KRAMER

USER MANUAL

KADS-100 Master Audio Controller
KADS-1 Speaker
KADS-2 Speaker

KADS-100 Master Audio Controller Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to **http://www.kramerav.com/manual/KADS-100, KADS-1, KADS-2** to download the latest manual or scan the QR code on the left.

Step 1: Check what's in the box

- ☑ The **KADS-100** Master Audio Controller
- ☑ IR remote control transmitter with batteries
- ☑ 1 Power cord
- ☑ 1 Quick start guide
- ☑ 1 Set of ear racks
- ☑ 4 Rubber feet
- ☑ 1 Ferrite ring

Step 2: Install the KADS-100

To rack mount the device attach both ear brackets to the machine (by removing the three screws from each side of the machine and replacing those screws through the ear brackets) or place the machine on a table.
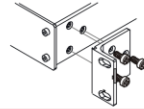
Step 3: Connect inputs and outputs

Always switch off the power to each device before connecting it to your **KADS-100**.
For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the **KADS-100**
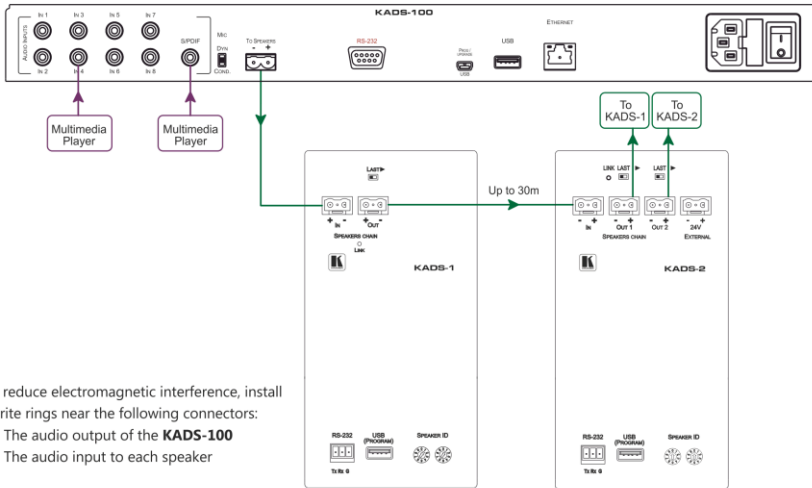
To reduce electromagnetic interference, install ferrite rings near the following connectors:
- The audio output of the **KADS-100**
- The audio input to each speaker

To install a ferrite ring on the audio output of the KADS-100:
1. Open the plastic cover of the ferrite ring by disengaging the clips with a small screwdriver.
2. Feed the audio output cable from the **KADS-100** through the ring.
3. Form a small loop in the cable and feed it through the ring again.
4. Close the ring to secure the loop inside the ring.

To install a ferrite ring on the audio input to each speaker:
1. Open the plastic cover of the ferrite ring by disengaging the clips with a small screwdriver.
2. Feed the audio input cable to the **KADS-1/KADS-2** through the ring.
3. Form a small loop in the cable and feed it through the ring again.
4. Form a second small loop in the cable and feed it through the ring again.
5. Close the ring to secure the cable loops inside the ring.

Step 4: Connect the power

Connect AC power to the rear of the **KADS-100**, switch on its power and then switch on the power to each device.

Step 5: Operate the KADS-100

To operate the KADS-100:

◈ Connect one or more audio sources.

◈ Using the Menu or Web pages, map the audio sources to the logical audio channels.

◈ Using the Menu, the Web pages, or the IR remote control, map each logical audio channel to one or more speakers.

◈ Using the Menu or Web pages, set the speaker properties, (for example, volume and bass).

◈ If required, save the current configuration to one of the preset memories using the Web pages.

KADS-1, KADS-2 Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to **http://www.kramerav.com/manual/KADS-100, KADS-1, KADS-2** to download the latest manual or scan the QR code on the left.

Step 1: Check what's in the box

☑ The **KADS-1 or KADS-2** Speaker   ☑ 1 Quick start guide   ☑ 1 U-shaped mounting bracket

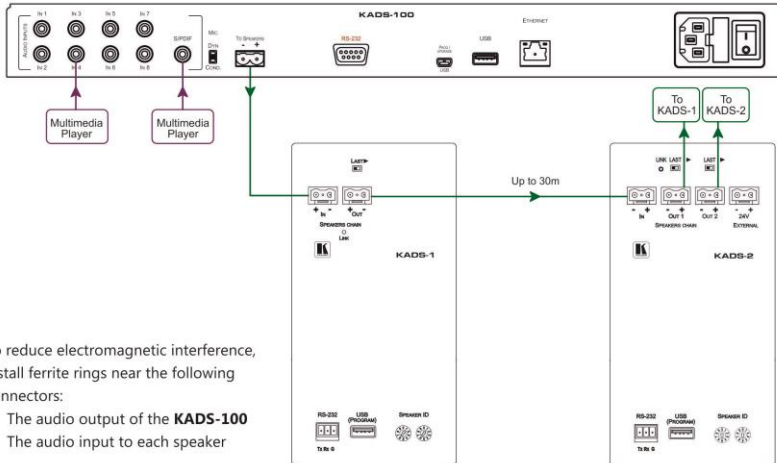☑ 1 Ferrite ring   ☑ 1 Power supply (only with the KADS-2)

Step 2: Install the KADS-1 or KADS-2

Attach the U-shaped mounting bracket to the wall and mount the speaker in the bracket.

Step 3: Connect inputs and outputs

Always switch off the power to each device before connecting it to your **KADS-1/KADS-2**.
For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the **KADS-1/KADS-2**.

To reduce electromagnetic interference, install ferrite rings near the following connectors:

- The audio output of the **KADS-100**
- The audio input to each speaker

To install a ferrite ring on the output of the KADS-100:

1. Open the plastic cover of the ferrite ring by disengaging the clips with a small screwdriver.
2. Feed the audio output cable from the **KADS-100** through the ring.
3. Form a small loop in the cable and feed it through the ring again.
4. Close the ring to secure the loop inside the ring.

To install a ferrite ring on the input to each speaker:

1. Open the plastic cover of the ferrite ring by disengaging the clips with a small screwdriver.
2. Feed the audio input cable to the **KADS-1/KADS-2** through the ring.
3. Form a small loop in the cable and feed it through the ring again.
4. Form a second small loop in the cable and feed it through the ring again.
5. Close the ring to secure the loops inside the ring.

Step 4: Connect the power

If required (see the **KADS-100, KADS-1, KADS-2 User Manual**), connect the power adapter to the **KADS-2** and plug the adapter into the mains electricity.

Contents

Figures

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 video, audio, presentation, and broadcasting professionals on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 14 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Video Products; GROUP 12: Digital Signage; GROUP 13: Audio; and GROUP 14: Collaboration.

Congratulations on purchasing your Kramer **KADS-100** *Master Audio Controller*, **KADS-1** *Speaker* and **KADS-2** *Speaker* which are part of the Kramer Audio Distribution System and are ideal for:

- Small to large presentation and multimedia applications
- Long-range audio distribution for schools, hospitals, stores, and security applications

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 manual

> Go to http://www.kramerav.com/downloads/KADS-100 to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

2.1   Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)

- Do not secure the cables in tight bundles or roll the slack into tight coils

- Avoid interference from neighboring electrical appliances that may adversely influence signal quality

- Position your **KADS-100**, **KADS-1**, and **KADS-2** away from moisture, excessive sunlight and dust

> This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

2.2   Safety Instructions

Caution:	There are no operator serviceable parts inside the unit
Warning:	Use only the power cord that is supplied with the unit
Warning:	Do not open the unit. High voltages can cause electrical shock! Servicing by qualified personnel only
Warning:	Disconnect the power and unplug the unit from the wall before installing

2.3   Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at *http://www.kramerelectronics.com/support/recycling/*.

3 Overview

The **KADS-100** is a Master Audio Controller for use with multiple, remote, active **KADS-1** and **KADS-2** speakers. It features eight analog audio inputs, an S/PDIF digital stereo audio input, and a USB connector for mass-storage audio devices. RS-232 data and commands travel bi-directionally between controller and speakers, allowing remote status requests and control of up to 99 daisy-chained **KADS-1** and **KADS-2** speakers.

The **KADS-100** can provide power to support up to eight **KADS-1** speakers. By adding a **KADS-2** speaker it provides power to a further eight speakers. This setup can be extended to control up to 99 speakers.

The **KADS-1** is an active speaker with multi-channel, digital audio, RS-232 data, and power provided over a single cable.

The **KADS-2** is similar to the **KADS-1** but it also has a power supply to allow adding more speakers, either by daisy-chaining them or in a tree and branch configuration.

The **KADS-100**, **KADS-1** and **KADS-2** feature:

- High resolution audio

- Highly flexible layout options

- Eight logical audio channels for mapping to physical inputs

- Presets for storing commonly used configurations

- Power provision to compatible devices

- Transmission up to 30m (100ft) between speakers. Total span of 240m (800ft) for eight **KADS-1** speakers without an additional power supply

- Remote control using the built-in Web pages (**KADS-100**)

- Standard 1U 19" rack size (**KADS-100**)

Each speaker can be individually configured:

- Using the **KADS-100**

- Locally using the supplied IR remote controller

3.1 Using the IR Transmitter

You can use the IR remote control transmitter provided to control the **KADS-1** and **KADS-2** machine via the built-in IR receiver on the front panel, (see Section 8.4).

4 Defining the KADS-100, KADS-1 and KADS-2

This section defines the:

- **KADS-100** *Master Audio Controller* (see Section 4.1)

- **KADS-1** *Speaker* (see Section 4.2)

- **KADS-2** *Speaker* (see Section 4.3)

The **KADS-100** has a single output that can be connected to either a **KADS-1** or a **KADS-2** up to 30m away.

The **KADS-1** has a single output which can be connected to either another **KADS-1** or a **KADS-2** up to 30m away with a total of eight speakers in the chain.

The **KADS-2** has two outputs that can be connected to either a **KADS-1** or a **KADS-2** up to 30m away with a total of eight speakers in the chain. The **KADS-2** also has a power input for extending a further eight speakers in the chain.

