


NetPA AT Series


NetPA 502 AT and NetPA 1001-70V AT
Networked Audio Power Amplifiers with Dante®



Safety Instructions


Safety Instructions • English


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Instructions de sécurité • Français


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NOTE: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the user's authority to operate this equipment.


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.

Conventions Used in this Guide

Notifications

The following notifications are used in this guide:

 **WARNING:** Potential risk of severe injury or death.
AVERTISSEMENT : Risque potentiel de blessure grave ou de mort.

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,,Op1 scene 1,1 ^B 51 ^W^C  
[ 01 ] R 0004 00300 00400 00800 00600 [ 02 ] 35 [ 17 ] [ 03 ]  
[Esc] [X1] * [X17] * [X20] * [X23] * [X21] CE ←
```

NOTE: For commands and examples of computer or device responses mentioned 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 008.132.180.48: 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.

Extron Glossary of Terms

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



Contents

Introduction	1
About this Guide.....	1
Overview	1
Features	2
Application Example	4

Hardware Installation	5
Mounting the NetPA AT	5
Hardware Configuration.....	5
Rear Panel Features and Connections.....	6
Front Panel Indicators.....	9

Software Installation	10
NetPA AT Software	10
Software Installation Overview	10
Software Download and Installation	11
Dante Controller for Windows	11

Dante Configuration and Operation	13
NetPA AT Bus.....	13
Managing Network Traffic	13
Creating a Physical Dante Network.....	14
Starting Dante Controller	15
Device Name	16
Dante Controller Naming Conventions	16
Rename the NetPA AT	16
Renaming an Input	19
Dante Operation	20
Selecting Inputs and Outputs for Dante	20
Identifying the Physical Device	23
Setting a Static IP Address (Default DHCP) ..	23
Dante Troubleshooting.....	25
Simplifying the Network for Troubleshooting..	25
Troubleshooting the Network Interface.....	25
Additional Troubleshooting.....	26
Resetting the NetPA AT	26
Checking Dante Domain Manager (DDM) and AES 67 Compatibility	27

Reference Information	29
Mounting of the NetPA AT	29
Tabletop Use	29
UL Rack Mounting Guidelines.....	29
Rack Shelf Mounting.....	30
Under-desk Mounting	31
Other Mounting Options	31
Defeatable Auto Power-down Timer	32

Introduction

This section gives an overview of the Extron NetPA AT Series of power amplifiers with Dante®. The models include the NetPA 502 AT and the NetPA 1001-70V AT. Topics include:

- [About this Guide](#)
- [Overview](#)
- [Features](#)
- [Application Example](#)

About this Guide

This guide describes the installation and operation of the NetPA 502 AT and NetPA 1001-70V AT audio power amplifiers. Throughout this guide, both models may be referred to collectively as the NetPA AT.

Overview

The Extron NetPA 502 AT and NetPA 1001-70V AT are ENERGY STAR® qualified half rack 1U, convection-cooled power amplifiers featuring Dante digital audio networking. They deliver two channels of 50 watts into 4 ohms, or a single channel of 100 watts at 70 volts. NetPA AT amplifiers can receive audio from Dante-equipped audio processors over a standard local area network, greatly simplifying the cabling infrastructure for sharing audio across multiple rooms or floors in a building. In addition to amplifying incoming Dante audio, NetPA AT amplifiers feature line level outputs that can simultaneously feed an additional speaker zone or audio system. They feature an Extron exclusive, highly efficient, advanced Class D amplifier design, plus patented CDRS - Class D Ripple Suppression that provides improved signal fidelity over conventional Class D amplifiers.

The NetPA 502 AT two channel amplifier delivers 50 watts rms per channel into 4 ohms or 25 watts rms per channel into 8 ohms. The NetPA 502 AT is ideal for amplification of voice or program content to stereo speakers, or two sets of 8 ohm ceiling speakers in a dual zone application. The professional grade amplifier also features greater than 90 dB signal-to-noise ratio and less than 0.1% THD+N.

The NetPA 1001-70V AT mono amplifier delivers 100 watts rms for 70 volt high impedance speaker systems in voice reinforcement and distributed audio applications. The professional grade amplifier features greater than 90 dB signal-to-noise ratio and less than 0.1% THD+N. The NetPA 1001-70V AT also includes a switch-selectable, high pass filter that rolls off frequencies below 80 Hz to prevent saturation of speaker transformers.

Dante enables audio system scalability over a local area network using standard Internet protocols. Dante technology distributes audio channels at 24-bit/48 kHz over a single Gigabit Ethernet link with extremely low latency. Dante-enabled Extron digital signal processors feature a built-in four-port Gigabit switch that provides direct interconnection of multiple units to create larger, cost-effective audio matrixes.

Setting up a network of Extron Dante-enabled products, including the NetPA AT amplifiers, requires Dante Controller software as well as DSP Configurator Software. Dante Controller is used to easily assign an output from a Dante-equipped digital signal processor, such as the Extron DMP 128 Plus AT, to an input on a NetPA AT amplifier.

The ENERGY STAR qualified NetPA AT amplifiers are energy efficient products that conserve energy and reduce costs. They include an auto power-down feature that automatically places the amplifier into standby after 25 minutes of inactivity.

The NetPA 502 AT and NetPA 1001-70V AT can output incoming Dante channels as line level signals to simultaneously feed the audio into another speaker zone or audio system. Both amplifiers also include recessed, detented level controls located on the rear panel to prevent tampering. These controls facilitate adjustment of audio system gain structure, or setting an individual level for each zone. Additionally, the NetPA AT amplifiers include multiple protection circuits that momentarily activate when an abnormal condition, such as overheating, is detected. An advanced, automatic clip limiter protects speakers from clipping distortion.

Features

- **Receives input signals via the Dante audio network** — Select one or two channels from remote digital signal processors on the Dante network to be brought into the NetPA AT for amplification.
- **NetPA 502 AT**
 - **Outputs:** Two balanced or unbalanced line level on 3.5 mm, 6-pole captive screw connector; two speaker outputs on screw-lock, 5 mm, 4-pole captive screw connector
 - **100 watts rms output power:**
2 x 50 watts @ 4 ohms or 2 x 25 watts @ 8 ohms
- **NetPA 1001-70V AT**
 - **Outputs:** One balanced or unbalanced line level on 3.5 mm, 3-pole captive screw connector; one speaker output on screw-lock, 5 mm, 2-pole captive screw connector
 - **100 watts rms output power:**
1 x 100 watts @ 70 volts
- **ENERGY STAR qualified amplifier** — The NetPA AT amplifiers are ENERGY STAR qualified amplifiers and energy efficient products that conserve energy and reduce operating costs.
- **Dante audio networking provides a wide range of expansion capabilities** — Dante-equipped audio products provide scalability for creating larger audio systems over a local area network using standard Internet protocols.
- **Dante audio to line level outputs** — The NetPA AT provides fixed line level outputs that allow the incoming Dante audio to be delivered to additional speaker zones, or another audio system such as an ALS - assistive listening system.
- **Professional grade signal-to-noise and THD+N performance** — The NetPA AT delivers professional grade performance with greater than 90 dB signal-to-noise ratio and THD+N of less than 0.1%.
- **Defeatable auto power-down timer for 24/7 applications** — Ensures the amplifier is always active for 24/7 operation in critical applications. This feature can be enabled or disabled by setting an internal jumper (see [Defeatable Auto Power-down Timer](#) on page 32).
- **Extron Patented CDRS - Class D Ripple Suppression** — CDRS is an Extron patented technology that provides a smooth, clean audio waveform and an improvement in signal fidelity over conventional Class D amplifier designs. CDRS eliminates the high frequency switching ripple characteristic of Class D amplifiers, a source of RF emissions which can interfere with sensitive AV equipment such as wireless microphones.

- **Convection cooled, fanless operation** — The NetPA AT does not require internal fans or vents for cooling, ensuring quiet, reliable operation. It generates substantially less heat than conventional power amplifiers, making it ideal for rack-mount applications.
- **Ultra low inrush current – no need for power sequencing** — Allows multiple NetPA AT amplifiers to be powered simultaneously without overloading power circuits. This eliminates the need for power sequencing.
