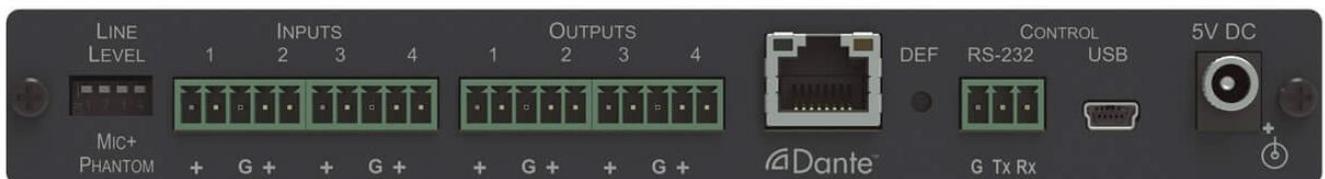
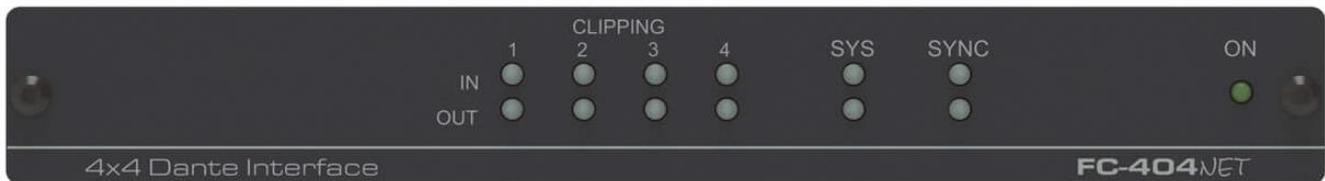


USER MANUAL

MODEL:

FC-404NET

4X4 Dante Interface



Contents

Introduction	1
Getting Started	1
Firmware Upgrade	2
Overview	3
Defining the FC-404NET 4X4 Dante Interface	4
Connecting the FC-404NET	5
Connecting the Inputs	6
Connecting the Outputs	7
Operating the FC-404NET	8
Setting the DIP-Switches	8
Using the Web-based Dante Controller	8
Viewing the Unit MAC Address	9
Technical Specifications	11
Protocol 3000 Syntax	12
Host Message Format	12
Device Message Format	12
Command Terms	13
Entering Commands	13
Bidirectional Definition	13
Command Chaining	14
Maximum String Length	14
Practical Command Examples	14
Protocol 3000 Commands	17
System Commands - Mandatory	17
System Commands	20
Audio Commands	21

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!

Congratulations on purchasing your Kramer **FC-404NET 4X4 Dante Interface**, which is ideal for the following typical applications:

- Boardrooms
- Education
- Hospitality
- Airline and rail transportation
- Retail
- Entertainment
- Houses of worship

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 www.kramerav.com/downloads/FC-404NET to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Achieving 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 Kramer **FC-404NET** 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.

Safety Instructions



Caution: There are no operator serviceable parts inside the unit

Warning: Use only the Kramer Electronics power supply that is provided with the unit

Warning: Disconnect the power and unplug the unit from the wall before installing

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 www.kramerav.com/support/recycling.

Firmware Upgrade

The firmware upgrade of the **FC-404NET** includes two components:

- Kramer firmware upgrade
- Dante firmware upgrade

For further details contact your Kramer dealer.

Overview

The Kramer **FC-404NET** is a four-input/four-output Dante™ interface with line or microphone level inputs and line level outputs. It connects analog inputs to a digital Dante network or outputs four channels from a Dante network.

The **FC-404NET 4X4 Dante Interface** features:

- A Dante network interface
- Four balanced, line-level/mic inputs
- Four balanced, line-level outputs from the network
- Independent input gain/output volume settings per channel
- DIP-switch controlled input settings – line level (0db) or mic level (+20dB) with phantom +48 volts
- Control via the Dante IP control matrix or Kramer Protocol 3000 via RS-232 connection
- Compact MegaTOOLS® housing where 2 units can be rack mounted side-by-side in a 1U rack space with the optional RK-T2B rack adapter.

Defining the FC-404NET 4X4 Dante Interface

This section defines the FC-404NET.

