

## Audio Products Mixers and Processors


# XMP 240 C AT


Expansion Matrix Processor



# Safety Instructions


## Safety Instructions • English


**⚠ WARNING:** This symbol, , when used on the product, is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

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
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有關安全性指導方針、法規遵守、EMI/EMF 相容性、存取範圍和相關主題的詳細資訊, 請瀏覽 Extron 網站: [www.extron.com](http://www.extron.com)。然後參閱《Extron 安全性與法規遵守手冊》, 準則編號 68-290-01。

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안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트([www.extron.com](http://www.extron.com))의 Extron 안전 및 규제 준수 안내서, 68-290-01 조항을 참조하십시오.

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## FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. The Class A limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. This interference must be corrected at the expense of the user.

### ATTENTION:

- The Twisted Pair Extension technology works with unshielded twisted pair (UTP) or shielded twisted pair (STP) cables; **but to ensure FCC Class A and CE compliance, STP cables and STP Connectors are required.**
- La technologie extension paires torsadées fonctionne avec les câbles paires torsadées blindées (UTP) ou non blindées (STP). Afin de s'assurer de la compatibilité entre FCC Classe A et CE, les câbles STP et les connecteurs STP sont nécessaires.

### NOTES:

- This unit was tested with shielded I/O cables on the peripheral devices. Shielded cables must be used to ensure compliance with FCC emissions limits.
- For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the [Extron Safety and Regulatory Compliance Guide](#) on the Extron website.

## Battery Notice

This product contains a battery. **Do not open the unit to replace the battery.** If the battery needs replacing, return the entire unit to Extron (for the correct address, see the Extron Warranty section on the last page of this guide).

**CAUTION:** Risk of explosion. Do not replace the battery with an incorrect type.  
Dispose of used batteries according to the instructions.

**ATTENTION :** Risque d'explosion. Ne pas remplacer la pile par le mauvais type de pile. Débarrassez-vous des piles usagées selon le mode d'emploi.

## Conventions Used in this Guide

### Notifications

The following notifications are used in this guide:

**CAUTION:** Risk of minor personal injury.

**ATTENTION :** Risque de blessure mineure.

**ATTENTION:**

- Risk of property damage.
- Risque de dommages matériels.

**NOTE:** A note draws attention to important information.

**TIP:** A tip provides a suggestion to make working with the application easier.

### Software Commands

Commands are written in the fonts shown here:

```
^ARMerge Scene, ,0p1 scene 1,1 ^B 51 ^W^C.0  
[01] R 0004 00300 00400 00800 00600 [02] 35 [17] [03]  
Esc [X1] * [X17] * [X41] * [X52] * [X21] CE ←
```

**NOTE:** For commands and examples of computer or device responses used in this guide, the character “0” is used for the number zero and “O” is the capital letter “o.”

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 208.132.180.48: bytes=32 times=2ms TTL=32  
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx -t  
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

```
From the File menu, select New.  
Click the OK button.
```

## Specifications Availability

Product specifications are available on the Extron website, [www.extron.com](http://www.extron.com).

## Extron Glossary of Terms

A glossary of terms is available at <http://www.extron.com/technology/glossary.aspx>.

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# Introduction

This section describes this user guide and the XMP 240 C AT. The following topics are covered:

- [About this Guide](#)
- [About the XMP 240 C AT](#)
- [Features](#)
- [Application Diagram](#)

## About this Guide

This guide contains installation, configuration, and operating information for the Extron XMP 240 C AT Expansion Matrix Processor. In this guide, the XMP 240 C AT may also be referred to as “XMP” or “device”.

## About the XMP 240 C AT

The XMP 240 Expansion Matrix Processor features an extensive mix matrix with 24 channels of AEC and 48x48 Dante® connectivity in only a half rack space. The XMP 240 can also be used standalone for matrix processing in an all network audio system. When connected to a DMP Plus Series processor via Dante or the EXP expansion port, a complete system is created that features up to 36 channels of AEC, a USB audio interface, analog connectivity, and optional VoIP. A system expanded with an XMP 240 is capable of supporting multiple beam forming microphone arrays alongside numerous other Dante sources, with enough outputs to support multiple zones and destination devices. Ideal for network audio systems based on Dante or AES67, the XMP 240 allows for high channel count audio input and output processing.

## Features

- **24 channels of AEC - acoustic echo cancellation** — The XMP 240 includes 24 independent channels of high performance AEC, as well as selectable noise cancellation. Extron AEC features advanced algorithms that deliver fast echo canceler convergence for optimal intelligibility in situations that challenge AEC performance.
- **Dante audio networking with Dante Domain Manager and AES67 support** — Dante audio networking provides scalability for creating larger audio matrixes over a local area network using standard protocols. A built-in two-port Gigabit switch can be configured to support primary and redundant Dante audio networks.
- **Extensive mix matrix with input and output processing** — Allows all inputs to be discretely routed to any or all outputs, with processing.
- **FlexInput capability on all inputs for input source selection** — All 48 inputs offer FlexInput capability to select a Dante channel or expansion input. This allows incorporating the full range of DSP capabilities, including AEC, for any incoming signal.



- **Macros allow the sequencing of commands that can be sent to the local device or external devices via the LAN port** — A single XMP 240 can act as the central interface from a control system, sending commands to other DMP Plus, AXI AT, and DTP CrossPoint devices.
- **Compact half rack size** — Allows more input and output channels, with more processing power, to be installed in less space.
- **Advanced audio processing on all outputs** — Up to 48 speaker zones can be implemented on one XMP 240 with full processing for each zone, making it ideal for full mix-minus implementations.
- **Adaptive Gain Processing** — An adaptive gain processor block allows a specified microphone input to affect levels on any one or all other inputs and virtual returns.
- **Built-in two-port Gigabit switch** — Provides redundant or daisy-chain operation with other Dante-enabled devices.
- **Automixer with eight groups** — The XMP 240 features an automixer with gated and gain sharing modes for managing up to eight groups of microphone signals. Gating threshold, signal level reduction, and timing parameters are user-adjustable per channel, allowing for fine-tuning to avoid the “chopped” sound characteristic of a traditional automixer when a mic is gated off.
- **ProDSP 64-bit floating point signal processing** — The XMP 240 features 64-bit floating point audio DSP processing, which maintains very wide dynamic range and audio signal transparency, to simplify management of gain staging while reducing the possibility of DSP signal clipping.
- **DSP Configurator™ Software** — A powerful yet user-friendly PC-based software tool for managing all audio operations of the XMP 240. It enables complete setup and configuration of digital audio processing tools on the ProDSP platform, as well as routing and mixing.
- **Building Blocks for channel processor settings** — A collection of pre-designed processor settings optimized for a specific type of input and output devices, such as microphones and speakers. Flexible Building Blocks are available on each input strip and allow system designers to fully customize and save their own Building Blocks, further streamlining audio system design and integration.
- **Live and Emulate operation modes with configuration file saving** — Live mode allows integrators to connect to the XMP 240 and make live parameter adjustments while hearing or metering them in real-time. This avoids the need to compile and upload a configuration file to the DSP. Emulate mode allows settings to be configured offline, then uploaded to the XMP 240. Additionally, current settings on a XMP 240 can be backed up to a configuration file for archiving.
- **Group masters** — The XMP 240 provides the capability to consolidate gain or mute control throughout the system. Gain or mute controls can be selected and added to a group master, which can then be controlled by a single master fader or mute control. Loudness filters can also be added to a group master, which enables the loudness curve to track with the program volume control. Bass and Treble filters can be configured in a group master to provide boost and cut as user controls. Additionally, Meters can be added to a group, providing a control to enable and disable multiple meters at once. Each group master can have up to 128 members, and up to 64 group masters can be created.

# Application Diagram

## Multi-Purpose Room - Table Mics

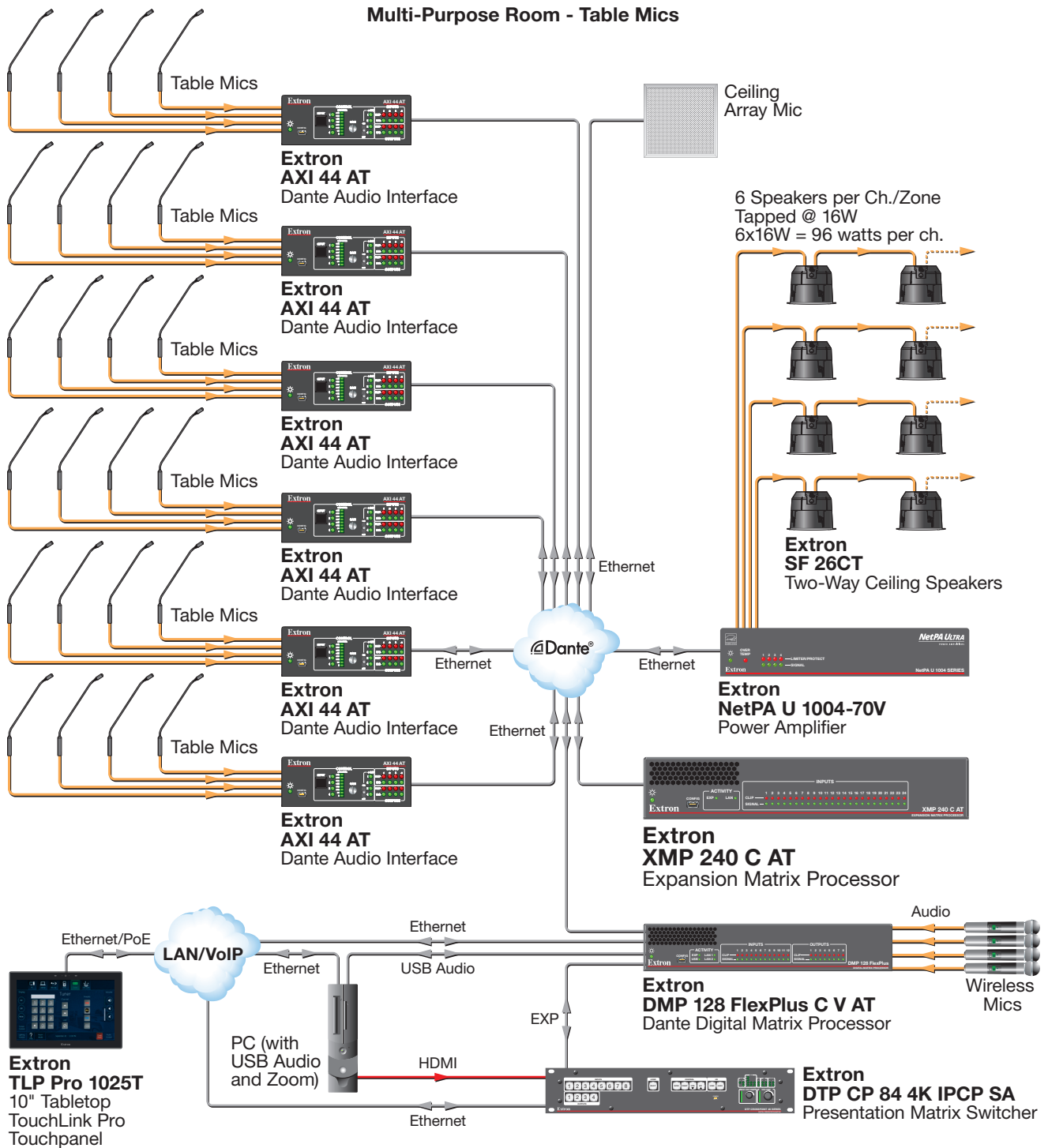


Figure 1. XMP 240 C AT Application Diagram

# Installation

This section describes the installation of the XMP 240 C AT and covers the following topics:

- [Mounting](#)
- [Rear Panel Features and Cabling](#)
- [Front Panel Features](#)
- [Hardware Reset Modes](#)

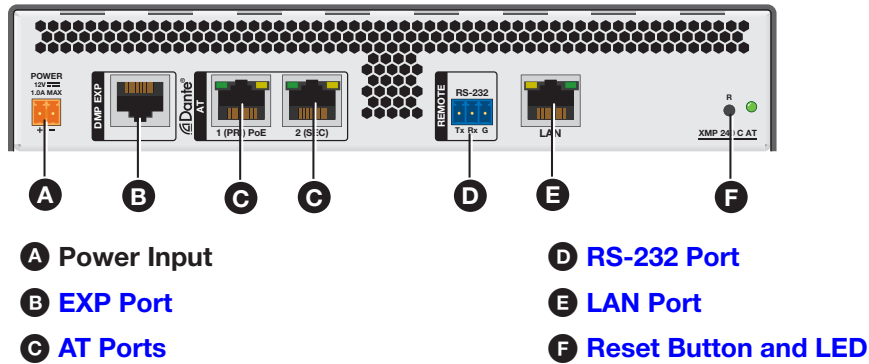
## Mounting

The 1U high, half rack width, 9.5 inch deep XMP 240 C AT mounts in the following manners:

- **Rack mounting** — Attach the XMP 240 C AT to a standard 19-inch rack shelf. The following Underwriters Laboratories (UL) guidelines pertain to the installation of the XMP 240 C AT in a rack:
  - **Reduced air flow** — Install the equipment in the rack so that the amount of air flow required for safe operation of the equipment is not compromised.
  - **Mechanical loading** — Mount the equipment in the racks so that uneven mechanical loading does not create a hazardous condition.
  - **Circuit overloading** — When connecting the equipment to the supply circuit, consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings when addressing this concern.
  - **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to power supply connections other than direct connections to the branch circuit (such as the use of power strips).
- **Under-furniture mounting** — Mount the XMP 240 C AT under the surface of a desk, table, or podium.
- **Free-standing** — Attach the four rubber feet provided with the device to the bottom of the XMP 240 C AT in the four corners and place the unit on furniture as desired.

**NOTE:** To mount the XMP 240 C AT using an Extron mounting kit, see the instructions provided with the kit.

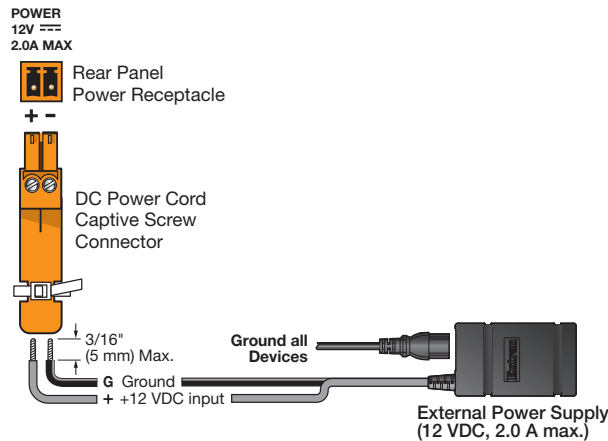
## Rear Panel Features and Cabling



**Figure 2. XMP 240 C AT Rear Panel**

- A Power Input** — Connect the included external 2-pole captive screw power supply (see the figure below for power supply wiring information).

**NOTE:** If a power supply is not provided, use a UL Listed power supply with rated output 12 VDC, minimum 1.5 A, and marked “Class 2” or “LPS”.



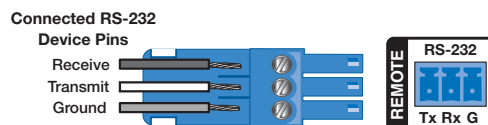
**Figure 3. Power Input Wiring**

### ATTENTION:

- Always use a power supply provided by or specified by Extron. Use of an unauthorized power supply voids all regulatory compliance certification and may cause damage to the supply and the end product.
- Utilisez toujours une source d'alimentation fournie ou recommandée par Extron. L'utilisation d'une source d'alimentation non autorisée annule toute certification de conformité réglementaire, et peut endommager la source d'alimentation et l'unité.
- The installation must always be in accordance with the applicable provisions of National Electrical Code ANSI/NFPA 70, article 725 and the Canadian Electrical Code part 1, section 16.
- L'installation doit toujours être conforme aux dispositions applicables du Code américain de l'électricité (National Electrical Code) ANSI/NFPA 70, article 725, et du Code canadien de l'électricité.

<ul style="list-style-type: none"> <li>• These products are intended for use with a UL Listed power source marked “Class 2” or “LPS” and rated 12 VDC, minimum 1.0 A. or 48 VDC (PoE), minimum 0.35 A, or 56 VDC (PoE), minimum 0.8 A.</li> <li>• Ces produits doivent être utilisés avec une source d’alimentation certifiée UL de classe 2 ou LPS avec une tension nominale 12 Vcc, 1,0 A minimum, ou 48 Vcc (PoE), 0,35 A minimum, ou 56 Vcc (PoE), 0,8 A minimum.</li> </ul>
<ul style="list-style-type: none"> <li>• The power supply shall not be permanently fixed to building structure or similar structure.</li> <li>• La source d’alimentation ne devra pas être fixée de façon permanente à la structure de bâtiment ou à d’autres structures similaires.</li> </ul>
<ul style="list-style-type: none"> <li>• Power over Ethernet (PoE) is intended for indoor use only. It is to be connected only to networks or circuits that are not routed to the outside plant or building.</li> <li>• L’alimentation via Ethernet (PoE) est destinée à une utilisation en intérieur uniquement. Elle doit être connectée seulement à des réseaux ou des circuits qui ne sont pas routés au réseau ou au bâtiment extérieur.</li> </ul>
<ul style="list-style-type: none"> <li>• The XMP is intended for connection to a Power over Ethernet circuit for intra-building use only and are considered to be part of a Network Environment 0 per IEC TR62101.</li> <li>• Le XMP est conçu pour une connexion à un circuit PoE pour une utilisation intérieure seulement et est considéré comme faisant partie d’un environnement réseau 0 par IEC TR62101.</li> </ul>

- B EXP Port** — One RJ-45 port allows two units to be connected via a shielded CAT 6 cable to form a larger matrix system (1 foot cable included). Any Extron device with EXP capability can exchange audio with a XMP 240 C AT via the EXP port.
- C AT Ports** — Two RJ-45 ports form a Gigabit switch for use with a Dante network. The AT ports use Dante protocol for digital audio transport (AT) and allow the XMP 240 C AT to connect to a Dante audio network to form a larger matrix ([Dante Controller](#) on page 89). The 2-port switch can be configured as one primary and one secondary port for redundant Dante configurations. In redundant configuration, audio traffic is duplicated. Port 1 is the primary port (PRI) and Port 2 is the secondary switch (SEC) (see [Redundant Configuration](#) on page 96).  
The AT port LEDs indicate the following:
  - Green only = 100 Mbps connection
  - Amber only = 1 Gb connection
- D RS-232 Port** — Use a 3-pole 3.5 mm captive screw connector to connect the host RS-232 cable for bidirectional RS-232 (±5V) serial control (see figure 5 for wiring). The default baud rate is 38400.



**Figure 4. RS-232 Wiring Example**

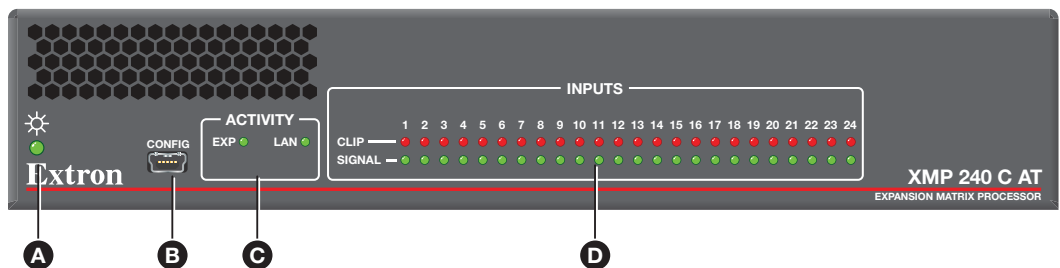
- E LAN Port** — One RJ-45 port provides a Gigabit network connection for control. The host PC or control system and the XMP 240 C AT must be connected to the same network. Two LEDs indicate status.

LAN defaults:

IP Address	Subnet Mask	Default Gateway	DHCP
192.168.254.254	255.255.255.0	0.0.0.0	OFF

- F Reset Button and LED** — The reset button returns the XMP 240 C AT to different tiers of default states. When using the reset button, the LED blinks to signify the different reset modes ([Hardware Reset Modes](#) on page 8). When not displaying reset modes, the LED operates as a power indicator, matching the front panel power LED.

## Front Panel Features



- A Power LED**
- B USB Config Port**
- C Activity Indicator LEDs**
- D Input Indicator LEDs**

**Figure 5. XMP 240 C AT Front Panel**

- A Power LED** — Blinks during boot up and lights steadily when the XMP 240 C AT is operational.
- B USB Config Port** — One USB mini-B port is used for configuration. This port can also be used for firmware updates.
- C Activity Indicator LEDs** — These green activity LEDs indicate port activity on the XMP 240 C AT:
  - EXP Indicator LED** —
    - On** — The unit is connected to a second EXP device and is configured as the primary unit.
    - Blinking** — The unit is not connected to a second device.
  - LAN Activity Indicator LED** — Blinks to indicate rear panel LAN port activity.
- D Input Indicator LEDs** — 24 stacked pairs of green and red LEDs display input signal presence and input signal clipping.

The green signal presence LED varies in brightness, corresponding to the real-time input signal level. It lights at -60 dBFS and increases in brightness until signal level reaches -3 dBFS. When the signal reaches or exceeds -3 dBFS, the red clip LED lights. The clip LED remains lit for 200 ms after the signal last clipped.

## Hardware Reset Modes

**NOTE:** The reset modes listed below close all IP connections, Telnet connections, and sockets.

### Mode 1 – Firmware Reset

Hold the **Reset** button (see **figure 2** on page 5) while applying power to restore the unit firmware back to the default factory firmware. This recovers a unit that has incorrect code or updated firmware running. All user files and settings are maintained.

### Mode 4 – IP Reset

With power on, press and hold the **Reset** button until the reset LED blinks twice (~6 seconds). Release the button and, within 1 second, press it again to reset all IP address settings to factory default.

The following changes take place:

- ARP program capability is enabled
- Sets IP addresses for LAN port back to factory default (192.168.254.254)
- Sets subnet masks for LAN port back to factory default (255.255.255.0)
- Sets gateways for LAN port back to factory default
- Turns DHCP off for LAN port

If a second momentary press does not occur within 1 second, Mode 4 is exited.

### Mode 5 – Factory Default Reset

With power on, press and hold the **Reset** button until the reset LED blinks 3 times (~9 seconds). Release the button and, within 1 second, press it again to return the XMP 240 C AT to factory default conditions.

The following changes take place:

- Sets all IP settings back to factory default (see Mode 4 above)
- Mix-points are set to unity gain (0 dB)
- All audio inputs are set to unity gain
- All outputs are unmuted and set to unity gain
- Any inserted or active DSP is removed
- All preset, group master, and macro memory is cleared

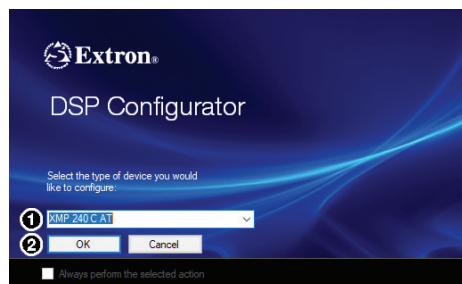
# DSP Configurator Software

The XMP 240 C AT has no front panel hardware controls. To configure and operate the XMP, use a PC running Microsoft® Windows® 7 or newer and Extron DSP Configurator software. This section describes Extron DSP Configurator software and covers the following topics:

- **Downloading and Installing DSP Configurator**
- **Accessing the DSP Configurator Help File**
- **DSP Configurator Main Workspace**
- **Menu Bar**
- **DSP Configurator Inputs**
- **Input Processing**
- **Virtual Returns**
- **Virtual Return Processing**
- **Mix-Points**
- **DSP Configurator Outputs**
- **Outputs**
- **Output Processing**
- **Expansion Outputs**
- **Expansion Output Processing**
- **Virtual Send Bus**

## Downloading and Installing DSP Configurator

1. From [www.extron.com](http://www.extron.com), hover over the **Download** tab at the top of the page.
2. From the Featured Software list, select **DSP Configurator Software**.
3. From the DSP Configurator Software product page, click the blue **Download** button.
4. Select **Run** to run the DSP Configurator installer. Select **Save** to save the install file to run at a later time.
5. To run DSP Configurator from the default install location, click **Start > Programs > Extron Electronics > DSP Configurator > DSP Configurator**.
6. From the DSP Configurator splash screen drop-down menu (figure 10, **1**), select the model of XMP 240 C AT being connected to the host PC and click **OK** (**2**).





**Figure 6.** DSP Configurator Splash Screen

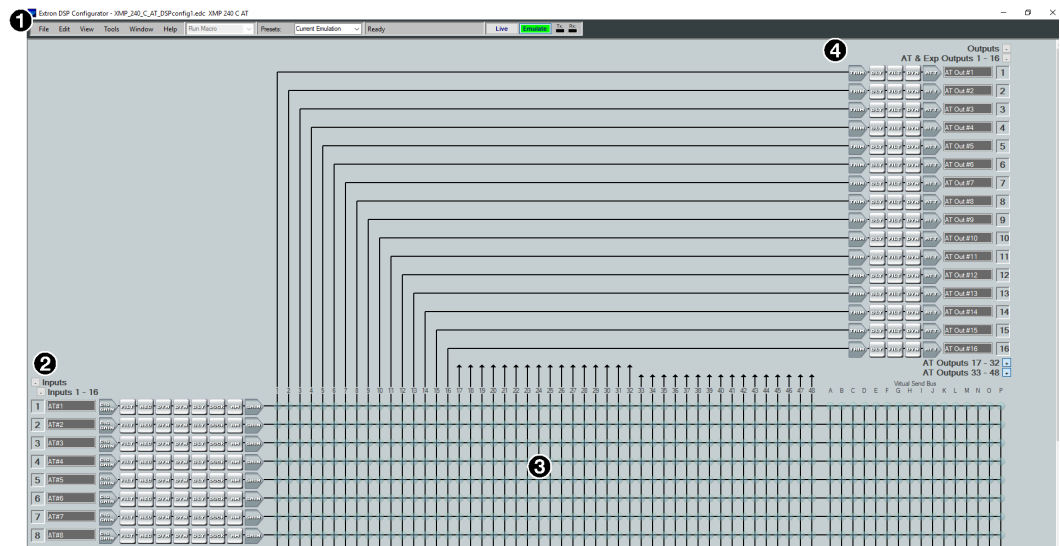


## Accessing the DSP Configurator Help File

DSP Configurator comes loaded with a context-sensitive help file that can be accessed by clicking the help icon ( ? ) in the top right corner of any dialog box in DSP Configurator. Alternatively, click **Help > Contents** in the menu bar at the top of the main workspace, or press **<F1>** on your keyboard. This help file contains detailed procedures and further instruction on all DSP Configurator features.

## DSP Configurator Main Workspace

The DSP Configurator main workspace can be divided up into four main sections (see figure 7). Each section contains various functions to configure the XMP 240 C AT. Due to the large number of inputs and outputs available on the XMP 240 C AT, not all channels can be viewed at the same time in a single window. Use the expand and collapse buttons (   ) next to the input and output group names to show or hide input and output groups and their corresponding mix matrices. If necessary, scroll through the window by using the mouse wheel or the scroll bar at the right side of the DSP Configurator main workspace.



1 **Menu Bar** on the next page

3 **Mix-Points** on page 47

2 **Inputs** on page 20

4 **Outputs** on page 51

**Figure 7. DSP Configurator Main Workspace**

# Menu Bar

## File

1	New	Ctrl+N
2	Open	Ctrl+O
3	Save	Ctrl+S
4	Save As	
5	Export Single Device	
6	Backup	
7	Recent Files	
8	Exit	

**Figure 8. File Menu**

1 **New** — Opens a new configuration file. This option is only available in Emulate mode (**Emulate Mode** on page 17). If the current configuration has not been saved, the **Save** dialog box opens and asks to save the current configuration before a new configuration is opened. Click **Yes** to save the current configuration. Click **No** to delete the current configuration and open the new configuration. Click **Cancel** to return to the current configuration.

2 **Open** — Opens an existing configuration or template file. When selected, the **Browse** dialog box opens to search for saved configuration or template files. Double-click a configuration or template file to load it.

**NOTE:** Configuration files have a .EDC file extension and template files have a .EDCT file extension.

3 **Save** — Saves the current configuration to a configuration file. If this is the first time the configuration is being saved, the **Save Configuration As...** dialog box opens. Enter a name and save location for the configuration file.

**TIP:** It is best to create and save configuration files while in Emulate mode.

4 **Save As** — Saves the current configuration file under a new name and location or as a template file. When selected, the **Save Configuration As...** dialog box opens.

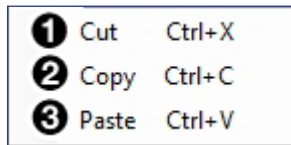
5 **Export Single Device** — Saves the currently selected device in Device Manager as a configuration file. This function is used to save an individual device when there are multiple devices listed in the Device Manager (**Device Manager** on page 76).

6 **Backup** — Recalls and transfers all partial presets of a XMP 240 C AT to the configuration file or template file within DSP Configurator.

7 **Recent Files** — Lists the five most recently opened configuration files. These files can be selected and loaded into DSP Configurator.

8 **Exit** — Closes DSP Configurator. If the current configuration has not been saved, the **save** dialog box opens and prompts the user to save the current configuration before closing the software. Click **Yes** to save the file. Click **No** to exit the application without saving. Click **Cancel** to return to the main workspace and keep the software running.

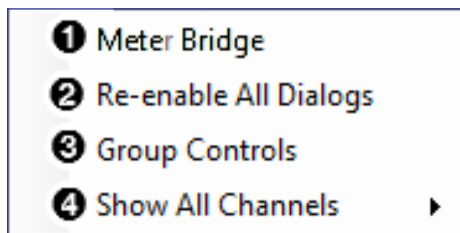
## Edit



**Figure 9. Edit Menu**

- ❶ **Cut** — Removes the configuration of selected elements in the workspace to be pasted to other elements.
- ❷ **Copy** — Copies the configuration of selected elements in the workspace to be pasted to other elements.
- ❸ **Paste** — Applies the cut or copied configuration of elements to the selected elements in the workspace.

## View



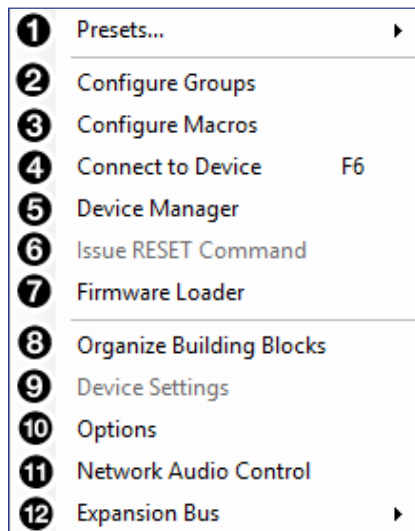
**Figure 10. View Menu**

- ❶ **Meter Bridge** — Opens a meter bridge to view input and output activity. The meter bridge is a floating window, allowing use of the DSP Configurator workspace while simultaneously monitoring input and output activity.

**NOTE:** The meter bridge is only available in Live mode with a TCP/IP connection.

- ❷ **Re-enable All Dialogs** — This option re-enables all dialog boxes that no longer appear based on user selection (certain dialog boxes that appear are user-defeatable by selecting a checkbox that reads **Do Not Show This Dialog Again**).
- ❸ **Group Controls** — Opens the **Group Controls** dialog box to access existing group controls and add new groups.
- ❹ **Show All Channels** — Individual channels can be hidden by user selection. This provides options for the user to select which input and output groups are visible in the main workspace.

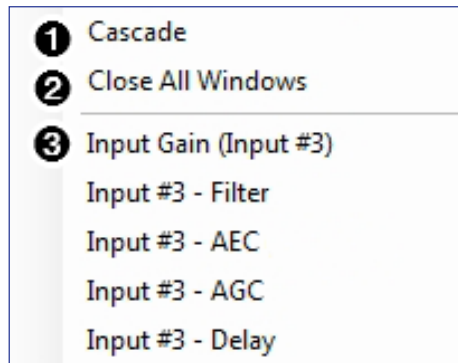
## Tools



**Figure 11. Tools Menu**

- 1 **Presets** — Contains a submenu to mark and clear elements in the main workspace as well as an option to save marked elements to a preset ([Presets](#) on page 67).
- 2 **Configure Groups** — Opens the `Configure Groups` dialog box to create, edit, and delete Gain, Mute, Bass, Treble, Loudness, and Meter Groups ([Groups](#) on page 69).
- 3 **Configure Macros** — Opens the `Configure Macros` dialog box for creating, editing, and deleting macro functions ([Macros](#) on page 72).
- 4 **Connect/Disconnect from Device** — When in Emulate mode, this reads **Connect to Device** and opens the `Connect to Device` dialog box ([Connect to or Disconnect from Device](#) on page 78). When in Live mode, this reads **Disconnect from Device** and returns the software to Emulate mode.
- 5 **Device Manager** — Opens the `Device Manager` dialog box ([Device Manager](#) on page 76).
- 6 **Issue RESET Command** — Clears the XMP 240 of all processors and other configuration settings. This command does not reset general settings such as IP address.
- 7 **Firmware Loader** — Opens the `Firmware Loader` application, if it is installed ([Firmware Loader](#) on page 79). Visit [www.extron.com](http://www.extron.com) to download the software.
- 8 **Organize Building Blocks** — Opens the `Organize Building Blocks` dialog box ([Organize Building Blocks](#) on page 82).
- 9 **Device Settings** — Opens the `Device Settings` dialog box to edit date and time, IP address, DHCP status, and other settings ([Device Settings](#) on page 83).
- 10 **Options** — Opens the `Options` dialog box to configure DSP Configurator appearance, default settings, DSP value defaults, and so on ([Options](#) on page 87).
- 11 **Network Audio Control** — Opens the `Dante Controller` application by Audinate for routing audio over a Dante network ([Dante Controller](#) on page 89).
- 12 **Expansion Bus** — Contains a submenu to show that the XMP 240 is set as the primary unit ([Expansion Bus](#) on page 88).

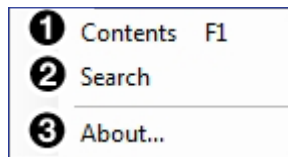
## Window



**Figure 12. Window Menu**

- 1 Cascade** — Organizes windows by cascading them in the same order they were opened.
- 2 Close All Windows** — Closes all open windows, leaving only the main workspace visible. When all windows are closed, changes to parameters in the open windows are saved before the window is closed.
- 3 List of Open Windows** — Below the dividing line is a list of all open windows. Select a window from the list to bring it into focus and to the forefront of the workspace. Windows appear in the order they were opened.

## Help



**Figure 13. Help Menu**

- 1 Contents** — Opens the *DSP Configurator Help* file where detailed information about DSP Configurator can be found.
- 2 Search** — Opens the *DSP Configurator Help* file with the **Search** field in focus.
- 3 About** — Opens a window displaying software version number, copyright information, and part number for the installed copy of DSP Configurator. Click the **Details** button for a list of advanced details, such as build number.

## Macros Drop-Down

The **Run Macro** drop-down menu is available when connected to the XMP 240 C AT in Live mode. The drop-down list is unavailable in Emulate mode.

The **Run Macro** drop-down list allows the user to view and run all macros that have been pushed to the device. The list of macros updates dynamically when a new macro is created. Macros created in DSP Configurator that have not been pushed to the device appear in the list with an asterisk to the right of the macro name. Only macros that have been pushed to the device can be run from the **Run Macro** drop-down list ([Macros](#) on page 72 for information on configuring macros).

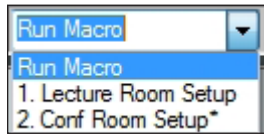


Figure 14. Macros Drop-Down Menu

## Presets Drop-Down

The **Presets** drop-down menu allows the user to view and apply presets saved in the current configuration file or on a device connected in Live mode. Presets with an asterisk next to them are on the XMP 240 C AT, but not in the current configuration file. Run a preset to load it into the configuration file. Alternatively, perform a backup to run all presets and load them into the current configuration file ([File](#) on page 12).

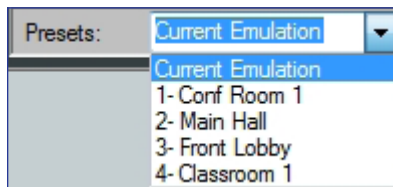


Figure 15. Presets Drop-Down Menu

After selecting a preset from the list, choose one of the following actions from the DSP Configurator status panel:

**Recall** — Recalls the selected preset and applies settings to the main workspace.

**Cancel** — Cancels the preset recall and returns to the main workspace with the current emulation or state intact.

**Delete** — Deletes the selected preset from the configuration.



Figure 16. Preset and Action Selection

## DSP Configurator Status Panel

This panel displays the current status of DSP Configurator and shows when data is being pushed to or pulled from the device. When the software is ready to perform actions, the panel reads *Ready*.



Figure 17. DSP Configurator Status Panel

## Live and Emulate Panel

The **Live** and **Emulate** buttons allow users to switch between Live and Emulate mode and displays transmit activity (Tx) and receive activity (Rx) when in Live mode.

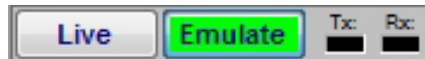


Figure 18. Mode Panel

### Emulate Mode

While in Emulate mode, DSP Configurator is functioning in an “offline” state. Changes made to the configuration file are not applied to a XMP 240 C AT.

In Emulate mode, the user can create and configure the software as though a device was connected, except for any actions that require direct connection to the device or information that is stored only on the device. Once configuration is complete, the user can switch to Live mode and apply the configuration to the device or save the configuration file to be loaded onto one or multiple devices at a later time.

Creating configuration files in Emulate mode saves time by not requiring a device to be connected or present in order for the bulk of DSP configuration to be completed.

**NOTE:** Not all menu options or actions are available in Emulate mode.

### Live Mode

Enter Live mode to connect to a XMP 240 C AT and push or pull configurations between the device and host PC. In Live mode, changes made in DSP Configurator are directly applied to the XMP 240 C AT. Additionally, presets and macros can be created and stored on the device.

When entering Live mode, the user is prompted with the **Connect to device** dialog box.

### Connect to a XMP 240 C AT in Live Mode

1. Click the **Live** button in the menu bar of DSP Configurator (see figure 19 , ①). Alternatively, select **Tools > Connect to Device** or press <F6> on the keyboard. The **Connect to device** dialog box opens.

