KRAMER

USER MANUAL

MODEL:

FC-404NETxl
4x4 Audio and Dante Mixer

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-404NETxl to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Achieving 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-404NETxl** 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 GPIO 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:

- Use only the power cord that is supplied with the unit.
- To ensure continuous risk protection, replace fuses only according to the rating specified on the product label which is located on the bottom of the unit.

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/il/quality/environment.

Overview

Congratulations on purchasing your Kramer **FC-404NETxl 4x4 Audio and Dante Mixer**. **FC-404NETxl** is a hybrid analog and Dante, audio cross-connect mixer. Input audio signals, either analog lines/microphones or Dante audio over IP channels, are mixed and cross-connected to the analog audio output lines and/or Dante audio over IP output streams. The mixer accepts PoE via its network connection.

FC-404NETxl provides exceptional quality, advanced and user-friendly operation, and flexible control.

Exceptional Quality

- High Performance Standard Mixer – Professional mixer, mixing any audio inputs to any outputs, including auto analog to digital audio format conversion, flexible input or cross-connect level and output gain adjustment. As a standard-compliant mixer, it connects to any market-available AES67-compliant Dante product.
- Hi-quality Sound Mixer – Features a fully flexible and preset signal management. Mix, route, and distribute any inputs and outputs in any audio format via simple click and connect. Select and toggle through 10 presets in the device's embedded web pages, or use API commands for a simple setup change with Kramer's recommended room controller and adjustable level control.

Advanced and User-friendly Operation

- Easy mixing and cross-connecting control via embedded webpages and toggling between preset mixer scenarios.
- Cost–Effective Maintenance – LED indicators for audio signals and network connection status facilitate easy local maintenance and troubleshooting. Remote IP-driven device management and optional whole site management system via built in web pages and RS-232 connection. Local and remote firmware upgrade via RS-232 or Ethernet connection tool ensure lasting, field proven deployment.
- Versatile Powering – Powered by PoE through the Dante port or by a mains power adapter.

- Easy Installation – Single cable connectivity for both Ethernet signal and power. Compact DemiTOOLS® fan–less enclosure for surface mounting or side–by–side mounting of two units in a 1U rack space with the recommended rack adapter.

Flexible Connectivity

- Flexible Audio Cross-Connection – Fully configurable inputs, the analog lines, dynamic or condenser microphones, and audio over IP Dante channels, are mixed, format-converted and distributed to any set of outputs, either analog lines or audio over IP Dante streams.

Typical Applications

FC-404NETxl is ideal for the following typical applications:

- Enterprise boardrooms and advanced conference rooms.
- Education lecture halls and auditoriums.
- Governmental large facilities with advanced audio mixing apps.
- Any application with hybrid analog and digital audio mixing and cross-connection needs.

Controlling your FC-404NETxl

Control your **FC-404NETxl** via:

- Ethernet, using built-in user-friendly webpages.
- RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller.

Defining FC-404NETxl

This section defines **FC-404NETxl**.

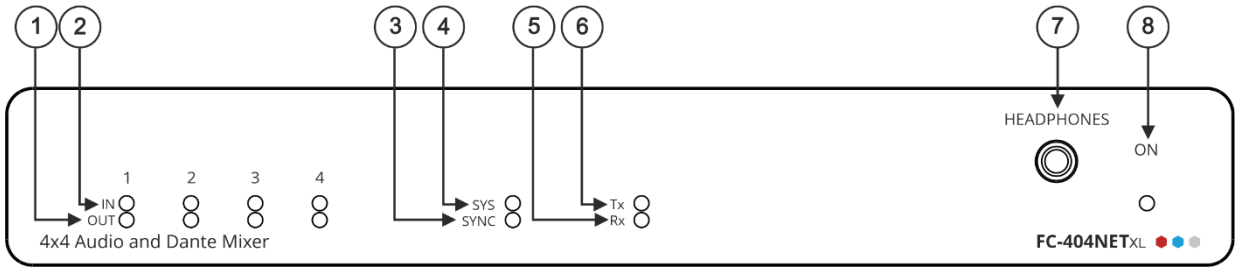


Figure 1: FC-404NETxl 4x4 Audio and Dante Mixer Front Panel

#	Feature	Function
1	OUT LEDs (1 to 4)	Lights green when a signal is present, lights red when clipping is detected.
2	IN LEDs (1 to 4)	Lights green when a signal is present, lights red when clipping is detected. Use the embedded web pages to select line level, mic level or 48V for each input.
3	SYNC LED	Lights green when Dante network is available or red if an error occurred.
4	SYS LED	Lights green for digital audio normal operation. Flashes green when this unit is the Master clock. Lights red if an error has occurred.
5	Rx LED	Lights green when an RS-232 signal is received.
6	Tx LED	Lights green when an RS-232 signal is transmitted.
7	HEADPHONES 3.5mm Mini Jack	Connect to a headphone set.
8	ON LED	Lights green when the device is powered.

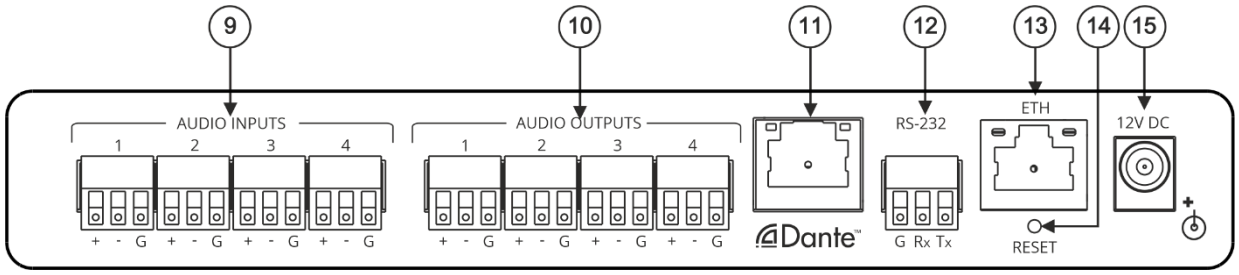


Figure 2: FC-404NETxl 4x4 Audio and Dante Mixer Front Panel

#	Feature	Function
9	AUDIO INPUTS 3-pin Terminal block Connectors (1 to 4)	Connect to analog balanced mono line/mic level (with selectable 48V) sources.
10	AUDIO OUTPUTS 3-pin Terminal block Connectors (1 to 4)	Connect to analog balanced mono line level acceptors.
11	Dante RJ-45 Connector	Connect to Dante audio via the network. Provides 4 Tx channels and 4 Rx channels. By default, DHCP is enabled.
12	RS-232 3-pin Terminal Block Connector	Connect to a PC/serial controller.
13	ETHERNET RJ-45 Connector	Connect to a PC via a LAN.
14	RESET Recessed Button	Reset/reboot the device: press and release the button. Reset to factory default values: press and hold the button for 30 secs.
15	12V DC Power Connector	12V DC connector for powering the unit.

Mounting FC-404NETxl

This section provides instructions for mounting **FC-404NETxl**. Before installing, 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.

Caution:

- Mount **FC-404NETxl** before connecting any cables or power.

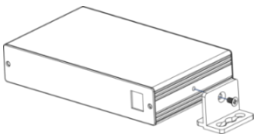
Warning:

- 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.
- Maximum mounting height for the device is 2 meters.

Mount FC-404NETxl in a rack:

- Use the recommended rack adapter (see www.kramerav.com/product/FC-404NETxl).

Mount FC-404NETxl on a surface using one of the following methods:



- 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-404NETxl.

Connecting FC-404NETxl

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

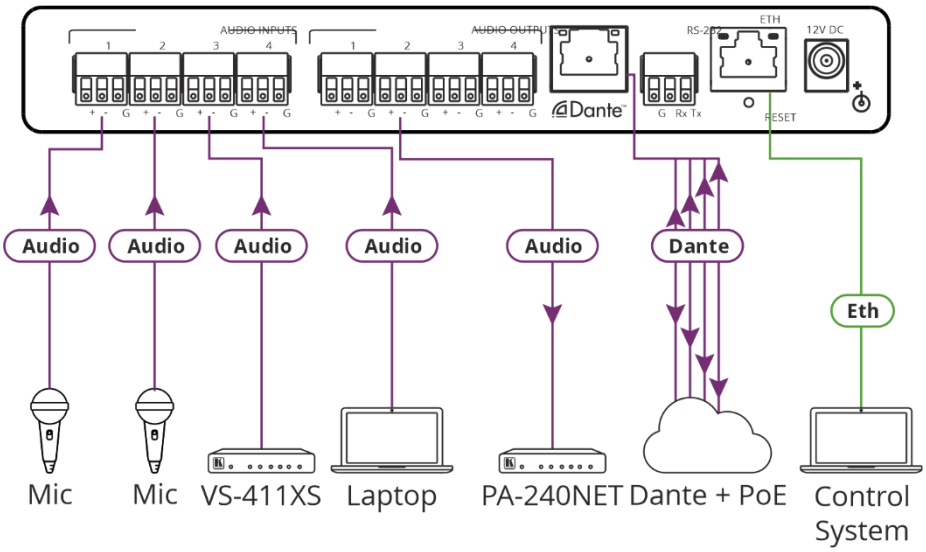


Figure 3: Connecting to the FC-404NETxl Rear Panel

To connect FC-404NETxl as illustrated in the example in Figure 3:

1. Connect up to four balanced audio sources, (for example, 2 microphones and the audio output signals of the Kramer **VS-411XS** and a laptop) to the AUDIO INPUT 3-pin terminal block connectors (1 to 4).

   To set to dynamic or condenser microphone, see Adjusting Analog Audio Input Parameters on page 22.

2. Connect the AUDIO OUTPUT 3-pin terminal blocks to up to four balanced audio acceptors, (for example, Kramer **PA-240NET** power amplifier).
3. Connect the Dante RJ-45 port (11) to up to 4 Tx and 4 Rx audio channels, accepting PoE (if supported), via the network.
4. Connect a control system (for example, a laptop) to the ETH RJ-45 connector (13).
5. If powering via PoE is not available, connect the power adapter to the **FC-404NETxl** and plug the power adapter into the mains power supply.

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-404NETxl** to its input source.

For any microphone that needs +48 volts of power, see Adjusting Analog Audio Input Parameters on page 22.

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-404NETxl** terminal block connector respectively. The following diagrams illustrate how to connect a standard XLR and 6.5mm phone jack.

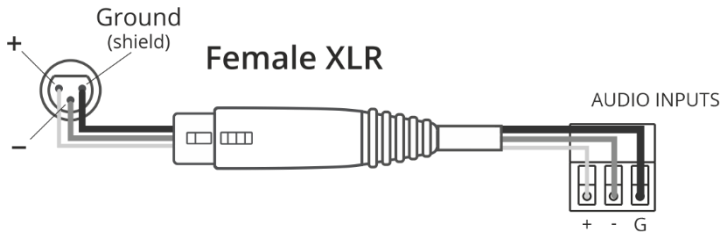


Figure 4: Connecting a Balanced XLR Input

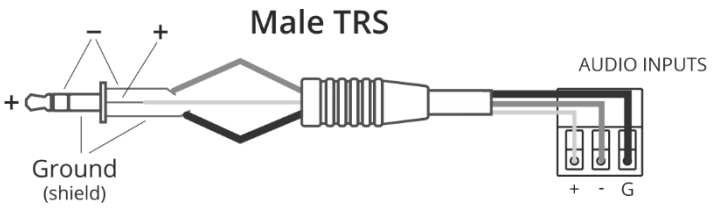


Figure 5: Connecting a Balanced 6.5mm Phone Jack

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.

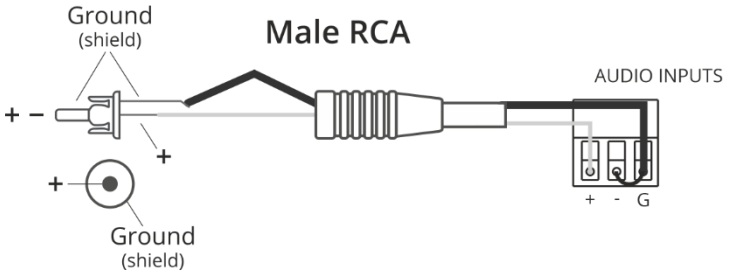


Figure 6: Connecting an Unbalanced RCA Input

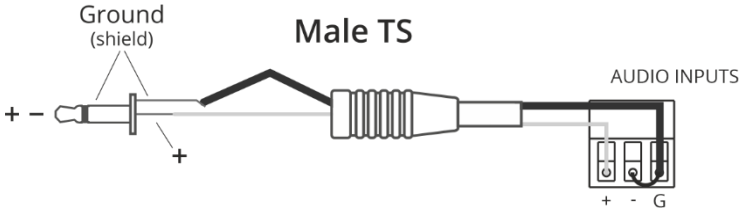


Figure 7: Connecting an Unbalanced 6.5mm Phone Jack

Connecting the Outputs

Your **FC-404NETxl** 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.

Connecting to FC-404NETxl via RS-232

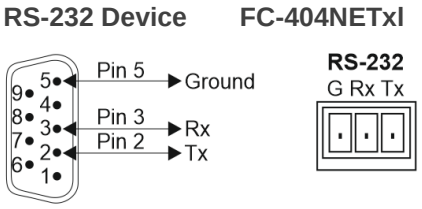
You can connect to **FC-404NETxl** via an RS-232 connection (13) using, for example, a PC.

FC-404NETxl features an RS-232 3-pin terminal block connector allowing the RS-232 to control **FC-404NETxl**.

Connect the RS-232 terminal block on the rear panel of **FC-404NETxl** 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-404NETxl** RS-232 terminal block
- Pin 3 to the RX pin on the **FC-404NETxl** RS-232 terminal block
- Pin 5 to the G pin on the **FC-404NETxl** RS-232 terminal block



Connecting to FC-404NETxl via Ethernet

You can connect to **FC-404NETxl** via Ethernet using either of the following methods:

- Directly to the PC using a crossover cable (see Connecting Ethernet Port Directly to a PC on page 9).
- Via a network hub, switch, or router, using a straight-through cable (see Connecting Ethernet Port via a Network Hub on page 11).