4.1 Defining the KADS-100 Speaker

Figure 3 defines the front panel of the **KADS-100**.
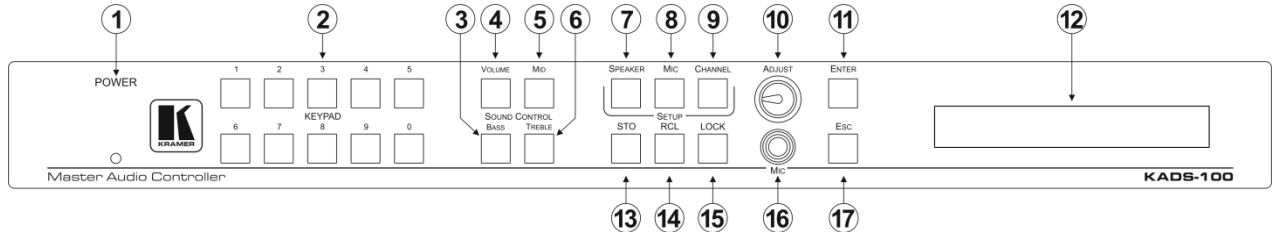
Figure 1: KADS-100 Front Panel

#	Feature		Function
1	POWER LED		Lights green when the device is powered on
2	KEYPAD 1 ~ 9 and 0 Buttons		Press to select an input or to select which speaker to control depending on the context of the menu, (see Section 8.2). During setup, the buttons are used for entering numeric values
3	SOUND CONTROL Buttons	BASS	Press to select control of the audio bass of the last speaker configured using the menu
4		VOLUME	Press to select control of the audio volume of the last speaker configured using the menu
5		MID	Press to select control of the audio midrange of the last speaker configured using the menu
6		TREBLE	Press to select control of the audio treble using the menu
7	SETUP Buttons	SPEAKER	Press to select which speaker to control, (see Section 8.2)
8		MIC	Press to select control of the microphone parameters using the menu
9		CHANNEL	Press to select a channel using the Adjust knob after selecting a channel to control
10	ADJUST Rotary Knob		Rotate to move up or down through a menu, or to adjust the parameter of the selected function, depending on the context of the menu
11	ENTER Button		Press to enter the menu or selected sub-menu, or to accept the displayed parameter. If you are not in the menu, pressing Enter displays all available menus, (File Playback, Setup, Speaker Setup, Microphone Setup, and Channel Setup)
12	LCD Display		Displays the configuration menu
13	STO Button		Press to store the current setup
14	RCL Button		Press to recall a stored setup
15	LOCK Button		Press and hold to lock the front panel controls. Press and hold again to unlock

#	Feature	Function
16	*MIC* 6.5mm Phone Jack	Microphone socket
17	*ESC* Button	Press to exit one level of the menu

Figure 3 defines the rear panel of the **KADS-100**.
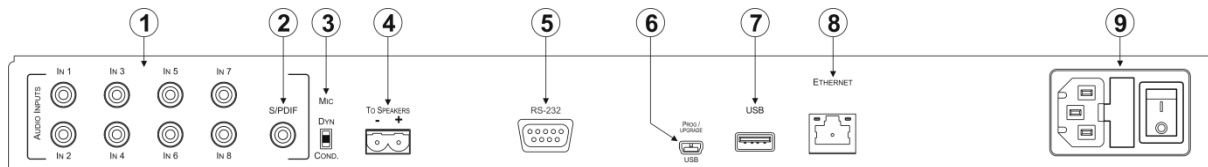
Figure 2: KADS-100 Rear Panel

#	Feature		Function
1	*AUDIO INPUTS*	*IN 1 ~ 8* RCA Connectors	Connect up to eight audio sources
2		*S/PDIF* RCA Connector	Connect to a digital audio source
3	*MIC DYN COND* Switch		Push switch up to select a dynamic type microphone. Push switch down to select a condenser type microphone, (enables 48V phantom power for the MIC input)
4	*To SPEAKERS* 2-pin Connector (M)		Connect to the first speaker in the chain, (see Section 6)
5	*RS-232* 9-pin D-sub Connector (F)		Connect to the remote serial controller to control the KADS-1 or to a PC to upgrade the firmware
6	*PROG/UPGRADE USB* Mini USB Connector		Connect to a PC to perform a firmware upgrade
7	*USB* Connector		Connect a USB mass storage device, (for example, a USB flash-drive) to provide audio files
8	*ETHERNET* RJ-45 Connector		Connect to a PC via a LAN for remote control over Ethernet
9	Mains plug, fuse and switch		Connect to the mains supply

4.2 Defining the KADS-1 or a KADS-2

Figure 3 defines the rear panel of the **KADS-1**.
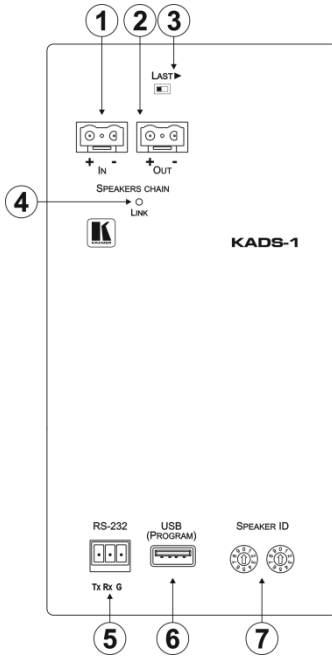
Figure 3: KADS-1 Rear Panel

#	Feature		Function
1	*SPEAKERS CHAIN*	*IN* 2-Pin Connector	Connect to the **+** and **–** speaker output of a KADS-1, KADS-2 or KADS-100, (see Section 6)
2		*OUT* 2-Pin Connector	Connect to the **+** and **–** speaker input of another KADS-1 or KADS-2
3	*LAST* Switch		Push to the right when this speaker is the last in the chain, push to the left when there are additional speakers connected to OUT
4	*LINK* LED		Lights green when the device is connected to a source
5	*RS-232* 3-pin Terminal Block		For the use of Kramer service personnel only
6	*USB (Program)* Connector		Connect a USB flash-drive to perform a firmware upgrade, (see Section 9)
7	*SPEAKER ID* 10 Position Rotary Switches		Sets the tens and units of the device ID, (see Section 7) **Note**: ID 0 is reserved for system use

4.3 Defining the KADS-1 or a KADS-2

Figure 4 defines the rear panel of the **KADS-2**.
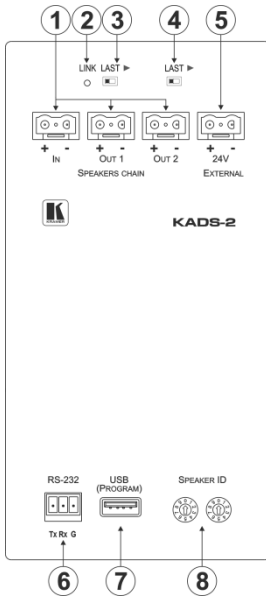
Figure 4: KADS-2 Rear Panel

#	Feature		Function
1	*SPEAKERS CHAIN*	*IN* 2-Pin Connector	Connect to the **+** and **–** speaker output of a KADS-1, KADS-2 or KADS-100, (see Section 6)
		OUT 1 2-Pin Connector	Connect to the **+** and **–** speaker input of another KADS-1 or KADS-2
		OUT 2 2-Pin Connector	Connect to the **+** and **–** speaker input of another KADS-1 or KADS-2
2	*LINK* LED		Lights green when the device is connected to a source
3	*LAST* Out 1 Switch		Push to the right when there are no speakers connected to OUT 1; push to the left when there are additional speakers connected to OUT 1
4	*LAST* Out 2 Switch		Push to the right when there are no speakers connected to OUT 2; push to the left when there are additional speakers connected to OUT 2
5	*24V EXTERNAL* 2-Pin Connector		Connect to the supplied power adapter when connecting more than eight devices
6	*RS-232* 3-pin Terminal Block		For the use of Kramer service personnel only
7	*USB (Program)* USB Connector		Connect a USB flash-drive to perform a firmware upgrade, (see Section 9)
8	*SPEAKER ID* 10 Position Rotary Switches		Sets the tens and units of the device ID, (see Section 7). **Note**: ID 00 is reserved for system use

5 Installing in a Rack

This section provides instructions for rack mounting the **KADS-100**.

Before installing in a rack, be sure that the environment is within the recommended range:

OPERATING TEMPERATURE:	0º to +40ºC (32º to 104ºF)
STORAGE TEMPERATURE:	-40º to +70ºC (-40º to 158ºF)
HUMIDITY:	10% to 90%, 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.

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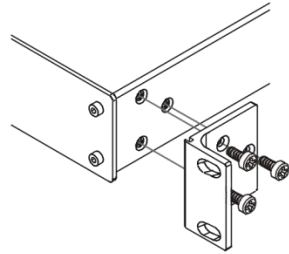
2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

Note:
• 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 available from our Web site

6 Connecting the KADS-100, KADS-1 and KADS-2

Always switch off the power to each device before connecting it to your **KADS-100**, **KADS-1** and **KADS-2**. After connecting your **KADS-100**/**KADS-1**/**KADS-2**, connect the power to each of them and then switch on the power to each device.

You do not have to connect all the inputs and outputs, connect only those that are required.
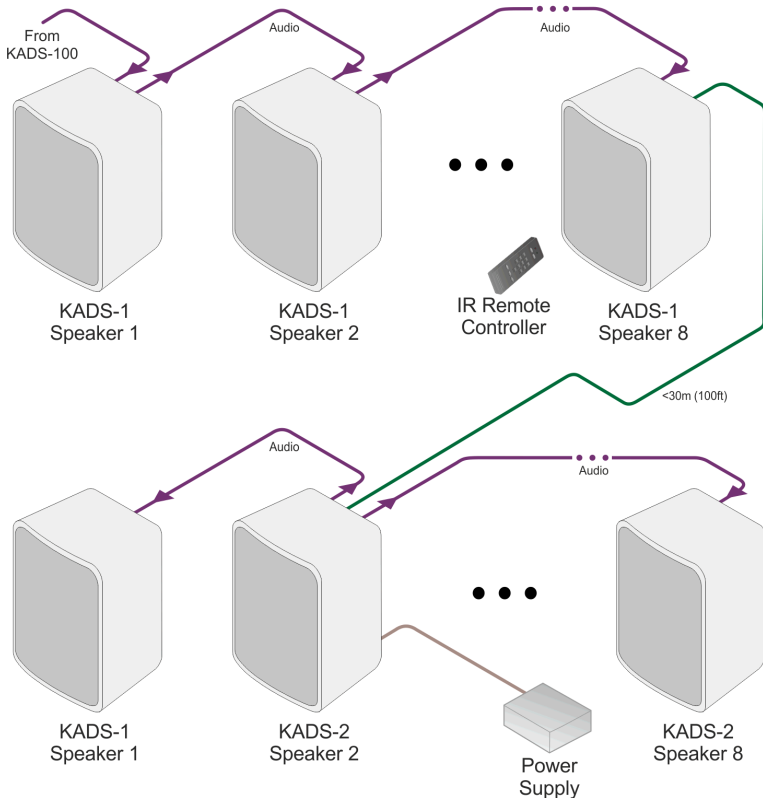
Figure 5: Connecting the KADS-100, KADS-1 and KADS-2

To connect the KADS-1 and the KADS-2 as illustrated in **:**

- **In the first chain:**

1. Connect the **KADS-100** to the SPEAKERS CHAIN IN connector on the first **KADS-1**.

2. Connect the SPEAKERS CHAIN OUT connector on the first **KADS-100** to the SPEAKERS CHAIN IN connector on the first **KADS-2**.

3. Connect the SPEAKERS CHAIN OUT connector on the first **KADS-2** to the SPEAKERS CHAIN IN connector on the second **KADS-2**.

4. Repeat Step 3 for up to another six **KADS-2** speakers until the chain extends over no more than 240m (787ft).

- **In the second chain**:

5. Connect the SPEAKERS CHAIN OUT connector on the eighth **KADS-1** to the SPEAKERS CHAIN IN connector on the first **KADS-2** in the second chain.

