

Kramer Electronics, Ltd.



USER MANUAL

Model:

VP-727A

Audio Switcher

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in eight groups¹ that are clearly defined by function.

Congratulations on purchasing your Kramer **VP-727A Audio Switcher**, which is ideal for staging events, as well as:

- Presentation applications that require an audio preview option
- Projection systems with sound in conference rooms, board rooms, auditoriums, hotels, and houses of worship

The package includes these items:

- **VP-727A** Audio Switcher
- Power cord²
- Null-modem adapter
- This user manual

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual³
- Use Kramer high performance high resolution cables⁴

2.1 Quick Start

This quick start chart summarizes the basic steps when connecting a **VP-727A**:

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Sealers; and GROUP 8: Cables and Connectors

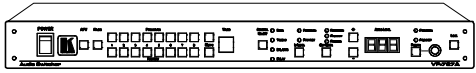
2 We recommend that you use only the power cord that is supplied with the machine

3 Download up-to-date Kramer user manuals from the Internet at this URL: <http://www.kramerelectronics.com>

4 The complete list of Kramer cables is on our Web site at <http://www.kramerelectronics.com>

Step 1: Mount the machine - see section 5

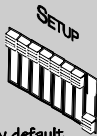
Mount the machine in a rack or stick the 4 rubber feet to the underside



Step 2: Connect the inputs/outputs - see section 6

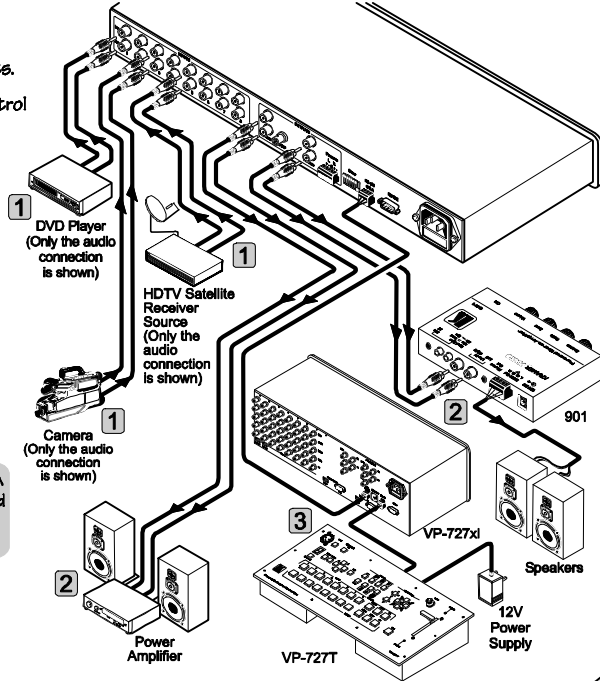
- 1 Connect the inputs.
- 2 Connect the outputs.
- 3 Connect to the control panel.

SET THE DIPSWITCHES



By default, DIPs 1 to 7 are set to OFF and DIP 8 is set to ON.

When connecting VP-727A to VP-727, DIPs 1 to 6 and DIP 8 are set to OFF. DIP 7 is set to ON.



Step 3: Use the front panel buttons - see section 4

Select a preview/program input. Use mute to disable/enable it

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7	8	MUTE	

PREVIEW

AFV When illuminated, the audio channels follow the video channels (on the VP-727X1 and VP-727)

FADE Create a dissolved transition from the PREVIEW to the PROGRAM output

TAKE Swap the preview input with the program input

PROGRAM Set the PROGRAM or the PREVIEW output to the headphones

PHONES

LOCK Lock/unlock the front panel buttons

Cycle between the audio control features

CONTROL SELECT BASS TREBLE BALANCE DELAY

Select the input or output audio level

PROGRAM PREVIEW PHONES

IN LEVEL OUT LEVEL

Increase/decrease the level of the selected control feature

AUDIO LEVEL + -

Step 4: Operate the machine - see section 6

Operate via the front panel buttons, RS-232, RS-485, and/or the VP-727T Control panel

3 Overview

The Kramer **VP-727A** is a high performance 8x2 audio switcher for unbalanced stereo audio signals. It switches any input to either the preview or program output. The **VP-727A** is an audio companion switcher for the **VP-727xl Universal Presentation Matrix Switcher / Scaler** and the **VP-727 Universal Presentation Matrix Switcher / Scaler**, and operates in conjunction with them and the **VP-727T Presentation Switcher Control Panel**.

The **VP-727A** features:

- Eight unbalanced stereo audio inputs on RCA connectors
- Three program outputs: unbalanced stereo audio, balanced stereo audio and S/PDIF
- One unbalanced stereo audio preview output
- A selectable headphone connector for preview or program audio outputs
- A front panel lockout
- A TAKE button for executing preview to program switching (with transition effects)
- An audio-follow-video button when operating in conjunction with the **VP-727xl** or the **VP-727**
- Fade to mute audio switching
- Separate mute buttons for the preview and program channels
- Bass, treble and balance audio controls
- Audio delay for each input channel

You can control the **VP-727A** via the front panel buttons and/or RS-232.

Achieving the best performance means:

- Connecting only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoiding interference from neighboring electrical appliances, making sure not to block the ventilation holes, and positioning your **VP-727A** away from moisture, excessive sunlight and dust

4 Your VP-727A Audio Switcher

Figure 1 and Table 1 define the front panel of the **VP-727A**:

Your VP-727A Audio Switcher

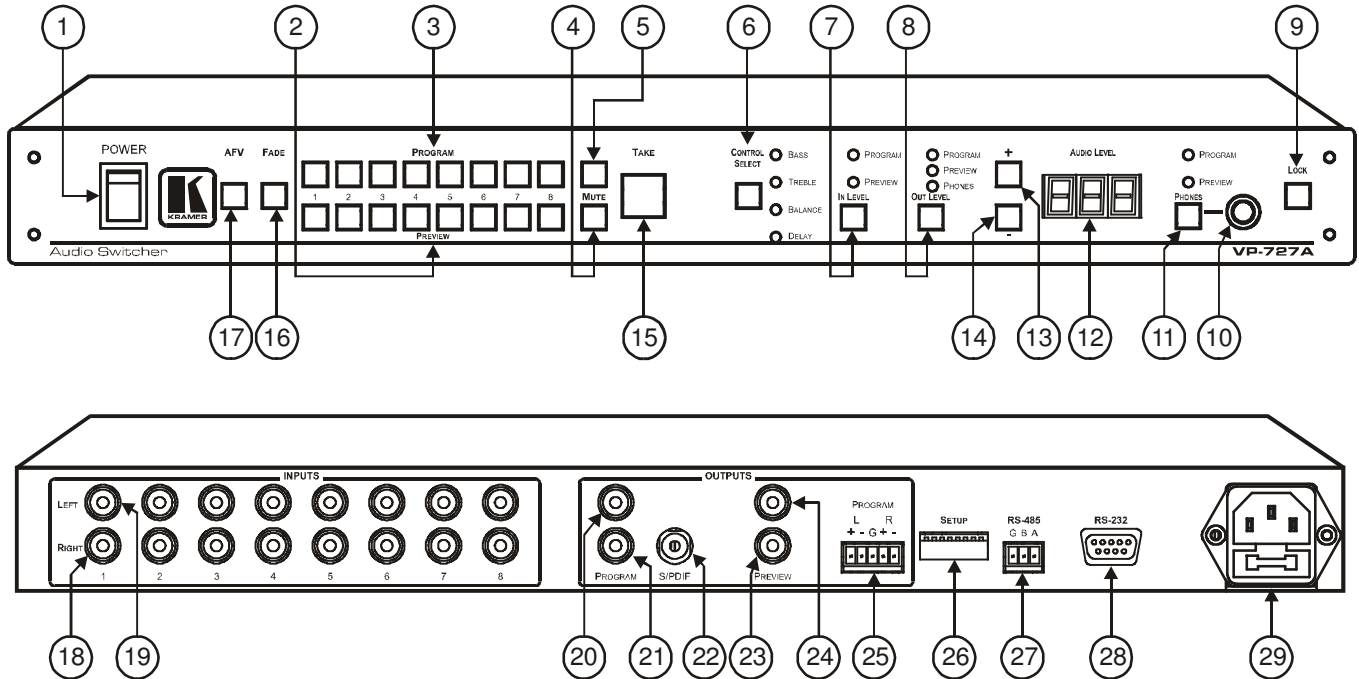


Figure 1: VP-727A Audio Switcher

Your VP-727A Audio Switcher

Table 1: VP-727A Audio Switcher Features

#	Feature		Function	
1	POWER Switch		Illuminated switch for turning the unit ON or OFF	
2	PREVIEW Input Buttons		Press to select an audio source to switch to the PREVIEW output ¹	
3	PROGRAM Input Buttons		Press to select an audio source to switch to the PROGRAM output ¹	
4	MUTE	Preview Button	Press to disable/enable the preview audio output	
5		Program Button	Press to disable/enable the program audio output	
6	CONTROL SELECT Button		Press to cycle ² between the BASS, TREBLE, BALANCE and DELAY ³	
7	IN LEVEL Button		Press to select ² the PROGRAM or the PREVIEW input audio level for each program and preview channel	
8	OUT LEVEL Button		Press to select ² the PROGRAM, the PREVIEW or the PHONES output audio level	
9	LOCK Button		Press and hold to lock/unlock the front panel buttons	
10	PHONES	6.3mm Jack	Connect to the headphones	
11		Button	Press to select ² which output (PROGRAM or the PREVIEW) to send to the headphones	
12	AUDIO LEVEL 7-segment Display		Displays the numerical value of the CONTROL feature ⁴	
13	+ Button		Press to increase the level ⁴	
14	- Button		Press to decrease the level ⁴	
15	TAKE Button		Press to swap the preview input with the program input ⁵	
16	FADE Button		Press to create a dissolved transition from the PREVIEW to the PROGRAM output	
17	AFV Button		When pressed, the button is illuminated, and the audio channels follow the video channels (on the VP-727xl or the VP-727) Deselect AFV to switch the audio channels independently	
18	INPUT RCA Connectors	RIGHT	Connect to the unbalanced stereo audio source (from 1 to 8)	
19		LEFT		
20	OUTPUTS	PROGRAM RCA Connectors	LEFT	Connect to an unbalanced stereo audio program acceptor
21			RIGHT	
22		S/PDIF RCA Connector		Connect to a digital audio acceptor
23		PREVIEW RCA Connectors	RIGHT	Connect to an unbalanced stereo audio preview acceptor
24			LEFT	
25	PROGRAM Terminal Block Connector		Connect to a balanced stereo audio program acceptor	
26	SETUP Dipswitches (DIP 1 to DIP 6 are not used)		Set DIP 8 to ON to operate the VP-727A with the VP-727xl ⁶ Set DIP 7 to ON to operate the VP-727A with the VP-727 ⁶	
27	RS-485 Port		Connects to the Kramer VP-727T or the VP-727xl (see section 6.4) Pin G is for the Ground connection ⁷ ; pins B (-) and A (+) are for RS-485	
28	RS-232 Connector		DB 9F connector connects to a PC or Remote Controller via a null-modem connection	
29	Power Connector with Fuse		AC connector enabling power supply to the unit	

1 From 1 to 8

2 The appropriate LED lights

3 The BASS, TREBLE and BALANCE levels are set for the PROGRAM output. The DELAY is set for each PROGRAM input

4 BASS, TREBLE, BALANCE, DELAY, audio input level (PREVIEW AND PROGRAM), and audio output level (PREVIEW AND PROGRAM)

5 To reset the VP-727A to its factory default settings, turn the unit OFF, then turn it ON while pressing the TAKE button for about 2 seconds: The preview and program input is set to input 1, the input volume resets to 0dB, and the bass and treble levels reset to 0

6 Set the other dipswitches to OFF

7 The ground connection is sometimes connected to the shield of the RS-485 cable. However, usually the ground is not connected



4.1 The VP-727A Audio Switcher Underside

Figure 2 and Table 2 define the **VP-727A** underside.

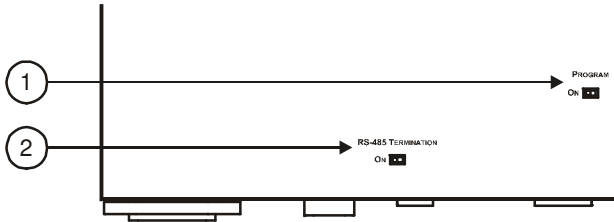


Figure 2: VP-727A Audio Switcher Underside

Table 2: VP-727A Audio Switcher Underside Features

#	Feature	Function
1	PROGRAM Slide Switch	Slide to ON to upgrade to the latest Kramer firmware (see section 7), or to the right for normal operation (the factory default)
2	RS-485 TERMINATION Slide Switch	Slide to ON for RS-485 Line Termination with 120Ω, or to the right for no RS-485 Line Termination

5 Installing the VP-727A Audio Switcher on a Rack

This section describes what to do before installing on a rack and how to rack mount.

Before Installing on a Rack

Before installing on a rack, be sure that the environment is within the recommended range:	
Operating temperature range	+5 to +45 Deg. Centigrade
Operating humidity range	10 to 90% RHL, non-condensing
Storage temperature range	-20 to +70 Deg. Centigrade
Storage humidity range	5 to 95% RHL, non-condensing



CAUTION!!

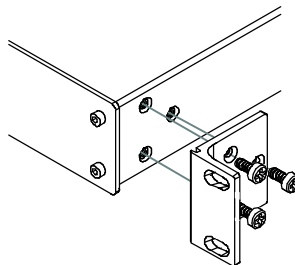
When installing on a 19" rack, avoid hazards by taking care that:

- 1 It is located within the recommended environmental conditions, as the operating ambient temperature of a closed or multi unit rack assembly may exceed the room ambient temperature.
- 2 Once rack mounted, enough air will still flow around the machine.
- 3 The machine is placed straight in the correct horizontal position.
- 4 You do not overload the circuit(s). When connecting the machine to the supply circuit, overloading the circuits might have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.
- 5 The machine is earthed (grounded) in a reliable way and is connected only to an electricity socket with grounding. Pay particular attention to situations where electricity is supplied indirectly (when the power cord is not plugged directly into the socket in the wall), for example, when using an extension cable or a power strip, and that you use only the power cord that is supplied with the machine.