- **Rack-mountable 1U, half rack width enclosure** — The NetPA AT reduces rack space requirements for many installations.
- **Auto power-down with fast power-up** — The NetPA AT includes an auto power-down feature that automatically places the amplifier into standby after 25 minutes of inactivity, dramatically reducing power consumption. It quickly returns to full power status in less than one second upon signal detection. This auto power-down feature can be defeated to allow for 24/7 operation.
- **Rear panel recessed, detented level controls** — Provide attenuation of input signals for adjusting audio system gain staging as well as two-zone applications. They are located on the rear panel to prevent users from tampering with level adjustments.
- **Automatic clip limiter** — Detects actual onset of clipping by comparing input and output waveforms. Gain is automatically reduced without audible artifacts to protect speakers from clipping distortion.
- **Multiple protection circuits** — Activate during output shorts, thermal overload, or DC faults to prevent damage to the amplifier and speakers.
- **Remote standby port** — Enables the NetPA AT to be remotely powered down when not in use, reducing operating cost.
- **High pass filter for high impedance model** — This switch selectable filter, available on the NetPA 1001-70V AT, rolls off frequencies below 80 Hz to prevent saturation of speaker transformers.
- **5 mm screw-lock captive screw connector for speaker connection** — Enables simple, secure connections with up to 12 AWG speaker cables.
- **Front-mounted signal and protection indication LEDs** — Provides convenient indication of input signal presence and protection circuit activation.
- **Link LED indicator for Dante port** — Provides visual indication of synchronization to the master clock on the Dante network.
- **Internal Extron Everlast power supply** — Provides worldwide power compatibility, with high-demonstrated reliability and low power consumption for reduced operating cost.
- **Extron Everlast Power Supply is covered by a 7-year parts and labor warranty.**

Application Example

The illustration below is one example of configuring a system using the NetPA AT.

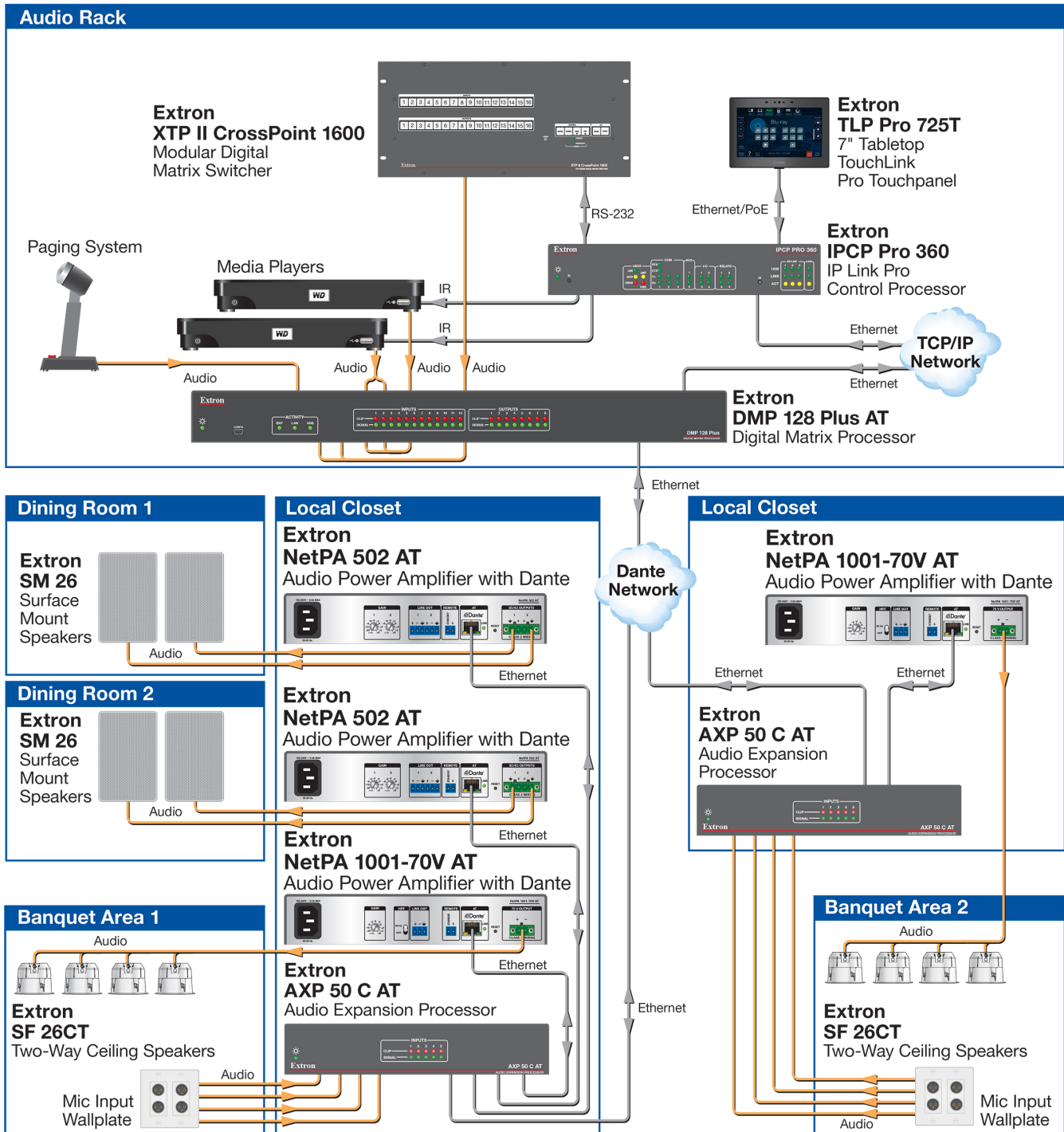



Figure 1. Application Example

Hardware Installation

This section describes the front and rear panel features and the rear panel connections and includes the following topics:

- [Mounting the NetPA AT](#)
- [Hardware Configuration](#)
- [Rear Panel Features and Connections](#)
- [Front Panel Indicators](#)

 **WARNING:** **Potential risk of severe injury.** Installation and service must be performed by authorized personnel only.

AVERTISSEMENT : **Risque potentiel de blessure grave ou de mort.**
L'installation et l'entretien doivent être effectués uniquement par un technicien qualifié.

All wiring and electrical connections must conform to all applicable building codes and local ordinances.

Mounting the NetPA AT

The 1U high, half rack width, 9.5-inch (24.1 cm) deep enclosure is designed for inconspicuous placement.

For detailed mounting options and UL rack mounting guidelines see [Mounting of the NetPA AT](#) on page 29.

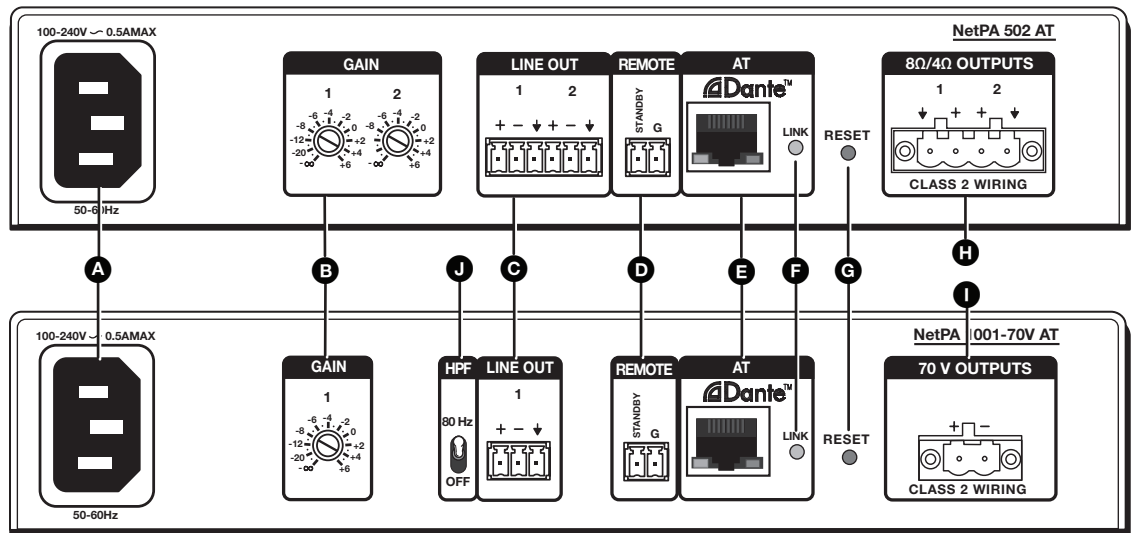
Hardware Configuration

Dante Controller for Windows® from Audinate® is required to select and route Dante transmit and receive channels to all connected Dante-compatible devices (see [Dante Controller for Windows](#) on page 11).