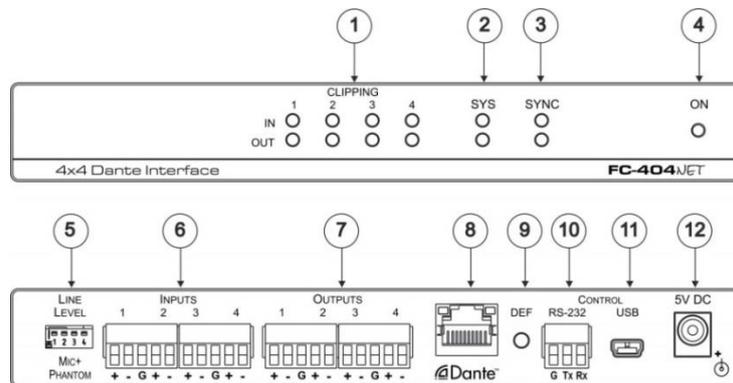


Figure 1: FC-404NET 4X4 Dante Interface

#	Feature	Function
1	CLIPPING 1-4, IN-OUT LEDs	Lights when in/out signal is clipped
2	SYS LEDs	Lights green when Dante network is available or red if an error occurred
3	SYNC LEDs	Lights green for digital audio normal operation. Flashes green when this unit is the Master clock. Lights red if an error has occurred.
4	ON LED	Lights green when the unit is powered on
5	LINE LEVEL/MIC + PHANTOM DIP-Switches (1 to 4)	Set up (OFF) for line level input, set down (ON) for mic level input and +48v phantom supply to the microphones
6	INPUTS Terminal Block Connectors (1 to 4)	Connect to balanced line-level audio sources 1-4, (+, -, G) (line or mic levels)
7	OUTPUTS Terminal Block Connectors (1 to 4)	Connect to balanced line-level audio acceptors 1-4, (+, -, G)
8	DANTE NET RJ-45 Connector	Connects to the IP network
9	DEF Push Button	To reset/reboot the device, press and release the button To reset to factory settings, press and hold the button for 30 secs
10	CONTROL RS-232 3-pin Terminal Block Connector	Connects to a control unit or PC running Protocol 3000
11	CONTROL Mini USB Connector	N/A
12	5V DC Power Connector	Connects to the power supply

Connecting the FC-404NET



Always switch off the power to each device before connecting it to your **FC-404NET**. After connecting your **FC-404NET**, connect its power 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.

To connect the **FC-404NET**, as illustrated in the example in [Figure 2](#), do the following:

1. Connect up to four balanced audio sources, (for example, a multimedia player, a microphone) to the INPUT 3-pin (+, -, G) terminal blocks (1 to 4).
2. Set the MIC Phantom DIP-switches according to the input type: up (OFF) for line level inputs or down (ON) for microphone inputs.
3. Connect the OUTPUT 3-pin terminal blocks (+, -, G) to up to four balanced audio acceptors, (for example, an amplifier with speaker, an audio recording device).
4. Connect the Dante RJ-45 connector to the available IP network.
5. If needed, connect a PC or controller to the **FC-404NET** via the RS-232 connection (PC only).
6. Connect the power adapter to the **FC-404NET** and plug the power adapter into the mains power supply.