How to Rack Mount

To rack-mount a machine:

- 1 Attach both ear brackets to the machine. To do so, remove the screws from each side of the machine (3 on each side), and replace those screws through the ear brackets.



- 2 Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

Note that:

- In some models, the front panel may feature built-in rack ears
- Detachable rack ears can be removed for desktop use
- Always mount the machine in the rack before you attach any cables or connect the machine to the power
- If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions (you can download it at: <http://www.kramerelectronics.com>)

6 Configuring the VP-727A Audio Switcher

This section describes how to:

- Connect the **VP-727A** (see section 6.1)
- Connect a PC (see section 6.2)
- Configure an AV presentation switcher, with a controller (see section 6.3)
- Connect via the RS-485 (see section 6.4)

6.1 Connecting the VP-727A Audio Switcher

To connect¹ the **VP-727A** as illustrated in the example in Figure 3, do the following²:

1. Connect the unbalanced audio sources to the inputs³. For example, the unbalanced audio signal of:
 - A DVD player to the INPUT 1 LEFT and RIGHT RCA connectors
 - A camera to the INPUT 3 LEFT and RIGHT RCA connectors
 - An HDTV satellite receiver to the INPUT 5 LEFT and RIGHT RCA connectors
2. Connect the following unbalanced audio outputs⁴:
 - The PROGRAM LEFT and RIGHT RCA connectors to a Program acceptor (for example, a power amplifier with speakers)
 - The PREVIEW LEFT and RIGHT RCA connectors to a Preview acceptor (for example, the Kramer **901 Personal Stereo Amplifier**⁵ connected to speakers)
3. Connect the RS-485 terminal block connector on the **VP-727A** to the AUDIO CONTROL terminal block connector of the Kramer **VP-727xl**.
4. On the **VP-727A**, set DIP 8 to ON⁶. Make sure that all the other dipswitches are set to OFF.
5. Connect the RS-485 terminal block connector on the **VP-727xl** (see section 6.3) to the RS-485 terminal block connector of the **VP-727T**.
6. Connect the power cord⁷ (not shown in Figure 3).

1 You do not have to connect all the inputs and outputs

2 Switch OFF the power on each device before connecting it to your VP-727A. After connecting your VP-727A, switch on its power and then switch on the power on each device

3 The video inputs are connected to the VP-727xl in this example. Refer to the separate user manuals for these machines, which can be downloaded from the Internet at this URL: <http://www.kramerelectronics.com>

4 You can also connect the S/PDIF digital audio RCA connector and the balanced stereo audio terminal block connector to the appropriate audio acceptors (not illustrated in Figure 3)

5 You can download this user manual from the Internet at: <http://www.kramerelectronics.com>

6 When connecting the VP-727A to the VP-727, set DIP 7 to ON and make sure that all the other dipswitches are set to OFF

7 We recommend that you use only the power cord that is supplied with this machine

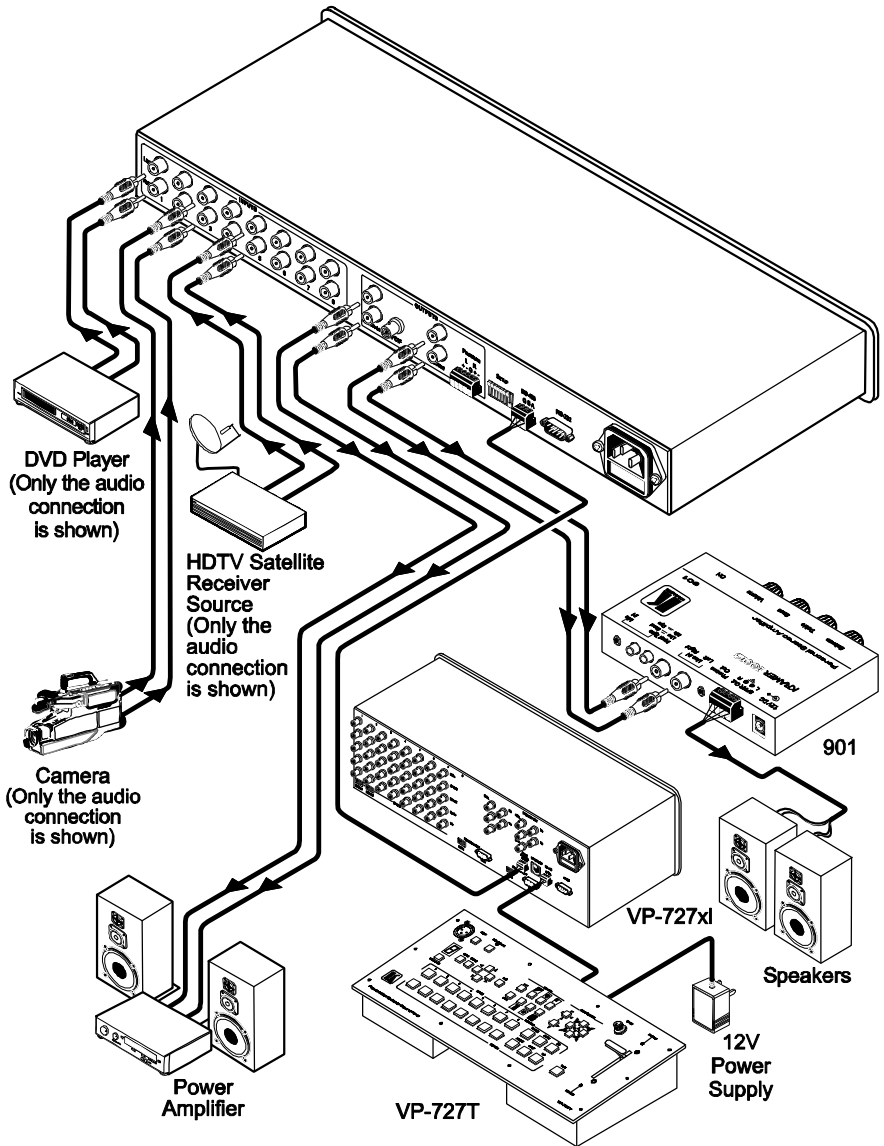


Figure 3: Connecting the VP-727A with a VP-727xl Machine

6.2 Connecting a PC (via RS-232) to a Standalone VP-727A¹

You can connect a PC (or other controller) to a standalone **VP-727A** via the RS-232 port for remote control and for upgrading the firmware.