The NetPA AT has rear panel gain adjustment, a high pass filter (NetPA 1001-70V AT only), a reset button, and several front and rear panel operational LED indicators.

A defeatable auto power-down timer ensures that the amplifier is always active for 24/7 operation in critical applications. This feature can be enabled or disabled by setting an internal jumper (see [Defeatable Auto Power-down Timer](#) on page 32).

Rear Panel Features and Connections



- | | |
|---|--|
| A IEC AC power input, 100 to 240 VAC, 50-60 Hz | F Link indicator LED |
| B Gain adjustment | G Reset button |
| C Line out connector | H Amplified stereo audio output connector |
| D Remote connector | I Amplified mono audio output connector |
| E RJ-45 Ethernet connector | J HPF (high pass filter switch) |

Figure 2. NetPA 502 AT and NetPA 1001-70V Rear Panels

- A Power** — Be sure that power to the NetPA AT is turned off first by disconnecting the power.

CAUTION: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

ATTENTION : Afin de réduire les risques d'incendie ou de choc électrique, protégez cet appareil de la pluie ou de l'humidité.

ATTENTION:

- The Product is a Class I product, which must be connected only to a mains socket outlet with a protective earthing (grounding) connection.
- Ce produit est un produit de Classe I, qui doit être connecté seulement à une prise femelle secteur équipée d'une connexion de mise à la terre.
- The mains plug/appliance coupler is used as the disconnect device and shall remain readily operable.
- La fiche secteur ou le coupleur est un système de déconnexion dont le fonctionnement immédiat constitue un facteur essentiel.

NOTE: Adjust the audio level to ∞ (full attenuation) prior to powering the amplifier (see [Gain adjustment](#) on the next page).

Turn off all other equipment and disconnect the power cables. Verify that the amplifier is disconnected from the power source before proceeding.

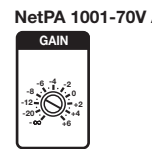
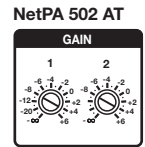
ATTENTION:

- The amplifier must be powered on last.
- L'amplificateur doit être mis sous tension en dernier.

Reconnect all power cables and switch on all other equipment before powering on the amplifier. The front panel power LED of the NetPA AT lights green.

- B Gain adjustment** — Turn up the gain pot to the desired level as explained below. When the potentiometer is set to 0 dB, and a 0 dBFS signal is transmitted through the Dante port, the amplifier outputs full power.

Use a Tweezer or small screwdriver to adjust the audio input gain for the corresponding channel. The analog potentiometers control the gain from ∞ (full attenuation) to 0 dB (no gain) to +6 dB gain.

**NOTES:**

- The potentiometer affects the gain post DAC and pre-amplifier stage.
- The gain potentiometer does not adjust the level of the line output.

- C Line out connector** — Connect an amplifier or other device to the 3-pole, 3.5 mm captive screw connectors for channel 1 and channel 2 (NetPA 502 AT) or the single channel (NetPA 1001-70V AT). Wire as shown below.

**ATTENTION:**

- For unbalanced audio, connect the sleeves to the ground contact. DO NOT connect the sleeves to the negative (-) contacts.
- Pour l'audio asymétrique, connectez les manchons au contact au sol. Ne PAS connecter les manchons aux contacts négatifs (-).

NOTE: The signal that comes out of the line output is the same signal that goes into the amplifier stage, prior to the gain potentiometers. (The same audio content coming out of channel 1 amplified output comes out of the channel 1 line output.)

- D Remote connector** — The 3.5 mm, 2-pin captive screw remote control port forces the unit into standby mode when the remote standby pin is shorted to ground. The amplifier wakes from standby, and resets the inactivity timer, when the connection is reopened.
- E RJ-45 Ethernet connector** — Using standard CATx cable, connect the RJ-45 connector of the NetPA AT to a LAN for digital audio transport.
- F Link indicator LED** — The Link indicator LED is locked to the Dante sync signal. This LED indicates three states in normal operation:
- **Blinking (1 Hz) Green** — The Dante card generates network audio clock; the unit is the master clock.
 - **Solid green** — The Dante card is locked to the network audio clock; the unit is slaved to the network audio clock.
 - **Off** — The Dante card is not locked to the network audio clock.

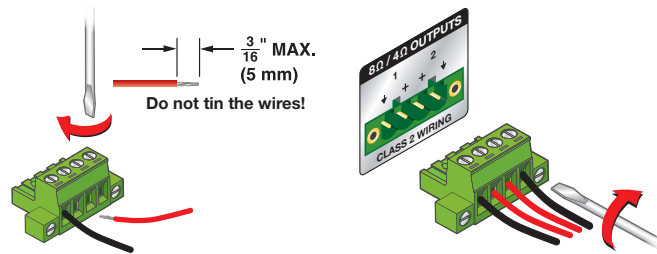
- G Reset button** — The NetPA AT utilizes DHCP addressing by default. Pressing a recessed **Reset** button on the rear panel (see [figure 2](#) on page 6) initiates a reset mode. Reset sets the IP addressing mode to DHCP (Dante default), clear the previous IP address, and reset the device name to default.

NOTE: Initiating a reset while the NetPA AT is connected to a transmitting device severs that connection.

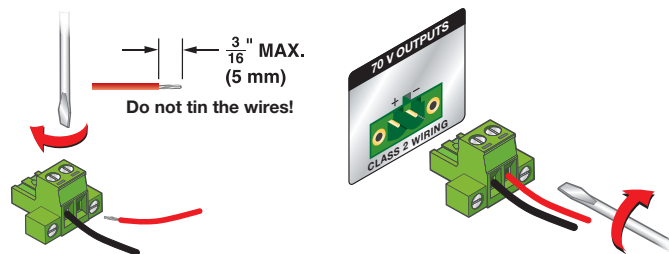
To reset the NetPA AT, press and hold down the **Reset** button for 10 seconds until both of the rear panel RJ-45 Ethernet port LEDs blink twice.

NOTE: When the NetPA AT is first powered on, or reset, the default name is “NetPA-xxxxxx” where xxxxxx are the last six digits of the MAC address of the unit.

- H Amplified stereo audio output connector** — Wire the speakers to the output connector of the NetPA 502 AT using the 4-pole captive screw connector, as shown below.



- I Amplified mono audio output connector** — Wire the speakers to the output connector of the NetPA 1001-70V AT using the 2-pole captive screw connector, as shown below.



- J HPF (high pass filter switch)** — On the NetPA 1001-70V AT, use a Tweezer to toggle the high pass filter switch between off (no filtering) and 80 Hz (default). Setting the switch to 80 Hz prevents the saturation of speaker input transformers by low frequency signals. The high pass filter can be safely turned off only if the filtering is applied upstream of the amplifier.