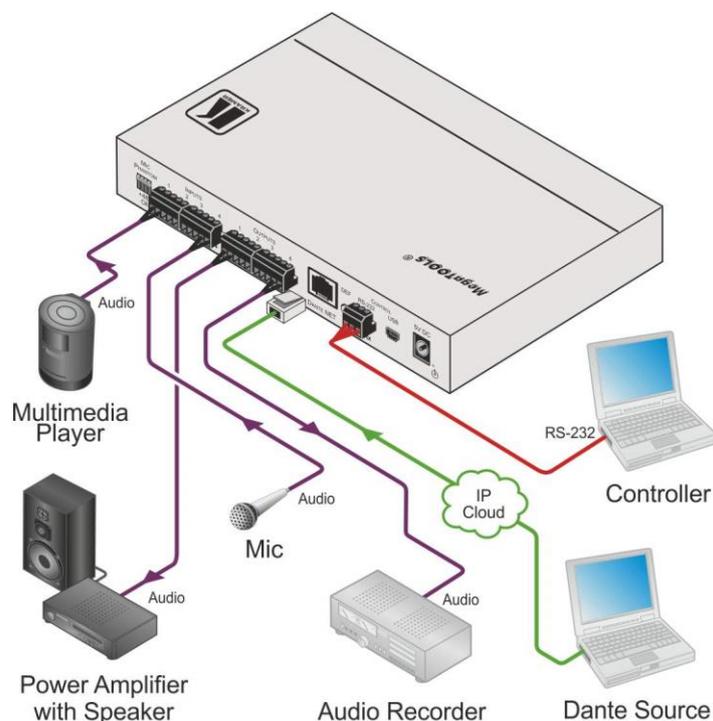


Figure 2: Connecting the **FC-404NET 4X4 Dante Interface**

Connecting the Inputs

Each input channel has a 3-pin terminal block connector that can accept either a balanced or an unbalanced connection; however, an unbalanced connection requires some modifications. The next two sections explain how to connect the **FC-404NET** to its input source.

Connecting Balanced Inputs

When using a balanced input source and connector, you must ensure that the hot, cold, and ground pins of the connector are matched up to the +, –, and ground pins of the **FC-404NET** terminal block connector respectively. The following diagrams illustrate how to connect standard XLR and 6.5mm phone jack.



Figure 3: Connecting a Balanced XLR Input

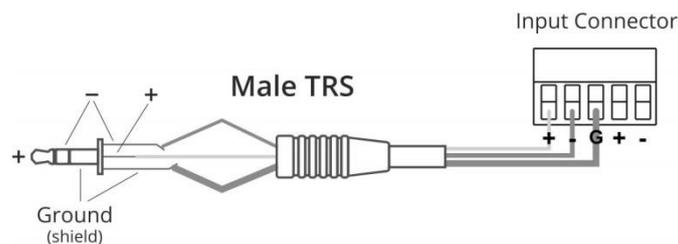


Figure 4: Connecting a Balanced 6.5mm Phone Jack

Connecting Unbalanced Inputs

When using an unbalanced input source, a jumper must be added between the negative (–) and ground terminals. The unbalanced source is connected to the positive (+) and ground terminals.

Note: A jumper is required for connecting an unbalanced input.

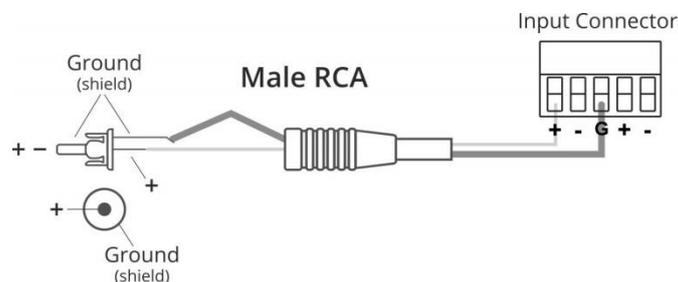


Figure 5: Connecting an Unbalanced RCA Input

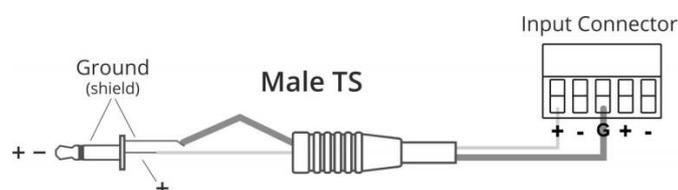


Figure 6: Connecting an Unbalanced 6.5mm Phone Jack

Connecting the Outputs

Your **FC-404NET** is provided with a 3-pin terminal block for each output channel. This connector offers a balanced output to interface with the input of another device.

Connection methods for balanced and unbalanced outputs are identical as the methods for inputs as referenced in [Connecting the Inputs](#) on page [6](#).

For any microphone that needs +48 volts of power, set the DIP-switch for that channel ON (down).

Operating the FC-404NET

Setting the DIP-Switches

The 4-way DIP-switch on the rear panel sets the gain and enables/disables the phantom power to each channel according to the DIP-switch settings shown in the following table.