Note: If you want to connect via a router and your IT system is based on IPv6, speak to your IT department for specific installation instructions.

Connecting Ethernet Port Directly to a PC

You can connect the Ethernet port of **FC-404NETxl** directly to the Ethernet port on your PC using a crossover cable with RJ-45 connectors.

This type of connection is recommended for identifying **FC-404NETxl** with the factory configured default IP address.

After connecting **FC-404NETxl** to the Ethernet port, configure your PC as follows:

1. Click **Start** > **Control Panel** > **Network and Sharing Center**.
2. Click **Change Adapter Settings**.
3. Highlight the network adapter you want to use to connect to the device and click **Change settings of this connection**.
   The Local Area Connection Properties window for the selected network adapter appears as shown in Figure 8.

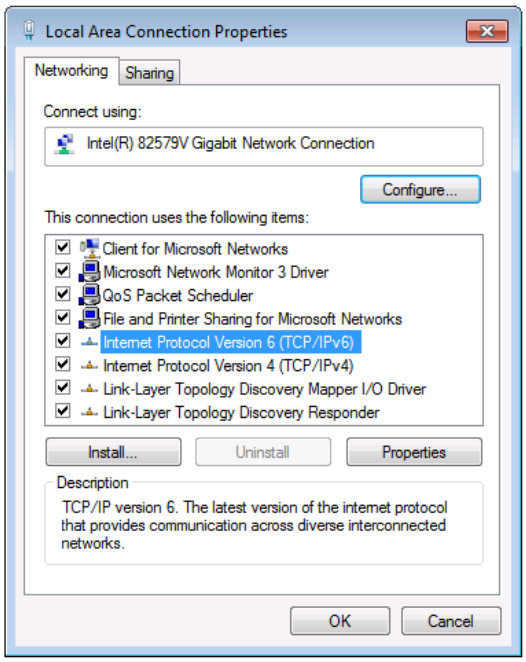


Figure 8: Local Area Connection Properties Window

4. Highlight either **Internet Protocol Version 6 (TCP/IPv6)** or **Internet Protocol Version 4 (TCP/IPv4)** depending on the requirements of your IT system.

5. Click **Properties**.
   The Internet Protocol Properties window relevant to your IT system appears as shown in Figure 9 or Figure 10.

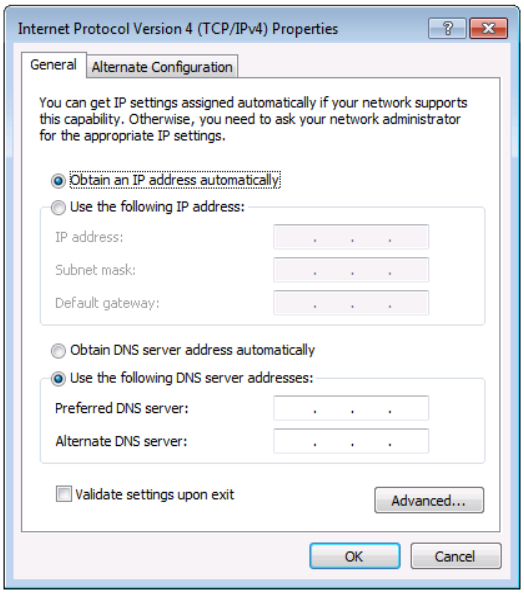


Figure 9: Internet Protocol Version 4 Properties Window

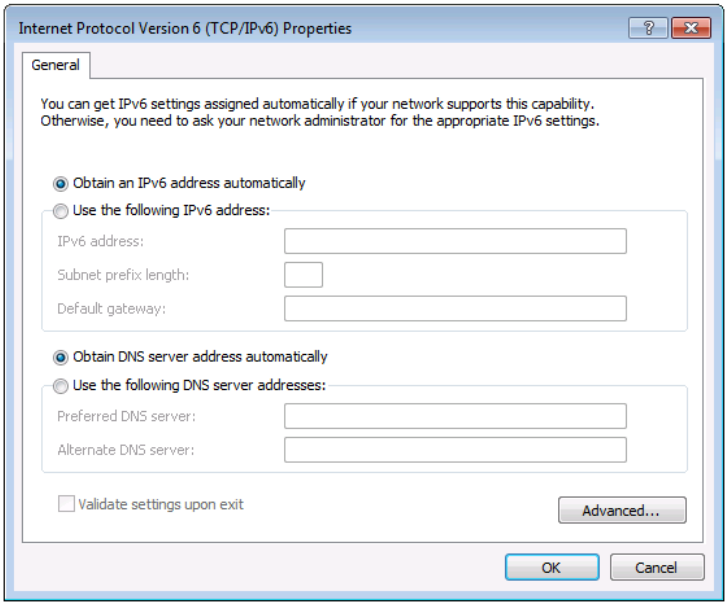


Figure 10: Internet Protocol Version 6 Properties Window

6. Select **Use the following IP Address** for static IP addressing and fill in the details as shown in Figure 11.
   For TCP/IPv4 you can use any IP address in the range 192.168.1.1 to 192.168.1.255 (excluding 192.168.1.39) that is provided by your IT department.

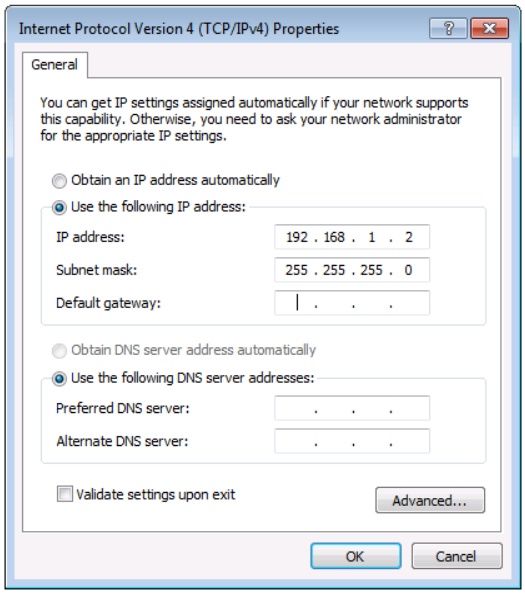


Figure 11: Internet Protocol Properties Window

7. Click **OK**.
8. Click **Close**.

Connecting Ethernet Port via a Network Hub or Switch

You can connect the Ethernet port of **FC-404NETxl** to the Ethernet port on a network hub or using a straight-through cable with RJ-45 connectors.

Configuring Ethernet Port

You can set the Ethernet parameters via the embedded Web pages.

Using Embedded Webpages

The **FC-404NETxl** can be operated remotely using the embedded webpages. The webpages are accessed using a Web browser and an Ethernet connection (see Browsing the FC-404NETxl Webpages on page 13).

Before attempting to connect:

- Perform the procedures in Connecting to FC-404NETxl via Ethernet on page 9.
- Ensure that your browser is supported.

The following operating systems and Web browsers are supported:

Operating Systems	Versions
Windows 7	Chrome
Windows 10	Chrome
Mac	Chrome

Some features might not be supported by some cellphone operating systems.

The **FC-404NETxl** webpage enables performing the following functions:

Browsing the FC-404NETxl Webpages

To browse the FC-404NETxl webpages:

1. Open your Internet browser.
2. Type the IP Address of the device in the Address bar of your browser. For example, the default IP Address:

3. The authentication page appears.
4. Enter the Username and Password (Admin/Admin, by-default):

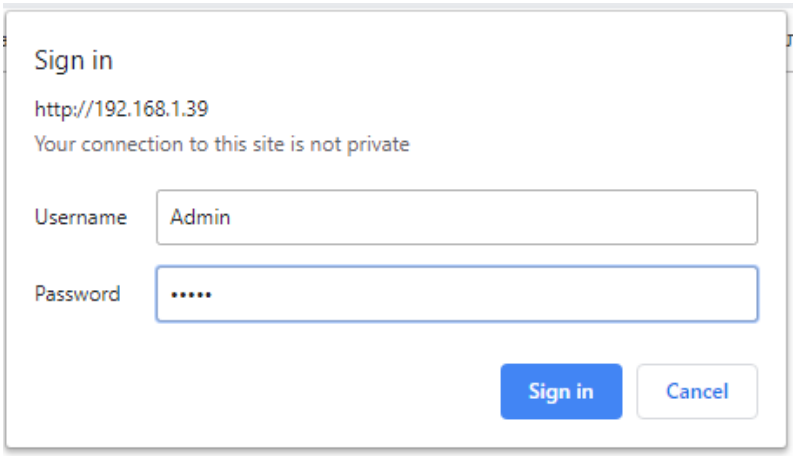


Figure 12: Embedded Webpages Authentication

5. Click **Sign in**.
   The Matrix webpage appears.

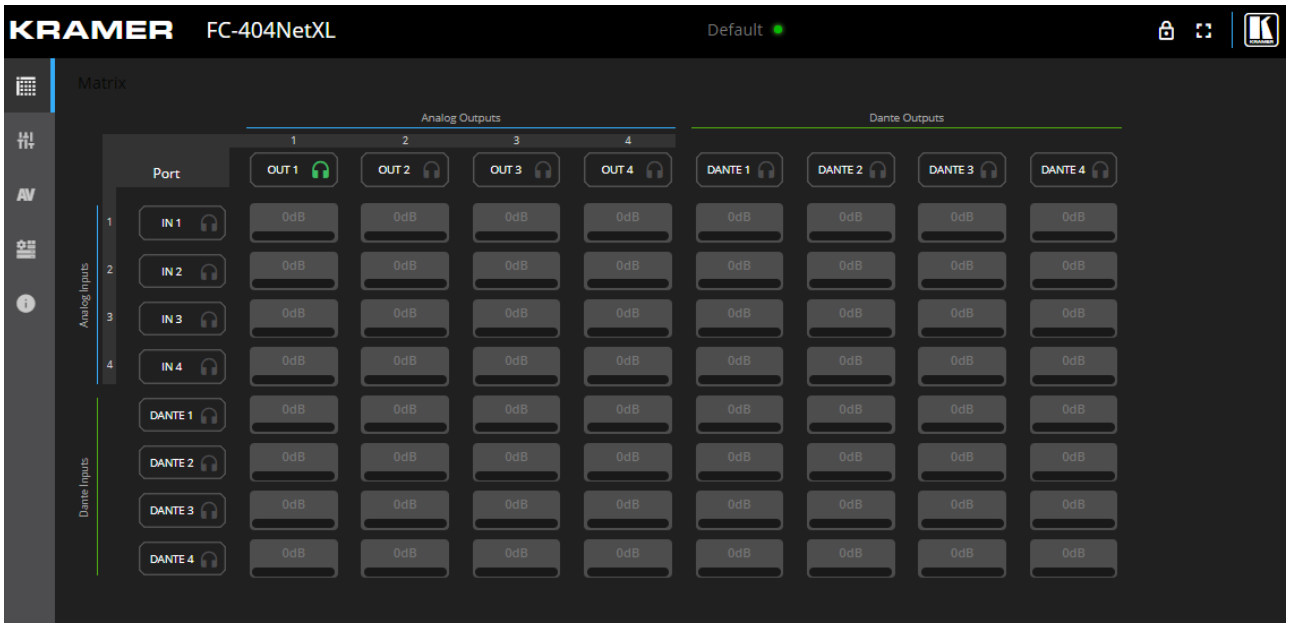


Figure 13: FC-404NETxl Matrix Page with Navigation List on Left

6. Click the desired item in the navigation pane to set and control the device.

Using the Top Status Bar

Use the top status bar to perform the following functions:

- Viewing/Changing Current Analog I/O Configuration and Preset Name on page 14.
- Changing Security Settings on page 15.
- Entering/exiting full-screen display view by clicking the display-view icon (/).

Viewing/Changing Current Analog I/O Configuration and Preset Name

The center of the menu bar in every webpage shows the analog I/O setup, the preset name and the status of the setup.

The indication light displays:

- Green if the current preset unmodified.

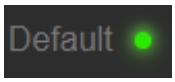


Figure 14: Analog and/or Preset Status Unmodified

- Yellow if the current preset has been modified.

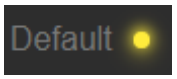


Figure 15: Analog and/or Preset Status modified

To save a modified preset (yellow indication light):

1. Click the preset status area. The A/V settings page appears (see Figure 28).
2. Follow the instructions in Configuring System Presets on page 23.

Changing Security Settings

You can easily disable or enable the webpages security using the lock icon. When security is disabled, you do not need to enter a password to access the webpages. When security is enabled, you do. For information about the default login credentials, see Default Communication Parameters on page 34. For information about changing the default login credentials, see Setting Access Security on page 29.

To disable security settings:

1. Click the lock icon ( ) indicating that security is enabled.
   The following message appears:

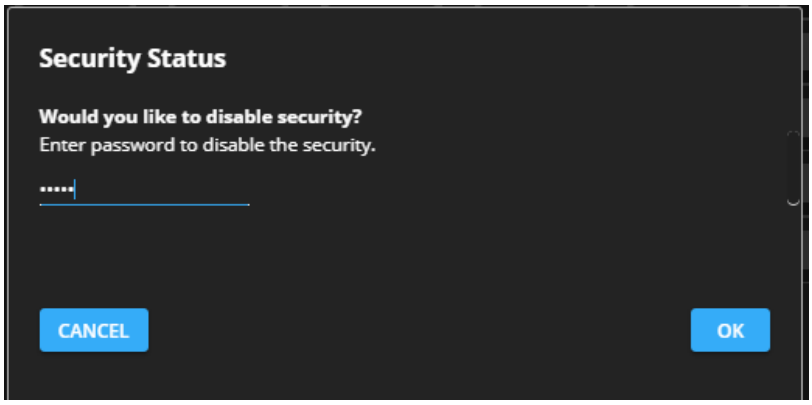


Figure 16: Disabling Security

2. Type the current password (Admin, by default).
3. Click **OK**.

   Security is disabled.