Front Panel Indicators

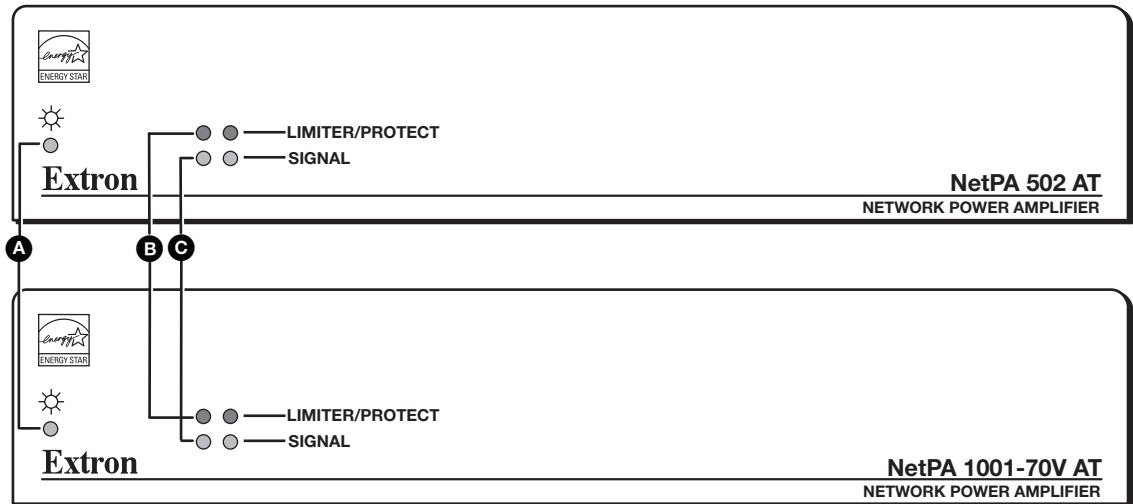


Figure 3. NetPA 502 AT and NetPA 1001-70V AT Front Panels

A Power LED —

- Lights solid green when powered on and active.
- Lights amber when:
 - In standby mode
 - DC voltage detected on the output

NOTE: The unit can only be cleared after DC voltage is detected by cycling AC power off then back on.

- Momentarily blinks in the same color and pattern as the rear panel link indicator (blinks amber every 0.5 seconds for 10 seconds) when the identify device tool is activated (see [Identifying the Physical Device](#) on page 23). Once this sequence has completed, the power LED resumes its previous function.

B Limiter/Protect LED —

- Lights solid red when the channel is in protection mode; triggered by any of the limiter protection circuits:
 - Clip limiter activated due to excessive clipping
 - Short circuit on output
 - Thermal protection

- C Signal LED** — The LED lights green when the input signal is detected and will vary in intensity. The green signal LED varies in brightness corresponding to the real-time input signal level. It begins to light at -60 dBFS increasing in steps to full intensity as the signal level increases.

Software Installation

This section describes the software requirements and installation and includes the following topics:

- [NetPA AT Software](#)
- [Software Installation Overview](#)
- [Software Download and Installation](#)

NetPA AT Software

The NetPA AT has both hardware and software controls. Software configuration and operation are accomplished using a PC running Microsoft Windows 7 or newer. Dante Controller for Windows from Audinate is required to select and route NetPA AT digital inputs to all connected Dante-compatible devices on the same network and to rename connected devices.

To assist identification of multiple connected NetPA ATs on the network, each NetPA AT must be renamed using Dante Controller. Dante Controller is available from the NetPA AT product page at www.extron.com (see [Software Download and Installation](#) on page 11). Digital signal routing can only be done using Dante Controller.

See [Rear Panel Features and Connections](#) on page 6 for additional details to connect via the LAN port.

Software Installation Overview

Download and install the Dante Controller software program.

- Download Dante Controller for Windows at www.extron.com (see [Dante Controller for Windows](#) on page 11).
- Install Dante Controller.
- Rename each NetPA AT as it is placed on the network (when there are multiple NetPA ATs on the network) (see [Rename the NetPA AT](#) on page 16).

NOTE: To avoid confusion, rename each device with a unique identifier. To simplify renaming, connect only one device to the network at a time. As each device is renamed, it can remain on the network.

Software Download and Installation

Dante Controller must be installed to route audio transmit and receive channels to the NetPA AT.

Dante Controller for Windows

To download the Dante Controller software you must first log into the Extron webpage.

1. At www.extron.com, enter **NetPA AT** in the search field (1) and press <Enter>. Select the NetPA AT model. The NetPA AT product page opens (see figure 4).

Extron PRODUCTS TRAINING RESOURCES COMPANY DOWNLOAD netpa 1

Product Home / Power Amplifiers / Network Power Amplifiers / NetPA 502 AT

NetPA 502 AT

Two Channel Audio Power Amplifier with Dante - 50 Watts Per Channel

Key Features

- Receives input signals via the Dante® audio network
- 100 watts rms output power:
2 x 50 watts @ 4 ohms or 2 x 25 watts @ 8 ohms
- ENERGY STAR® qualified amplifier
- Dante audio networking provides a wide range of expansion capabilities
- Dante audio to line level outputs
- Professional grade signal-to-noise and THD+N performance

See All Features >

Image Gallery

Save to Favorites List

Interactive Overview

Awards

Compare Features

Amplifier Selector

Dante Video Tutorials

Audio Calculators

A&E Specifications

Pricing View

Model	Version Description	Part #	Availability
NetPA 502 AT	Two Channel Amp with Dante - 50 Watts/Ch	60-1500-01	Shipping

Overview Video Description Specifications Diagram Panel Drawing Downloads 2

Similar Products

NetPA 1001-70V AT
Mono 70 V Audio Power Amplifier with

Figure 4. NetPA AT Product Page

2. Click **Downloads** (2). The Downloads panel opens. Dante Controller is listed.
3. Click **Dante Controller** (see figure 5, 3).

NetPA 502 AT Two Channel Amp with Dante - 50 Watts/Ch 60-1500-01 Shipping

Overview Video Description Specifications Diagram Panel Drawing Downloads

Please consult Release Notes for important compatibility information and history.

Software	Description	Version	Size	Format
Dante Controller 3	Dante Controller Learn More > Release Notes	4.1.0.5	57.0 MB	EXE

Also see our Software Archives >

NetPA 1001-70V AT
Mono 70 V Audio Power Amplifier with Dante - 100 Watts

Compatible Digital Matrix Processors

DMP 128 Plus
12x8 ProDSP Digital Matrix Processors

Figure 5. Download Center

The Download Center page opens (see figure 6 on the next page).

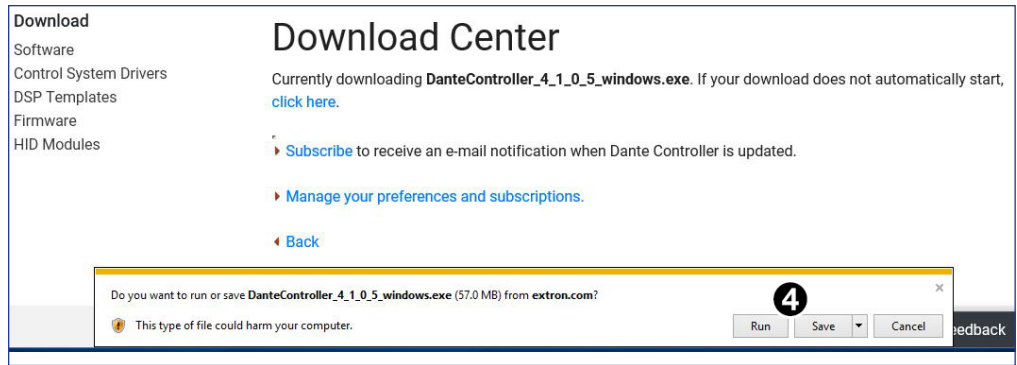


Figure 6. Download Center - Dante Controller

4. Click **Run** (4) to run the installation (or click **Save** to save the executable file).
5. Follow the onscreen instructions to install Dante Controller to your PC.
6. When the installation completes, choose to **Launch** or **Close** the program (see figure 7, 1).

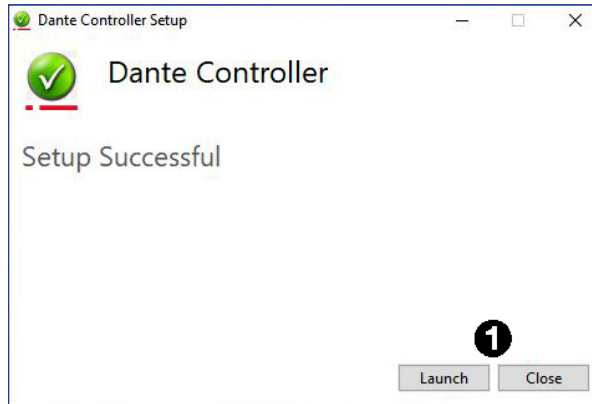


Figure 7. Dante Controller - Setup Successful

Dante Configuration and Operation

This section describes the NetPA AT network installation, configuration, and control using the Dante Controller for Windows.