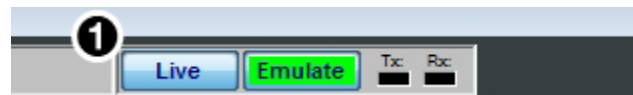


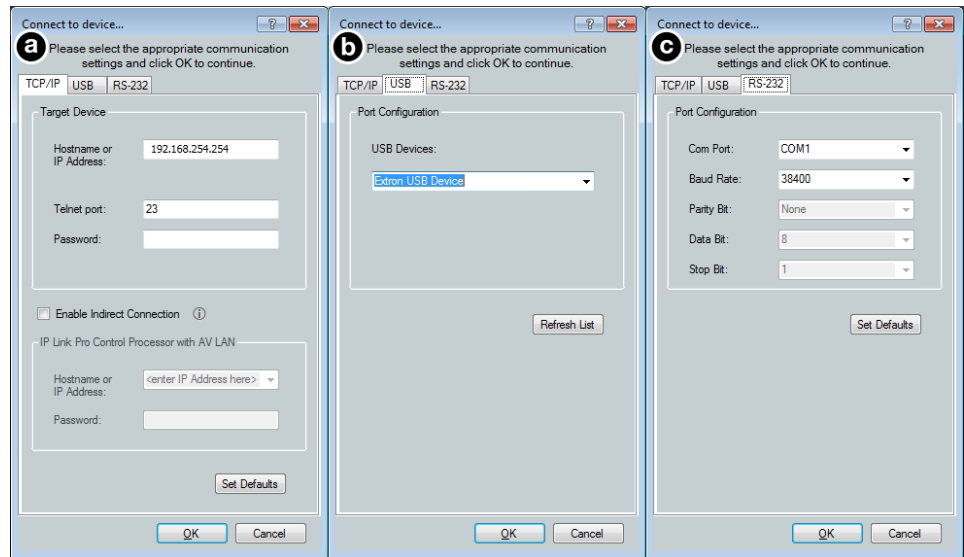
Figure 19. Live Button

2. Connect to the XMP 240 C AT.
  - a. **To connect via TCP/IP (recommended):**

Click the **TCP/IP** tab in the dialog box. Enter the IP address of the device in the **Hostname or IP Address** field. If necessary, enter the device password in the **Password** field (see figure 20, a on the next page).
  - b. **To connect via USB:**

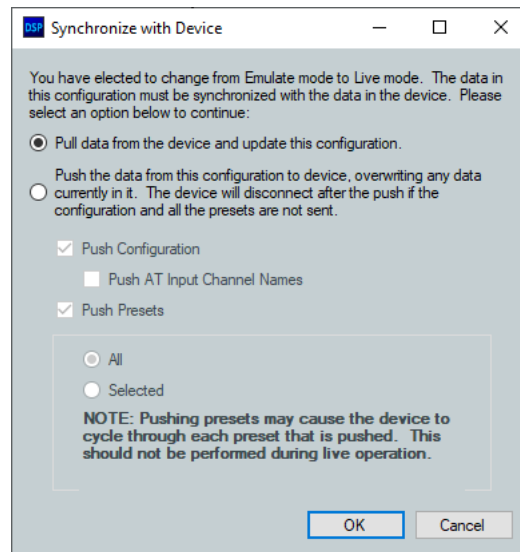
Click the **USB** tab in the dialog box. Select the device from the **USB Devices** drop-down menu (b).
  - c. **To connect via RS-232:**

Click the **RS-232** tab in the dialog box. Select the com port the device is connected to on the host PC from the **Com Port** drop-down (c).



**Figure 20. Connect to device... TCP/IP, USB, and RS-232 Dialog Box**

3. When a connection with a device is established, the Synchronize with Device dialog box opens.



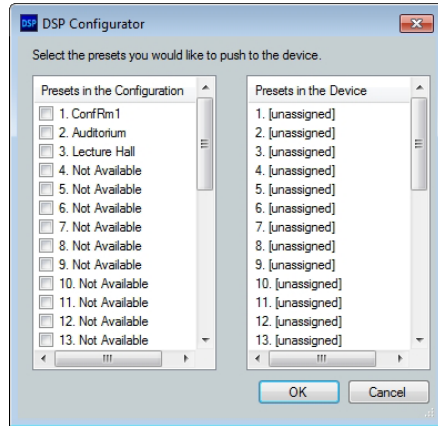
**Figure 21. Synchronize with Device Dialog Box**

- a. **Pull** — Pulls the configuration file, presets, macros, and ACP configurations from the device and displays it in the DSP Configurator main workspace.
- b. **Push** — Pushes the configuration file, presets, macros, and ACP configurations open in DSP Configurator to the connected XMP 240. The check boxes indicate what will be pushed when **OK** is selected. Pushing a selected item will overwrite that item on the device.

**NOTE:** If only pushing selected presets, the preset selection dialog box opens after clicking **OK**. This dialog allows you to select which preset to push to the device.



If only pushing selected presets, select them in the dialog box shown in the figure below.



**Figure 22. Preset Selection Dialog Box**

4. Once a push or pull is completed, the current state of the connected XMP 240 C AT is displayed in the DSP Configurator status panel and the device is ready for further configuration.

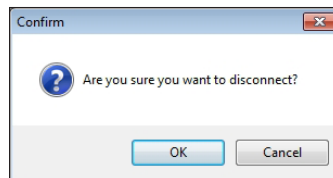
### Exit Live Mode and Enter Emulate Mode

1. Click the **Emulate** button in the DSP Configurator menu bar (see figure 23, ①). Alternatively, select **Tools > Disconnect from Device** or press <F6> on the keyboard.





**Figure 23. Emulate Button**

2. Click **OK** to confirm.



**Figure 24. Confirm Disconnect**

## DSP Configurator Inputs

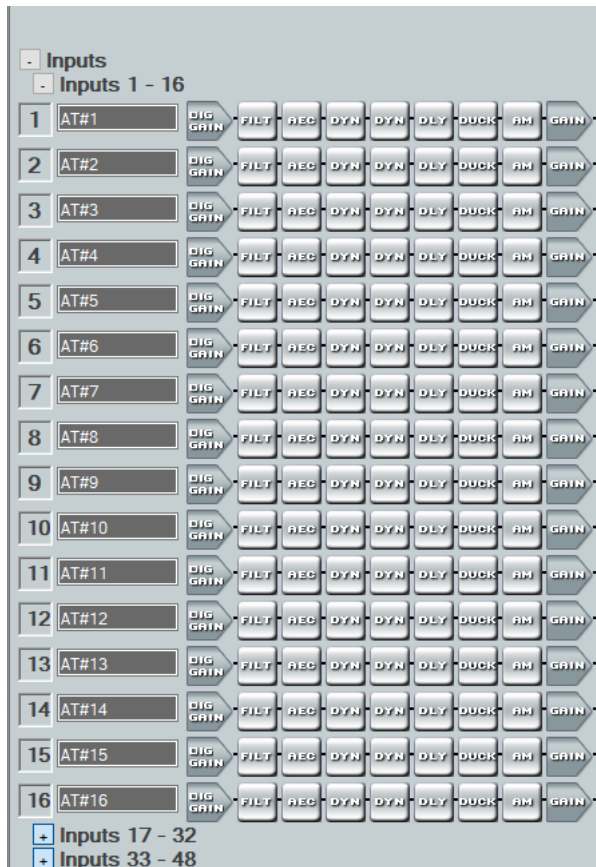
All available inputs are listed vertically along the left side of the DSP Configurator main workspace. The input groups can be expanded or collapsed by clicking the  (expand) or  (collapse) buttons next to the input group names.

There are two types of inputs available:

- **Inputs**
- **Virtual Returns**

## Inputs

The 48 mic/line input channels on the XMP 240 are shown in DSP Configurator under the Inputs panel.



**Figure 25. Inputs**

Inputs 1 - 24 offer AEC (Acoustic Echo Cancellation) DSP capability. Inputs 25 - 48 do not have AEC. The 48 channels of Dante inputs and 16 channels of audio via the EXP port are available as digital sources for the XMP 240 inputs.

## Renaming an Input

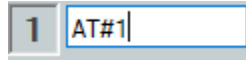
**NOTE:** Renaming an AT input in DSP Configurator affects the receiver name in Dante Controller. Alternatively, renaming a receiver channel in Dante Controller affects the name displayed in DSP Configurator (see [Renaming a Receiver or Transmitter](#) on page 93).

1. Click the expansion or input name field.



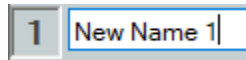
**Figure 26. Input Name Field**

2. Delete or highlight the text, and type the desired name.



**Figure 27. Input Name**

3. Press the <Enter> key or navigate away from the field to confirm and apply the new name. Press the <Down Arrow> key to navigate to and highlight the next name field.

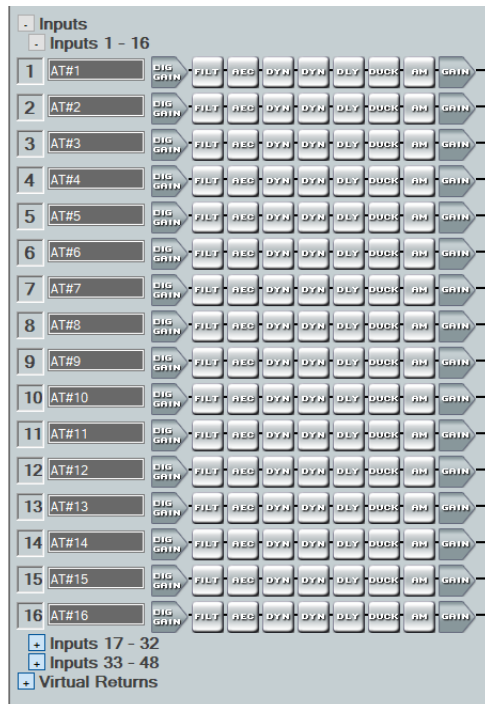


**Figure 28. Renamed Input**

## Inputs Overview

With the Extron Expansion Port (EXP), two EXP enabled devices can be connected for bidirectional communication. When two units are connected, one unit must be set as the Primary Unit and the other must be set as the Secondary Unit (see [Expansion Bus](#) on page 88). This synchronizes the sampling clocks of the two units.

AT inputs allow a XMP 240 C AT model to receive signal from the audio network. Network audio routing is done with Dante Controller (see [Dante Controller](#) on page 89).



**Figure 29. AT Inputs**

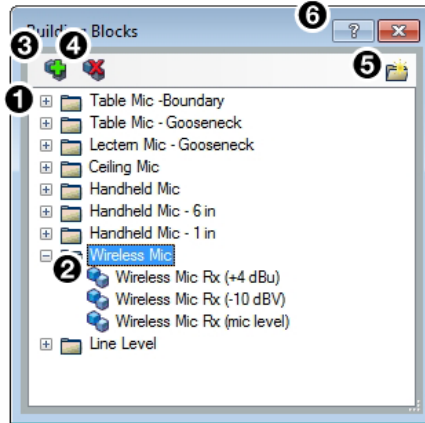
## Input Building Blocks

Extron building blocks are a quick configuration tool that can significantly reduce configuration time. An input building block is a collection of processor and gain settings for an input processing chain. These building blocks have been designed by Extron based on extensive use and testing with each intended application or specific device.



**Figure 30. Accessing Input Building Blocks**

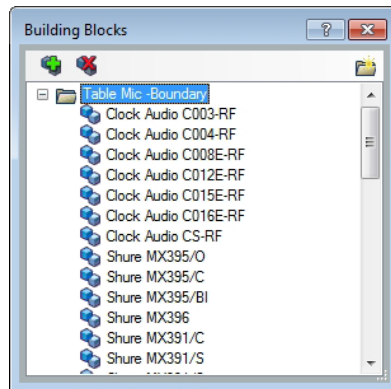
Click the input number (see figure 30) to open the Building Blocks dialog box.



- ① Building Block Folders
- ② General Building Blocks
- ③ Add a Building Block Button
- ④ Delete a Building Block Button
- ⑤ New Folder Button
- ⑥ Building Blocks Help Button

**Figure 31. Input Building Blocks Dialog Box**

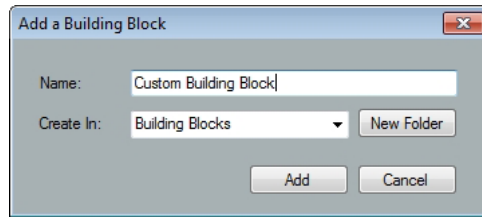
- ① **Building Block Folders** — These folders group input types together, such as table or handheld mics, for easy access (see figure 32).



**Figure 32. Mic Building Block Folder Contents**

- ② **General Building Blocks** — These building blocks provide quick setup for input sources. General building blocks provide a useful starting point for devices in the same product category as the name of the building block, such as handheld microphones, line level sources, and so on.

- ③ **Add a Building Block Button** — Creates a custom building block from the current gain and processor settings on the selected channel. When this button is clicked, the **Add a Building Block** dialog box opens. Name the new custom building block and choose a folder to save the block to, or create a new folder (see figure 33).



**Figure 33. Add a Building Block Dialog Box**

- ④ **Delete a Building Block Button** — Deletes the currently selected building block or building block folder. If default building blocks are deleted, they can be restored from the **Organize Building Blocks** dialog box. Custom building blocks can be saved to a file from the same dialog box (**Organize Building Blocks** on page 82).
- ⑤ **New Folder Button** — Creates a new folder or sub-folder in the **Building Blocks** dialog box.
- ⑥ **Building Blocks Help Button** — Opens the **Building Blocks** topic of the *DSP Configurator Help* file. This topic contains more information on the different types of building blocks for inputs and outputs.

## Input Processing

The input processing chain in DSP Configurator is visually represented by a string of blocks (see figure 34). Each block contains a specific processor or type of processor. For example, the **Input Gain** block contains a fader to boost or attenuate incoming signal, the **Filter** block contains several types of filters, and so on. Inputs 1 - 24 contain the following processing chain:

1. **Input Gain Block**
2. **Input Filter Block**
3. **Input AEC Block**
4. **Input Dynamics Blocks** (2)
5. **Input Delay Block**
6. **Input Ducking Block**
7. **Input Automix Block**
8. **Input Pre-Mixer Gain Block**



**Figure 34. Input 1 - 24 Processing Chain**

Inputs 25 - 48 contain the following processing chain:



**Figure 35. Input 25 - 48 Processing Chain**

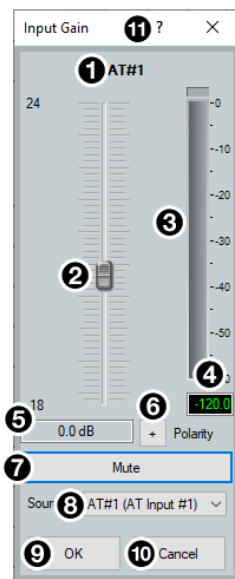
## Input Gain Block

Double-click the **DIG GAIN (Input Gain)** block to open the Input Gain dialog box.



**Figure 36. Input Gain Block**

The Input Gain dialog box provides controls to configure the input gain stage of the input processing path.



- ❶ **Input Name**
- ❷ **Gain Fader**
- ❸ **dBFS Meter**
- ❹ **dBFS Numeric Readout**
- ❺ **Input Gain Text Field**
- ❻ **Polarity Toggle Button**
- ❼ **Mute Button**
- ❽ **Source Drop-Down Menu**
- ❾ **OK Button**
- ❿ **Cancel Button**
- ⓫ **Input Gain Help Button**

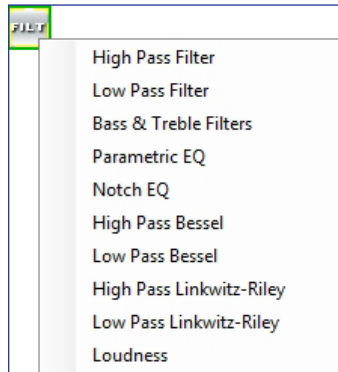
**Figure 37. Input Gain Dialog Box**

- ❶ **Input Name** — This name changes to match the default or user defined input name.
- ❷ **Gain Fader** — Provides up to 24 dB of gain or 18 dB of attenuation in 0.1 dB steps. Click the fader once and press the **<Up Arrow>** or **<Down Arrow>** keys to adjust the fader up or down in 1 dB steps. Press the **<Page Up>** or **<Page Down>** keys to adjust the fader up or down in 10 dB steps.
- ❸ **dBFS Meter** — This meter displays the input signal level in dBFS ranging from -60 dBFS to 0 dBFS. Once the signal reaches or passes -1 dBFS (default) or the clip threshold defined in the **Options** dialog box (**Options** on page 87), the clip box located at the top of the meter lights red.
- ❹ **dBFS Numeric Readout** — This read-only text box displays the numerical value of the input signal level in dBFS.
- ❺ **Input Gain Text Field** — This text field allows the user to enter a gain or attenuation value in 0.1 dB steps.
- ❻ **Polarity Toggle Button** — Inverts the signal polarity of the selected input. When the button displays the black + symbol on a gray field (⊕), the polarity is normal. When the button displays the black - symbol on a yellow field (⊖), the polarity is inverted.
- ❼ **Mute Button** — Mutes signal at the input stage, preventing it from going any further in the signal processing chain.
- ❽ **Source Drop-Down Menu** — Selects the input audio source for the channel. Source options are any of the 48 AT Inputs or 16 EXP inputs.
- ❾ **OK Button** — Confirms changes and closes the Input Gain dialog box.

- 10 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the **Input Gain** dialog box was opened and closes the dialog box.
- 11 **Input Gain Help Button** — Opens the **Mic/Line Input Gain** topic in the *DSP Configurator Help* file for further assistance in configuring input gain.

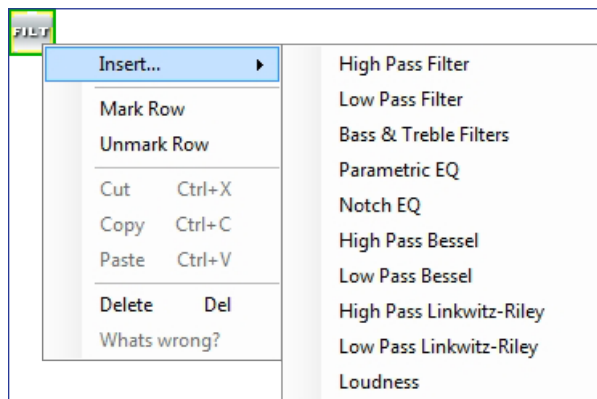
## Input Filter Block

Double-click the **Filter** block to open the filter drop-down menu. Select one of the eleven available filters to insert into the block.



**Figure 38. Filter Block and Drop-Down Menu**

Alternatively, right-click the **Filter** block and select **Insert**, then select a filter to insert it into the block.



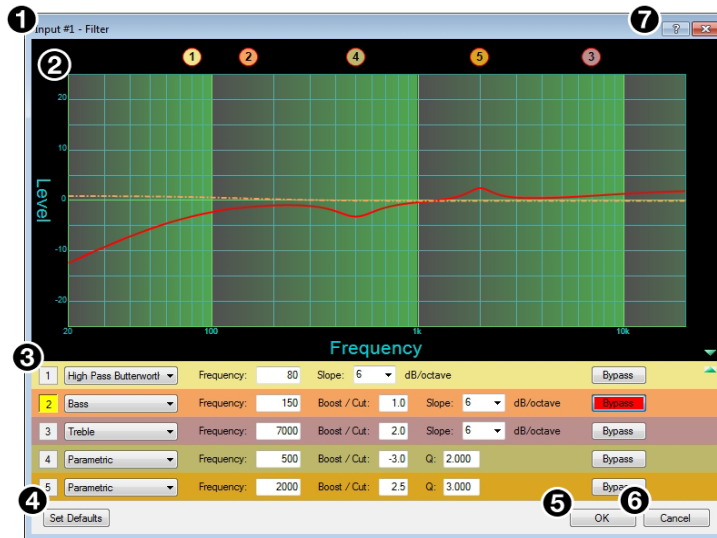
**Figure 39. Insert Filter Drop-Down Menu**

Once an initial filter is selected, the **Filter** block changes to display the type of filter applied. For example, if **High Pass Filter** is selected, the **Filter** block would display **HIGH PASS** instead of **FILT**. If multiple filters are applied, the **Filter** block displays **FILT** over a dark green field.



**Figure 40. Filter Block Icons**

Once a filter is applied to the **Filter** block, double-click the block to open the **Filter** dialog box.



- ① Filter Channel Name
- ② Filter Graph
- ③ Filter List
- ④ Set Defaults Button
- ⑤ OK Button
- ⑥ Cancel Button
- ⑦ Filters Help Button

**Figure 41. Filter Dialog Box**

① **Filter Channel Name** — This name changes to match the default or user defined input name.

② **Filter Graph** — Graphically displays the applied filter curve and provides handles for adjusting filter parameters. Numbers along the top of the graph represent the filter curve of the corresponding slot in the filter list below the graph. The number appears over the center frequency of the filter.

If a filter is active (unbypassed), it appears as a solid red curve. If a filter is bypassed, it appears as a broken orange curve (such as the bass filter in slot 2).

**NOTE:** All filters are bypassed by default.

③ **Filter List** — Provides filter drop-down menus for all 5 available filter slots. Frequency, Slope, Boost/Cut, Q, and Bypass controls are also available in this list.

Available filters include:

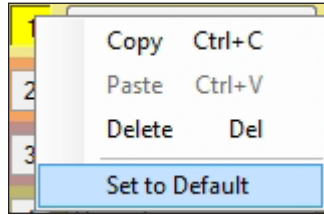
- High Pass Butterworth
- High Pass Linkwitz-Reilly
- Low Pass Butterworth
- Low Pass Linkwitz-Reilly
- Bass
- High Pass Bessel
- Treble
- Low Pass Bessel
- Parametric
- Loudness
- Notch

**NOTE:** See the *DSP Configurator Help* file for more information on each of the filters. Click the **Filters Help** button to open the help file topic discussing filters.



- 4 **Set Defaults Button** — Resets all filter parameters of all filters in the filter list to their default values.

To reset a single filter to default parameters, right-click the filter number on the left side of the **Filter** dialog box, and select **Set to Default** (see figure 42).



**Figure 42. Set Single Filter Parameters to Default**

- 5 **OK Button** — Confirms changes made to the contained parameters and closes the **Filter** dialog box.
- 6 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the **Filter** dialog box was opened and closes the dialog box.
- 7 **Filters Help Button** — Opens the **About Filters** topic in the *DSP Configurator Help* file. This help file topic discusses each filter type in greater detail.

## Input AEC Block

### About AEC

Echo occurs when audio from a talker in the far end is received and amplified into the near end listener’s room, with that sound then being picked up by microphones in the near end acoustic space and sent back to the far end. The amount of signal sent back to the far end talker can be substantial, and with the added transmission delay, the result is an echo effect that can seriously compromise communication in a teleconference or videoconference.

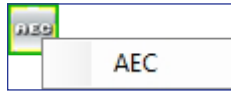
The Extron Acoustic Echo Cancellation (AEC) processor removes the potential echo signal at the near end mic channel by comparing it to the received signal from the far end, designated as the “reference,” and then creating an adaptive filter to cancel the potential echo before it is sent back to the far end.

Successful operation of the AEC processing block is mainly a function of proper gain structure and selection of an AEC reference. This section provides an overview of those two elements.

Proper gain structure involves the relationship between the signal at the selected reference and the signal at the mic input, within the context of proper levels for the reference and mic inputs independently. The mic input gain setting will naturally be optimized for the voice level of the talker in that room. Therefore, the amount of signal from the far end picked up by the mic is dependent on how much far end signal is being amplified in the near end room and the distance from the mic to the speakers.

## AEC Operation

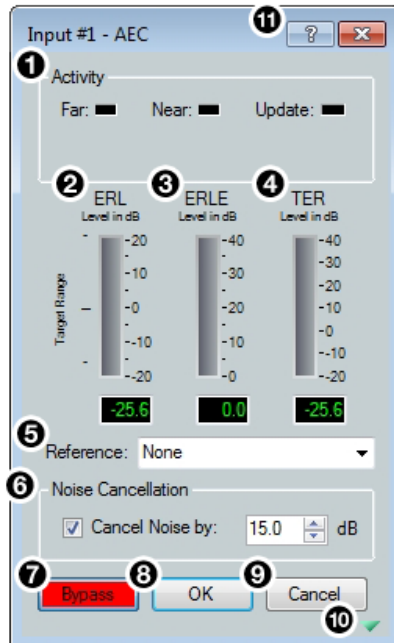
Double-click the **AEC** block to open the AEC drop-down menu. Select **AEC** to insert the AEC processor.



**Figure 43.** AEC Block and Drop-Down Menu

**NOTE:** Insert the AEC processor on the input with the near end microphone connected.

Once the AEC processor is inserted, double-click the **AEC** block to open the AEC dialog box.



- 1 Activity Panel
- 2 ERL Meter
- 3 ERLE Meter
- 4 TER Meter
- 5 Reference Selection Drop-Down
- 6 Noise Cancellation Panel
- 7 Bypass Button
- 8 OK Button
- 9 Cancel Button
- 10 Show/Hide Advanced Options Button
- 11 AEC Help Button

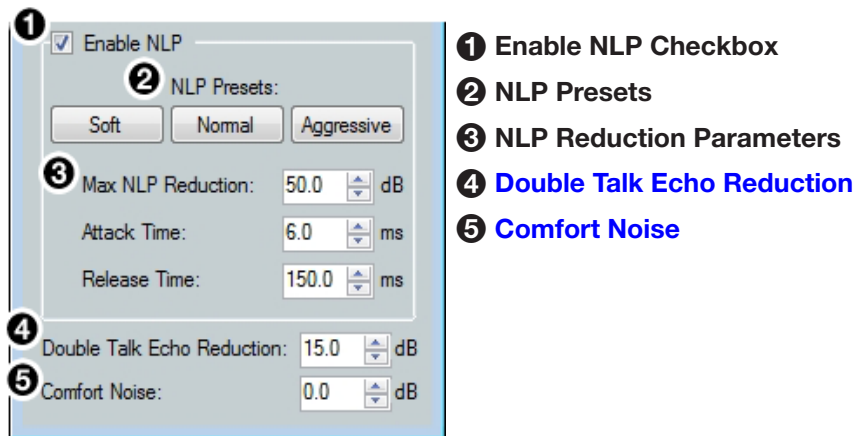
**Figure 44.** AEC Dialog Box

- 1 **Activity Panel** — Far lights when signal activity is detected from the far end. Near lights when activity is detected from the near end. Update lights when AEC is updating, converging, or reconverging.
- 2 **ERL Meter** — ERL (echo return loss) is the ratio of the far end signal at the reference input to the far end signal received at the mic input and is expressed in dB. This meter should read between -10 dB and +10 dB for proper AEC operation.
- 3 **ERLE Meter** — ERLE (echo return loss enhancement) is the amount of potential echo signal that the AEC algorithm is cancelling (not including NLP processing) and is expressed in dB.
- 4 **TER Meter** — TER (total echo reduction) is the sum of ERL and ERLE and represents the total amount of echo reduction and is expressed in dB.

- 5 **Reference Selection Drop-Down Menu** — (See [figure 44](#) on the previous page) Provides all inputs, outputs, and virtual returns for reference selection. When a channel is selected as the reference, the AEC processor compares the reference channel signal to the current input channel.
- 6 **Noise Cancellation Panel** — Provides a checkbox to engage the noise canceller (engaged by default) and text field to enter the amount of noise reduction in dB.
- 7 **Bypass Button** — Bypasses the AEC processor. When the button is red, bypass is enabled.
- 8 **OK Button** — Confirms changes made to the contained parameters and closes the AEC dialog box.
- 9 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the AEC dialog box was opened and closes the dialog box.
- 10 **Show/Hide Advanced Options Button** — Shows or hides the advanced configuration options for the AEC processor (AEC Advanced Options below).
- 11 **AEC Help Button** — Opens the *Acoustic Echo Cancellation* topic of the *DSP Configurator Help* file for further assistance in operating AEC processor.

## AEC Advanced Options

The AEC dialog box provides advanced NLP (non-linear processing) options for fine tuning echo cancellation. These options are hidden by default. Click the **Show/Hide Advanced Options** button to access them (see [figure 44](#), 10 on the previous page).



**Figure 45. AEC Advanced Options**

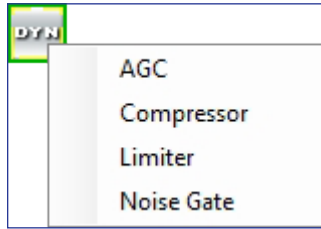
- 1 **Enable NLP Checkbox** — Checked by default, NLP (non-linear processing) is required to completely remove echo.
- 2 **NLP Presets** — Offers three preset options for NLP parameters.
  - **Soft** — Applies soft preset values to the NLP reduction parameters for light echo cancellation.
  - **Normal (default)** — Applies normal preset values to the NLP reduction parameters for the widest array of echo cancellation needs.
  - **Aggressive** — Applies aggressive preset values to the NLP reduction parameters for aggressive echo cancellation.
- 3 **NLP Reduction Parameters** — Provides text boxes for **Max NLP Reduction**, **Attack**

**Time**, and **Release Time** to customize NLP reduction parameters.

- 4 **Double Talk Echo Reduction** — Provides a text box to enter a reduction value (in dB) when double talk occurs. Double talk is when near end talkers and far end talkers are speaking simultaneously while AEC is engaged.
- 5 **Comfort Noise Text Box** — Provides an ambient noise signal to prevent states of complete silence that may be perceived as a failed or dropped connection. 0 dB is the default.

## Input Dynamics Blocks

Double-click the **Dynamics** block to open the dynamics drop-down menu.



**Figure 46. Dynamics Block and Drop-Down Menu**

From the **Dynamics** drop-down menu, four types of dynamics processors are available. Select a dynamics processor type to insert it into the **Dynamics** block.

There are two **Dynamics** blocks available per mic/line input channel. Each block can be configured with any of the processor types.

The four types of dynamics processors available are:

- **AGC (Automatic Gain Control)** on the next page
- **Compressor** on page 32
- **Limiter** on page 33
- **Noise Gate** on page 34

Once a dynamics processor is inserted, double-click the dynamics block icon to open the corresponding dialog box.



**Figure 47. AGC, Compressor, Limiter, and Noise Gate Icons**

If a dynamics processor has been inserted and needs to be changed to a different dynamics processor, right-click the dynamics block, hover over **Insert**, and select a new processor to insert it (see figure 48).

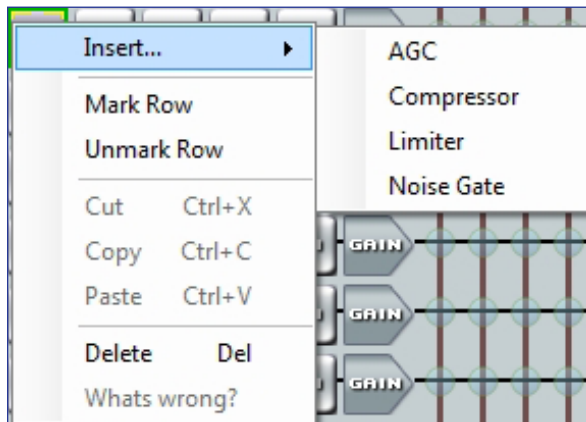


Figure 48. Changing Dynamics Processors

### AGC (Automatic Gain Control)

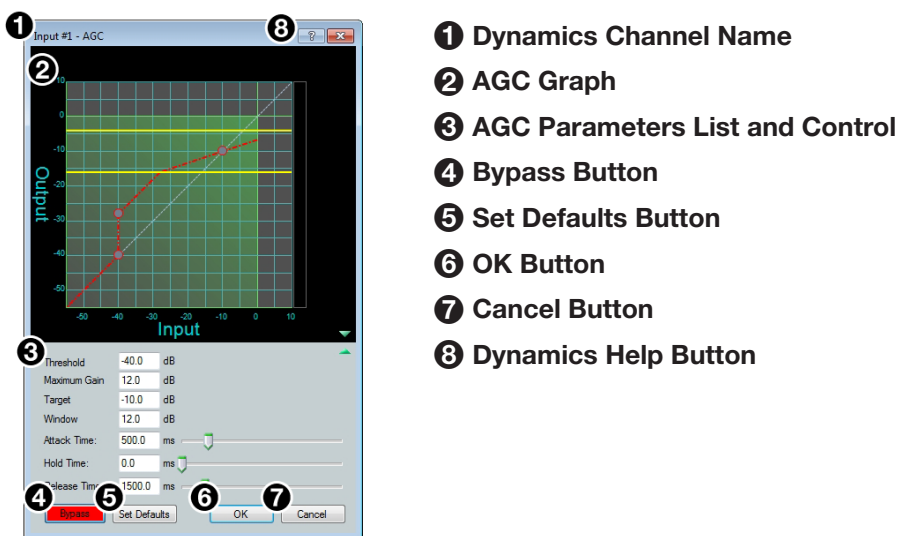
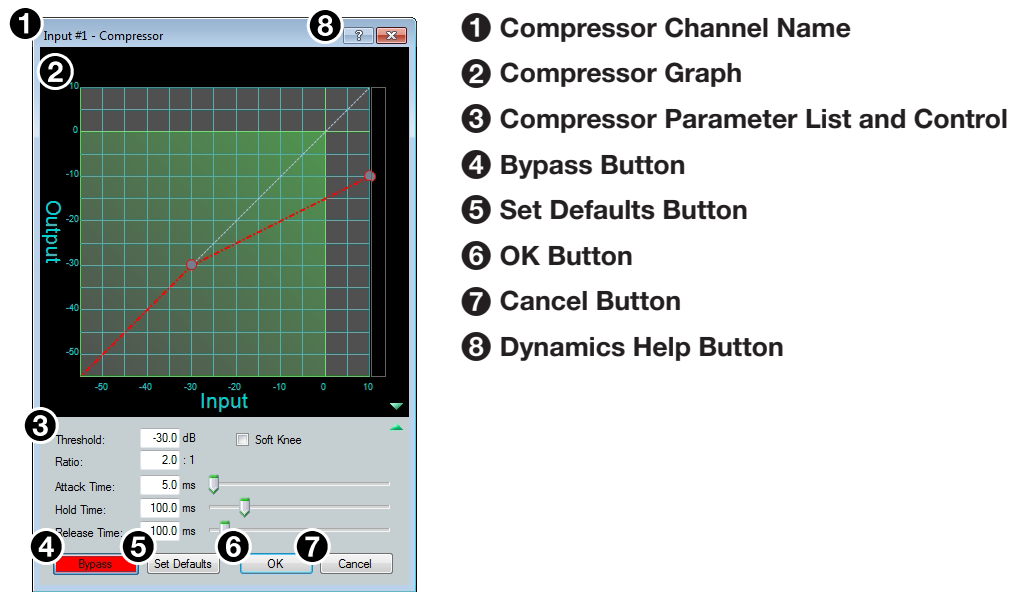


Figure 49. AGC Dialog Box

- 1 **Dynamics Channel Name** — This name changes to match the default or user defined input name.
- 2 **AGC Graph** — Graphically displays AGC parameter settings. Parameters can also be adjusted using this graph. Click and drag the yellow lines to adjust the **Window** parameter. Click and drag the bottom dot to adjust the **Threshold** parameter. Click and drag the middle dot to adjust the **Maximum Gain** parameter. Click and drag the top dot to adjust the **Target** parameter.
- 3 **AGC Parameters List and Control** — Provides text boxes to adjust all AGC parameters. **Attack Time**, **Hold Time**, and **Release Time** also have sliders that adjust their respective parameters. Click a slider once and use the **<Left Arrow>** and **<Right Arrow>** keys to adjust the respective parameter in 1 ms steps.
- 4 **Bypass Button** — Bypasses the AGC processor. When the button is red, bypass is enabled.
- 5 **Set Defaults Button** — Resets all AGC parameters to their default values. To view individual parameter default values, see the *DSP Configurator Help* file by clicking the **Dynamics Help** button (8) and opening the **About Dynamics** topic.
- 6 **OK Button** — Confirms changes made to the contained parameters and closes the AGC dialog box.
- 7 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the AGC dialog box was opened and closes the dialog box.
- 8 **Dynamics Help Button** — Opens the **Dynamics Operation** topic of the *DSP Configurator Help* file for further assistance in operating dynamics processors.

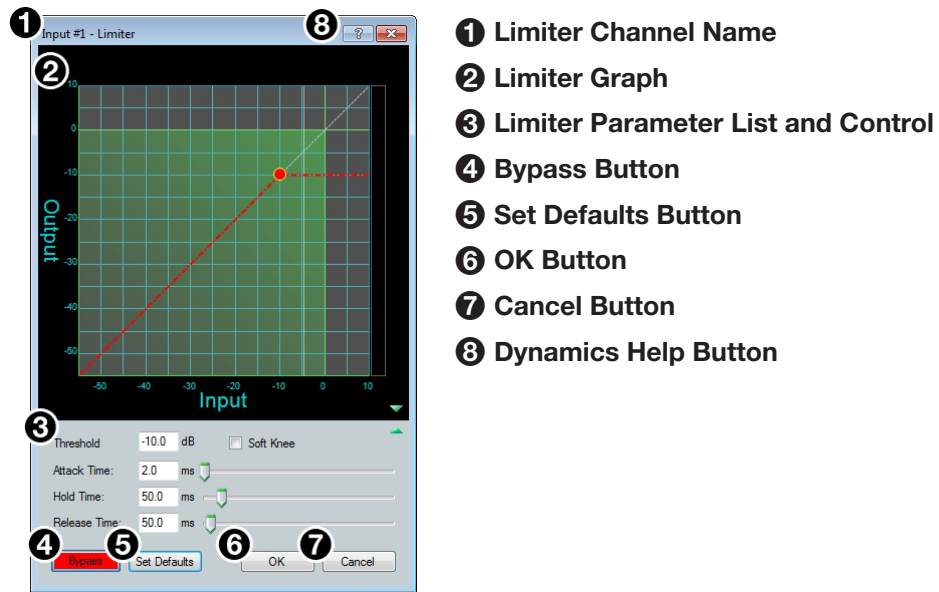
## Compressor



**Figure 50. Compressor Dialog Box**

- 1 Compressor Channel Name** — This name changes to match the default or user defined input name.
- 2 Compressor Graph** — Graphically displays compressor parameter settings. Parameters can also be adjusted using this graph. Click and drag the dot within the green area of the graph to adjust the compressor **Threshold**. Click and drag the dot outside the green box to adjust the compressor **Ratio**.
- 3 Compressor Parameter List and Control** — Lists all configurable parameters for the compressor. Text fields are available to adjust **Threshold**, **Ratio**, **Attack Time**, **Hold Time**, and **Release Time**. Click and drag sliders to adjust **Attack Time**, **Hold Time**, and **Release Time**. Click a slider once and use the **<Left Arrow>** and **<Right Arrow>** keys to adjust the respective parameter in 1 ms steps. Select the **Soft Knee** checkbox to provide a more natural implementation of compression when the signal reaches the threshold.
- 4 Bypass Button** — Bypasses the compressor. When the button is red, bypass is enabled.
- 5 Set Defaults Button** — Resets all compressor parameters to their default values. To view individual parameter default values, see the *DSP Configurator Help* file by clicking the **Dynamics Help** button (**8**) to open the **About Dynamics** topic.
- 6 OK Button** — Confirms changes made to the contained parameters and closes the Compressor dialog box.
- 7 Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the Compressor dialog box was opened and closes the dialog box.
- 8 Dynamics Help Button** — Opens the **Dynamics Operation** topic of the *DSP Configurator Help* file for further assistance in operating dynamics processors.