6. Connect the supplied power adapter to the first **KADS-2** in the second chain.

7. Connect the first SPEAKERS CHAIN OUT connector on the first **KADS-2** in the second chain to the SPEAKERS CHAIN IN connector on the second **KADS-2** in the second chain.

8. Connect the second SPEAKERS CHAIN OUT connector on the first **KADS-2** in the second chain to the SPEAKERS CHAIN IN connector on the first **KADS-1** speaker in the second chain.

Note: To reduce electromagnetic interference, install ferrite rings near the following connectors:

- The audio output of the **KADS-100**
- The audio input to every speaker

6.1   Installing the Ferrite Rings

Figure 6: Looping the Cable through the Ferrite Ring

To install a ferrite ring on the output of the KADS-100:

1. Open the plastic cover of the ferrite ring by disengaging the clips with a small screwdriver.

2. Feed the audio output cable from the **KADS-100** through the ring.

3. Form a small loop in the cable and feed it through the ring again.

4. Close the ring to secure the loop inside the ring.

To install a ferrite ring on the input to each speaker:

1. Open the plastic cover of the ferrite ring by disengaging the clips with a small screwdriver.

2. Feed the audio input cable to the **KADS-1/KADS-2** through the ring.

3. Form a small loop in the cable and feed it through the ring again.

4. Form a second small loop in the cable and feed it through the ring again.

5. Close the ring to secure the loops inside the ring.

6.2   Connecting a Serial Controller

You can connect a serial controller to the **KADS-100** via an RS-232 connection using, for example, a PC.

To connect to the KADS-100 via RS-232:

Connect the RS-232 9-pin D-sub connector on the **KADS-100** (only pin 2, pin 3, and pin 5 need be connected) to the RS-232 9-pin D-sub port on your PC

6.3   Wiring the RJ-45 Connectors

This section defines the TP pinout, using a **straight** pin-to-pin cable with RJ-45 connectors.

EIA /TIA 568B	
PIN	**Wire Color**
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown

Figure 7: TP PINOUT
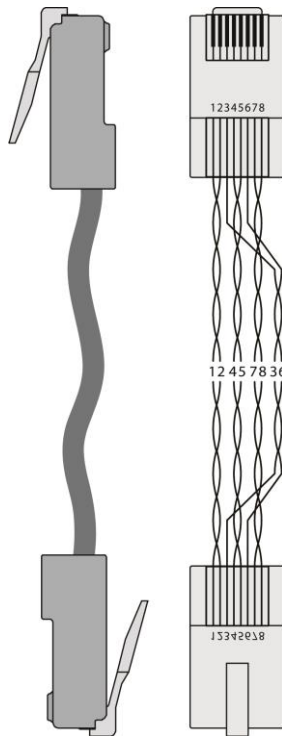
7   Setting the Speaker ID

Each speaker must have a unique ID, including those in installations with more than eight speakers. You can set the ID of the speaker (between 01 and 99) using the rotary switches on the rear panel of the speaker.

Note: ID 00 is reserved for system use and if used may cause the system to malfunction.

SPEAKER ID

Figure 8: Setting the Rotary Switches

To set the ID of a KADS-1 or KADS-2, **(for example, 28 as shown in** <u>Figure 8</u>**):**

1. Turn the **KADS-100** off.

2. Using a small screwdriver, turn the left hand rotary switch to the required number of tens; in this example, 2.

3. Turn the right hand rotary switch to the required number of units; in this example, 8.

4. Turn the **KADS-100** on.

8 Operating the KADS-100

The **KADS-100** can be operated using either the front panel buttons (which are shortcuts to the speaker setup menu of the last configured speaker) or the menu.

On power up, the **KADS-100** scans for all connected speakers. This can take up to 60 seconds.

Each of the eight analog inputs is mapped to one of the eight logical, audio channels. The S/PDIF, microphone, and USB inputs can be mapped to one or more of the eight logical, audio channels. Each of the eight logical, audio channels can be mapped to one or more of the speakers.

8.1 Operating the KADS-100 Using the Front Panel Buttons

8.1.1 Setting up a Channel

When switching a channel to S/PDIF or an mp3 source that is defined as stereo, the paired channel also switches to this source. Paired channels are:

- 1 and 2
- 3 and 4
- 5 and 6
- 7 and 8

Examples:

1. The mp3 source is selected as stereo, then:

- If channel 1 is switched to mp3, channel 2 automatically switches as well
- If channel 4 is switched to mp3, channel 3 automatically switches as well

2. The mp3 source is selected as mono, then:

- If channel 1 is switched to mp3, channel 2 does not switch
- If channel 4 is switched to mp3, channel 3 does not switch

To set up a channel:

1. Press Enter.
   The display shows the first entry of the menu.

2. Use the rotary knob to move down the menu to Channel Setup.

3. Press Enter.
   The display shows the Channel ID selection.

4. Use the rotary knob to move up or down the channel list. Press Enter when the required channel ID is displayed.
   The Channel properties menu is displayed.

5. Press Enter or use the rotary knob to move up and down the channel properties. Repeat until the required properties have been set.

6. Press Esc repeatedly until you exit the menu system.

8.1.2   Selecting a Speaker to Control

Note: If no speaker is selected, then the last speaker that was selected is controlled. If no speaker was previously selected then speaker 1 is controlled by default.

To select a speaker to control, use either of the following methods:

1. Press the required Keypad button on the front panel.
   The selected Speaker button lights red and the LED on the speaker lights.

2. Enter the number of the speaker to control using the Keypad 1 to 9 and 0 buttons, for example, press 2 and 8 for speaker 28.
   The selected speaker number is displayed on the LCD.

3. Press the Enter button.
   Use the menu options to configure the speaker, (see Section 8.2).

—OR—

1. Press Enter.

2. Select Speaker Setup using the rotary knob.

3. Press Enter.
   The selected Speaker button lights red and the LED on the speaker lights.

4. Enter the number of the speaker to control using the Keypad 1 to 9 and 0 buttons, for example, press 2 and 8 for speaker 28. The selected speaker number is displayed on the LCD.

5. Press the Enter button.
   Use the menu options to configure the speaker, (see Section 8.2).

8.1.3 Setting the Microphone Gain and Delay

To set the microphone gain and delay:

1. Press the Mic button on the front panel.
   The Mic button lights red.

2. Use the menu options to set the microphone gain and delay, (see Section 8.2).

8.1.4 Setting the Volume, Bass, Mid, and Treble Audio Properties

Note: The following procedure sets the audio properties for the speaker that was last selected unless another speaker is first selected, (see Section 8.1.2). If no speaker has been selected yet, the procedure will set the audio properties for speaker 1.

To set the audio properties:

1. Press either the Volume, Mid, Bass, or Treble button on the front panel.
   The selected button lights red and the current level for the selected audio property is displayed on the LCD.

2. Use the menu options to set the level for the selected audio property, (see Section 8.2).

8.1.5 Storing and Recalling Configurations

To store a configuration in a preset:

1. Press the STO button.
   The button lights red.

2. Press and hold (until the STO button no longer lights) one of the numbered Keypad buttons in which to store the current configuration.

To restore a configuration from a preset:

1. Press the RCL button from which to recall the configuration.
   The button lights red.

2. Press and hold (until the RCL button no longer lights) the numbered Keypad button from which to recall the configuration.
   A progress message is displayed indicating which speaker is being updated.

To lock and unlock the front panel buttons:

1. Press and hold the Lock button.
   The panel buttons are locked and the Lock button lights. Pressing any button now causes the Lock button to flash for a few seconds.

2. Press and hold the Lock button.
   The panel buttons are unlocked and the Lock button no longer lights.

8.1.6 Resetting the KADS-100 to Factory Default Parameters

To reset the KADS-100 to factory default parameters:

1. Turn off the device.

2. Press and hold the Enter and Esc buttons together.

3. While holding the buttons depressed, turn on the device and wait a few seconds.
   The device is reset to factory default.

8.2 Operating the KADS-100 Using the Menu

You can use the menu to configure both the **KADS-100** and all of the speakers. After 5 minutes of inactivity, the **KADS-100** automatically exits the menu.

Note: This is the only way to access the File Playback menu option.

To use the menu:

1. Press the Menu button.
   The menu options appear on the display.

2. Use the Adjust rotary knob to move up or down through the options until you reach the required item, (see the table below). Turn the knob clockwise to move down the list or turn the knob anti-clockwise to move up the list.

3. Press Enter to select the required option.
   The context-sensitive sub-menu options are displayed.

4. Press Enter to choose the selected sub-menu option.
   Either the sub-menu parameters are displayed, or additional options are displayed if the sub-menu comprises further options.

5. Press Exit to save the selection and to move one level up the menu.
   Press Exit repeatedly to leave the menu.

Menu Item	Level One	Level Two	Level Three
File Playback Setup	Play/Pause		
	Stop		
	Previous		
	Next		
Speaker Setup	Speaker ID [01-99]:	Speaker Channel	1 to 8
		Speaker Volume (db)	−76 to +24
		Speaker Bass (db)	−20 to +20
		Speaker Mid (db)	−20 to +20
		Speaker Treble (db)	−20 to +20
Mic Setup	Mic Gain (db)	−16 to +16	
	Mic Delay (ms)	1 to 85	

Menu Item	Level One	Level Two	Level Three
Channel Setup	Channel ID	1 to 8	Select Input: analog, file, Spdif, test tone
	Channel Volume (db)	–80 to +20	
	Mic Talk Over (ducking)	Yes, No	
	File Mode	Stereo, Mono	
	Spdif Mode	Stereo, Mono	
	Test Sine Frequency (Hz)	0 to 20000	

8.3 Operating the KADS-100 Using the Web Pages

The **KADS-100** can be operated remotely using the embedded Web pages. The Web pages are accessed using a Web browser and an Ethernet connection.

Before attempting to connect:

- Ensure that your browser is supported (see Section 10)

- Ensure that JavaScript is enabled

Note: Connecting to the **KADS-100** via more than one Web browser at a time can lead to unpredictable behavior.

8.3.1 Browsing the KADS-100 Web Pages

Note: In the event that a Web page does not update correctly, clear your Web browser's cache by pressing CTRL+F5.