- [NetPA AT Bus](#)
- [Managing Network Traffic](#)
- [Creating a Physical Dante Network](#)
- [Starting Dante Controller](#)
- [Dante Operation](#)
- [Dante Troubleshooting](#)
- [Resetting the NetPA AT](#)
- [Checking Dante Domain Manager \(DDM\) and AES 67 Compatibility](#)

NetPA AT Bus

NetPA AT uses Dante technology to provide high performance digital audio networking over standard TCP/IP networks. Dante allows audio channels to be transported across a switched Ethernet data network while meeting the quality requirements of professional audio.

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.

The NetPA AT models are receivers (destination) for signals on a Dante network. Receivers can be located anywhere on the Ethernet network and can be relocated without reconfiguring the NetPA AT or the network.

Managing Network Traffic

Because Dante devices prefer to use multi-cast routing to distribute audio channels, it is recommended that, if possible, the audio network be kept separate from the local business network. For more information on strategies to manage audio network traffic in an integrated system, refer to the “Multicast Transmit Flow Configuration” section in the *Dante Controller User Guide* at the Audinate website, www.audinate.com.

Creating a Physical Dante Network

A physical network is required to share Dante audio channels between a Dante source device and a NetPA AT. The NetPA 502 AT and NetPA 1001-70V AT have an RJ-45 connector located on the back panel that accepts a standard network cable.

A DMP 128 Plus-based Dante network can be configured in a star or daisy chain network topology using the four port switch and the Dante Controller in switched mode (see figure 8).

Star network topology places one DMP 128 Plus C AT as the central unit, which connects directly to as many as three more units. Alternatively, a larger network switch in place of the central DMP 128 Plus AT, allows more than four NetPA ATs to connect in the star configuration.

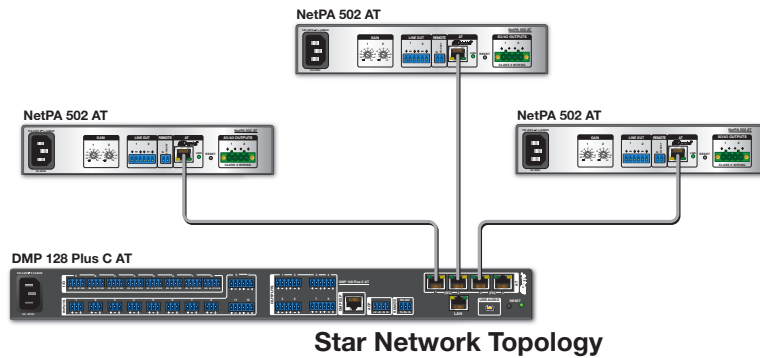


Figure 8. Star Network Topology

A daisy chain configuration can also be used. Each NetPA AT device can only connect to the end of the chain (see figure 9).

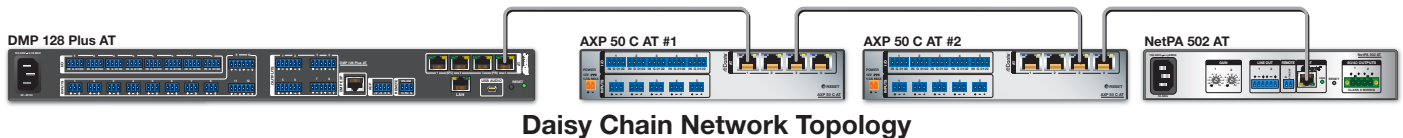


Figure 9. Daisy Chain Topology

Hybrid versions combining the star and daisy chain topologies can be built, but a ring topology, or any topology that creates a duplicate connection causes a connection failure in Dante Controller.

NOTE: Connections between ports in either a star or daisy chain network do not need to be sequential (1 to 2, 2 to 3, 3 to 4), nor do they need to be made between the same port numbers (1 to 1, 2 to 2, 3 to 3, 4 to 4).

NOTES: At this time, Dante is not compatible with EEE (Energy Efficient Ethernet) technology. Care should be taken when using a network switch with this technology in a Dante network.

- If using a managed switch, ensure that it supports disabling EEE on all ports that are to be used for Dante traffic.
- If using an unmanaged switch, do not use models that support the EEE function, as it cannot be disabled on these models.
- For more information on this topic, refer to the Audinate website, www.audinate.com.

Starting Dante Controller

To launch Dante Controller from the computer start menu, select:

All Programs > Audinate > Dante Controller > Dante Controller.

The Dante Controller - Network View screen opens.

If the network has a DHCP server, it receives its IP configuration using the standard DHCP protocol. On a network without a DHCP server, a Dante-enabled device automatically assigns itself an address using link local protocol.

Once connected, Dante Controller begins auto-discovery of all Dante devices. While scanning the network, it also advertises itself to allow Dante-enabled devices to see and communicate with it. When the network scan is complete, the Dante Controller - Network View screen is displayed (see figure 10).



Figure 10. Dante Controller Network View Screen

The major elements of the Network View screen include:

- **Receivers**, representing Dante device inputs, are on the left side running vertically down the screen (1).
- **Transmitters**, representing Dante device outputs, are along the top running horizontally across the screen (2).
- **Connection points** of the receivers and transmitters form a matrix in the lower-right panel of the screen (3).

Device Name

The default device name of the NetPA AT consists of its model name, followed by the last six digits of its MAC address (for example, **NetPA - 063f70**).

Multiple devices on the same network can present difficulty identifying inputs and outputs. To avoid confusion, rename each device to a unique identifier immediately after you connect it (see [Renaming an Input](#) on page 19).

NOTE: To simplify renaming, connect only one Dante device to the network at a time. After a device is renamed, it can remain connected.

In addition to renaming the connected device, you can relabel the inputs. Avoid confusing device names and inputs during operation. If necessary, rename the device and inputs before proceeding.

Dante Controller Naming Conventions

- Device labels follow Domain Name System (DNS) hostname rules. Legal characters are A-Z, a-z, 0-9, and hyphen (-). Device labels must begin with a letter.
- Dante Tx and Rx labels can be up to 31 characters in length. Label comparisons are not case-sensitive; “**OUTPUT01**” and “**output01**” are recognized as the same connection. 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.

Rename the NetPA AT

Dante Controller auto-discovers all Dante devices on the network and advertises itself to allow other Dante-enabled devices to communicate with it. The default device name is the word “NetPA” followed by the last six digits of the MAC address of the device. Multiple devices on the same network can present difficulty identifying inputs and outputs. To avoid confusion, each device must be renamed to a unique identifier.

NOTE: To simplify renaming, connect only one Dante device to the network at a time. As each device is renamed, it can remain connected.

Ensure the control computer and the NetPA AT are connected to the same network.

All Dante devices on the network are discovered and listed.

1. From the toolbar, select **Device>Device View** (see figure 11, ❶).

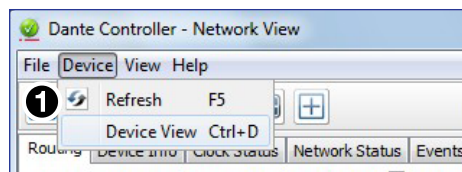


Figure 11. Select Device View

- The Dante Controller - Device View dialog box opens. Select your device from the **(Select a Dante Device...)** drop-down list (see figure 12, ❶).



Figure 12. Select a Dante Device

NOTES:

- If there are multiple NetPA ATs connected to the network that have not been renamed, to identify an individual device you must obtain the MAC address of the desired device from the label on the rear panel.
- The identify device tool can also be used to identify the unit. Refer to [Identifying the Physical Device](#) on page 23.

- The Device View dialog box populates with the selected NetPA AT information (see figure 13).

