KRAMER

USER MANUAL

MODELS:

FC-101Net
Dual Dante Interface Decoder

FC-102Net
Dual Dante Interface Encoder

Contents

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!

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-101Net or www.kramerav.com/downloads/FC-102Net 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-101Net** / **FC-102Net** away from moisture, excessive sunlight and dust.

Safety Instructions

Caution:

- This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.
- For products with relay terminals and GPI\O ports, please refer to the permitted rating for an external connection, located next to the terminal or in the User Manual.
- There are no operator serviceable parts inside the unit.

Warning:

- Do not open the unit. High voltages can cause electrical shock! Servicing by qualified personnel only.

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.

Overview

Congratulations on purchasing your Kramer **FC-101Net Dual Dante Interface** decoder and **FC-102Net Dual Dante Interface** encoder.

FC-101Net is a compact 2-channel Dante™ decoder with 2 balanced mono audio outputs on 3-pin terminal blocks. It enables connecting non-Dante devices, such as amplifiers and powered speakers, to a Dante network and enables volume control.

FC-102Net is a compact 2-channel Dante™ encoder with 2 balanced mono audio inputs on 3-pin terminal blocks that enables connecting non-Dante sources, such as microphones, laptops and players to a Dante network. It supports line level and microphone level sources and can provide 48V phantom power per input. **FC-101Net** and **FC-102Net** are powered over Ethernet from any standard PoE providing network switch.

FC-101Net and **FC-102Net** provide exceptional quality, and advanced and user-friendly operation.

Exceptional Quality

- Professional, Studio Grade Signal Conversion Technology – Includes the latest generation 32-bit advanced Digital Analog Converter architecture to achieve excellent dynamic performance and improved tolerance to clock jitter. Maintains the quality of the original audio signal with selectable sampling rates up to 96kHz.
- Dante Network Interface.
- PoE Acceptor.

Advanced and User-friendly Operation

- Output Volume Control.
- Versatile Control – Via the Dante IP control matrix and Kramer Protocol 3000 via RS-232 connection.
- Easy Installation – Single twisted-pair cable for signal and power wiring. Compact PicoTOOLS® fan-less enclosure for device-back mounting, or side-by-side mounting of 4 units in a 1U rack space with the recommended rack adapter.

Typical Applications

FC-101Net and **FC-102Net** are ideal for the following typical applications:

- Classrooms.
- Retail.
- Small to mid-size meeting rooms.
- Boardrooms.

Controlling your FC-101Net / FC-102Net

Control your **FC-101Net** / **FC-102Net**:

- By RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller.
- Via the Dante IP control matrix.

Defining FC-101Net and FC-102Net Dual Dante Interface

This section defines **FC-101Net** and **FC-102Net**.

FC-101Net:

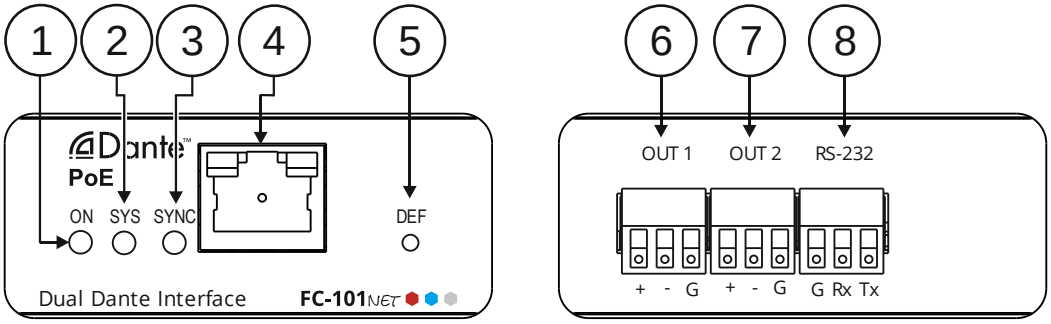


Figure 1: FC-101Net Dual Dante Interface Decoder

#	Feature	Function
1	ON LED	Lights green when the device receives power.
2	SYS LED	Lights green when Dante network is available; red if an error has occurred.
3	SYNC LED	Lights green for digital audio normal operation. Flashes green when this unit is the Master clock. Lights red if an error has occurred.
4	Dante PoE RJ-45 Port	Connect to the Dante audio source via the Network and provide Power over Ethernet (PoE) to the device. By default, DHCP is enabled.
5	DEF Push Button	To reset/reboot the device, press and release the button. To reset to factory settings: **FC-101Net** – Press and hold the button for 30 seconds. **FC-102Net** – Press and hold the button for at least 5 seconds.
6	OUT 1 5-pin Terminal Block Connector	Connect to a single balanced stereo audio output together with OUT 2, or to a mono output (+, –, G).
7	OUT 2 5-pin Terminal Block Connector	Connect to a single balanced stereo audio output together with OUT 1, or to a mono output (+, –, G).
8	RS-232 3-pin Terminal Block Connector	Connect to a serial controller to control this device.

FC-102Net:

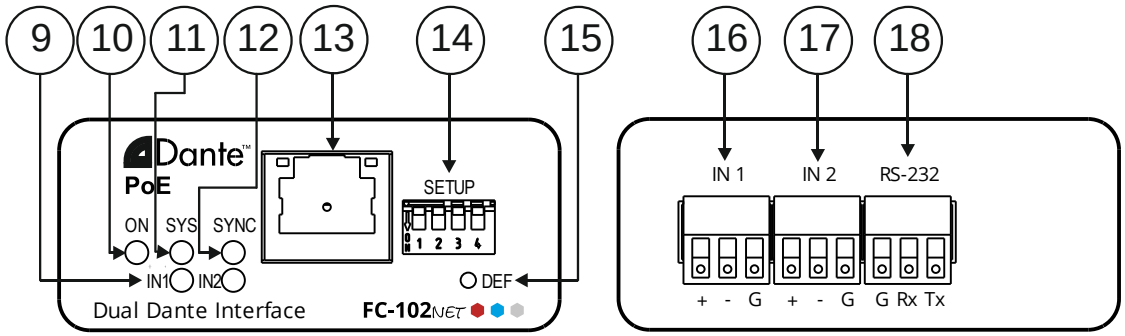


Figure 2: FC-102Net Dual Dante Interface Encoder

#	Feature	Function
9	IN LEDs (1 and 2)	Lights white when a microphone is selected to the input (IN 1/IN 2); lights green when a line level source is selected; lights red to indicate clipping on the input.
10	ON LED	Lights green when the device receives power.
11	SYS LED	Lights green when Dante network is available; lights red if an error has occurred.
12	SYNC LED	Lights green for digital audio normal operation; flashes green when this unit is the Master clock; lights red if an error has occurred.
13	Dante PoE RJ-45 Port	Connect to the Dante audio sink via the Network and provide Power over Ethernet (PoE) to the device. By default, DHCP is enabled.
14	SETUP 4-way DIP-switches	Set the operation DIP-switches (see Setting FC-102Net DIP-switches on page 10).
15	DEF Recessed button	Press to reset to default parameters.
16	IN 1 3-pin Terminal Block Connector	Connect to a balanced mono mic or line level source (+, –, G).
17	IN 2 3-pin Terminal Block Connector	Connect to a balanced mono mic or line level source (+, –, G).
18	RS-232 3-pin Terminal Block Connector	Connect to a serial controller to control this device.

Mounting FC-101Net / FC-102Net

This section provides instructions for rack mounting **FC-101Net** and/or **FC-102Net**. Before installing in a rack, verify that the environment is within the recommended range:

- Operation 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.

- **FC-101Net** and/or **FC-102Net** must be placed upright in the correct horizontal position.