To browse the KADS-100 Web pages:

1. Open your Internet browser.

2. Type the IP number of the device, (see Section 10.1) in the Address bar of your browser.

http://192.168.1.39

Note: If authentication is enabled, (see Section 8.3.5) the following window appears (Figure 9) and you must enter the valid username and password to access the Web pages. For default authentication details, see Section 10.2.
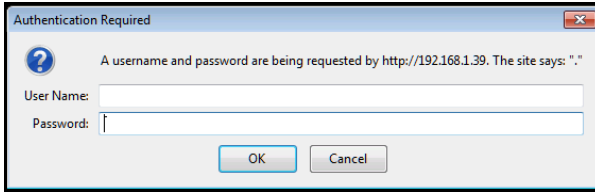
Figure 9: Entering Logon Credentials

Following a successful logon or if no authentication is set, the screen shown in Figure 10 is displayed.
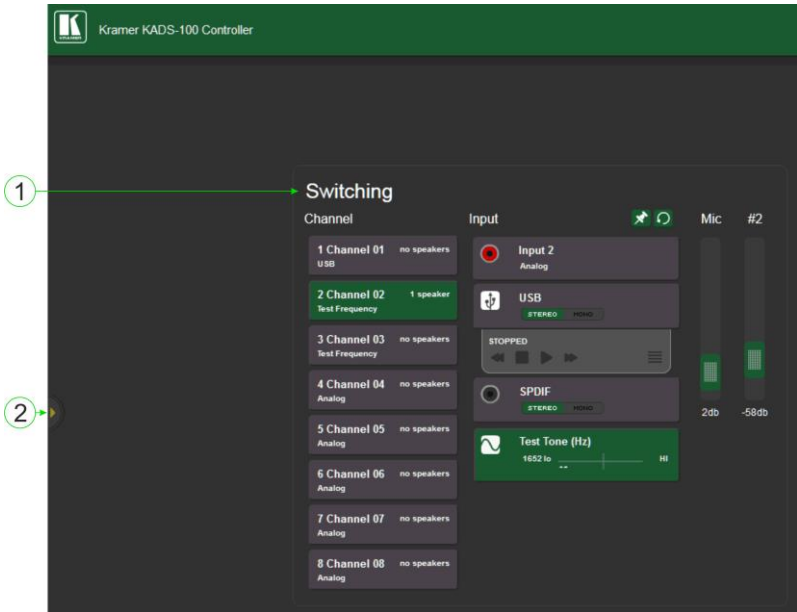
Figure 10: The Default Page

#	Item	Description
1	Switching Details	Displays the current switching status and the current audio and microphone volume
2	Left Hand Side Panel Hide/Reveal Button	Click to reveal the left hand side page panel

Click the left hand side Hide/Reveal button to open the left hand side page panel.

The Switching page appears as shown in Figure 11.
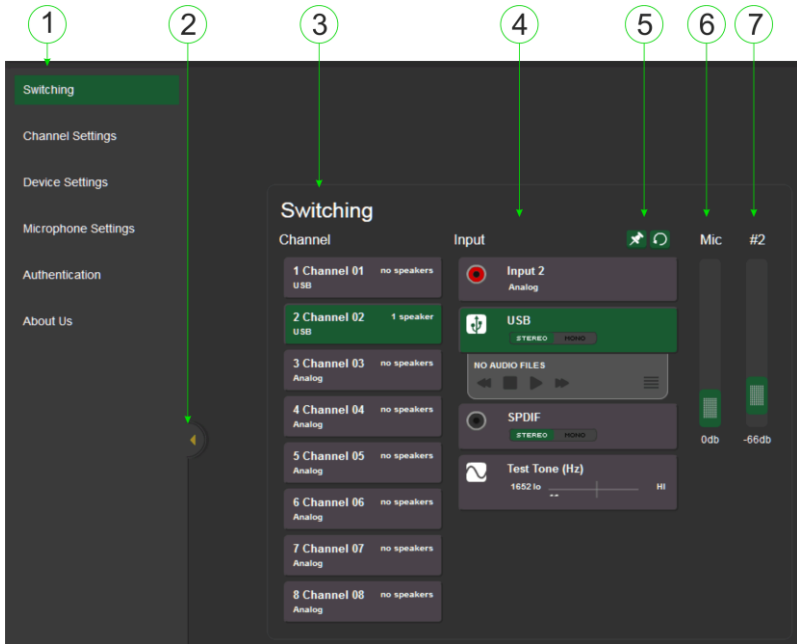
Figure 11: The Switching Page

The areas on the switching page are described in the following table.

#	Item	Description
1	Page Selection Panel	Click one of the buttons to select a page
2	Channel Switching Selection Buttons	Click one of the buttons to select a channel to control
3	Page Selection Panel Hide Button	Click the arrow to close the page selection panel
4	Input Selection Buttons	Analog—select the associated analog input for the current channel USB—USB flash-drive with playback controls SPDIF—digital input Test Frequency—audio frequency generator with frequency control
5	Set/Recall Preset Buttons	Click one of the buttons to save or retrieve a configuration, (see Section 8.3.1.1)
6	Mic Slider	Slide up/down to increase/decrease the mic volume
7	Channel Volume Slider	Slide up/down to increase/decrease the audio volume for the selected channel

KADS-100/KADS-1/KADS-2 - Operating the KADS-100

There are six Web pages described in the following sections:

- Switching (see Section 8.3.2)

- Channel Settings (see Section 8.3.3)

- Device Settings (see Section 8.3.4)

- Microphone Settings (see Section 8.3.5)

- Authentication (see Section 8.3.6)

- About Us (see Section 8.3.7)

8.3.1.1 The Save/Recall Preset Facility

The Save/Recall preset facility (see item 5 in Figure 11) lets you save and recall a configuration.

Note: The Save/Recall preset facility on this Web page does not work on iPads or tablets.

To save the current configuration:

1. Click the Save Preset button.

   The Save Preset popup window is displayed.

2. Click the required preset number (0 to 9) to which to save the current configuration.

   The current configuration is saved and the popup box disappears.

To recall a preset configuration:

1. Click the Recall Preset button.

   The Recall Preset popup window is displayed.

2. Click the required preset number (0 to 9) from which to retrieve the configuration.

   The selected configuration is retrieved and the popup box disappears.

8.3.2   The Switching Page

The Switching page lets you select a channel, an audio input, and to adjust the microphone or output volume.

8.3.2.1   Channel Selection Buttons
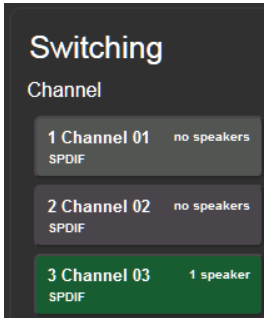
Figure 12: Channel Selection Example

The example selection shown in Figure 12 indicates that Channel 3 is selected, the S/PDIF input is assigned to this channel, and the channel has one speaker connected to it.

8.3.2.2   Input Selection Buttons

There are four input selection buttons:

- Analog—associated analog input for the current channel

- USB—USB flash-drive storage with playback controls

- SPDIF—digital input

- Test Frequency—audio frequency generator with frequency control

Analog Button

Figure 13: Analog Input Selection Button

This button selects the analog input associated with the currently selected channel.

USB Button
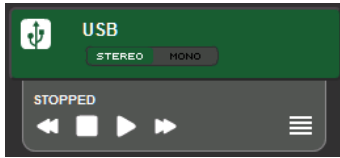
Figure 14: USB Input Selection Button

This button selects the USB input. When this feature is active and there are tracks available for playing, the button also provides the following playback controls:

- Mono or stereo playback

- Move one track back

- Stop

- Pause/Play

- Move one track forward

- Open playlist window

Note: Only mp3 files are compatible with the player and all mp3 file names must be in English.

Note: Only files in the root directory of the USB flash-drive are detected. If there are no valid files detected, an error message is displayed.

Clicking on the Open Playlist button displays the window shown in Figure 15. It can take up to 30 seconds for the files on the USB flash-drive to be recognized.
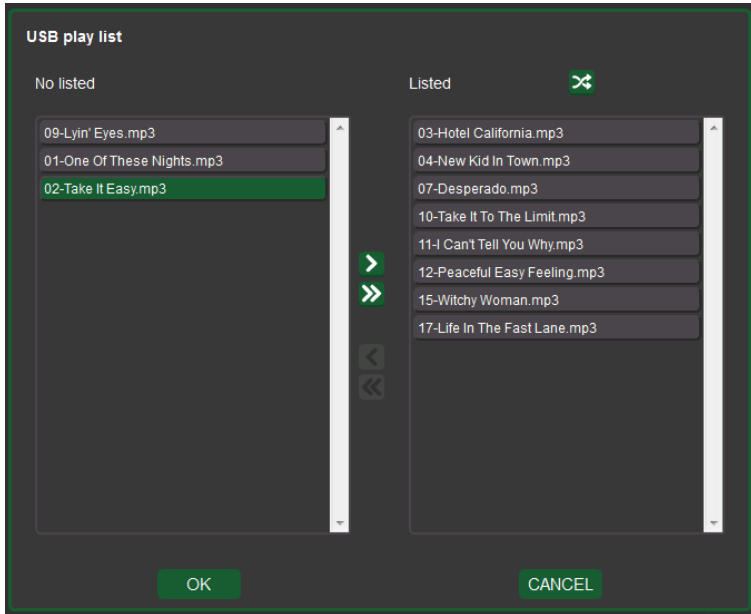
Figure 15: Playlist Window

To move tracks to and from the playlist:

1. Highlight a track in the No Listed pane.

2. Click the highlighted Add One or Add All arrow button.
   The track(s) are moved to the Listed pane.

   Note: You cannot send an empty playlist to the **KADS-1**.

3. Click OK to accept the changes or Cancel to dismiss the changes.

4. To remove tracks from the playlist, highlight the track(s) in the No Listed pane and click the Remove One or Remove All arrow button.
   The track(s) are removed from the playlist.

5. Click OK to accept the changes or Cancel to dismiss the changes.

Note: Unplugging the USB flash-drive and adding or removing tracks from the USB flash-drive causes the playlist to reset to default.

SPDIF Button
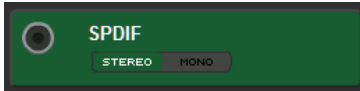
Figure 16: SPDIF Input Selection Button

This button selects the S/PDIF digital input and provides the ability to select mono or stereo playback.

Test Tone Generator Button
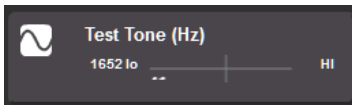
Figure 17: Test Tone Selection Button

This button selects the audio signal generator and provides the ability select the signal frequency using the slider button. The currently selected frequency is shown in Herz to the left of the slider. The selectable range is from 20 to 20000.