To connect a PC to a **VP-727A** unit, using the Null-modem adapter provided with the machine (recommended):

- Connect the RS-232 DB9 rear panel port on the **VP-727A** unit to the Null-modem adapter and connect the Null-modem adapter with a 9-wire flat cable to the RS-232 DB9 port on your PC

To connect a PC to a **VP-727A** unit, without using a Null-modem adapter:

- Connect the RS-232 DB9 port on your PC to the RS-232 DB9 rear panel port on the **VP-727A** unit, forming a cross-connection², as Figure 4 illustrates

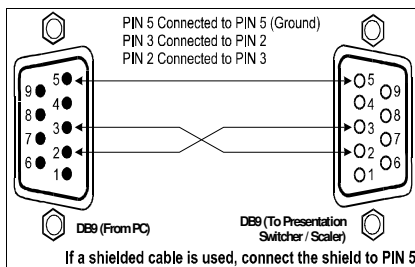


Figure 4: Connecting the PC

¹ When the VP-727A is configured with the VP-727xl, the audio follows the video and the VP-727A cannot be controlled via a PC

² Also known as a Null-modem connection

6.3 Configuring the VP-727A with the VP-727xl¹ and the VP-727T

The VP-727A can be controlled by the VP-727T in conjunction with one or more VP-727xl or VP-727 units. The VP-727A can be connected to the:

- VP-727xl (see Figure 5) or the VP-727 (see Figure 6)
- VP-727T via the VP-727xl or the VP-727 using the RS-485 ports

The example in Figure 5 illustrates how to connect two VP-727A machines and two VP-727xl machines to a VP-727T controller.

On each VP-727A machine, set DIP 8 to ON. The other dipswitches are set to OFF

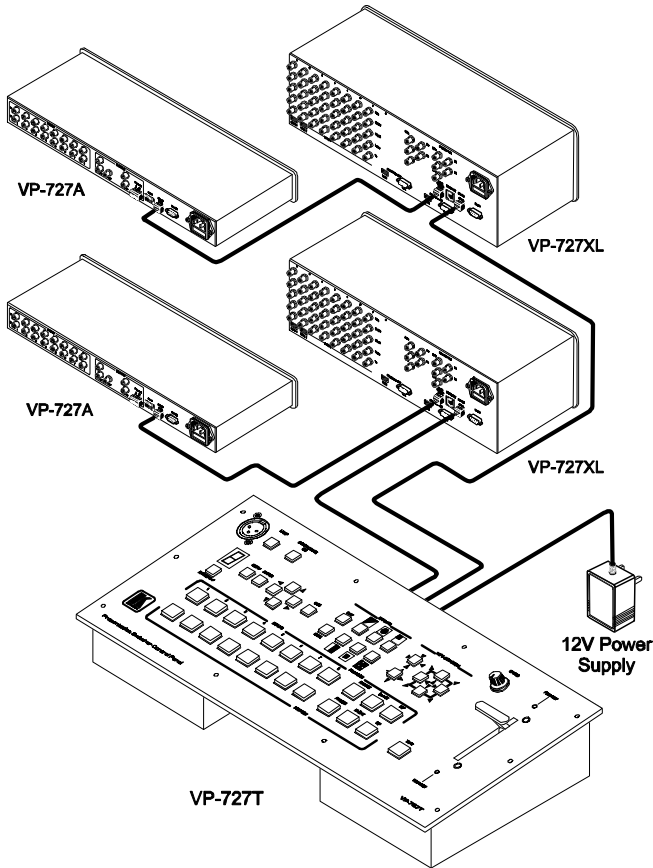


Figure 5: Connecting 2 VP-727A machines to the VP-727T via 2 VP-727xl Machines

¹ Or the VP-727

The example in Figure 6 illustrates how to connect a **VP-727A** and a **VP-727** machine to a **VP-727T** controller.

On the **VP-727A**, set DIP 7 to ON. The other dipswitches are set to OFF

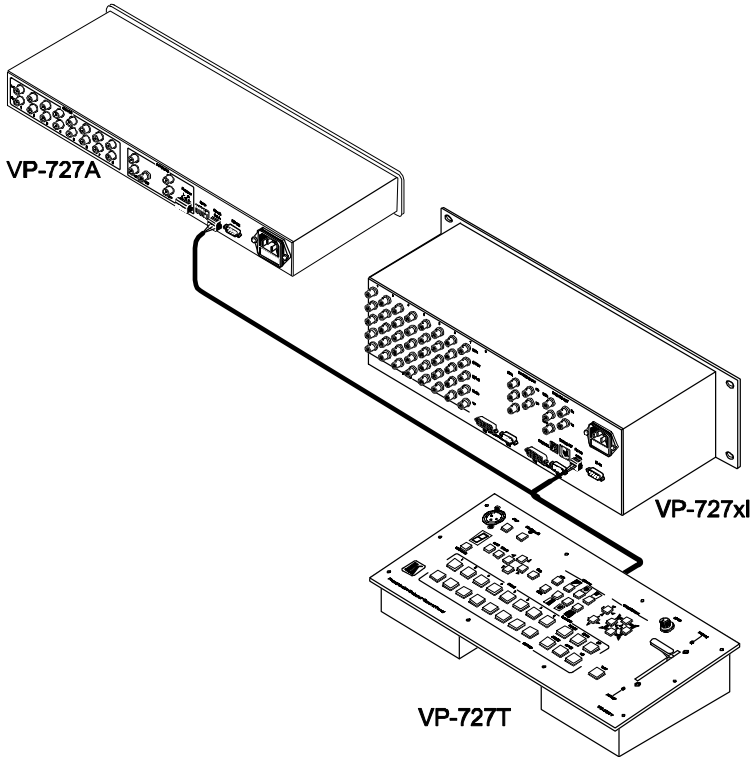


Figure 6: Connecting the VP-727A to the VP-727T via the VP-727

6.4 Connecting via RS-485

You can connect the **VP-727A** to the **VP-727T**, via RS-485 communication, via the **VP-727xl** (see section 6.4.1) or via the **VP-727** (see section 6.4.2).

6.4.1 Connecting the VP-727A to the VP-727T via the VP-727xl

To connect the **VP-727A** to the Kramer **VP-727T Presentation Switcher Control Panel** via the RS-485 control port, as illustrated in the example in Figure 7, do the following:

1. Connect the **VP-727A** to the **VP-727xl** as follows:
 - Connect the “A” (+) PIN on the RS-485 rear panel port of the **VP-727A** to the A (+) PIN on the AUDIO CONTROL rear panel port of the **VP-727xl** unit
 - Connect the “B” (-) PIN on the RS-485 rear panel port of the **VP-727A** to the B (-) PIN on the AUDIO CONTROL rear panel port of the **VP-727xl** unit
 - If shielded twisted pair cable is used, the shield may be connected to the “G” (Ground) PIN on one of the units
2. Connect the **VP-727xl** to the **VP-727T** as follows:
 - Connect the “A” (+) PIN on the RS-485 rear panel port of the **VP-727xl** to the A (+) PIN on the RS-485 rear panel port of the **VP-727T** unit
 - Connect the “B” (-) PIN on the RS-485 rear panel port of the **VP-727xl** to the B (-) PIN on the RS-485 rear panel port of the **VP-727T** unit
 - If shielded twisted pair cable is used, the shield may be connected to the “G” (Ground) PIN on one of the units
3. Slide the underside RS-485 TERMINATION switch to ON.

