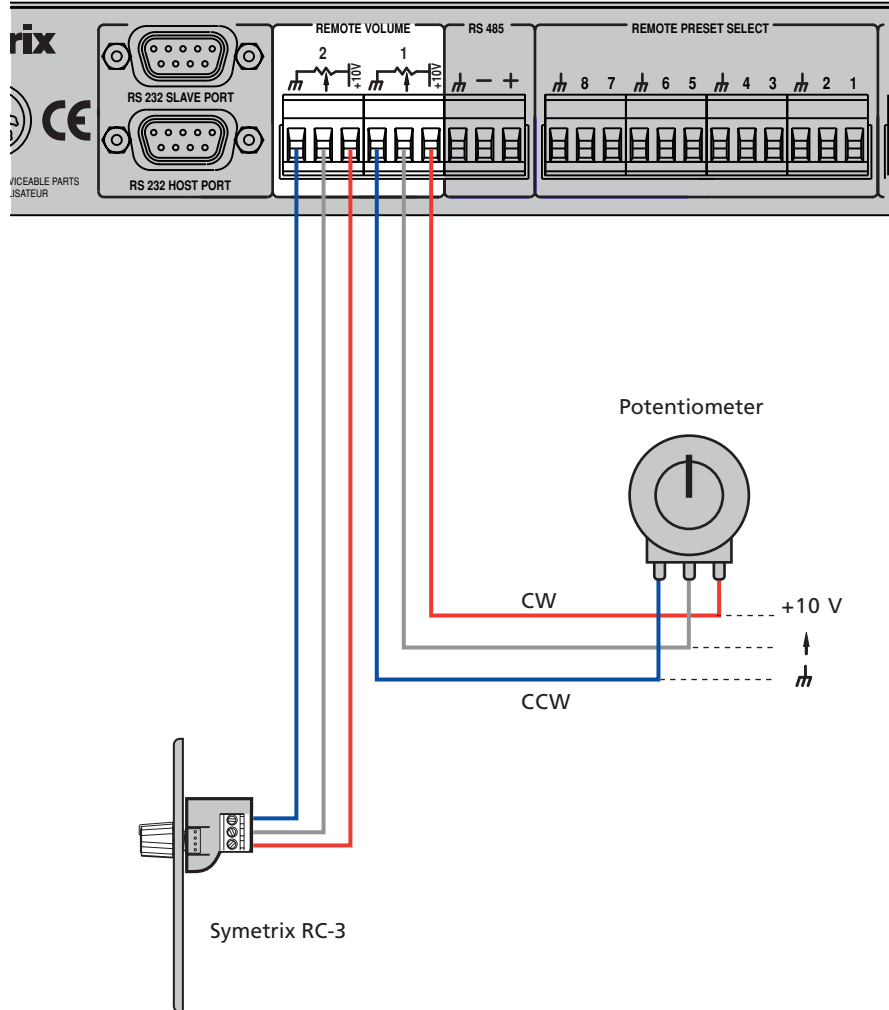
Potentiometer

CW

+10 V

CCW

Symetrix RC-3

Making Hardware Connections

Connecting Serial Devices

You can connect a Panja or Crestron controller/interface or additional 460 units to the 460 Presentation Audio Mixer.

Choose either the RS232 or RS485 ports for connection. See the illustration on this page to view the 2 ways to connect serial devices.

You must assign a device address to each serial device you want to attach to the 460. The 460 ships with its device address set at 1.

Assign a Device Address:

1 Connect your serial device to the 460.

2 On the front panel, press and hold EXIT to gain access to the Serial Control Setup and Options menu. The **Device Address** displays.

3 Rotate ADJUST to select a unique number from 1 to 127.

4 Repeat for each serial device you want to connect to the 460.

Choose the Port Setting:

1 Press NEXT to display the menu option **Serial Port Type**.

2 Rotate ADJUST to select either RS232 or RS485.

Select the Serial Communications Speed:

1 Press NEXT to display the menu option **Interface Baud**.

2 Rotate ADJUST to select either 9600, 19200, 38400, 57600, or 115200 baud.

3 Press EXIT to save settings.
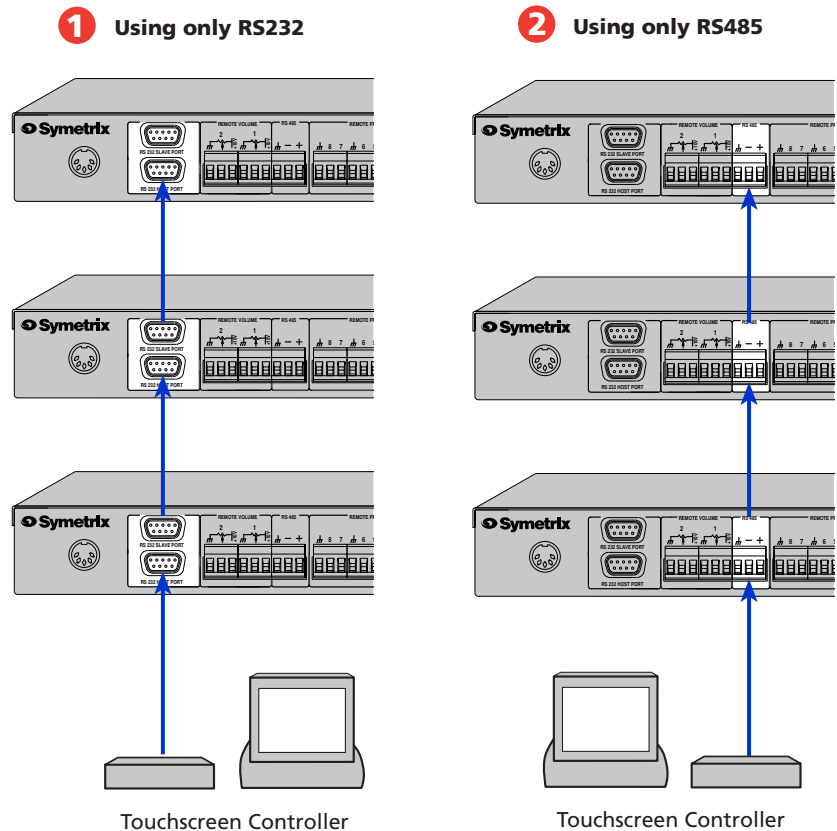
① **Using only RS232**

② **Using only RS485**

Touchscreen Controller

Touchscreen Controller

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Making Hardware Connections

Overview of Rear Panel Connectors | Basic Connection for a Boardroom Presentation System
| Connecting a Remote Control for Preset Selection | Connecting a Remote Volume Control
| **Connecting a Panja or Crestron Control System** | Connecting Serial Devices
| Input and Output Connector Wiring | Input and Output Level Strapping

Connecting a Panja or Crestron Control System

You can control the 460 through the RS232 or RS485 ports using a Panja, Crestron, or other compatible controller or computer.

The 460 parameters and signal levels can be read and displayed by external remote systems. You can get from Symetrix the control codes in the following ways:

- Visit symetrixaudio.com. Go to the product page for the 460 Presentation Audio Mixer. Locate the file **460 Command Protocol** to download.

- Send an email to tech@symetrixaudio.com Request the file **460 Command Protocol**.