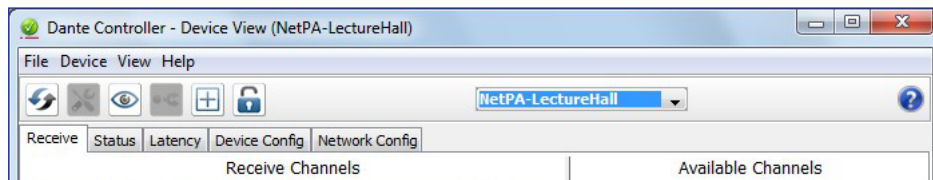


Figure 13. Device View Dialog Box

- Click the **Device Config** tab to open the device configuration page (see figure 14, ❶).

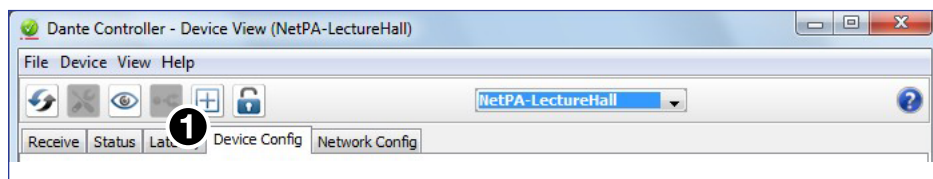


Figure 14. Device Config Tab

- In the Rename Device panel, enter the new name of the device in the text field (see figure 15, ❶). No spaces are allowed in the name.

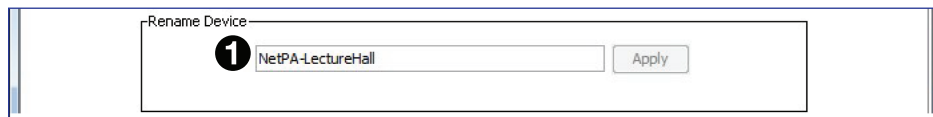


Figure 15. Rename Device Panel

- Click **Apply** (see figure 16, ①). A warning opens (②).

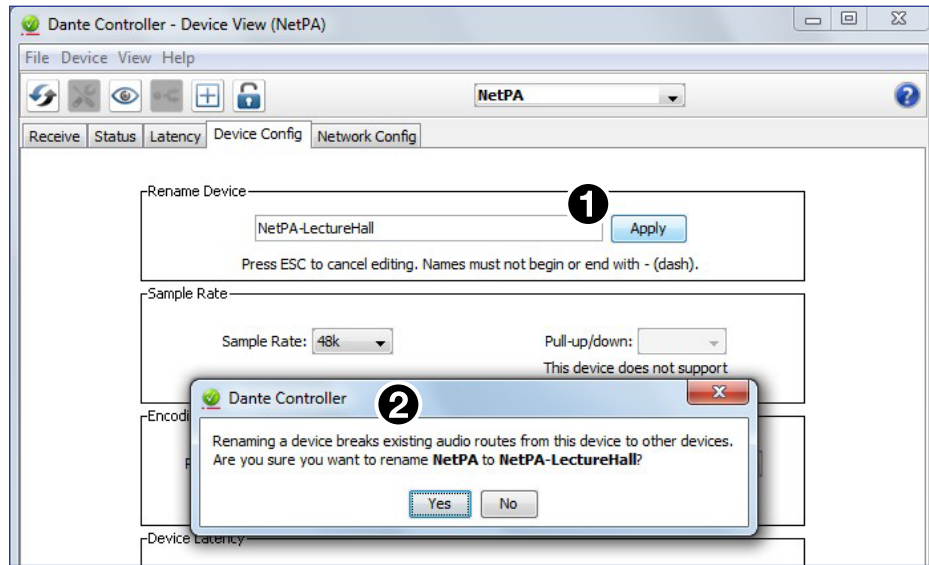


Figure 16. Warning Message

- Click **Yes** to enter the new name. The new name is written to the NetPA AT.
- Repeat steps 2 through 7 as necessary for all NetPA AT devices or when finished, close the **Device View** dialog box.

NOTE: After the NetPA AT is renamed, it can remain connected to the network. However, subsequent devices must be connected one at a time and renamed before the next device is connected.

Renaming an Input

If the devices are not properly named, Dante network connection points can quickly become unmanageable in large systems. To better organize the various inputs, it is recommended you name each input using descriptions of the device they belong to, the location of the device, or the purpose of the input.

To view the inputs of a receiver device on Dante, click the + sign next to the receiver name to expand it (see figure 17, ❶, for an example).

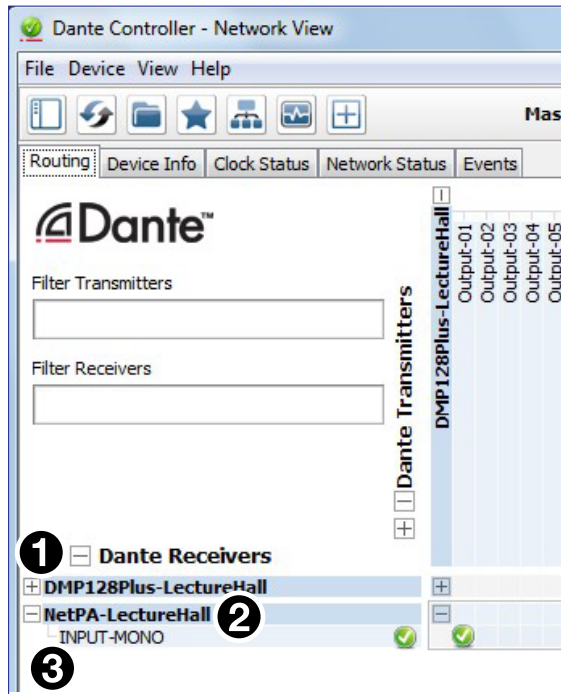


Figure 17. Expanded Device View – Input and Output Names

The names shown in the Dante Receivers column are extracted from the Dante interface of the connected device.

- The NetPA AT input is the Dante receiver (❷) labelled NetPA-LectureHall.
- The named input (❸) is INPUT-MONO.

TIP: To simplify setup and operation of large matrix systems, rename the input (receiver) lines to better indicate the output to which a receiver is connected.

To rename an input

1. From the **Device** menu on the **Network View** screen, select **Device View**. Alternatively, press <Ctrl+D> on the keyboard.
2. From the **Select a Dante Device** drop-down list, select the name of your NetPA AT (see figure 18, ❶).

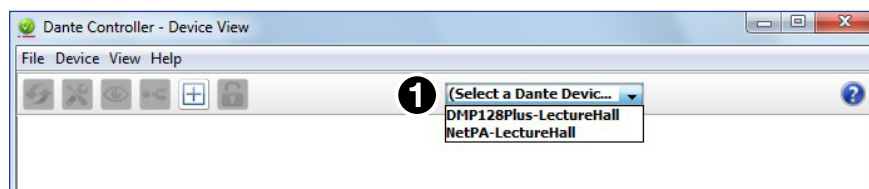


Figure 18. Device Drop-down Menu on the Device View Screen

3. Select the **Receive** tab (see figure 19, ❶).
4. Click the default name of the desired input. The name becomes a text box with a cursor (❷).

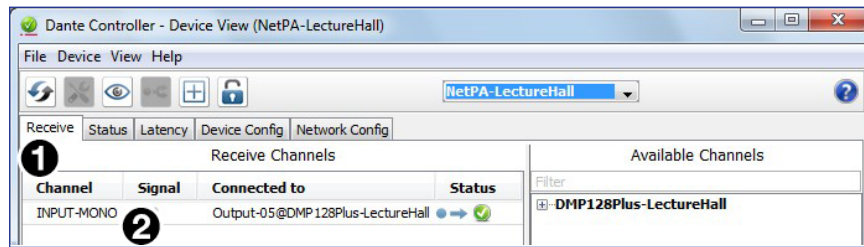


Figure 19. Device View Screen – Renaming an Input

5. In the selected name text box, enter the new name (up to 31 characters) using any combination of letters, numbers, and special characters.