Caution:

- Always mount **FC-101Net** and/or **FC-102Net** in a rack before connecting any cables or power.

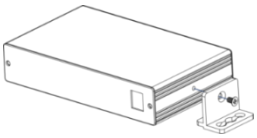
Warning:

- Ensure that the environment (e.g., maximum ambient temperature & air flow) is compatible for the device.
- Avoid uneven mechanical loading.
- Appropriate consideration of equipment nameplate ratings should be used for avoiding overloading of the circuits.
- Reliable earthing of rack-mounted equipment should be maintained.

To mount the FC-101Net on a rack

Mount the unit in a rack using the recommended rack adapter (see www.kramerav.com/product/FC-101Net or www.kramerav.com/product/FC-102Net)

To mount the FC-101Net on a table or shelf



- Attach the rubber feet and place the unit on a flat surface.
- Fasten a bracket (included) on each side of the unit and attach it to a flat surface.

For more information go to www.kramerav.com/downloads/FC-101Net or www.kramerav.com/downloads/FC-102Net

Connecting the Devices

Always switch off the power to each device before connecting it to your **FC-101Net** / **FC-102Net**. After connecting your **FC-101Net** / **FC-102Net**, switch on the power to each device.

Connecting FC-101Net

This section describes how to connect **FC-101Net**.

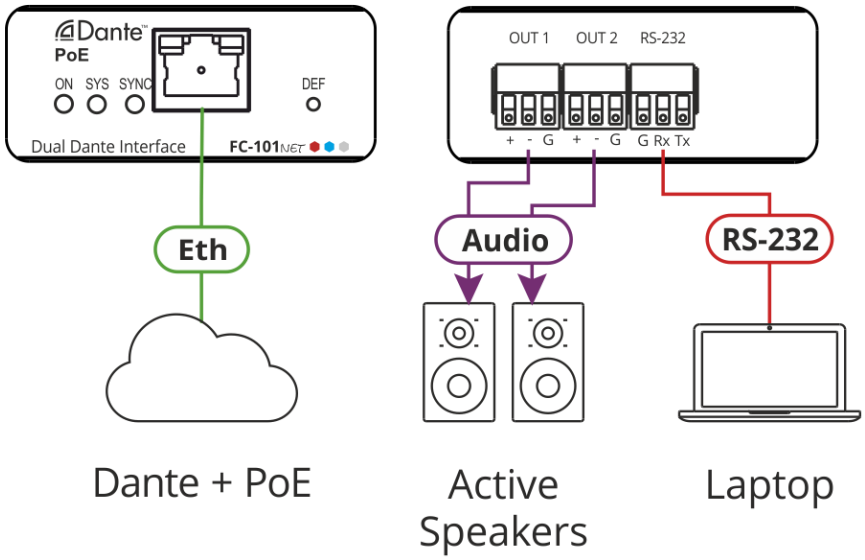


Figure 3: Connecting to the FC-101Net Rear Panel

To connect FC-101Net as illustrated in Figure 3:

1. Connect the Dante PoE RJ-45 port (4) to audio streaming via the Ethernet.
2. Connect OUT 1 (5) and OUT 2 (6) 3-pin terminal block connectors to amplified speakers (for example, **Tavor 6-O**).

   Alternatively, you can connect to separate mono outputs.

3. Connect the RS-232 3-pin terminal block connector (8) to a control device (for example, a PC).

Connecting FC-102Net

This section describes how to connect **FC-102Net**.