To enable security settings:

Click the disabled lock icon ( ). The lock now shows as locked ( ).

Security is enabled.

Changing the input and output Labels

Change the input output name labels via the Matrix page.

To change an input/output label:

1. In the Navigation pane, click **Matrix** (or **Mixer**). The Matrix (Mixer) page appears.
2. Click an input or output label (for example, IN 1). The label is ready for editing.

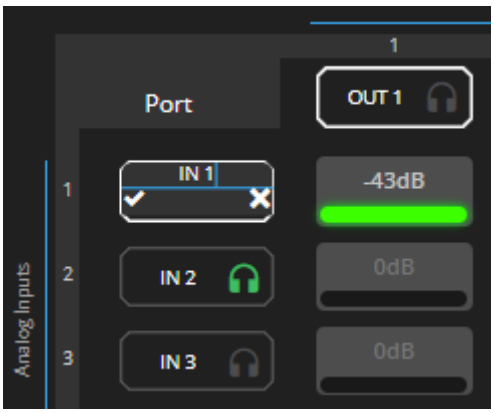


Figure 17: Changing Input Level

3. Change the name and click ✔.

Label name is changed.

Selecting an input/output to route to the headphones

The HEADPHONES connector (7) on the **FC-404NETxl** front panel is used to monitor the signal sound on the input and the output. You can select one output or input at a time to route to the headphones.

To route a signal to headphones:

1. In the Navigation pane, click **Matrix** (or **Mixer**). The Matrix (Mixer) page appears.
2. Click the 🎧 (headphones icon) in an input or output label (for example, IN 1). The label turns green and that signal is routed to the headphones.

Figure 18: Routing a Signal to the Headphones

Signal is routed to headphones.

Routing Inputs to Outputs

Click a cross-point to connect any inputs to any of the outputs via the Matrix page and set the connection volume.

FC-404NETxl enables performing the following functions:

- Connecting Inputs to Outputs on page 17.
- Setting Cross-Point Volume on page 19.

Connecting Inputs to Outputs

To route an input or several inputs to an output:

1. In the Navigation pane, click **Matrix**. The Matrix page appears.
2. Click an in-out cross-point (for example, IN 4 input and OUT 1 output).
   The black cross-point turns green.

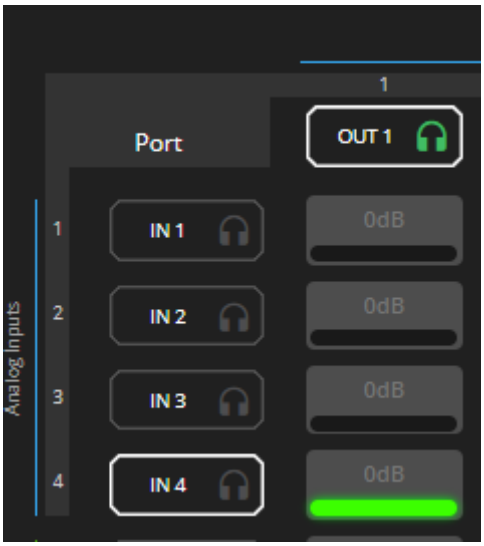


Figure 19: Matrix Page – In-Out Cross-Point

3. Click any other cross-points (one input to output/s or several inputs to output/s).

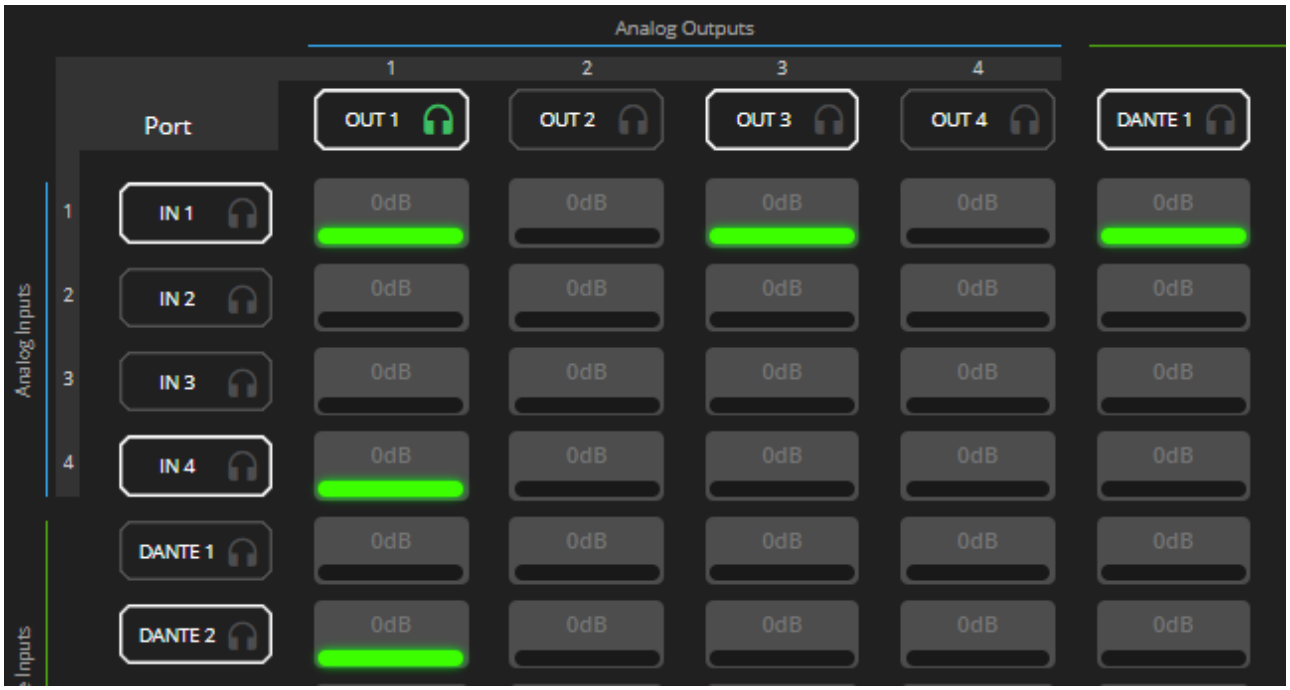


Figure 20: Matrix Page – Multiple Input-Output Cross-Point

Selected inputs are routed to selected outputs.

Setting Cross-Point Volume

Set the cross-point volume separately for each in-out connection.

To set the cross-point volume:

1. In the Navigation pane, click **Matrix**. The Matrix page appears.
2. Click the volume area (0dB, by default).
   The volume window appears.

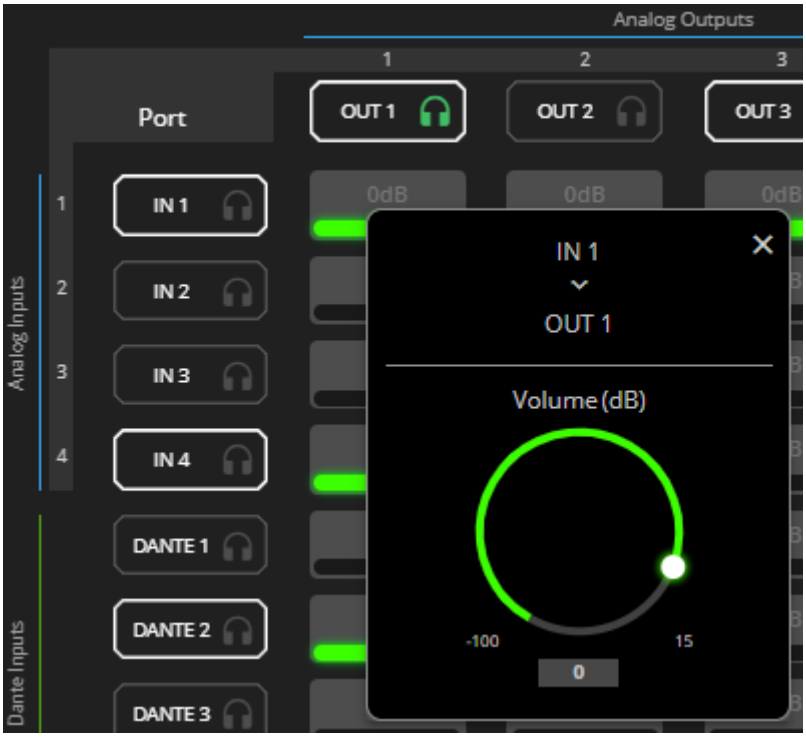


Figure 21: Matrix Page – Setting Cross-Point Volume

3. Set the cross-point volume (using the knob or entering the value and pressing **Enter** on your keyboard). The cross-point volume is set and appears at the cross-point.

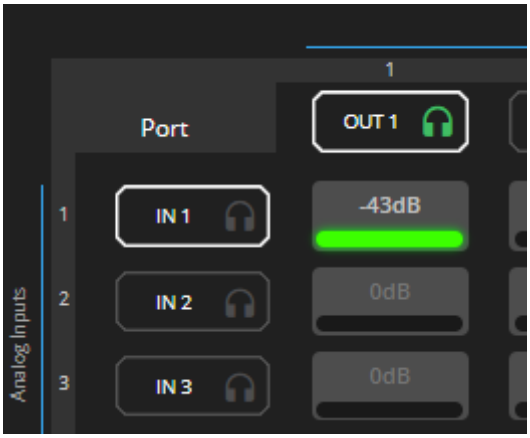


Figure 22: Cross-Point Volume Value

Mixing Audio Signals

When two or more inputs are routed to one or more outputs via Matrix page, the audio parameters of these mixed audio signals can be adjusted, as required, via the Mixer page.

The **FC-404NETxl** mixer features enable adjusting the analog and digital input and output parameters. See Defining Input / Output Sliderson page 21 to understand the function of the input and output sliders.

Using the mixer page, enables performing the following tasks:

- Changing the input and output Labels on page 16.
- Selecting an input/output to route to the headphones on page 16.
- Adjusting Audio Parameters on page 22.

Defining Input / Output Sliders

This section describes the function of the input and output sliders.

Note – In figures 23 and 24 below, meters (left side) display on a scale of -100 dBFS to 0 dBFS maximum (above this is clipping or audio saturation). On the right side, the gain level points to amplification for positive values and attenuation for negative values.

Level Measurement Indicators:

The audio signal enters the digital system at a certain level and is measured in dBFS units (dB relative to full scale, the maximum value).

- **Maximum level indicator** – Shows the highest registered level (in RMS) and can change only if a higher level is detected.
  Click the indicator to reset to the current maximum value.
- **0dBFS** – Refers to the maximum signal level that can enter the system. Signal levels higher than the system limit are clipped.
- **Current maximum level indicator** – Displays the current maximum level and holds it until a higher value is detected.

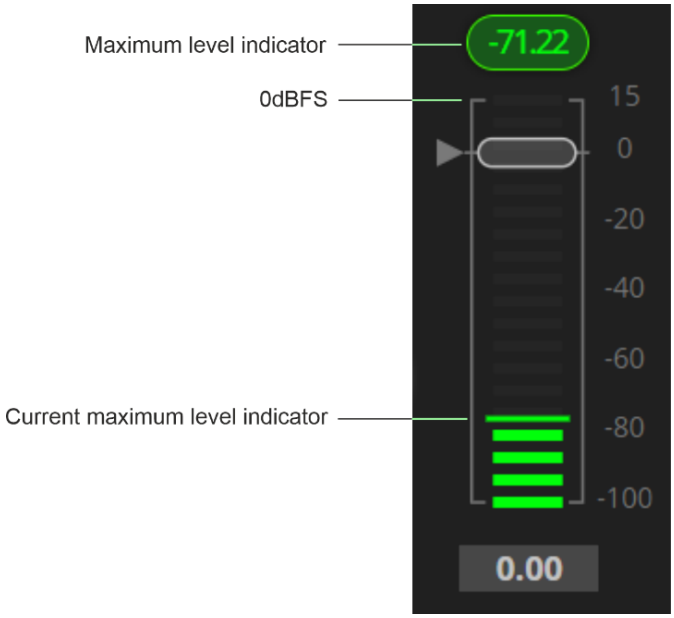


Figure 23: Level Measurement Indicators

Gain/Attenuation Fader

- **Maximum level** – 15dB is the maximum gain.
- **Unity gain** – When volume fader is set to 0dB, the input level is not changed.
- **Gain/Volume fader** – Slide to increase or decrease the audio level on the input (gain) and the output (volume).
- **Minimum level** – -100dB is the maximum attenuation.
- **Current fader position** – Shows the current position of the fader. You can also type the desired volume level into this box and press **Enter** on your PC.

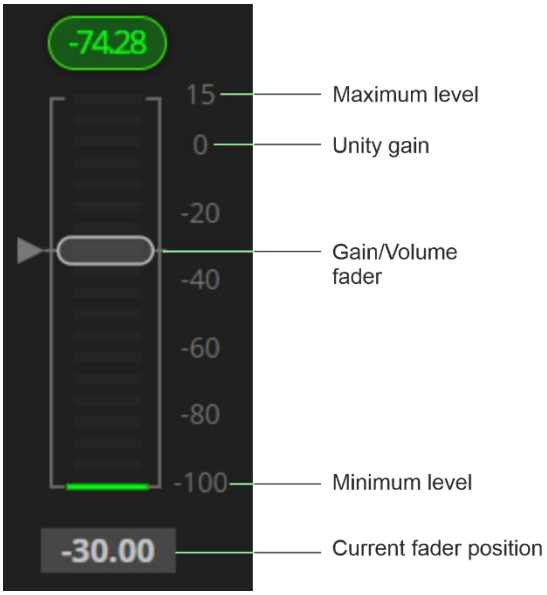


Figure 24: Channel Fader

Adjusting Audio Parameters

You can mute/unmute any of the inputs and outputs (as well as the monitor output) and adjust additional audio parameters.