6. Press <Enter> or click in another input text box to finalize the input name change.
7. Repeat steps 4 through 6 for each input to be renamed.
8. When finished renaming inputs, close the **Device View** dialog box.

Dante Operation

The following topics cover the use of Dante Controller to control and configure the unit.

Selecting Inputs and Outputs for Dante

Dante Controller is used for all network level signal routing of AT bus inputs and outputs. The digital input channels of the NetPA AT are shown in Dante Controller as receivers. The digital inputs are available in Dante Controller for routing to other Dante devices.

Routing signals using Dante

Channels received from the network are routed using the **Dante Controller Network View** screen **Routing** tab (see figure 20, ❶).







Figure 20. Dante Network View Screen, Routing Tab

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 the receiver-to-transmitter connection, click once on an intersection.
- To break a connection, click 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 connection (subscription).
	Indicates a pending connection.
	Indicates a broken connection (subscription).
	Indicates the transmitting device has been removed from the network or is switched off.

See the *Dante Controller User Guide*, available at the Audinate website, www.audinate.com, for additional information.

NOTE: After making changes to Dante network routing such as connections (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.

Select devices

After the receive channels (❶) of the NetPA AT are named, route them to a transmit channel (❷) on the audio network (see figure 21).

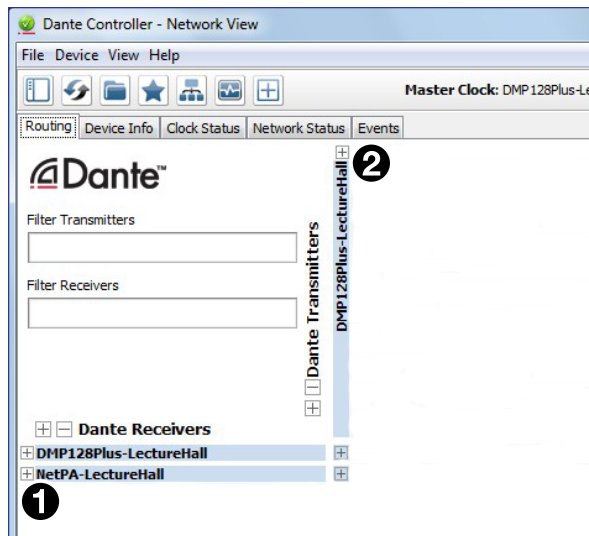


Figure 21. Network Devices

Ensure the control computer and NetPA AT are connected to the same network.

1. 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. Device inputs are Dante receivers (listed vertically on the left) and device outputs are Dante transmitters (listed horizontally across the top). Transmitters (outputs) connect to receivers (inputs) using the connection matrix.

2. Click the **+** box next to the **NetPA** (for example, **NetPA-Classroom-01**) in the **Dante Receivers** column to show all device inputs (see [figure 21](#), **1** on the previous page).
3. Click the **+** box next to the transmitter (**DMP128-LectureHall**) (**2**) in the **Dante Transmitters** row to show all device outputs.

Route inputs and outputs

1. Click the **+** box next to the input channels (receivers) on the NetPA AT (**NetPA-LectureHall** in the example in [figure 22](#), **1**).

All device outputs (transmitters) display horizontally on the screen.

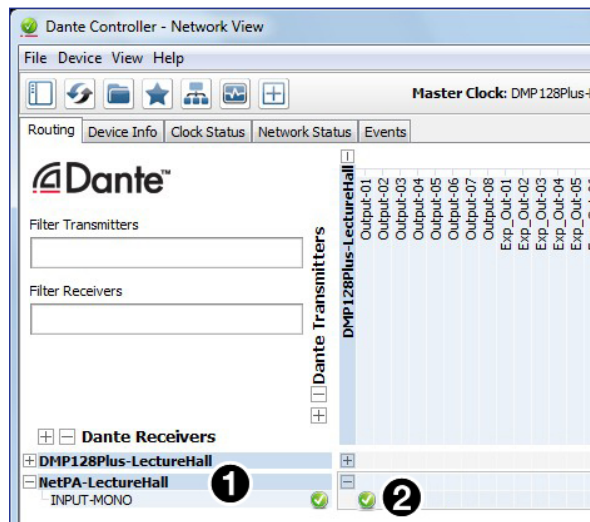


Figure 22. Routing Inputs and Outputs

2. Click the junction of the desired connection (Example: **DMP128Plus-LectureHall > Output-01** to **NetPA-LectureHall > INPUT-MONO**).


A checkmark at the junction (**2**) indicates the connection is made. A checkmark is also placed next to the receiver channel.

NOTE: An input (receiver) can only connect to one output (transmitter). An output (transmitter) can connect to multiple inputs (receivers).

3. Click the junction again to disconnect the input from the output.

Identifying the Physical Device

If the amplifier needs to be physically identified, the identify device tool can be used to aid in its location.

1. Start with steps 1 through 3 of [Rename the NetPA AT](#) on page 16.
2. To identify the NetPA AT, click the “eye” icon .
3. Both the front panel power LED (see [figure 3](#), **A**, on page 9) and the rear panel Link LED (see [figure 2](#), **F**, on page 6) blink amber at a rate of 0.5 Hz for ten seconds after which the LEDs return to their previous state.
4. Locate the unit with the blinking LEDs.

Setting a Static IP Address (Default DHCP)

Prior to starting this, use a standard Ethernet cable to connect to a network via the AT port (see [figure 2](#), **E**, on page 6).

To set the IP address of a Dante device, the name of the device must be known (see [Rename the NetPA AT](#) on page 16).

1. From the start menu, select **All Programs > Audinate > Dante Controller > Dante Controller**. The Dante Controller - Network View screen opens (see figure 23).

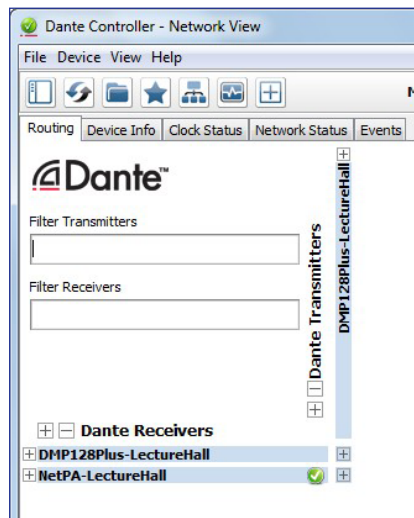


Figure 23. Network View Screen

All Dante devices on the network are discovered and listed.

2. From the toolbar, select **Device>Device View** (see figure 24, **1**).

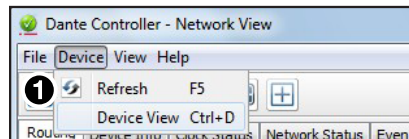


Figure 24. Device View

The Dante Controller - Device View dialog box opens.

3. Select your device from the (**Select a Dante Device...**) drop-down list (see figure 25, ❶).



Figure 25. Select a Dante Device

4. Click the **Network Config** tab to open the network configuration page (see figure 26, ❶).

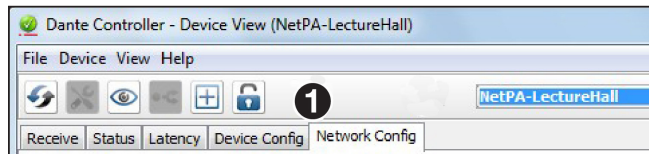


Figure 26. Network Config Tab