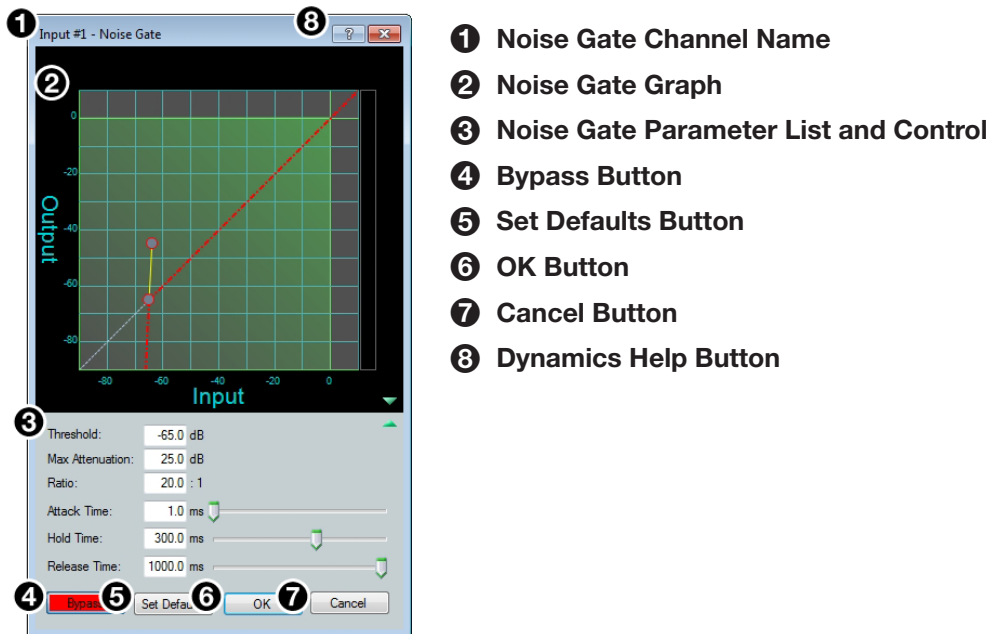
## Limiter



**Figure 51.** Limiter Dialog Box

- 1 Limiter Channel Name** — This name changes to match the default or user defined input name.
- 2 Limiter Graph** — Graphically displays limiter parameter settings. Parameters can also be adjusted using this graph. Click and drag the dot on the graph to adjust the limiter Threshold.
- 3 Limiter Parameter List and Control** — Lists all configurable parameters for the limiter. Text fields are available to adjust **Threshold**, **Attack Time**, **Hold Time**, and **Release Time**. Click and drag sliders to adjust **Attack Time**, **Hold Time**, and **Release Time**. Click a slider once and use the <Left Arrow> and <Right Arrow> keys to adjust the respective parameter in 1 ms steps. Select the **Soft Knee** checkbox to provide a more gradual implementation of limiting when the signal reaches the threshold.
- 4 Bypass Button** — Bypasses the limiter. When the button is red, bypass is enabled.
- 5 Set Defaults Button** — Resets all limiter parameters to their default values. To view individual parameter default values, see the *DSP Configurator Help* file by clicking the **Dynamics Help** button (8) and navigate to the **About Dynamics** topic.
- 6 OK Button** — Confirms changes made to the contained parameters and closes the Limiter dialog box.
- 7 Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the Limiter dialog box was opened and closes the dialog box.
- 8 Dynamics Help Button** — Opens the **Dynamics Operation** topic of the *DSP Configurator Help* file for further assistance in operating dynamics processors.

## Noise Gate



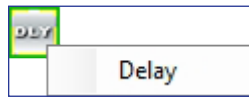
**Figure 52.** Noise Gate Dialog Box

- 1 Noise Gate Channel Name** — This name changes to match the default or user defined input name.
- 2 Noise Gate Graph** — Graphically displays noise gate parameter settings. Parameters can also be adjusted using this graph. Click and drag the upper dot to adjust **Ratio**. Click and drag the middle dot to adjust **Threshold**. Click and drag the bottom dot (out of view at default settings) to adjust **Max Attenuation**.
- 3 Noise Gate Parameter List and Control** — Lists all configurable parameters for the noise gate. Text fields are available to adjust **Threshold**, **Max Attenuation**, **Ratio**, **Attack Time**, **Hold Time**, and **Release Time**. Click and drag the sliders to adjust **Attack Time**, **Hold Time**, and **Release Time**. Click a slider once and use the <Left Arrow> and <Right Arrow> keys to adjust the respective parameter in 1 ms steps.
- 4 Bypass Button** — Bypasses the noise gate. When the button is red, bypass is enabled.
- 5 Set Defaults Button** — Resets all noise gate parameters to their default values. To view individual parameter default settings, see the *DSP Configurator Help* file by clicking the **Dynamics Help** button (**8**) and navigate to the **About Dynamics** topic.
- 6 OK Button** — Confirms changes made to the contained parameters and closes the Noise Gate dialog box.
- 7 Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the Noise Gate dialog box was opened and closes the dialog box.
- 8 Dynamics Help Button** — Opens the **Dynamics Operation** topic of the *DSP Configurator Help* file for further assistance in operating dynamics processors.



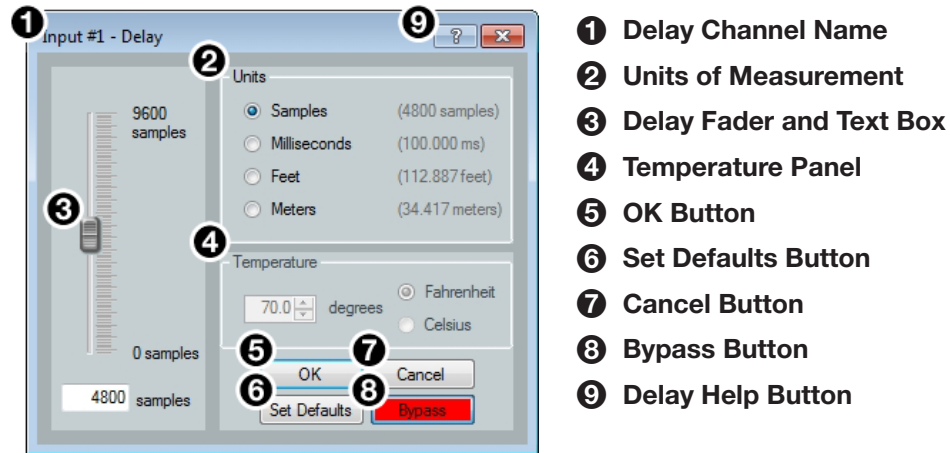
## Input Delay Block

Double-click the **De1ay** block to open the delay drop-down. Click **De1ay** to insert the delay processor into the block.



**Figure 53. Delay Block and Drop-Down Menu**

Once a delay processor is inserted into the **De1ay** block, double-click the block to open the **De1ay** dialog box.



**Figure 54. Delay Dialog Box**

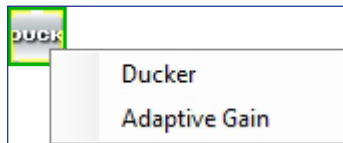
- 1 Delay Channel Name** — This name changes to match the default or user defined input name.
- 2 Units of Measurement** — Radio buttons change the unit of measurement used by the delay fader and text box. **Samples**, **Milliseconds**, **Feet**, and **Meters** are available units of measurement. Values are converted when the unit of measurement is changed. Changing the unit of measurement does not alter the amount of delay applied to the signal.
- 3 Delay Fader and Text Box** — Adjusts the amount of delay applied to the signal. Click and drag the fader up or down to increase or decrease the amount of delay. Click the fader once and use the **<Up Arrow>** or **<Down Arrow>** to adjust delay in 1 sample steps (or the 1 sample equivalent in milliseconds, feet, or meters). Use the text box below the fader to input a delay value.
- 4 Temperature Panel** — Becomes available when using delay in feet or meters. Compensates delay for ambient temperature in the acoustic space. Temperature is not available when using samples or milliseconds as the unit of measurement.
- 5 OK Button** — Confirms changes made to the contained parameters and closes the **De1ay** dialog box.
- 6 Set Defaults Button** — Resets the delay to 4800 samples.
- 7 Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the **De1ay** dialog box was opened and closes the dialog box.
- 8 Bypass Button** — Bypasses the delay. When the button is red, bypass is enabled.
- 9 Delay Help Button** — Opens the **De1ay Operation** topic of the *DSP Configurator Help* file for further assistance in understanding operating the delay processor.

## Input Ducking Block

The duck block contains a ducking processor as well as an adaptive gain processor.

- **Ducker** (see the next page) — Decreases levels on specified channels when signal is present above a set threshold on the duck source (trigger).
- **Adaptive Gain** (see page 38) — Increases levels on specified channels when signal is present above a set threshold on the adaptive gain source channel (trigger).

Double-click the **Duck** block to open the drop-down menu where the **Ducker** and **Adaptive Gain** processors can be selected.



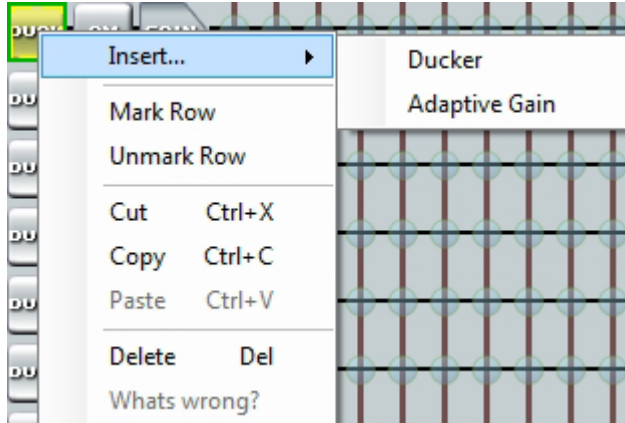
**Figure 55. Duck Block and Drop-Down Menu**

Select **Ducker** to insert a ducking processor into the duck block. Select **Adaptive Gain** to insert an adaptive gain processor into the duck block. Depending on the processor selected, the duck block displays **DUCK** for a ducker or **AG** for adaptive gain.



**Figure 56. Ducking Block Icons**

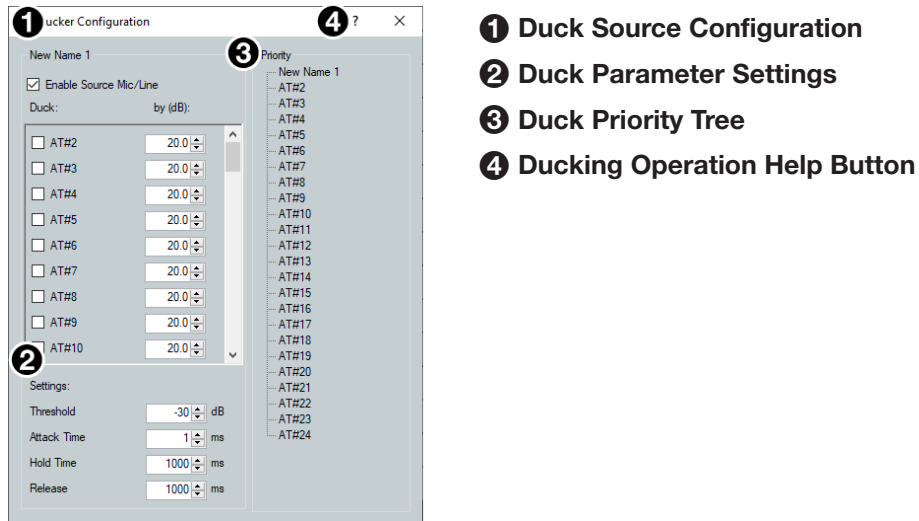
If a ducking processor has been inserted and needs to be changed to an adaptive gain processor, or vice versa, right-click the block and hover over **Insert** to insert a different processor (see figure 57).



**Figure 57. Changing Ducking Processor**

## Ducker

After inserting a ducker processor, double-click the **Duck** icon to open the Ducker Configuration dialog box.

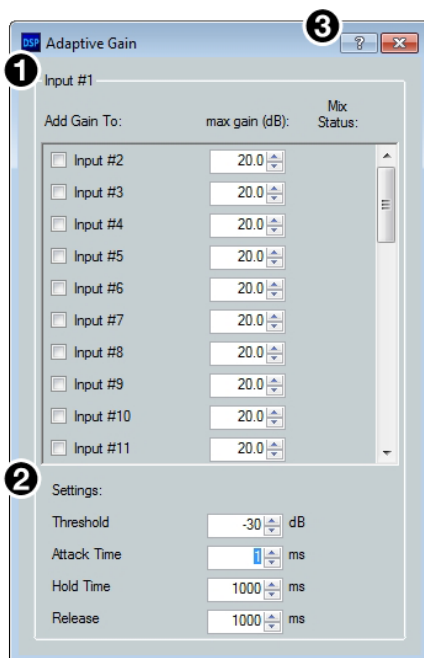


**Figure 58. Ducker Configuration Dialog Box**

- 1 Duck Source Configuration** — The **Enable Source Mic/Line** checkbox is checked when a ducker is inserted (default). In the **Duck** column, check the inputs that will be ducked. In the **by (dB)** column, enter the amount of ducking that will occur on each channel selected in the **Duck** column. When the threshold is exceeded on the duck source, ducking occurs on the selected channels.
- 2 Duck Parameter Settings** — Contains controls for setting **Threshold**, **Attack Time**, **Hold Time**, and **Release**. Click the **Ducking Operation Help** button (4) to open the **Ducking Operation** topic in the *DSP Configurator Help* file.
- 3 Duck Priority Tree** — Displays the ducking priority for all **Input** and **Aux In** channels. Select another input to populate the **Ducker Configuration** dialog with the ducker information for that channel. Channels with an adaptive gain processor are appended with an (AG). Channels with adaptive gain processors cannot be selected from this dialog box.
- 4 Ducking Operation Help Button** — Opens the **Ducking Operation** topic of the *DSP Configurator Help* file for further assistance in ducker configuration.

## Adaptive Gain

After inserting an adaptive gain processor, double-click the **AG** icon to open the Adaptive Gain dialog box.



- 1 Adaptive Gain Source Configuration
- 2 Adaptive Gain Parameter Settings
- 3 Adaptive Gain Operation Help Button

**Figure 59.** Adaptive Gain Dialog Box

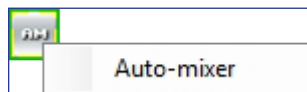
- 1 **Adaptive Gain Source Configuration** — In the **Add Gain To** column, check the inputs that will have gain added by the adaptive gain processor. In the **Max Gain (dB)** column, enter the maximum amount of gain that will be applied to each channel selected in the **Add Gain To** column. When a box is checked, gain is applied to that channel when signal exceeds the threshold on the adaptive gain trigger channel.

**NOTE:** For every 1 dB of signal beyond the level set in the **Threshold** field, 1 dB of gain will be added to the channels selected in the **Add Gain To** column. This occurs until the maximum gain set in the **Max Gain (dB)** field has been applied.

- 2 **Adaptive Gain Parameter Settings** — Contains controls for **Threshold**, **Attack Time**, **Hold Time**, and **Release Time**.
- 3 **Adaptive Gain Operation Help Button** — Opens the **Adaptive Gain Operation** topic of the *DSP Configurator Help* file for further assistance in adaptive gain configuration.

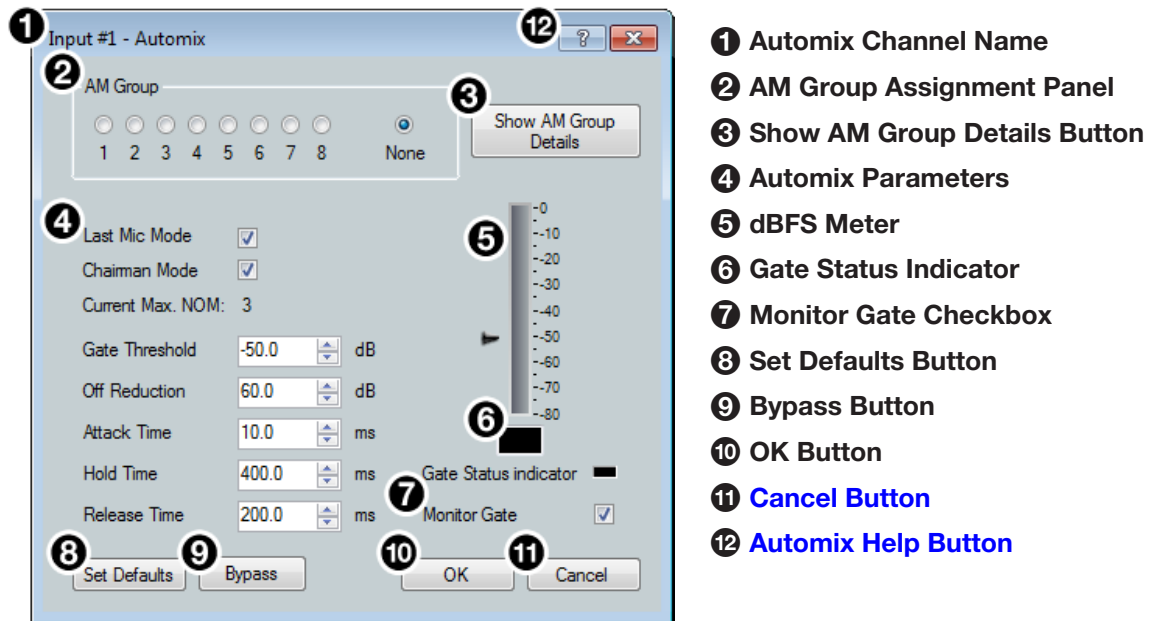
## Input Automix Block

Double-click the **Automix** block to open a drop-down menu. Select **Auto-mixer** to insert the automix processor into the block.



**Figure 60. Automix Block and Drop-Down**

Once the automix processor is inserted into the **Automix** block, double-click the block to open the **Automix** dialog box.



**Figure 61. Automix Dialog Box**

- 1 Automix Channel Name** — This name changes to match the default or user-defined input name.
- 2 AM Group Assignment Panel** — Provides nine radio buttons to assign the current automix processor to an AM (automix) group. The default is **None** and leaves the automixer unassigned.
- 3 Show AM Group Details Button** — Opens the **Automix Groups** dialog box (click the **Automix Help** button for more information regarding **Automix Groups**).
- 4 Automix Parameters** — Provides configuration controls for all automix parameters.
- 5 dBFS Meter** — Displays the post-automix signal level.
- 6 Gate Status Indicator** — This LED lights when monitoring is enabled and the gate is open.
- 7 Monitor Gate Checkbox** — Click the **Monitor Gate** checkbox to enable SIS responses regarding gate status (see **Automixer Gate Monitoring** on the next page).
- 8 Set Defaults Button** — Resets all automix parameters to their default settings.
- 9 Bypass Button** — Bypasses the automix processor. When the button is red, bypass is enabled.
- 10 OK Button** — Confirms changes made to the contained parameters and closes the **Automix** dialog box.

- 11 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the Automix dialog box was opened and closes the dialog box.
- 12 **Automix Help Button** — Opens the Automix topic of the *DSP Configurator Help* file for further assistance in configuring the automix processor.

### Automixer Gate Monitoring

Automixer gate monitoring allows the user to track when an automixer gate opens or closes. This feature can be enabled by checking the **Monitor Gate** checkbox in an Automix dialog (figure 61, 7 on the previous page). When automixer gate monitoring is enabled for a channel, an unsolicited message is sent when the gate has opened or closed. The response will include the Automixer OID, gate open or closed status, and the signal level immediately after the status has changed (see **Automixer Gate Monitoring** on page 125 for SIS response syntax).

Comparing the automixer gate threshold setting to the gate status in the response will indicate whether the automixer gate has opened or closed. When the gate status in the response is 1024 or greater, the gate has opened, and when the gate status in the response is less than 1024, the gate has closed.

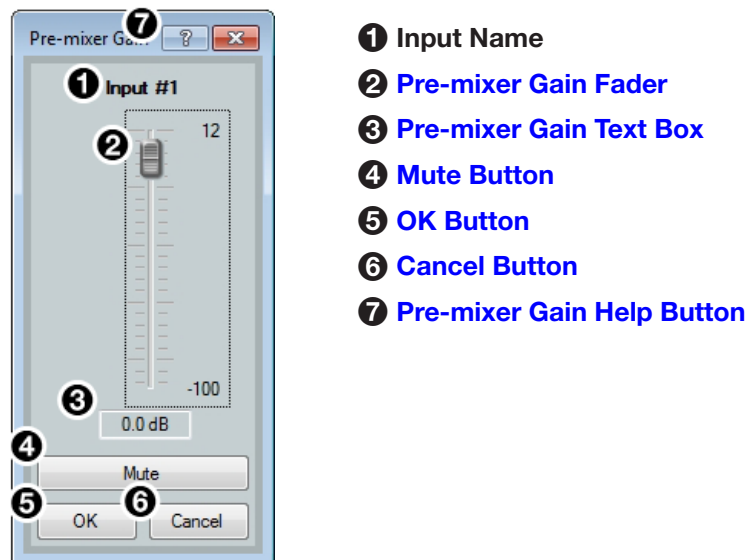
## Input Pre-Mixer Gain Block

Double-click the pre-mixer **Gain** block to open the Pre-mixer Gain dialog box.



**Figure 62. Input Pre-mixer Gain Block**

The Pre-mixer Gain dialog box provides controls to boost, attenuate, and mute the signal after input processing occurs and before it is sent to the mix matrix.



**Figure 63. Input Pre-mixer Gain Dialog Box**

- 1 **Input Name** — This name changes to match the default or user defined input name.

- 2 **Pre-mixer Gain Fader** — Click and drag the gain fader to provide up to 12 dB of gain or 100 dB of attenuation in 1 dB steps. Click the fader and use the <Up Arrow> or <Down Arrow> keys to adjust the fader up or down in 1 dB steps.
- 3 **Pre-mixer Gain Text Box** — Enter a gain or attenuation value in 0.1 dB steps.
- 4 **Mute Button** — Mutes signal at the pre-mixer stage, preventing it from reaching the mix matrices.
- 5 **OK Button** — Confirms changes made to the contained parameters and closes the Pre-mixer Gain dialog box.
- 6 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the Pre-mixer Gain dialog box was opened and closes the dialog box.
- 7 **Pre-mixer Gain Help Button** — Opens the Pre-mixer Gain topic of the *DSP Configurator Help* file for further assistance in understanding operating the Pre-mixer Gain dialog.

## Virtual Returns

Virtual returns receive signal when inputs are routed to the virtual send bus (see [Virtual Send Bus](#) on page 55). Sixteen virtual return channels are available and are labeled A through P. These channels can be used in a number of applications. For example, they can act as an AEC reference channel or be used for sub-mix processing.



Figure 64. Virtual Returns Input Panel

## Renaming a Virtual Return

1. Click the virtual return name field.



**Figure 65. Virtual Return Name Field**

2. Delete or highlight the text and type the desired name.



**Figure 66. New Virtual Return Name**

3. Press the <Enter> key or navigate away from the field to confirm and apply the new name. Press the <Down Arrow> key to navigate to and highlight the next name field.



**Figure 67. Renamed Virtual Return**

## Virtual Return Building Blocks

Building blocks can be applied to all 16 virtual return channels (see [Input Building Blocks](#) on page 22 for more information on configuring virtual return building blocks).

## Virtual Return Processing

Virtual returns A through H contain the following signal processing chain:

1. **Virtual Return Feedback Suppressor Block**
2. **Virtual Return Filter Block**
3. **Virtual Return Dynamics Block**
4. **Virtual Return Delay Block**
5. **Virtual Return Pre-Mixer Gain Block**

Virtual returns I through P contain the following signal processing chain:

1. **Virtual Return Filter Block**
2. **Virtual Return Dynamics Block**
3. **Virtual Return Delay Block**
4. **Virtual Return Pre-Mixer Gain Block**

**NOTE:** Only Virtual Return channels A through H contain Feedback Suppression processing blocks.

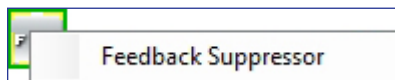


## Virtual Return Feedback Suppressor Block

Use the feedback suppressor when there is an indication of feedback during live operation. Dynamic filters automatically detect feedback on a live mic channel, and engage a set of up to 5 fixed and 15 dynamic filters to counteract feedback at the detected frequencies. The dynamic filters act in a “first in, first out” rotation. If all 15 dynamic filters are employed and an additional feedback frequency is detected, the first feedback frequency detected is overwritten.

To avoid a new feedback frequency overwriting a previously detected frequency, up to 5 dynamic filters can be transferred into fixed filters. Once a dynamic filter is transferred into a fixed filter, it can only be overwritten by manually assigning a new frequency to the filter.

Double-click the feedback suppressor block to show the feedback suppressor drop-down menu. Select **Feedback Suppressor** to insert a feedback suppressor processor into the signal chain.



**Figure 68. Feedback Suppressor Block and Drop-Down Menu**

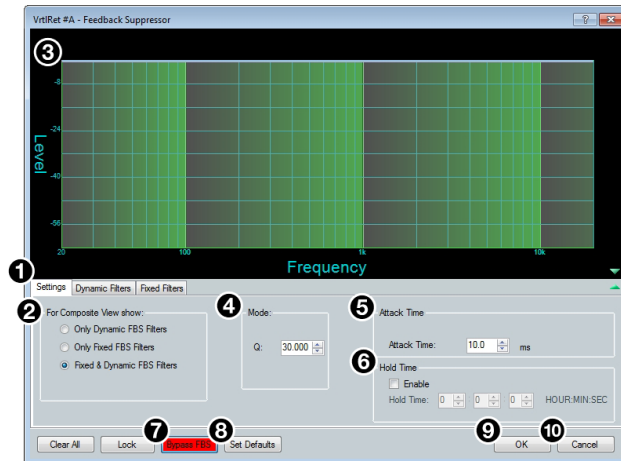
After inserting the feedback suppressor in the signal chain, double-click the **FBS** block to open the Feedback Suppressor dialog box.

### Feedback Suppressor Dialog Box

The Feedback Suppressor dialog box contains three tabs for configuring feedback suppression.

- **Settings Tab** on the next page
- **Dynamic Filters Tab** on page 45
- **Fixed Filters Tab** on page 46

## Settings Tab



- 1 Settings Tab
- 2 Composite View Panel
- 3 Filter Graph
- 4 Q Adjustment Panel
- 5 Attack Time Panel
- 6 Hold Time Panel
- 7 Bypass FBS Button
- 8 Set Defaults Button
- 9 OK Button
- 10 Cancel Button

**Figure 69. Feedback Suppressor Dialog Box - Settings Tab**

- 1 **Settings Tab** — Provides access to the global FBS settings.
- 2 **Composite View Panel** — Three radio buttons control which filters are displayed in the filter graph:
  - Only Dynamic FBS Filters
  - Only Fixed FBS Filters
  - Fixed & Dynamic FBS Filters (default)
- 3 **Filter Graph** — Displays the dynamic filters, fixed filters, or both, as selected in the Composite View panel.
- 4 **Q Adjustment Panel** — Adjust the default Q parameter of the dynamic filters using the text box or the up/down spinner controls.
- 5 **Attack Time Panel** — Adjust the default Attack Time for dynamic filters.
- 6 **Hold Time Panel** — Provides an **Enable** checkbox, that enables the Hold Time parameter. Entering a time into the **Hold Time** text boxes sets how long each dynamic filter will hold before removing the filter.
- 7 **Bypass FBS** — Turns off feedback detection when bypass is engaged (button is red when bypass is engaged). Only the dynamic filters are bypassed. Fixed filters remain active.
- 8 **Set Defaults Button** — Resets parameters on all tabs to their default values and positions.
- 9 **OK Button** — Confirms changes made to the contained parameters and closes the Feedback Suppressor dialog box.
- 10 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the Feedback Suppressor dialog box was opened and closes the dialog box.

## Dynamic Filters Tab



- ❶ Dynamic Filters Tab
- ❷ Dynamic Filters List
- ❸ Move to Fixed Button
- ❹ Clear Button
- ❺ Clear All Button
- ❻ Lock Button
- ❼ Bypass FBS
- ❽ Set Defaults Button
- ❾ OK Button
- ❿ Cancel Button

**Figure 70. Feedback Suppressor Dialog Box - Dynamic Filters Tab**

- ❶ **Dynamic Filters Tab** — Provides access to dynamic filter configuration options.
- ❷ **Dynamic Filters List** — Displays a list of 15 dynamic feedback suppression filters. As feedback is detected on the virtual return channel, dynamic filters are applied to suppress feedback with the  $Q$  parameter defined in the **Settings** tab.
- ❸ **Move to Fixed Button** — Transfers the dynamic filter along with its current parameters to the **Fixed Filters** tab, allowing parameters to be edited. This frees up a filter slot in the **Dynamic Filters** list.
- ❹ **Clear Button** — Clears the dynamic filter and contained parameters.
- ❺ **Clear All Button** — Clears all dynamic filters and resets the feedback detection and suppression process.
- ❻ **Lock Button** — Locks current dynamic filters and prevents more dynamic filters from being applied.
- ❼ **Bypass FBS Button** — Bypasses the FBS processor. When the button is red, FBS is bypassed.
- ❽ **Set Defaults Button** — Resets parameters on all tabs to their default values and positions.
- ❾ **OK Button** — Confirms changes made to the contained parameters and closes the **Feedback Suppressor** dialog box.
- ❿ **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the **Feedback Suppressor** dialog box was opened and closes the dialog box.

## Fixed Filters Tab



- 1 Fixed Filters Tab
- 2 Fixed Filters List
- 3 Filter Parameters
- 4 Single Filter Bypass Button
- 5 Clear All Button
- 6 Bypass FBS Button
- 7 Set Defaults Button
- 8 OK Button
- 9 Cancel Button
- 10 Feedback Suppressor Help Button

**Figure 71. Feedback Suppressor Dialog Box - Fixed Filters Tab**

- 1 **Fixed Filters Tab** — Provides access to fixed filter configuration options.
- 2 **Fixed Filters List** — Displays up to 5 fixed feedback suppression filters.
- 3 **Filter Parameters** — Configure the **Frequency**, **Boost/Cut**, and **Q** parameters for each fixed filter using the text boxes.
- 4 **Single Filter Bypass Button** — Bypasses only the filter associated with that filter slot. When the button is red, the filter is bypassed.
- 5 **Clear All Button** — Clears all fixed filters from the list.
- 6 **Bypass FBS Button** — Bypasses the FBS processor. When the button is red, FBS is bypassed.
- 7 **Set Defaults Button** — Resets parameters on all tabs to their default values and positions.
- 8 **OK Button** — Confirms changes made to the contained parameters and closes the Feedback Suppressor dialog box.
- 9 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the Feedback Suppressor dialog box was opened and closes the dialog box.
- 10 **Feedback Suppressor Help Button** — Opens the Feedback Suppressor topic of the *DSP Configurator Help* file for further assistance in understanding and operating the feedback suppression processor.

## Virtual Return Filter Block

One filter block is available for each virtual return channel. This filter block functions the same as the mic/line input filter block (see [Input Filter Block](#) on page 25 for information on configuring the virtual return filter block).

## Virtual Return Dynamics Block

One dynamics block is available for each virtual return channel. This block functions the same as the mic/line input dynamics block (see [Input Dynamics Blocks](#) on page 30 for information on configuring the virtual return dynamics block).

## Virtual Return Delay Block

One delay block is available for each virtual return channel. This block functions the same as the mic/line input delay block (see [Input Delay Block](#) on page 35 for information on configuring the virtual return delay block).

## Virtual Return Pre-Mixer Gain Block

The virtual return pre-mixer gain block functions the same as the mic/line input pre-mixer gain block (see [Input Pre-Mixer Gain Block](#) on page 40 for information on configuring the virtual return pre-mixer gain block).

## Mix-Points

DSP Configurator contains twelve mix matrices that connect all inputs and outputs (see [figure 72](#) on page 48). The mix matrices set post-processing mix levels.

Each input is connected to a mix-point for the signal to be routed to an output. In general, mix levels are set relative to each other, achieving a blend of input signals at an optimal output level, close to, but not exceeding 0 dBFS at the output.

**NOTE:** In order for mix-points to appear in the workspace, the input group sending signal to the mix-point must be expanded and the input channel must be visible.

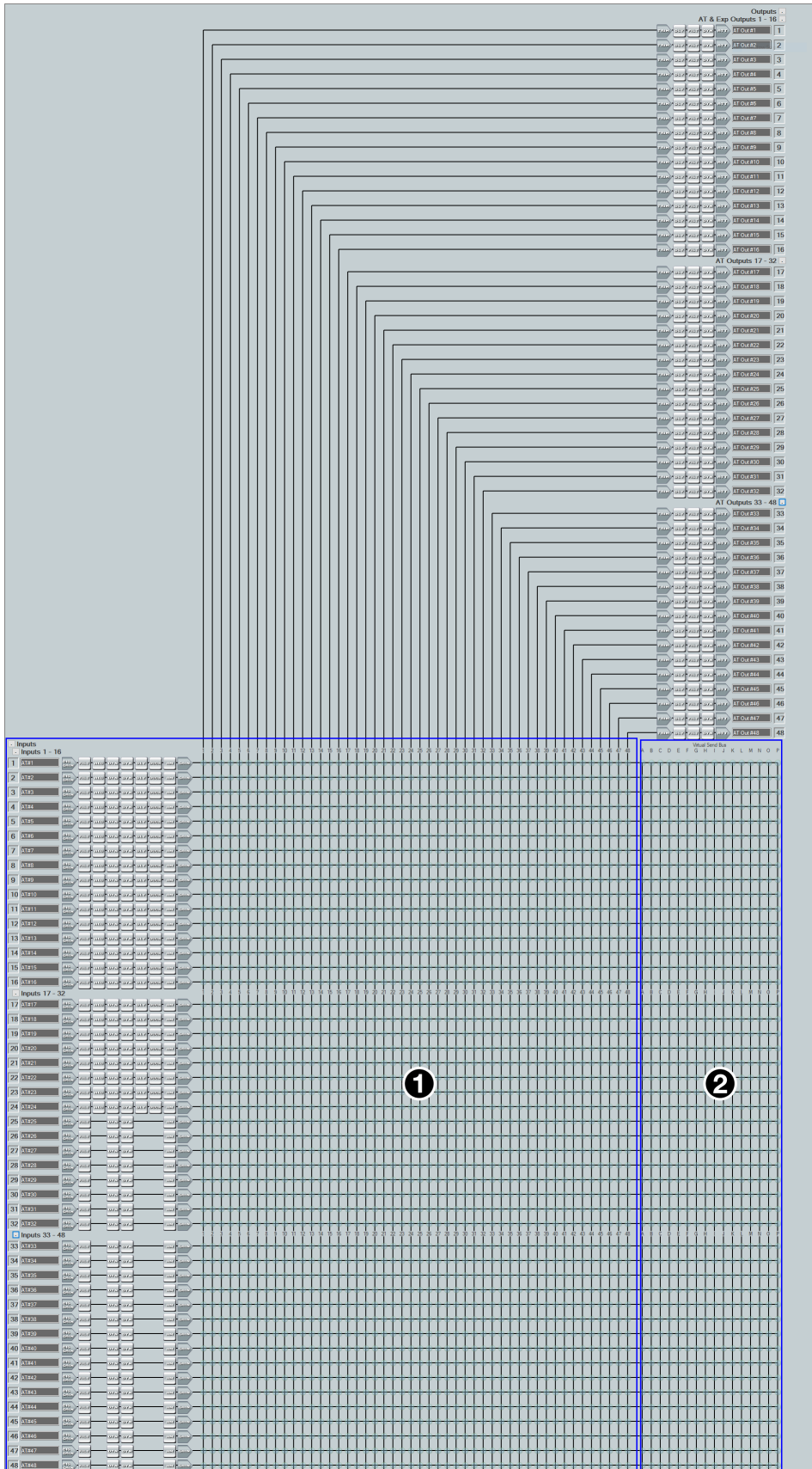
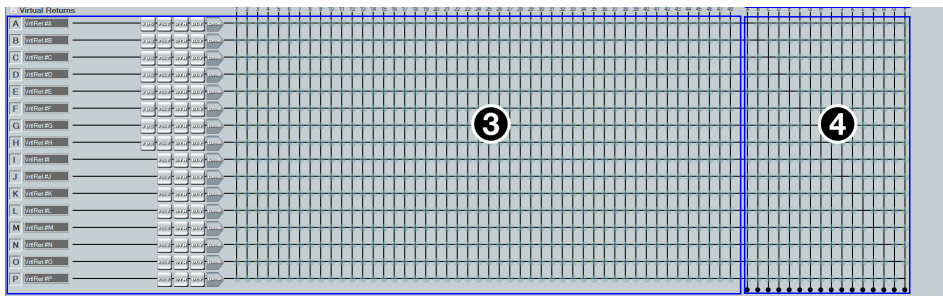


Figure 72. DSP Configurator Mix Matrices Part 1

- 1 Inputs to AT Outputs
- 2 Inputs to Virtual Sends

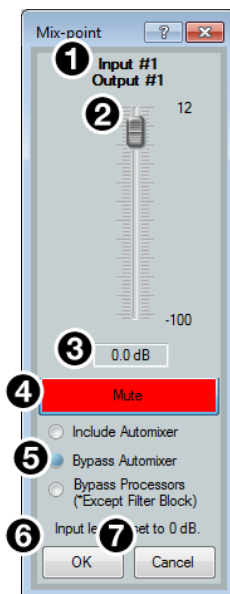


- ③ Virtual Returns to Outputs
- ④ Virtual Returns to Virtual Sends

Figure 73. DSP Configurator Mix Matrices Part 2

## Mix-Point Dialog Box

Double-click a mix-point to open the Mix-point dialog box. Alternatively, highlight a mix-point with a single click and press the <Enter> key to open the Mix-point dialog box.



- ① Mix-point Input and Output
- ② Mix-point Fader
- ③ Level Text Box
- ④ Mute Button
- ⑤ Mix Dot Selection
- ⑥ OK Button
- ⑦ Cancel Button

Figure 74. Mix-point Dialog Box

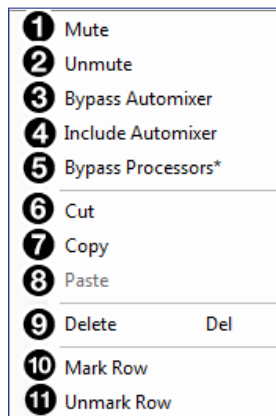
- ① **Mix-point Input and Output** — Displays which input (top) and output (bottom) the mix-point is connecting.
- ② **Mix-point Fader** — Click and drag the mix-point fader to provide up to 12 dB of gain or 100 dB of attenuation in 1 dB steps. Click the fader and use the <Up Arrow> or <Down Arrow> keys to change the level in 1 dB steps.
- ③ **Level Text Box** — Allows specific level values to be entered in 0.1 dB steps.
- ④ **Mute Button** — Mutes the mix-point (muted by default). When the button is red, the mix point is muted.
- ⑤ **Mix Dot Selection** — Three radio buttons provide options to choose the type of input processing applied to the mix-point.

**NOTE:** Mix dot selections are not available on Virtual Returns.

- ⑥ **OK Button** — Confirms changes made to the contained parameters and closes the Mix-point dialog box.
- ⑦ **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the Mix-Point dialog box was opened and closes the dialog box.

## Mix-Point Context Menu

Right-click a mix-point to open the mix-point context menu. This menu provides quick options to operate mix-points.





**Figure 75. Mix-Point Context Menu**

- 1 Mute** — Mutes the mix-point.
- 2 Unmute** — Unmutes the mix-point and creates an audio path between an input and output.
- 3 Bypass Automixer** — Bypasses automixer processing at the mix-point and marks the mix-dot blue to signify automixing is bypassed.
- 4 Include Automixer** — Includes automixer processing at the mix-point and marks the mix-dot orange to signify automixing is included.
- 5 Bypass Processors (\*Except filter block)** — Bypasses signal processing, except for filters, at the mix-point and marks the mix-dot green to signify signal processing is bypassed.
- 6 Cut** — Cuts the mix-point parameter configuration, preparing it to be pasted to another mix-point. The parameter configuration information is not removed until it is pasted to another mix-point.
- 7 Copy** — Copies the mix-point parameter configuration, leaving the mix-point intact and preparing it to be pasted to another mix-point.
- 8 Paste** — Pastes a previously cut or copied mix-point parameter configuration to the selected mix-point.
- 9 Delete** — Deletes the mix-point parameter configuration and mutes the mix-point.
- 10 Mark Row** — Marks the entire row containing the selected mix-point, highlighting all of the elements.
- 11 Unmark Row** — Unmarks the entire row containing the selected mix-point.