Adjusting Analog Audio Input Parameters

To adjust analog input parameters:

1. In the Navigation pane, click **Mixer**. The Mixer page appears.
2. Perform the following actions:
   - Move the fader to adjust the audio input level.
   - Toggle  /  to mute / unmute the input audio, respectively.
   - Click  to select audio line in. (Analog inputs only).
   - Click  to select dynamic microphone and  to select condenser microphone (the title IN changes to MIC). (Analog inputs only).

Input parameters are adjusted.

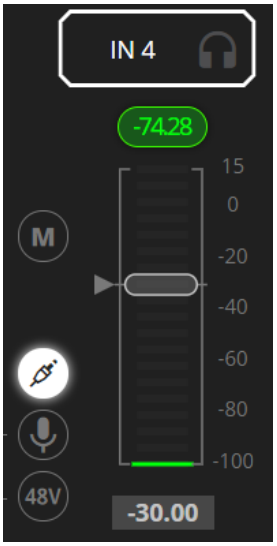


Figure 25: Mixer Page – Processing Analog Audio Input

Figure 26: Mixer Page – Processing Dante Input

Adjusting Output Parameters

To adjust Dante input and the output parameters:

1. In the Navigation pane, click **Mixer**. The Mixer page appears.
2. Perform the following actions:
   - Move the fader to adjust the audio output level.
   - Toggle  /  to mute / unmute the output audio, respectively.

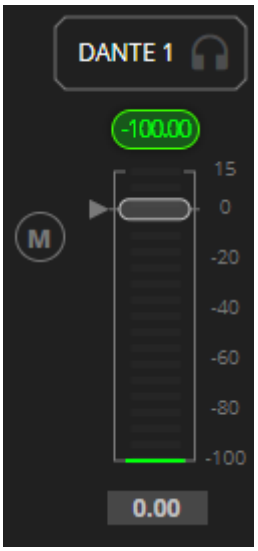


Figure 27: Mixer Page – Processing Analog/Dante Audio Output

Output parameters are adjusted.

Configuring System Presets

FC-404NETxl includes 10 presets: the default preset and 9 other presets (System2 to System10). By default, all the presets are set to the default configuration.

To Configure a system preset:

1. In the Navigation pane, click **AV**. The AV page appears.

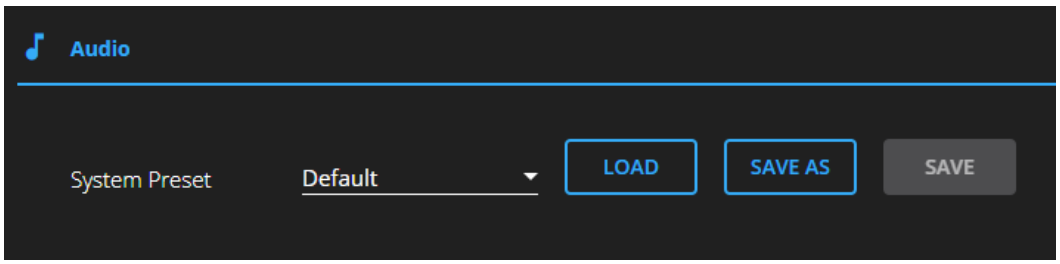


Figure 28: A/V Settings Page

2. In the **System Preset** drop-down box, select a preset and click **LOAD**.
   The current preset is loaded.

When loading a preset for the first time, the default configuration is loaded.

3. Change routing and audio parameters (via the Matrix and Mixer pages) as required.

   System presets include all the system settings, except for Network settings.

4. Click:
   - **SAVE**, to save the new configuration.
   - **SAVE AS**, to change preset name and/or save the configuration to a different preset, then click **SAVE** (in the Save as window).

Figure 29: Saving Presets

System configuration is saved to a preset.

To load a system preset:

1. In the Navigation pane, click **AV**. The AV page appears.

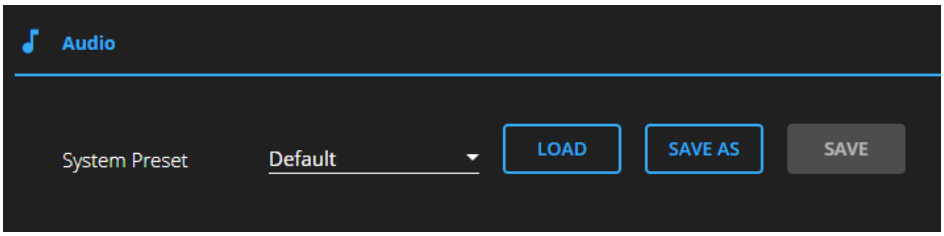


Figure 30: A/V Settings Page

2. In the **System Preset** drop-down box, select a preset and click **LOAD**. The following window appears:

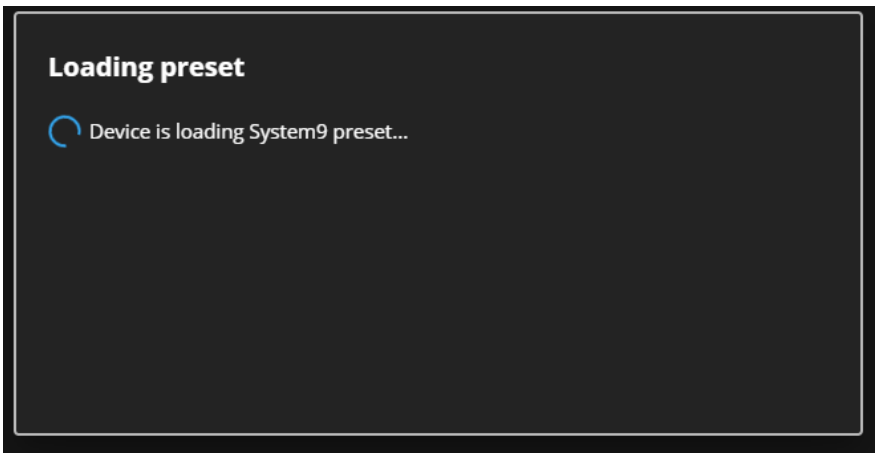


Figure 31: Loading Preset

The selected preset is loaded.

Changing the Device Name

The device name appears in control systems (such as Kramer Control, Kramer Network or any other UI system that shows this field). Change the device name and view the device model and S/N via the Device Settings page.

To change the device name:

1. In the Navigation pane, click **Device Settings**. The General tab in the Device Settings page appears.

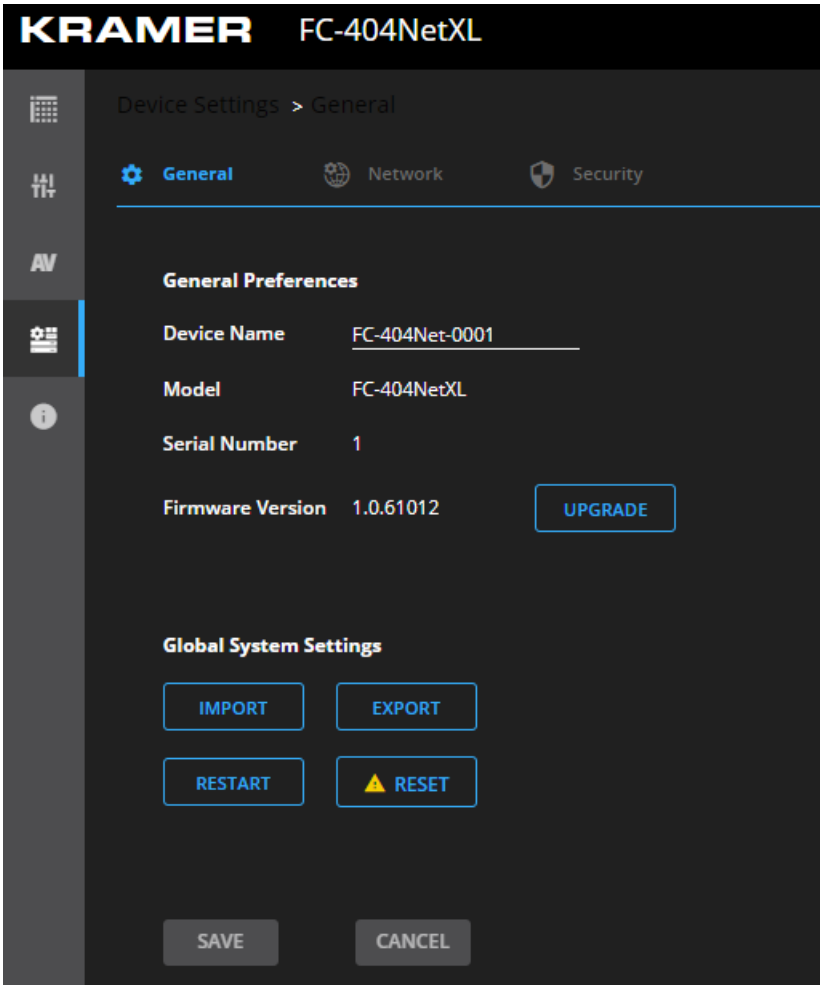


Figure 32: Device Settings Page

2. Next to Device Name enter the new device name.
3. Click **SAVE**.

New device name is saved.

Upgrading the Firmware

Upgrade the device firmware via the embedded web pages.

To upgrade the firmware:

1. In the Navigation pane, click **Device Settings**. The General tab in the Device Settings page appears (see Figure 32).
2. Next to Firmware Version, click **UPGRADE**, select the FW file, and click **Open**.

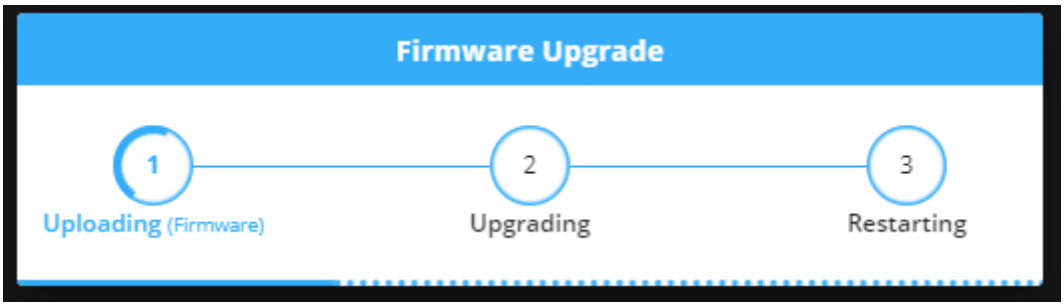


Figure 33: Firmware Upgrade Process

3. Wait for FW upgrade completion and for the device to restart.

New firmware is uploaded.

Importing/Exporting Global Settings

You can export a Global Settings file to a different **FC-404NETxl** device or Import a file to your device.

To import/export global settings:

1. In the Navigation pane, click **Device Settings**. The General Settings tab in the Device Settings page appears.
2. In the General tab, in the Global System Settings area:
   - Click **IMPORT** to import a file: select the system setting ".bin" file from the Open window and click **Open**.
     The imported system settings file is uploaded onto the device.
   - Click **EXPORT** to export a file: the current system setting ".bin" file is downloaded onto your PC and can be exported to other devices.

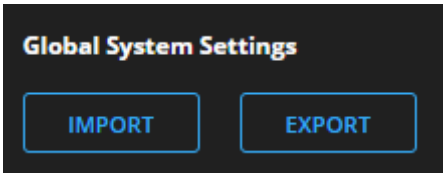


Figure 34: General Settings Tab – Importing / Exporting Global Settings

Global system settings are imported/exported.

Restarting and Resetting the Device

Restart the **FC-404NETxl** or reset it to its factory default parameters using the Device Settings page.

Restarting the Device

To restart the device:

1. In the Navigation pane, click **Device Settings**. The General tab in the Device Settings page appears (see Figure 32).
2. Click **RESTART**. The device restarts immediately.
   Wait for the device to reload after device restart. There is no message before restarting.

Resetting the Device

To reset the device to its default parameters:

1. In the Navigation pane, click **Device Settings**. The General tab in the Device Settings page appears.
2. Click **Factory reset**. The following message appears:

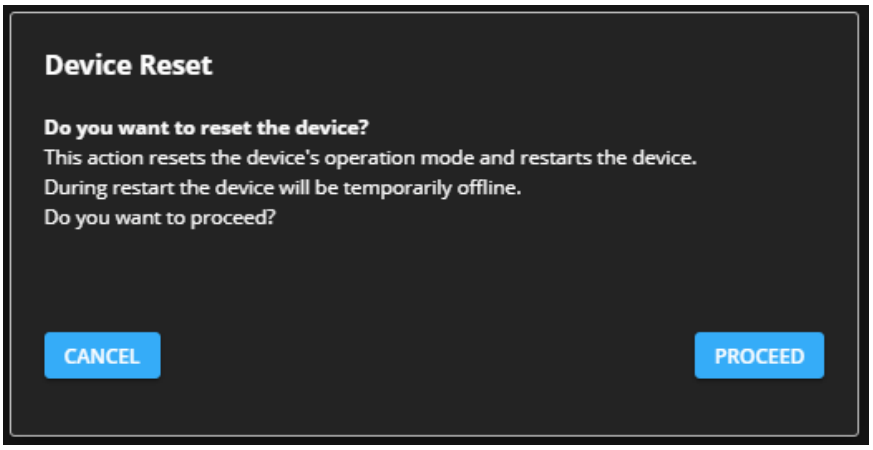


Figure 35: Settings Page – Factory Reset Message

3. Click **PROCEED**.

The device resets to its factory default parameters.

Defining Communication Settings

Network settings include the Ethernet settings (Network) and the Dante settings.

Set the **FC-404NETxl** communication parameters, for the Network and Dante, including DHCP, the IP Address, Mask, gateway and so on using the Network tab in the Device Settings page.