8.3.3 The Channel Settings Page

The Channel Settings page lets you:

- View and modify channel properties, for example, the label and channel equalization

- Assign speakers to channels

- Manually scan for connected speakers

- View and modify speaker properties, for example, the speaker label and equalization

- Turn on and off the LED on a speaker to aid in identification

- Mute and unmute a speaker

- Retrieve the firmware version of a speaker
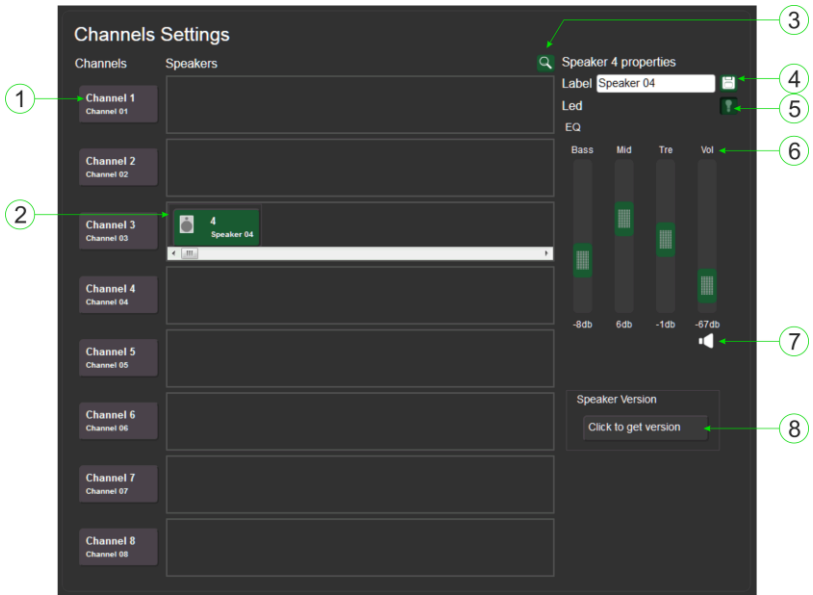
Figure 18: The Channel Settings Page

#	Item	Description
1	Channel Selection Buttons	Press to select a channel
2	Speaker Button	Click to select a speaker. Drag and drop to assign to a channel. The button indicates the speaker ID and label
3	Manual Speaker Scan Button	Click to manually scan for all connected speakers
4	Speaker or Channel Label Field and Save Button	Edit to modify the channel or speaker label. Click the Save button to save the new label
5	*LED* Button	Click to turn on or off the LED on the front of the currently selected speaker
6	Equalization Sliders	Click and drag to modify the bass, mid, treble, and volume for the selected speaker. Range: Bass, mid, treble; –20 to +20dB Volume; –76 to +24dB
7	*Speaker Version* Button	Click to retrieve the currently selected speaker firmware version

8.3.4 The Device Settings Page

The Device Settings page lets you:

- View and modify device specific information, for example, model, serial number, and IP parameters

- Perform a firmware upgrade

- Perform a factory reset
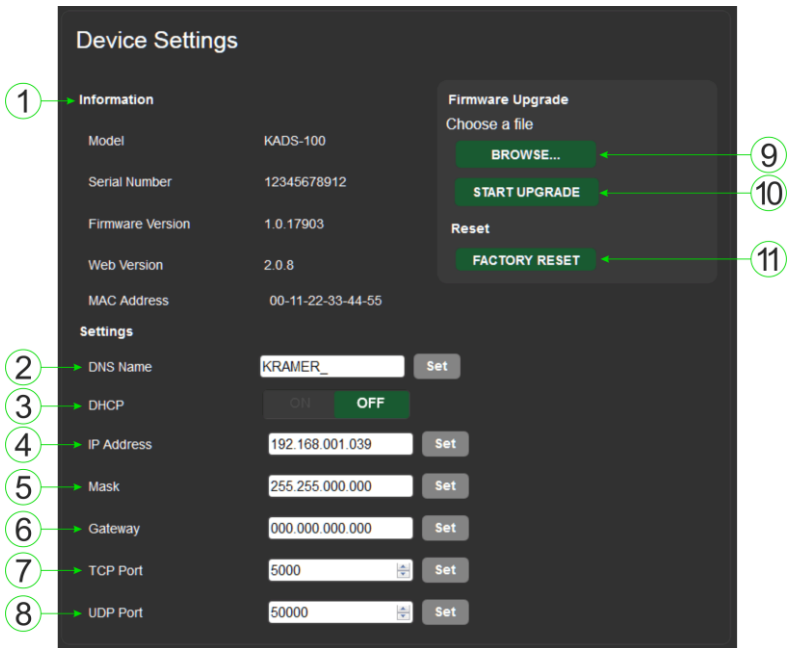
Figure 19: The Video and Audio Settings Page

#	Item	Description
1	*Information* Section	Displays the model, serial number, firmware version, Web version, and MAC address
2	*DNS Name* Field	Enter the DNS name and press Set to save
3	*DHCP* ON/OFF Buttons	Press to turn DHCP on or off
4	*IP Address* Field	Enter the IP address and press Set to save
5	*Mask* Field	Enter the IP mask and press Set to save
6	*Gateway* Field	Enter the IP gateway and press Set to save

#	Item	Description
7	*TCP* Port	Enter the TCP port or use the spinner buttons to adjust the value and press Set to save
8	*UDP* Port	Enter the UDP port or use the spinner buttons to adjust the value and press Set to save
9	*BROWSE…* Button	Press to browse to a new firmware version file. **Note**: Only the .kfw file format is supported
10	*Start Upgrade*	Press after selecting a new firmware version file to start the upgrade procedure
11	*FACTORY RESET* Button	Press to reset the device to factory default parameters

To upgrade the firmware:

1. Click the Browse button.

   The Windows Browser opens.

2. Browse to the required file.

3. Select the required file and click Open.

   The firmware file name is displayed in the Firmware Upgrade page.

4. Click Start Upgrade.

   The firmware file is loaded and a progress bar is displayed.

   Do not interrupt the process or the **KADS-100** may be damaged.

5. When the process is complete, reboot the device.

   The firmware is upgraded.

To reset the KADS-100 to factory default parameters:

1. Click the Factory Reset button.

   The confirmation message is displayed.

2. Click OK to continue or Cancel to exit the procedure.

3. Click OK.

   The progress message is displayed.

   On completion, the success message is displayed.

4. Click OK.

8.3.5 The Microphone Settings Page

The Microphone Settings page lets you:

- Enable/disable the microphone talkover for each channel

- Set the microphone signal delay time

- Adjust the microphone level
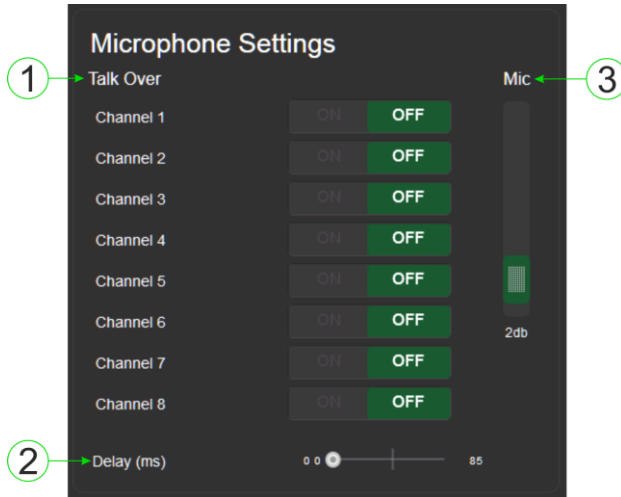
Figure 20: The Microphone Settings Page

#	Item	Description
1	*Talk Over* Channel Buttons	Click ON or OFF to enable or disable the talkover feature for each channel
2	*Delay* Slider	Click and drag the slider left or right to decrease or increase the microphone signal delay. Range: 0 to 85
5	*Mic* Slider	Click and drag the slider up or down to increase or decrease the microphone gain. Range: 0dB to +24dB

8.3.6 The Authentication Page

The Authentication page lets you enable/disable security, and to assign or change logon authentication details. (For default logon credentials see Section 9.)
The following page is displayed when security is not activated.
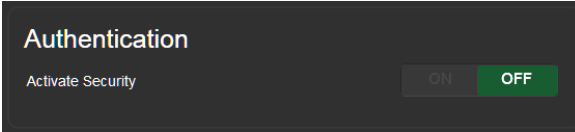
Figure 21: The Authentication Page—Security Disabled

To activate security:

- Click ON.
  Security is enabled and a message is displayed before the Web page is reloaded.

The following page is displayed when security is activated.
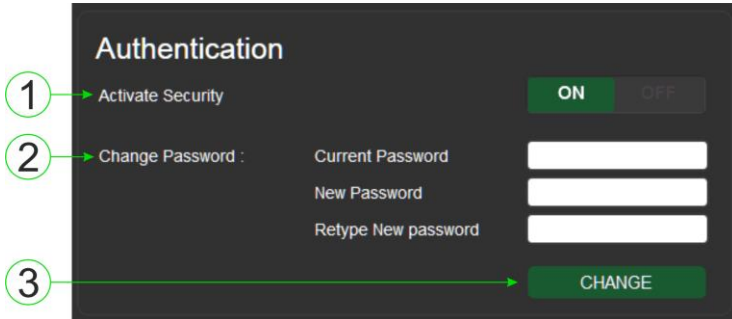
Figure 22: The Authentication Page—Security Enabled

#	Item		Description
1	*Activate Security* Button		Click to enable/disable security settings. When enabled, the valid username and password must be provided to allow Web page access
2	*Change Password*	*Current Password* box	Enter the current password
3		*New Password* box	Enter the new password, (up to 15 printable ASCII characters)
4		*Retry New password* box	Retype the new password
5	*CHANGE* Button		Click to save the new authentication details

8.3.7 The About Us Page

The About Us page displays the Web page version and Kramer Electronics Ltd company details.

WEB VERSION 2.0.8

Kramer Electronics Ltd.

3 Am VeOlamo St.
Jerusalem, Israel, 95463
Tel: +972 2 6544000
Fax: +972 2 6535369
Email: info@kramerel.com
Web: http://www.kramerelectronics.com

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Figure 23: The About Us Page

8.4 Operating the KADS-1 and KADS-2 Using the Remote Control

To use the remote control to operate the KADS-1/KADS-2:

1. Press the SPK button.

   The LED on the speaker flashes red.

2. Press the number of the required speaker, for example, 07 or 41.

3. Press Enter.

   The LED lights green.

4. Press either Volume, Mid, Bass, or Treble to select the option to modify.

5. Press Up or Down to increase or decrease the selected option.

   The audio character changes immediately.

6. Press Enter.

7. Repeat steps 4, 5, and 6 to modify any other options.

8. Press End when finished.

   The LED on the speaker no longer lights.

9 Updating the KADS-1 or KADS-2 Firmware

To update the KADS-1 or KADS-2 firmware:

1. Go to http://www.kramerelectronics.com and download the latest firmware to a USB flash-drive or PC, (only .kfw and .rbf file formats are compatible.)

2. Connect the USB flash-drive or the PC to the USB Program connector on the rear of the **KADS-1**/**KADS-2**.
   If you are using a USB flash-drive, it is scanned for relevant files, the LED on the front panel flashes a few times, and the firmware is automatically loaded to the **KADS-1**/**KADS-2**. The procedure takes at least 60 seconds.
   If you are using a PC, browse to the folder where the firmware upgrade file is stored.

3. When the procedure is complete, the speaker automatically reboots with the new firmware and the flashing LED lights solid.