The 460 has 2-way communication with the controller. Parameter settings and signal settings can be changed both at the controller and at the 460 unit.
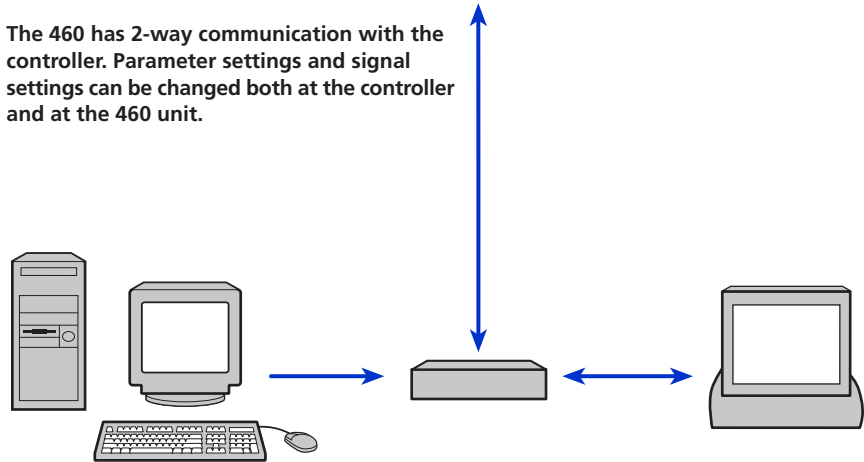
Computer necessary only for loading data into the touchscreen controller/interface.

Touchscreen controller/interface

Touchscreen

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Making Hardware Connections

Overview of Rear Panel Connectors | Basic Connection for a Boardroom Presentation System | Connecting a Remote Control for Preset Selection | Connecting a Remote Volume Control | Connecting a Panja or Crestron Control System | Connecting Serial Devices | **Input and Output Connector Wiring** | Input and Output Level Strapping

Input and Output Connector Wiring

Input Connections

These connectors are designed for use with bare wire. Do not tin strand wires before inserting them into the connectors.

For Unbalanced Connections

Connect the (–) input terminal to the source ground at the source.

Feeding unbalanced inputs directly from balanced outputs is not recommended due to the possibility of ground loops. You may want to use the Symetrix 307 isolation transformer to break the ground connection and eliminate the ground loop.

Output Connections

These connectors deliver a differential balanced output signal (mimics a grounded center tap transformer winding).

For Unbalanced Loads

With unbalanced loads, it is preferable to carry the low side of the input all the way back to the ground connection of the source.

Use the (+) output terminal and the ground terminal. Ignore (float) the (–) output terminal.
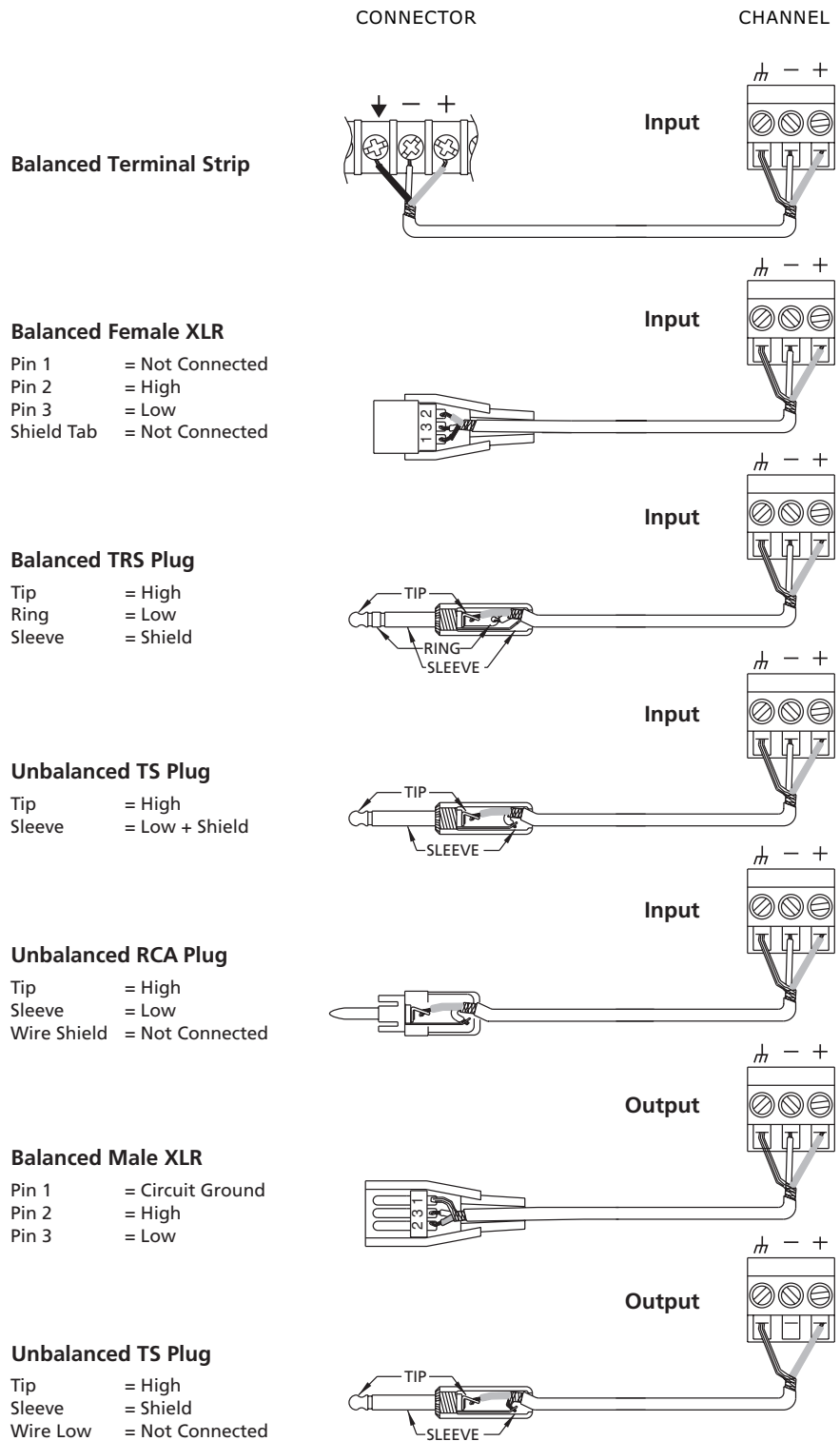
CONNECTOR   CHANNEL

Balanced Terminal Strip

Input

Balanced Female XLR

Pin 1	= Not Connected
Pin 2	= High
Pin 3	= Low
Shield Tab	= Not Connected

Input

Balanced TRS Plug

Tip	= High
Ring	= Low
Sleeve	= Shield

Input

Unbalanced TS Plug

| Tip | = High |
| Sleeve | = Low + Shield |

Input

Unbalanced RCA Plug

Tip	= High
Sleeve	= Low
Wire Shield	= Not Connected

Input

Balanced Male XLR

Pin 1	= Circuit Ground
Pin 2	= High
Pin 3	= Low

Output

Unbalanced TS Plug

Tip	= High
Sleeve	= Shield
Wire Low	= Not Connected

Output

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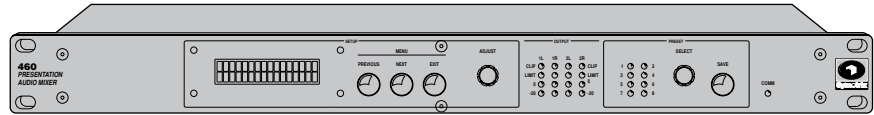
Making Hardware Connections

Overview of Rear Panel Connectors | Basic Connection for a Boardroom Presentation System
| Connecting a Remote Control for Preset Selection | Connecting a Remote Volume Control
| Connecting a Panja or Crestron Control System | Connecting Serial Devices
| Input and Output Connector Wiring | **Input and Output Level Strapping**

Input and Output Level Strapping*

Inputs and outputs can be strapped to deliver +4 dBu or −10 dBV levels. Each of the 4 inputs and outputs has its own jumper, which is located just behind the connector. Change any number of them as required by your application.