FC-404NETxl enables performing the following functions:

- Changing Network Settings on page 28.
- Setting DHCP to Off on page 29.

Changing Network Settings

To change the Network settings:

1. In the Navigation pane, click **Device Settings**. The General tab in the Device Settings page appears.
2. Select the **Network** tab:

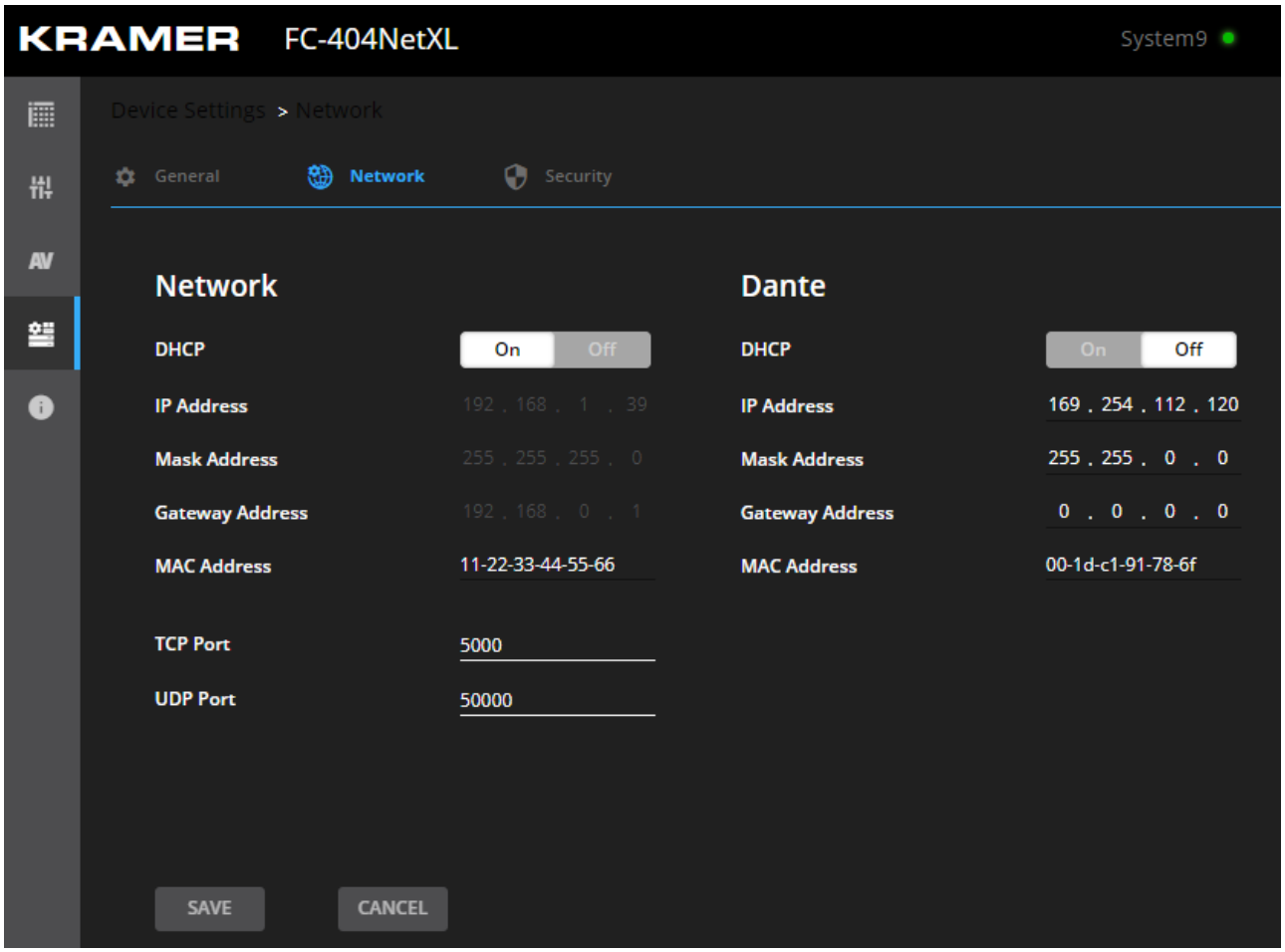


Figure 36: Settings Page – Network Tab

3. If DHCP is set to Off, change any of the parameters (IP Address, Mask and/or Gateway).

By Default, Network DHCP is set to On and Dante DHCP is set to Off.

4. If required, change the TCP/UDP port number.
5. Click **SAVE**.

After changing the IP address, reload the webpage with the new IP address.

Ethernet settings have changed.

Setting DHCP to Off

To set parameters when DHCP is set to On (default):

1. In the Navigation pane, click **Device Settings**. The General tab in the Device Settings page appears.
2. Select the **Network** tab.
3. Set DHCP to **Off**.
4. Click **SAVE**.
5. Type the device name in the address bar of your browser to reload the page. You can read the new IP address from the Communication Settings page.

DHCP is set to Off.

Setting Access Security

By default, the webpages are secured and require access permission (user name and password are both: **Admin**).

FC-404NETxl enables performing the following security actions:

- Disabling Security on page 30.
- Enabling Security on page 31.
- Changing the Password on page 31.

Disabling Security

To disable security:

1. In the Navigation pane, click **Device Settings**. The General Settings tab appears, displaying the Security area.

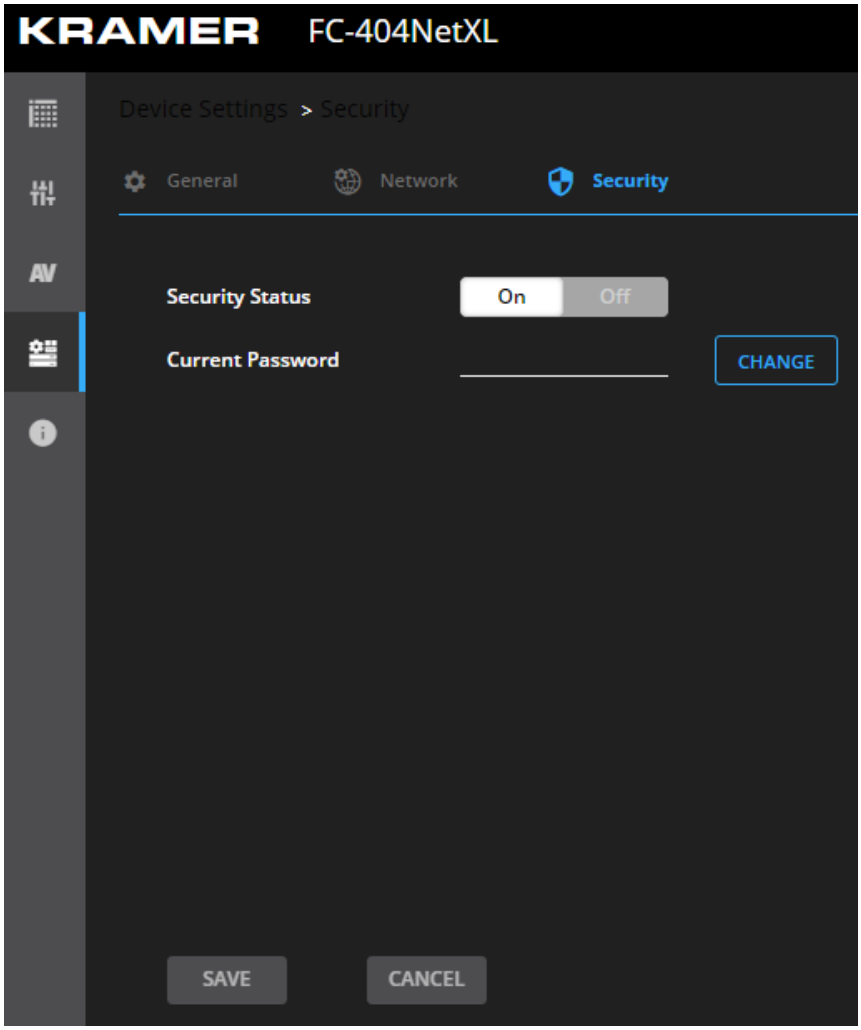


Figure 37: Security Tab

2. Click **Off**. The following message appears.

Figure 38: Security Tab – Security Status Message

3. Enter the current password and click **OK**.

Security is disabled. The security-disabled icon appears ( ).

Enabling Security

To enable security:

1. In the Navigation pane, click **Device Settings**. The General tab appears in the Device Settings page.
2. Select the Security tab.
3. Click **On**. The security page appears (see Figure 37).

Security is enabled. The security-enabled icon appears ( ).

Changing the Password

To change the password:

1. In the Navigation pane, click **Device Settings**. The Security tab in the Device Settings page appears, displaying the Security area (see Figure 37).
2. Enable security (if disabled) and enter the current password.
3. Click **CHANGE**.

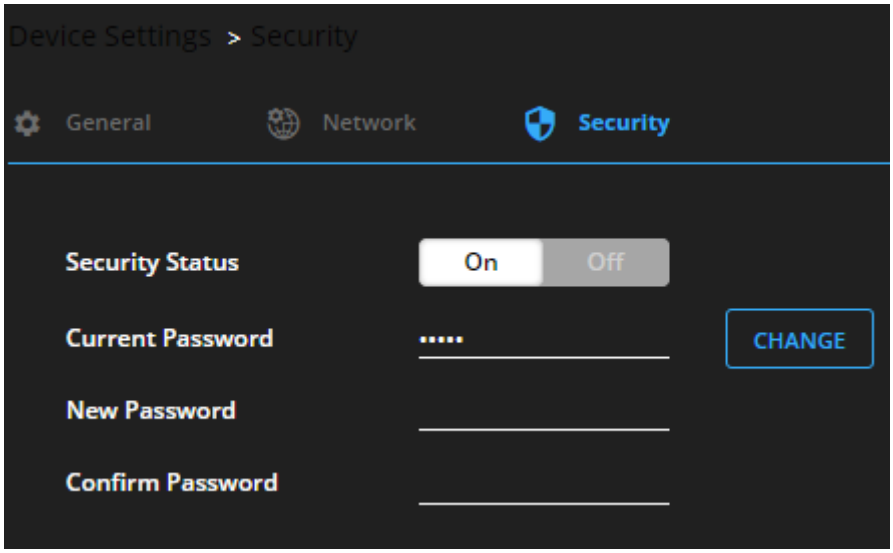


Figure 39: Security Tab – Changing the Password

4. Enter current password and new password as required.
5. Click **SAVE**.

The password is saved.

Viewing Device Information

In the Navigation pane, click **About** to view the **FC-404NETxl** webpage version and Kramer Electronics Ltd details.

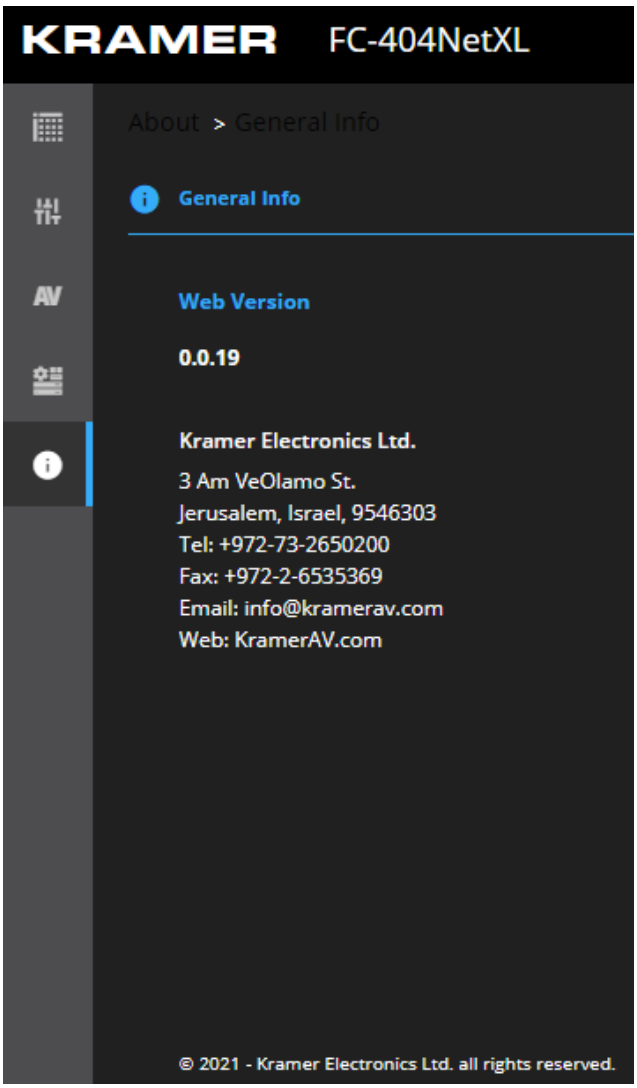


Figure 40: About Page

Technical Specifications

+	4 Balanced Mono Audio Line/Mic	On 3-pin terminal blocks
Outputs	4 Balanced Mono Audio Line	On 3-pin terminal blocks
Ports	1 Dante Network	On an RJ-45 connector for 4 audio input channels and 4 output streams
	1 RS-232	On a 3-pin terminal block for device serial control
	1 Ethernet	On an RJ-45 connector for device service
Balanced Line Level Input	Impedance	50kΩ
	Maximum Level	+10dBu (2.4Vrms)
	Nominal Level	+4dBu
	Sensitivity	Full power @ +10dBu (2.4Vrms)
Mic Level Input	Impedance	10kΩ
	Maximum Level (Dynamic)	-30dbu
	Maximum Level (Condenser)	-10dBu
	Sensitivity	Full power @ +10dBu (2.4Vrms)
	Phantom Power	48VDC on/off per input
Line Level Output	Impedance Balanced	500Ω
	Maximum Level	+15dBu
	Frequency Response	20Hz − 20kHz, ±0.1dB
	Audio THD + Noise	<0.03% 20Hz - 20kHz at unity gain
	Crosstalk	<-85dB, 20Hz to 20kHz
Indication LEDs	Front Panel	4 Input signal/clipping LEDs
		4 Output signal/clipping LEDs
		1 Sys LED
		1 Sync LED
		1 Tx LED
		1 Rx LED
		1 Power on LED
Power	Consumption	12V DC, 300mA
	Source	12V DC, 2A, PoE-acceptor
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	DemiTOOL
	Type	Aluminum
	Cooling	Convection ventilation
General	Net Dimensions (W, D, H)	19cm x 6cm x 2.7cm (7.5" x 2.4" x 1.1")
	Shipping Dimensions (W, D, H)	34.5cm x 16.5cm x 5.2cm (13.6" x 6.5" x 2")
	Net Weight	0.3kg (0.7lbs)
	Shipping Weight	0.76kg (1.7lbs) approx.
Accessories	Included	Power adapter and cord
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
Example (set analog input 3 audio level to 10):	IN.ANALOG_AUDIO.3.AUDIO.1,10<CR>
Ethernet	
DHCP ON by default	
IP Address:	192.168.1.39
Subnet mask:	255.255.255.0
Default gateway:	192.168.0.1
TCP Port #:	5000
UDP Port #:	50000
Default username:	Admin
Default password:	Admin
Device name:	FC-404Net-{ID} where ID = the last 4 characters of the device's serial number.
Dante	
DHCP OFF by default	
IP Address:	169.254.112.120
Subnet mask:	255.255.0.0
Default gateway:	169.254.0.0
Full Factory Reset	
Webpages	Go to: Device Settings-> General -> RESET
Protocol 3000:	"#factory" command followed by "#reset" command.