## DSP Configurator Outputs

The outputs run along the top right of the main workspace in DSP Configurator. These outputs receive signal when mix-point connections are made between an input and an output in the mix-matrices.

Each output panel can be expanded or collapsed by clicking the  (expand) or  (collapse) buttons.



## Outputs

There are 48 AT and Expansion outputs available in the **Outputs** panel. Signals routed to these outputs can also be transmitted onto the Dante network.



Figure 76. Outputs Panel

### Naming an Output

1. Click the output name field.

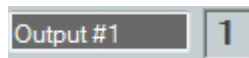


Figure 77. Output Name Field

2. Delete the text and type the desired output name.



Figure 78. New Output Name

3. Press the <Enter> key or navigate away from the field to confirm and apply the new output name. Press the <Down Arrow> key to navigate to and highlight the next name field.



Figure 79. Renamed Output

**NOTE:** Follow the same procedure to edit an Output name.

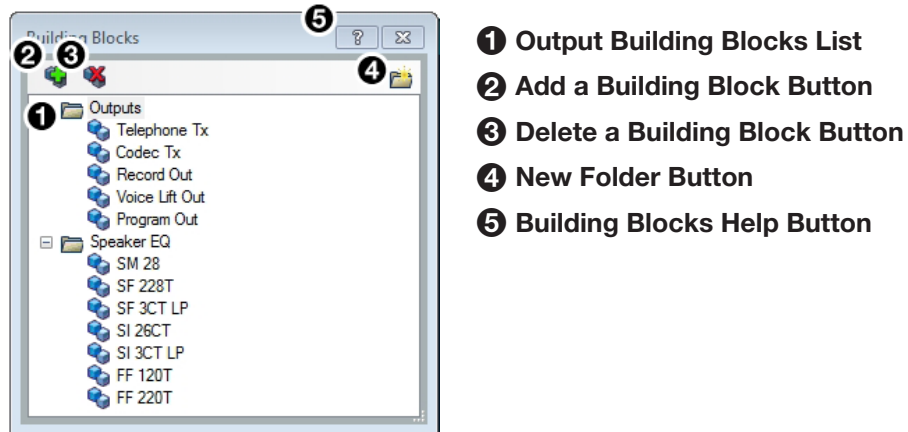
### Output Building Blocks

Extron building blocks are a quick configuration tool that can significantly reduce configuration time. A building block is a collection of processor and gain settings for an input or output processing chain. These building blocks have been built by Extron based on extensive use and testing with each intended application or specific device.



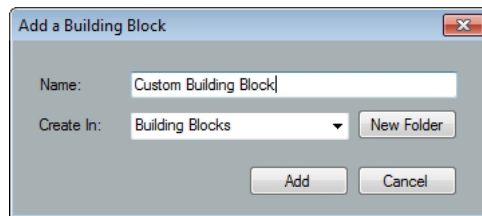
Figure 80. Accessing Building Blocks on an Output

Click the output number to open the **Building Blocks** dialog box.



**Figure 81. Output Building Blocks Dialog Box**

- 1 Output Building Blocks List** — Contains building blocks for output channels.
- 2 Add a Building Block Button** — Allows users to create custom building blocks, saving the currently applied gain and processor settings on the selected channel. Click the icon to open the **Add a Building Block** dialog box. This allows users to name the new custom building block and choose the folder to save the block to an existing folder, or create a new folder.



**Figure 82. Add a Building Block Dialog Box**

- 3** Delete a Building Block Button — Deletes the currently selected building block or building block folder. If default building blocks are deleted, they can be restored from the **Organize Building Blocks** dialog box.
- 4** New Folder Button — Creates a new folder or sub-folder.
- 5** Building Blocks Help Button — Opens the **Building Blocks** topic of the *DSP Configurator Help* file. This topic contains more information on the different types of building blocks for inputs and outputs.

## Output Processing

The output processing chain in DSP Configurator is represented by a string of blocks (see figure 83). Each block contains a specific processor or type of processor. Each output contains the following processor chain:

1. **Output Trim Block**
2. **Output Delay Block**
3. **Output Filter Block**
4. **Output Dynamics Block**
5. **Output Attenuation Block**



Figure 83. Output Processing Chain

### Output Trim Block

Double-click the output **Trim** block to open the **Post-mixer Trim** dialog box.



Figure 84. Output Trim Block

The **Post-mixer Trim** dialog box provides pre-processing gain and attenuation control for the selected output.

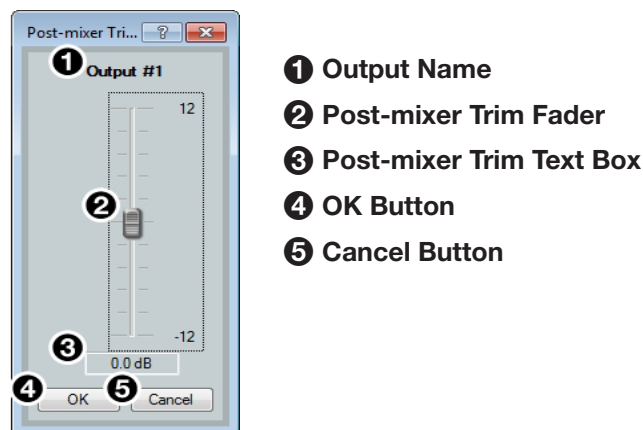


Figure 85. Post-mixer Trim Dialog Box

- 1 **Output Name** — This name changes to match the default or user defined output name.
- 2 **Post-mixer Trim Fader** — Click and drag the trim fader to provide up to 12 dB of gain or 12 dB of attenuation in 0.1 dB steps. Click the trim fader and use the **<Up Arrow>** or **<Down Arrow>** to adjust the fader up or down in 0.1 dB steps.
- 3 **Post-mixer Trim Text Box** — Allows the user to enter a gain or attenuation value in 0.1 dB steps.
- 4 **OK Button** — Confirms changes made to the contained parameters and closes the **Post-mixer Trim** dialog box.
- 5 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the **Post-mixer Trim** dialog box was opened and closes the dialog box.

## Output Delay Block

One delay block is available for each output channel. This block functions the same as the mic/line input delay block (see [Input Delay Block](#) on page 35 for information on configuring the output delay block).

## Output Filter Block

One filter block is available for each output channel. This filter block functions the same as the input filter block, except that there are 10 slots for filters instead of 5 (see [Input Filter Block](#) on page 25 for information on configuring output filters).

## Output Dynamics Block

One dynamics block is available for each output channel. This block functions the same as the input dynamics block (see [Input Dynamics Blocks](#) on page 30 for information on configuring the output dynamics block).

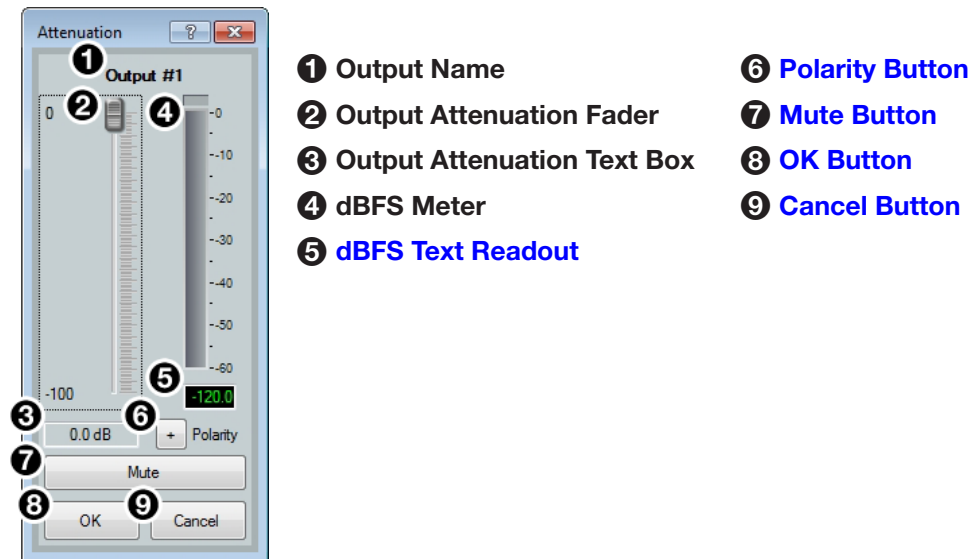
## Output Attenuation Block

Double-click the output **Attenuation** block to open the **Attenuation** dialog box.



**Figure 86. Output Attenuation Block**

The **Attenuation** dialog box provides attenuation control for the selected output.



**Figure 87. Attenuation Dialog Box**

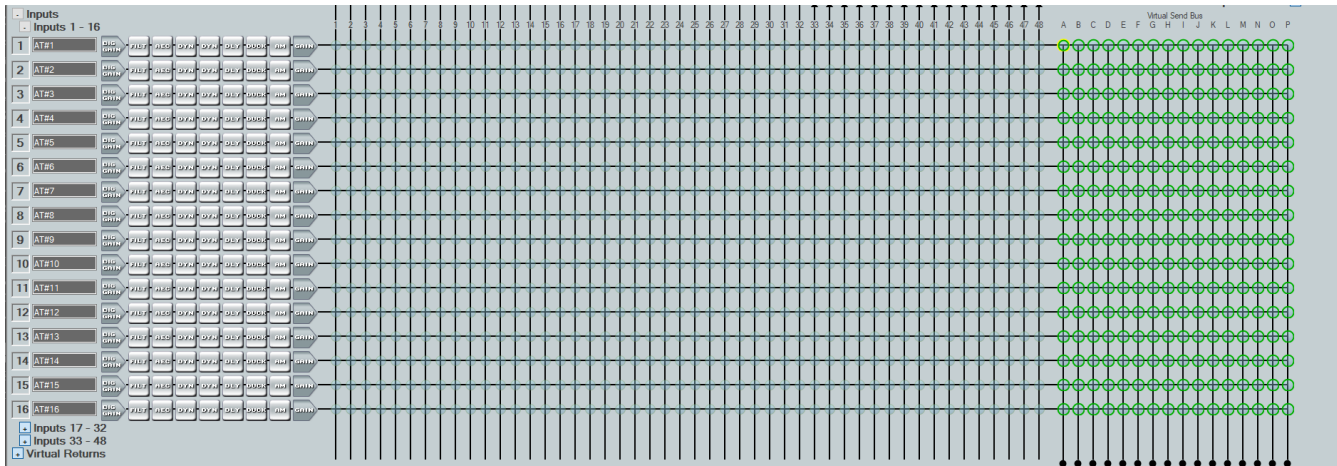
- 1 Output Name** — This name changes to match the default or user defined output name.
- 2 Output Attenuation Fader** — Click and drag the trim fader to provide up to 100 dB of attenuation. Click the trim fader and use the <Up Arrow> or <Down Arrow> to adjust the fader up or down in 1 dB steps.
- 3 Output Attenuation Text Box** — Allows the user to enter a gain or attenuation value in 0.1 dB steps.
- 4 dBFS Meter** — Provides post-attenuation and pre-mute a readout of the output signal level.
- 5 dBFS Text Readout**
- 6 Polarity Button**
- 7 Mute Button**
- 8 OK Button**
- 9 Cancel Button**

- 5 **dBFS Text Readout** — Displays a numerical readout of the output signal level.
- 6 **Polarity Button** — Click this button to invert the signal polarity of the selected output. When the button displays the black + symbol on a gray field (⊕), the polarity is normal. When the button displays the black - symbol on a yellow field (⊖), the polarity is inverted.
- 7 **Mute Button** — Mutes the signal at the output stage.
- 8 **OK Button** — Confirms changes made to the contained parameters and closes the Attenuation dialog box.
- 9 **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the Attenuation dialog box was opened and closes the dialog box.

## Virtual Send Bus

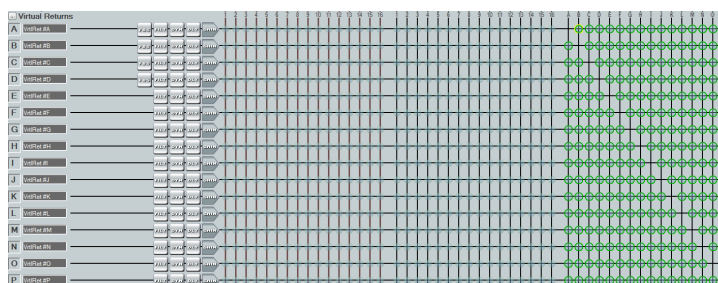
The virtual send bus consists of mix points that allow inputs to be routed back to the virtual return input panel for additional mixing and processing (see [Virtual Returns](#) on page 41).

**NOTE:** Virtual Send Bus mix-points are highlighted in green.



**Figure 88. Virtual Send Bus Mix Points**

Virtual Send channels cannot be routed to themselves. For example, Virtual Return A may be routed to Virtual Return B via the virtual send bus, but Virtual Return A **cannot** be routed to itself via the virtual send bus, and so on (see figure 89).



**Figure 89. Virtual Send Bus for Virtual Returns**

# Configuration Tools

This section contains information for configuring certain tools and options that are found under the **Tools** menu in DSP Configurator and covers the following topics:

- **Presets**
- **Groups**
- **Macros**
- **Connect to or Disconnect from Device**
- **Device Manager**
- **Firmware Loader**
- **Organize Building Blocks**
- **Device Settings**
- **Options**
- **Expansion Bus**

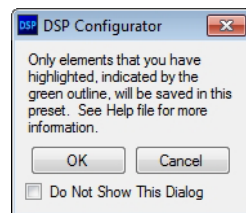
## Presets

Preset options are available from the **Tools** menu.



**Figure 90. Presets Options**

- 1 Mark All Items** — Marks all gain blocks, processor blocks, and mix-points in the main workspace. Performing this function before saving a preset ensures every element in the workspace is saved to the preset.
- 2 Save Preset** — Saves the marked blocks and mix points of the current configuration as a preset. When **Save Preset** is clicked, the following dialog box opens saying that only the elements marked with a green outline are saved to the preset (see figure 91). This option is only available if items are marked.



**Figure 91. Preset Save Message**

- 3 Clear Marked Items** — Unmarks all currently marked elements.

## Methods for Marking Items

Marked items are highlighted in green (see figure 92). There are four ways to mark items in DSP Configurator:

- **Mark All** — Press <Ctrl+A> on the keyboard to mark all items in the main workspace.
- **Mark Group** — Click and drag the cursor to create a box around a group of items to mark them. Click and drag the cursor while holding the <Shift> key to create box around another group of items to mark them while keeping previous group marked.
- **Mark Series** — Click the first item in the series to mark it, then press <Shift+Click> on the final item in the series. All items between the first and last items are marked.
- **Mark Multiple Individual** — Click the first item to mark it and press <Ctrl+Click> to mark additional items anywhere in the main workspace.



Figure 92. Marked Items Highlighted in Green

## Configuring Presets

1. Create a configuration to be saved as a preset (see [DSP Configurator Software](#) on page 10).
2. Mark the items that will be included in the preset.
3. Select **Tools > Presets > Save Preset**.
4. From the Save a Preset dialog box, enter the preset number (1 through 32) in the **Preset Number** field (see figure 93, ①). Preset slots that do not already have a preset assigned read [unassigned]. Enter a name into the **Preset Name** field (②, 12 character maximum).
5. Click **OK** (③) to save the preset.

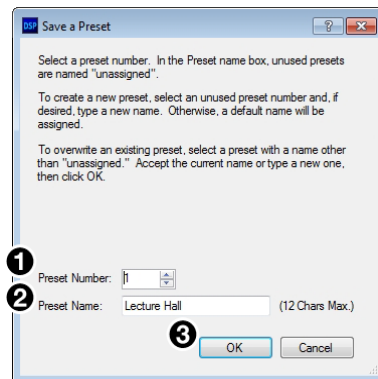


Figure 93. Save a Preset Dialog Box

**NOTE:** When a configuration file is pushed to a XMP 240 C AT, presets contained within that file are available for recall from DSP Configurator or SIS commands.

6. The preset is saved and is available from the **Presets** drop-down menu at the top of the main workspace.

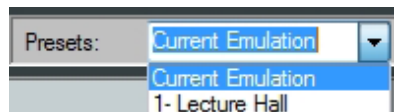
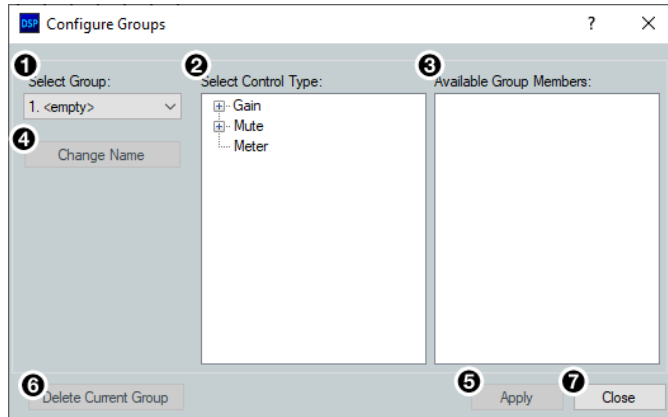


Figure 94. Presets Drop-Down

## Groups

Groups allow master control of Gain, Mute, Bass, Treble, Loudness and Meter for groups of channels. Groups are used in macros and other control configurations.

Click **Tools > Configure Groups** to open the Configure Groups dialog box.



- ❶ Select Group
- ❷ Select Control Type
- ❸ Available Group Members
- ❹ Change Name Button
- ❺ Apply Button
- ❻ Delete Current Group Button
- ❼ Close Button

**Figure 95.** Group Controls Dialog Box

- ❶ **Select Group** — Provides a drop-down menu to select the number of the group to be configured. If the group has been configured and named, the group name appears next to the group number. If the group slot is empty, it reads <empty> next to the group number. There are 64 group slots available.
- ❷ **Select Control Type** — Group controls can manage Gain, Mute, Bass, Treble, Loudness, or Meter for the specified inputs, mix-points, or outputs. From the Select Control Type panel, select the type of control from the Gain, Mute, Bass, Treble, or Treble lists.

**NOTE:** Bass and Treble are only available if the Bass and Treble filters are inserted on a channel and only allow channels with the filters to be placed in a group.

- ❸ **Available Group Members** — This section populates according to the selected control type and lists all inputs, mix-points, and outputs available to be added as group members. Check the box next to a member to add it to the group. Group members must be the same control type. The maximum number of group members for a single group is 128.

**NOTE:** Loudness processors can be selected from input and output gain stages.

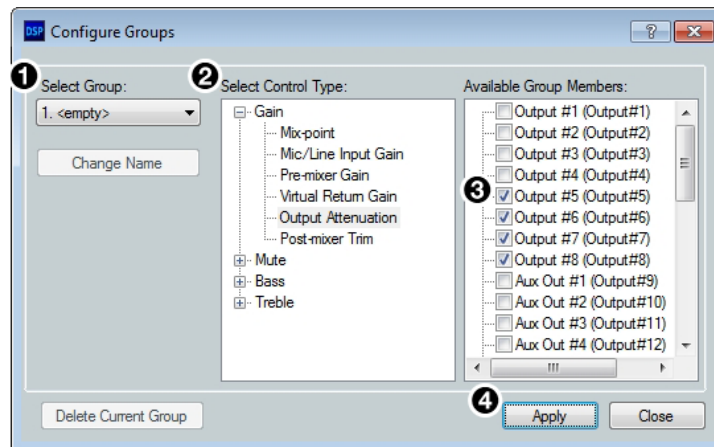
- ❹ **Change Name Button** — Once a group has been created, select it from the **Select Group** drop-down menu (❶), click **Change Name** to change the name of the selected group.
- ❺ **Apply Button** — Click **Apply** after changes to a group have been made. The **Confirm Group Details** dialog box opens allowing the group name and number to be edited. Click **OK** to apply group changes.
- ❻ **Delete Current Group Button** — Select a group from the **Select Group** drop-down menu and click **Delete Current Group** to delete the group.
- ❼ **Close Button** — Click **Close** to close the dialog box. Any changes that have not been applied will be lost.



## Configuring Groups

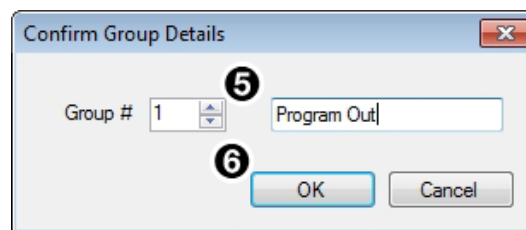
### To create a new group:

1. Select **Tools > Configure Groups** to open the Configure Groups dialog box.
2. From the **Select Group** drop-down, select a group slot to configure (see figure 96, **1**).
3. From the **Select Control Type** panel (**2**), expand a control type.
4. Choose which gain stage the control type affects.
5. From the **Available Group Members** panel, select the channels to be configured as group members (**3**).
6. Click **Apply** (**4**).



**Figure 96. Configure Groups Dialog Box**

7. Confirm the group number and name from the **Confirm Group Details** dialog box (see figure 97, **5**).
8. Click **OK** to confirm all details and create the group (**6**).



**Figure 97. Confirm Group Details Dialog Box**

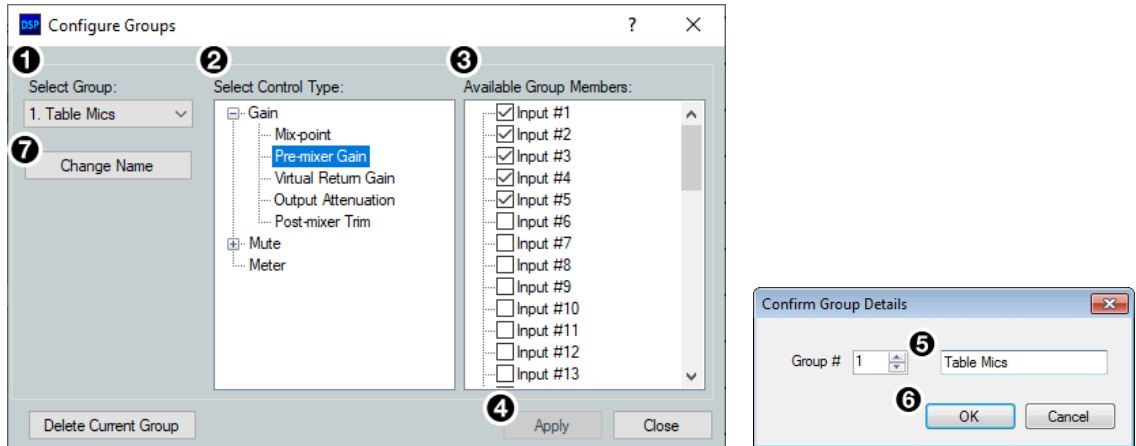
### To edit an existing group:

1. Select **Tools > Configure Groups** to open the Configure Groups dialog box (see [figure 98](#) on the next page).
2. From the **Select Group** drop-down (**1**), select an existing group to edit.
3. From the **Select Control Type** panel (**2**), expand a control type.
4. Choose which gain stage to edit.
5. From the **Available Group Members** panel (**3**), select or deselect channels that will be members of the group.
6. Click **Apply** (**4**).
7. From the **Confirm Group Details** dialog box, the group number and group name can be edited (**5**).

8. Click **OK** to confirm the group details (figure 98, **6**).
9. When the **Override Group** dialog box opens, click **OK** to confirm the changes made to the group.

To edit only a group name or group number:

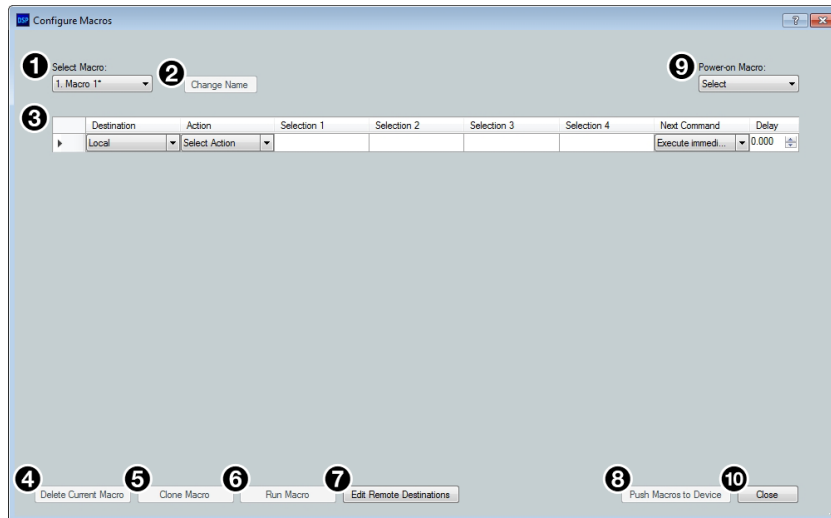
1. Choose the group from the **Select Group** drop-down (**1**).
2. Click **Change Name** (**7**).
3. From the **Change Group Name** dialog box, enter the new group number or group name into the respective fields (**5**).
4. Click **OK** (**6**).





**Figure 98. Editing a Group**

## Macros

Macros are sets of actions that can affect the local XMP 240 C AT and other Extron products on the same TCP/IP or Dante network. They can be configured in Emulate or Live mode via an Ethernet connection only, and they can be saved to a configuration file or pushed to XMP internal memory. Macros are comprised of up to 32 actions that occur in sequence to quickly configure a system for specific applications.



**Figure 99. Configure Macros Dialog Box**

- 1 Select Macro Drop-Down** — Select an empty macro slot to configure or select an existing macro to edit from this drop-down menu.
- 2 Change Name Button** — Click this button to enter a new name for a previously configured macro. Press <Enter> to confirm the macro name change.
- 3 Macro Configuration Form** — Up to 32 actions can be configured in this form. When one action is configured, a new line appears to configure the next action in the macro.
- 4 Delete Current Macro Button** — Deletes the macro currently selected from the **Select Macro** drop-down.
- 5 Clone Macro Button** — Clones the currently selected macro to a new macro slot.
- 6 Run Macro Button** — Runs the macro currently selected from **Select Macro** drop-down, performing all of the configured actions in sequential order. This is only available when connected to a XMP 240 C AT in Live mode via the LAN port.
- 7 Edit Remote Destinations Button** — Opens the dialog box to edit data for remote devices being configured by the actions in a macro. Remote devices in the network can also be added from this dialog box (see the **Configure Macros** topic in the *DSP Configurator Help* file). This is only available when connected in Live mode.
- 8 Push Macros to Device Button** — Pushes all macros to a connected XMP 240. Once the macros are on the device, they can be run by control systems or DSP Configurator. This button is only available when connected Live to a XMP 240 (see **Live and Emulate Panel** on page 17).
- 9 Power-on Macro Drop-Down** — Select an existing macro to run whenever the XMP 240 C AT is powered on.
- 10 Close Button** — Closes the **Configure Macros** dialog box, retaining macros that have been created or edited. Actions that have not been completely configured show a  symbol to the left of the **Destination** field in the macro configuration form. Actions showing the  symbol are not saved when the dialog box is closed.

## Configuring a Macro

1. From the **Tools** menu, click **Configure Macros**. The **Configure Macros** dialog box opens.
2. Select an empty macro slot from the **Select Macro** drop-down.
3. From the **Destination** drop-down, select a destination for the macro action. Choose **Local** for the local XMP 240 C AT, or **Add Destination...** for a remote destination. If choosing **Local**, proceed to step 4.

**NOTE:** Macro commands can only be sent to remote destinations via the LAN 1 port.

- a. After selecting **Add Destination...**, the **Edit Remote Destinations** dialog box opens.
  - b. Complete the form in the dialog box, including username and password, if required.
  - c. Select **Apply** to add the device to the drop-down in the **Destinations** column.
  - d. Click **Close** to close the **Edit Remote Destinations** dialog box.
  - e. Select the newly created remote destination from the **Destination** drop-down.
4. From the **Action** drop-down, select an action to be configured.
    - **Recall Preset** — Recall an existing preset.
    - **Set Group Gain** — Set the level of an existing gain group.
    - **Group Gain Inc/Dec** — Set the increment/decrement values of an existing gain group.
    - **Set Group Mute** — Mute or unmute an existing mute group.
    - **Gain** — Set the gain of a specific gain block on a specific channel.
    - **Mute** — Mute or unmute a specific gain block on a specific channel.
    - **Meters On/Off** — Enable or disable level meters at the input gain or output attenuation stages of a specific channel.
    - **SIS Command** — Type in a single SIS command to perform an action not listed above (see **Remote Communication and Control** on page 103).

**NOTE:** Use the w key in place of **Esc** and the | (pipe) key in place of **←**.

- **Set Input Format** — Specify whether mic/line inputs receive analog signal from the inputs or digital signal via the Dante network (see 9 in **figure 40** on page 24).
5. Once the action is chosen, up to four additional selections are made available. These additional selections must be completed in order to proceed to the next macro step. For example, if **Set Group Gain** is the selected action, **Selection 1** prompts the selection of a gain group to be affected and **Selection 2** determines the gain level of the selected group.
  6. When all of the action selections are configured, a new line appears at the bottom of the form so another action can be configured.
  7. From the **Next Command** drop-down, select whether the XMP 240 C AT waits for an SIS response from each action before executing the next action in the macro or executes the next command immediately without waiting for an SIS response. The default is **Execute immediately**. Responses can be viewed through Extron Dataviewer and follow SIS response syntax (see **DSP SIS Commands** on page 121).
    - a. Use the **DeLay** field to enter the amount of delay in seconds. The default is **0.000**

seconds of delay.

8. Click **Change Name** at the top of the dialog box and enter a new name for the macro in the **Select Macro** text field. Default macro names are **Macro 1**, **Macro 2**, and so on.
9. Up to 32 actions can be configured per macro. Follow steps 3 through 7 to configure additional actions. Right click the left-most field in an action to cut, copy, or paste actions in a macro.
10. Connect Live to the XMP 240 C AT and click **Push Macro to Device** to push it to the XMP 240 C AT. Once the macro has been pushed, it can be run via DSP Configurator, a control system, or SIS commands.

**NOTES:**

- A macro cannot be run until it is pushed to the device. Edits made to an existing macro must also be pushed to the device.
- Macro configuration data is saved on a per-line basis. When an action is completely configured, the data is saved even if the **Configure Macros** dialog box is closed.
- Macro configurations are saved when the DSP Configurator configuration file is saved.
- If DSP Configurator is closed without saving the configuration file or pushing the macro to a XMP 240 C AT, unsaved macro configuration data is deleted.

**To delete a Macro:**

1. Click **Tools > Configure Macros**.
2. From the **Select Macro** drop-down, choose the macro to be deleted.
3. Once the macro information is displayed, click **Delete Current Macro** in the bottom left corner of the **Configure Macros** dialog box.

**To clone a Macro:**

1. Click **Tools>Configure Macros**.
2. From the **Select Macro** drop-down, choose the macro to be cloned.
3. Click **Clone Macro** at the bottom of the **Configure Macros** dialog box.
4. Use the drop-down in the **Clone Macro** dialog to select a destination for the cloned macro. By default, the next empty macro slot is selected as the destination.

**NOTE:** If a macro already exists in the selected destination, a warning message appears below the drop-down, warning that the existing macro will be overwritten with the cloned macro.

5. Click **OK** to clone the macro or **Cancel** to cancel the action.
6. After the macro is cloned, the new macro is displayed in the **Configure Macros** dialog box. The cloned macro has a default macro name.

**To run a Macro:**

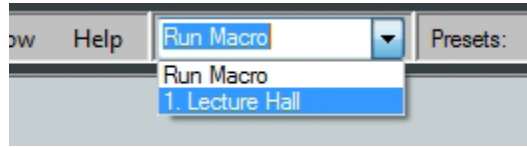
1. Connect to the XMP 240 C AT in Live mode (see [Live and Emulate Panel](#) on page 17).
2. Click **Tools > Configure Macros**.
3. From the **Select Macro** drop-down, choose the macro to be run.
4. Once the macro information is displayed, click **Run Macro**.

-or-

1. Connect to the XMP 240 C AT in Live mode (see [Live and Emulate Panel](#) on

page 17).

2. Select the macro to be run from the **Run Macro** drop-down in the tool bar.



**Figure 100. Run Macro Drop-Down**

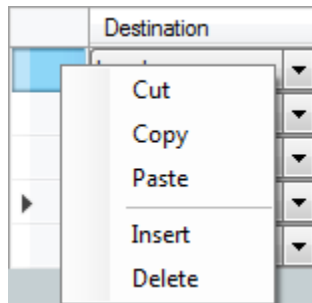
**To edit remote destinations:**

1. Click **Edit Remote Destinations** from the **Configure Macros** dialog box.
2. Select an existing device from the **Unique Device Name** drop-down.
3. Edit the information for the device or click **Delete** to remove the selected device.
4. Click **Apply** to save changes made to the remote destination.
5. Click **Close** to close the **Edit Remote Destinations** dialog box.

**NOTE:** See [step 3](#) on page 79 for information regarding adding a destination.

## Manipulating Macro Actions

After a macro action has been fully configured, it can be cut, copied, pasted, inserted, or deleted. Right-click the left-most box in the action line item (see [figure 99](#), ③ on page 78) and select an option from the drop-down menu.



**Figure 101. Macro Action Manipulation Drop-Down**

**To cut a macro action:**

1. Right click the box furthest to the left in the action list item to be cut.
2. Select **Cut**. The action is removed from the list and placed in the clipboard.

**To copy a macro action:**

1. Right click the box furthest to the left in the action list item to be copied.
2. Select **Copy**. The action is copied to the clipboard.

**To paste a macro action:**

1. Right click the box furthest to the left in the action list item where the action is to be pasted.
2. Select **Paste**. The action is copied to the list item. Any existing action data is overwritten.

**To insert a macro action:**

1. Cut or copy a macro action to be inserted.
2. Right click the box furthest to left in the action list item directly below where the action in the clipboard is to be inserted.

3. Select **Insert**. The action is inserted from the clipboard above the action that was right clicked in step 1.

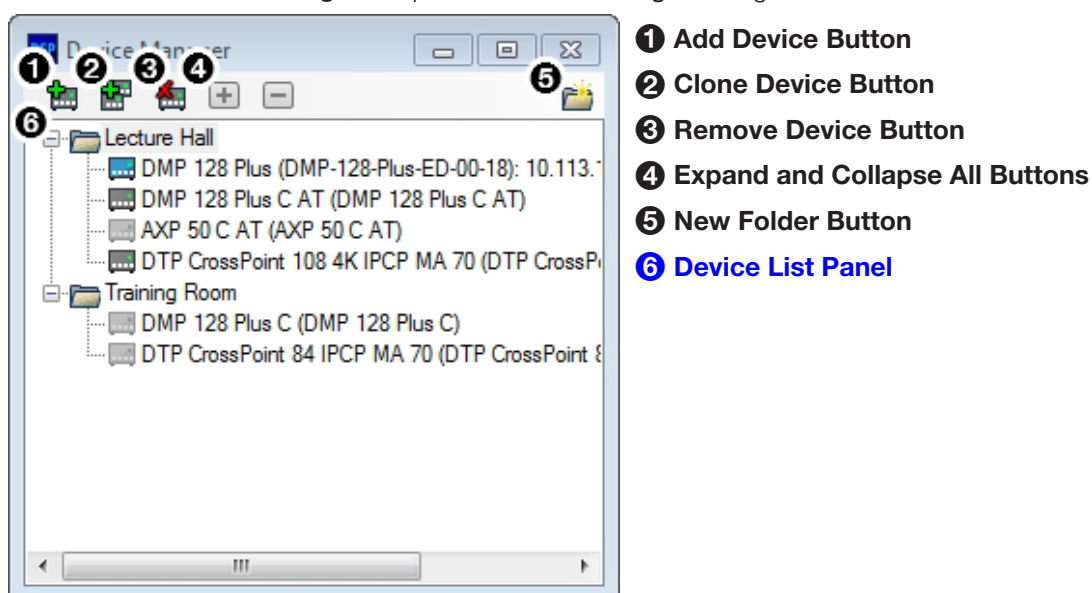
**To delete a macro action:**

1. Right click the box furthest to the left in the action to be deleted.
2. Click **Delete**.

## Device Manager

Device Manager is used to configure and switch between multiple devices in Live or Emulate mode within DSP Configurator (see **Live and Emulate Panel** on page 17). Devices can be placed and ordered in user-created folders for easily tracking systems with devices across multiple rooms. When Device Manager contains multiple devices, all device configurations are saved in a single DSP Configurator file.

Select **Tools > Device Manager** to open the Device Manager dialog box.



**Figure 102. Device Manager Dialog Box**

- 1 **Add Device Button** — Click the button to open the DSP Configurator splash screen to select another device to be configured. As a device is chosen or connected, it is added to the Device Manager dialog box.
- 2 **Clone Device Button** — Click the button to clone the currently selected device. When a device is cloned, information within the device configuration file is also cloned.

**NOTE:** If Live mode is enabled, a backup may need to be performed before the device can be successfully cloned.

- 3 **Remove Device Button** — Click the button to remove the currently selected device from the device manager. Select a folder and click this button to delete the folder and all devices it contains.
- 4 **Expand and Collapse All Buttons** — Click the icon to expand all folders and show the devices it contains. Click the to collapse all folders.
- 5 **New Folder Button** — Click the button to create a new folder to drag a device into.

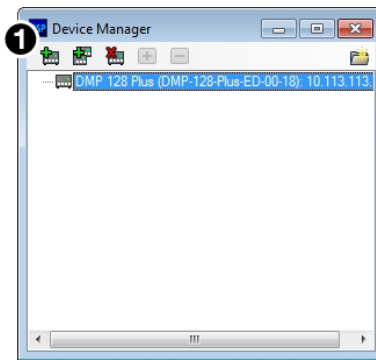
- 6 Device List Panel** — Lists the devices and folders in Live and Emulate mode. From this panel, devices can be clicked and dragged into folders, placed in custom order, and folders can be renamed. If the device is connected via LAN, the device IP is displayed. Double-clicking a device in this list will initiate a pull (see [Connect to a XMP 240 C AT in Live Mode](#) on page 17).

The color of the icon next to a device name indicates Live or Emulate status, as well as whether the device is configured as a Primary or Secondary EXP device. Devices with color icons are in Live mode. Devices with grayed icons are in Emulate mode. Devices with blue icons are configured as Secondary units (see [Expansion Bus](#) on page 88).

## Managing Devices in Device Manager

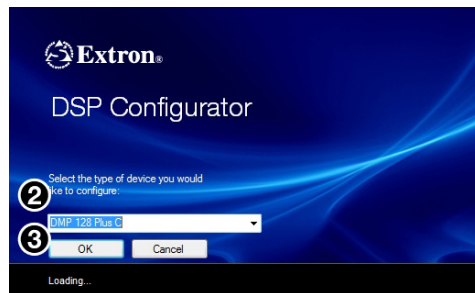
### To add a device:

1. Click **Tools > Device Manager** to open the Device Manager dialog box.
2. Click the **Add Device** button (see figure 103, **1**).



**Figure 103. Adding a Device**

3. From the DSP Configurator splash screen drop-down, select the device to be added to Device Manager (see figure 104, **2**). Select **Connect...** to open the **Connect to device...** dialog box and directly connect with a device. When connecting directly, DSP Configurator performs a pull of the newly connected device configuration.
4. Click **OK** (**3**).