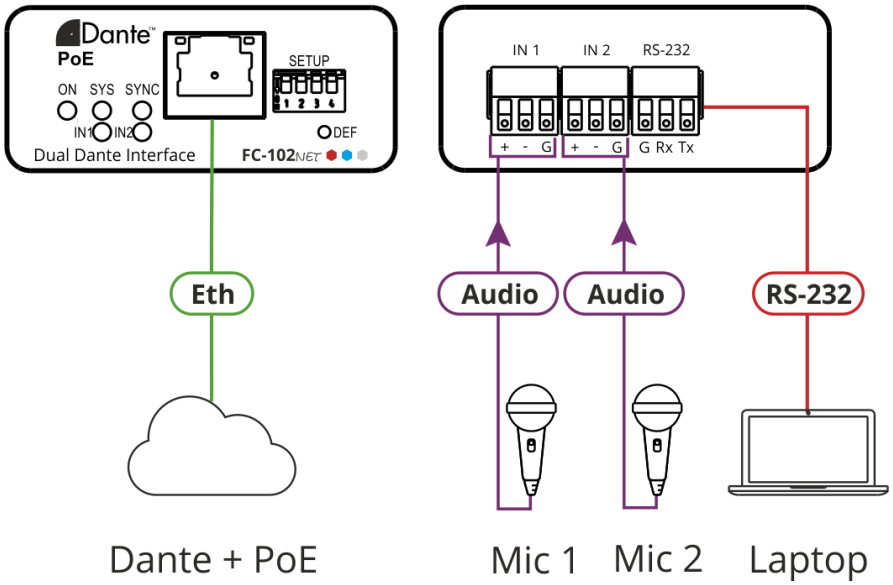


Figure 4: Connecting to the FC-102Net Rear Panel

To connect the FC-102Net as illustrated in Figure 3:

1. Connect up to two microphones to IN 1 (16) and IN 2 (17) 3-pin terminal block connectors.
2. Connect the Dante PoE (13) RJ-45 connector to a Dante device (for example, **FC-404NET**).
3. Connect the RS-232 3-pin terminal block connector (18) to a control device (for example, a PC).
4. Set the operation DIP switches (see Setting FC-102Net DIP-switches on page 10).

Connecting the FC-101Net Output to an Unbalanced Stereo Audio Acceptor

Figure 5 illustrates the pinout for connecting the output on **FC-101Net** to an unbalanced stereo audio acceptor:

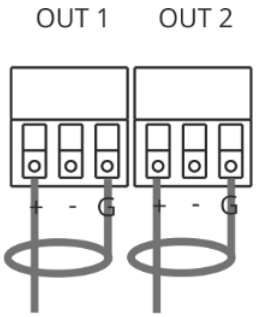


Figure 5: Connecting to an Unbalanced Stereo Audio Acceptor

Connecting an Unbalanced Stereo Audio Source to the FC-102Net Input

Figure 6 illustrates the pinout for connecting an unbalanced stereo audio source to the input:

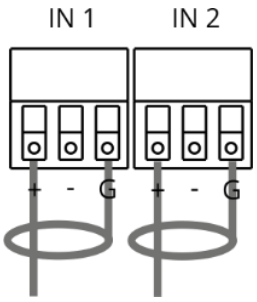


Figure 6: Connecting an Unbalanced Stereo Audio Source to the Input

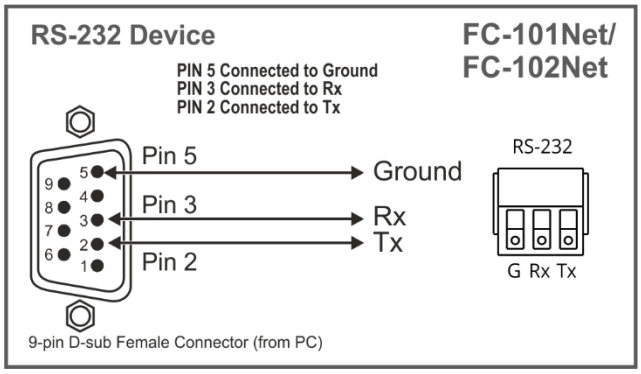
Connecting to FC-101Net / FC-102Net via RS-232

You can connect to the **FC-101Net** (the same applies to **FC-102Net**) via an RS-232 connection (8) and (18) using, for example, a PC.