DIP-switch Number	Switch Setting	State
1	On	Mic level + Phantom
	Off	Line level
2	On	Mic level + Phantom
	Off	Line level
3	On	Mic level + Phantom
	Off	Line level
4	On	Mic level + Phantom
	Off	Line level

Using the Web-based Dante Controller

The **FC-404NET** is operated using Dante Controller, a Web-based software controller application from Audinate. Use the controller to route audio and configure devices on a Dante network. It features automatic device discovery, one-click signal routing and user-editable device and channel labels as well as providing essential device status information and powerful real-time network monitoring.

Download the Dante Web-based Controller from:

<https://www.audinate.com/products/software/dante-controller>

Download the Dante Web-based controller User Guide from:

<http://dev.audinate.com/GA/dante-controller/userguide/pdf/latest/AUD-MAN-DanteController-3.6.x-v1.1.pdf>

The Initial or factory default input gain is set according to the position of the DIP-switch/per channel: UP / OFF - 0 dB, DOWN / ON – +20dB.

The initial or factory default output volume is always set to 0 dB

The following values can be changed by Protocol 3000 commands (over RS-232):

- Input gain can be set from -12 dB to +60 dB
- Output volume can be set from +9 dB to -80 dB, or Mute.

Recycling the power doesn't change the latest values of input gain and output volume.

Factory Reset

To reset **FC-404NET** to its factory default values, press and hold the **DEF** pushbutton for about 30 seconds.

Following reset, the LEDs appear as follows:

- **SYS:** Lights green when Dante network is available or red if an error occurred
- **SYNC:** Lights green for digital audio normal operation; flashes green when this unit is the Master clock; lights red if an error has occurred
- **CLIPPING:** all IN/OUT LEDs are OFF

Viewing the Unit MAC Address

The MAC address of the unit is supplied by the Dante network. To view the MAC address, perform the following:

1. In the Dante controller, double-click the device name (in this example, Ult4-0a1b46).

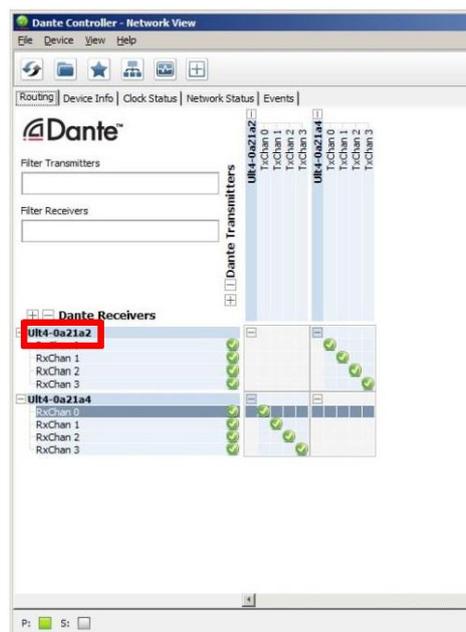


Figure 7: Dante Controller – FC-404NET

2. Select the Status tab.

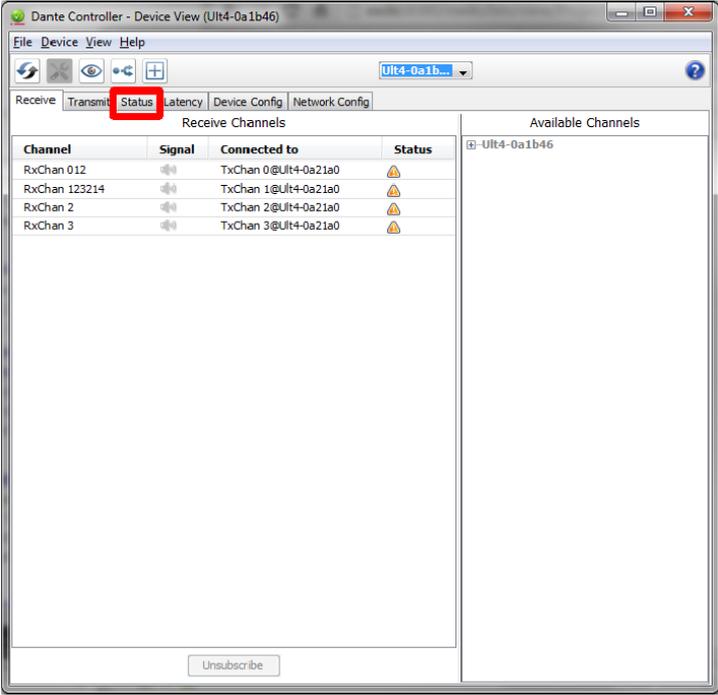


Figure 8: Dante Controller – Selecting the Status Tab

3. In Interfaces, view the MAC address.

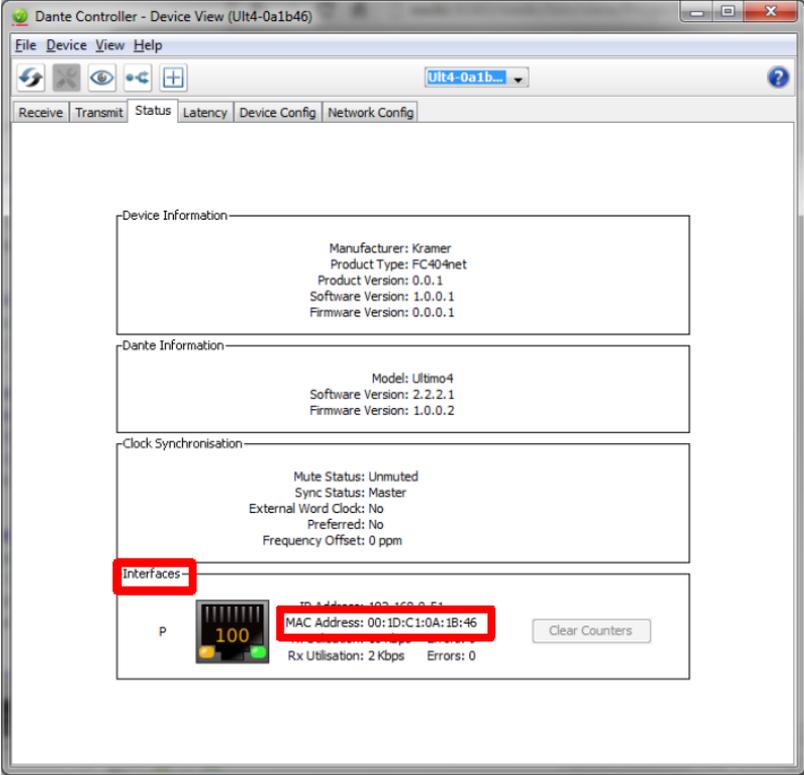


Figure 9: Dante Controller – Viewing MAC Address

Technical Specifications

INPUTS	4 balanced mono audio on terminal blocks
OUTPUTS	4 balanced mono audio on terminal blocks
PORTS	1 Dante Net on RJ-45 connector 1 RS-232 on a three-pin terminal block 1 USB mini connector (not used)
INDICATOR LEDS	On, In/Out Clipping, Sys, Sync
CONTROLS	Line/mic+phantom DIP-switches, factory reset button
BALANCED INPUT LEVEL MAX	3.2Vpp @ 0dB in/out gain and 0dB output volume
FREQUENCY RESPONSE	20Hz to 20kHz @ 1dB
THD+N	<0.008% @ 1kHz at maximum level
S/N RATIO	>85dB
CROSSTALK	<80dB
INPUT GAIN ADJUSTMENT	-12dB to +60dB
OUTPUT GAIN ADJUSTMENT	-78dB to +9dB
INPUT IMPEDANCE	10k Ω balanced
OUTPUT IMPEDANCE	50 Ω balanced
MIC PHANTOM POWER	+48V DC \pm 10%
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
POWER CONSUMPTION	5V DC, 850mA max.
DIMENSIONS	18.8cm x 12cm x 2.6cm (7.4" x 4.7" x 1.0") W, D, H, ½ 19" 1U
WEIGHT	0.41kg (0.9lbs) approx.
SHIPPING DIMENSIONS	35.1cm x 21.2cm x 7.2cm (12.4" x 8.4" x 2.8") W, D, H
SHIPPING WEIGHT	0.95kg (2.1lbs) approx.
INCLUDED ACCESSORIES	Power supply
OPTIONS	RK-T2B 19" rack adapter
All Audio specification are from Analog In to Analog Out. Specifications are subject to change without notice at www.kramerav.com	