**Figure 104. Selecting a Device to be Added**

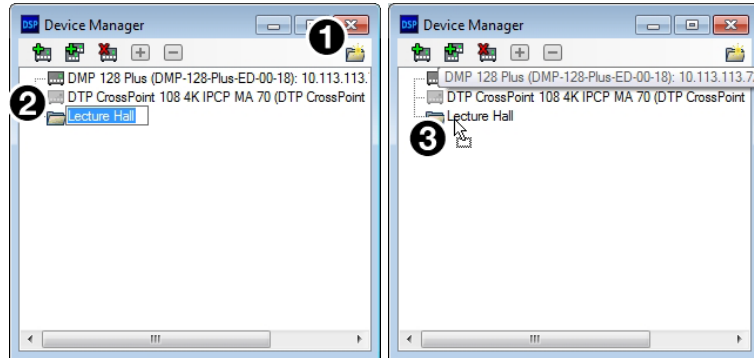
### To arrange devices into a folder:

1. From the Device Manager dialog box, click the **New Folder** button (see [figure 105](#), **1** on the following page).
2. Enter a name for the folder. The text for the folder name is automatically highlighted and ready to be edited (**2**).

**NOTE:** Folders can be renamed later by clicking twice on the folder name and editing the text.



3. Press **<Enter>**.
4. Click and drag devices over the folder name and release to insert the devices into a folder (3).



**Figure 105. Arranging Devices Into a Folder**

## Connect to or Disconnect from Device

When DSP Configurator is in Emulate mode, this selection in the **Tools** menu reads **Connect to Device** and opens the **Connect to device...** dialog box when selected. When DSP Configurator is in Live mode and connected to a device, this selection reads **Disconnect from Device** and disconnects DSP Configurator from the current device when selected, and returns to Emulate mode.

For detailed instructions on connecting to a XMP 240 C AT, see **Connect to a XMP 240 C AT in Live Mode** on page 17. For detailed instructions on disconnecting from an XMP, see **Exit Live Mode and Enter Emulate Mode** on page 19.

## Firmware Loader

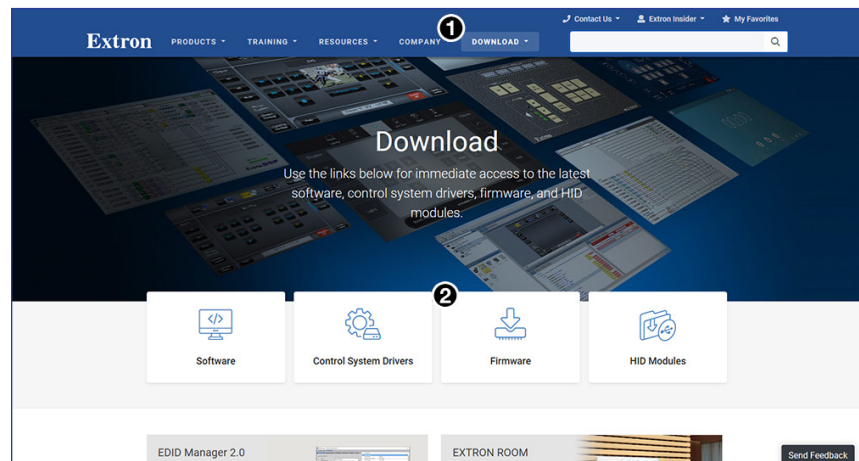
Select **Tools > Firmware Loader** to open the Extron Firmware Loader software from DSP Configurator. Firmware Loader assists users in updating firmware or uploading new firmware to devices via RS-232, USB, or TCP/IP connection. Refer to the *Firmware Loader Help* file for more information in using the Firmware Loader software.

### NOTES:

- Extron Firmware Loader software must be installed on the host PC in order for it to be opened.
- TCP/IP connection is recommended for updating firmware.

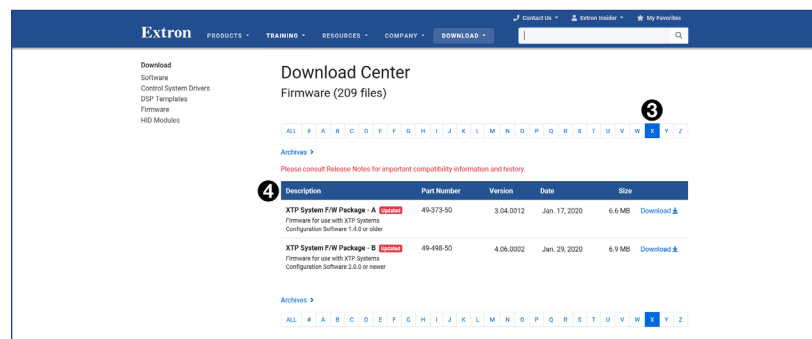
## Downloading Firmware Updates

1. Go to [www.extron.com](http://www.extron.com) and click the **Download** tab at the top of the page (see figure 106, **1**).
2. From the Download page, select the **Firmware** link (**2**) near the middle of the page.



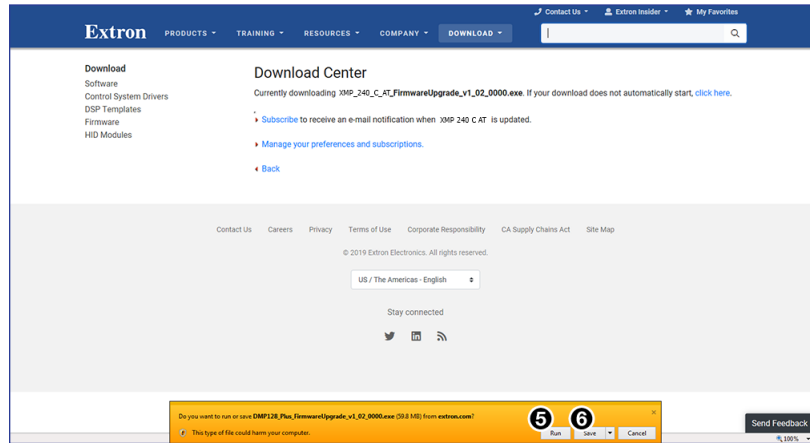
**Figure 106. Download Page and Firmware Link**

3. The **Firmware** link opens the firmware Download Center page. Click the **X** from the alphabet list at the top of the page (see figure 107, **3**).
4. Select the **Download** link (**4**) at the right side of the XMP 240 C AT listing.



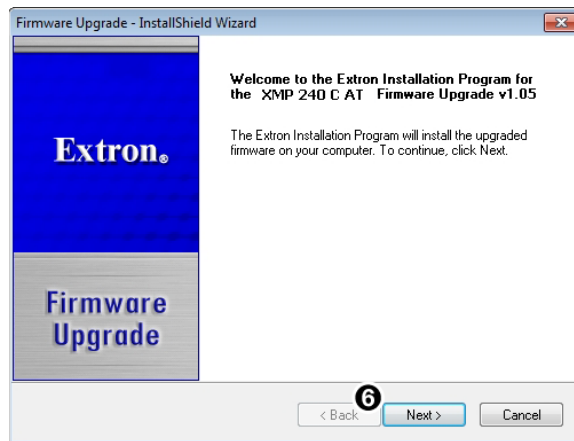
**Figure 107. Download Center and Firmware Link**

5. After clicking the **Download** link, select **Run** from the next page to run the firmware installer (see figure 108, ⑤). Alternatively, select **Save** (⑥) to save the firmware installer and install the firmware at a later time.



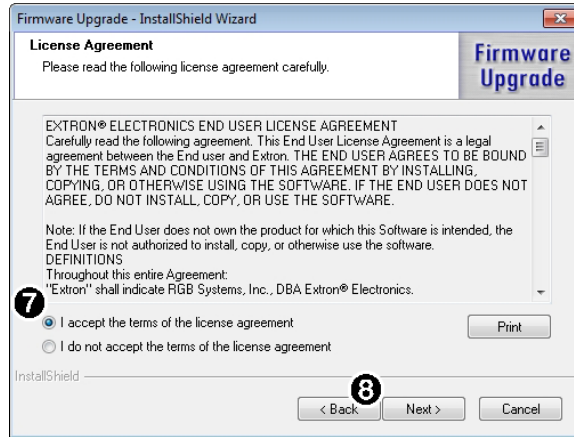
**Figure 108. Firmware Installer Run or Save**

6. Once the installer has been run, the Firmware Upgrade dialog box opens, click **Next** to begin the installation process (see figure 109, ⑥).



**Figure 109. Firmware Upgrade InstallShield**

7. The terms of installation must be agreed to. Select the **I accept...** radio button (see figure 110, ⑦ on the next page).
8. Click **Next** (⑧).

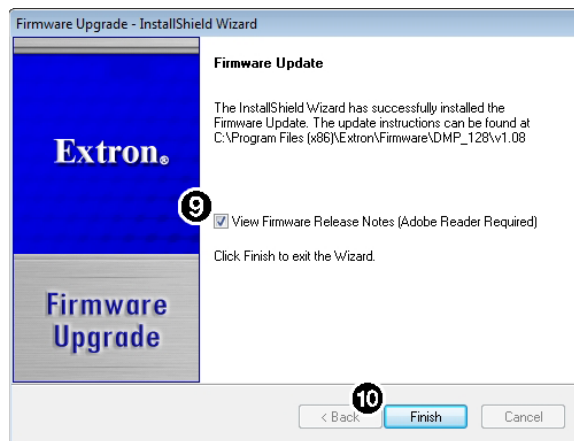


**Figure 110. Firmware License Agreement**

9. An installation status dialog box opens that displays the completion status of firmware download and installation.
10. When the firmware is installed, the **Firmware Upgrade** dialog box displays that the installation is complete and the install location of the firmware file. By default, firmware is installed in:  
Program Files > Extron > Firmware > XMP\_240 > vx.xx

If the **View Firmware Release Notes** checkbox is checked (see figure 111, 9), a PDF of the firmware release notes opens automatically. The box is checked by default.

Click **Finish** to close the dialog box (10).

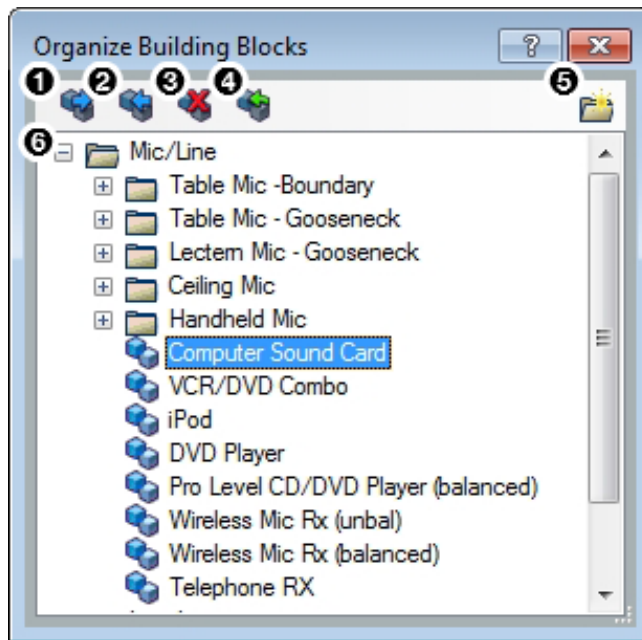


**Figure 111. Firmware Installed Dialog Box**

## Organize Building Blocks


Extron building blocks are a quick configuration tool that can significantly reduce configuration time. A building block is a collection of processor and gain settings for an input or output processing chain. Building blocks have been built by Extron based on extensive use and testing with each intended application or specific device. The **Organize Building Blocks** dialog box allows users to organize building blocks to their preference, import new building blocks, export existing building blocks, delete building blocks, and restore default building blocks that may have been deleted by the user. Building blocks in the **Organize Building Blocks** dialog are organized into folders for easily locating building blocks for a multitude of applications.

Select **Tools > Organize Building Blocks** to open the **Organize Building Blocks** dialog box.




- ❶ Export Building Blocks File Button
- ❷ Import Building Blocks File Button
- ❸ Delete Building Block Button
- ❹ Restore Default Building Blocks Button
- ❺ New Folder Button
- ❻ Building Blocks Panel

**Figure 112. Organize Building Blocks Dialog Box**

- ❶ **Export Building Blocks File Button** — Click the  button to export the selected building block file to be saved to a disk.


**NOTE:** Building block files have an XML extension.

- ❷ **Import Building Blocks File Button** — Click the  button to browse the computer for building block files to import to DSP Configurator.
- ❸ **Delete Building Block Button** — Click the  button to delete the currently selected building block.

- 4 **Restore Default Building Blocks Button** — (See [figure 112](#) on the previous page) If default building blocks that come installed with DSP Configurator are deleted, click the  button to restore them.

**NOTE:** Only the default building blocks can be restored with this function. User created building blocks are not restored if deleted.

**TIP:** To avoid accidentally deleting user created building block files, once they are created, export them to a safe location on the disk. This creates a backup copy of the building block file, should it be deleted by the user by mistake.

- 5 **New Folder Button** — Click the  button to create a new folder that building blocks can be dragged into. Upon creation, a default folder name is highlighted and a custom name can be entered. Click a folder name twice to edit the folder name.
- 6 **Building Blocks Panel** — This panel contains folders and building blocks. Click and drag building blocks to change their order or place them inside folders. Click a building block name twice to edit the building block name. Click a folder name twice to edit the name of the folder.

## Device Settings

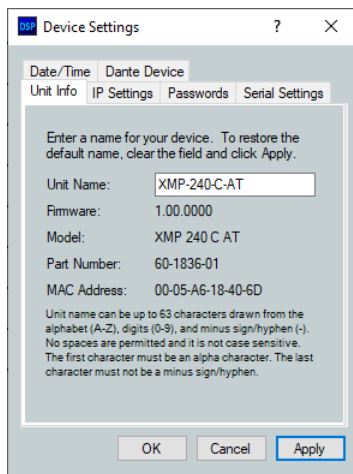
The **Device Settings** dialog box provides access to general settings of the XMP 240 C AT. Select **Tools > Device Settings** to open the **Device Settings** dialog box. Device settings are only available when connected live to a device.

Within the **Device Settings** dialog box, the following tabs are available:

- **Unit Info**
- **IP Settings**
- **Passwords**
- **Serial Settings**
- **Date/Time**
- **Dante Device**

### Unit Info

The **Unit Info** tab displays the unit name, firmware version, device model, device part number, and device MAC address. Click in the **Unit Name** field to rename the device within the listed naming parameters. Click **Apply** to save the changes.



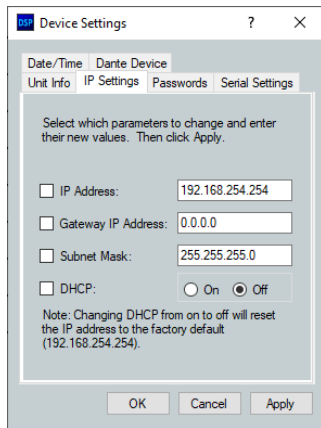
**Figure 113. Unit Info Tab**

## IP Settings

The **IP Settings** tab allows the user to view and edit the IP address, gateway IP address, subnet mask, and DHCP status of the unit. The checkbox to the left of each parameter must be checked before any changes can be made to that parameter. Click **Apply** to save the changes.

### NOTES:

- Changing DHCP from On to Off resets the IP address to the factory default (192.168.254.254).
- These settings apply to the port marked LAN.



The screenshot shows the 'Device Settings' window with the 'IP Settings' tab selected. The window title is 'Device Settings' and it has a help icon and a close button. The tabs are 'Date/Time', 'Dante Device', 'Unit Info', 'IP Settings', 'Passwords', and 'Serial Settings'. The 'IP Settings' tab is active. The instructions read: 'Select which parameters to change and enter their new values. Then click Apply.' There are four rows of settings, each with a checkbox on the left and a text input field on the right. The first row is 'IP Address:' with the value '192.168.254.254'. The second row is 'Gateway IP Address:' with the value '0.0.0.0'. The third row is 'Subnet Mask:' with the value '255.255.255.0'. The fourth row is 'DHCP:' with radio buttons for 'On' and 'Off', where 'Off' is selected. Below the settings is a note: 'Note: Changing DHCP from on to off will reset the IP address to the factory default (192.168.254.254)'. At the bottom are 'OK', 'Cancel', and 'Apply' buttons.

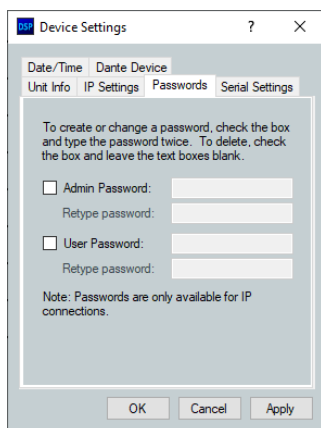
Figure 114. IP Settings Tab

## Passwords

The **Passwords** tab allows the user to create or edit user and administrator passwords. An administrator password must be created in order to create a user password. The checkbox to the left of the password type (**Admin** or **User**) must be checked before creating or editing passwords. Click **Apply** to save the changes.

### NOTES:

- Passwords only apply to IP connections and can be up to 12 characters in length.
- The factory-configured password for this device has been set to the device serial number. Passwords are case sensitive.



The screenshot shows the 'Device Settings' window with the 'Passwords' tab selected. The window title is 'Device Settings' and it has a help icon and a close button. The tabs are 'Date/Time', 'Dante Device', 'Unit Info', 'IP Settings', 'Passwords', and 'Serial Settings'. The 'Passwords' tab is active. The instructions read: 'To create or change a password, check the box and type the password twice. To delete, check the box and leave the text boxes blank.' There are two rows of settings, each with a checkbox on the left and two text input fields on the right. The first row is 'Admin Password:' with two empty text boxes. The second row is 'User Password:' with two empty text boxes. Below the settings is a note: 'Note: Passwords are only available for IP connections.' At the bottom are 'OK', 'Cancel', and 'Apply' buttons.

Figure 115. Passwords Tab

## Serial Settings

The **Serial Settings** tab allows users to change the baud rate of the rear panel RS-232 port. Click **Apply** to save the changes.

**NOTE:** The recommended baud rate for the XMP 240 C AT is 38400.

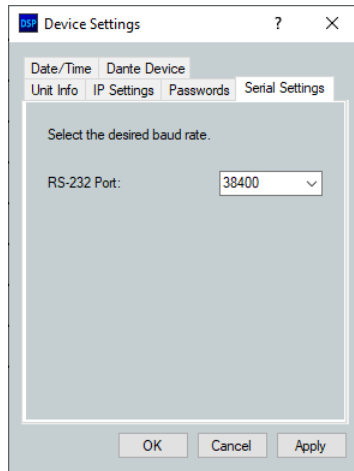


Figure 116. Serial Settings Tab

## Date/Time

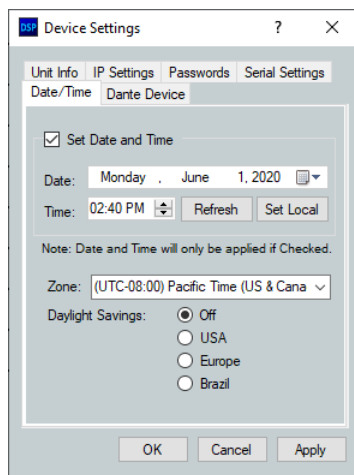


Figure 117. Date/Time Tab

### To set the date and time:

1. Click the **Set Local** button to sync the date and time information with the date and time on the connected PC.
2. Set the time zone by using the **Zone** drop-down.
3. Use the **Daylight Savings** radio buttons to enter the daylight saving region, or leave off (default).

-or-

1. Click on the **Set Date and Time** check box.
2. Enter the desired date in the **Date** field. A drop-down calendar is available for date selection.
3. Enter the desired time in the **Time** field by clicking on the hours and entering the hour,

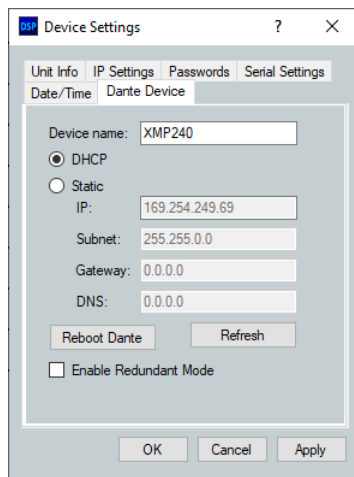


- then clicking on the minutes and entering the number of minutes.
4. Set the time zone by using the **Zone** drop-down.
  5. Use the **Daylight Savings** radio buttons to enter the daylight saving region, or leave off (default).

**NOTE:** The information displayed in the **Date/Time** tab is static. In order to update the information to reflect the current time, click **Refresh**.

## Dante Device

This tab allows the XMP 240 C AT Dante settings to be configured within DSP configurator without opening Dante Controller.



**Figure 118. Dante Device Tab in Device Settings Dialog Box**

### ATTENTION:

- It is essential that a Dante device be named immediately after it is connected to the Dante network and before audio connections with other devices are established. Existing connections are removed when a device is renamed.
- Il est essentiel d'identifier un appareil Dante immédiatement après sa connexion au réseau Dante et avant tout établissement de connexion audio avec d'autres appareils. Les connexions existantes sont supprimées dès qu'un appareil est renommé.

## Dante Device Name

A Dante device can be renamed to identify the device on the audio network.

### To assign the Dante device name:

1. Select **Tools > Device Settings**.
2. Use the arrows to navigate to the **Dante Device** tab (see figure 118).
3. Click the **Device name** text box.
4. Enter a device name for the Dante interface.
5. Click **Apply**. A confirmation dialog box opens.
6. Click **Yes**, to confirm existing connections will be removed after the name is changed.

## Dante Device Network Settings

### To configure Dante network settings:

1. Select the **DHCP** or **Static IP** radio buttons (see [figure 118](#) on the previous page). If using DHCP, the XMP 240 C AT Dante interface will be assigned an IP address by the DHCP server and Dante network configuration is complete. If **Static IP** is selected, proceed to step 2.
2. Enter a valid network configuration into the respective fields.
3. Click **Apply**.

### To reboot the Dante interface:

1. Click **Reboot Dante**. Only the Dante interface will reboot, not the entire XMP 240 C AT.

### To refresh the device name and network configuration displayed:

1. Click **Refresh** to have DSP Configurator refresh information from the XMP 240 Dante interface.

## Redundant Mode

In redundant mode, the 2-port AT switch becomes separate Primary and Secondary ports (see [Redundant Configuration](#) on page 96).

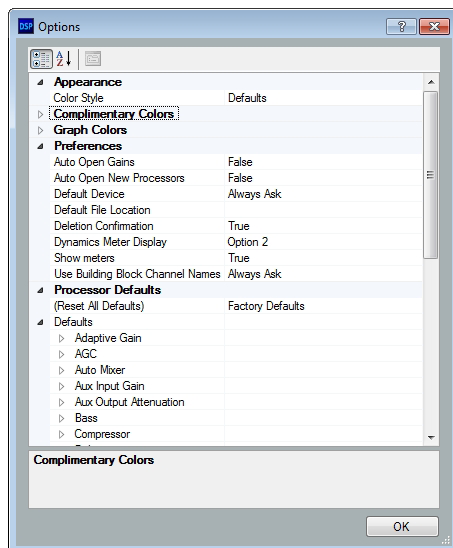
### To enable redundant mode:

1. Click the **Enable Redundant Mode** checkbox.
2. By default, the **DHCP** radio button is selected to have the DHCP server assign a redundant network configuration. If necessary, select the **Static** radio button and enter the redundant network configuration in the text boxes that appear below.

**NOTE:** A valid redundant static network configuration must be entered.

## Options

The **Options** dialog box allows the user to edit and reset default options for DSP Configurator color schemes, default processor and gain block behavior, as well as a number of other settings. For a comprehensive overview of the **Options** dialog box, see the *DSP Configurator Help* file.



**Figure 119.** Options Dialog Box

## Expansion Bus

With the Extron Expansion (EXP) port, two EXP-enabled devices can be connected for bidirectional streaming of up to 16 channels of audio. EXP inputs and outputs contain DSP (see [Inputs Mix-Points](#) on page 47 and [Outputs](#) on page 51).

### Connecting the EXP Ports

When connecting an XMP 240 C AT to another EXP-enabled device for EXP communication, the XMP 240 C AT is always set as the primary unit. The primary unit serves as the master clock for all EXP audio communication. The other unit must be set as a secondary unit in order for a connection to be established.

The following procedure describes how to set up a XMP 240 C AT model with another EXP-enabled non-AT device for EXP communication.

**NOTE:** Two XMP 240 devices cannot be connected via the EXP port because the XMP 240 can only be configured as a primary unit and cannot be set as a secondary unit. Instead, use the rear panel AT switch to connect the two devices over a Dante network (see [Dante Controller](#) on page 89).

### Connecting an XMP 240 C AT Device and an EXP-enabled non-AT Device

1. Connect Live to the XMP 240 C AT.
2. Double-click on a **DIG GAIN** block (see [Input Gain Block](#) on page 24). The **Input Gain** dialog box opens.
3. From the **Source** drop-down list, select the desired source (see [Input Gain Block](#) on page 24).
4. Connect Live to the DMP 128 Plus non-AT. If connecting a DTP CrossPoint, proceed to step 6.
5. Select **Tools > Expansion Bus** and ensure **Secondary Unit** is selected.

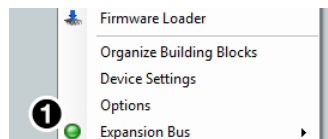
**NOTES:**

- The XMP 240 C AT cannot be configured as a secondary unit. This means the DMP 128 Plus non-AT must be configured as a secondary unit.
- If both devices are configured as primary, an EXP connection cannot be established.

6. Use a CAT 6 cable (such as the 1 foot cable included with the XMP 240 C AT) to connect the two rear panel EXP ports.
7. When the connection is established, the front panel EXP LED on the primary unit lights steadily and the EXP LED on the secondary unit blinks rapidly.

**NOTE:** The DTP CrossPoint EXP LED is located on the rear panel next to the EXP port.

8. Open the **Tools** menu from the XMP 240 C AT main workspace and view the **Expansion Bus** status software LED (see figure 120, ❶). The LED lights green when there is a valid connection.



**Figure 120. Expansion Bus Software LED**

# Dante Controller

This section describes the XMP 240 C AT network installation, configuration, and control using Dante Controller for Windows and covers the following topics:

- [Overview](#)
- [Downloading and Installing Dante Controller](#)
- [Configuring the XMP 240 C AT in Dante Controller](#)
- [Physical Dante Network Setup](#)
- [Dante Controller Operation](#)
- [Dante Routing Operation](#)
- [Dante Troubleshooting](#)

## Overview

XMP 240 C AT devices use Dante technology by Audinate to provide high performance digital audio networking over standard TCP/IP networks. The Dante Controller software application is used to route audio on the network. Dante allows audio channels to be transported across a switched Ethernet data network while meeting the quality requirements of professional audio.

Up to 48 channels can be transmitted from the XMP 240 C AT to the Dante network and up to 48 channels can be received by the XMP 240 C AT from the Dante network.

Audio signals are converted by XMP 240 C AT devices, processed and routed to the AT bus, and transmitted onto the Dante network. Audinate recommends the Dante audio network be kept separate from other networks. However, the audio network can be shared with control traffic or unrelated data traffic. Audio channels can be unicast or multicast to make the best use of available bandwidth.

## Downloading and Installing Dante Controller

Dante Controller from Audinate is required to route transmitters and receivers and can be used to configure Dante settings and monitor performance. Install Dante Controller on a PC running Microsoft® Windows® 7 or newer. For full details about computer requirements and to download the software, see the Dante Controller product page at [www.extron.com](http://www.extron.com).


### To download Dante Controller:

1. From [www.extron.com](http://www.extron.com), hover over the **Download** tab at the top of the page.
2. From the **Featured Software** list, select **Dante Controller**.
3. From the **Dante Controller** product page, click the blue **Download** button.
4. Select **Run** to run the Dante Controller installer. Select **Save** to save the install file to run at a later time.
5. If you choose to run the file, follow all prompts. If you saved the file, click the saved file to begin installation when ready.

The installed Dante Controller program files are saved in:

C:\Program Files (x86)\Audinate\Dante Controller\DanteController.exe.

## Configuring the XMP 240 C AT in Dante Controller

Use a standard Ethernet cable to connect the XMP 240 C AT to a Dante network via the rear panel AT port (see [Rear Panel Features and Cabling](#),  on page 5) and power the device.

### Device Name

Multiple devices on the same Dante network can present difficulty in identifying individual devices. To avoid confusion and difficulty, ensure the following steps are taken:

- Connect devices to the Dante network one at a time.
- Rename each device before making audio connections in Dante Controller.
- Rename each device with a unique and meaningful identifier.
- Rename each device before the next device is connected to the Dante network.

#### ATTENTION:

- It is essential that a Dante device be named before audio subscriptions with other devices are established. Existing subscriptions are removed when a device is renamed.
- Il est essentiel d'identifier un appareil Dante immédiatement après sa connexion au réseau Dante et avant tout établissement de connexion audio avec d'autres appareils. Les connexions existantes sont supprimées dès qu'un appareil est renommé.

In Dante Controller, a device can be renamed to identify the device on the audio network. The default device name of the XMP 240 C AT consists of the model name, followed by the last six characters of the Dante interface MAC address (for example, **XMP240-0ee8ee**). In addition to renaming the device, individual Transmitter (Tx) and Receiver (Rx) channels can be renamed.

The Dante device name must be set before making any connections to other devices on the Dante network. Renaming a device after making connections removes existing connections to and from that device. Refer to [Renaming the XMP 240 C AT in Dante Controller](#) on the next page for renaming procedure.

## Receiver and Transmitter Names

In addition to renaming a device, individual transmitter and receiver channels can be renamed in Dante Controller. Rename transmitter and receiver channels to reflect the location of the device or the purpose of the transmitter or receiver. Ensure transmitter and receiver channels are renamed before making audio connections between devices. Refer to [Renaming a Receiver or Transmitter](#) on page 93 for renaming procedure.

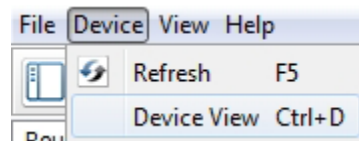
## Dante Controller Naming Conventions

- Device names follow Domain Name System (DNS) hostname rules. Legal characters are A-Z, a-z, 0-9, and hyphen (-). Names must begin with a letter and cannot end with a hyphen (-).
- Dante Tx and Rx channel names (also known as labels) can be up to 31 characters in length. Label names are not case-sensitive. For example, “ANALOG OUT-1” and “analog out-1” are recognized as the same name. Unicode and non-roman characters are not supported.
- Tx and Rx channel labels can use any character except equals (=), period (.), or @.
- Tx and Rx channel labels must be unique on a device but do not need to be unique on the network.

## Renaming the XMP 240 C AT in Dante Controller

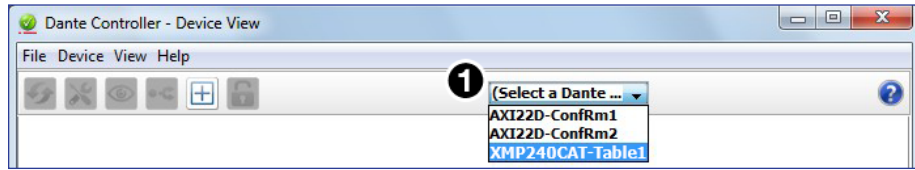
**NOTE:** Dante device naming can also be done via DSP Configurator (see [Dante Device](#) on page 86).

1. Ensure that the control computer and a single XMP 240 C AT are connected to the same network.
2. From the control computer **Start** menu select:  
**All Programs > Audinate > Dante Controller > Dante Controller**
3. The Dante Controller - Network View screen opens. All Dante devices on the network are discovered and listed.
4. From the Device menu, select **Device View** or press <Ctrl+D> on the keyboard (see figure 121).



**Figure 121. Opening Device View**

- The Dante Controller - Device View dialog opens. Select the device being configured from the (**Select a Dante Device...**) drop-down menu (see figure 122, ①).

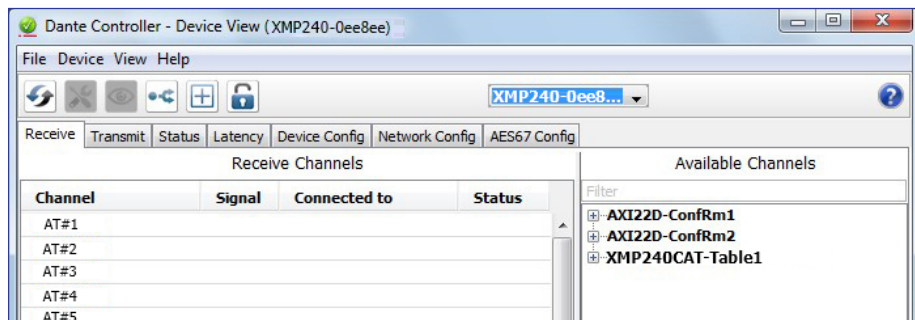


**Figure 122. Device View and Select a Dante Device Drop-Down**

**NOTES:**

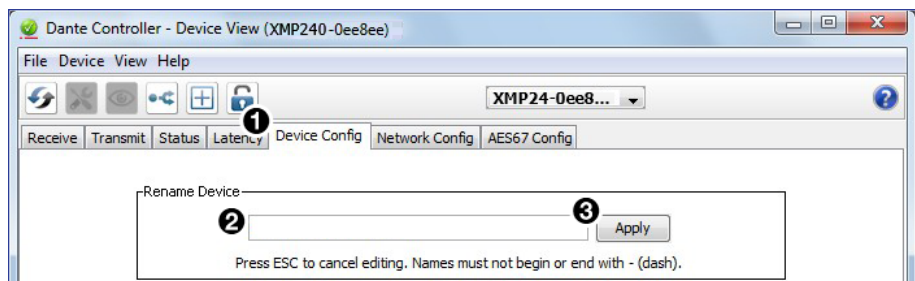
- If there are multiple XMP 240 C AT devices connected to the network that have not been renamed, obtain the Dante interface media access code (MAC) address of the desired device from the white label on the rear panel of the device in order to identify it in Dante Controller.
- There are multiple MAC addresses listed on the rear panel of a XMP 240 C AT, one for the LAN port and one for the Dante interface. The Dante interface MAC address is listed beneath the LAN port MAC address.

The Device View dialog populates with the selected XMP 240 C AT information.



**Figure 123. Populated Device View Dialog Box**

- Click the **Device Config** tab (see figure 124, ①) to open the Device Config page.
- In the **Rename Device** panel, enter the new name of the device in the text field. No spaces are allowed in the name. Names should be significant identifiers. For example, enter **XMP240CAT-MainRack** (②).
- Click **Apply** (③). A confirmation prompt opens.



**Figure 124. Device Config Dialog, Rename Device**

- Click **Yes** (④) to confirm the new name, then close the Device Configuration dialog

box. The new name is written to the Dante interface of the XMP 240 C AT. Repeat as necessary for all devices.

**NOTE:** The device name assigned in Dante Controller only applies to the Dante interface and does not affect the device name recognized in DSP Configurator.



Figure 125. Rename Device Confirmation Dialog Box

## Renaming a Receiver or Transmitter

In addition to renaming devices, individual receiver and transmitter channels can be renamed in Dante Controller. To better organize the various receivers and transmitters, it is recommended each receiver and each transmitter be named using a description of the device they belong to, the location of the device, or the purpose of the receiver or transmitter.

To view the receiver or transmitter channels in Dante Controller, click the + sign next to the receiver or transmitter device name to expand it. The + sign becomes a - sign when the device is expanded (see figure 126, ①).

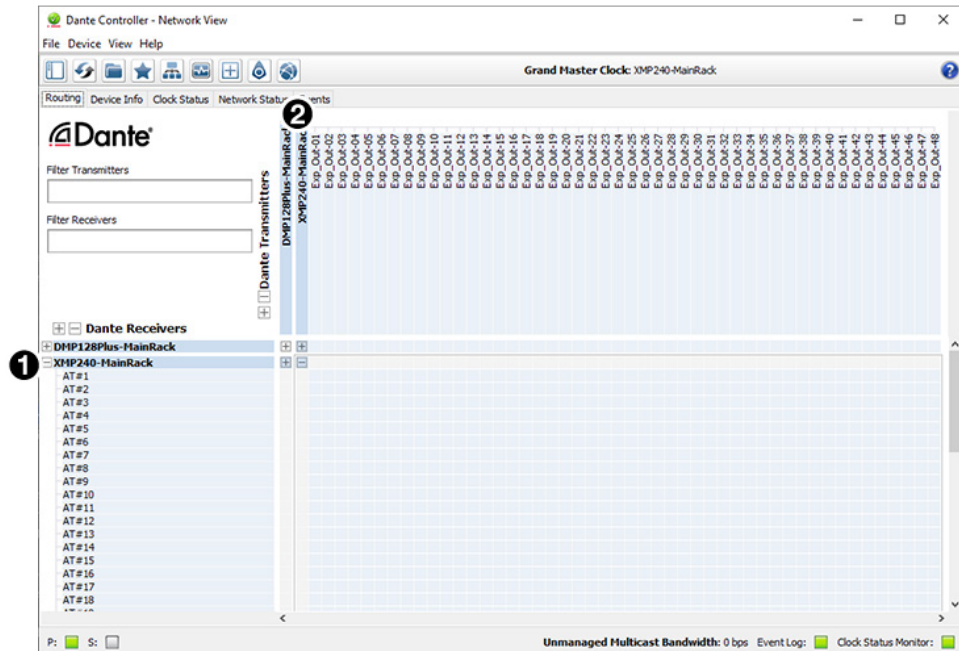


Figure 126. Expanded Device View – Input and Output Names

**TIP:** To simplify setup and operation of large matrix systems, rename the receiver and transmitter channels to better indicate the source at the transmitters or receivers.



## Renaming a Receiver

The default names shown in the **Dante Receivers** column are extracted from the Dante interface of the connected device (see figure 127, ❶). The XMP 240 C AT receivers are labelled AT#1 through AT#48. Follow the instructions on the next page to rename a receiver.

### To rename a XMP 240 C AT receiver:

1. From the **Device** menu on the **Network View** screen, select **Device View**, or press <Ctrl+D> on the keyboard. The **Device View** dialog box opens.
2. From the (**Select a Dante Device..**) drop-down menu, select the name of the desired XMP 240 C AT (see figure 127, ❶).
3. On the **Device View** screen, select the **Receive** tab (❷).
4. Click on the name of the receiver to be renamed. The name becomes a text box with a cursor (❸).
5. Enter the new name (up to 31 characters) using any combination of letters, numbers, and special characters except for @, =, and . (period).
6. Press <Enter> on the keyboard to confirm the name, or click another channel text box.
7. Repeat steps 4 through 6 to rename additional receiver channels.
8. When finished renaming receivers, close the **Device View** dialog box.

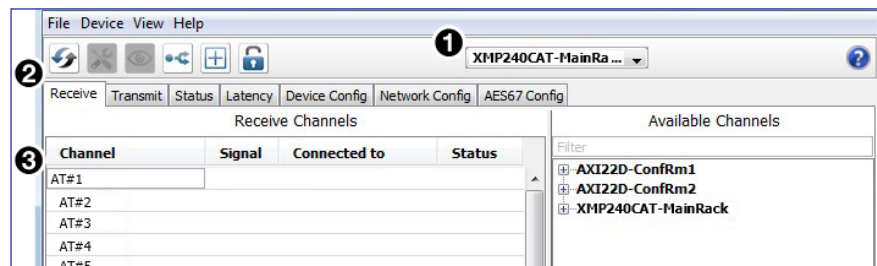


Figure 127. Device View Screen — Renaming a Receiver

## Renaming a Transmitter

The default names shown in the **Dante Transmitters** column are extracted from the Dante interface of the connected device (see figure 126, ❷ on the previous page). The XMP 240 transmitters are labelled Exp\_Out-01 through Exp\_Out-48. Follow the instructions on the next page to rename a transmitter.