Connect the RS-232 terminal block on the rear panel of the **FC-101Net** to a PC/controller, as follows:

From the RS-232 9-pin D-sub serial port connect:

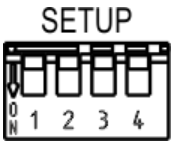
- Pin 2 to the TX pin on the **FC-101Net** RS-232 terminal block.
- Pin 3 to the RX pin on the **FC-101Net** RS-232 terminal block.
- Pin 5 to the G pin on the **FC-101Net** RS-232 terminal block.



Setting FC-102Net DIP-switches

Set the DIP-switches to define the audio source.

All DIP-switches are set to OFF (up) by default except DIP-switch 1 which is set to ON (down) by default.



#	Feature	Dip-switch Settings
1	IN 1 Connection Type	UP (off) – when connecting IN 1 to a microphone. DOWN (on) – when connecting IN 1 to a line level source.
2	MIC 1 Phantom Mode	Use when IN 1 is connected to a microphone. UP (off) – phantom power is on (set for condenser microphones). DOWN (on) – phantom power is off (set for dynamic microphones).
3	IN 2 Connection Type	UP (off) – when connecting IN 2 to a microphone. DOWN (on) – when connecting IN 2 to a line level source.
4	MIC 2 Phantom Mode	Use when IN 2 is connected to a microphone. UP (off) – phantom power is on (set for condenser microphones). DOWN (on) – phantom power is off (set for dynamic microphones).

Upgrading the Firmware

Use the Kramer **K-UPLOAD** software to upgrade the firmware via the RS-232 3-pin terminal block.

The latest version of **K-UPLOAD** and installation instructions can be downloaded from our website at: www.kramerav.com/support/product_downloads.asp.

Note that in order to use the micro USB port, you need to install the Kramer USB driver, available at: www.kramerav.com/support/product_downloads.asp.

To upgrade Dante firmware, refer to www.audinate.com/latest-firmware-update-manager.

Technical Specifications

This section defines **FC-101Net** and **FC-102Net** technical specifications.

FC-101Net

Outputs	1 Balanced Stereo Audio/ 2 Mono Audio	On a 5-pin terminal block
Input	1 Dante	On an RJ-45 connector
Port	RS-232	On a 3-pin terminal block connector
Control		Dante IP control matrix, Kramer Protocol 3000
Power	Consumption	48V DC, 100mA
	Source	48V DC (PoE)
Environmental Conditions	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
Regulatory Compliance	Safety	CE
	Environmental	RoHs, WEEE
Enclosure	Size	Pico TOOL
	Type	Aluminum
	Cooling	Convection ventilation
General	Net Dimensions (W, D, H)	6.2cm x 5.2cm x 2.4cm (2.4” x 2” x 1”)
	Shipping Dimensions (W, D, H)	15.7 cm x 12cm x 8.7cm (6.2” x 4.7” x 3.4”)
	Net Weight	0.08kg (0.2lb)
	Shipping Weight	0.23kg (0.5lb)
Accessories	Included	2 squares of double-sided adhesive dual lock tape
Specifications are subject to change without notice at www.Kramerav.com		

FC-102Net

Inputs	2 balanced inputs	On 3-pin terminal block connectors
Output	Dante	On an RJ-45 female connector
Port	RS-232	On a 3-pin terminal block connector
Controls		Dante IP control matrix, Kramer Protocol 3000
Power	Source	48V DC (PoE)
	Consumption	48V DC, 100mA
Environmental Conditions	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
Regulatory Compliance	Safety	CE
	Environmental	RoHs, WEEE
Enclosure	Size	Pico TOOL
	Type	Aluminum
	Cooling	Convection ventilation
General	Net Dimensions (W, D, H)	6.2cm x 5.2cm x 2.4cm (2.4” x 2” x 1”)
	Shipping Dimensions (W, D, H)	15.7 cm x 12cm x 8.7cm (6.2” x 4.7” x 3.4”)
	Net Weight	0.08kg (0.2lb)
	Shipping Weight	0.23kg (0.5lb)
Accessories	Included	2 squares of double-sided adhesive dual lock tape
Specifications are subject to change without notice at www.Kramerav.com		