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**:

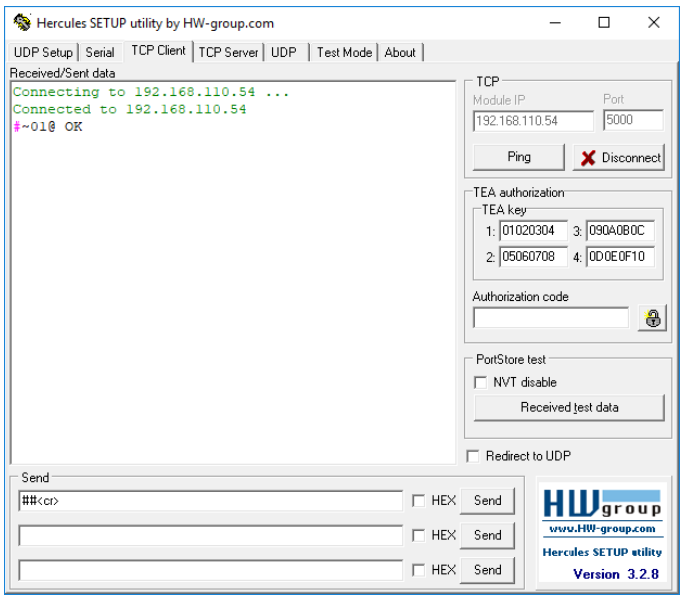
Prefix	Command Name	Constant (Space)	Parameter(s)	Suffix
#	Command	␣	Parameter	<CR>

- **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-404NETxl**. The following figure displays how the # command is framed using terminal communication software (such as Hercules):



Protocol 3000 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>**
BEACON-INFO?	Get beacon information, including IP address, UDP control port, TCP control port, MAC address, model, name. ⓘ There is no Set command. Get command initiates a notification.	**COMMAND** **#BEACON-INFO? port_id<CR>** **FEEDBACK** **~nn@BEACON-INFO** port_id,ip_string,udp_port,tcp_port,mac_address,model,name**<CR><LF>**	**port_id** – ID of the Ethernet port **ip_string** – Dot-separated representation of the IP address **udp_port** – UDP control port **tcp_port** – TCP control port **mac_address** – Dash-separated mac address **model** – Device model **name** – Device name	Get beacon information: **#BEACON-INFO? <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>**
CONF-EXPORT	For Kramer internal use only.			
CONF-IMPORT	For Kramer internal use only.			
DSP-METER	Register DSP meters.	Internal – for web only.		
DSP-METER?	Read DSP meters.	**COMMAND** **#DSP-METER** <direction_type>.<port_type>.<port_index>.<signal_type>.<index>,type<CR> **FEEDBACK** **~nn@DSP-METER** <direction_type>.<port_type>.<port_index>.<signal_type>.<index>,type,value<CR><LF>	▪ **<direction_type>** – ○ IN ○ OUT ▪ **<port_type>** – ○ ANALOG_AUDIO ○ ANALOG_JACK ○ DANTE ▪ **port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **signal_type>** – Signal ID attribute: ○ AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio **value –** [dBFS]	Read the limiter value on the output: **#DSP-METER** OUT.ANALOG_STEREO.1.AUDIO.1,5<CR>
DSP-METER-REGISTER	Register DSP meters.	Internal – for web only.		
ETH-PORT	Set Ethernet port protocol. ⓘ If the port number you enter is already in use, an error is returned. The port number must be within the following range: 0-(2^16-1).	**COMMAND** **#ETH-PORT** port_type,port_id**<CR>** **FEEDBACK** **~nn@ETH-PORT** port_type,port_id**<CR><LF>**	**port_type** – TCP/UDP **port_id** – TCP/UDP port number (0 – 65535)	Set the Ethernet port protocol for TCP to port 12457: **#ETH-PORT** 0,12457**<CR>**
ETH-PORT?	Get Ethernet port protocol.	**COMMAND** **#ETH-PORT? port_type<CR>** **FEEDBACK** **~nn@ETH-PORT** port_type,port_id**<CR><LF>**	**port_type** – TCP/UDP 0 – TCP 1 – UDP **port_id** – TCP / UDP port number (0 – 65535)	Get the Ethernet port protocol for UDP: **#ETH-PORT?** 1**<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>**

Function	Description	Syntax	Parameters/Attributes	Example
FEATURE-LIST?	Get feature state according to the feature ID.	COMMAND **#FEATURE-LIST?** feature_id**<CR>** FEEDBACK **~nn@FEATURE-LIST** feature_id,ir_state**<CR><LF>**	**feature_id** – Feature ID) 1 – Maestro 2 – Room controller 3 – Maestro panel **ir_state** – IR interface 0 – disable 1 – enable	Get the room controller feature state (for the room controller 1): **#FEATURE-LIST?** 1**<CR>**
FILE-HANDLED	For internal use only.			
FW-TYPE?	Get the current FW type status. Used by Kramer Network and KUpload to identify recovery process.	COMMAND **#FW-TYPE?** **<CR>** FEEDBACK **~nn@FEATURE-LIST** fw_type**<CR><LF>**	**Fw_type** – 0 – Application 1 – Safe mode (kboot)	Get the current FW type status: **#FW-TYPE?** <CR>
HELP	Get command list or help for specific command.	COMMAND **#HELP<CR>** **#HELP** cmd_name**<CR>** FEEDBACK 1. Multi-line: **~nn@Device** cmd_name, cmd_name…**<CR><LF>** To get help for command use: HELP (COMMAND_NAME)<CR><LF> **~nn@HELP** cmd_name**:<CR><LF>** **description<CR><LF>** **USAGE:usage<CR><LF>**	**cmd_name** – Name of a specific command	Get the command list: **#HELP<CR>** To get help for AV-SW-TIMEOUT: HELP **av-sw-timeout**<CR>
LOGIN (internal)	Set protocol permission. ⓘ The permission system works only if security is enabled with the "SECUR" command. LOGIN allows the user to run commands with an End User or Administrator permission level. When the permission system is enabled, LOGIN enables running commands with the User or Administrator permission level When set, login must be performed upon each connection It is not mandatory to enable the permission system in order to use the device In each device, some connections allow logging in to different levels. Some do not work with security at all. Connection may logout after timeout.	COMMAND **#LOGIN** login_level,password**<CR>** FEEDBACK **~nn@LOGIN** login_level,password_ok**<CR><LF>** or **~nn@LOGIN** err_004**<CR><LF>** (if bad password entered)	**login_level** – Level of permissions required (User or Admin) **password** – Predefined password (by PASS command). Default password is an empty string	Set the protocol permission level to Admin (when the password defined in the PASS command is 33333): **#LOGIN** admin,33333**<CR>**
LOGIN? (internal)	Get current protocol permission level. ⓘ The permission system works only if security is enabled with the "SECUR" command. For devices that support security, LOGIN allows the user to run commands with an End User or Administrator permission level. In each device, some connections allow logging in to different levels. Some do not work with security at all. Connection may logout after timeout.	COMMAND **#LOGIN?** **<CR>** FEEDBACK **~nn@LOGIN** login_level**<CR><LF>**	**login_level** – Level of permissions required (User or Admin)	Get current protocol permission level: **#LOGIN?<CR>**
LOGOUT (internal)	Cancel current permission level. ⓘ Logs out from End User or Administrator permission levels to Not Secure.	COMMAND **#LOGOUT<CR>** FEEDBACK **~nn@LOGOUT** ok**<CR><LF>**		**#LOGOUT<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
MODEL?	Get device model. ⓘ This command identifies equipment connected to FC-404NETxl 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>**
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>**
NAME-RST	Reset machine (DNS) name to factory default. ⓘ Factory default of machine (DNS) name is "KRAMER_" + 4 last digits of device serial number.	COMMAND **#NAME-RST<CR>** FEEDBACK **~nn@NAME-RST␣**ok**<CR><LF>**		Reset the machine name (S/N last digits are 0102): **#NAME-RST␣**kramer_0102**<CR>**
NET-CONFIG	Set a network configuration. ⓘ Parameters **[DNS1]** and **[DNS2]** are optional. ⓘ For Backward compatibility, the **id** parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port. ⓘ If the gateway address is not compliant to the subnet mask used for the host IP, the command will return an error. Subnet and gateway compliancy specified by RFC950.	COMMAND **#NET-CONFIG␣**netw_id,net_ip,net_mask,gateway,[dns1],[dns2]**<CR>** FEEDBACK **~nn@NET-CONFIG␣**netw_id,net_ip,net_mask,gateway**<CR><LF>**	**netw_id** – Network ID–the device network interface (if there are more than one). 0 – ETH control port 1– DANTE ETH Port **net_ip** – Network IP **net_mask** – Network mask **gateway** – Network gateway	Set the device network parameters to IP address 192.168.113.10, net mask 255.255.0.0, and gateway 192.168.0.1: **#NET-CONFIG␣**0,192.168.113.10,255.255.0.0,192.168.0.1**<CR>**
NET-CONFIG?	Get a network configuration.	COMMAND **#NET-CONFIG?␣**netw_id**<CR>** FEEDBACK **~nn@NET-CONFIG␣**netw_id,net_ip,net_mask,gateway**<CR><LF>**	**netw_id** – Network ID–the device network interface (if there are more than one). 0 – ETH control port 1– DANTE ETH Port **net_ip** – Network IP **net_mask** – Network mask **gateway** – Network gateway	Get network configuration: **#NET-CONFIG?␣**id**<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
NET-DHCP	Set DHCP mode. ⓘ Only 1 is relevant for the mode value. To disable DHCP, the user must configure a static IP address for the device. 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 **NAME** command. 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. ⓘ For Backward compatibility, the **id** parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.	COMMAND **#NET-DHCP**␣netw_id,dhcp_state**<CR>** FEEDBACK **~nn@NET-DHCP**␣netw_id,dhcp_state**<CR><LF>**	**netw_id** – Network ID–the device network interface (if there are more than one). 0 – ETH control port 1– DANTE ETH Port **dhcp_state** – 1 – Try to use DHCP. (If unavailable, use the IP address set by the factory or the net-ip command).	Enable DHCP mode for port 1, if available: **#NET-DHCP**␣1,1**<CR>**
NET-DHCP?	Get DHCP mode. ⓘ For Backward compatibility, the **id** parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.	COMMAND **#NET-DHCP?**␣netw_id**<CR>** FEEDBACK **~nn@NET-DHCP**␣netw_id,dhcp_mode**<CR><LF>**	**netw_id** – Network ID–the device network interface (if there are more than one). 0 – ETH control port 1– DANTE ETH Port **dhcp_mode** – 0 – Do not use DHCP. Use the IP set by the factory or using the **net-ip** or **net-config** command. 1 – Try to use DHCP. If unavailable, use the IP set by the factory or using the **net-ip** or **net-config** command.	Get DHCP mode for port 1: **#NET-DHCP?**␣1**<CR>**
NET-GATE	Set gateway IP. ⓘ A network gateway connects the device via another network and maybe over the Internet. Be careful of security issues. For proper settings consult your network administrator.	COMMAND **#NET-GATE**␣ip_address**<CR>** FEEDBACK **~nn@NET-GATE**␣ip_address**<CR><LF>**	**ip_address** – Format: xxx.xxx.xxx.xxx	Set the gateway IP address to 192.168.0.1: **#NET-GATE**␣192.168.000.001**<CR>**
NET-GATE?	Get gateway IP. ⓘ A network gateway connects the device via another network and maybe over the Internet. Be aware of security problems.	COMMAND **#NET-GATE?**␣**<CR>** FEEDBACK **~nn@NET-GATE**␣ip_address**<CR><LF>**	**ip_address** – Format: xxx.xxx.xxx.xxx	Get the gateway IP address: **#NET-GATE?**␣**<CR>**
NET-IP	Set IP address. ⓘ For proper settings consult your network administrator.	COMMAND **#NET-IP**␣ip_address**<CR>** FEEDBACK **~nn@NET-IP**␣ip_address**<CR><LF>**	**ip_address** – Format: xxx.xxx.xxx.xxx	Set the IP address to 192.168.1.39: **#NET-IP**␣192.168.001.039**<CR>**
NET-IP?	Get IP address.	COMMAND **#NET-IP?**␣**<CR>** FEEDBACK **~nn@NET-IP**␣ip_address**<CR><LF>**	**ip_address** – Format: xxx.xxx.xxx.xxx	Get the IP address: **#NET-IP?**␣**<CR>**
NET-MAC?	Get MAC address. ⓘ For backward compatibility, the **id** parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.	COMMAND **#NET-MAC?**␣id**<CR>** FEEDBACK **~nn@NET-MAC**␣id,mac_address**<CR><LF>**	**id** – Network ID–the device network interface (if there are more than one). 0 – ETH control port 1– DANTE ETH Port **mac_address** – Unique MAC address. Format: XX-XX-XX-XX-XX-XX where X is hex digit	**#NET-MAC?**␣id**<CR>**
NET-MASK	Set subnet mask. ⓘ For proper settings consult your network administrator.	COMMAND **#NET-MASK**␣net_mask**<CR>** FEEDBACK **~nn@NET-MASK**␣net_mask**<CR><LF>**	**net_mask** – Format: xxx.xxx.xxx.xxx	Set the subnet mask to 255.255.0.0: **#NET-MASK**␣255.255.000.000**<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
NET-MASK?	Get subnet mask.	COMMAND **#NET-MASK?␣<CR>** FEEDBACK **~nn@NET-MASK␣**net_mask**<CR><LF>**	**net_mask** – Format: xxx.xxx.xxx.xxx	Get the subnet mask: **#NET-MASK?<CR>**
PASS	Set password for login level. ⓘ The default password is an empty string.	COMMAND **#PASS␣**login_level,password**<CR>** FEEDBACK **~nn@PASS␣**login_level,password**<CR><LF>**	**login_level** – Level of login to set (End User or Administrator). **password** – Password for the *login_level*. Up to 15 printable ASCII chars	Set the password for the Admin protocol permission level to 33333: **#PASS␣**admin,33333**<CR>**
PASS?	Get password for login level. ⓘ The default password is an empty string.	COMMAND **#PASS?␣**login_level**<CR>** FEEDBACK **~nn@PASS␣**login_level,password**<CR><LF>**	**login_level** – Level of login to set (End User or Administrator). **password** – Password for the *login_level*. Up to 15 printable ASCII chars	Get the password for the Admin protocol permission level: **#PASS?␣**admin**<CR>**
PORTS-LIST?	Get the port list of this machine. ⓘ The response is returned in one line and terminated with<CR><LF>. The response format lists port IDs separated by commas. This is an Extended Protocol 3000 command.	COMMAND **#PORTS-LIST?␣<CR>** FEEDBACK **~nn@PORTS-LIST␣**[<direction_type>.<port_format>.<port_index>,..,]**<CR><LF>**	The following attributes comprise the port ID: ▪ **<direction_type>** – Direction of the port: o IN o OUT ▪ **<port_format>** – Type of signal on the port: o ANALOG_AUDIO o ANALOG_JACK o DANTE ▪ **<port_index>** – The port number as printed on the front or rear panel	Get the ports list: **#PORTS-LIST?␣<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>**
SECUR	Start/stop security. ⓘ The permission system works only if security is enabled with the "SECUR" command.	COMMAND **#SECUR␣**security_state**<CR>** FEEDBACK **~nn@SECUR␣**security_state**<CR><LF>**	**security_state** – Security state 0 – OFF (disables security) 1 – ON (enables security)	Enable the permission system: **#SECUR␣**0**<CR>**
SECUR?	Get current security state. ⓘ The permission system works only if security is enabled with the "SECUR" command.	COMMAND **#SECUR?␣<CR>** FEEDBACK **~nn@SECUR␣**security_state**<CR><LF>**	**security_state** – Security state 0 – OFF (disables security) 1 – ON (enables security)	Get current security state: **#SECUR?␣<CR>**
SIGNALS-LIST?	Get signal ID list of this machine. ⓘ The response is returned in one line and terminated with<CR><LF>. The response format lists signal IDs separated by commas. This is an Extended Protocol 3000 command.	COMMAND **#SIGNALS-LIST?␣<CR><LF>** FEEDBACK **~nn@SIGNALS-LIST␣**[<direction_type>.<port_format>.<port_label>.<signal_type>.<index>,..,]**<CR><LF>**	The following attributes comprise the signal ID: ▪ **<direction_type>** – Direction of the port: o IN – Input o OUT – Output ▪ **<port_format>** – Type of signal on the port: o ANALOG_AUDIO o ANALOG_JACK o DANTE ▪ **<port_index>** – The port number as printed on the front or rear panel ▪ **<signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type	Get signal ID list: **#SIGNALS-LIST?␣<CR>**
SN?	Get device serial number.	COMMAND **#SN?␣<CR>** FEEDBACK **~nn@SN␣**serial_num**<CR><LF>**	**serial_num** – 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>**