Protocol 3000 Syntax

With Kramer Protocol 3000 you can control a device from any standard terminal software (for example, the Windows® HyperTerminal Application) or from UDP clients connected to the default TCP port 5000 (port numbers can be changed by the user). RS-232/RS-485 communications protocol uses a data rate of 115200 bps, no parity, 8 data bits, and 1 stop bit.

Host Message Format

Start	Address (opt)	Body	Delimiter
#	Destination_id@	Message	CR

Simple Command

Command string with only one command without addressing:

Start	Body	Delimiter
#	Command SP Parameter_1,Parameter_2,...	CR

Command String

Formal syntax with commands concatenation and addressing:

Start	Address	Body	Delimiter
#	Destination_id@	Command_1 Parameter1_1,Parameter1_2,... Command_2 Parameter2_1,Parameter2_2,... Command_3 Parameter3_1,Parameter3_2,...	CR

Device Message Format

Start	Address (opt)	Body	Delimiter
~	Sender_id@	Message	CR LF

Device Long Response

Echoing command:

Start	Address (opt)	Body	Delimiter
~	Sender_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)

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 alphanumerical 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. Multiple commands are separated by a pipe (' ') character.
Message starting character	'#' - For host command/query '~' - For machine response or machine command performed by keystroke operation on the front panel or IR remote controller.
Device address	(Optional when directly connected to the device) K-Net Device ID or MACHINE NUMBER followed by '@' (ex. #02@ CR LF)
Query sign	'?' follows some commands to define a query request.
All outputs sign	'*' defines all outputs.
Message closing character	CR - For host messages; carriage return (ASCII 13) CR LF - For machine 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 ignore

Entering Commands

You can directly enter all commands using a terminal with ASCII communication 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 the command parser).

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

Bidirectional Definition

All commands are bidirectional. That is, if the device receives the code, it performs the instruction. If the instruction is performed (due to a keystroke operation on the front panel or IR controller) these codes are sent to the PC or other RS-232 / Ethernet controller.

Command Chaining

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** once only, 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.

Maximum String Length

64 characters (except for special commands that are defined in the command syntax description).

Practical Command Examples

Ask all level status

```
#AUD-LVL? 1,1  
#AUD-LVL? 1,2  
#AUD-LVL? 1,3  
#AUD-LVL? 1,4  
#AUD-LVL? 2,1  
#AUD-LVL? 2,2  
#AUD-LVL? 2,3  
#AUD-LVL? 2,4
```

Set volume output to -70 dB (very low output)

```
#AUD-LVL? 2,2  
#AUD-LVL 2,2,-70  
#AUD-LVL 2,1,-70  
#AUD-LVL 2,3,-70  
#AUD-LVL 2,4,-70
```

Set volume output to -6 dB (normal output)

```
#AUD-LVL 2,1,-6  
#AUD-LVL 2,2,-6  
#AUD-LVL 2,3,-6  
#AUD-LVL 2,4,-6
```

Set volume output to 0 dB (normal output)

```
#AUD-LVL 2,1,0  
#AUD-LVL 2,2,0  
#AUD-LVL 2,3,0  
#AUD-LVL 2,4,0
```

Set gain input to -6 dB (normal input)

```
#AUD-LVL 1,1,-6  
#AUD-LVL 1,2,-6  
#AUD-LVL 1,3,-6  
#AUD-LVL 1,4,-6
```

Reduce the gain input to -9 dB (lower input)

```
#AUD-LVL 1,1,-9  
#AUD-LVL 1,2,-9  
#AUD-LVL 1,3,-9  
#AUD-LVL 1,4,-9
```

Increase the gain input to 0 dB (better level input)

```
#  
#AUD-LVL 1,1,0  
#AUD-LVL 1,2,0  
#AUD-LVL 1,3,0  
#AUD-LVL 1,4,0
```