To change jumper settings:

1 Disconnect the PS-3/PS-3E power supply from the 460.

2 Remove the top cover by removing the 2 screws located at the rear edge of the cover, the 2 screws located at each end of the top cover, and the single hex socket screw at the top center of the front panel.

3 Locate the appropriate jumpers (which are just behind the connectors) using the illustration on this page.

4 Remove the jumpers and install them over the desired pins.

5 Reverse steps 1 and 2 to reassemble the unit.

CAUTION

 * **This information is provided for the use of professional service technicians only.**
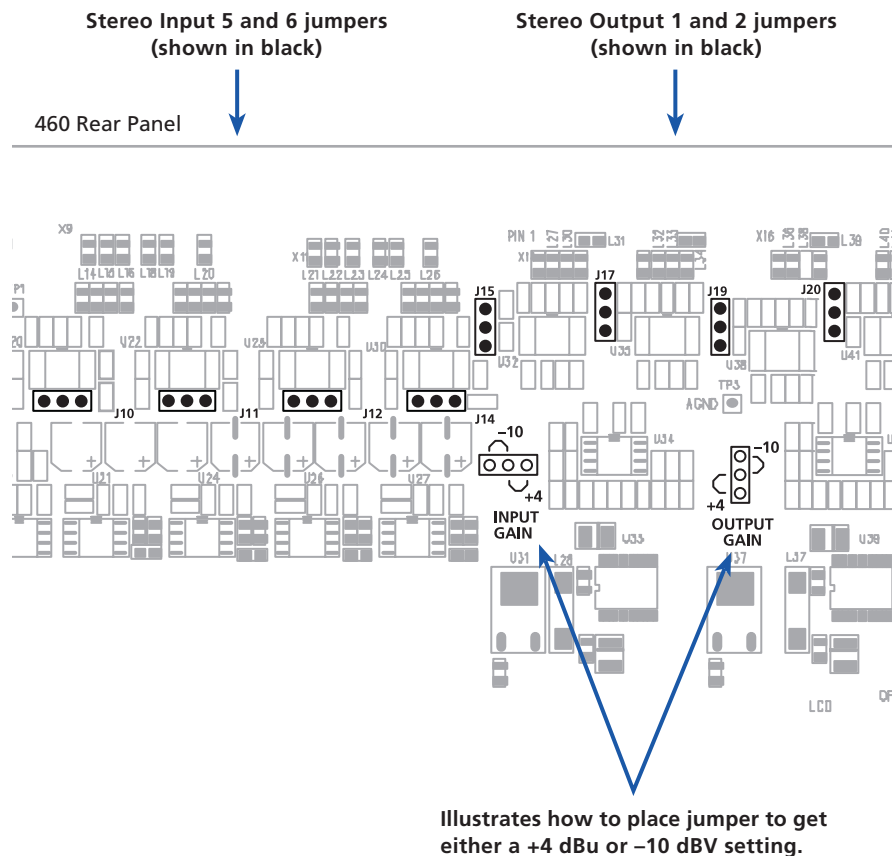
Stereo Input 5 and 6 jumpers (shown in black)

Stereo Output 1 and 2 jumpers (shown in black)

460 Rear Panel

Illustrates how to place jumper to get either a +4 dBu or −10 dBV setting.

Overview of Front Panel | How System Setup Works | Checklist of Tasks for System Setup | Serial Control Setup and Options Menu | Main Menu | Front Panel Lock
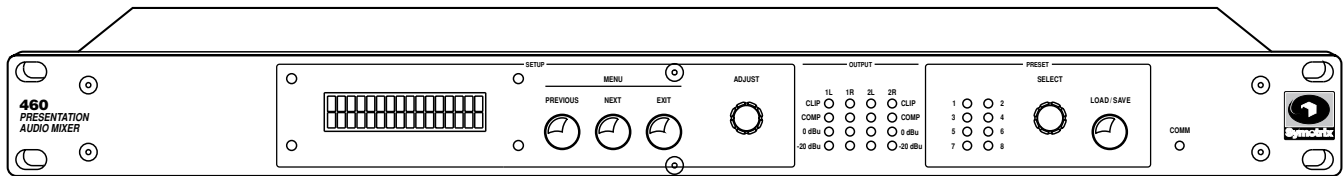
Overview of Front Panel

CONTROL	CONTROL TYPE	WHAT IT DOES
SETUP	LCD menu display	Two line setting shows levels and settings of selected menu option.
		These menus control the 460:
		Serial Control Setup and Options Menu Controls settings for: the serial ports, basic or full display of Main menu, stereo or mono mode for mic/line inputs, selection of preset that loads when 460 is powered up, remote control pot calibration. Access this menu by pressing and holding EXIT.
		Main Menu Controls all the other settings for the 460. Access this menu by pressing PREVIOUS or NEXT.
		Front Panel Lock Controls access to the 460 settings. To access, press NEXT and PREVIOUS.
	PREVIOUS	Press to select the previous menu item.
		Press and hold with NEXT to access **Front Panel Lock** feature.
	NEXT	Press to select the next menu item. Hold to move through menu items.
		Press and hold with PREVIOUS to access **Front Panel Lock** feature.
	EXIT	Press to save changes to settings and exit menus.
		Press and hold to access the Serial Control Setup and Options menu.
	ADJUST	Changes the selected parameter.
OUTPUT	LED ladders	Displays the level and status of each output.

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System Setup

Overview of Front Panel | How System Setup Works | Checklist of Tasks for System Setup | Serial Control Setup and Options Menu | Main Menu | Front Panel Lock

Overview of Front Panel continued

CONTROL	CONTROL TYPE	WHAT IT DOES
PRESET	LEDs 1 thru 8	Indicates the active preset.
		If its LED is slowly flashing, indicates the preset has been edited (settings are different from what was stored).
		If 2 LEDs are lit, one quickly flashing and one not, the nonflashing LED indicates the current preset, while the flashing LED indicates the target of a SAVE or LOAD action.
	SELECT	Turn to choose a preset memory.
	LOAD	Tap twice to load and run a selected preset.
	SAVE	Tap once, then hold to save an edited preset.
COMM	LED light	Flashes to indicate serial communications activity.
		Use to verify connection to a computer or touchscreen controller/interface.

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System Setup

Overview of Front Panel | **How System Setup Works**
| Serial Control Setup and Options Menu | Main Menu | Front Panel Lock

How System Setup Works

Control the 460 by Using These Menus

ACCESS THIS MENU FROM LCD DISPLAY	MENU HAS CONTROL SETTINGS FOR
Serial Control Setup and Options Menu	Serial ports
	Basic or full (expert) display of Main menu
	Stereo or mono mode for mic/line inputs
	Selection of preset that loads when 460 is powered up
	Remote control pot calibration
Main Menu	Inputs and outputs
	Test oscillator type, frequency, and level
	Presets
Front Panel Lock	Security

Create Presets to Run On the 460

You can create up to 8 presets or programs to run on the
460 Presentation Audio Mixer.