Function	Description	Syntax	Parameters/Attributes	Example
X-AUD-LVL	Set audio level of a specific signal. This is an Extended Protocol 3000 command.	**COMMAND** **#X-AUD-LVL** <direction_type>.<port_type>.<port_index>.<signal_type>.<index>,audio_level**<CR>** **FEEDBACK** **~nn@X-AUD-LVL** <direction_type>.<port_type>.<port_index>.<signal_type>.<index>,audio_level**<CR><LF>**	The following attributes comprise the signal ID: ▪ **<direction_type>** – o IN o OUT ▪ **<port_type>** – o ANALOG_AUDIO o ANALOG_JACK o DANTE ▪ **port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio **audio_level** – Audio level in dB (range between -100 to +15) depending of the ability of the product	Set the audio level of analog audio specific signal to 10: **#X-AUD-LVL** IN.ANALOG_AUDIO.4.AUDIO.1,10**<CR>**
X-AUD-LVL?	Get audio level of a specific signal. This is an Extended Protocol 3000 command.	**COMMAND** **#X-AUD-LVL?** <direction_type>.<port_format>.<port_index>.<signal_type>.<index>**<CR>** **FEEDBACK** **~nn@X-AUD-LVL** <direction_type>.<port_format>.<port_index>.<signal_type>.<index>,audio_level**<CR><LF>**	The following attributes comprise the signal ID: ▪ **<direction_type>** – o IN o OUT ▪ **<port_type>** – o ANALOG_AUDIO o ANALOG_JACK o DANTE ▪ **port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio **audio_level** – Audio level in dB (range between --100 to +15) depending of the ability of the product	Get the audio level of a specific signal: **#X-AUD-LVL?** out.analog_audio.1.audio.1**<CR>**
X-AUD-MODE	Set line/Mic mode. This is an Extended Protocol 3000 command.	**COMMAND** **#X-AUD-MODE** <direction_type>.<port_type>.<port_index>.<signal_type>.<index>,mode**<CR>** **FEEDBACK** **~nn@X-AUD-MODE** <direction_type>.<port_type>.<port_index>.<signal_type>.<index>,mode**<CR><LF>**	The following attributes comprise the signal ID: ▪ **<direction_type>** – o IN ▪ **<port_type>** – o ANALOG_AUDIO ▪ **<port_index>** – The port number as printed on the front or rear panel 1 to 4. ▪ **<signal_type>** – o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type 1 to 2. **mode** – 1 – Line 2 – Mic	Set AUDIO IN 2 to Mic mode: **#X-AUD-MODE** IN.ANALOG_AUDIO.2.AUDIO.1,2**<CR>**
X-AUD-MODE?	Get line/Mic mode. This is an Extended Protocol 3000 command.	**COMMAND** **#X-AUD-MODE?** <direction_type>.<port_type>.<port_index>.<signal_type>.<index>**<CR>** **FEEDBACK** **~nn@X-AUD-MODE** **<direction_type>.<port_type>.<port_index>.<signal_type>.<index>,mode<CR><LF>**	The following attributes comprise the signal ID: ▪ **<direction_type>** – o IN ▪ **<port_type>** – o ANALOG_AUDIO ▪ **<port_index>** – The port number as printed on the front or rear panel 1 to 4. ▪ **<signal_type>** – o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type 1 to 2. **mode** – 1 – Line 2 – Mic	Get AUDIO IN 1 to audio mode: **#X-AUD-MODE?** **IN.ANALOG_AUDIO.5.AUDIO.1<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
X-LABEL	Set the port label. ⓘ Labels are used commonly by WEB pages. This is an Extended Protocol 3000 command.	COMMAND **#X-LABEL**␣<direction_type>.<port_format>.<port_index>,label_txt**<CR>** FEEDBACK **~nn@X-LABEL**␣<direction_type>.<port_format>.<port_index>,label_txt**<CR><LF>**	The following attributes comprise the port ID: ▪ **<direction_type>** – Direction of the port: o IN o OUT ▪ **<port_format>** – Type of signal on the port: o ANALOG_AUDIO o ANALOG_JACK o DANTE ▪ **<port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio **label_txt** – ASCII characters	Set the port label (for analog audio 1) to "Player": **#X-LABEL**␣in.analo_audio.1.analog_audio.1,Player**<CR>**
X-LABEL?	Get the port label. ⓘ Labels are used commonly by WEB pages. This is an Extended Protocol 3000 command.	COMMAND **#X-LABEL?**␣<direction_type>.<port_format>.<port_index>**<CR>** FEEDBACK **~nn@X-LABEL**␣<direction_type>.<port_format>.<port_index>,label_txt**<CR><LF>**	The following attributes comprise the port ID: ▪ **<direction_type>** – Direction of the port: o IN o OUT ▪ **<port_format>** – Type of signal on the port: o ANALOG_AUDIO o ANALOG_JACK o DANTE ▪ **<port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio **label_txt** – ASCII characters	Get the port label (for Dante output 4): **#X-LABEL?**␣out.dante.1.audio.4**<CR>**
X-MIC-TYPE	Set microphone type. ⓘ This is an Extended Protocol 3000 command.	COMMAND **#X-MIC-TYPE**␣<direction_type>.<port_format>.<port_index>,mic_type**<CR>** FEEDBACK **~nn@X-MIC-TYPE**␣<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,mic_type**<CR><LF>**	The following attributes comprise the port ID: ▪ **<direction_type>** – Direction of the port: o IN ▪ **<port_format>** – Type of signal on the port: o ANALOG_AUDIO ▪ **<port_index>** – The port number as printed on the front or rear panel: 1 to 4 ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 **mic_type** – Dynamic/Condenser (not case sensitive)	Set analog audio mic 3 type to condenser: **#X-MIC-TYPE**␣in.analog_audio.3,condenser**<CR>**
X-MIC-TYPE?	Get microphone type. ⓘ This is an Extended Protocol 3000 command.	COMMAND **#X-MIC-TYPE?**␣<direction_type>.<port_format>.<port_index>**<CR>** FEEDBACK **~nn@X-MIC-TYPE**␣<direction_type>.<port_format>.<port_index>,mic_type**<CR><LF>**	The following attributes comprise the port ID: ▪ **<direction_type>** – Direction of the port: o IN ▪ **<port_format>** – Type of signal on the port: o ANALOG_AUDIO ▪ **<port_index>** – The port number as printed on the front or rear panel: 1 to 4 ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 **mic_type** – Dynamic/Condenser (not case sensitive)	Get the microphone type for analog audio 1 input: **#X-MIC-TYPE?**␣in.analog_audio.1**<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
X-MIX-LVL	Set DSP matrix cross-point MIX level in dB. This is an Extended Protocol 3000 command.	**COMMAND** **#X-MIX-LVL** OUT.<port_type>.<port_index>.<signal_type>.<index>,IN.<port_type>.<port_index>.<signal_type>.<index>,dB**<CR>** **FEEDBACK** **~nn@X-MIX-LVL** OUT.<port_type>.<port_index>.<signal_type>.<index>,IN.<port_type>.<port_index>.<signal_type>.<index>,dB**<CR><LF>**	The following attributes comprise the primary signal ID (suffix 1) and follower signal ID (suffix 2 or greater): ▪ **<direction_type>** – IN o IN o OUT ▪ **<port_type>** – o ANALOG_AUDIO o ~~ANALOG_JACK~~ o DANTE ▪ **< port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio	Set analog audio 1 and Dante 1 cross-point level to -25dB: **#X-MIX-LVL** OUT.ANALOG_AUDIO.1.AUDIO.1,IN.DANTE.1.AUDIO.1,-25**<CR>**
X-MIX-LVL?	Get DSP matrix cross-point MIX level in dB. This is an Extended Protocol 3000 command.	**COMMAND** **#X-MIX-LVL?** OUT.<port_type>.<port_index>.<signal_type>.<index>,IN.<port_type>.<port_index>.<signal_type>.<index>**<CR>** **FEEDBACK** **~nn@X-MIX-LVL** OUT.<port_type>.<port_index>.<signal_type>.<index>,IN.<port_type>.<port_index>.<signal_type>.<index>,dB**<CR><LF>**	The following attributes comprise the primary signal ID (suffix 1) and follower signal ID (suffix 2 or greater): ▪ **<direction_type>** – IN o IN o OUT ▪ **<port_type>** – o ANALOG_AUDIO o ~~ANALOG_JACK~~ o DANTE ▪ **< port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio	Get analog audio 3 and Dante 2 cross-point level: **#X-MIX-LVL?** OUT.ANALOG_AUDIO.3.AUDIO.1,IN.DANTE.1.AUDIO.2**<CR>**
X-MIX-MUTE	Set Matrix cross-point mute syntax. This is an Extended Protocol 3000 command.	**COMMAND** **#X-MIX-MUTE** OUT.<port_type>.<port_index>.<signal_type>.<index>,IN.<port_type>.<port_index>.<signal_type>.<index>,dB**<CR>** **FEEDBACK** **~nn@X-MIX-MUTE** OUT.<port_type>.<port_index>.<signal_type>.<index>,IN.<port_type>.<port_index>.<signal_type>.<index>,<mute_state>**<CR><LF>**	The following attributes comprise the signal ID: ▪ **<direction_type>** – Direction of the port: o IN – Input o OUT – Output ▪ **<port_format>** – Type of signal on the port: o ANALOG_AUDIO o DANTE ▪ **port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio **<mute_state>** – o ON=1 o OFF=0	Set mute status of analog audio output 1 and Dante audio cross-point 3 to on: #X-MIX-MUTE **OUT.ANALOG_AUDIO.1.AUDIO.1,IN.DANTE.1.AUDIO.3,1**<CR>