Increase the gain input to max 59 dB (very high level input)

```
#AUD-LVL 1,1,59  
#AUD-LVL 1,2,59  
#AUD-LVL 1,3,59  
#AUD-LVL 1,4,59
```

Ask Mute status on all channels

```
#MUTE? 1  
#MUTE? 2  
#MUTE? 3  
#MUTE? 4
```

Set Mute On to all channels

```
#MUTE 1,1  
#MUTE 2,1  
#MUTE 3,1  
#MUTE 4,1
```

Check Mute status on all channels

```
#MUTE? 1  
#MUTE? 2  
#MUTE? 3  
#MUTE? 4
```

Set Mute Off to all channels

```
#MUTE 1,0  
#MUTE 2,0  
#MUTE 3,0  
#MUTE 4,0
```

Check Mute status on all channels

#MUTE? 1

#MUTE? 2

#MUTE? 3

#MUTE? 4

#MUTE? 1

#MUTE? 2

#MUTE? 3

#MUTE? 4

Protocol 3000 Commands

System Commands - Mandatory

All devices running Protocol 3000 use these commands.

Command	Description	Type	Permission
#	Protocol handshaking	System-mandatory	End User
BUILD-DATE?	Get device build date	System-mandatory	End User
FACTORY	Reset to factory default configuration	System-mandatory	End User
MODEL?	Get device model	System-mandatory	End User
PROT-VER?	Get device protocol version	System-mandatory	End User
RESET	Reset device	System-mandatory	Administrator
SN?	Get device serial number	System-mandatory	End User
VERSION?	Get device firmware version	System-mandatory	End User

#

Functions	Permission	Transparency
Set: #	End User	Public
Get: -	-	-
Description	Syntax	
Set: Protocol handshaking	# <code>CR</code>	
Get: -	-	
Response		
~ <code>nn</code> @ <code>SP</code> OK <code>CR LF</code>		
Parameters		
Response Triggers		
Notes		
Validates the Protocol 3000 connection and gets the machine number Step-in master products use this command to identify the availability of a device		

BUILD-DATE?

Functions	Permission	Transparency
Set: -	-	-
Get: BUILD-DATE?	End User	Public
Description	Syntax	
Set: -	-	
Get: Get device build date	#BUILD-DATE? <code>CR</code>	
Response		
~ <code>nn</code> @BUILD-DATE <code>SP</code> date <code>SP</code> time <code>CR LF</code>		
Parameters		
<i>date</i> – Format: YYYY/MM/DD where YYYY = Year, MM = Month, DD = Day <i>time</i> – Format: hh:mm:ss where hh = hours, mm = minutes, ss = seconds		
Response Triggers		
Notes		

FACTORY

Functions		Permission	Transparency
Set:	FACTORY	End User	Public
Get:	-	-	-
Description		Syntax	
Set:	Reset device to factory default configuration	# FACTORY <input type="checkbox"/> CR	
Get:	-	-	
Response			
~nn@ FACTORY <input type="checkbox"/> SP OK CR LF			
Parameters			
Response Triggers			
Notes			
This command deletes all user data from the device. The deletion can take some time. Your device may require powering off and powering on for the changes to take effect.			

MODEL?

Functions		Permission	Transparency
Set:	-	-	-
Get:	MODEL?	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get device model	# MODEL? <input type="checkbox"/> CR	
Response			
~nn@ MODEL? <input type="checkbox"/> SP model_name CR LF			
Parameters			
model_name – string of up to 19 printable ASCII chars			
Response Triggers			
Notes			
This command identifies equipment connected to Step-in master products and notifies of identity changes to the connected equipment. The Matrix saves this data in memory to answer REMOTE-INFO requests			

PROT-VER?

Functions		Permission	Transparency
Set:	-	-	-
Get:	PROT-VER?	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get device protocol version	# PROT-VER? <input type="checkbox"/> CR	
Response			
~nn@ PROT-VER? <input type="checkbox"/> SP 3000:version CR LF			
Parameters			
version – XX.XX where X is a decimal digit			
Response Triggers			
Notes			

RESET

Functions		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.			

SN?

Functions		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 – 14 decimal digits, factory assigned			
Response Triggers			
Notes			
For new products with 14 digit serial numbers, use only the last 11 digits			

VERSION?