To create and save a preset:

1 Specify settings for the appropriate menu options in the Serial Control and Options menu and in the Main menu.

2 In the Main menu, under **Edit Pgm Name**, give your preset a unique name (optional).

3 Tap LOAD/SAVE then press and hold it again.

To load a preset:

1 Turn SELECT to choose a preset from 1 to 8.

2 Tap LOAD/SAVE twice to run the selected preset.

To select the preset you want the 460 to run when it powers up:

1 In the Security Control Setup and Options menu, press NEXT to locate **Powerup State**.

2 Turn ADJUST to select the desired program or preset number.

3 Press EXIT to save setting and exit menu.

The default setting, Last Powerdown, has the 460 load the last preset it used when powered down.

To save an edited preset:

1 Tap LOAD/SAVE once, then hold.

For additional information, see in this section the topic Overview of Front Panel.

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System Setup

Overview of Front Panel | How System Setup Works
| **Serial Control Setup and Options Menu** | Main Menu | Front Panel Lock

Serial Control Setup and Options Menu

Access this menu by pressing and holding EXIT.

Navigate using PREVIOUS/NEXT.

Rotate ADJUST to select a specific value or choice.

To save settings and exit menu, press EXIT.

PRESS NEXT TO SELECT MENU FEATURE	ROTATE ADJUST TO SELECT VALUE OR CHOICE	DESCRIPTION
Device Address	1 to 127	Select a unique device address for each serial device in the installation.
Serial Port	RS232, RS485	Select one.
Interface Baud	9600, 19200, 38400, 57600, 115200	Select serial communications speed.
CTL1 Pot Offset **CTL2 Pot Offset**	−1.00 to +1.00	Adds an offset to the remote control input value.
		Use with a source whose minimum value does not go to zero or whose maximum value does not go to 10 V.
		The number inside the square brackets in the display shows the value that the 460 reads, scaled from 0.00 to 1.00.
		The number at the lower left in the LCD display indicates the offset value supplied by ADJUST. Start with this value at 0.00. With the external control at its minimum setting, turn ADJUST so the reading inside the square brackets is 0.00 or as close to it as possible.
CTL1 Pot Mult **CTL2 Pot Mult**	0.00 to 4.00	Multiplies the signal from the remote potentiometer to encompass the entire control range required.
		The number inside the square brackets shows the maximum value of the remote control signal that the 460 reads, multiplied by the scale factor supplied by ADJUST.
		The number at the lower left in the LCD display indicates the multiplier value supplied by ADJUST. With the external signal at its maximum value, rotate ADJUST to make the value shown in the square brackets read 1.00 or as close to it as possible.

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System Setup

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| **Serial Control Setup and Options Menu** | Main Menu | Front Panel Lock

Serial Control Setup and Options Menu continued

PRESS NEXT TO SELECT MENU FEATURE	ROTATE ADJUST TO SELECT VALUE OR CHOICE	DESCRIPTION
CH's 1&2 Mode	Combined Stereo	Control channels 1 and 2, like one of the stereo channels, and mix to the left and right buses separately.
	Separate Mono	Control channels 1 and 2 individually and mix to the center of the 2 stereo buses.
FP Control Mode	Basic/Expert	Expert mode reveals additional controls in the Main menu: **Input Gate Depth** **Dynamics Limit Ratio** **Dynamics Compress Ratio** **AGC Autorelease** **Test Oscillator Type** **Test Oscillator Frequency** **Test Oscillator Level**
Powerup State	Program 1 to 8, Last Powerdown	Determines the program loaded when the 460 is powered up. Last Powerdown selects the last preset run by the 460 when power was removed.

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Main Menu

Access this menu by pressing either PREVIOUS or NEXT.

If the Serial Control Setup & Options menu is displayed, press EXIT, then press either PREVIOUS or NEXT.

Navigate using PREVIOUS/NEXT.

Rotate ADJUST to select a specific value or choice.

To save settings and exit menu, press EXIT.

To save an edited Preset, tap SAVE once, then press and hold SAVE.

PRESS NEXT TO SELECT MENU FEATURE	ROTATE ADJUST TO SELECT VALUE OR CHOICE	DESCRIPTION
Program 1/Preset 1 (default screen)		Preset name and number.
		Turn SELECT to choose a preset from 1 to 8. Tap LOAD/SAVE twice to run the selected preset.
IN 1, IN 2 (Inputs 1 and 2)		
High Pass	ON/OFF	Attenuates excess low frequency information.
		125 Hz, 6 dB/octave
		Use to improve clarity or where the loudspeaker system can't reproduce the bass frequencies.
Low Pass	ON/OFF	Attenuates excess high frequency information.
		6 kHz, 6 dB/octave
		Use to quiet a noisy source or to reduce sibilance from a microphone signal.
Gate Thresh	Disabled, −99.5 dBFS to 0 dBFS	Mutes input when signal level falls below threshold.
		Use to quiet noisy sources, or to provide a crude sort of auto-mixing.
Gate Depth*	100 dB to 0 dB	Attenuation applied to input signal when the signal level is below the threshold level.
		For microphone signals, try 10 dB rather than off.
		For below-threshold signals, the input will be 10 dB weaker.
		For signals near the threshold level, the gain change may seem less dramatic (certainly better than on or off).

* Menu option available when **Expert** is selected for **FP Control Mode** in the Serial Control Setup and Options menu

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Main Menu continued

PRESS NEXT TO SELECT MENU FEATURE	ROTATE ADJUST TO SELECT VALUE OR CHOICE	DESCRIPTION
IN 1, IN 2, IN 3, IN 4, IN 5, IN 6 (Inputs 1 to 6)		
Bus 1, Bus 2	Mute, −90 dB to +18 dB	Attenuation/gain applied to the input signal.
		The usual setting for this control is 0 dB.
		Inputs 1 and 2 are universal mic/line inputs. The preamp gain setting is located on the rear panel.
		Input 1 can be ganged with Input 2 for stereo sources. When set for **Stereo** (in **Out 1 Mode**), Input 1 mixes left and Input 2 mixes right. In **Mono** mode, the two inputs mix equally to left and right outputs.
OUT 1, OUT 2 (Stereo outputs 1 and 2)		
Low Shelf	+/−12 dB	Bass control for output. 125 Hz, 6 dB/octave
Mid Freq	16.2 Hz to 19.7 kHz	Center frequency for midrange control.
Mid BW	0.05 to 3 octaves	Bandwidth for midrange control.
Mid Gain	+/− 12 dB	Parametric midrange control for output.
Hi Shelf	+/−12 dB	Treble control for output. 8 kHz, 6 dB/octave
Dynamics		
Bypass		Disables Dynamics processing.
Limit		
Thresh	0 dBFS to −99.5 dBFS, Disabled	Threshold for output limiter.
Ratio*	1:1 (Disabled), 20:1	Ratio for Limiter.
Compress		
Thresh	0 dBFS to −99.5 dBFS, Disabled	Threshold for output compressor.
Ratio*	1:1 (Disabled), 20:1	Ratio for Compressor.
Makeup Gain	0 dB to 24 dB	Compressor makeup gain.