10 Technical Specifications

	KADS-100
INPUTS:	1 Mic on a 6.5mm phone jack (F) 8 Analog stereo audio on RCA connectors 1 S/PDIF audio on an RCA connector 1 USB on a USB Type A connector, (for audio files)
OUTPUTS:	1 Speaker on a 2-pin terminal block connector
PORTS:	1 Bidirectional RS-232 on a 9-pin D-sub connector, (for remote serial control or firmware upgrades) 1 Prog/Upgrade on a mini USB, (for firmware upgrades) 1 Ethernet on an RJ-45 TP connector
RS-232: BAUD RATE:	115200bps
MODE:	Full-duplex
USB USB FLASH-DRIVE:	Maximum 1GB partition formatted as FAT32
MAXIMUM DISTANCE BETWEEN SPEAKERS:	30m (100ft)
POWER CONSUMPTION:	100–240V AC, 50/60Hz, 220VA
TRANSMISSION DISTANCE:	Up to 30m (100ft) on a two wire twisted power cable
SUPPORTED WEB BROWSERS:	Windows 7 and higher: • IE (32/64 bit) version 10 • Firefox version 30 • Chrome version 35 MAC: • Chrome version 35 • Firefox version 27 • Safari version 7 Android OS: • Chrome version 35 iOS: • Chrome version 35 • Safari version 7
OPERATING TEMPERATURE:	0° to +40°C (32° to 104°F)
STORAGE TEMPERATURE:	–40° to +70°C (–40° to 158°F)
HUMIDITY:	10% to 90%, RHL non-condensing
COOLING:	Forced air, fan
ENCLOSURE TYPE:	Aluminium
RACK MOUNT:	With included rack "ears"
FURNITURE MOUNT:	With included rubber feet
PRODUCT WEIGHT:	2.3kg (5.1lbs) approx.
SHIPPING WEIGHT:	3.7kg (8.1lbs) approx.
VIBRATION:	ISTA 1A in carton (International Safe Transit Association)

	KADS-100
SAFETY REGULATORY COMPLIANCE:	CE
ENVIRONMENTAL REGULATORY COMPLIANCE:	RoHs and WEEE
DIMENSIONS:	Rack mount 19" x 1U (43.3cm x 18.1cm x 4.4cm, W, D, H)
INCLUDED ACCESSORIES:	Power cord, Remote Control RC-IR3,1 Ferrite ring PN 2582-000021

		KADS-1	KADS-2
INPUTS:		1 TP on a 2-pin Large terminal block	
OUTPUTS:		1 TP on a 2-pin Molex connector	2 TP on 2-pin Molex connectors
PORTS:		1 Bidirectional RS-232 serial port on a 3-pin terminal block, (for the use of Kramer service personnel only) 1 USB for firmware upgrades	1 Bidirectional RS-232 serial port on a 3-pin terminal block, (for the use of Kramer service personnel only) 1 USB for firmware upgrades 1 2-pin Molex connector for 24V DC power
POWER OUTPUT:		25W	25W
AUDIO:	BANDWIDTH:	75 to 20kHz @−3dB	
	S/N RATIO:	84dB unweighted	
	TOTAL GAIN:	−80dB to +24dB	
RS-232:	BAUD RATE:	115200bps	
	MODE:	Full-duplex	
POWER CONSUMPTION:		24V DC 1.2A	24V DC 1.2A
TRANSMISSION DISTANCE:		8 Speakers each up to 30m (100ft) apart	8 Speakers each up to 30m (100ft) apart per power supply
OPERATING TEMPERATURE:		0° to +40°C (32° to 104°F)	
STORAGE TEMPERATURE:		−40° to +70°C (−40° to 158°F)	
HUMIDITY:		10% to 90%, RHL non-condensing	
DIMENSIONS:		18.3cm x 17.2cm x 24.4cm (7.2" x 6.77" x 9.61"), W, D, H	
PRODUCT WEIGHT:		4.7kg (10.36lbs) approx.	4.7kg (10.36lbs) approx.
SHIPPING WEIGHT:		6.0kg (13.23lbs) approx.	6.0kg (13.23lbs) approx.
VIBRATION:		ISTA 1A in carton (International Safe Transit Association)	
SAFETY REGULATORY COMPLIANCE:		CE	
ENVIRONMENTAL REGULATORY COMPLIANCE:		RoHs and WEEE	

	KADS-1	KADS-2
INCLUDED ACCESSORIES:	1 Ferrite ring PN 2582-000022	Power supply, 1 Ferrite ring PN 2582-000022
OPTIONS:	Kramer BC-2S 300m cable	

10.1 Default IP Parameters

Parameter	Values	Default
Device Name	Any alphanumeric string up to 14 chars (can include hyphen, but not at the beginning or end)	KRAMER_
DHCP	ON/OFF	OFF
IP Address	Any valid IP address	192.168.1.39
Mask	Any valid network mask	255.255.0.0
Gateway	Any valid gateway address	192.168.0.1
TCP Port	0 to 65535	5000
UDP Port	0 to 65535	50000

10.2 Default Logon Credentials

Parameter	Values
Name	admin
Password	admin

11 Protocol 3000

The **KADS-100** can be operated using serial commands from a PC, remote controller or touch screen using the Kramer Protocol 3000.

This section describes:

- Kramer Protocol 3000 syntax (see Section 11.1)

- Kramer Protocol 3000 commands (see Section 11.2)

11.1 Kramer Protocol 3000 Syntax

11.1.1 Host Message Format

Start	Address (optional)	Body	Delimiter
#	*Device_id@*	**Message**	CR

11.1.1.1 Simple Command

Command string with only one command without addressing:

Start	Body	Delimiter
#	**Command** SP *Parameter_1,Parameter_2,…*	CR

11.1.1.2 Command String

Formal syntax with commands concatenation and addressing:

Start	Address	Body	Delimiter
#	*Device_id@*	**Command_1** *Parameter1_1,Parameter1_2,…*| **Command_2** *Parameter2_1,Parameter2_2,…*| **Command_3** *Parameter3_1,Parameter3_2,…*|…	CR

11.1.2 Device Message Format

Start	Address (optional)	Body	Delimiter
~	*Device_id@*	**Message**	CR LF

11.1.2.1 Device Long Response

Echoing command:

Start	Address (optional)	Body	Delimiter
~	*Device_id* @	**Command** SP *[Param1 ,Param2 …]* result	CR LF

CR = Carriage return (ASCII 13 = 0x0D)
LF = Line feed (ASCII 10 = 0x0A)
SP = Space (ASCII 32 = 0x20)

11.1.3 Command Terms

Command

A sequence of ASCII letters ('A'-'Z', 'a'-'z' and '-').

Command and parameters must be separated by at least one space.

Parameters

A sequence of alphanumeric ASCII characters ('0'-'9','A'-'Z','a'-'z' and some special characters for specific commands). Parameters are separated by commas.

Message string

Every command entered as part of a message string begins with a **message starting character** and ends with a **message closing character**.

Note: A string can contain more than one command. Commands are separated by a pipe ('|') character.

Message starting character

'#' – For host command/query

'~' – For device response

Device address (Optional, for K-NET)

K-NET Device ID followed by '@'

Query sign

'?' follows some commands to define a query request.

Message closing character

CR – For host messages; carriage return (ASCII 13)

CRLF – For device messages; carriage return (ASCII 13) + line-feed (ASCII 10)

Command chain separator character

When a message string contains more than one command, a pipe ('|') character separates each command.

Spaces between parameters or command terms are ignored.

11.1.4 Entering Commands

You can directly enter all commands using a terminal with ASCII communications software, such as HyperTerminal, Hercules, etc. Connect the terminal to the serial or Ethernet port on the Kramer device. To enter CR press the Enter key. (LF is also sent but is ignored by command parser).

For commands sent from some non-Kramer controllers like Crestron, some characters require special coding (such as, /X##). Refer to the controller manual.

11.1.5 Command Forms

Some commands have short name syntax in addition to long name syntax to allow faster typing. The response is always in long syntax.

11.1.6 Chaining Commands

Multiple commands can be chained in the same string. Each command is delimited by a pipe character ("|"). When chaining commands, enter the **message starting character** and the **message closing character** only once, at the beginning of the string and at the end.

Commands in the string do not execute until the closing character is entered.

A separate response is sent for every command in the chain.

11.1.7 Maximum String Length

64 characters

11.2 Kramer Protocol 3000 Commands

Command	Description	Permission
#	Protocol handshaking	End User
AUD-LVL	Set audio level in specific amplifier stage	End User
BASS	Set audio bass level	End User
BUILD-DATE?	Read device build date	End User
DIR	Lists files in device	End User
ETH-PORT	Change protocol Ethernet port	Administrator
FACTORY	Reset to factory default configuration	End User
FS-FREE	Get file system free space	End User
HELP	List of commands	End User
LOCK-FP	Lock front panel	Administrator
LOGIN	Set protocol permission	Not Secure
LOGOUT	Cancel current permission level	Not Secure
MIC-DELAY	Set delay for microphone output	End User
MIC-GAIN	Set the microphone gain	End User
MID-RANGE	Set audio midrange level	End User
MODEL?	Read device model	End User
MUTE	Set audio mute	End User
NAME	Set machine (DNS) name	Administrator
NAME-RST	Reset machine name to factory default	Administrator
NET-DHCP	Set DHCP mode	Administrator
NET-GATE	Set Gateway	Administrator
NET-IP	Set IP address	Administrator
NET-MAC?	Get MAC address	End User
NET-MASK	Set subnet mask	Administrator
PASS	Set password for login level	Administrator
PROT-VER?	Read device protocol version	End User
PRST-RCL	Recall saved preset	End User
PRST-STO	Store current connections to preset	End User
RESET	Reset device	Administrator
ROUTE	Set layer routing	End User
SECUR	Set current security state	Administrator
SN?	Read device serial number	End User
STEREO	Set audio stereo	End User
TEST-FREQ	Set signal generator test frequency	End User
TLK	Set audio talkover	End User
TREBLE	Set audio treble level	End User

11.2.1 Command Descriptions

Command - #			Command Type - System-mandatory		
Command Name			**Permission**		**Transparency**
Set:	**#**		End User		Public
Get:	**-**		-		-
Description			**Syntax**		
Set:	Protocol handshaking		**#** `CR`		
Get:	-		-		
Response					
~`nn`@ `SP` **OK** `CR` `LF`					
Parameters					
Response Triggers					
Notes					
Use to validate the Protocol 3000 connection and get the machine number					

Command - AUD-LVL			Command Type - Audio		
Command Name			**Permission**		**Transparency**
Set:	**AUD-LVL**		End User		Public
Get:	**AUD-LVL?**		End User		Public
Description			**Syntax**		
Set:	Set audio level in specific amplifier stage		**#AUD-LVL** `SP` *stage, channel, volume* `CR`		
Get:	Get audio level in specific amplifier stage		**#AUD-LVL?** `SP` *stage, channel* `CR`		
Response					
~`nn`@ **AUD-LVL** `SP` *stage, channel, volume* `CR` `LF`					
Parameters					

stage - 'IN, 'OUT' or numeric value of present audio processing stage
      For example: '1' for input level, '2' for output
channel - input or output number
volume - audio parameter in Kramer units, minus sign precedes negative values.
      ++ increase current value,
      -- decrease current value					

Response Triggers					
Notes					

Command - **BASS**		Command Type - Audio	
Command Name		**Permission**	**Transparency**
Set:	**BASS**	End User	Public
Get:	**BASS?**	End User	Public
Description		**Syntax**	
Set:	Set audio bass level	#**BASS**[SP]channel, bass_level[CR]	
Get:	Get audio bass level	#**BASS?**[SP]channel[CR]	
Response			
~[nn]@**BASS**[SP]channel, bass_level[CR LF]			
Parameters			
channel - input or output number bass_level - audio parameter in Kramer units, minus sign precedes negative values 　　　　++ increase current value 　　　　-- decrease current value			
Response Triggers			
Notes			