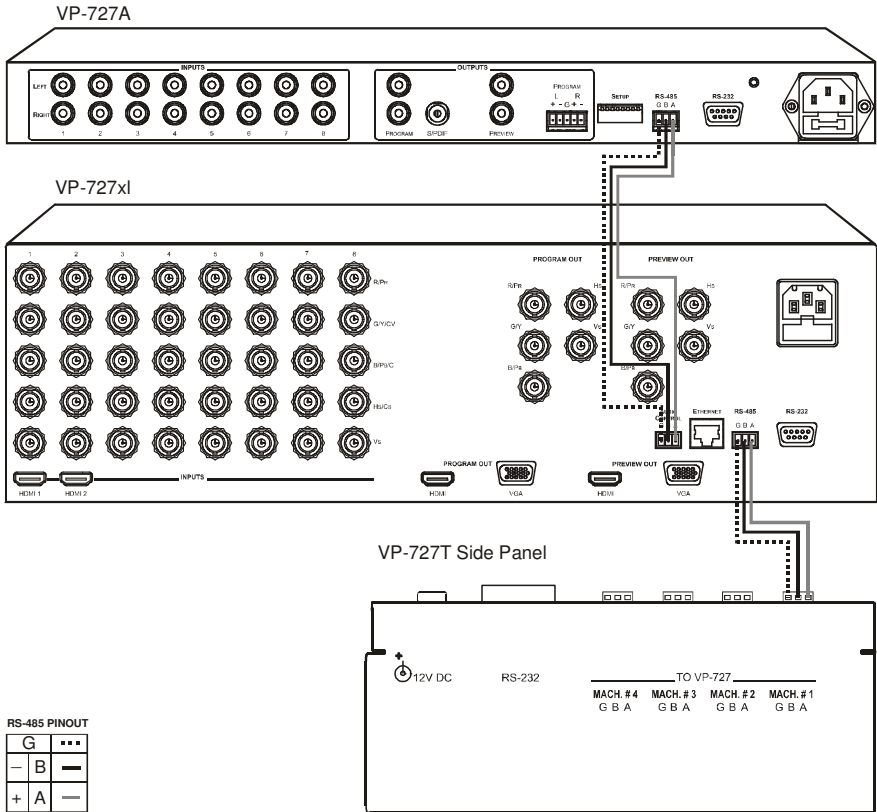


Figure 7: RS-485 Configuration between the VP-727A and the VP-727xl

6.4.2 Connecting the VP-727A to the VP-727T via the VP-727

To connect the **VP-727A** to the **Kramer VP-727T Presentation Switcher Control Panel** via the RS-485 control port, as illustrated in the example in Figure 8, do the following:

1. Connect the **VP-727A** to the **VP-727** as follows:
 - Connect the “A” (+) PIN on the RS-485 rear panel port of the **VP-727A** to the A (+) PIN on the RS-485 rear panel port of the **VP-727** unit
 - Connect the “B” (-) PIN on the RS-485 rear panel port of the **VP-727A** to the B (-) PIN on the **AUDIO CONTROL** rear panel port of the **VP-727** unit
 - If shielded twisted pair cable is used, the shield may be connected to the “G” (Ground) PIN on one of the units

Configuring the VP-727A Audio Switcher

2. Connect the **VP-727** to the **VP-727T** as follows:
 - Connect the “A” (+) PIN on the RS-485 rear panel port of the **VP-727** to the A (+) PIN on the RS-485 rear panel port of the **VP-727T** unit
 - Connect the “B” (-) PIN on the RS-485 rear panel port of the **VP-727** to the B (-) PIN on the RS-485 rear panel port of the **VP-727T** unit
 - If shielded twisted pair cable is used, the shield may be connected to the “G” (Ground) PIN on one of the units
3. Slide the underside RS-485 TERMINATION switch to ON.

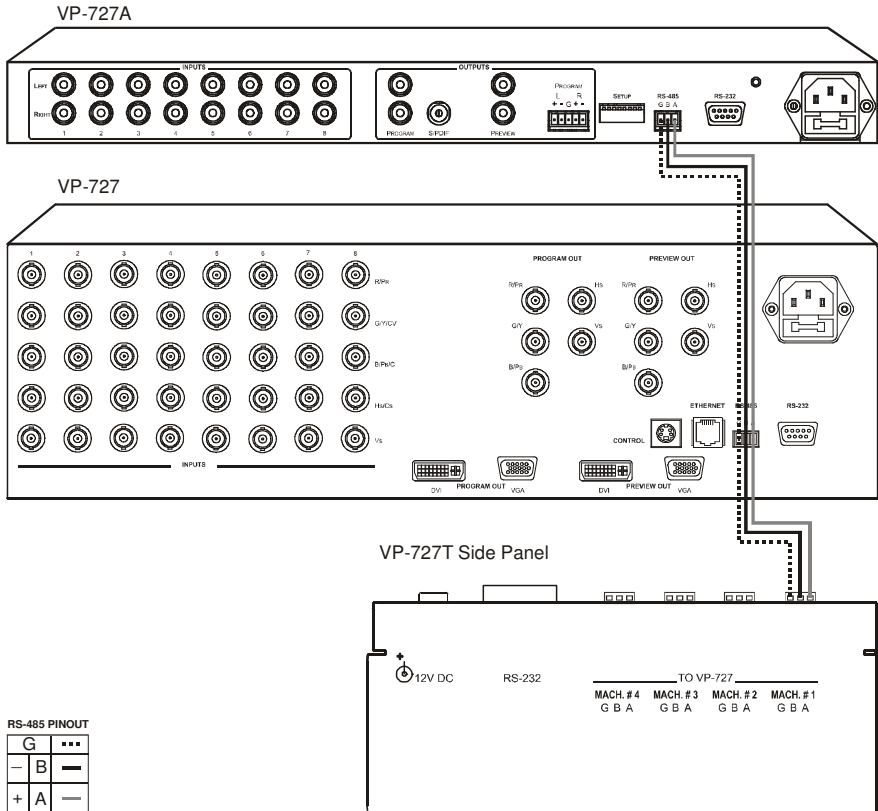


Figure 8: RS-485 Configuration between the VP-727A and the VP-727

7 Flash Memory Upgrade

The **VP-727A** firmware is located in FLASH memory, which lets you upgrade¹ to the latest Kramer firmware version in minutes! The process involves:

- Downloading from the Internet (see section 7.1)
- Connecting the PC to the RS-232 port (see section 7.2)
- Upgrading Firmware (see section 7.3)

7.1 Downloading from the Internet

You can download the up-to-date file² from the Internet. To do so:

1. Go to our Web site at www.kramerelectronics.com and download the file: “*FLIP_VP727A.zip*” from the Technical Support section.
2. Extract the file: “*FLIP_VP727A.zip*” to a folder (for example, C:\Program Files\Kramer Flash).
3. Create a shortcut on your desktop to the file: “*FLIP.EXE*”.