### To rename a XMP 240 C AT transmitter:

1. Select **Device View** from the **Device** menu on the **Network View** screen or press <Ctrl+D> on the keyboard. The **Device View** dialog box opens.
2. From the (**Select a Dante Device...**) drop-down menu, select the name of the XMP 240 C AT (see figure 128, ❶ on the next page).
3. On the **Device View** screen, select the **Transmit** tab (❷).
4. Click in the **Channel Label** column to the right of the name of the transmitter being renamed. A text box and cursor appear (❸).
5. Enter a new name (up to 31 characters) using any combination of letters, numbers, and special characters except for @, =, and . (period).
6. Press <Enter> on the keyboard to confirm the name, or click another label text box.
7. Repeat steps 4 through 6 to rename additional transmitter channels.
8. When finished renaming transmitters, close the **Device View** dialog box.

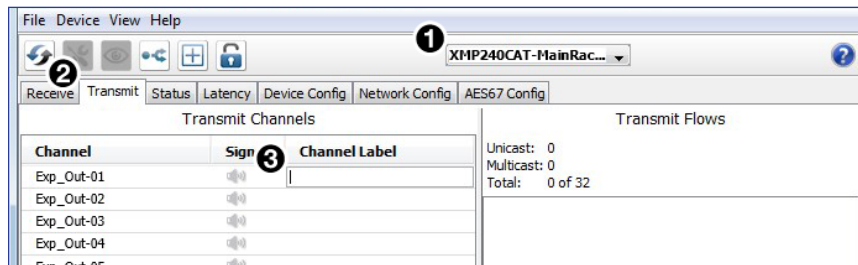


Figure 128. Device View Screen – Renaming a Transmitter

## Finding a Dante Device IP Address

To find the IP address of a Dante device, the name of the device is needed (see [Renaming the XMP 240 C AT in Dante Controller](#) on page 91).

**NOTE:** If the XMP 240 C AT has not been renamed, its default name consists of the product name followed by a hyphen, plus the last 6 digits of the device MAC address (for example, XMP240CAT-0ee8ee).

1. Open Dante Controller.
2. On the Dante Controller-Network View screen, click the **Device Info** tab (see figure 129, ①).
3. On the **Device Info** page, locate the name of the XMP 240 C AT in the **Device Name** column (②). The IP address is located in the **Primary Address** column (③). In the example below, the IP address for the connected XMP 240 C AT is 192.168.11.120.

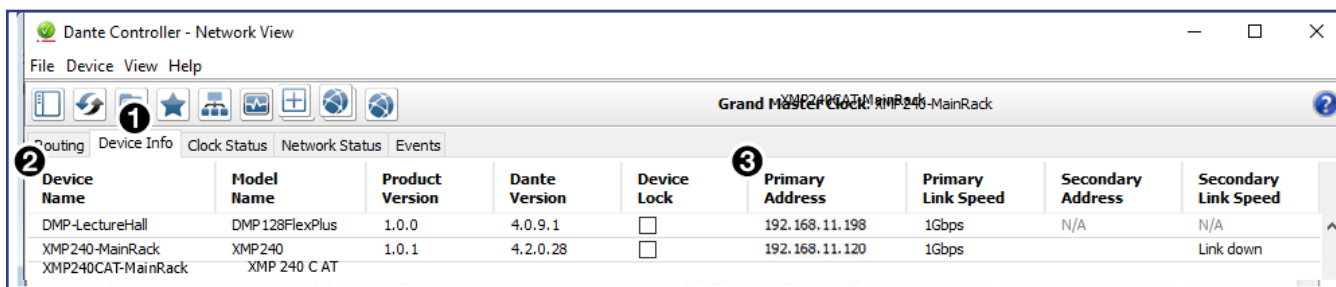


Figure 129. Device Info Page

## Physical Dante Network Setup

A physical network is required to share Dante audio channels between Dante-enabled devices like the XMP 240 C AT. Other Dante-enabled devices must be on the same physical network in order to communicate via Dante. A daisy chain topology can be used to connect multiple devices.

**Daisy Chain topology** has XMP 240 C AT units connected in succession.

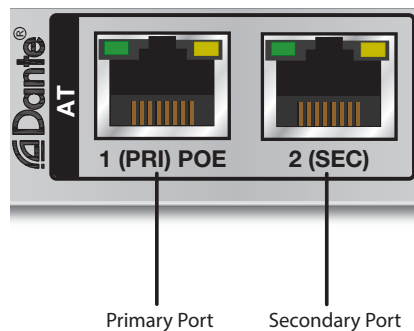


**Figure 130. Daisy Chain Network Topology**

**NOTE:** The daisy chain topology only functions in switched mode. It is not possible to use it in redundant mode.

## Redundant Configuration

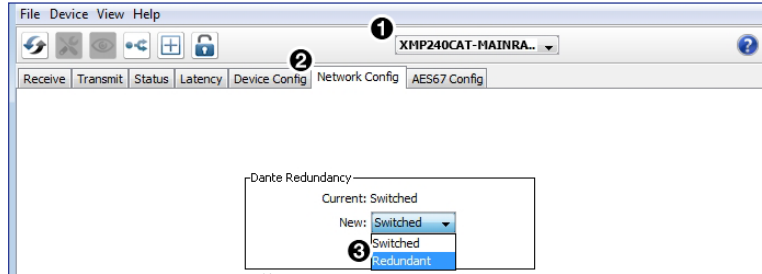
In redundant mode, the 2-port AT switch becomes two separate primary and secondary ports that duplicate audio traffic. Port 1 is marked **(PRI)** for primary while port 2 is marked **(SEC)** for secondary (see figure 131). Primary and secondary switches/ports cannot be connected together anywhere in the audio network. Redundant configuration can be enabled using Dante Controller or DSP Configurator.



**Figure 131. Primary and Secondary AT Ports**

**To configure the XMP 240 C AT in redundant mode using Dante Controller:**

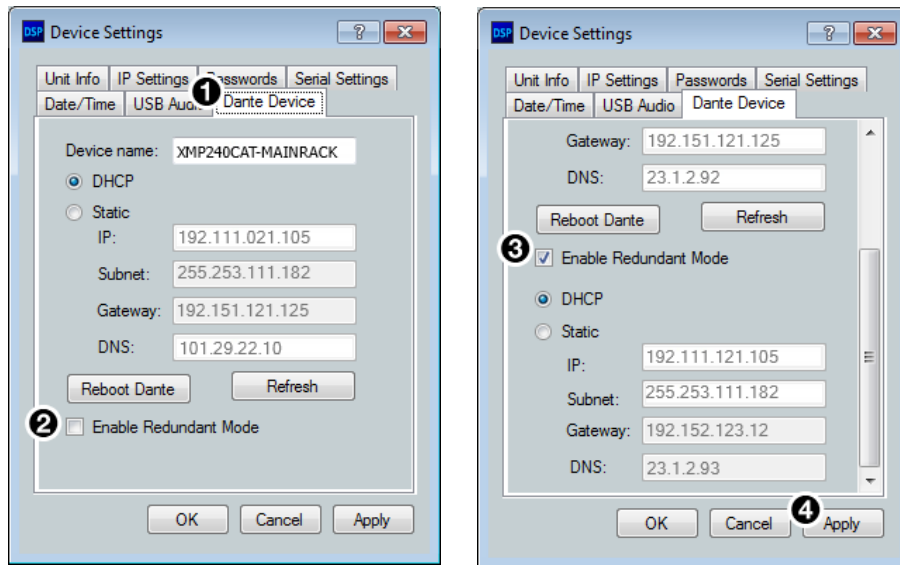
1. Open Dante Controller.
2. Press <Ctrl+D> on the keyboard to access the Device View dialog box.
3. Select the desired XMP 240 C AT from the (Choose a Dante Device...) drop-down menu (see figure 132, ①).
4. Select the Network Config tab (②).
5. From the Dante Redundancy panel, use the drop-down to select Redundant (③).



**Figure 132. Redundant Mode Configuration in Dante Controller**

**To configure the XMP 240 C AT in redundant mode using DSP Configurator:**

1. Use DSP Configurator to connect to the XMP 240 C AT in Live mode (see [Live and Emulate Panel](#) on page 17).
2. Select **Tools > Device Settings**.
3. In the Device Settings dialog box, use the right navigation arrow (↔) to navigate to and select the **Dante Device** tab (see figure 133, ①).
4. Select **Enable Redundant Mode** (②).
5. Select **DHCP** or **Static IP** and enter a valid redundancy network configuration (③).
6. Click **Apply** (④).



**Figure 133. Redundant Mode Configuration in DSP Configurator**

# Dante Controller Operation

## Dante Transmitters and Receivers

A Dante network is comprised of transmitters that output digital audio onto the Dante network and receivers that receive digital audio input from the Dante network.

- Transmitters output digital audio from the device onto the audio network.
- Receivers take in digital audio from the audio network into the device.

### XMP 240 C AT Transmitters and Receivers

In the XMP 240 C AT, all output channels are Dante transmitters because their audio output is transmitted onto the Dante network. Routing a signal to any of the first 16 outputs allows the signal to be output on both Dante and EXP simultaneously.

The XMP 240 C AT EXP input channels are Dante receivers because they receive digital audio signal from the Dante network that can then be selected as sources for the XMP 240 C AT inputs.

## Dante Routing Operation






Dante Controller is used for all network signal routing of transmitters and receivers for Dante-enabled devices. The XMP 240 C AT transmitters and receivers are available in Dante Controller for routing to other Dante devices (see [Dante Transmitters and Receivers](#) above).

## Routing Devices

After the XMP 240 C AT is configured, the channels can be routed to the other Dante devices on the audio network. Channels transmitted to the network or received from the network are routed using the Dante Controller **Routing** tab on the **Network View** page (see figure 134 on the next page). The transmitters, listed horizontally along the top of the screen, and the receivers, listed vertically down the left side, form a matrix whose intersections are the connection points between the receivers and transmitters.

- To make a receiver-to-transmitter connection, click once on an intersection.
- To remove a connection, click on the icon at the intersection.

One of the following icons appears at each connection intersection, indicating the status of both the transmitter and receiver channels and the connections (subscriptions):

Icon	Description
	Indicates an active subscription.
	Indicates subscription is in progress.
	Indicates a pending subscription.
	Indicates a broken subscription.
	Indicates the transmitting device has been removed from the network or is switched off.

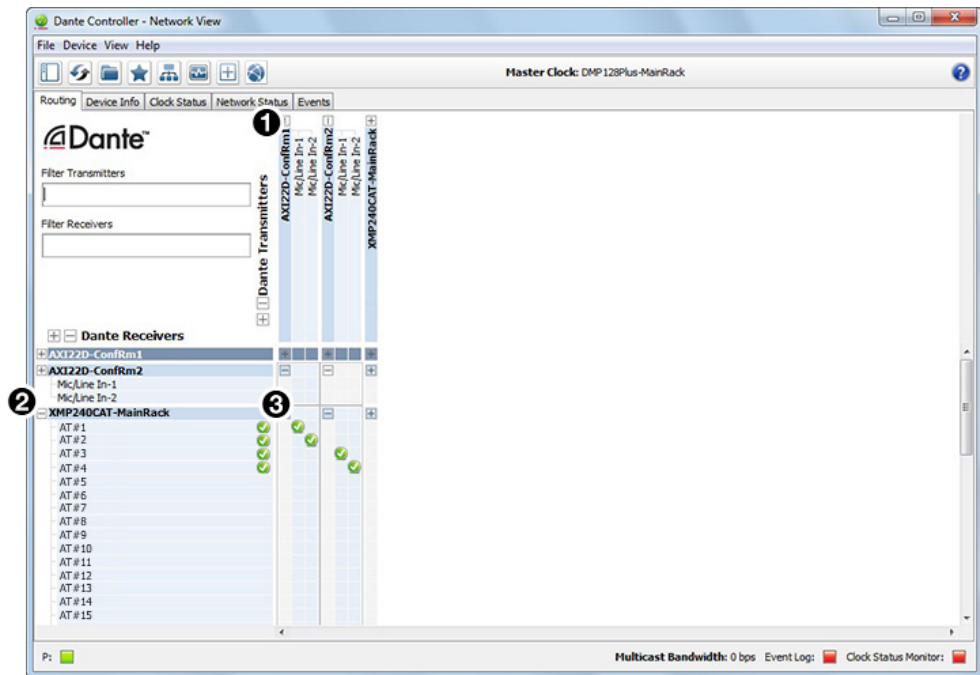
See the *Dante Controller User Guide*, available at [www.audinate.com](http://www.audinate.com), for additional information.

## Creating Subscriptions Between Transmitters and Receivers

1. Ensure the control computer and XMP 240 C AT are connected to the same network.
2. From the start menu select:  
**All Programs > Audinate > Dante Controller > Dante Controller**

The Dante Controller - Network View screen opens.

Dante Controller auto-discovers Dante devices on the network and advertises itself to allow other Dante-enabled devices to communicate with it. Transmitters connect to receivers using the subscription matrix.



**Figure 134. Routing Tab of Network View Screen**

3. To show the transmitters of a Dante device, click the + box next to the desired device in the Dante Transmitters panel, such as AXI22D-ConfRm1 (see figure 134, ①). The + changes to a - sign when the device expands.
4. To show the receivers of a Dante device, click the + box next to the desired device in the Dante Receivers panel, such as XMP240CAT-MainRack (②).
5. Click the intersection of the desired subscription between a transmitter and a receiver (③).

*Example:* The mic/line input transmitters of the AXI22D-ConfRm1 and AXI22D-ConfRm2 are routed to the AT input receivers of the XMP240CAT-MainRack.

A check mark at the intersection indicates the subscription is made. A check mark also appears next to the receiver channel.

**NOTE:** A receiver can subscribe to only one transmitter. A transmitter can subscribe to multiple receivers.

## Disconnecting Inputs from Outputs

To undo routing, click the junction again to disconnect the receiver from the transmitter.

**NOTE:** After making changes to Dante network routing such as subscriptions, device names, or channel labels, wait at least 5 seconds before disconnecting or powering down the devices. This ensures that the new information is properly saved to those devices. Device level configuration such as sample rates, latency, and clock settings are saved instantly.

## Sending SIS Commands to Dante Audio Interface Devices through the XMP

The XMP 240 C AT can be set to pass through SIS commands to connected Dante-controlled Extron devices (see [Dante Control and Configuration](#) on page 120 for the list of SIS commands).

To send an SIS command to an AXI device connected to a XMP 240 C AT:

1. Connect the XMP 240 and Dante-controlled devices to the same network via their AT ports (see [Physical Dante Network Setup](#) on page 96).
2. Connect to the XMP 240 via the DataView or HyperTerminal utility (see [Remote Communication and Control](#) on page 103).
3. Use the *Set verbose mode* command to set the XMP 240 to Verbose mode 3 (see [Set verbose mode](#) on page 112).

Example:

Command	Response
<code>w3cv  </code>	<code>Vrb3</code>

4. Use the *Query available remote devices* command (see [Query available remote devices](#) on page 120) to receive a list of Dante devices that are currently connected to the XMP.

Example:

Command	Response
<code>waexpr  </code>	<code>ExprA•AXI-XTP-RoomA←↵</code> <code>AXI-XTP-RoomB←↵↵</code>

**NOTE:** This list is similar to the list displayed within Dante Controller.

5. Use the *Enable remote connection* command to display the remote Dante-controlled device responses based on the list of devices provided in the response in step 4 (see [Enable remote connection for listening](#) on page 120). Repeat if necessary for all desired devices.

Example:

Command	Response
<code>wcAXI02-XTP-RoomA*1expr  </code>	<code>ExprCAXI-XTP-RoomA*1←↵</code>

**NOTE:** AXI devices can be set up for listening even if not currently connected to the XMP unit.

6. To verify that the XMP is listening to the correct remote devices, use the *Query remote devices being listened to* command to display a list of all remote devices enable with the command in step 5 (see [Query remote devices being listened to](#) on page 120).

Example:

Command	Response
<code>wLexpr  </code>	<code>ExprL•AXI-XTP-RoomA←↵</code>

7. Send the desired command to the AXI and confirm the correct response is received.
  - When entering a command, use the “w” character in place of the <Esc> key and the “pipe” character ( | ) in place of a return. Failing to do so may cause the command to fail.
  - The closing bracket ( } ) is necessary to successfully end a command before attempting to send a new command.

Example:

Command	Response
<code>{dante@AXI02-XTP-RoomA:wg40000*30AU } </code>	<code>{dante@AXI-XTP-RoomA}</code>
	<code>DsG40000*30←</code>

**NOTE:** The XMP provides the tag showing the Dante-controlled remote device name while the remote device provides the response for the SIS command.

## Dante Troubleshooting

The most common Dante troubleshooting issues occur when devices are not discovered by Dante Controller or when routing is not successful. Both issues occur when software is not able to properly discover devices operating on the Dante network.

Before moving into more difficult troubleshooting, shut down Dante Controller and reseal the Ethernet cable connecting the PC to the Dante network and restart Dante Controller. This can be enough for the software to reacquire the Dante network.

If the problem persists, perform the following troubleshooting procedures in the order listed.

### Simplifying the Network for Troubleshooting

If further troubleshooting of Dante Controller is necessary, begin by simplifying the network:

1. Bypass network switches by connecting two Dante-compatible units, such as an XMP 240 C AT and a DMP 128 FlexPlus, via their AT ports.
2. Connect the PC to an unused AT port with an Ethernet cable.
3. Use Dante Controller to check if the issue was resolved before moving on to network interface troubleshooting.
4. If the issue is resolved, add connections and hardware one at a time, checking for proper operation after each addition, until the point of failure is discovered (typically a bad cable or invalid redundant configuration).

### Troubleshooting the Network Interface

If the issue is still present, continue to diagnose the PC network connections as described below. Check Dante Controller after each step to see if the problem is resolved.

1. Click the **Choose a Dante Interface** icon (see figure 135, ❶). The **Configure Dante Interfaces** dialog box opens.

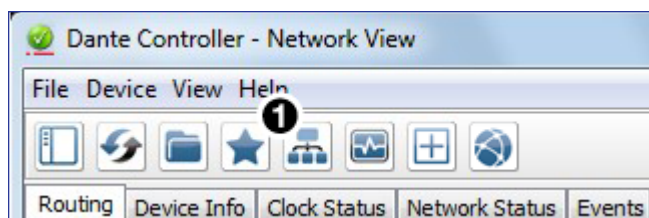
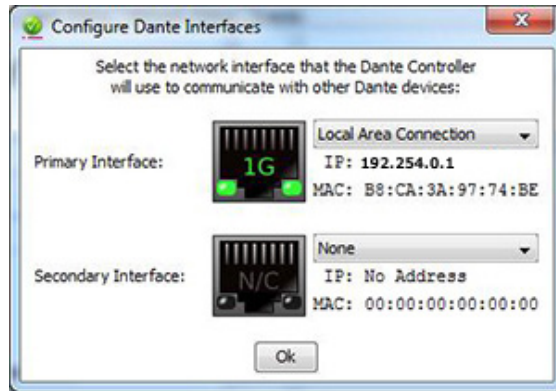


Figure 135. Choose a Dante Interface Icon



Be certain the correct LAN connection is selected (the PC LAN port that is physically connected to the AT network) and note the IP address.



**Figure 136. Configure Dante Interfaces Dialog Box**

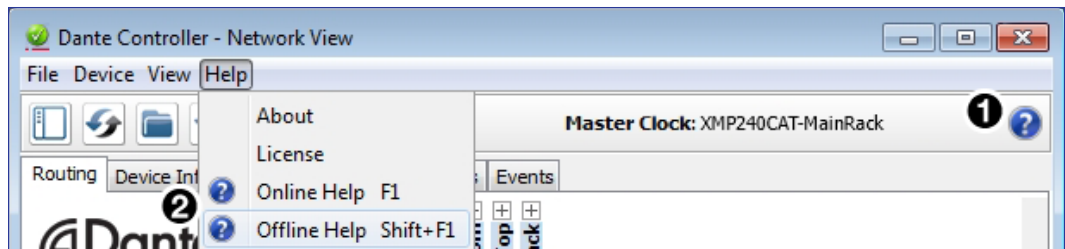
2. If it is on, turn off the PC wireless adapter. Disable all connections except the LAN port connected to the Dante network (verify this is the correct port by checking the IP address shown in the *Configure Dante Interfaces* dialog).
3. Turn off all anti-virus and firewall software on the computer.
4. Enable DHCP on the remaining network connection. This forces the computer to acquire an IP address from the Dante interface.

**NOTE:** A DHCP server must be on the network for DHCP to function correctly.

## Restarting Dante Controller

If subscriptions or normal operation cannot be restored, restart Dante Controller software. To access the *Dante Controller Help* file, do any of the following:

- Click the **Help** icon in the upper-right corner of the *Network View* screen (see figure 137, ①).
- Select **Help**, then **Online Help** or **Offline Help** from the menu (②).
- Press the <F1> key on the computer keyboard for online help or <Shift+F1> for offline help.



**Figure 137. Accessing the Dante Help File**

# Remote Communication and Control

This section describes how to control the XMP 240 C AT with SIS programming and covers the following topics:

- [Connection Options](#)
- [Host-to-Device Communications](#)
- [SIS Overview](#)
- [Command and Response Table for Basic SIS Commands](#)
- [Command and Response Table for DSP SIS Commands](#)
- [Object ID \(OID\) Number Tables](#)

## Connection Options

The XMP 240 C AT Expansion Matrix Processor can be remotely connected via a host computer or other device (such as a control system) attached to the rear panel RS-232 port or LAN port, or the front panel USB Config port.

The XMP 240 C AT can be set up and controlled using SIS commands or DSP Configurator software (see [Installation](#) on page 4 for pin assignments and details on the configuration and control port connections. For information on DSP Configurator, see [DSP Configurator Software](#) on page 10).

SIS commands can be executed using the Extron DataViewer application available from [www.extron.com](http://www.extron.com). The host computer issuing the commands can be connected via the following connections:

- [RS-232 Port](#) on the next page
- [LAN Port](#) on the next page
- [USB Config Port](#) on page 105

## RS-232 Port

The XMP 240 C AT has a serial port that can be connected to a host device such as a computer running either the DataViewer or HyperTerminal utilities. The port makes serial control of the XMP 240 C AT possible.

The XMP 240 C AT uses the following RS-232 protocols:

- 38400 baud
- 8 data bits
- No parity
- No flow control
- 1 stop bit

### NOTES:

- The rear panel configuration port requires 38400 baud communication. This speed is higher than most other Extron products. The XMP 240 C AT control software automatically sets the connection for the appropriate speed. When using DataViewer or similar application, make sure the host PC or control system is set for 38400 baud.
- See [Rear Panel Features and Cabling](#) on page 4 for additional details on connecting to the RS-232 port.

## LAN Port

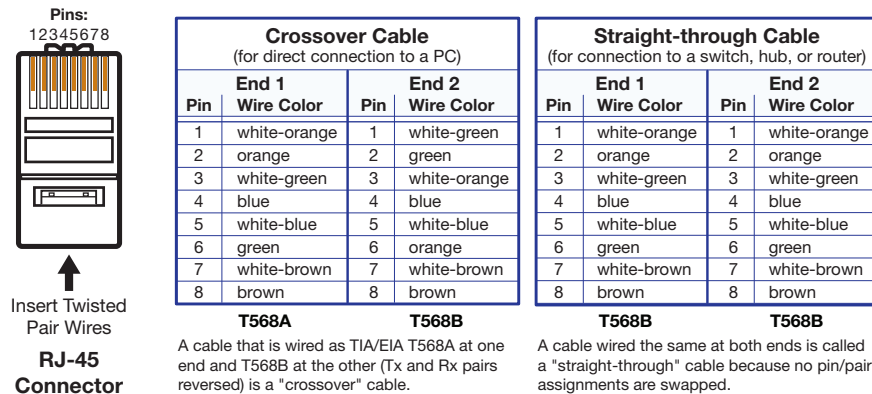
The XMP 240 C AT can be connected to an Ethernet LAN or WAN. Communication between the device and the controlling device is via Telnet (a TCP socket using port 23). The Telnet port can be changed, if necessary, via SIS. This connection makes SIS control of the device possible using a computer connected to the same LAN or WAN. The SIS commands and behavior are identical to the commands and behavior the product exhibits when communicating by serial port or USB.

The XMP 240 C AT LAN 1 port defaults are as follows:

IP Address	Subnet Mask	Default Gateway	DHCP
192.168.254.254	255.255.255.0	0.0.0.0	OFF

The Ethernet cable can be terminated as a straight-through cable or a crossover cable and must be properly terminated for your application.

- **Crossover cable** — Direct connection between the computer and the XMP 240 C AT.
- **Straight-through (Patch) cable** — Connection of the XMP 240 C AT to an Ethernet LAN.



**Figure 138. RJ-45 Ethernet Connector Pin Assignments**

## Establishing a Network Connection via LAN

1. Open a TCP socket to port 23 using the XMP 240 C AT IP address.

**NOTE:** If the local system administrators have not changed the value, the factory specified default, 192.168.254.254, is the correct value for this field.

2. The XMP 240 C AT responds with a copyright message including the date, the name of the product, firmware version, part number, and the current date/time.
3. If the device is password protected, enter the appropriate administrator or user password.
  - a. If the password is accepted, the device responds with *Login User or Login Administrator*.
  - b. If the password is not accepted, the *Password* prompt reappears.

### NOTES:

- The factory configured password for this device has been set to the device serial number. Passwords are case sensitive. Resetting the device sets the password to default (no password).
- The Ethernet link times out after a designated period of time of no communications. By default, the timeout value is set to 5 minutes and can be changed (see [Set global IP port timeout](#) on page 110).
- Extron recommends leaving the default timeout at 5 minutes and periodically issuing the **Query (Q)** command to keep the connection active. If there are long idle periods, disconnect the socket and reopen the connection when another command must be sent.

## USB Config Port

The XMP 240 C AT has a front panel USB port that can be connected to a computer as a host device running DataViewer utilities for control of the device. Once a connection is established, SIS programming can begin (see [Host-to-Device Communications](#) on the next page).

## Verbose Modes

The connection to an XMP 240 C AT can be used to monitor for changes that occur on the device, such as SIS commands from a TCP/IP connection or the RS-232 serial port. To receive change notices from the device, you must enable verbose mode 1 or 3 (see [Set verbose mode](#) on page 112). In verbose mode 1 or 3, the connection reports changes in messages that resemble SIS command responses.

### Tagged and Untagged Responses

When a query command is sent in verbose mode 0 or 1, only the “untagged” value is returned. When a query command is sent in other verbose modes, the response is “tagged” and resembles the response to a set command.

**Example:** The gain query command `[Esc]G40000AU←` is sent. The following responses appear depending on the verbose mode:

- **Untagged (verbose 0 or 1):** `626←`, just the gain value with no other information.
- **Tagged (verbose 2 or 3):** `DsG40000*626←`, the type of query sent, the OID queried, and the gain value.

**NOTE:** All query responses listed in this guide are shown untagged unless marked otherwise.

## Host-to-Device Communications

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the scaler determines that a command is valid, it executes the command and sends a response to the host device. All responses from the device to the host end with a carriage return and a line feed (CR/LF = **↵**), indicating the end of the response character string (one or more characters).

### XMP 240 C AT-initiated Messages

The XMP 240 C AT initiates messages under specific conditions. No response is required from the host. The XMP 240 C AT-initiated messages are listed below.

#### Copyright Message

The XMP 240 C AT initiates the following copyright message when it is first powered on or when a connection via IP is established:

(c) Copyright 2020, Extron Electronics, XMP 240 C AT, *Vn.nn*, *60-nnnn-nn*↵

*Day, DD MMM YYYY HH:MM:SS*↵

- *Vn.nn* is the firmware version number.
- *60-nnnn-nn* is the XMP 240 C AT part number.

The XMP 240 C AT sends the boot and copyright messages under the following circumstances:

- If the XMP 240 C AT is off and RS-232 connection is already set up (the PC is cabled to the XMP 240 C AT and a serial communication program such as DataViewer is open), the connected unit sends these messages via RS-232 when first powered on.
- The XMP 240 C AT sends the boot and copyright messages when a Telnet connection to the XMP 240 C AT is opened via Telnet, but not via RS-232. If using a Telnet connection, the copyright message, date, and time may be followed by a password prompt.

#### Password Prompt

The **↵Password** prompt requires an administrator or user password followed by a carriage return. The prompt is repeated if the incorrect password is entered.

If the correct password is entered, the unit responds with **↵Login Administrator↵** or **↵Login User↵** depending on the password entered. If passwords are the same for both administrator and user, the unit will default to administrator privileges.

# SIS Overview

## Using the Command and Response Tables

When programming, certain characters are more conveniently represented by their hexadecimal rather than ASCII values. The table below shows the hexadecimal equivalent of each ASCII character:

ASCII to HEX Conversion Table										Esc	1B	CR	0D	LF	0A
Space	20	!	21	"	22	#	23	\$	24	%	25	&	26	'	27
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
0	30	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	40	A	41	B	42	C	43	D	44	E	45	F	46	G	47
H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F
P	50	Q	51	R	52	S	53	T	54	U	55	V	56	W	57
X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F
`	60	a	61	b	62	c	63	d	64	e	65	f	66	g	67
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p	70	q	71	r	72	s	73	t	74	u	75	v	76	w	77
x	78	y	79	z	7A	{	7B		7C	}	7D	~	7E	DEL	7F

**Figure 139. ASCII to Hex Conversion Table**

The Command and Response tables list valid ASCII commands, the XMP 240 C AT responses to the host, and descriptions of the command functions with the results of executing the commands.

## Symbol Definitions

- ↵ = Carriage return (with line feed)
- ← = Carriage return (no line feed)
- = Space character
- | = Pipe (can be used interchangeably with the ← character)
- Esc = Escape key
- W = Can be used interchangeably with the Esc character.

### NOTES:

- Only instances marked with a • character require a space. Any spaces between characters in the command and response tables are only inserted for ease of reading.
- Unless stated otherwise, SIS commands are **not** case sensitive.

## Error Responses

When the XMP 240 C AT is unable to execute the command, it returns an error response to the host. The error response codes and their descriptions are as follows:

E10 —	Unrecognized command	E22 —	Busy
E12 —	Invalid port number	E24 —	Privilege violation
E13 —	Invalid parameter	E25 —	Device not present
E14 —	Not valid for this configuration	E26 —	Maximum number of connections exceeded
E17 —	Invalid command for signal type	E27 —	Invalid event number
E18 —	System/command timed out	E28 —	Bad filename or file not found

## Simple Control Port Commands

Upper and lower case text can be used interchangeably except where noted. Port 23 is the default port for Telnet. Port 80 is the default port for web browsers. Both can be mapped to different ports.

## Command and Response Table Sections

### Command and Response Table for Basic SIS Commands

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Firmware Version / Part Number / Information Queries</b>			
General Information (Advanced)	<b>X566</b> I	{Specific Information} ← - see <b>X566</b>	Verbose mode 2/3: Inf <b>X566</b> *{Specific Information} ←
Query Firmware Version	Q	{version x.xx} ←	Verbose mode 2/3: Ver01* {version x.xx} ←
Query Firmware Version (w/build)	*Q	{version x.xx.xxxx} ←	Verbose mode 2/3: Bld {version x.xx.xxxx} ←
Query Firmware Version (Advanced)	<b>X45</b> Q	{Specific Version Info} ← – see <b>X45</b> list	Verbose mode 2/3: Ver <b>X567</b> *{Specific Version Info} ←
Query Part Number	N	zz-zzzz-zz ←	Verbose mode 2/3: Pno zz-zzzz-zz ←

#### KEY:

**X45** = Firmware Query

0 = Detailed version information (includes all 2Q, 3Q, and 4Q)

1 = Firmware version

2 = Final stage bootloader

3 = Factory base code version

4 = Updated firmware version

**X566** = General Information Query

1 = Model Name (e.g. *XMP 240 C AT*)

2 = Model Description (e.g. *Dante Audio Matrix Processor with AEC*)

3 = System memory Usage (# of Bytes Used out of # of Kbytes)

4 = User Memory Usage [ # Bytes Used out of # Kbytes ]



Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Ethernet Data Port</b>			
Set current connected port timeout	<b>Esc</b> 0 * <b>X69</b> TC ←	Pti0 * <b>X69</b> ↵	
View current connected port timeout	<b>Esc</b> 0 TC ←	<b>X69</b> ↵	
Set global IP port timeout	<b>Esc</b> 1 * <b>X69</b> TC ←	Pti1 * <b>X69</b> ↵	
View global IP port timeout	<b>Esc</b> 1 TC ←	<b>X69</b> ↵	

**KEY:**

**X69** = The number of seconds before timeout on IP connections:  
(min = 1, max = 65000 & default = 30 = 300 seconds)

**Serial Data Port**

Configure parameters	<b>Esc</b> 1 * <b>X25</b> , <b>X26</b> , <b>X27</b> , <b>X28</b> CP ←	Cpn 1 • Ccp <b>X25</b> , <b>X26</b> , <b>X27</b> , <b>X28</b> ↵
View parameters	<b>Esc</b> 1 CP ←	<b>X25</b> , <b>X26</b> , <b>X27</b> , <b>X28</b> ↵
View mode	<b>Esc</b> 1 CY ←	<b>X29</b> ↵
Configure flow control	<b>Esc</b> 1 * <b>X30</b> , <b>X31</b> CF ←	Cpn 1 • Cfl <b>X30</b> , <b>X31</b> ↵
View flow control	<b>Esc</b> 1 CF ←	<b>X30</b> , <b>X31</b> ↵

**KEY:**

- X17** = General Information Query
- X25** = Baud rate: 300, 600, 1200, 1800, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 57600, 115200 (default = 9600)
- X26** = Parity  
Odd, Even, None, Mark, Space  
Only use the first letter (default = N = None)
- X27** = Data bits  
7, 8 (default = 8)
- X28** = Stop bits  
1, 2 (default = 1)
- X29** = Port type  
0 = RS-232, 1 = RS-422, 2 = RS-485 (default = 0 = RS-232)
- X30** = Flow control  
Hardware, Software, None [only use the first letter]  
(default = N = None)
- X31** = Data Pacing [specified in milliseconds between bytes]: 0000 – 1000 (default = 0 ms).  
For host ports, this value is ignored – always returns 0

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>IP Setup Commands</b>			
Set unit name	<b>Esc</b> X12 CN ←	Ipn ● X12 ↵	
Set unit name to factory default	<b>Esc</b> ● CN ←	Ipn ● X49 ↵	
View unit name	<b>Esc</b> CN ←	X12 ↵	
Set date/time	<b>Esc</b> X13 CT ←	Ipt ● X13 ↵	
View date/time	<b>Esc</b> CT ←	X13 ↵	
View date/time in hex	<b>Esc</b> *CT ←	X65 ↵	
View GMT offset	<b>Esc</b> CZ ←	X3 ↵	Verbose modes 2/3 Ipz X3 ↵
Set DHCP on	<b>Esc</b> 1DH ←	Idh1 ↵	
Set DHCP off	<b>Esc</b> 0DH ←	Idh0 ↵	
View DHCP mode	<b>Esc</b> DH ←	X14 ↵	
<b>NOTE:</b> The following commands affect the LAN 1 port.			
Set IP address	<b>Esc</b> X14 CI ←	Ipi ● X14 ↵	
View IP address	<b>Esc</b> CI ←	X14 ↵	
View hardware address (MAC)	<b>Esc</b> CH ←	X18 ↵	Verbose modes 2/3 Iph X18 ↵
Set subnet mask	<b>Esc</b> X333 CS ←	Ips ● X333 ↵	
View subnet mask	<b>Esc</b> CS ←	X333 ↵	
Set gateway IP address	<b>Esc</b> X14 CG ←	Ipg ● X14 ↵	
View gateway IP address	<b>Esc</b> CG ←	X14 ↵	
<b>KEY:</b>			
X3	=	Greenwich Mean Time (GMT) offset value (-12:00 to 14:00). This represent hours and minutes (hh:mm) offset from GMT	
X12	=	Unit name is a text string up to 63 characters (24 before 2/2013) drawn from the alphabet (A-Z), digits (0-9), minus sign/hyphen (-)	
X13	=	Set local date and time format (MM/DD/YY-HH:MM:SS)	
X14	=	IP address (xxx.xxx.xxx.xxx). Leading zeros in each of 4 fields are optional in setting values	
X18	=	Hardware (MAC) address (00-05-A6-xx-xx-xx)	
X333	=	Subnet Mask (xxx.xxx.xxx.xxx). Leading zeros in each of 4 fields are optional in setting values	
X49	=	Default Name Combination of model-name and last 3 pairs of MAC address (e.g. XMP-240-C-AT-00-02-3D)	
X65	=	Date/Time returned in 7 Hex bytes month, day, year, hour minutes, seconds, day of the week (1 begins on Sunday)	

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>IP Setup Commands (continued)</b>			
Set IP	<b>Esc</b> <b>X576</b> * <b>X14</b> C I S G ←	C i s g ● <b>X576</b> * <b>X14</b> / <b>X577</b> * <b>X14</b> ←	In all C I S G commands, the first <b>X14</b> represents the IP address, <b>X576</b> represents the subnet mask, and the second <b>X14</b> represents the gateway IP address.
Set IP/subnet	<b>Esc</b> <b>X576</b> * <b>X14</b> / <b>X577</b> C I S G ←	C i s g ● <b>X576</b> * <b>X14</b> / <b>X577</b> * <b>X14</b> ←	
Set IP/subnet/gateway	<b>Esc</b> <b>X576</b> * <b>X14</b> * <b>X333</b> * <b>X14</b> C I S G ←	C i s g ● <b>X576</b> * <b>X14</b> / <b>X577</b> * <b>X14</b> ←	
Set IP/subnet/gateway (all)	<b>Esc</b> <b>X576</b> * <b>X14</b> / <b>X577</b> * <b>X14</b> C I S G ←	C i s g ● <b>X576</b> * <b>X14</b> / <b>X577</b> * <b>X14</b> ←	
View IP/subnet/gateway	<b>Esc</b> <b>X576</b> C I S G ←	<b>X14</b> / <b>X577</b> * <b>X14</b> ←	
Set DNS server IP address	<b>Esc</b> <b>X14</b> D I ←	I p d ● <b>X14</b> ←	
View DNS server IP address	<b>Esc</b> D I ←	<b>X14</b> ←	
Set verbose mode	<b>Esc</b> <b>X22</b> C V ←	V r b <b>X22</b> ←	
View Verbose mode	<b>Esc</b> C V ←	<b>X22</b> ←	
Get connection listing	<b>Esc</b> C C ←	{number of connections} ←	Verbose modes 2/3 I c c {number of connections} ←

**KEY:**

<b>X14</b> =	IP Address	xxx.xxx.xxx.xxx . Leading zeros in each of the 4 fields are optional in setting values and are suppressed in responses.
<b>X22</b> =	Verbose/Response Mode	<ul style="list-style-type: none"> <li>0 = clear/none</li> <li>1 = verbose mode</li> <li>2 = tagged responses for queries</li> <li>3 = verbose mode and tagged responses for queries</li> </ul>
<b>X576</b>	NIC (Network Interface Card) number (1)	
<b>X577</b> =	Prefix (subnet mask bits)	Subnet 255.255.0.0 is represented as a prefix value of /16

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Password and Security Settings</b>			
Set admin password	<b>Esc</b> X33CA←	Ipa●X41←	
Clear admin password	<b>Esc</b> ●CA←	Ipa●←	
View admin password	<b>Esc</b> CA←	X41←	
Set user password	<b>Esc</b> X33CU←	Ipu●X41←	
Clear user password	<b>Esc</b> ●CU←	Ipu●←	
View user password	<b>Esc</b> CU←	X41←	
Query session's security level	<b>Esc</b> CK←	X52←	Verbose modes 2/3 Pv1X52←

**KEY:**

X33 = Password	0-128 characters. All man-readable characters are permitted except " ". Password cannot be a single space. Passwords are case-sensitive.
X41 Reading Password	Responds with 4 asterisk (****) if password exists and empty if not, instead of actual password
X52 = Connection's security level	11 = user, 12 = administrator

**NOTE:** The factory configured password for this device has been set to the device serial number. Passwords are case sensitive.