Command - **BUILD-DATE**		Command Type - System-mandatory	
Command Name		**Permission**	**Transparency**
Set:	**-**	-	-
Get:	**BUILD-DATE?**	End User	Public
Description		**Syntax**	
Set:	Get device build date	#**BUILD-DATE**[CR]	
Get:	-	-	
Response			
~[nn]@**BUILD-DATE**[SP]date[SP]time[CR LF]			
Parameters			
date - Format: YYYY/MM/DD where YYYY = Year, MM = Month, DD = Day time - Format: hh:mm:ss where hh = hours, mm = minutes, ss = seconds			
Response Triggers			
Notes			

Command - **DIR**		Command Type - File System	
Command Name		**Permission**	**Transparency**
Set:	**DIR**	Administrator	Public
Get:	**-**	-	-
Description		**Syntax**	
Set:	List files in device	#**DIR**[CR]	
Get:	-	-	
Response			
Multi Line: ~[nn]**@DIR**[CR LF] *file_name* [TAB] *file_size*[SP]bytes,[SP] ID:[SP]*file_id*[CR LF] [TAB]*free_size*[SP]bytes.[CR LF]			
Parameters			
file_name - name of file *file_size* - file size in bytes. A file can take more space on device memory *file_id* - internal ID for file in file system *free_size* - free space in bytes in device file system			
Response Triggers			
Notes			

Command - **ETH-PORT**		Command Type - Communication	
Command Name		**Permission**	**Transparency**
Set:	**ETH-PORT**	Administrator	Public
Get:	**ETH-PORT?**	End User	Public
Description		**Syntax**	
Set:	Set Ethernet port protocol	#**ETH-PORT**[SP]*portType, ETHPort, portNum*[CR]	
Get:	Get Ethernet port protocol	#**ETH-PORT?**[SP]*portType, portNum*[CR]	
Response			
~[nn]@ **ETH-PORT**[SP]*portType, ETHPort, portNum*[CR LF]			
Parameters			
portNum - 1-4 TCP/UDP port enumerator (equals the connected com port number from the tunneling port) *portType* - TCP/UDP *ETHPort* - TCP/UDP port number			
Response Triggers			
Notes			

Command - **FACTORY**		Command Type - System-mandatory	
Command Name		**Permission**	**Transparency**
Set:	**FACTORY**	End User	Public
Get:	**-**	-	-
Description		**Syntax**	
Set:	Reset device to factory default configuration	#FACTORY_{CR}	
Get:	-	-	
Response			
~nn@FACTORY_{SP}OK_{CR LF}			
Parameters			
Response Triggers			
Notes			
This command deletes all user data from the device. The deletion can take some time.			

Command - **FS-FREE?**		Command Type - File System	
Command Name		**Permission**	**Transparency**
Set:	**-**	-	-
Get:	**FS-FREE?**	Administrator	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get file system free space	#FS-FREE?_{CR}	
Response			
~nn@FS_FREE_{SP}free_size_{CR LF}			
Parameters			
free_size - free size in device file system in bytes			
Response Triggers			
Notes			

Command - **HELP**		Command Type - System-mandatory	
Command Name		**Permission**	**Transparency**
Set:	**-**	-	-
Get:	**HELP**	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get command list or help for specific command	2 options: 1. #HELP⌷CR⌷ 2. #HELP⌷SP⌷ command_name ⌷CR⌷	
Response			
1. Multi-line: ~ ⌷nn⌷ @**Device available protocol 3000 commands :** ⌷CR LF⌷ command **,** ⌷SP⌷ command… ⌷CR LF⌷ **To get help for command use: HELP (COMMAND_NAME)** ⌷CR LF⌷ 2. Multi-line: ~ ⌷nn⌷ @**HELP** ⌷SP⌷ command **:** ⌷CR LF⌷ description ⌷CR LF⌷ **USAGE :** usage ⌷CR LF⌷			
Parameters			
Response Triggers			
Notes			

Command - **LOCK-FP**		Command Type - System	
Command Name		**Permission**	**Transparency**
Set:	**LOCK-FP**	End User	Public
Get:	**LOCK-FP?**	End User	Public
Description		**Syntax**	
Set:	Lock front panel	Option 1: #**LOCK-FP** SP *lock_mode* CR Option 2: #**LOCK-FP** SP *device_id,lock_mode* CR	
Get:	Get front panel lock state	Option 1: #**LOCK-FP?** CR Option 2: #**LOCK-FP?** SP *device_id* CR	
Response			
Set: Option 1: ~ nn @**LOCK-FP** SP *lock_mode* SP **OK** CR LF Option 2: ~01@**LOCK-FP** SP *device_id,lock_mode* SP **OK** CR LF Get: Option 1: ~ nn @**LOCK-FP** SP *lock_mode* CR LF Option 2: ~01@**LOCK-FP** SP *device_id, lock_mode* CR LF			
Parameters			
lock_mode - 0/OFF - unlocks the front panel buttons, 1/ON - locks the front panel buttons *device_id* - for K-Net controllers, select the button panel to lock. Locking is allowed only from the master			
Response Triggers			
Notes			

Command - **LOGIN**		Command Type - Authentication	
Command Name		**Permission**	**Transparency**
Set:	**LOGIN**	Not Secure	Public
Get:	**LOGIN?**	Not Secure	Public
Description		**Syntax**	
Set:	Set protocol permission	#**LOGIN** SP *login_level, password* CR	
Get:	Get current protocol permission level	#**LOGIN?** CR	
Response			
Set: ~ nn @**LOGIN** SP *login_level,password* SP **OK** CR LF 　　　or 　　　~ nn @**LOGIN** SP ERR SP 004 CR LF (if bad password entered) Get: ~ nn @**LOGIN** SP *login_level* CR LF			
Parameters			
login_level - level of permissions required (End User or Admin) *password* - predefined password (by PASS command). Default password is an empty string			
Response Triggers			
Notes			
For devices that support security, LOGIN allows to the user to run commands with an End User or Administrator permission level In each device, some connections can be logged in to different levels and some do not work with security at all Connection may logout after timeout The permission system works only if security is enabled with the "SECUR" command			

Command - **LOGOUT**		Command Type - Authentication	
Command Name		**Permission**	**Transparency**
Set:	**LOGOUT**	Not Secure	Public
Get:	-	-	-
Description		**Syntax**	
Set:	Cancel current permission level	#**LOGOUT** CR	
Get:	-	-	
Response			
~ nn @**LOGOUT** SP **OK** CR LF			
Parameters			
Response Triggers			
Notes			
Logs out from End User or Administrator permission levels to Not Secure			

Command - **MIC-DELAY**		Command Type - Audio	
Command Name		**Permission**	**Transparency**
Set:	**MIC-DELAY**	End User	Public
Get:	**MIC-DELAY?**	End User	Public
Description		**Syntax**	
Set:	Set delay for microphone output.	# **MIC-DELAY** `SP` *id, delay* `CR`	
Get:	Get delay for microphone output.	# **MIC-DELAY?** *id* `CR`	
Response			
~`nn`@**MIC-DELAY**`SP`*id,delay* `CR` `LF`			
Parameters			
Id - MIC id *Delay* - 0-85ms			
Response Triggers			
Notes			

Command – **MIC-GAIN**		Command Type – Audio	
Command Name		**Permission**	**Transparency**
Set:	**MIC-GAIN**	End User	Public
Get:	**MIC-GAIN?**	End User	Public
Description		**Syntax**	
Set:	Set the microphone gain	# **MIC-GAIN** `SP` *P1,P2* `CR`	
Get :	Get the microphone gain	# **MIC-GAIN?** `SP` *P1* `CR`	
Response			
Set / Get : ~ `nn`@**MIC-GAIN**`SP`*P1,P2* `CR` `LF`			
Parameters			
P1 - Input number, for VP-553 always 0 *P2* - level – 0 to 100			
Response Triggers			
Response is sent to the com port from which the Set (before execution) / Get command was received After execution, response is sent to all com ports if CMD-NAME was set any other external control device (button press, device menu and similar) or genlock status was changed			
Notes			
Sets the microphone input audio gain			

Command - **MIDRANGE**		Command Type - Audio	
Command Name		**Permission**	**Transparency**
Set:	**MIDRANGE**	End User	Public
Get:	**MIDRANGE?**	End User	Public
Description		**Syntax**	
Set:	Set audio midrange level	#**MIDRANGE** `SP` channel, midrange_level `CR`
Get:	Get audio midrange level	#**MIDRANGE?** `SP` channel `CR`
Response			
~`nn`@**MIDRANGE** `SP` channel, midrange_level `CR LF`			
Parameters			

channel - input or output number
midrange_level - audio parameter in Kramer units, minus sign precedes negative values
       ++ increase current value
       -- decrease current value			

Response Triggers			
Notes			

Command - **MODEL?**		Command Type - System-mandatory	
Command Name		**Permission**	**Transparency**
Set:	-	-	-
Get:	**MODEL?**	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get device model	#**MODEL?** `CR`
Response			
~`nn`@**MODEL** `SP` model_name `CR LF`			
Parameters			
model_name - String of up to 19 printable ASCII chars			
Response Triggers			
Notes			

Command - **MUTE**		Command Type - Audio	
Command Name		**Permission**	**Transparency**
Set:	**MUTE**	End User	Public
Get:	**MUTE?**	End User	Public
Description		**Syntax**	
Set:	Set audio mute	#**MUTE**｟SP｠channel,mute_mode｟CR｠	
Get:	Get audio mute	#**MUTE?**｟SP｠channel｟CR｠	
Response			
~｟nn｠@**MUTE**｟SP｠channel, mute_mode｟CR LF｠			
Parameters			
channel - output number mute_mode - 0 or OFF / 1 or ON			
Response Triggers			
Notes			

Command - **NAME**		Command Type - System (Ethernet)	
Command Name		**Permission**	**Transparency**
Set:	**NAME**	Administrator	Public
Get:	**NAME?**	End User	Public
Description		**Syntax**	
Set:	Set machine (DNS) name	#**NAME**｟SP｠machine_name｟CR｠	
Get:	Get machine (DNS) name	#**NAME?**｟CR｠	
Response			
Set: ~｟nn｠@**NAME**｟SP｠machine_name｟SP｠**OK**｟CR LF｠			
Get: ~｟nn｠@**NAME?**｟SP｠machine_name｟CR LF｠			
Parameters			
machine_name - String of up to 14 alpha-numeric chars (can include hyphen, not at the beginning or end)			
Response Triggers			
Notes			
The machine name is not the same as the model name. The machine name is used to identify a specific machine or a network in use (with DNS feature on)			

Command - NAME-RST		Command Type - System (Ethernet)	
Command Name		**Permission**	**Transparency**
Set:	**NAME-RST**	Administrator	Public
Get:	**-**	-	-
Description		**Syntax**	
Set:	Reset machine (DNS) name to factory default	#NAME-RST`CR`	
Get:	-	-	
Response			
~`nn`@NAME-RST`SP`OK`CR LF`			
Parameters			
Response Triggers			
Notes			
Factory default of machine (DNS) name is "KRAMER_" + 4 last digits of device serial number			