7.2 Connecting the PC to the RS-232 Port

Before installing the latest Kramer firmware version on a **VP-727A** unit, do the following:

1. Connect the RS-232 DB9 rear panel port according to section 6.2.
2. Slide the underside PROGRAM switch to ON (see section 4.1).
3. Switch the unit ON.

Note: this sequence is critical – first push the FLASH PROG button and then turn on the unit

¹ Upgrade should be carried out by skilled technical personnel. Failure to upgrade correctly will result in the malfunction of the machine

² The files indicated in this section are given as an example only. File names are liable to change from time to time

7.3 Upgrading Firmware

Follow these steps to upgrade the firmware:

1. Double click the desktop icon: “*Shortcut to FLIP.EXE*”.
The Splash screen appears as follows:

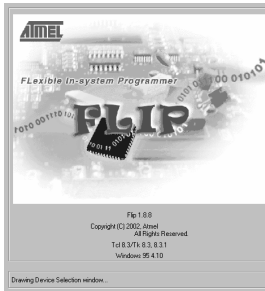


Figure 9: Splash Screen

2. After a few seconds, the Splash screen is replaced by the “*Atmel – Flip*” window:



Figure 10: Atmel – Flip Window

3. Press the keyboard shortcut key *F2* (or select the “*Select*” command from the *Device* menu, or press the integrated circuit icon in the upper right corner of the window).
The “*Device Selection*” window appears:



Figure 11: Device Selection Window

4. Click the button next to the name of the device and select from the list:
AT89C51RD2:

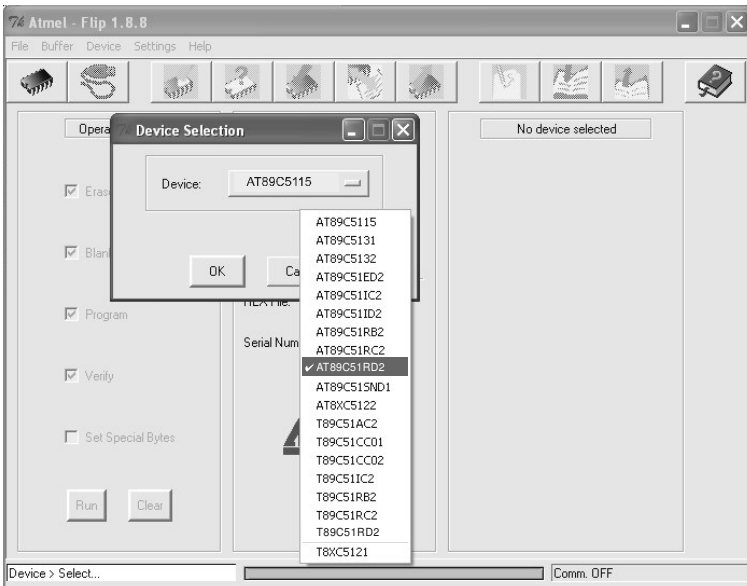


Figure 12: Selecting the Device Window

5. Click OK and select “Load Hex” from the File menu.

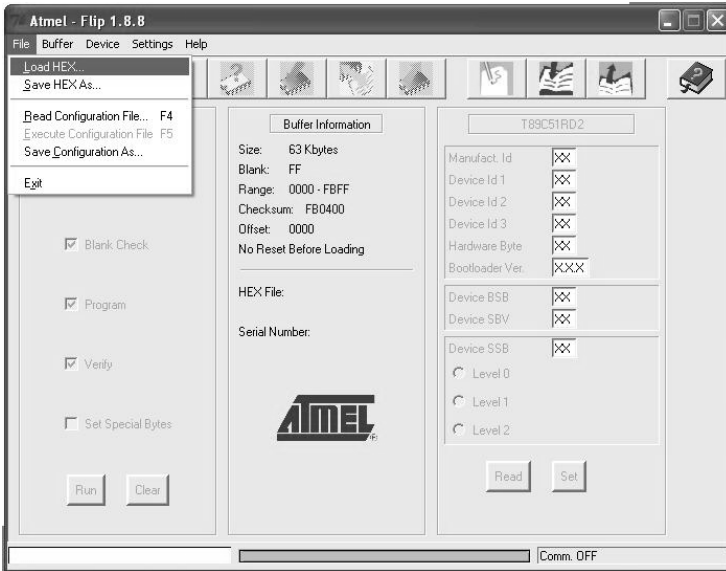


Figure 13: Loading the Hex

6. The Open File window opens. Select the correct HEX file that contains the updated version of the firmware for **VP-727A** (for example **44M_V1p2.hex**) and click Open.
7. Press the keyboard shortcut key *F3* (or select the “*Communication / RS232*” command from the *Settings* menu, or press the keys: *Alt SCR*). The “*RS232*” window appears. Change the COM port according to the configuration of your computer and select the 9600 baud rate:

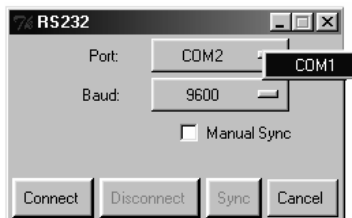


Figure 14: RS-232 Window

8. Click Connect.
In the “*Atmel – Flip*” window, in the *Operations Flow* column, the *Run* button is active, and the name of the chip appears as the name of the third column: *AT89C51RD2*.
Verify that in the *Buffer Information* column, the “*HEX File: VP727A.hex*” appears.

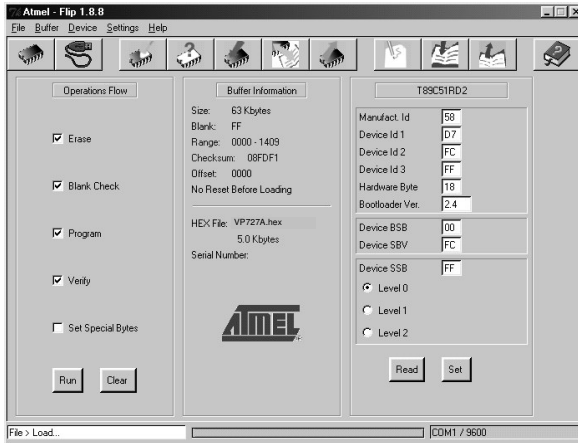


Figure 15: Atmel – Flip Window (Connected)

9. Click *Run*.

After each stage of the operation is completed, the check-box for that stage becomes colored green¹.

When the operation is completed, all 4 check-boxes will be colored green and the status bar message: *Memory Verify Pass* appears²:

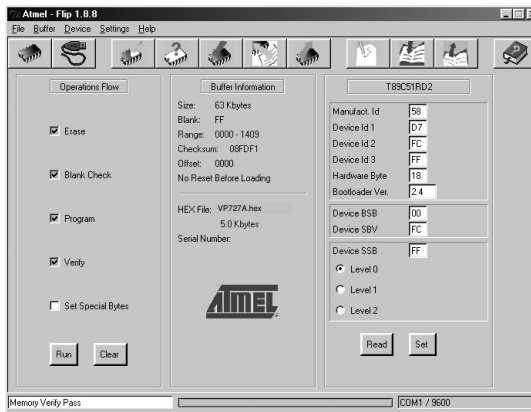


Figure 16: Atmel – Flip Window (Operation Completed)

10. Close the “Atmel – Flip” window.

11. Disconnect the power on the **VP-727A**.

1 See also the blue progress indicator on the status bar

2 If an error message: “Not Finished” shows, click Run again

12. If required, disconnect the *RS-232* rear panel port on the **VP-727A** unit from the Null-modem adapter.
13. Slide the underside PROGRAM switch to the right (see section 4.1).
14. Connect the power to the **VP-727A**.
Upon initialization, the new **VP-727A** software version shows in the STATUS 7-segment Display.