**Directories**

Change/Create directory	<b>Esc</b> path/directory/CJ←	Dir●path/directory/←
Back to root directory	<b>Esc</b> /CJ←	Dir●/←
Up one directory	<b>Esc</b> ..CJ←	Dir●path/directory/←
View current directory	<b>Esc</b> CJ←	path/directory/←

**File Commands**

Erase user-supplied web page/file	<b>Esc</b> Filename EF←	Del1 Filename←	
Erase current directory and contained files	<b>Esc</b> /EF←	Dd1←	
Erase current directory and subdirectories	<b>Esc</b> //EF←	Dd1←	
List files from current directory	<b>Esc</b> DF←	filenamex●date/time ●Length←	Responses for <b>Esc</b> DF← and <b>Esc</b> LF← are in the same format.
List files from current directory and below	<b>Esc</b> LF←	filenamex●date/time ●Length← ... space_remaining●bytes left←←	

Command	ASCII command (host to device)	Response (device to host)	Additional description
Load file to user flash memory	<b>[Esc]</b> +UF <i>filesize</i> , <i>filename</i> ←	Up1←	
Retrieve file from user flash memory	<b>[Esc]</b> <i>filename</i> SF←	{responds with 4 bytes of file size and unprocessed data in file}	
<b>Backup/Restore Device Configuration</b>			
Save device configuration (to filesystem)	<b>[Esc]</b> 1*{config type} XF←	Cfg1*{config type}←	
Restore device configuration	<b>[Esc]</b> 0*{config type} XF←	Cfg0*{config type}←	
<b>NTP (Network Time Protocol)</b>			
Enable NTP to set the time	<b>[Esc]</b> 1NTEN←	Nten1←	
Disable NTP	<b>[Esc]</b> 0NTEN←	Nten0←	
Sync NTP now	<b>[Esc]</b> 2NTEN←	Nten2←	
View NTP status	<b>[Esc]</b> NTEN←	<b>[X31]</b> ←	
Set NTP IP address	<b>[Esc]</b> <b>[X14]</b> NTIP←	Ntip <b>[X14]</b> ←	
Reset NTP IP address	<b>[Esc]</b> •NTIP←	Ntip←	Sets address to default
View NTP IP address	<b>[Esc]</b> NTIP←	<b>[X14]</b> ←	
Set NTP port map	<b>[Esc]</b> N{port#}PMAP←	PmapN{port#}←	
Reset NTP port map	<b>[Esc]</b> N123PMAP←	PmapN00123←	
Disable NTP port	<b>[Esc]</b> N0PMAP←	PmapN00000←	
View NTP port map	<b>[Esc]</b> NPMAP←	{port#}←	
<b>KEY:</b>			
<b>[X14]</b> = IP address (xxx.xxx.xxx.xxx). Leading zeros in each of 4 fields are optional in setting values			

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Port Assignment</b>			
Set telnet port map	<b>Esc</b> {port#}MT ←	Pmt{port#} ←	
Reset telnet port map	<b>Esc</b> 23MT ←	Pmt00023 ←	
Disable telnet port	<b>Esc</b> 0MT ←	Pmt00000 ←	
View telnet port map	<b>Esc</b> MT ←	{port#} ←	
Set web port map	<b>Esc</b> {port#}MH ←	Pmh{port#} ←	
Reset web port map	<b>Esc</b> 80MH ←	Pmh00080 ←	
Disable web port map	<b>Esc</b> 0MH ←	Pmh00000 ←	
View web port map	<b>Esc</b> MH ←	{port#} ←	
Set SNMP port map	<b>Esc</b> A{port#}PMAP ←	PmapA{port#} ←	
Reset SNMP port map	<b>Esc</b> A161PMAP ←	PmapA00161 ←	
Disable SNMP port	<b>Esc</b> A0PMAP ←	PmapA00000 ←	
View SNMP port map	<b>Esc</b> APMAP ←	{port#} ←	
Set SSH port map	<b>Esc</b> B{port#}PMAP ←	PmapB{port#} ←	
Reset SSH port map	<b>Esc</b> B22023PMAP ←	PmapB22023 ←	
Disable SSH port	<b>Esc</b> B0PMAP ←	PmapB00000 ←	
View SSH port map	<b>Esc</b> BP MAP ←	{port#} ←	
Set SSL port map	<b>Esc</b> S{port#}PMAP ←	PmapS{port#} ←	
Reset SSL port map	<b>Esc</b> S443PMAP ←	PmapS00443 ←	
Disable SSL port	<b>Esc</b> S0PMAP ←	PmapS00000 ←	
View SSL port map	<b>Esc</b> SPMAP ←	{port#} ←	
Set FTP port map	<b>Esc</b> F{port#}PMAP ←	PmapF{port#} ←	
Reset FTP port map	<b>Esc</b> F21PMAP ←	PmapF00021 ←	
Disable FTP port	<b>Esc</b> F0PMAP ←	PmapF00000 ←	
View FTP port map	<b>Esc</b> F PMAP ←	{port#} ←	
Set TFTP port map	<b>Esc</b> T{port#} PMAP ←	PmapT{port#} ←	
Reset TFTP port map	<b>Esc</b> T69PMAP ←	PmapT00069 ←	
Disable TFTP port map	<b>Esc</b> T0PMAP ←	PmapT00000 ←	
View TFTP port map	<b>Esc</b> T PMAP ←	{port#} ←	

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>SNMP (Simple Network Management Protocol)</b>			
Set unit contact	<b>[Esc]C</b> [X581]SNMP ←	SnmpC*[X581]↵	
Set unit contact to default	<b>[Esc]C</b> •SNMP ←	SnmpC* Not•Specified↵	
View unit contact	<b>[Esc]C</b> SNMP ←	[X581]↵	
Set unit location	<b>[Esc]L</b> [X581]SNMP ←	SnmpL*[X581]↵	
Set unit location to default	<b>[Esc]L</b> •SNMP ←	SnmpL* Not•Specified↵	
View unit location	<b>[Esc]L</b> SNMP ←	[X581]↵	
Set community public (read-only)	<b>[Esc]P</b> [X581]SNMP ←	SnmpP*[X581]↵	
Set community public to default	<b>[Esc]P</b> •SNMP ←	SnmpP*public↵	
View community public	<b>[Esc]P</b> SNMP ←	[X581]↵	
Set community private (read/write)	<b>[Esc]X</b> [X581]SNMP ←	SnmpX*[X581]↵	
Set community private to default	<b>[Esc]X</b> SNMP•[X581] ←	SnmpX*private↵	
View community private	<b>[Esc]X</b> SNMP ←	[X581]↵	
Enable SNMP access and traps	<b>[Esc]E</b> 1SNMP ←	SnmpE*1↵	
Disable SNMP access and traps	<b>[Esc]E</b> 0SNMP ←	SnmpE*0↵	
View SNMP access setting	<b>[Esc]E</b> SNMP ←	[X83]↵	
<b>KEY:</b>			
[X83] = 0 = Disable; 1 = Enable			
[X581] = Text – up to 64 characters			
<b>Reboot Commands</b>			
Reboot system	<b>[Esc]1</b> B00T ←	Boot1↵	
Reboot network	<b>[Esc]2</b> B00T ←	Boot2↵	

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Serial Host Control Port Mode</b>			
Standard host control (SIS)	<b>[Esc][X1]*1HSTM</b> ←	Hstm <b>[X1]*1</b> ↵	
Device control (no SIS)	<b>[Esc][X1]*2HSTM</b> ←	Hstm <b>[X1]*2</b> ↵	
Disable port	<b>[Esc][X1]*0HSTM</b> ←	Hstm <b>[X1]*0</b> ↵	
Query port mode	<b>[Esc][X1]HSTM</b> ←	<b>[X85]</b> ↵	
<b>KEY:</b>			
<b>[X1]</b> = Specific port number (01-99)			
<b>[X85]</b> = Serial Host-control port mode      0 = Device Control (no SIS), 1 = Standard Host control (Default = SIS), 2 = Disable Port			
<b>Ping</b>			
Execute test	<b>[Esc]{address/name}</b> PING←	<i>{address}*{bytes}* {ttl}*{time}</i> ↵	Verbose mode 2/3 <i>{ping}•{name}* {address}*{bytes}* {ttl}*{time}</i> ↵
<i>Example:</i>	<b>[Esc]192.168.254.254</b> PING←	<i>192.168.254.254*64* 64*3.469</i>	
If ping fails to get reply from address		<i>{address}*0*0*0</i> ↵	<i>{ping}•{name}* {address}*0*0*0</i> ↵
<b>Timezone and Daylight Settings</b>			
Set time zone	<b>[Esc]{zone name}* TZON</b> ←	Tzon• <i>{zone name, description}</i> ↵	
View current time zone	<b>[Esc]TZON</b> ←	<i>{zone name, description}</i> ↵	
List all time zones	<b>[Esc]*TZON</b> ←	<i>{zone name, description}</i> ↵ ...↵ ...↵↵	
<b>Display Environmental Variables</b>			
View EEPROM Parameters	<b>[Esc]NVPR</b> ←	<i>{JSON formatted tag-value pairs of various info}</i> ↵	



Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Miscellaneous</b>			
Get temperature	<b>Esc</b> 20STAT←	<b>X86</b> ↵	
<b>KEY:</b>			
	<b>X86</b> =	Device temperature, degrees Celsius	
<b>Write Names</b>			
Write EXP input name	<b>Esc</b> <b>X99</b> , <b>X2</b> NE←	Nei <b>X99</b> , <b>X2</b> ↵	
Write output name	<b>Esc</b> <b>X98</b> , <b>X2</b> NX←	Nex <b>X98</b> , <b>X2</b> ↵	
Write preset name	<b>Esc</b> <b>X3</b> , <b>X4</b> NG←	Nmg <b>X3</b> , <b>X4</b> ↵	
<b>View Names</b>			
View EXP input name	<b>Esc</b> <b>X99</b> NE←	<b>X2</b> ↵	Verbose modes 2/3 Nei <b>X99</b> , <b>X2</b> ↵
View output name	<b>Esc</b> <b>X98</b> NX←	<b>X2</b> ↵	Verbose modes 2/3 Nex <b>X98</b> , <b>X2</b> ↵
View preset name	<b>Esc</b> <b>X3</b> NG←	<b>X4</b> ↵	Verbose modes 2/3 Nmg <b>X3</b> , <b>X4</b> ↵
<b>KEY:</b>			
	<b>X2</b> = Name	Invalid characters = ~ , @ = ' [ ] { } < > ` " : ;   \ and ?	
	<b>X3</b> = Preset number	1 through 64	
	<b>X4</b> = Preset name	Invalid characters = ~ , @ = ' [ ] { } < > ` " : ;   \ and ?	
	<b>X98</b> = Output number	1 through 48	
	<b>X99</b> = EXP input number	1 through 16	
<b>Recall Presets</b>			
Recall Preset	<b>X3</b> .	Rpr <b>X3</b> ↵	
<b>KEY:</b>			
	<b>X3</b> = Preset number	1 through 64	

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Reset to Factory Defaults</b>			
Reset presets and names	<b>Esc</b> ZG←	Zpg←	
Reset individual preset	<b>Esc</b> [X3]ZG←	Zpg [X3]←	
System reset (factory default)	<b>Esc</b> ZXXX←	Zpx←	
Reset flash file system	<b>Esc</b> ZFFF←	Zpf←	
Absolute reset including IP settings	<b>Esc</b> ZQQQ←	Zpq←	
Reset all device settings and delete files	<b>Esc</b> ZY←	Zpy←	Reset excludes IP address, subnet mask, gateway IP address, unit name, DHCP, and port mapping in order to preserve communication with the device.

**KEY:**

[X3] = Preset number 1 through 64

**Macro Commands**

**NOTE:** When referencing a macro using its name, the system will always return the macro number in its response.

Run macro	<b>Esc</b> R[X69]MCRO←	McroR[X69]←	
Kill macro	<b>Esc</b> K[X69]MCRO←	McroK[X69]←	
Get macro status	<b>Esc</b> S[X69]MCRO←	[X70]←	Verbose modes 2/3 McroS[X69]*[X70]←
Set macro name	<b>Esc</b> A[X69]*[X71]MCRO←	McroA[X69]*[X71]←	
Get macro name	<b>Esc</b> A[X69]MCRO←	[X71]←	Verbose modes 2/3 McroA[X69]*[X71]←
Set power-on macro	<b>Esc</b> P[X69]MCRO←	McroP[X69]←	Using 0 for [X69] clears power-on macro assignment.
Get power-on macro	<b>Esc</b> PMCRO←	[X69]←	

**KEY:**

[X69] = Macro number 1 through 64. Response will be padded with a leading 0.  
[X70] = Macro status 0 = Macro idle  
[X71] = Macro name 24 characters maximum (A-Z, a-z, 0-9, and "-")

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Asynchronous Macro Responses</b>			
Macro started		McroSTARTED <b>X69</b> ↵	
Macro finished		McroFINISHED <b>X69</b> ↵	
Macro failed		McroFAILED <b>X69</b> * <b>X70</b> ↵	
Macro killed		McroKILLED <b>X69</b> * <b>X70</b> ↵	
<b>KEY:</b>			
	<b>X69</b> = Macro number	1 through 64. Response will be padded with a leading 0.	
	<b>X70</b> = Macro status	0 = Macro idle	
<b>Dante Control and Configuration</b>			
The following commands configure the XMP 240 C AT to listen for and pass through SIS commands meant for Extron AXI 02 AT, AXI 22 AT, and AXI 44 AT endpoints.			
<b>NOTE:</b> The XMP must be set to Verbose mode 2/3 when using the Dante Control and Configuration commands.			
Query available remote devices	<b>Esc</b> A EXPR↵	<b>X177</b> ↵ <b>X177</b> ↵...↵↵	Verbose 2/3: ExprA• <b>X177</b> ↵ <b>X77</b> ↵...↵↵
Enable remote connection for listening	<b>Esc</b> C <b>X177</b> * <b>X222</b> EXPR↵	ExprC <b>X177</b> * <b>X222</b> ↵	All listening disabled when XMP Dante module rebooted
Read remote connection listening status	<b>Esc</b> C <b>X177</b> EXPR↵	<b>X222</b> ↵	Verbose 2/3: ExprC <b>X177</b> * <b>X222</b> ↵
Query remote devices being listened to	<b>Esc</b> L EXPR↵	<b>X177</b> ↵ <b>X177</b> ↵...↵↵	Verbose 2/3: ExprL• <b>X177</b> ↵ <b>X177</b> ↵...↵↵
Send command to remote device	{dante@ <b>X177</b> : <b>X198</b> }↵  <i>example command:</i> {dante@AXI02-XTP-RoomA:wg40000*10AU }	<i>example response:</i> {dante@AXI-XTP-RoomA}DsG40000*10↵	Verbose 2/3: {dante@ <b>X177</b> } <b>X199</b> ↵
<b>KEY:</b>			
	<b>X177</b> = Dante Device Name	Device names are not case sensitive	
	<b>X198</b> = SIS command	SIS command to be sent to remote dante-controlled device	
	<b>X199</b> = SIS command response	Response from remote dante-controlled device, tagged by XMP	
	<b>X222</b> = Extron Remote Connection Mode	0 = Disabled 1 = Enabled	

## DSP SIS Commands

Many digital signal processor (DSP) functions such as gain, mute, and group masters can be controlled using SIS commands. These commands follow the same general rules as basic SIS commands but the variables can be more complex. Also, an understanding of the audio signal flow is helpful for using audio DSP SIS commands. The following gain blocks are addressable via SIS commands:

- Mic/Line Input (gain and mute)
- Aux Input (gain, mute, and source)
- Pre-mixer (gain and mute)
- Mix-points (gain and mute)
- Virtual Return (gain and mute)
- Post-mixer (gain only)
- Output (attenuation and mute)

## Symbol Definitions

- ↵ = Carriage return/line feed
- ← = Carriage return (no line feed)
- = Space character
- | = Pipe (can be used interchangeably with the ← character)
- Esc** = Escape key
- W = Can be used interchangeably with the **Esc** character

## Special Characters

The HTML language reserves certain characters for specific functions. The device will not accept the following characters as a part of preset names, the device names, passwords, or locally created file names.

The XMP 240 C AT rejects the following characters:

{space (OK for names)} + ~ , @ = ' { } [ ] < > ` “ ; : \ ?

## Command and Response Table for DSP SIS Commands

Command	ASCII command (host to device)	Response (device to host)	Additional description						
<b>Audio level control</b>									
<p><b>NOTE:</b> The command format is the same regardless of the control point, but the acceptable gain range varies depending on the control point.</p> <ul style="list-style-type: none"> <li>The mic/line input gain range is -18 dB to +24 dB in 0.1 dB increments when the source is set to a digital input (for more on changing the input source, see <a href="#">Input Gain Block</a> on page 24).</li> <li>The pre-mixer gain and virtual return gain range is -100 dB to +12 dB in 0.1 dB increments.</li> <li>The post-mixer trim gain range is -12 dB to +12 dB in 0.1 dB increments. Post mixer trim cannot be muted.</li> <li>The output attenuation gain range is -100 dB to 0 dB in 0.1 dB increments.</li> <li>All responses are shown with the XMP 240 C AT in Verbose mode 2 or 3.</li> </ul>									
Set gain level	<code>[Esc]G[X72]*[X73]AU←</code>	<code>DsG[X72]*[X73]←</code>	Set gain on OID <code>[X72]</code> to a value of <code>[X73]</code> dB.						
Example 1 (input 1):	<code>[Esc]H40000*120 AU←</code>	<code>DsH40000*120←</code>	Set the input 1 to a level of +12.0 dB.						
Example 2 (pre-mixer gain 1):	<code>[Esc]G40100*-8 AU←</code>	<code>DsG40100*-8←</code>	Set pre-mixer gain 1 to a value of -0.8 dB.						
Read gain level	<code>[Esc]G[X72]AU←</code>	<code>DsG[X72]*[X73]←</code>	Gain on OID <code>[X72]</code> is set to a value of <code>[X73]</code> dB.						
Example 1 (input 1) :	<code>[Esc]H40000AU←</code>	<code>DsH40000*25←</code>	Input 1 gain is set to a value of +2.5 dB.						
Example 2 (post-mixer gain 1) :	<code>[Esc]G60100AU←</code>	<code>DsG60100*55←</code>	Output 2, post mixer gain is set to a value of +5.5 dB.						
<p><b>NOTE:</b> Use the H parameter instead of the G parameter when setting or reading digital input gain level (for more on changing the input source, see <a href="#">Input Gain Block</a> on page 24).</p>									
<b>Audio Mute</b>									
Audio mute	<code>[Esc]M[X72]*1AU←</code>	<code>DsM[X72]*1←</code>	Mute audio at <code>[X72]</code> .						
Audio unmute	<code>[Esc]M[X72]*0AU←</code>	<code>DsM[X72]*0←</code>	Unmute audio at <code>[X72]</code> .						
Mute status	<code>[Esc]M[X72]AU←</code>	<code>DsM[X72]*[X74]←</code>							
<p><b>KEY:</b></p> <table style="width: 100%;"> <tr> <td style="width: 30%;"><code>[X72]</code> = Target OID</td> <td>See <a href="#">Object ID (OID) Number Tables</a> on page 127</td> </tr> <tr> <td><code>[X73]</code> = Gain value</td> <td>Levels use a 10x multiplier system with no decimal spaces. For example, a level of +10.4 dB would be entered as 104 and a level of -3.2 dB would be entered as -32.</td> </tr> <tr> <td><code>[X74]</code> = Mute status</td> <td>0 = disabled 1 = enabled</td> </tr> </table>				<code>[X72]</code> = Target OID	See <a href="#">Object ID (OID) Number Tables</a> on page 127	<code>[X73]</code> = Gain value	Levels use a 10x multiplier system with no decimal spaces. For example, a level of +10.4 dB would be entered as 104 and a level of -3.2 dB would be entered as -32.	<code>[X74]</code> = Mute status	0 = disabled 1 = enabled
<code>[X72]</code> = Target OID	See <a href="#">Object ID (OID) Number Tables</a> on page 127								
<code>[X73]</code> = Gain value	Levels use a 10x multiplier system with no decimal spaces. For example, a level of +10.4 dB would be entered as 104 and a level of -3.2 dB would be entered as -32.								
<code>[X74]</code> = Mute status	0 = disabled 1 = enabled								

Command	ASCII command (host to device)	Response (device to host)	Additional description
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### Audio Group Master Commands

#### NOTES:

- For information on configuring groups, see [Groups](#) on page 69.
- A group must have assigned members for these commands to have an effect.
- For **X76**, a positive (+) value is assumed unless a negative (-) value is specified.
- If entering an **X76** value outside the valid range for the group or outside the soft limits, the XMP 240 C AT responds with an *E13* error (invalid parameter).
- **X76**, **X77**, and **X78** values can be sent without leading zeroes. Responses are always 5 digits in length.

Set a group fader value	<b>Esc</b> D <b>X75</b> * <b>X76</b> GRPM←	GrpmD <b>X75</b> * <b>X76</b> ←	Set a group fader to a value of <b>X76</b> .
<i>Example:</i>	<b>Esc</b> D2*-239GRPM←	GrpmD2*-293←	Set group 2 fader control to -29.3 dB.
Increment a group fader value	<b>Esc</b> D <b>X75</b> * <b>X77</b> +GRPM←	GrpmD <b>X75</b> * <b>X76</b> ←	Increase the level of <b>X75</b> by <b>X77</b> dB.
<i>Example:</i>	<b>Esc</b> D2*30+GRPM←	GrpmD2*-263←	Raise the group 2 fader 3 dB from -29.3 dB (set in example above) to -26.3 dB.
Decrement a group fader value	<b>Esc</b> D <b>X75</b> * <b>X77</b> -GRPM←	GrpmD <b>X75</b> * <b>X76</b> ←	Decrease the level of the <b>X75</b> group fader by <b>X77</b> dB.
View the group fader value	<b>Esc</b> D <b>X75</b> GRPM←	GrpmD <b>X75</b> * <b>X76</b> ←	In verbose modes 0 and 1, the response is simplified to <b>X76</b> ←.
Mute a group	<b>Esc</b> D <b>X75</b> *1GRPM←	GrpmD <b>X75</b> *1←	Mute all blocks in group <b>X75</b> .
Unmute a group	<b>Esc</b> D <b>X75</b> *0GRPM←	GrpmD <b>X75</b> *0←	Unmute all blocks in group <b>X75</b> .
View a group mute value	<b>Esc</b> D <b>X75</b> GRPM←	GrpmD <b>X75</b> * <b>X74</b> ←	

#### KEY:

<b>X74</b> = Mute status	0 = unmuted 1 = muted
<b>X75</b> = Group master group number	1 through 64
<b>X76</b> = Group fader level	dB value in 0.1 dB steps, using negative numbers and eliminating decimal places using a 10x multiplier. -100.0dB to +80.0 dB is represented by -1000 to 800. The valid range depends on the type of gain or trim block assigned to the group number ( <b>X75</b> ).
<b>X77</b> = Group fader increase/decrease	dB value in 0.1 dB steps to raise or lower a group fader. Gain uses 10x multiplier (+10 dB = 100+). + or - goes after the number.

Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Audio Group Master Commands (continued)</b>			
Set soft limits	<b>Esc</b> L <b>X75</b> * <b>X78</b> <sup>upper</sup> * <b>X78</b> <sup>lower</sup> GRPM←	GrpmL <b>X75</b> * <b>X78</b> * <b>X78</b> ←↵	Set the groups soft limits to <b>X78</b> <sup>upper</sup> and <b>X78</b> <sup>lower</sup> .
<i>Example:</i>	<b>Esc</b> L 2*60*-60 GRPM←	GrpmL2*60*-60←↵	Set the upper soft limit for the group 2 fader to +6.0 dB and the lower limit to -6.0 dB.
View soft limits	<b>Esc</b> L <b>X75</b> GRPM←	GrpmL <b>X75</b> * <b>X78</b> * <b>X78</b> ←↵	In verbose modes 0 and 1, the response is simplified to <b>X78</b> * <b>X78</b> ←↵.
View group type	<b>Esc</b> P <b>X75</b> GRPM←	GrpmP <b>X75</b> * <b>X79</b> ←↵	
View group members	<b>Esc</b> O <b>X75</b> GRPM←	GrpmO <b>X75</b> * <b>X72</b> <sup>1</sup> * <b>X72</b> <sup>2</sup> *...* <b>X72</b> <sup>16</sup> ←↵	<b>X72</b> is the control address. In verbose modes 0 and 1, the response is simplified to <b>X72</b> <sup>1</sup> * <b>X72</b> <sup>2</sup> *...* <b>X72</b> <sup>16</sup> ←↵

**KEY:**

- |  |   |
|--|---|
| <b>X72</b> = Target OID                | See <b>Object ID (OID) Number Tables</b> on page 127                |
| <b>X75</b> = Group master group number | 1 through 64  |
| <b>X78</b> = Group fader soft limit    | dB value in 0.1 dB steps. Gain uses 10x multiplier (+10 dB = 100+). |
| <b>X79</b> = Group type                | 6 = gain<br>12 = mute<br>21 = gain                                  |

Command	ASCII command (host to device)	Response (device to host)	Additional description
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### Metering

**NOTE:** Metering is available on all input gain and output attenuation blocks.

Read meter level	<code>[Esc]V[X72]AU←</code>	<code>[X88]*[X89]←</code>	-150.0 dBFS to 0.0 dBFS
Enable meter updates	<code>[Esc]V[X72]*[X88]AU←</code>	<code>DsV[X72]*[X88]←</code>	

#### KEY:

<code>[X72]</code>	= Target OID	See <a href="#">Object ID (OID) Number Tables</a> on page 127
<code>[X88]</code>	= Updates status	0 = disabled, 1 = enabled
<code>[X89]</code>	= Meter level	-150.0 dBFS to 0.0 dBFS (1500 to 0000)

### Automixer Gate Monitoring

Get current automixer gate monitoring status	<code>[Esc]J[X72]AU←</code>	<code>[X91]←</code>	Verbose mode 2/3 <code>DsJ[X72]*[X94]←</code>
Unsolicited automixer gate status update	This is enabled by selecting the <b>Automix</b> dialog <b>Monitor Gate</b> checkbox (see <a href="#">Input Automix Block</a> on page 39).	<code>DsV[X72]*[X92]*[X95]*[X96]←</code>	

#### KEY:

<code>[X72]</code>	= Automixer OID	See <a href="#">Object ID (OID) Number Tables</a> on page 127
<code>[X91]</code>	= Gate monitoring status	0 = gate monitoring disabled, 1024 = gate monitoring enabled
<code>[X92]</code>	= Meter status	0 = meter off, 1 = meter on
<code>[X95]</code>	= Signal level when gate is opened or closed	0000-1023 = gate closed, ≥1024 = gate open (see <a href="#">Automixer Gate Monitoring</a> on page 125)
<code>[X96]</code>	= Automixer gate status	0 = gate closed, 1 = gate open

### Signal Level Monitoring (SLM)

SLM tracks when the signal at a metered gain OID crosses a set threshold level. When SLM is enabled for an OID, an unsolicited message is sent when the threshold level is crossed. The response includes the OID, meter on/off status, level after the threshold was crossed, and if the level was going up or down when the threshold was crossed.

Set SLM status	<code>[Esc]J[X172]*[X94]AU←</code>	<code>DsJ[X172]*[X94]←</code>	
Get current threshold status	<code>[Esc]J[X172]AU←</code>	<code>[X94]←</code>	Verbose mode 2/3 <code>DsJ[X172]*[X94]←</code>
Unsolicited meter value		<code>DsV[X172]*[X92]*[X195]*[X196]←</code>	

#### KEY:

<code>[X92]</code>	= Meter status	0 = meter off, 1 = meter on
<code>[X94]</code>	= Monitoring threshold	0 = disabled, 0001-2000 = signal threshold to monitor (-0.1 to -200.0 dBFS).
<code>[X172]</code>	= Metered gain OID	See <a href="#">Object ID (OID) Number Tables</a> on page 127
<code>[X195]</code>	= Meter value	0000-2000 = 0.0 to -200.0 dBFS
<code>[X196]</code>	= Meter relative to threshold	0 = above threshold, 1 = equal to or below threshold



Command	ASCII command (host to device)	Response (device to host)	Additional description
<b>Unsolicited Meter Groups</b>			
<b>NOTE:</b> See <a href="#">Configuring Groups</a> on page 70 for more information on groups.			
Set Global Unsolicited Meter Response Rate	<code>[Esc]R[x175]GRPU←</code>	<code>GrpuR[x175]←</code>	
View Global Unsolicited Meter Response Rate	<code>[Esc]RGRPU←</code>	<code>[x175]←</code>	Verbose modes 2/3 <code>GrpuR[x175]←</code>
Set Unsolicited Meter Group	<code>[Esc]G[x176]GRPU←</code>	<code>GrpuG[x176]←</code>	
View Unsolicited Meter Group	<code>[Esc]GGRPU←</code>	<code>[x176]←</code>	Verbose modes 2/3 <code>GrpuG[x176]←</code>
View OID Members in Meter Group	<code>[Esc]O[x75]GRPM←</code>	<code>GrpmO[x75]*&lt;OID&gt;1 *&lt;OID&gt;2...*&lt;OID&gt;n←</code>	This returns the group number, followed by the list of OIDs.
Enable Meters in Meter Group	<code>[Esc]D[x75]*1GRPM←</code>	<code>GrpmD[x75]*1←</code>	
Disable Meters in Meter Group	<code>[Esc]D[x75]*0GRPM←</code>	<code>GrpmD[x75]*0←</code>	
<b>KEY:</b>			
<code>[x75]</code>	= Meter group number	1 through 64	
<code>[x175]</code>	= Unsolicited Meter Rate (responses per second)	1 – 10. Default is 1	
<code>[x176]</code>	= Unsolicited Meter Group Setting	0 disables unsolicited meter responses, 1 – 64 specifies/enables a meter group for unsolicited meter value responses; 0 at power-on.	
<b>Unsolicited Meter Group Response</b>			
Unsolicited Meter Group values		<code>GrpmV[x275]*&lt;val&gt;<sub>1</sub>* &lt;val&gt;<sub>2</sub>*...*&lt;val&gt;<sub>8</sub>←</code>	Verbose modes 1/3 only
<b>NOTES:</b>			
<ul style="list-style-type: none"> <li>• Values in the response can be 0 to 1500 (0.0 to -150.0 dBFS).</li> <li>• The order of the values is the numerical order of the OIDs/members in that group.</li> </ul>			
<b>KEY:</b>			
<code>[x275]</code>	= Group Master Meter Group Number	1 through 64	

## Object ID (OID) Number Tables

The following tables list input and output gain OIDs. For mix-point OID tables, see [Mix-point OIDs](#) on page 131.

### Input Path OIDs

Flex Input Gain Block	OID	Flex Input Gain Block	OID
Flex Input 1	40000	Flex Input 25	40024
Flex Input 2	40001	Flex Input 26	40025
Flex Input 3	40002	Flex Input 27	40026
Flex Input 4	40003	Flex Input 28	40027
Flex Input 5	40004	Flex Input 29	40028
Flex Input 6	40005	Flex Input 30	40029
Flex Input 7	40006	Flex Input 31	40030
Flex Input 8	40007	Flex Input 32	40031
Flex Input 9	40008	Flex Input 33	40032
Flex Input 10	40009	Flex Input 34	40033
Flex Input 11	40010	Flex Input 35	40034
Flex Input 12	40011	Flex Input 36	40035
Flex Input 13	40012	Flex Input 37	40036
Flex Input 14	40013	Flex Input 38	40037
Flex Input 15	40014	Flex Input 39	40038
Flex Input 16	40015	Flex Input 40	40039
Flex Input 17	40016	Flex Input 41	40040
Flex Input 18	40017	Flex Input 42	40041
Flex Input 19	40018	Flex Input 43	40042
Flex Input 20	40019	Flex Input 44	40043
Flex Input 21	40020	Flex Input 45	40044
Flex Input 22	40021	Flex Input 46	40045
Flex Input 23	40022	Flex Input 47	40046
Flex Input 24	40023	Flex Input 48	40047

<b>Flex Input Pre-mixer Gain Block</b>	<b>OID</b>	<b>Flex Input Pre-mixer Gain Block</b>	<b>OID</b>
Flex Input 1	40100	Flex Input 25	40124
Flex Input 2	40101	Flex Input 26	40125
Flex Input 3	40102	Flex Input 27	40126
Flex Input 4	40103	Flex Input 28	40127
Flex Input 5	40104	Flex Input 29	40128
Flex Input 6	40105	Flex Input 30	40129
Flex Input 7	40106	Flex Input 31	40130
Flex Input 8	40107	Flex Input 32	40131
Flex Input 9	40108	Flex Input 33	40132
Flex Input 10	40109	Flex Input 34	40133
Flex Input 11	40110	Flex Input 35	40134
Flex Input 12	40111	Flex Input 36	40135
Flex Input 13	40112	Flex Input 37	40136
Flex Input 14	40113	Flex Input 38	40137
Flex Input 15	40114	Flex Input 39	40138
Flex Input 16	40115	Flex Input 40	40139
Flex Input 17	40116	Flex Input 41	40140
Flex Input 18	40117	Flex Input 42	40141
Flex Input 19	40118	Flex Input 43	40142
Flex Input 20	40119	Flex Input 44	40143
Flex Input 21	40120	Flex Input 45	40144
Flex Input 22	40121	Flex Input 46	40145
Flex Input 23	40122	Flex Input 47	40146
Flex Input 24	40123	Flex Input 48	40147

<b>Virtual Return Pre-mixer Gain Block</b>	<b>OID</b>	<b>Virtual Return Pre-mixer Gain Block</b>	<b>OID</b>
Virtual Return A	53000	Virtual Return I	50108
Virtual Return B	50101	Virtual Return J	50109
Virtual Return C	50102	Virtual Return K	50110
Virtual Return D	50103	Virtual Return L	50111
Virtual Return E	50104	Virtual Return M	50112
Virtual Return F	50105	Virtual Return N	50113
Virtual Return G	50106	Virtual Return O	50114
Virtual Return H	50107	Virtual Return P	50115

## Output Attenuation Block OIDs

Output Post-mixer Trim Block	OID	Output Post-mixer Trim Block	OID
AT/EXP Output 1	60000	AT Output 25	60024
AT/EXP Output 2	60001	AT Output 26	60025
AT/EXP Output 3	60002	AT Output 27	60026
AT/EXP Output 4	60003	AT Output 28	60027
AT/EXP Output 5	60004	AT Output 29	60028
AT/EXP Output 6	60005	AT Output 30	60029
AT/EXP Output 7	60006	AT Output 31	60030
AT/EXP Output 8	60007	AT Output 32	60031
AT/EXP Output 9	60008	AT Output 33	60032
AT/EXP Output 10	60009	AT Output 34	60033
AT/EXP Output 11	60010	AT Output 35	60034
AT/EXP Output 12	60011	AT Output 36	60035
AT/EXP Output 13	60012	AT Output 37	60036
AT/EXP Output 14	60013	AT Output 38	60037
AT/EXP Output 15	60014	AT Output 39	60038
AT/EXP Output 16	60015	AT Output 40	60039
AT Output 17	60016	AT Output 41	60040
AT Output 18	60017	AT Output 42	60041
AT Output 19	60018	AT Output 43	60042
AT Output 20	60019	AT Output 44	60043
AT Output 21	60020	AT Output 45	60044
AT Output 22	60021	AT Output 46	60045
AT Output 23	60022	AT Output 47	60046
AT Output 24	60023	AT Output 48	60047

## Output Path OIDs

Output Post-mixer Trim Block	OID	Output Post-mixer Trim Block	OID
AT/EXP Output 1	60100	AT Output 25	60124
AT/EXP Output 2	60101	AT Output 26	60125
AT/EXP Output 3	60102	AT Output 27	60126
AT/EXP Output 4	60103	AT Output 28	60127
AT/EXP Output 5	60104	AT Output 29	60128
AT/EXP Output 6	60105	AT Output 30	60129
AT/EXP Output 7	60106	AT Output 31	60130
AT/EXP Output 8	60107	AT Output 32	60131
AT/EXP Output 9	60108	AT Output 33	60132
AT/EXP Output 10	60109	AT Output 34	60133
AT/EXP Output 11	60110	AT Output 35	60134
AT/EXP Output 12	60111	AT Output 36	60135
AT/EXP Output 13	60112	AT Output 37	60136
AT/EXP Output 14	60113	AT Output 38	60137
AT/EXP Output 15	60114	AT Output 39	60138
AT/EXP Output 16	60115	AT Output 40	60139
AT Output 17	60116	AT Output 41	60140
AT Output 18	60117	AT Output 42	60141
AT Output 19	60118	AT Output 43	60142
AT Output 20	60119	AT Output 44	60143
AT Output 21	60120	AT Output 45	60144
AT Output 22	60121	AT Output 46	60145
AT Output 23	60122	AT Output 47	60146
AT Output 24	60123	AT Output 48	60147

## Mix-point OIDs

**NOTE:** In the tables on the following pages, inputs are listed vertically along the left side of the table and outputs are listed horizontally across the top of the table.