Functions		Permission	Transparency
Set:	-	-	-
Get:	VERSION?	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get firmware version number	# VERSION? CR	
Response			
~ nn @ VERSION SP firmware_version CR LF			
Parameters			
firmware_version – XX.XX.XXXX where the digit groups are: major.minor.build version			
Response Triggers			
Notes			

System Commands

Command	Description	Type	Permission
NAME-RST	Reset machine name to factory default (DNS)	System	Administrator

NAME-RST

Functions		Permission	Transparency
Set:	NAME-RST	Administrator	Public
Get:	-	-	-
Description		Syntax	
Set:	Reset machine (DNS) name to factory default	#NAME-RST <input type="checkbox"/>	
Get:	-	-	
Response			
~nn@NAME-RST <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
Parameters			
Response Triggers			
Notes			
Factory default of machine (DNS) name is "KRAMER_" + 4 last digits of device serial number			

Audio Commands

These commands are used by audio devices running Protocol 3000.

Command	Description	Type	Permission
AUD-LVL	Set/get audio level in specific amplifier stage	Audio	End User
MUTE	Set/get audio mute	Audio	End User

AUD-LVL

Functions		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,channelCR	
Response			
~nn@AUD-LVL[SP]stage,channel,volumeCR LF			
Parameters			
<i>stage</i> – IN, 'OUT' or numeric value of present audio processing stage For example: '1' for input level, '2' for output <i>channel</i> – input or output number <i>volume</i> – audio parameter in Kramer units, minus sign precedes negative values. ++ increase current value, -- decrease current value			
Response Triggers			
Notes			
Channel is an integer value as following (1-channel 1, 2- channel 2 ... up to 4 channel max.) The output volume is an integer value expressed in dB from -78dB to +9dB The input gain is an integer value expressed in dB from -12dB to +60dB			

MUTE

Functions		Permission	Transparency
Set:	MUTE	End User	Public
Get:	MUTE?	End User	Public
Description		Syntax	
Set:	Set audio mute	#MUTE[SP]channel,mute_modeCR	
Get:	Get audio mute	#MUTE?[SP]channelCR	
Response			
~nn@MUTE[SP]channel,mute_modeCR LF			
Parameters			
<i>channel</i> – output number <i>mute_mode</i> – OFF 0, ON 1			
Response Triggers			
Notes			

The warranty obligations of Kramer Electronics Inc. ("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 this Coverage Lasts

The standard limited warranty for Kramer products is seven (7) years from the date of original purchase, with the following exceptions:

1. All Kramer VIA hardware products are covered by a standard three (3) year warranty for the VIA hardware and a standard three (3) year warranty for firmware and software updates.
2. All Kramer fiber optic cables, adapter-size fiber optic extenders, active cables, cable retractors, all Kramer speakers and Kramer touch panels are covered by a standard one (1) year warranty.
3. All Kramer Cobra products, all Kramer Calibre products, all Kramer Minicom digital signage products, all HighSecLabs products, all streaming, and all wireless products are covered by a standard three (3) year warranty.
4. All Sierra Video MultiViewers are covered by a standard five (5) year warranty.
5. Sierra switchers & control panels are covered by a standard seven (7) year warranty (excluding power supplies and fans that are covered for three (3) years).
6. K-Touch software is covered by a standard one (1) year warranty for software updates.
7. All Kramer passive cables are covered by a ten (10) year warranty.

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

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

How to Obtain a Remedy Under This Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, visit our web site at www.kramerav.com or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required (RMA number). You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

Limitation of Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

Exclusive Remedy

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS LIMITED WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF KRAMER ELECTRONICS CANNOT LAWFULLY DISCLAIM OR EXCLUDE IMPLIED WARRANTIES UNDER APPLICABLE LAW, THEN ALL IMPLIED WARRANTIES COVERING THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO THIS PRODUCT AS PROVIDED UNDER APPLICABLE LAW. IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS A "CONSUMER PRODUCT" UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. §2301, ET SEQ.) OR OTHER APPLICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY AS PROVIDED UNDER APPLICABLE LAW.

Other Conditions

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

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, visit our web site at www.kramerav.com or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.