8 Technical Specifications

Table 3 includes the technical specifications:

Table 3: Technical Specifications¹ of the VP-727A Audio Switcher

INPUTS:	8 unbalanced stereo on RCA connectors
OUTPUTS:	1 Program and 1 Preview stereo unbalanced outputs on RCA connectors 1 Program balanced output on a 5-pin terminal block connector 1 Headphone output on a 6.5mm jack 1 Program S/PDIF output on an RCA connector
MAX. OUTPUT LEVEL:	>4.5Vpp
BANDWIDTH (-3dB):	>22kHz
S/N RATIO:	>85dB
CROSSTALK @1kHz (all hostile):	Program: <-88dB Preview: <-92dB Balanced: <-88dB Phones (Preview): <-82dB Phones (Program): <-80dB
CONTROLS:	Preview level: <-72dB to 62dB in and out Program level: <-73dB to 45dB in and out Program bass: 0dB to 27dB @100kHz Program treble: 0dB to 11dB @10kHz Program balance: -18dB to 0dB Program balanced (+/-) level: <-80db to 47dB Phones level (preview and program level): <-80dB to 57dB
COUPLING:	AC, input and output
AUDIO THD + NOISE:	Program: 0.02%; Preview: 0.002%; Program phones: 0.034%; Preview phones: 0.018%
AUDIO 2nd HARMONIC:	Preview phones: 0.03%; Program phones: 0.04%; Program: 0.03%; Preview: 0.04%; Program balanced: 0.04%
POWER SOURCE:	100-240 VAC, 50/60 Hz; 10VA
DIMENSIONS:	19-inch (W), 7-inch (D) 1U (H) rack-mountable
WEIGHT:	2.7kg (6lbs.) approx.
ACCESSORIES:	Power cord, Null modem adapter, Windows®-based Kramer control software

¹ Specifications are subject to change without notice

9 Kramer VP-727A Protocol (Ver. 1.7)

A protocol for the **VP-727A** is described below.

For RS-232: A null-modem connection between the PC and the **VP-727A** is required, and data is at 9600 baud, no parity, 8 data bits, and 1 stop bit.

For RS-485: A differential (2 wire) connection between the **VP-727(xl)** and the **VP-727A** is required (A, B; GND may be connected to the shield if required).

All values shown are hexadecimal.

Table 4: Instruction Codes for the VP-727A Protocol

INSTRUCTION	1 st Byte	2 nd Byte	3 rd Byte	4 th Byte	COMMENT
FACTORY RESET	00	81	81	81	See NOTE 1
RESET	00	80	80	81	
INPUT 1 → PROGRAM OUT	02	81	81	81	Select Input for Program See NOTE 1
INPUT 2 → PROGRAM OUT	02	82	81	81	
INPUT 3 → PROGRAM OUT	02	83	81	81	
INPUT 4 → PROGRAM OUT	02	84	81	81	
INPUT 5 → PROGRAM OUT	02	85	81	81	
INPUT 6 → PROGRAM OUT	02	86	81	81	
INPUT 7 → PROGRAM OUT	02	87	81	81	
INPUT 8 → PROGRAM OUT	02	88	81	81	
READ PROGRAM INPUT #	06	81	80	81	See NOTE 3
INPUT 1 → PREVIEW OUT	02	81	82	81	Select Input For Preview See NOTE 1
INPUT 2 → PREVIEW OUT	02	82	82	81	
INPUT 3 → PREVIEW OUT	02	83	82	81	
INPUT 4 → PREVIEW OUT	02	84	82	81	
INPUT 5 → PREVIEW OUT	02	85	82	81	
INPUT 6 → PREVIEW OUT	02	86	82	81	
INPUT 7 → PREVIEW OUT	02	87	82	81	
INPUT 8 → PREVIEW OUT	02	88	82	81	
READ PREVIEW INPUT #	06	82	80	81	See NOTE 3

INSTRUCTION	1 st Byte	2 nd Byte	3 rd Byte	4 th Byte	COMMENT
PROGRAM INPUT 1 LEVEL	16	81	80 + Value	81	See NOTE 1
PROGRAM INPUT 2 LEVEL	16	82	80 + Value	81	
PROGRAM INPUT 3 LEVEL	16	83	80 + Value	81	
PROGRAM INPUT 4 LEVEL	16	84	80 + Value	81	
PROGRAM INPUT 5 LEVEL	16	85	80 + Value	81	
PROGRAM INPUT 6 LEVEL	16	86	80 + Value	81	
PROGRAM INPUT 7 LEVEL	16	87	80 + Value	81	
PROGRAM INPUT 8 LEVEL	16	88	80 + Value	81	
READ PROGRAM INPUT 1 LEVEL	19	81	80	81	See NOTE 3
READ PROGRAM INPUT 2 LEVEL	19	82	80	81	
READ PROGRAM INPUT 3 LEVEL	19	83	80	81	
READ PROGRAM INPUT 4 LEVEL	19	84	80	81	
READ PROGRAM INPUT 5 LEVEL	19	85	80	81	
READ PROGRAM INPUT 6 LEVEL	19	86	80	81	
READ PROGRAM INPUT 7 LEVEL	19	87	80	81	
READ PROGRAM INPUT 8 LEVEL	19	88	80	81	
PREVIEW INPUT 1 LEVEL	16	91	80 + Value	81	See NOTE 1
PREVIEW INPUT 2 LEVEL	16	92	80 + Value	81	
PREVIEW INPUT 3 LEVEL	16	93	80 + Value	81	
PREVIEW INPUT 4 LEVEL	16	94	80 + Value	81	
PREVIEW INPUT 5 LEVEL	16	95	80 + Value	81	
PREVIEW INPUT 6 LEVEL	16	96	80 + Value	81	
PREVIEW INPUT 7 LEVEL	16	97	80 + Value	81	
PREVIEW INPUT 8 LEVEL	16	98	80 + Value	81	

Kramer VP-727A Protocol (Ver. 1.7)