### Flex Input to AT Output Mix Matrix

#### Flex Inputs 1 - 12

	AT Out 1	AT Out 2	AT Out 3	AT Out 4	AT Out 5	AT Out 6	AT Out 7	AT Out 8	AT Out 9	AT Out 10	AT Out 11	AT Out 12
Flex In 1	20016	20017	20018	20019	20020	20021	20022	20023	20024	20025	20026	20027
Flex In 2	20116	20117	20118	20119	20120	20121	20122	20123	20124	20125	20126	20127
Flex In 3	20216	20217	20218	20219	20220	20221	20222	20223	20224	20225	20226	20227
Flex In 4	20316	20317	20318	20319	20320	20321	20322	20323	20324	20325	20326	20327
Flex In 5	20416	20417	20418	20419	20420	20421	20422	20423	20424	20425	20426	20427
Flex In 6	20516	20517	20518	20519	20520	20521	20522	20523	20524	20525	20526	20527
Flex In 7	20616	20617	20618	20619	20620	20621	20622	20623	20624	20625	20626	20627
Flex In 8	20716	20717	20718	20719	20720	20721	20722	20723	20724	20725	20726	20727
Flex In 9	20816	20817	20818	20819	20820	20821	20822	20823	20824	20825	20826	20827
Flex In 10	20916	20917	20918	20919	20920	20921	20922	20923	20924	20925	20926	20927
Flex In 11	21016	21017	21018	21019	21020	21021	21022	21023	21024	21025	21026	21027
Flex In 12	21116	21117	21118	21119	21120	21121	21122	21123	21124	21125	21126	21127
	AT Out 13	AT Out 14	AT Out 15	AT Out 16	AT Out 17	AT Out 18	AT Out 19	AT Out 20	AT Out 21	AT Out 22	AT Out 23	AT Out 24
Flex In 1	20028	20029	20030	20031	20032	20033	20034	20035	20036	20037	20038	20039
Flex In 2	20128	20129	20130	20131	20132	20133	20134	20135	20136	20137	20138	20139
Flex In 3	20228	20229	20230	20231	20232	20233	20234	20235	20236	20237	20238	20239
Flex In 4	20328	20329	20330	20331	20332	20333	20334	20335	20336	20337	20338	20339
Flex In 5	20428	20429	20430	20431	20432	20433	20434	20435	20436	20437	20438	20439
Flex In 6	20528	20529	20530	20531	20532	20533	20534	20535	20536	20537	20538	20539
Flex In 7	20628	20629	20630	20631	20632	20633	20634	20635	20636	20637	20638	20639
Flex In 8	20728	20729	20730	20731	20732	20733	20734	20735	20736	20737	20738	20739
Flex In 9	20828	20829	20830	20831	20832	20833	20834	20835	20836	20837	20838	20839
Flex In 10	20928	20929	20930	20931	20932	20933	20934	20935	20936	20937	20938	20939
Flex In 11	21028	21029	21030	21031	21032	21033	21034	21035	21036	21037	21038	21039
Flex In 12	21128	21129	21130	21131	21132	21133	21134	21135	21136	21137	21138	21139
	AT Out 25	AT Out 26	AT Out 27	AT Out 28	AT Out 29	AT Out 30	AT Out 31	AT Out 32	AT Out 33	AT Out 34	AT Out 35	AT Out 36
Flex In 1	20040	20041	20042	20043	20044	20045	20046	20047	20048	20049	20050	20051
Flex In 2	20140	20141	20142	20143	20144	20145	20146	20147	20148	20149	20150	20151
Flex In 3	20240	20241	20242	20243	20244	20245	20246	20247	20248	20249	20250	20251
Flex In 4	20340	20341	20342	20343	20344	20345	20346	20347	20348	20349	20350	20351
Flex In 5	20440	20441	20442	20443	20444	20445	20446	20447	20448	20449	20450	20451
Flex In 6	20540	20541	20542	20543	20544	20545	20546	20547	20548	20549	20550	20551
Flex In 7	20640	20641	20642	20643	20644	20645	20646	20647	20648	20649	20650	20651
Flex In 8	20740	20741	20742	20743	20744	20745	20746	20747	20748	20749	20750	20751
Flex In 9	20840	20841	20842	20843	20844	20845	20846	20847	20848	20849	20850	20851
Flex In 10	20940	20941	20942	20943	20944	20945	20946	20947	20948	20949	20950	20951
Flex In 11	21040	21041	21042	21043	21044	21045	21046	21047	21048	21049	21050	21051
Flex In 12	21140	21141	21142	21143	21144	21145	21146	21147	21148	21149	21150	21151

	AT Out 37	AT Out 38	AT Out 39	AT Out 40	AT Out 41	AT Out 42	AT Out 43	AT Out 44	AT Out 45	AT Out 46	AT Out 47	AT Out 48
Flex In 1	20052	20053	20054	20055	20056	20057	20058	20059	20060	20061	20062	20063
Flex In 2	20152	20153	20154	20155	20156	20157	20158	20159	20160	20161	20162	20163
Flex In 3	20252	20253	20254	20255	20256	20257	20258	20259	20260	20261	20262	20263
Flex In 4	20352	20353	20354	20355	20356	20357	20358	20359	20360	20361	20362	20363
Flex In 5	20452	20453	20454	20455	20456	20457	20458	20459	20460	20461	20462	20463
Flex In 6	20552	20553	20554	20555	20556	20557	20558	20559	20560	20561	20562	20563
Flex In 7	20652	20653	20654	20655	20656	20657	20658	20659	20660	20661	20662	20663
Flex In 8	20752	20753	20754	20755	20756	20757	20758	20759	20760	20761	20762	20763
Flex In 9	20852	20853	20854	20855	20856	20857	20858	20859	20860	20861	20862	20863
Flex In 10	20952	20953	20954	20955	20956	20957	20958	20959	20960	20961	20962	20963
Flex In 11	21052	21053	21054	21055	21056	21057	21058	21059	21060	21061	21062	21063
Flex In 12	21152	21153	21154	21155	21156	21157	21158	21159	21160	21161	21162	21163

### Flex Inputs 13 - 24

	AT Out 1	AT Out 2	AT Out 3	AT Out 4	AT Out 5	AT Out 6	AT Out 7	AT Out 8	AT Out 9	AT Out 10	AT Out 11	AT Out 12
Flex In 13	21216	21217	21218	21219	21220	21221	21222	21223	21224	21225	21226	21227
Flex In 14	21316	21317	21318	21319	21320	21321	21322	21323	21324	21325	21326	21327
Flex In 15	21416	21417	21418	21419	21420	21421	21422	21423	21424	21425	21426	21427
Flex In 16	21516	21517	21518	21519	21520	21521	21522	21523	21524	21525	21526	21527
Flex In 17	21616	21617	21618	21619	21620	21621	21622	21623	21624	21625	21626	21627
Flex In 18	21716	21717	21718	21719	21720	21721	21722	21723	21724	21725	21726	21727
Flex In 19	21816	21817	21818	21819	21820	21821	21822	21823	21824	21825	21826	21827
Flex In 20	21916	21917	21918	21919	21920	21921	21922	21923	21924	21925	21926	21927
Flex In 21	22016	22017	22018	22019	22020	22021	22022	22023	22024	22025	22026	22027
Flex In 22	22116	22117	22118	22119	22120	22121	22122	22123	22124	22125	22126	22127
Flex In 23	22216	22217	22218	22219	22220	22221	22222	22223	22224	22225	22226	22227
Flex In 24	22316	22317	22318	22319	22320	22321	22322	22323	22324	22325	22326	22327
	AT Out 13	AT Out 14	AT Out 15	AT Out 16	AT Out 17	AT Out 18	AT Out 19	AT Out 20	AT Out 21	AT Out 22	AT Out 23	AT Out 24
Flex In 13	20028	20029	20030	20031	20032	20033	20034	20035	20036	20037	20038	20039
Flex In 14	20128	20129	20130	20131	20132	20133	20134	20135	20136	20137	20138	20139
Flex In 15	20228	20229	20230	20231	20232	20233	20234	20235	20236	20237	20238	20239
Flex In 16	20328	20329	20330	20331	20332	20333	20334	20335	20336	20337	20338	20339
Flex In 17	20428	20429	20430	20431	20432	20433	20434	20435	20436	20437	20438	20439
Flex In 18	20528	20529	20530	20531	20532	20533	20534	20535	20536	20537	20538	20539
Flex In 19	20628	20629	20630	20631	20632	20633	20634	20635	20636	20637	20638	20639
Flex In 20	20728	20729	20730	20731	20732	20733	20734	20735	20736	20737	20738	20739
Flex In 21	20828	20829	20830	20831	20832	20833	20834	20835	20836	20837	20838	20839
Flex In 22	20928	20929	20930	20931	20932	20933	20934	20935	20936	20937	20938	20939
Flex In 23	21028	21029	21030	21031	21032	21033	21034	21035	21036	21037	21038	21039
Flex In 24	21128	21129	21130	21131	21132	21133	21134	21135	21136	21137	21138	21139

	AT Out 25	AT Out 26	AT Out 27	AT Out 28	AT Out 29	AT Out 30	AT Out 31	AT Out 32	AT Out 33	AT Out 34	AT Out 35	AT Out 36
<b>Flex In 13</b>	20040	20041	20042	20043	20044	20045	20046	20047	20048	20049	20050	20051
<b>Flex In 14</b>	20140	20141	20142	20143	20144	20145	20146	20147	20148	20149	20150	20151
<b>Flex In 15</b>	20240	20241	20242	20243	20244	20245	20246	20247	20248	20249	20250	20251
<b>Flex In 16</b>	20340	20341	20342	20343	20344	20345	20346	20347	20348	20349	20350	20351
<b>Flex In 17</b>	20440	20441	20442	20443	20444	20445	20446	20447	20448	20449	20450	20451
<b>Flex In 18</b>	20540	20541	20542	20543	20544	20545	20546	20547	20548	20549	20550	20551
<b>Flex In 19</b>	20640	20641	20642	20643	20644	20645	20646	20647	20648	20649	20650	20651
<b>Flex In 20</b>	20740	20741	20742	20743	20744	20745	20746	20747	20748	20749	20750	20751
<b>Flex In 21</b>	20840	20841	20842	20843	20844	20845	20846	20847	20848	20849	20850	20851
<b>Flex In 22</b>	20940	20941	20942	20943	20944	20945	20946	20947	20948	20949	20950	20951
<b>Flex In 23</b>	21040	21041	21042	21043	21044	21045	21046	21047	21048	21049	21050	21051
<b>Flex In 24</b>	21140	21141	21142	21143	21144	21145	21146	21147	21148	21149	21150	21151
	AT Out 37	AT Out 38	AT Out 39	AT Out 40	AT Out 41	AT Out 42	AT Out 43	AT Out 44	AT Out 45	AT Out 46	AT Out 47	AT Out 48
<b>Flex In 13</b>	20052	20053	20054	20055	20056	20057	20058	20059	20060	20061	20062	20063
<b>Flex In 14</b>	20152	20153	20154	20155	20156	20157	20158	20159	20160	20161	20162	20163
<b>Flex In 15</b>	20252	20253	20254	20255	20256	20257	20258	20259	20260	20261	20262	20263
<b>Flex In 16</b>	20352	20353	20354	20355	20356	20357	20358	20359	20360	20361	20362	20363
<b>Flex In 17</b>	20452	20453	20454	20455	20456	20457	20458	20459	20460	20461	20462	20463
<b>Flex In 18</b>	20552	20553	20554	20555	20556	20557	20558	20559	20560	20561	20562	20563
<b>Flex In 19</b>	20652	20653	20654	20655	20656	20657	20658	20659	20660	20661	20662	20663
<b>Flex In 20</b>	20752	20753	20754	20755	20756	20757	20758	20759	20760	20761	20762	20763
<b>Flex In 21</b>	20852	20853	20854	20855	20856	20857	20858	20859	20860	20861	20862	20863
<b>Flex In 22</b>	20952	20953	20954	20955	20956	20957	20958	20959	20960	20961	20962	20963
<b>Flex In 23</b>	21052	21053	21054	21055	21056	21057	21058	21059	21060	21061	21062	21063
<b>Flex In 24</b>	21152	21153	21154	21155	21156	21157	21158	21159	21160	21161	21162	21163

### Flex Inputs 25 - 36

	AT Out 1	AT Out 2	AT Out 3	AT Out 4	AT Out 5	AT Out 6	AT Out 7	AT Out 8	AT Out 9	AT Out 10	AT Out 11	AT Out 12
<b>Flex In 25</b>	22416	22417	22418	22419	22420	22421	22422	22423	22424	22425	22426	22427
<b>Flex In 26</b>	22516	22517	22518	22519	22520	22521	22522	22523	22524	22525	22526	22527
<b>Flex In 27</b>	22616	22617	22618	22619	22620	22621	22622	22623	22624	22625	22626	22627
<b>Flex In 28</b>	22716	22717	22718	22719	22720	22721	22722	22723	22724	22725	22726	22727
<b>Flex In 29</b>	22816	22817	22818	22819	22820	22821	22822	22823	22824	22825	22826	22827
<b>Flex In 30</b>	22916	22917	22918	22919	22920	22921	22922	22923	22924	22925	22926	22927
<b>Flex In 31</b>	23016	23017	23018	23019	23020	23021	23022	23023	23024	23025	23026	23027
<b>Flex In 32</b>	23116	23117	23118	23119	23120	23121	23122	23123	23124	23125	23126	23127
<b>Flex In 33</b>	23216	23217	23218	23219	23220	23221	23222	23223	23224	23225	23226	23227
<b>Flex In 34</b>	23316	23317	23318	23319	23320	23321	23322	23323	23324	23325	23326	23327
<b>Flex In 35</b>	23416	23417	23418	23419	23420	23421	23422	23423	23424	23425	23426	23427
<b>Flex In 36</b>	23516	23517	23518	23519	23520	23521	23522	23523	23524	23525	23526	23527



	AT Out 13	AT Out 14	AT Out 15	AT Out 16	AT Out 17	AT Out 18	AT Out 19	AT Out 20	AT Out 21	AT Out 22	AT Out 23	AT Out 24
Flex In 25	22428	22429	22430	22431	22432	22433	22434	22435	22436	22437	22438	22439
Flex In 26	22528	22529	22530	22531	22532	22533	22534	22535	22536	22537	22538	22539
Flex In 27	22628	22629	22630	22631	22632	22633	22634	22635	22636	22637	22638	22639
Flex In 28	22728	22729	22730	22731	22732	22733	22734	22735	22736	22737	22738	22739
Flex In 29	22828	22829	22830	22831	22832	22833	22834	22835	22836	22837	22838	22839
Flex In 30	22928	22929	22930	22931	22932	22933	22934	22935	22936	22937	22938	22939
Flex In 31	23028	23029	23030	23031	23032	23033	23034	23035	23036	23037	23038	23039
Flex In 32	23128	23129	23130	23131	23132	23133	23134	23135	23136	23137	23138	23139
Flex In 33	23228	23229	23230	23231	23232	23233	23234	23235	23236	23237	23238	23239
Flex In 34	23328	23329	23330	23331	23332	23333	23334	23335	23336	23337	23338	23339
Flex In 35	23428	23429	23430	23431	23432	23433	23434	23435	23436	23437	23438	23439
Flex In 36	23528	23529	23530	23531	23532	23533	23534	23535	23536	23537	23538	23539
	AT Out 25	AT Out 26	AT Out 27	AT Out 28	AT Out 29	AT Out 30	AT Out 31	AT Out 32	AT Out 33	AT Out 34	AT Out 35	AT Out 36
Flex In 25	22440	22441	22442	22443	22444	22445	22446	22447	22448	22449	22450	22451
Flex In 26	22540	22541	22542	22543	22544	22545	22546	22547	22548	22549	22550	22551
Flex In 27	22640	22641	22642	22643	22644	22645	22646	22647	22648	22649	22650	22651
Flex In 28	22740	22741	22742	22743	22744	22745	22746	22747	22748	22749	22750	22751
Flex In 29	22840	22841	22842	22843	22844	22845	22846	22847	22848	22849	22850	22851
Flex In 30	22940	22941	22942	22943	22944	22945	22946	22947	22948	22949	22950	22951
Flex In 31	23040	23041	23042	23043	23044	23045	23046	23047	23048	23049	23050	23051
Flex In 32	23140	23141	23142	23143	23144	23145	23146	23147	23148	23149	23150	23151
Flex In 33	23240	23241	23242	23243	23244	23245	23246	23247	23248	23249	23250	23251
Flex In 34	23340	23341	23342	23343	23344	23345	23346	23347	23348	23349	23350	23351
Flex In 35	23440	23441	23442	23443	23444	23445	23446	23447	23448	23449	23450	23451
Flex In 36	23540	23541	23542	23543	23544	23545	23546	23547	23548	23549	23550	23551
	AT Out 37	AT Out 38	AT Out 39	AT Out 40	AT Out 41	AT Out 42	AT Out 43	AT Out 44	AT Out 45	AT Out 46	AT Out 47	AT Out 48
Flex In 25	22452	22453	22454	22455	22456	22457	22458	22459	22460	22461	22462	22463
Flex In 26	22552	22553	22554	22555	22556	22557	22558	22559	22560	22561	22562	22563
Flex In 27	22652	22653	22654	22655	22656	22657	22658	22659	22660	22661	22662	22663
Flex In 28	22752	22753	22754	22755	22756	22757	22758	22759	22760	22761	22762	22763
Flex In 29	22852	22853	22854	22855	22856	22857	22858	22859	22860	22861	22862	22863
Flex In 30	22952	22953	22954	22955	22956	22957	22958	22959	22960	22961	22962	22963
Flex In 31	23052	23053	23054	23055	23056	23057	23058	23059	23060	23061	23062	23063
Flex In 32	23152	23153	23154	23155	23156	23157	23158	23159	23160	23161	23162	23163
Flex In 33	23252	23253	23254	23255	23256	23257	23258	23259	23260	23261	23262	23263
Flex In 34	23352	23353	23354	23355	23356	23357	23358	23359	23360	23361	23362	23363
Flex In 35	23452	23453	23454	23455	23456	23457	23458	23459	23460	23461	23462	23463
Flex In 36	23552	23553	23554	23555	23556	23557	23558	23559	23560	23561	23562	23563

### Flex Inputs 37 - 48

	AT Out 1	AT Out 2	AT Out 3	AT Out 4	AT Out 5	AT Out 6	AT Out 7	AT Out 8	AT Out 9	AT Out 10	AT Out 11	AT Out 12
Flex In 37	23616	23617	23618	23619	23620	23621	23622	23623	23624	23625	23626	23627
Flex In 38	23716	23717	23718	23719	23720	23721	23722	23723	23724	23725	23726	23727
Flex In 39	23816	23817	23818	23819	23820	23821	23822	23823	23824	23825	23826	23827
Flex In 40	23916	23917	23918	23919	23920	23921	23922	23923	23924	23925	23926	23927
Flex In 41	24016	24017	24018	24019	24020	24021	24022	24023	24024	24025	24026	24027
Flex In 42	24116	24117	24118	24119	24120	24121	24122	24123	24124	24125	24126	24127
Flex In 43	24216	24217	24218	24219	24220	24221	24222	24223	24224	24225	24226	24227
Flex In 44	24316	24317	24318	24319	24320	24321	24322	24323	24324	24325	24326	24327
Flex In 45	24416	24417	24418	24419	24420	24421	24422	24423	24424	24425	24426	24427
Flex In 46	24516	24517	24518	24519	24520	24521	24522	24523	24524	24525	24526	24527
Flex In 47	24616	24617	24618	24619	24620	24621	24622	24623	24624	24625	24626	24627
Flex In 48	24716	24717	24718	24719	24720	24721	24722	24723	24724	24725	24726	24727
	AT Out 13	AT Out 14	AT Out 15	AT Out 16	AT Out 17	AT Out 18	AT Out 19	AT Out 20	AT Out 21	AT Out 22	AT Out 23	AT Out 24
Flex In 37	23628	23629	23630	23631	23632	23633	23634	23635	23636	23637	23638	23639
Flex In 38	23728	23729	23730	23731	23732	23733	23734	23735	23736	23737	23738	23739
Flex In 39	23828	23829	23830	23831	23832	23833	23834	23835	23836	23837	23838	23839
Flex In 40	23928	23929	23930	23931	23932	23933	23934	23935	23936	23937	23938	23939
Flex In 41	24028	24029	24030	24031	24032	24033	24034	24035	24036	24037	24038	24039
Flex In 42	24128	24129	24130	24131	24132	24133	24134	24135	24136	24137	24138	24139
Flex In 43	24228	24229	24230	24231	24232	24233	24234	24235	24236	24237	24238	24239
Flex In 44	24328	24329	24330	24331	24332	24333	24334	24335	24336	24337	24338	24339
Flex In 45	24428	24429	24430	24431	24432	24433	24434	24435	24436	24437	24438	24439
Flex In 46	24528	24529	24530	24531	24532	24533	24534	24535	24536	24537	24538	24539
Flex In 47	24628	24629	24630	24631	24632	24633	24634	24635	24636	24637	24638	24639
Flex In 48	24728	24729	24730	24731	24732	24733	24734	24735	24736	24737	24738	24739
	AT Out 25	AT Out 26	AT Out 27	AT Out 28	AT Out 29	AT Out 30	AT Out 31	AT Out 32	AT Out 33	AT Out 34	AT Out 35	AT Out 36
Flex In 37	23640	23641	23642	23643	23644	23645	23646	23647	23648	23649	23650	23651
Flex In 38	23740	23741	23742	23743	23744	23745	23746	23747	23748	23749	23750	23751
Flex In 39	23840	23841	23842	23843	23844	23845	23846	23847	23848	23849	23850	23851
Flex In 40	23940	23941	23942	23943	23944	23945	23946	23947	23948	23949	23950	23951
Flex In 41	24040	24041	24042	24043	24044	24045	24046	24047	24048	24049	24050	24051
Flex In 42	24140	24141	24142	24143	24144	24145	24146	24147	24148	24149	24150	24151
Flex In 43	24240	24241	24242	24243	24244	24245	24246	24247	24248	24249	24250	24251
Flex In 44	24340	24341	24342	24343	24344	24345	24346	24347	24348	24349	24350	24351
Flex In 45	24440	24441	24442	24443	24444	24445	24446	24447	24448	24449	24450	24451
Flex In 46	24540	24541	24542	24543	24544	24545	24546	24547	24548	24549	24550	24551
Flex In 47	24640	24641	24642	24643	24644	24645	24646	24647	24648	24649	24650	24651
Flex In 48	24740	24741	24742	24743	24744	24745	24746	24747	24748	24749	24750	24751

	AT Out 37	AT Out 38	AT Out 39	AT Out 40	AT Out 41	AT Out 42	AT Out 43	AT Out 44	AT Out 45	AT Out 46	AT Out 47	AT Out 48
Flex In 37	23652	23653	23654	23655	23656	23657	23658	23659	23660	23661	23662	23663
Flex In 38	23752	23753	23754	23755	23756	23757	23758	23759	23760	23761	23762	23763
Flex In 39	23852	23853	23854	23855	23856	23857	23858	23859	23860	23861	23862	23863
Flex In 40	23952	23953	23954	23955	23956	23957	23958	23959	23960	23961	23962	23963
Flex In 41	24052	24053	24054	24055	24056	24057	24058	24059	24060	24061	24062	24063
Flex In 42	24152	24153	24154	24155	24156	24157	24158	24159	24160	24161	24162	24163
Flex In 43	24252	24253	24254	24255	24256	24257	24258	24259	24260	24261	24262	24263
Flex In 44	24352	24353	24354	24355	24356	24357	24358	24359	24360	24361	24362	24363
Flex In 45	24452	24453	24454	24455	24456	24457	24458	24459	24460	24461	24462	24463
Flex In 46	24552	24553	24554	24555	24556	24557	24558	24559	24560	24561	24562	24563
Flex In 47	24652	24653	24654	24655	24656	24657	24658	24659	24660	24661	24662	24663
Flex In 48	24752	24753	24754	24755	24756	24757	24758	24759	24760	24761	24762	24763

### Virtual Return to AT Output Mix Matrix

	AT Out 1	AT Out 2	AT Out 3	AT Out 4	AT Out 5	AT Out 6	AT Out 7	AT Out 8	AT Out 9	AT Out 10	AT Out 11	AT Out 12
Vtl Rtn A	24816	24817	24818	24819	24820	24821	24822	24823	24824	24825	24826	24827
Vtl Rtn B	24916	24917	24918	24919	24920	24921	24922	24923	24924	24925	24926	24927
Vtl Rtn C	25016	25017	25018	25019	25020	25021	25022	25023	25024	25025	25026	25027
Vtl Rtn D	25116	25117	25118	25119	25120	25121	25122	25123	25124	25125	25126	25127
Vtl Rtn E	25216	25217	25218	25219	25220	25221	25222	25223	25224	25225	25226	25227
Vtl Rtn F	25316	25317	25318	25319	25320	25321	25322	25323	25324	25325	25326	25327
Vtl Rtn G	25416	25417	25418	25419	25420	25421	25422	25423	25424	25425	25426	25427
Vtl Rtn H	25516	25517	25518	25519	25520	25521	25522	25523	25524	25525	25526	25527
Vtl Rtn I	25616	25617	25618	25619	25620	25621	25622	25623	25624	25625	25626	25627
Vtl Rtn J	25716	25717	25718	25719	25720	25721	25722	25723	25724	25725	25726	25727
Vtl Rtn K	25816	25817	25818	25819	25820	25821	25822	25823	25824	25825	25826	25827
Vtl Rtn L	25916	25917	25918	25919	25920	25921	25922	25923	25924	25925	25926	25927
Vtl Rtn M	26016	26017	26018	26019	26020	26021	26022	26023	26024	26025	26026	26027
Vtl Rtn N	26116	26117	26118	26119	26120	26121	26122	26123	26124	26125	26126	26127
Vtl Rtn O	26216	26217	26218	26219	26220	26221	26222	26223	26224	26225	26226	26227
Vtl Rtn P	26316	26317	26318	26319	26320	26321	26322	26323	26324	26325	26326	26327
	AT Out 13	AT Out 14	AT Out 15	AT Out 16	AT Out 17	AT Out 18	AT Out 19	AT Out 20	AT Out 21	AT Out 22	AT Out 23	AT Out 24
Vtl Rtn A	24828	24829	24830	24831	24832	24833	24834	24835	24836	24837	24838	24839
Vtl Rtn B	24928	24929	24930	24931	24932	24933	24934	24935	24936	24937	24938	24939
Vtl Rtn C	25028	25029	25030	25031	25032	25033	25034	25035	25036	25037	25038	25039
Vtl Rtn D	25128	25129	25130	25131	25132	25133	25134	25135	25136	25137	25138	25139
Vtl Rtn E	25228	25229	25230	25231	25232	25233	25234	25235	25236	25237	25238	25239
Vtl Rtn F	25328	25329	25330	25331	25332	25333	25334	25335	25336	25337	25338	25339
Vtl Rtn G	25428	25429	25430	25431	25432	25433	25434	25435	25436	25437	25438	25439
Vtl Rtn H	25528	25529	25530	25531	25532	25533	25534	25535	25536	25537	25538	25539
Vtl Rtn I	25628	25629	25630	25631	25632	25633	25634	25635	25636	25637	25638	25639
Vtl Rtn J	25728	25729	25730	25731	25732	25733	25734	25735	25736	25737	25738	25739
Vtl Rtn K	25828	25829	25830	25831	25832	25833	25834	25835	25836	25837	25838	25839
Vtl Rtn L	25928	25929	25930	25931	25932	25933	25934	25935	25936	25937	25938	25939
Vtl Rtn M	26028	26029	26030	26031	26032	26033	26034	26035	26036	26037	26038	26039
Vtl Rtn N	26128	26129	26130	26131	26132	26133	26134	26135	26136	26137	26138	26139
Vtl Rtn O	26228	26229	26230	26231	26232	26233	26234	26235	26236	26237	26238	26239
Vtl Rtn P	26328	26329	26330	26331	26332	26333	26334	26335	26336	26337	26338	26339

	AT Out 25	AT Out 26	AT Out 27	AT Out 28	AT Out 29	AT Out 30	AT Out 31	AT Out 32	AT Out 33	AT Out 34	AT Out 35	AT Out 36
Vtl Rtn A	24840	24841	24842	24843	24844	24845	24846	24847	24848	24849	24850	24851
Vtl Rtn B	24940	24941	24942	24943	24944	24945	24946	24947	24948	24949	24950	24951
Vtl Rtn C	25040	25041	25042	25043	25044	25045	25046	25047	25048	25049	25050	25051
Vtl Rtn D	25140	25141	25142	25143	25144	25145	25146	25147	25148	25149	25150	25151
Vtl Rtn E	25240	25241	25242	25243	25244	25245	25246	25247	25248	25249	25250	25251
Vtl Rtn F	25340	25341	25342	25343	25344	25345	25346	25347	25348	25349	25350	25351
Vtl Rtn G	25440	25441	25442	25443	25444	25445	25446	25447	25448	25449	25450	25451
Vtl Rtn H	25540	25541	25542	25543	25544	25545	25546	25547	25548	25549	25550	25551
Vtl Rtn I	25640	25641	25642	25643	25644	25645	25646	25647	25648	25649	25650	25651
Vtl Rtn J	25740	25741	25742	25743	25744	25745	25746	25747	25748	25749	25750	25751
Vtl Rtn K	25840	25841	25842	25843	25844	25845	25846	25847	25848	25849	25850	25851
Vtl Rtn L	25940	25941	25942	25943	25944	25945	25946	25947	25948	25949	25950	25951
Vtl Rtn M	26040	26041	26042	26043	26044	26045	26046	26047	26048	26049	26050	26051
Vtl Rtn N	26140	26141	26142	26143	26144	26145	26146	26147	26148	26149	26150	26151
Vtl Rtn O	26240	26241	26242	26243	26244	26245	26246	26247	26248	26249	26250	26251
Vtl Rtn P	26340	26341	26342	26343	26344	26345	26346	26347	26348	26349	26350	26351
	AT Out 37	AT Out 38	AT Out 39	AT Out 40	AT Out 41	AT Out 42	AT Out 43	AT Out 44	AT Out 45	AT Out 46	AT Out 47	AT Out 48
Vtl Rtn A	24852	24853	24854	24855	24856	24857	24858	24859	24860	24861	24862	24863
Vtl Rtn B	24952	24953	24954	24955	24956	24957	24958	24959	24960	24961	24962	24963
Vtl Rtn C	25052	25053	25054	25055	25056	25057	25058	25059	25060	25061	25062	25063
Vtl Rtn D	25152	25153	25154	25155	25156	25157	25158	25159	25160	25161	25162	25163
Vtl Rtn E	25252	25253	25254	25255	25256	25257	25258	25259	25260	25261	25262	25263
Vtl Rtn F	25352	25353	25354	25355	25356	25357	25358	25359	25360	25361	25362	25363
Vtl Rtn G	25452	25453	25454	25455	25456	25457	25458	25459	25460	25461	25462	25463
Vtl Rtn H	25552	25553	25554	25555	25556	25557	25558	25559	25560	25561	25562	25563
Vtl Rtn I	25652	25653	25654	25655	25656	25657	25658	25659	25660	25661	25662	25663
Vtl Rtn J	25752	25753	25754	25755	25756	25757	25758	25759	25760	25761	25762	25763
Vtl Rtn K	25852	25853	25854	25855	25856	25857	25858	25859	25860	25861	25862	25863
Vtl Rtn L	25952	25953	25954	25955	25956	25957	25958	25959	25960	25961	25962	25963
Vtl Rtn M	26052	26053	26054	26055	26056	26057	26058	26059	26060	26061	26062	26063
Vtl Rtn N	26152	26153	26154	26155	26156	26157	26158	26159	26160	26161	26162	26163
Vtl Rtn O	26252	26253	26254	26255	26256	26257	26258	26259	26260	26261	26262	26263
Vtl Rtn P	26352	26353	26354	26355	26356	26357	26358	26359	26360	26361	26362	26363



### Virtual Return to Virtual Send Mix Matrix

	Send A	Send B	Send C	Send D	Send E	Send F	Send G	Send H	Send I	Send J	Send K	Send L	Send M	Send N	Send O	Send P
<b>Vtl Rtn A</b>		24801	24802	24803	24804	24805	24806	24807	24808	24809	24810	24811	24812	24813	24814	24815
<b>Vtl Rtn B</b>	24900		24902	24903	24904	24905	24906	24907	24908	24909	24910	24911	24912	24913	24914	24915
<b>Vtl Rtn C</b>	25000	25001		25003	25004	25005	25006	25007	25008	25009	25010	25011	25012	25013	25014	25015
<b>Vtl Rtn D</b>	25100	25101	25102		25104	25105	25106	25107	25108	25109	25110	25111	25112	25113	25114	25115
<b>Vtl Rtn E</b>	25200	25201	25202	25203		25205	25206	25207	25208	25209	25210	25211	25212	25213	25214	25215
<b>Vtl Rtn F</b>	25300	25301	25302	25303	25304		25306	25307	25308	25309	25310	25311	25312	25313	25314	25315
<b>Vtl Rtn G</b>	25400	25401	25402	25403	25404	25405		25407	25408	25409	25410	25411	25412	25413	25414	25415
<b>Vtl Rtn H</b>	25500	25501	25502	25503	25504	25505	25506		25508	25509	25510	25511	25512	25513	25514	25515
<b>Vtl Rtn I</b>	25600	25601	25602	25603	25604	25605	25606	25607		25609	25610	25611	25612	25613	25614	25615
<b>Vtl Rtn J</b>	25700	25701	25702	25703	25704	25705	25706	25707	25708		25710	25711	25712	25713	25714	25715
<b>Vtl Rtn K</b>	25800	25801	25802	25803	25804	25805	25806	25807	25808	25809		25811	25812	25813	25814	25815
<b>Vtl Rtn L</b>	25900	25901	25902	25903	25904	25905	25906	25907	25908	25909	25910		25912	25913	25914	25915
<b>Vtl Rtn M</b>	26000	26001	26002	26003	26004	26005	26006	26007	26008	26009	26010	26011		26013	26014	26015
<b>Vtl Rtn N</b>	26100	26101	26102	26103	26104	26105	26106	26107	26108	26109	26110	26111	26112		26114	26115
<b>Vtl Rtn O</b>	26200	26201	26202	26203	26204	26205	26206	26207	26208	26209	26210	26211	26212	26213		26215
<b>Vtl Rtn P</b>	26300	26301	26302	26303	26304	26305	26306	26307	26308	26309	26310	26311	26312	26313	26314	

# Web Pages

This section describes web page operation and control of the XMP 240 C AT.

The XMP 240 C AT can be accessed by a PC or control system using a rear panel Ethernet LAN port and a web browser such as Microsoft® Internet Explorer. These web pages are factory-installed HTML pages and cannot be erased or overwritten.

**NOTE:** If the Ethernet connection to the device is unstable, try turning off the proxy server in the web browser. In Microsoft Internet Explorer, click **Tools > Internet Options > Connections > LAN Settings**, uncheck the **Use a proxy server...**, then click **OK**.

## XMP 240 C AT Web Page

### Accessing the Embedded Web Page

1. From a web browser, enter the device IP address into the address field.

**NOTE:** If the local system administrators have not changed the IP address, and the device has not been assigned an IP address via DHCP, the default address is 192.168.254.254.

2. Press **<Enter>**. The device checks the password protection status, if a password is required, enter the password in the **Connect to...** dialog box and press **<Enter>**. No username is required.
3. The device checks several possibilities in the following order and responds accordingly:
  - a. If the address includes a specific file name, such as 192.168.254.254/file\_name.html, the device downloads the web page.
  - b. If there is a file in the device memory named **index.html**, the device downloads **index.html** as the default startup page.
  - c. If **a** and **b** do not apply, the device downloads the factory-installed default startup page, **nortxe\_index.html**, also known as the **System Status** page.

## Using the Web Page

- ❶ Device Info Panel
- ❷ Device Status Panel
- ❸ Network Settings Panel
- ❹ Firmware Panel
- ❺ RS-232 Panel
- ❻ Roles and Permissions Panel
- ❼ Dante Device Info Panel

Figure 140. XMP 240 C AT Web Page

- ❶ **Device Info** — Displays device name, description, part number, and manufacturer. Click **EDIT** to open the Device Info dialog box and edit the device name.

Device Info Settings

Device Name / Hostname  
XMP-240-C-AT-1A-6A-7F

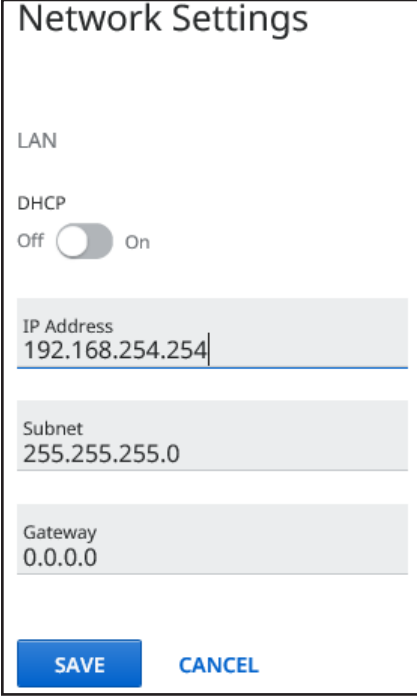
SAVE CANCEL

Figure 141. Device Info Settings Dialog Box

- ❷ **Device Status Panel** — Displays date, time, timezone, device uptime, and device temperature. Click **EDIT** to set the time and date information manually. Click **SYNC TO PC** to sync the time data to the connected PC.



- 3 **Network Settings Panel** — Displays network information. Click **EDIT** to open the Network Settings dialog box and change the network settings.




The Network Settings dialog box has a title bar with the text "Network Settings". Below the title bar, there is a section for "LAN" settings. Under "LAN", there is a "DHCP" section with a toggle switch currently set to "Off". Below the DHCP section, there are three input fields: "IP Address" with the value "192.168.254.254", "Subnet" with the value "255.255.255.0", and "Gateway" with the value "0.0.0.0". At the bottom of the dialog box, there are two buttons: "SAVE" and "CANCEL".

**Figure 142. Network Settings Dialog Box**

From this dialog box DHCP status, IP address, subnet mask, and default gateway can be edited.

**NOTE:** If DHCP is on, IP address, subnet mask, and default gateway can not be edited.

- 4 **Firmware Panel** — Click the **SELECT FILE** button to open the Firmware Update dialog box.

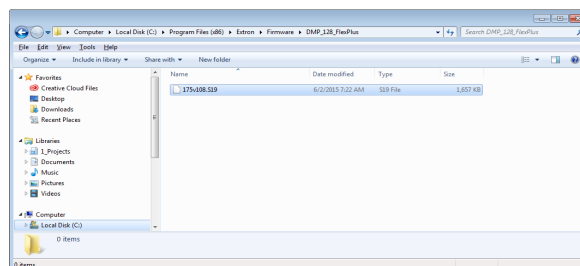


The Firmware Update dialog box has a title bar with the text "Firmware Update". Below the title bar, there is a "Firmware:" label followed by a text input field. To the right of the input field are two buttons: "Browse" and "Upload". Below the input field and buttons, there is a "Cancel" button.

**Figure 143. Firmware Update Dialog Box**

Click the **Browse** button to open the Choose a File to Upload dialog box where a firmware file can be selected to upload. Once a file is selected, click the **UPDATE** button to begin the firmware update.

**NOTE:** Only files with a .s19 and .eff extensions are accepted.



**Figure 144. File to Upload Dialog Box**

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For information regarding the download and installation of firmware files, see [Downloading Firmware Updates](#) on page 79.

- 5 **RS-232 Settings Panel** — Provides a read-only display of device RS-232 settings.
- 6 **Roles and Permissions Panel** — Click **EDIT** to change the admin or user passwords.
- 7 **Dante Device Info Panel** — Provides a read-only display of the Dante device name and firmware version.

# Extron Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

**USA, Canada, South America, and Central America:**

Extron Electronics  
1230 South Lewis Street  
Anaheim, CA 92805  
U.S.A.

**Asia:**

Extron Asia Pte Ltd  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363  
Singapore

**Japan:**

Extron Electronics, Japan  
Kyodo Building, 16 Ichibancho  
Chiyoda-ku, Tokyo 102-0082  
Japan

**Europe:**

Extron Europe  
Hanzeboulevard 10  
3825 PH Amersfoort  
The Netherlands

**China:**

Extron China  
686 Ronghua Road  
Songjiang District  
Shanghai 201611  
China

**Middle East:**

Extron Middle East  
Dubai Airport Free Zone  
F13, PO Box 293666  
United Arab Emirates, Dubai

**Africa:**

Extron South Africa  
3<sup>rd</sup> Floor, South Tower  
160 Jan Smuts Avenue  
Rosebank 2196, South Africa

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or if modifications were made to the product that were not authorized by Extron.

**NOTE:** If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

**USA:** 714.491.1500 or 800.633.9876

**Asia:** 65.6383.4400

**Europe:** 31.33.453.4040 or 800.3987.6673

**Japan:** 81.3.3511.7655

**Africa:** 27.11.447.6162

**Middle East:** 971.4.299.1800

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.