Function	Description	Syntax	Parameters/Attributes	Example
X-MIX-MUTE?	Get Matrix cross-point mute syntax. This is an Extended Protocol 3000 command.	**COMMAND** **#X-MIX-MUTE?**␣OUT.<port_type>.<port_index>.<signal_type>.<index>,IN.<port_type>.<port_index>.<signal_type>.<index><CR> **FEEDBACK** **~nn@X-MIX-MUTE**␣OUT.<port_type>.<port_index>.<signal_type>.<index>,IN.<port_type>.<port_index>.<signal_type>.<index>,<mute_state><CR><LF>	The following attributes comprise the signal ID: ▪ **<direction_type>** – Direction of the port: o IN – Input o OUT – Output ▪ **<port_format>** – Type of signal on the port: o ANALOG_AUDIO o DANTE ▪ **port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **signal_type>** – Signal ID attribute: o AUDIO ▪ **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio **<mute_state>** – o ON=1 o OFF=0	Get mute status of analog audio output 1 and Dante audio cross-point 3: #X-MIX-MUTE?␣**OUT.ANALOG_AUDIO.1.AUDIO.1,IN.DANTE.1.AUDIO.3**<CR>
X-MUTE	Set mute ON/OFF on a specific signal. ⓘ This command is designed to Mute a Signal. This means that it could be applicable on any type of signal. Could be audio, video and maybe IR, USB or data if this capability is supported by the product. This is an Extended Protocol 3000 command.	**COMMAND** **#X-MUTE**␣<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,state**<CR>** **FEEDBACK** **~nn@X-MUTE**␣<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,state**<CR><LF>**	The following attributes comprise the signal ID: ▪ **<direction_type>** – o IN o OUT ▪ **<port_type>** – o ANALOG_AUDIO o ANALOG_JACK o DANTE ▪ **< port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **<signal_type>** – Signal ID attribute: o AUDIO **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio **state** – OFF/ON (not case sensitive)	Mute the Dante OUT 4: **#X-MUTE**␣out.dante.1.audio.4,on**<CR>**
X-MUTE?	Get mute ON/OFF state on a specific signal. ⓘ This command is designed to Mute a Signal. This means that it could be applicable on any type of signal. Could be audio, video and maybe IR, USB or data if this capability is supported by the product. This is an Extended Protocol 3000 command.	**COMMAND** **#X-MUTE?**␣<direction_type>.<port_format>.<port_index>.<signal_type>.<index>**<CR>** **FEEDBACK** **~nn@X-MUTE**␣<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,state**<CR><LF>**	The following attributes comprise the signal ID: ▪ **<direction_type>** – o IN o OUT ▪ **<port_type>** – o ANALOG_AUDIO o ANALOG_JACK o DANTE ▪ **< port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ **<signal_type>** – Signal ID attribute: o AUDIO **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio **state** – OFF/ON (not case sensitive)	Get the mute ON/OFF state on a specific signal: **#X-MUTE?**␣out.analog_audio.4.audio.1**<CR>**
X-PRST-CURR?	Get the current preset loaded per type. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	**COMMAND** **#X-PRST-CURR?**␣preset_type**<CR>** **FEEDBACK** **~nn@X-PRST-CURR**␣<preset_type,[preset_id:name:lock_state]**<CR><LF>**	▪ **preset_type** – o System Preset – IOCONFIG.SYSTEM ▪ **<preset_id>** –preset index ▪ **<name>** – the name of the preset in URL encode format ▪ **<lock_state>** – o ON o OFF	Get current mixer preset: **X-PRST-CURR?**␣IOCONFIG.SYSTEM**<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
X-PRST-LOCK	Set LOCK state of a preset per type. this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-LOCK** preset_type,preset_id,lock_state**<CR>** FEEDBACK **~nn@X-PRST-LOCK** <preset_type,[preset_id:name:lock_state]**<CR><LF>**	▪ **preset_type** – ○ System Preset – IOCONFIG.SYSTEM ▪ **<preset_id>** –preset index ▪ **<lock_state>** – ○ ON ○ OFF	lock preset 9: **X-PRST-LOCK IOCONFIG.SYSTEM.MIXER,9**<CR>
X-PRST-LOCK?	Set LOCK state of a preset per type. this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-LOCK?** preset_type,preset_id,lock_state**<CR>** FEEDBACK **~nn@X-PRST-LOCK** <preset_type,[preset_id:name:lock_state]**<CR><LF>**	▪ **preset_type** – ○ System Preset – IOCONFIG.SYSTEM ▪ **<preset_id>** –preset index ▪ **<lock_state>** – ○ ON ○ OFF	Get lock mixer preset 9 status: **X-PRST-LOCK IOCONFIG.SYSTEM.MIXER,9**<CR>
X-PRST-LST?	Get the preset list of a specific preset type. this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-LST?** preset_type**<CR>** FEEDBACK **~nn@X-PRST-LST** <preset_type,[preset_id:name:lock_state]**<CR><LF>**	▪ **preset_type** – ○ System Preset – IOCONFIG.SYSTEM ▪ **<name>** – the name of the preset ▪ **<lock_state>** – ○ ON ○ OFF	Get the IO configuration list: **X-PRST-LST? IOCONFIG.SYSTEM**<CR> [[1:Default:ON],[2:System22:OFF],[3:System3:OFF],[4:System4:OFF],[5:System5:OFF],[6:System6:OFF],[7:System7:OFF],[8:System8:OFF],[9:System9:OFF],[10:System10:OFF]]
X-PRST-NAME	Set the name of a preset. this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-NAME** preset_type,preset_id,name**<CR>** FEEDBACK **~nn@X-PRST-NAME** preset_type,preset_id,name**<CR><LF>**	▪ **preset_type** – ○ System Preset – IOCONFIG.SYSTEM ▪ **preset_id** – preset index ○ **name** – the name of the preset in URL encode format (no spaces)	Set the name of a preset: **X-PRST-NAME** IOCONFIG.SYSTEM.MIXER,9,ROOM1**<CR>**
X-PRST-NAME?	Get the name of a preset. this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-NAME?** preset_type,preset_id,name**<CR>** FEEDBACK **~nn@X-PRST-NAME** preset_type,preset_id,name**<CR><LF>**	▪ **preset_type** – ○ System Preset – IOCONFIG.SYSTEM ▪ **preset_id** – preset index ○ **name** – the name of the preset in URL encode format	Get the name of a preset: **X-PRST-NAME?** IOCONFIG.SYSTEM.MIXER,9**<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
X-PRST-RCL	Recall saved preset list. ⓘ this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-RCL** preset_type,preset_id**<CR>** FEEDBACK **~nn@X-PRST-RCL** preset_type,preset_id**<CR><LF>**	▪ **preset_type** – ○ System Preset – IOCONFIG.SYSTEM ▪ **preset_id** – preset index	Recall mixer preset 8: **X-PRST-RCL** IOCONFIG.SYSTEM,8 **<CR>**
X-PRST-RCL-LAST	Recall LAST preset per type, this command just retrieves the last preset loaded from the history of preset activity and RECALLs it. ⓘ this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-RCL-LAST** preset_type **<CR>** FEEDBACK **~nn@X-PRST-RCL-LAST** preset_type,preset_id**<CR><LF>**	▪ **preset_type** – ○ System Preset – IOCONFIG.SYSTEM ▪ **preset_id** – preset index	Recall the last mixer preset: **X-PRST-RCL-LAST** IOCONFIG.SYSTEM. **<CR>**
X-PRST-RCL-NEXT	Recall NEXT preset, this command increments by one the current preset id loaded and loads it. If the index is the highest, recall will fail. ⓘ this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-RCL-NEXT** preset_type**<CR>** FEEDBACK **~nn@X-PRST-RCL-NEXT** preset_type,preset_id**<CR><LF>**	▪ **preset_type** – ○ System Preset – IOCONFIG.SYSTEM ▪ **preset_id** – preset index	Recall next mixer preset: **X-PRST-RCL-NEXT** IOCONFIG.SYSTEM**<CR>**
X-PRST-RCL-PREV	Recall previous preset, this command increments by one the current preset id loaded and loads it. If the index is the lowest, recall will fail. ⓘ this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-RCL-PREV** preset_type**<CR>** FEEDBACK **~nn@X-PRST-RCL-PREV** preset_type,preset_id**<CR><LF>**	▪ **preset_type** – ○ System Preset – IOCONFIG.SYSTEM ▪ **preset_id** – preset index	Recall previous preset: **X-PRST-RCL-PREV** IOCONFIG.SYSTEM**<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
X-PRST-RESET	Reset preset. ⓘ this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-RESET**␣preset_type,preset_id<CR> FEEDBACK **~nn@X-PRST-RESET**␣preset_type,preset_id<CR><LF>	▪ **preset_type** – o System Preset – IOCONFIG.SYSTEM ▪ **preset_id** – preset index	Reset preset 9: **X-PRST-RESET**␣IOCONFIG.SYSTEM,9<CR>
X-PRST-SAVED?	Get SAVED status for a preset. This flag indicates to the WEB if a change have been made since the last RECALL and has not been saved. ⓘ this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-SAVED?**␣preset_type<CR> FEEDBACK **~nn@X-PRST-SAVED**␣preset_type,saved_status<CR><LF>	▪ **preset_type** – o System Preset – IOCONFIG.SYSTEM ▪ **Saved_status** – preset index o 0 – False (not saved) ▪ 1 – True (saved)	Get saved status of mixer preset: **X-PRST-SAVED?**␣IOCONFIG.SYSTEM<CR>
X-PRST-STO	Store current changes into a preset. ⓘ this is an extended preset command using preset type as first parameter. This is used essentially when we have different types of Presets inside the same system. To get the list of preset types existing in your product use the command: **X-PRST-TYPES?** This is an Extended Protocol 3000 command.	COMMAND **#X-PRST-STO**␣preset_type,preset_id<CR> FEEDBACK **~nn@X-PRST-STO**␣preset_type,saved_status<CR><LF>	▪ **preset_type** – o System Preset – IOCONFIG.SYSTEM ▪ **preset_id** – preset index	Store changes into mixer preset 9: **X-PRST-STO**␣IOCONFIG.SYSTEM,9<CR>
X- PRST-TYPES?	Get the types of presets that the system supports and their hierarchy.	COMMAND **#X-PRST-TYPES?**␣<CR> FEEDBACK **~nn@X-PRST-TYPES**␣preset_type <CR><LF>	▪ **preset_type** – o IOCONFIG.SYSTEM – used for system preset per IOConfig, we have 10 preset banks per IOConfig setup, Preset #1 is the default system preset for this setup and is READ ONLY, Preset #2 is used for the first user system preset, Preset #3 for the second etc.	Get preset types: **X-PRST-TYPES?**␣<CR>
X-SIGNAL-PIPE	Set a pipe between Two outputs. This is when we want to "tee" a signal to another output. Used essentially into **FC-404NETxl** to output audio signal to HEADPHONES jack. ⓘ This is an Extended Protocol 3000 command.	COMMAND **#X-SIGNAL-PIPE**␣<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,<direction_type>.<port_format>.<port_index>.<signal_type>.<index><CR> FEEDBACK **~nn@X-SIGNAL-PIPE**␣<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,<direction_type>.<port_format>.<port_index>.<signal_type>.<index><CR><LF>	The following attributes comprise the signal ID: ▪ **<direction_type>** – o IN o OUT ▪ **<port_type>** – o ANALOG_AUDIO o DANTE o ANALOG_JACK ▪ **< port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ <signal_type> – Signal ID attribute: o AUDIO **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio	Set the DANTE output 3 to be routed to the headphones: **#X-SIGNAL-PIPE**␣OUT.ANALOG_JACK.1.AUDIO.1,OUT.DANTE.1.AUDIO.3<CR>

Function	Description	Syntax	Parameters/Attributes	Example
X-SIGNAL-PIPE?	Get a pipe configuration for an output port. This is when we want to "tee" a signal to another output. Used essentially into **FC-404NETxl** to output audio signal to HEADPHONES jack. ⓘ This is an Extended Protocol 3000 command.	COMMAND **#X-SIGNAL-PIPE?**␣<direction_type>.<port_format>.<port_index>.<signal_type>.<index>**<CR>** FEEDBACK **~nn@X-SIGNAL-PIPE**␣<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,<direction_type>.<port_format>.<port_index>.<signal_type>.<index>**<CR><LF>**	The following attributes comprise the signal ID: ▪ **<direction_type>** – o IN o OUT ▪ **<port_type>** – o ANALOG_AUDIO o DANTE o ANALOG_JACK ▪ **< port_index>** – The port number as printed on the front or rear panel: 1 to 4 for analog audio, and 1 for Dante ▪ <signal_type> – Signal ID attribute: o AUDIO **<index>** – Indicates a specific channel number when there are multiple channels of the same type: 1 to 4 for Dante, and 1 for Analog audio	Get the input/output that is routed to the headphones: **#X-SIGNAL-PIPE?**␣out.analog_jack.1.audio.1**<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 – not 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. Kramer fiber optic cables, adapter-size fiber optic extenders, pluggable optical modules, active cables, cable retractors, ring mounted adapters, portable power chargers, Kramer speakers, and Kramer touch panels are covered by a standard one (1) year warranty. Kramer 7-inch touch panels purchased on or after April 1st, 2020 are covered by a standard two (2) year warranty.
3. 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 lifetime 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. If a direct or similar replacement product is supplied, the original product’s end warranty date remains unchanged and is transferred to the replacement 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.

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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: 2900-301534 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 website where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

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