INSTRUCTION	1 st Byte	2 nd Byte	3 rd Byte	4 th Byte	COMMENT
READ PREVIEW INPUT 1 LEVEL	19	91	80	81	See NOTE 3
READ PREVIEW INPUT 2 LEVEL	19	92	80	81	
READ PREVIEW INPUT 3 LEVEL	19	93	80	81	
READ PREVIEW INPUT 4 LEVEL	19	94	80	81	
READ PREVIEW INPUT 5 LEVEL	19	95	80	81	
READ PREVIEW INPUT 6 LEVEL	19	96	80	81	
READ PREVIEW INPUT 7 LEVEL	19	97	80	81	
READ PREVIEW INPUT 8 LEVEL	19	98	80	81	
PROGRAM OUTPUT LEVEL	16	A1	80 + Value	81	See NOTE 1
PREVIEW OUTPUT LEVEL	16	A2	80 + Value	81	
HEADPHONE OUTPUT LEVEL	16	A3	80 + Value	81	
READ PROGRAM OUTPUT LEVEL	19	A1	80	81	See NOTE 3
READ PREVIEW OUTPUT LEVEL	19	A2	80	81	
READ HEADPHONE OUTPUT LEVEL	19	A3	80	81	
BASS	16	B1	80 + Value	81	See NOTE 1
TREBLE	16	B2	80 + Value	81	
BALANCE	16	B3	80 + Value	81	
PROGRAM INPUT 1 DELAY	16	C1	80 + Value	81	
PROGRAM INPUT 2 DELAY	16	C2	80 + Value	81	
PROGRAM INPUT 3 DELAY	16	C3	80 + Value	81	
PROGRAM INPUT 4 DELAY	16	C4	80 + Value	81	
PROGRAM INPUT 5 DELAY	16	C5	80 + Value	81	
PROGRAM INPUT 6 DELAY	16	C6	80 + Value	81	
PROGRAM INPUT 7 DELAY	16	C7	80 + Value	81	
PROGRAM INPUT 8 DELAY	16	C8	80 + Value	81	

Kramer VP-727A Protocol (Ver. 1.7)

INSTRUCTION	1 st Byte	2 nd Byte	3 rd Byte	4 th Byte	COMMENT
READ BASS	19	B1	80	81	See NOTE 3
READ TREBLE	19	B2	80	81	
READ BALANCE	19	B3	80	81	
READ PROGRAM INPUT 1 DELAY	19	C1	80	81	
READ PROGRAM INPUT 2 DELAY	19	C2	80	81	
READ PROGRAM INPUT 3 DELAY	19	C3	80	81	
READ PROGRAM INPUT 4 DELAY	19	C4	80	81	
READ PROGRAM INPUT 5 DELAY	19	C5	80	81	
READ PROGRAM INPUT 6 DELAY	19	C6	80	81	
READ PROGRAM INPUT 7 DELAY	19	C7	80	81	
READ PROGRAM INPUT 8 DELAY	19	C8	80	81	
AFV	08	80	80	81	See NOTE 1
BREAKAWAY	08	80	81	81	
READ AFV / BREAKAWAY STATUS	0B	80	80	81	See NOTE 3
FADE ON	20	80	81	81	See NOTE 1
FADE OFF	20	80	80	81	See NOTE 1
READ FADE STATUS	21	80	80	81	See NOTE 3
TAKE	3A	80	81	81	See NOTE 1
TAKE INSTRUCTION COMPLETE	3A	81	81	81	See NOTE 4
CANCEL TAKE	3A	80	80	81	
IDENTIFY MACHINE	3D	81	80	81	See NOTE 5
IDENTIFY FIRMWARE VERS.	3D	83	80	81	See NOTE 6
STORE SETUP	13	80+SETUP	80	81	See NOTE 1
ERASE STORED SETUP	13	80+SETUP	81	81	
RECALL SETUP	14	80+SETUP	80	81	See NOTE 1
IS SETUP DEFINED?	0D	80+SETUP	80	81	See NOTE 3
LOCK	1E	81	80	81	Lock panel See NOTE 1
UNLOCK	1E	80	80	81	Unlock panel See NOTE 1
READ LOCK STATUS	1F	80	80	81	See NOTE 3

Kramer VP-727A Protocol (Ver. 1.7)

INSTRUCTION	1 st Byte	2 nd Byte	3 rd Byte	4 th Byte	COMMENT
T-BAR POSITION	23	80	80+Value	81	Value 0~112 See NOTE 1
HEADPHONE SOURCE PREVIEW	24	80	80	81	See NOTE 1
HEADPHONE SOURCE PROGRAM	24	80	81	81	
READ HEADPHONE SOURCE	25	80	80	81	See NOTE 3
SEND CHANGED AUDIO PARAMETER INSTRUCTION	3F	80	81	81	See NOTE 7

NOTES on the above table:

NOTE 1:

The reply to these instructions is:

- 1st byte: 0x40 + 1st byte sent
- 2nd byte: Same as 2nd byte sent
- 3rd byte: Same as 3rd byte sent
- 4th byte: Same as 4th byte sent

Example:

	1st byte	2nd byte	3rd byte	4th byte
Send	0x02	0x81	0x81	0x81
Reply	0x42	0x81	0x81	0x81

NOTE 2:

In the case of an error, the reply code will be:

- 1st byte: 0x50
- 2nd, 3rd and 4th byte – don't care

NOTE 3:

The reply to these READ commands is:

- 1st byte: 0x40 + 1st byte sent
- 2nd byte: Same as the data that was sent
- 3rd byte: Requested data (as defined by the command which sets this parameter)
- 4th byte: 0x81

Example:

Read Preview Input 3 Level. The reply in this case tells us that the level is 0x17

	1st byte	2nd byte	3rd byte	4th byte
Send	0x19	0x93	0x80	0x81
Reply	0x59	0x93	0x97	0x81

Example:

Read Program Input #. The reply in this case tells us that the Input 4 is connected to the Program output

	1st byte	2nd byte	3rd byte	4th byte
Send	0x06	0x81	0x80	0x81
Reply	0x46	0x81	0x84	0x81

NOTE 4:

In the case where the VP-727A is in "FADE" mode (ie, not "CUT" mode), it will send this command via RS-232 after it has completed the transition.

NOTE 5:

The reply to the Identify Machine command shows the machine name

- 1st byte: 0x7d
- 2nd byte: 0x80 + 0x07 (7 dec)
- 3rd byte: 0x80 + 0x1b (27 dec)
- 4th byte: 0x81

NOTE 6:

The reply to the Identify Firmware command shows the firmware version as

- 1st byte: 0x7d
- 2nd byte: 0x80 + the version number prior to decimal point
- 3rd byte: 0x80 + the version number following the decimal point
- 4th byte: 0x81

For example, for version 3.5, the reply would be 0x7d, 0x83, 0x85, 0x81.

NOTE 7:

If any parameter was changed the VP-727A replies with the changed parameter instruction.

For example if the Program Source was changed to 3, the machine replies 0x42 0x83 0x81 0x81.

If there were no changed parameters, the VP-727A replies 0x7f 0x80 0x80 0x81

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
 - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
 - ii) Product modification, or failure to follow instructions supplied with the product
 - iii) Repair or attempted repair by anyone not authorized by Kramer
 - iv) Any shipment of the product (claims must be presented to the carrier)
 - v) Removal or installation of the product
 - vi) Any other cause, which does not relate to a product defect
 - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

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

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized KRAMER technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.



For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found. We welcome your questions, comments and feedback.



Caution

Safety Warning:

Disconnect the unit from the power supply before opening/servicing.



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