* Menu option available when **Expert** is selected for **FP Control Mode** in the Serial Control Setup and Options menu

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Main Menu continued

PRESS NEXT TO SELECT MENU FEATURE	ROTATE ADJUST TO SELECT VALUE OR CHOICE	DESCRIPTION
OUT 1, OUT 2 continued (Stereo outputs 1 and 2)		
AGC		
Target Level	0 dBFS to −99.5 dBFS, Disabled	Level at which the AGC maintains constant signal levels with all program signals. Usual setting is from −18 dBFS to −25 dBFS.
Autorel*	0 dBFS to −99.5 dBFS, Disabled	Auto release level for AGC. Prevents noise pumping. Program level must be above selected value to trigger AGC action. The usual setting is 20 dB below the target level.
Ratio	1:1 (Disabled), 20:1	Ratio for AGC Compressor. Ratios higher than 4:1 are not recommended. A warning symbol appears when ratio is higher than 4:1.
Level	Mute, −90 dB to +18 dB	Output 1 master gain control.
Mode	Stereo, Mono	Mono or stereo mode for Output 1. In mono mode, both channels of an output are the same (left/right mix of the sources).
Test Oscillator Type*	Sine, White, Pink	Output signal select. The oscillator signal mixes (it does not preempt) with signals from the other inputs.
Test Oscillator Frequency*	16.2 Hz to 19.7 kHz	Oscillator frequency (sine only).
Test Oscillator Level*		
Bus 1L	Off, 0 dBFS to −99.5 dBFS	Oscillator level to Bus 1 Left output.
Bus 1R	Off, 0 dBFS to −99.5 dBFS	Oscillator level to Bus 1 Right output.
Bus 2L	Off, 0 dBFS to −99.5 dBFS	Oscillator level to Bus 2 Left output.
Bus 2R	Off, 0 dBFS to −99.5 dBFS	Oscillator level to Bus 2 Right output.
Edit Pgm Name	Use ADJUST to change character. Use PREVIOUS and NEXT to move cursor.	Assign the preset a unique name.

* Menu option available when **Expert** is selected for **FP Control Mode** in the Serial Control Setup and Options menu

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Main Menu continued

PRESS NEXT TO SELECT MENU FEATURE	ROTATE ADJUST TO SELECT VALUE OR CHOICE	DESCRIPTION
CTL 1 Destination† **CTL 2 Destination**	(Choices when Inputs 1 and 2 are selected **Separate Mono** in CH's 1&2 Mode.)	Determines which gain control (or groups of controls) the remote potentiometer is assigned to.
	Off, Out 1 Gain, Out 2 Gain, Out 1 and 2 Gain, In 1 Gain, In 2 Gain, In 1 and 2 Gain, In 3 and 4 Gain, In 5 and 6 Gain, In 3 to 6 Gain	When the display reads Out 1 and 2 Gain, the remote potentiometer controls the output of both stereo outputs simultaneously.
	(Choices when Inputs 1 and 2 are selected as **Combined Stereo** in CH's 1&2 Mode.)	
	Off, Out 1 Gain, Out 2 Gain, Out 1 and 2 Gain, In 1 and 2 Gain, In 3 and 4 Gain, In 5 and 6 Gain, In 3 to 6 Gain	

† Has priority over **CTL2 Destination** in such instances when CTL1 and CTL2 are set to control the same port (ie., when CTL1 is set to In 3 and 4 Gain and CTL2 is set to In 3 and 4 Gain).

Front Panel Lock

To gain access to this security feature, press PREVIOUS and NEXT for 5 seconds.

To save settings and exit menu, press EXIT.

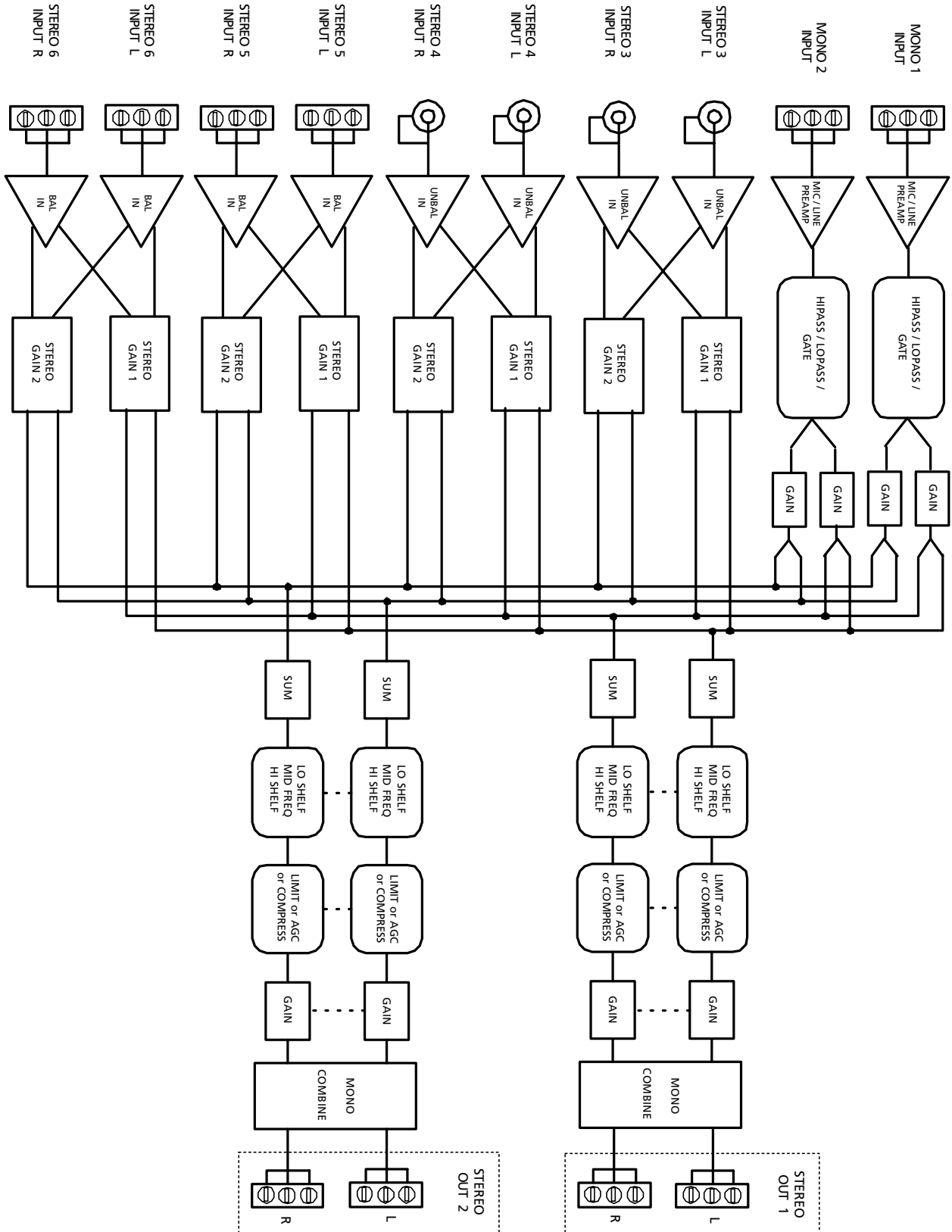**To unlock the front panel, press PREVIOUS and NEXT for 5 seconds, then select Unlocked.**