Default Communication Parameters

RS-232	
Baud Rate:	115,200
Data Bits:	8
Stop Bits:	1
Parity:	None
Command Format:	ASCII
FC-101Net example: set the volume output to -6dB:	#AUD-LVL 2,1,-6<CR>
FC-102Net example: set channel #1 input volume to -6dB:	#AUD-LVL 1,1,-6<CR>

Protocol 3000

Kramer devices can be operated using Kramer Protocol 3000 commands sent via serial or Ethernet ports.

Understanding Protocol 3000

Protocol 3000 commands are a sequence of ASCII letters, structured according to the following.

- **Command format**:

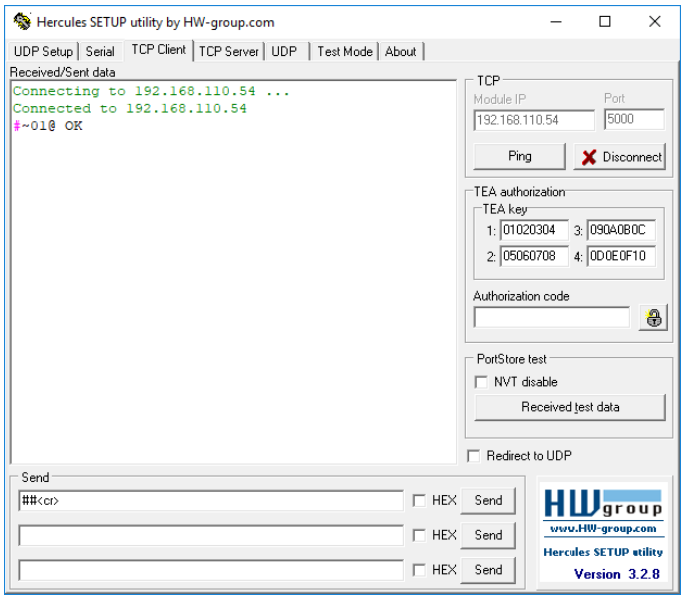
Prefix	Command Name	Constant (Space)	Parameter(s)	Suffix
#	Command	␣	Parameter	<CR>

- **Feedback format**:

Prefix	Device ID	Constant	Command Name	Parameter(s)	Suffix
~	nn	@	Command	Parameter	<CR><LF>

- **Command parameters** – Multiple parameters must be separated by a comma (,). In addition, multiple parameters can be grouped as a single parameter using brackets ([and]).
- **Command chain separator character** – Multiple commands can be chained in the same string. Each command is delimited by a pipe character (|).
- **Parameters attributes** – Parameters may contain multiple attributes. Attributes are indicated with pointy brackets (<…>) and must be separated by a period (.).

The command framing varies according to how you interface with **FC-101Net** / **FC-102Net**. The following figure displays how the # command is framed using terminal communication software (such as Hercules):



Protocol 3000 Commands

This section includes the following commands:

Function	Description	Syntax	Parameters/Attributes	Example
#	Protocol handshaking. Validates the Protocol 3000 connection and gets the machine number. Step-in master products use this command to identify the availability of a device.	COMMAND #<CR> FEEDBACK ~nn@␣OK<CR><LF>		#<CR>
AUD-LVL	Set volume level.	COMMAND #AUD-LVL␣stage,channel,volume,mutebehavior<CR> FEEDBACK ~nn@AUD-LVL␣stage,channel,volume<CR><LF>	stage – Input/Output processing 1– Input processing 2– Output processing channel – Number of input or output 1–2 volume – Volume level For FC-101Net -78db to 9dB For FC-102Net -12db to 60dB ++ (increase current value by 1dB); -- (decrease current value by 1dB)	Set AUDIO OUT 2 level to -50dB: #AUD-LVL␣1,2,-50<CR>
AUD-LVL?	Get volume level.	COMMAND #AUD-LVL?␣stage,channel<CR> FEEDBACK ~nn@AUD-LVL␣stage,channel,volume<CR><LF>	stage – Input/Output processing 1– Input processing 2– Output processing channel – Number of input or output 1–2 volume – Volume level For FC-101Net -80db to 10dB For FC-102Net -80db to 10dB	Get AUDIO OUT 1 level #AUD-LVL?␣1,2<CR>
BUILD-DATE?	Get device build date.	COMMAND #BUILD-DATE?␣<CR> FEEDBACK ~nn@BUILD-DATE␣date,time<CR><LF>	date – Format: YYYY/MM/DD where YYYY = Year MM = Month DD = Day time – Format: hh:mm:ss where hh = hours mm = minutes ss = seconds	Get the device build date: #BUILD-DATE?<CR>
DPSW-STATUS?	Get the DIP-switch state.	COMMAND #DPSW-STATUS?␣dp_sw_id<CR> FEEDBACK ~nn@DPSW-STATUS␣dp_sw_id,status<CR><LF>	dp_sw_id – 1 to 4 number of DIP switches status – Up/down 0– Up 1– Down	get the DIP-switch 2 status: #DPSW-STATUS?␣2<CR>
FACTORY	Reset device to factory default configuration. 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.	COMMAND #FACTORY<CR> FEEDBACK ~nn@FACTORY␣OK<CR><LF>		Reset the device to factory default configuration: #FACTORY<CR>
HELP	Get command list or help for specific command.	COMMAND #HELP<CR> #HELP␣command_name<CR> FEEDBACK 1. Multi-line: ~nn@Device␣command,␣command…<CR><LF> To get help for command use: HELP (COMMAND_NAME)<CR><LF> ~nn@HELP␣command:<CR><LF> description<CR><LF> USAGE:usage<CR><LF>	command – Name of a specific command	Get the command list: #HELP<CR> To get help for AV-SW-TIMEOUT: HELP␣AV-SW-TIMEOUT<CR>
MODEL?	Get device model. 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.	COMMAND #MODEL?␣<CR> FEEDBACK ~nn@MODEL␣model_name<CR><LF>	model_name – String of up to 19 printable ASCII chars	Get the device model: #MODEL?␣<CR>
MUTE	Set audio mute.	COMMAND #MUTE␣channel,mute_mode<CR> FEEDBACK ~nn@MUTE␣channel,mute_mode<CR><LF>	channel – Output number on FC-101Net mute_mode – On/Off 0– Off 1– On	Set speaker output to mute: #MUTE␣1,1<CR>
MUTE?	Get audio mute.	COMMAND #MUTE?␣channel<CR> FEEDBACK ~nn@MUTE␣channel,mute_mode<CR><LF>	channel – Output number on FC-101Net mute_mode – On/Off 0– Off 1– On	