Command - NET-DHCP		Command Type - Communication	
Command Name		**Permission**	**Transparency**
Set:	**NET-DHCP**	Administrator	Public
Get:	**NET-DHCP?**	End User	Public
Description		**Syntax**	
Set:	Set DHCP mode	#NET-DHCP`SP`*mode*`CR`	
Get:	Get DHCP mode	#NET-DHCP?`CR`	
Response			
Set: ~`nn`@ NET-DHCP`SP`*mode*`SP`OK`CR LF`			
Get: ~`nn`@ NET-DHCP`SP`*mode* `CR LF`			
Parameters			
mode - 0 - Do not use DHCP. Use the IP set by the factory or using the IP set command 1 - Try to use DHCP. If unavailable, use IP as above			
Response Triggers			
Notes			
Connecting Ethernet to devices with DHCP may take more time in some networks To connect with a randomly assigned IP by DHCP, specify the device DNS name (if available) using the command "NAME". You can also get an assigned IP by direct connection to USB or RS-232 protocol port if available For proper settings consult your network administrator			

Command - **NET-GATE**		Command Type - Communication	
Command Name		**Permission**	**Transparency**
Set:	**NET-GATE**	Administrator	Public
Get:	**NET-GATE?**	End User	Public
Description		**Syntax**	
Set:	Set gateway IP	#**NET-GATE** `SP` *ip_address*`CR`	
Get:	Get gateway IP	#**NET-GATE?**`CR`	
Response			
Set: ~`nn`@**NET-GATE**`SP`*ip_address*`SP`**OK**`CR LF`			
Get: ~`nn`@**NET-GATE**`SP`*ip_address*`CR LF`			
Parameters			
ip_address - format: xxx.xxx.xxx.xxx			
Response Triggers			
Notes			
A network gateway connects the device via another network and maybe over the Internet. Be careful of security problems. For proper settings consult your network administrator			

Command - **NET-IP**		Command Type - Communication	
Command Name		**Permission**	**Transparency**
Set:	**NET-IP**	Administrator	Public
Get:	**NET-IP?**	End User	Public
Description		**Syntax**	
Set:	Set IP address	#**NET-IP**`SP`*ip_address*`CR`	
Get:	Get IP address	#**NET-IP?**`CR`	
Response			
Set: ~`nn`@ **NET-IP**`SP`*ip_address*`SP`**OK**`CR LF`			
Get: ~`nn`@ **NET-IP**`SP`*ip_address*`CR LF`			
Parameters			
ip_address - format: xxx.xxx.xxx.xxx			
Response Triggers			
Notes			
For proper settings consult your network administrator			

Command - **NET-MAC?**		Command Type - Communication	
Command Name		**Permission**	**Transparency**
Set:	**-**	-	-
Get:	**NET-MAC?**	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get MAC address	#**NET-MAC?**[CR]	
Response			
~[nn]@**NET-MAC**[SP]*mac_address*[CR LF]			
Parameters			
mac_address - Unique MAC address. Format: XX-XX-XX-XX-XX-XX where X is hex digit			
Response Triggers			
Notes			

Command - **NET-MASK**		Command Type - Communication	
Command Name		**Permission**	**Transparency**
Set:	**NET-MASK**	Administrator	Public
Get:	**NET-MASK?**	End User	Public
Description		**Syntax**	
Set:	Set subnet mask	#**NET-MASK**[SP]*net_mask*[CR]	
Get:	Get subnet mask	#**NET-MASK?**[CR]	
Response			
Set: ~[nn]@**NET-MASK**[SP]*net_mask*[SP]**OK**[CR LF]			
Get: ~[nn]@**NET-MASK**[SP]*net_mask*[CR LF]			
Parameters			
net_mask - format: xxx.xxx.xxx.xxx			
Response Triggers			
The subnet mask limits the Ethernet connection within the local network For proper settings consult your network administrator			
Notes			

Command - **PASS**		Command Type - Authentication	
Command Name		**Permission**	**Transparency**
Set:	**PASS**	Administrator	Public
Get:	**PASS?**	Administrator	Public
Description		**Syntax**	
Set:	Set password for login level	#**PASS**[SP]*login_level, password*[CR]	
Get:	Get password for login level	#**PASS?**[SP]*login_level*[CR]	
Response			
~[nn]@**PASS**[SP]*login_level, password*[SP]**OK**[CR LF]			
Parameters			
login_level - level of login to set (End User or Administrator). *password* - password for the *login_level*. Up to 15 printable ASCII chars			
Response Triggers			
Notes			
The default password is an empty string			

Command - **PROT-VER?**		Command Type - System-mandatory	
Command Name		**Permission**	**Transparency**
Set:	**-**	-	-
Get:	**PROT-VER?**	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get device protocol version	#**PROT-VER?**[CR]	
Response			
~[nn]@**PROT-VER**[SP]3000:*version*[CR LF]			
Parameters			
Version - XX.XX where X is a decimal digit			
Response Triggers			
Notes			

Command - **PRST-RCL**		Command Type - System	
Command Name		**Permission**	**Transparency**
Set:	**PRST-RCL**	End User	Public
Get:	**-**	-	-
Description		**Syntax**	
Set:	Recall saved preset list	#**PRST-RCL** SP *preset* CR	
Get:	-	-	
Response			
~nn@**PRST-RCL** SP *preset* CR LF			
Parameters			
preset - preset number			
Response Triggers			
Notes			
In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL			

Command - **PRST-STO**		Command Type - System	
Command Name		**Permission**	**Transparency**
Set:	**PRST-STO**	End User	Public
Get:	**-**	-	-
Description		**Syntax**	
Set:	Store current connections, volumes and modes in preset	#**PRST-STO** SP *preset* CR	
Get:	-	-	
Response			
~nn@**PRST-STO** SP *preset* CR LF			
Parameters			
preset - preset number			
Response Triggers			
Notes			
In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL			

Command - **RESET**			Command Type - System-mandatory	
Command Name			**Permission**	**Transparency**
Set:	**RESET**		Administrator	Public
Get:	**-**		-	-
Description			**Syntax**	
Set:	Reset device		**#RESET**CR	
Get:	-		-	
Response				
~nn@**RESET**SP**OK**CR LF				
Parameters				
Response Triggers				
Notes				
To avoid locking the port due to a USB bug in Windows, disconnect USB connections immediately after running this command. If the port was locked, disconnect and reconnect the cable to reopen the port.				

Command - **ROUTE**			Command Type - Routing	
Command Name			**Permission**	**Transparency**
Set:	**ROUTE**		End User	Public
Get:	**ROUTE?**		End User	Public
Description			**Syntax**	
Set:	Set layer routing		**#ROUTE**SP *layer, dest, src*CR	
Get:	Get layer routing		**#ROUTE?**SP *layer, dest*CR	
Response				
~ nn @ **ROUTE**SP *layer, dest, src* CR LF				
Parameters				
layer *dest* - * - ALL x - disconnect, otherwise destination id *src* - source id				
Response Triggers				
Notes				
This command replaces all other routing commands.				

Command - SECUR		Command Type - Authentication	
Command Name		**Permission**	**Transparency**
Set:	**SECUR**	Administrator	Public
Get:	**SECUR?**	Not Secure	Public
Description		**Syntax**	
Set:	Start/stop security	#**SECUR**[SP]*security_mode*[CR]	
Get:	Get current security state	#**SECUR?**[CR]	
Response			
Set: ~[nn]@**SECUR**[SP]*security_mode*[SP]**OK**[CR LF]			
Get: ~[nn]@**SECUR**[SP]*security_mode*[CR LF]			
Parameters			
security_mode – 1/ON - enables security, 0/OFF - disables security			
Response Triggers			
Notes			
The permission system works only if security is enabled with the "SECUR" command			

Command - SN?		Command Type - System-mandatory	
Command Name		**Permission**	**Transparency**
Set:	**-**	-	-
Get:	**SN?**	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get device serial number	#**SN?**[CR]	
Response			
~[nn]@**SN**[SP]*serial_number*[CR LF]			
Parameters			
serial_number - 11 decimal digits, factory assigned			
Response Triggers			
Notes			
For new products with 14 digit serial numbers, use only the last 11 digits			

Command - STEREO		Command Type - Audio	
Command Name		**Permission**	**Transparency**
Set:	**STEREO**	End User	Public
Get:	**STEREO?**	End User	Public
Description		**Syntax**	
Set:	Set stereo audio	#**STEREO** `SP` *channel,stereo_mode* `CR`	
Get:	Get stereo audio	#**STEREO?** *channel,* `CR`	
Response			
~ `nn` @**STEREO** `SP` *channel,stereo_mode* `CR LF`			
Parameters			
channel - output number *stereo_mode* - 0 or OFF / 1 or ON			
Response Triggers			
Notes			

Command - TEST-FREQ		Command Type - Audio	
Command Name		**Permission**	**Transparency**
Set:	**TEST-FREQ**	End User	Public
Get:	**TEST-FREQ?**	End User	Public
Description		**Syntax**	
Set:	Sets signal generator frequency	#**TEST_FREQ** `SP` *frequency* `CR`	
Get:	Gets signal generator frequency	#**TEST_FREQ?** `SP`	
Response			
~ `nn` @**TEST_FREQ** `SP` *frequency* `CR LF`			
Parameters			
frequency - 20-24000Hz			
Response Triggers			
Notes			

Command - TLK		Command Type - Audio	
Command Name		**Permission**	**Transparency**
Set:	**TLK**	End User	Public
Get:	**TLK?**	End User	Public
Description		**Syntax**	
Set:	Set audio talkover	#**TLK**[SP]*channel,talkover_mode*[CR]	
Get:	Get audio talkover	#**TLK?***channel,*[CR]	
Response			
~[nn]@**TLK**[SP]*channel,talkover_mode*[CR LF]			
Parameters			
channel - output number *talkover_mode* - 0 or OFF / 1 or ON			
Response Triggers			
Notes			

Command - TREBLE		Command Type - Audio	
Command Name		**Permission**	**Transparency**
Set:	**TREBLE**	End User	Public
Get:	**TREBLE?**	End User	Public
Description		**Syntax**	
Set:	Set audio treble level	#**TREBLE**[SP]*channel, treble_level*[CR]	
Get:	Get audio treble level	#**TREBLE?**[SP]*channel*[CR]	
Response			
~[nn]@**TREBLE**[SP]*channel, treble_level*[CR LF]			
Parameters			

channel - input or output number
treble_level - audio parameter in Kramer units, minus sign precedes negative values
        ++ increase current value
        -- decrease current value			

Response Triggers			
Notes			

11.2.2 On/Off

Number	Value
0	Off
1	On

11.2.3 Stage

Number	Value
0	Input
1	Output
2	(Reserved)
3	(Reserved)

LIMITED WARRANTY

The warranty obligations of Kramer Electronics for this product are limited to the terms set forth below:

What is Covered

This limited warranty covers defects in materials and workmanship in this product.

What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

How Long Does this Coverage Last

Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

What Kramer Electronics will do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.

2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.

3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

What Kramer Electronics will not do Under This Limited Warranty

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How to Obtain a Remedy under this Limited Warranty

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