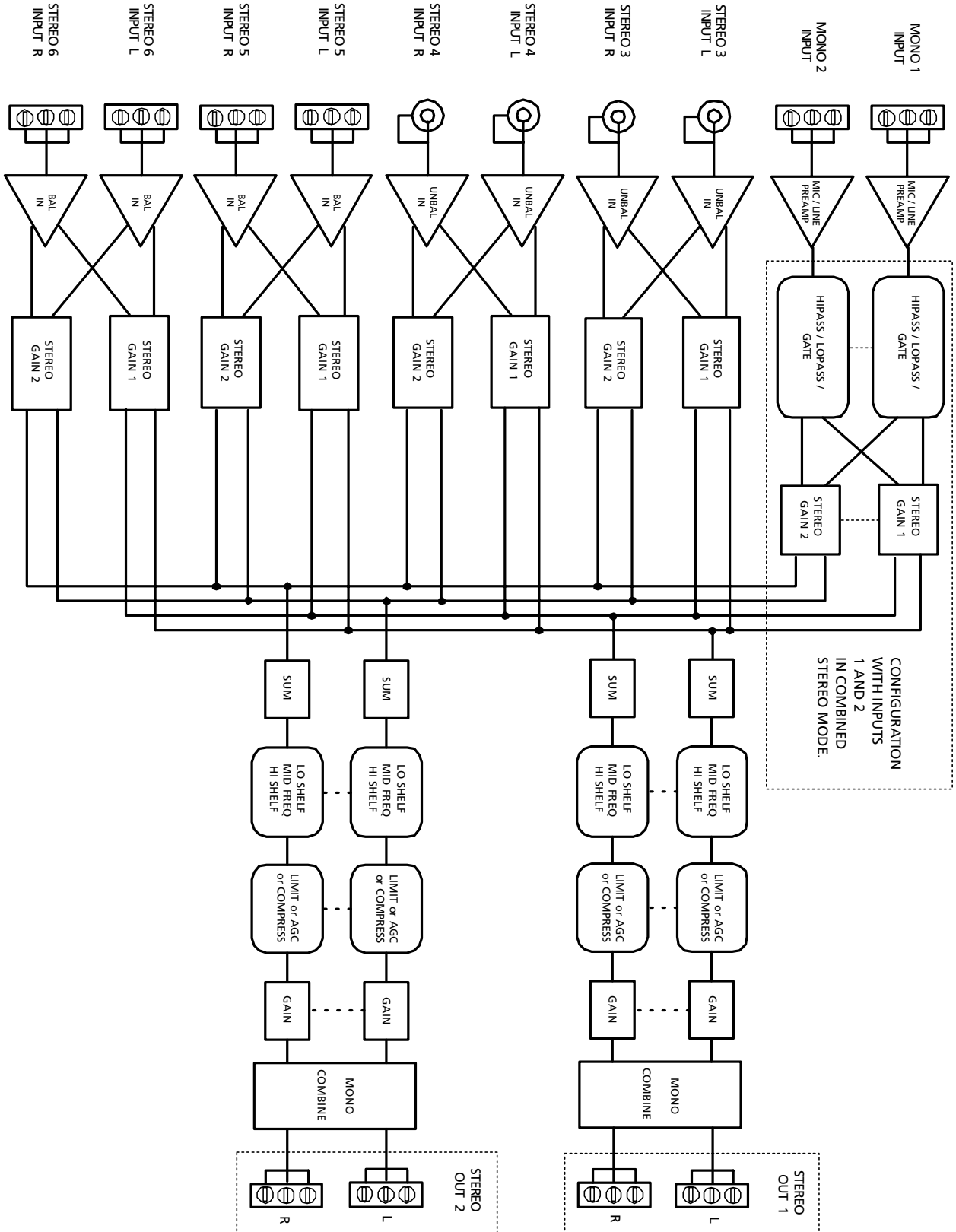| MENU FEATURE	ROTATE ADJUST TO SELECT VALUE OR CHOICE	DESCRIPTION
Front Panel Lock	Unlocked	
	Save Program	Prevents saving a program (preset).
	All Except Load	Prevents changing the parameters of a preset. Only can load a preset.
	All	Unit is locked from use.

Signal Flow Diagram

| **SHOWING MONO MIC/LINE** | SHOWING STEREO MIC/LINE

STEREO 6 INPUT R
STEREO 6 INPUT L
STEREO 5 INPUT R
STEREO 5 INPUT L
STEREO 4 INPUT R
STEREO 4 INPUT L
STEREO 3 INPUT R
STEREO 3 INPUT L
MONO 2 INPUT
MONO 1 INPUT

BAL IN
BAL IN
BAL IN
BAL IN
UNBAL IN
UNBAL IN
UNBAL IN
UNBAL IN
MIC / LINE PREAMP
MIC / LINE PREAMP

HIPASS / LOPASS / GATE
HIPASS / LOPASS / GATE

STEREO GAIN 2
STEREO GAIN 1
STEREO GAIN 2
STEREO GAIN 1
STEREO GAIN 2
STEREO GAIN 1
STEREO GAIN 2
STEREO GAIN 1

GAIN
GAIN
GAIN
GAIN

SUM
SUM
SUM
SUM

LO SHELF MID FREQ HI SHELF
LO SHELF MID FREQ HI SHELF
LO SHELF MID FREQ HI SHELF
LO SHELF MID FREQ HI SHELF

LIMIT or AGC or COMPRESS
LIMIT or AGC or COMPRESS
LIMIT or AGC or COMPRESS
LIMIT or AGC or COMPRESS

GAIN
GAIN
GAIN
GAIN

MONO COMBINE
MONO COMBINE

STEREO OUT 2
R
L

STEREO OUT 1
R
L

SYMPTOM	PROBABLE CAUSE / WHAT TO DO

No output signal	Check cables and connections to see if:
	
	    Outputs are driving inputs and inputs are fed from outputs.
	    Signal coming from the source(s) and that it is getting to the 460.
	    The signal chain after the 460 is functioning.
	
	Check to see that the LCD display is illuminated.
	
	If signal is present, and the downstream system is operative, check level settings at inputs and outputs to ensure that they are not muted or attenuated sufficiently to make the 460 appear dead.

Hum or buzz in output	Check input connector wiring. Check output connector wiring. If present in Inputs 3 or 4, try connecting the chassis of the source equipment to the chassis of the 460. Check for a ground loop problem. Inspect related system equipment grounding to see that all system components are on the ***same*** AC ground.
Distortion	Check input signals for distortion. Check if input signal is too hot. Check if output signal is too hot. Use the OUTPUT LED meters. Ensure that something downstream isn't clipping.
Mic inputs distortion	Lower the gain setting for Inputs 1 or 2 (applicable only to Inputs 1 and 2).
Noise (hiss)	Check input signal levels and level control settings. Check to see if the source signal is noisy. Check if there is too much gain downstream by using the output level controls of the 460 at Mute.
Intermittent input signal	Check input downward expander (gate). The threshold setting may be too high.
Output doesn't get hot enough	Check settings on output Compressor or Limiter. Check OUTPUT LEDs for illuminated COMP LED. Check ratio settings; they may be set too high. Check setting for **Compress Makeup Gain**; it may be too low. Check if **Compress Threshold** is set too low.
Output stripped of dynamics	AGC, Compressor, or Limiter working too well. Check setting for **Compress Threshold**. Check ratio settings. For AGC usage, 3:1 or less are good ratio settings.
Remote volume controls	Check **CTL Destination** settings in Main menu. Check **CTL Offset and Mult** in Serial Control Setup and Options menu.

Troubleshooting

continued

SYMPTOM	PROBABLE CAUSE / WHAT TO DO

460 doesn't respond to remote control (RS232 or RS485)	Check serial communications setting in Serial Control Setup and Options menu:
	   Check **Device Address**.
	   Check **Serial Port Type**.
	   Check **Interface Baud** setting.
	Check if port on the sending device works.
	Check for flashing COMM LED indicating that 460 is receiving and sending data.