Function	Description	Syntax	Parameters/Attributes	Example
NAME	Set machine (DNS) name. ⓘ 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**␣machine_name**<CR>** FEEDBACK **~nn@NAME**␣machine_name**<CR><LF>**	**machine_name** – String of up to 15 alpha-numeric chars (can include hyphen, not at the beginning or end)	Set the DNS name of the device to room-442: **#NAME**␣room-442**<CR>**
NAME?	Get machine (DNS) name. ⓘ 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?**␣**<CR>** FEEDBACK **~nn@NAME**␣machine_name**<CR><LF>**	**machine_name** – String of up to 15 alpha-numeric chars (can include hyphen, not at the beginning or end)	Get the DNS name of the device: **#NAME?**␣**<CR>**
PROT-VER?	Get device protocol version.	COMMAND **#PROT-VER?**␣**<CR>** FEEDBACK **~nn@PROT-VER**␣3000:version**<CR><LF>**	**version** – XX.XX where X is a decimal digit	Get the device protocol version: **#PROT-VER?**␣**<CR>**
RESET	Reset device. ⓘ 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 **#RESET<CR>** FEEDBACK **~nn@RESET**␣OK**<CR><LF>**		Reset the device: **#RESET<CR>**
SN?	Get device serial number.	COMMAND #SN?␣<CR> FEEDBACK ~nn@SN␣**serial_number**<CR><LF>	**serial_number** – 14 decimal digits, factory assigned	Get the device serial number: **#SN?**␣**<CR>**
VERSION?	Get firmware version number.	COMMAND **#VERSION?**␣**<CR>** FEEDBACK **~nn@VERSION**␣firmware_version**<CR><LF>**	**firmware_version** – XX.XX.XXXX where the digit groups are: major.minor.build version	Get the device firmware version number: **#VERSION?**␣**<CR>**

Result and Error Codes

Syntax

In case of an error, the device responds with an error message. The error message syntax:

- **~NN@ERR XXX<CR><LF>** – when general error, no specific command
- **~NN@CMD ERR XXX<CR><LF>** – for specific command
- **NN** – machine number of device, default = 01
- **XXX** – error code

Error Codes

Error Name	Error Code	Description
P3K_NO_ERROR	0	No error
ERR_PROTOCOL_SYNTAX	1	Protocol syntax
ERR_COMMAND_NOT_AVAILABLE	2	Command not available
ERR_PARAMETER_OUT_OF_RANGE	3	Parameter out of range
ERR_UNAUTHORIZED_ACCESS	4	Unauthorized access
ERR_INTERNAL_FW_ERROR	5	Internal FW error
ERR_BUSY	6	Protocol busy
ERR_WRONG_CRC	7	Wrong CRC
ERR_TIMEDOUT	8	Timeout
ERR_RESERVED	9	(Reserved)
ERR_FW_NOT_ENOUGH_SPACE	10	Not enough space for data (firmware, FPGA…)
ERR_FS_NOT_ENOUGH_SPACE	11	Not enough space – file system
ERR_FS_FILE_NOT_EXISTS	12	File does not exist
ERR_FS_FILE_CANT_CREATED	13	File can’t be created
ERR_FS_FILE_CANT_OPEN	14	File can’t open
ERR_FEATURE_NOT_SUPPORTED	15	Feature is not supported
ERR_RESERVED_2	16	(Reserved)
ERR_RESERVED_3	17	(Reserved)
ERR_RESERVED_4	18	(Reserved)
ERR_RESERVED_5	19	(Reserved)
ERR_RESERVED_6	20	(Reserved)
ERR_PACKET_CRC	21	Packet CRC error
ERR_PACKET_MISSED	22	Packet number isn't expected (missing packet)
ERR_PACKET_SIZE	23	Packet size is wrong
ERR_RESERVED_7	24	(Reserved)
ERR_RESERVED_8	25	(Reserved)
ERR_RESERVED_9	26	(Reserved)
ERR_RESERVED_10	27	(Reserved)
ERR_RESERVED_11	28	(Reserved)
ERR_RESERVED_12	29	(Reserved)
ERR_EDID_CORRUPTED	30	EDID corrupted
ERR_NON_LISTED	31	Device specific errors
ERR_SAME_CRC	32	File has the same CRC – no changed
ERR_WRONG_MODE	33	Wrong operation mode
ERR_NOT_CONFIGURED	34	Device/chip was not initialized

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; all Kramer VIA accessories, adapters, tags, and dongles are covered by a standard one (1) year warranty.
2. All Kramer fiber optic cables, adapter-size fiber optic extenders, pluggable optical modules, active cables, cable retractors, all ring mounted adapters, 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.

KRAMER

P/N: 2900-301225 Rev: 1

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.

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