Remote preset recall doesn't work	Check if remote switch provides a momentary contact closure. Check **Front Panel Lock** setting.
I give up. Let's go back to square 1. How do I do CTRL, ALT, DEL on this thing?	1 Mute the sound system. Are you sure that it is muted? 2 Remove power to the 460 (unplug the DIN connector). 3 Disconnect the outputs. These actions will put the unit into a factory test mode with a −1 dBSF test signal on the outputs. 4 Press and hold the PREVIOUS, NEXT, and EXIT buttons while simultaneously plugging in the power connector. 5 After the LEDs stop flashing, remove and restore power to the 460 once more. You will lose all settings in the 460.

Audio Performance

A/D and D/A Converter Resolution	24 bit
Internal Sampling Frequency	48 kHz

Remote Control

Serial Communication Protocols	RS232 and RS485
Baud Rates	9600, 19200, 38400, 57600, 115200
Voltage Control for Master Volume	Accepts DC signal from remote potentiometer or other device. Voltage may be offset and scaled to fit requirements. A built-in 10 V reference supply is provided for potentiometer use.
Program Control	8 active-low momentary switch closures select stored programs 1 to 8.

Input Channels 1 and 2

Type	Balanced, with additional gain for microphone and 12 V phantom power.
Connector Type	Euroblock
Frequency Response	+/− 0.25 dB, 20 Hz to 20 kHz at line level
THD+N	<0.005% at −1 dBFS
Available Preamp Gain Settings	0 dB to +4 dBu line level
	14 dB to −10 dBV line level
	50 dB microphone level
	60 dB microphone level
Dynamic Range	104 dBFS, A-weighted at line level gains
	>85 dBFS at +60 dB gain
Maximum Input Level	+22 dBu, +4 dB preamp gain
	+8 dBu, 14 dB preamp gain
	−38 dBu, 50 dB preamp gain
	−38 dBu, 60 dB preamp gain
Preamp CMRR	>40 dB at 60 Hz
Phantom Power	12 V, switchable
High Pass Filter	125 Hz, 6 dB/octave
Low Pass Filter	6 kHz, 6 dB/octave
Gate Threshold	0 dBFS to −99 dBFS

Input Channels 3 and 4

Type	Stereo, unbalanced, nominal −10 dBV line level
Connector	RCA female
Dynamic Range	100 dBFS, A-weighted
Frequency Response	+/− 0.25 dB, 20 Hz to 20 kHz
THD	< 0.005% at 0 dBV, 1 kHz

Input Channels 5 and 6

Type	Stereo, balanced, nominal +4 dBu line level. Internally switchable to −10 dBV
Connector	Euroblock
Dynamic Range	100 dBFS, A-weighted
Frequency Response	+/− 0.25 dB, 20 Hz to 20 kHz
THD	< 0.005% at 0 dBV, 1 kHz
Maximum Input Level	+22 dBu balanced
Common Mode Rejection Ratio	>40 dB at 60 Hz

Hardware Specifications

Output Channels 1 and 2

Type	Stereo, balanced, ground referenced (emulates grounded center tap)
Connectors	Euroblock
Source Impedance	300 ohms, balanced
Dynamic Range	105 dB, A-weighted, 1 kHz
Low Shelving (bass) Control	+/− 12 dB, 125 Hz, 6 dB/octave
High Shelving (treble) Control	+/− 12 dB, 8 kHz, 6 dB/octave
Parametric Filter	+/− 12 dB, 16.2 Hz to 19.7 kHz, bandwidth 0.05 to 3 octaves
Maximum Output	+22 dBu balanced

Connections

Power	7-pin DIN female
Audio I/O	Euroblock and RCA female (Inputs 3 and 4)
Serial Data	RS232: DB9 female (host), DB9 male (slave)
	RS485: Euroblock
Remote Preset Recall, Remote Volume	Euroblock
Inputs 1 and 2, Gain and Phantom Power	8-position DIP switch (4 per channel)

Physical

Size (H × W × D)	1.72 in. x 19 in. x 5 in. (1 rack unit)
	4.369 cm x 48.26 cm x 12.70 cm
Weight	3.94 lbs. / 1.77 kg

Electrical

Power Requirements	20 W maximum, Symetrix PS-3 or PS-3E only
PS-3	115 V nominal, 60 Hz AC
PS-3E	230 V nominal, 50 Hz to 60 Hz AC

In the interest of continuous product improvement,
Symetrix, Inc. reserves the right to alter, change, or
modify these specifications without prior notice. For
the latest specifications, visit symetrixaudio.com.
Go to the product page for the 460 Presentation Audio
Mixer.

Architects and Engineers Specifications

The Presentation Audio Mixer (PAM) shall provide all of the following audio mixing, processing and control functions. All mixing, processing and control shall be accomplished through digital signal processing (DSP).

Functions and features provided:

- 2 mono inputs, accept microphone or line level signals, may be operated ganged stereo or separated mono. These inputs provide 12 V phantom powering.

- 2 stereo inputs, accept consumer (−10 dBV) line-level signals.

- 2 stereo inputs, accept +4 dBu or −10 dBV line-level signals.

- 2 stereo outputs, accessible from any input at +4 dBu or −10 dBV nominal load.

- All inputs have high pass and low pass filtering, downward expanders (gates) and separate level controls for outputs 1 and 2.

- All outputs have 3-band equalization (low and high shelves with parametric mid-band).

- All outputs have AGC, compression, or limiting dynamics processing available.

- All outputs have stereo level controls and may be remote voltage controlled.

- Each pair of outputs may be set to receive a mono sum of its inputs.

- Remote program recall using active-low contact closures.

- Remote control using RS232 or RS485 protocols.

The PAM shall utilize 24-bit Sigma-Delta A/D and D/A converters operating at 48 kHz sample rate. The PAM shall have 4 balanced, symetrical line inputs, 4 unbalanced line inputs, and 4 balanced line outputs. All audio I/O connections shall utilize Euroblock connectors with the exception of the unbalanced line inputs which shall utilize RCA female connectors.

The PAM shall be UL listed and CE approved.

The PAM shall occupy one unit of rack space.

The PAM shall be the Symetrix 460 Presentation Audio Mixer.

Register Your Product and Get 4 Extra Years

We would like to offer you an incentive to complete our product registration form. Either fully complete and mail your product registration card or register online at symetrixaudio.com. You will then have a total of 5 years of warranty coverage, under the terms and limitations as set forth below, without additional cost.

If you don't register your product, you will still receive one year of warranty coverage, but it only takes a minute to fill out the card or register online and we won't share your personal information with others.

Following are the terms and limitations of the Symetrix warranty.

Warranty

Symetrix, Inc. expressly warrants to the original purchaser ("Buyer"), subject to the terms and conditions set forth below, that the Product will be free from defects in material and workmanship as a result of normal commercial use for one (1) year from the date of purchase. This warranty will be automatically extended (subject to the additional limitations set forth below) for an additional four years if the Warranty Registration is completed and returned to Symetrix (or completed online) within thirty (30) days of the date of delivery.

Symetrix's warranty obligation is limited to the repair, replacement, or refund at Symetrix's sole discretion, of the part or parts of the Product which may thus prove defective in materials or workmanship within one year from date of purchase (or five years from the date of purchase if Buyer has registered its purchase as provided above) under normal use and which our examination discloses to our satisfaction to be thus defective, provided that Buyer gives Symetrix prompt notice of its warranty claim and satisfactory proof thereof.

Symetrix will make every reasonable effort to ensure that parts are available to support the repair of our products under warranty. In the event that a product or component part thereof becomes obsolete, unavailable or irreparable, Symetrix reserves the right to refund a prorated portion of the purchase price in full satisfaction of all warranty claims. A refund of the purchase price is prorated as follows: 100% through year one, 80% through year two, 60% through year three, 40% through year four and 20% through year five.

In order to serve you better we request that the Buyer shall, prior to shipping Product to Symetrix for warranty service, contact Symetrix and secure a Return Authorization Number that shall be included with the returned Product. This will facilitate our efforts to keep track of your Product and process your warranty repair as quickly as possible. Buyer will prepay all freight charges to ship the Product to Symetrix for warranty inspection and service. This warranty is subject to Symetrix's inspection of the Product at its facilities and, upon Symetrix's request, satisfactory proof of purchase (dated copy of original retail dealer's invoice.)

Symetrix reserves the right to effect repairs to the product with reconditioned components/parts. Products once repaired under warranty will be shipped to Buyer freight prepaid by Symetrix via United Parcel Service (surface) or any similar shipper, to any location designated by buyer within the Continental United States. At Buyer's request and expense Product will be returned via airfreight. Outside the continental United States, repaired or replaced products will be returned freight collect.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE (INCLUDING, WITHOUT LIMITATION ANY OBLIGATIONS OF THE SELLER WITH RESPECT TO CONSEQUENTIAL DAMAGES) INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON OUR PART, AND WE NEITHER ASSUME, NOR AUTHORIZE ANY OTHER PERSON TO ASSUME FOR US, ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT. THIS WARRANTY SHALL NOT APPLY TO THIS PRODUCT OR ANY PART THERE OF WHICH HAS BEEN SUBJECT TO ACCIDENT, NEGLIGENCE, ALTERATION, ABUSE, OR MISUSE. WE MAKE NO WARRANTY WHATSOEVER IN RESPECT TO ACCESSORIES OR PARTS NOT SUPPLIED BY US. THE TERM "ORIGINAL PURCHASER," AS USED IN THIS WARRANTY SHALL BE DEEMED TO MEAN THAT PERSON OR COMPANY THAT ORIGINALLY PURCHASED THE PRODUCT.

This Symetrix product has been designed and manufactured for use in professional/industrial systems and is not intended for other usage. This warranty only applies to Buyers using the Product professional/industrial systems. With respect to others, including but not limited to consumers for personal, family, or household use, Symetrix expressly disclaims all warranties, including but not limited to warranties of merchantability and fitness for a particular purpose and the express warranties as otherwise provided herein.

Symetrix reserves the right to modify the design or make additions to, or improvements to, its product lines without making similar upgrades to Product purchased by Buyer. Symetrix does not authorize any third party, including any dealer or sales representative, to assume any liability, effect any repairs or modifications to the Product, or make any additional warranties or representation regarding the Product or Product information on behalf of Symetrix.

Symetrix's total liability on any claim, whether in contract, tort (including negligence) or otherwise arising out of, connected with, or resulting from the manufacture, sale, delivery, resale, repair, replacement or use of Product will not exceed the purchase price of the Product or any part thereof which gives rise to the claim. In no event will Symetrix be liable for any incidental or consequential damages including but not limited to damage for lost revenue, cost of capital, claims of customers for service interruptions or failure to supply, and costs and expenses incurred in connection with labor, overhead, transportation, installation or removal of products or substitute facilities or supply houses as a result of Product failure.

This limited warranty gives Buyer certain rights. Buyer may have additional rights under applicable law.

Where to Get Service

If outside of the USA

If you have determined that your 460 requires repair services and you live outside of the United States, please contact your local Symetrix dealer or distributor for instructions on how to obtain service.

If inside the USA

Symetrix will perform in-warranty or out-of-warranty service on any product it has manufactured for a period of five years from date of manufacture. If you reside in the USA, then proceed as follows:

In-Warranty Repairs

Repairs made in-warranty will cost you only one-way freight charges. We'll prepay the return (surface) freight. Of course, if the repair is due to operator error, parts and labor will be charged. If there are charges for the repair costs, you will pay for the return freight. All charges will be COD unless you have made other arrangements (prepaid, Visa, or Mastercard).

Out-of-Warranty Repairs

If the warranty period has passed, you'll be billed for all necessary parts, labor, packaging materials, and freight charges.

To Get Your 460 Unit Repaired (USA Customers Only)

1 Call our Technical Services Group for a return authorization (RA) number.

2 (888) 349-3222 or (425) 787-3222, Monday through Friday, 6:00 am to 5:00 pm Pacific Time.

   Have your serial number ready to give to the service representative.

3 Pack the unit in its original packaging materials.

4 Include your name, address, daytime telephone number, and a brief statement of the problem.

5 Write the RA number on the outside of the box.

6 Ship the unit to Symetrix, freight prepaid. **We do *not* accept freight collect shipments**.

Symetrix, Inc.
14926 35th Ave West
Lynnwood WA 98037

If You Don't Have Factory Packaging Materials

If you send us your product in substandard packaging, we will charge you for factory shipping materials. If you don't have the factory packaging materials, do the following:

1 Select an oversized carton.

2 Wrap the unit in a plastic bag, and surround it with bubble-wrap.

3 Pack the box full of Styrofoam peanuts. Be sure there is enough clearance in the carton to protect the rack ears.

We will return the unit in Symetrix packaging.

Declaration of Conformity

We, Symetrix Inc.

14926 35th Ave. West, Lynnwood, Washington, USA,

declare under our sole responsibility that the product:

460 Presentation Audio Mixer

to which this declaration relates, is in conformity with the following standards:

EN55103-1

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

EN 55103-2

Electromagnetic compatibility—Generic immunity standard
Part 1: Residential, commercial, and light industry.

PS-3E power supply complies with this code:

EN 60950

Safety requirements for mains operated electronic and related apparatus for household and similar general use.

The technical construction file is maintained at:

Symetrix, Inc.

14926 35th Avenue West

Lynnwood, WA 98037-2303

USA

The authorized representative located within the European Community is:

World Marketing Associates

P.O. Box 100

St. Austell, Cornwall, PL26 6YU, U.K.

Date of issue: January 2001

Place of issue: Lynnwood, Washington USA

Authorized signature:

Dane Butcher, President

301	Low Distortion Compressor/Limiter
302	Dual Microphone Preamplifier
303	Interface Amplifier
304	Headphone Amplifier
305	Distribution Amplifier (1x4)
306	Preamp/Ducker
307	Dual Isolation Transformer
308	VCA Volume Control/Loudness EQ
372	SPL Computer
402	Dual Output Delay
420	Stereo Power Amplifier
421M	AGC-Leveler
422	Stereo AGC-Leveler
440	Foreground Audio Controller
450	Dual Zone Priority Mixer
460	Presentation Audio Mixer
501	Peak-RMS Compressor/Limiter
501-01	Peak-RMS Compressor/Limiter
506E	Headphone Amplifier
527E	Voice Processor
528E	Voice Processor
531E	Graphic Equalizer
532E	Graphic Equalizer
533E	Graphic Equalizer
551E	5-Band Parametric EQ
552E	Dual 5-Band Parametric EQ
562E	Windowing Expander/Gate
565E	Dual Compressor/Limiter/Expander
571	SPL Computer
571S	SPL Computer Slave
572	SPL Computer
581E	Distribution Amplifier (4x4)
606	Delay F/x Machine
610	Broadcast Audio Delay
628	Digital Voice Processor
9022	2x2 DSP Engine
HR-1	Headphone Remote for 304 and 506E
RC-1	628 Remote Control
RC-2	Remote Control
RC-3	Remote Control
RC-610	Remote Control

Symetrix

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