5. Click **Manually configure an IP Address** (see figure 27, ❶); then, enter the IP address and the subnet mask (❷).

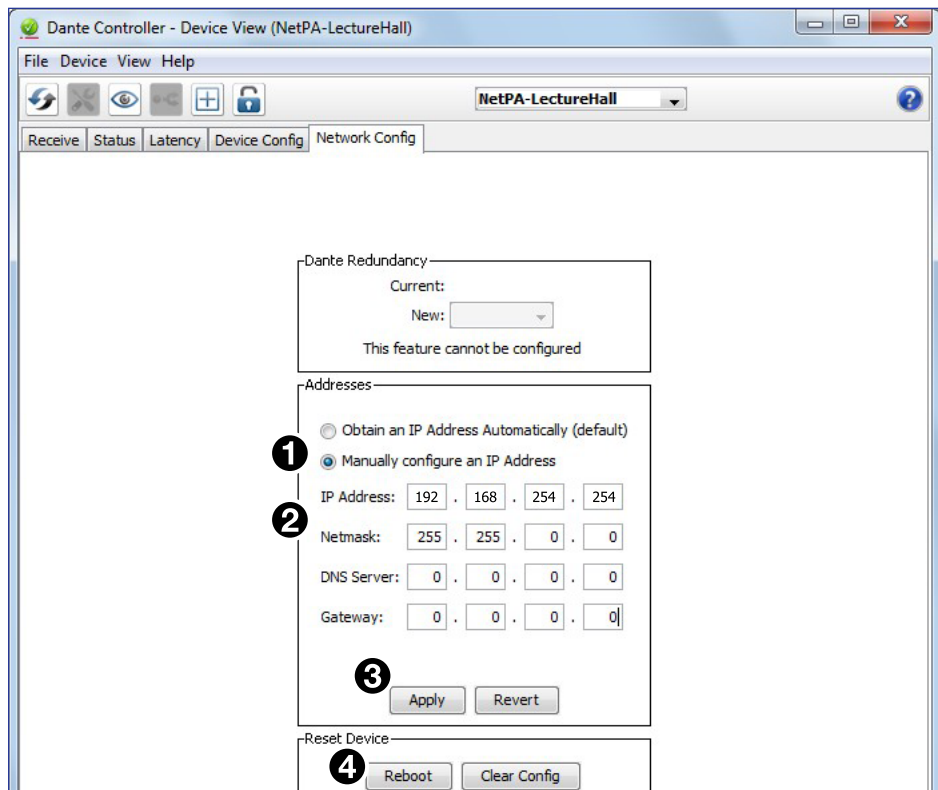


Figure 27. Configuring an IP Address

6. Click **Apply** (❸).
7. A warning box appears. Click **Yes** to continue.
8. Click **Reboot** (❹).

Dante Troubleshooting

The most common Dante troubleshooting issues occur when no devices are discovered by the Dante Controller software, or routing is not successful or is prevented. 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 reconnect the Ethernet cable connecting the PC to the Dante network. Restart the Dante Controller software. This can be enough for the software to reacquire the Dante network.

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


Simplifying the Network for Troubleshooting

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

1. Connect the PC to the NetPA AT port.
2. Use Dante Controller to check if the issue was resolved before moving on to network interface troubleshooting.
3. 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 after simplifying the network, continue to diagnose the PC network connections as described below. Check Dante Controller after each step to see if the problem is resolved.

1. Open the **Configure Dante Interface** dialog box by clicking the **Choose a Dante Interface** icon  on the Dante Controller main screen (see figure 28, ①). Be certain the correct LAN connection is selected (the PC LAN port physically connected to the AT network) and note the IP address.

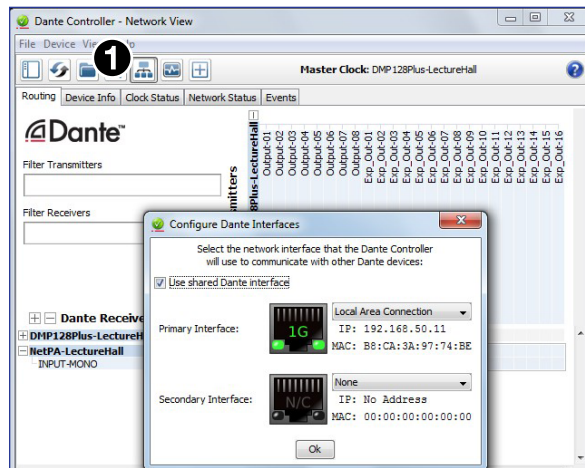


Figure 28. Configure Dante Interfaces Dialog Box

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 step 1 above.)
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.

Additional Troubleshooting

For further help, see *Dante Troubleshooting* in the Dante help file. To access the Dante help file, do any of the following:

- Click the **Help** icon in the upper-right corner of the Dante screen (see figure 29, **1**, below).
- Select **Online Help** or **Offline Help** from the **Help** menu (**2**) on the Dante screen.
- Press the <F1> key on the computer keyboard.

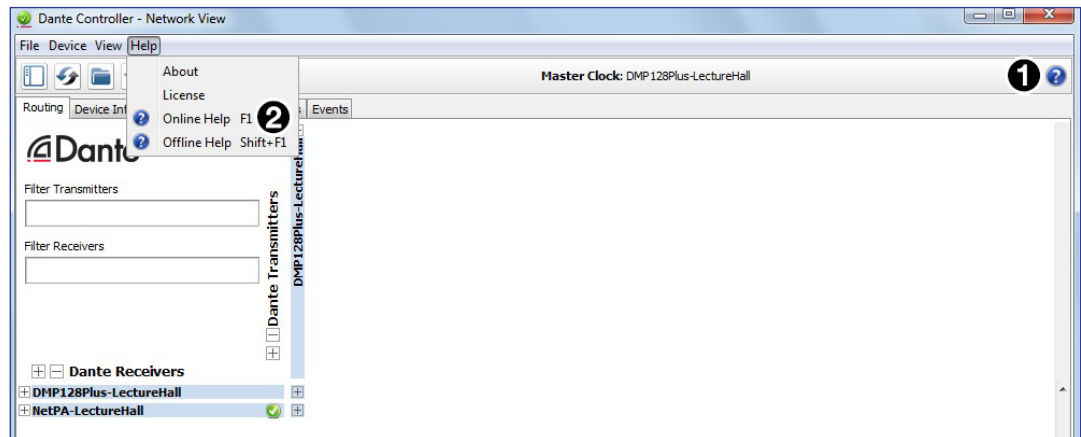


Figure 29. Accessing the Dante Help File

Resetting the NetPA AT

The NetPA AT utilizes DHCP addressing by default.

A recessed **Reset** button on the rear panel (see figure 2, **G**, on page 6) initiates a reset mode. Reset sets the IP addressing mode to DHCP (Dante default), clears the previous IP address, and resets the device name to default.

NOTE: Initiating a reset while the NetPA AT is connected to a transmitting device severs that connection.

To reset the NetPA AT, press and hold down the **Reset** button for 10 seconds until both of the rear panel RJ-45 Ethernet port LEDs blink twice.

NOTE: When the NetPA AT is first powered on, or reset, the default name shall be "NetPA-xxxxxx" where xxxxxx are the last six digits of the MAC address of the unit.

Checking Dante Domain Manager (DDM) and AES 67 Compatibility

NetPA ATs with Dante firmware version 4.1.2.1 or higher along with Dante Model UltimoX2 support the AES 67 standard and Dante Domain Manager (DDM).

To identify the version of Dante you have, perform the following:

1. From the Dante Controller toolbar, select **Device > Device View** (see figure 30, ❶).

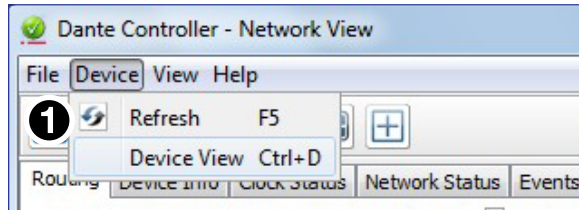


Figure 30. Selecting the Device View Dialog Box

2. The Dante Controller - Device View dialog box opens. Select your device from the (Select a Dante Device) drop-down list (see figure 31, ❶).

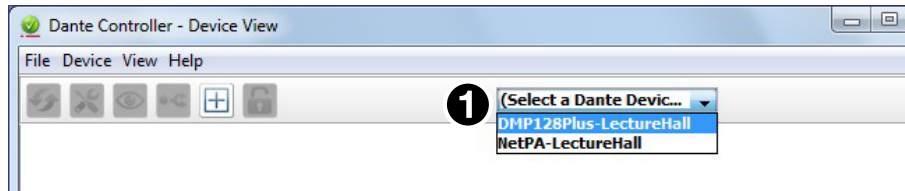


Figure 31. Selecting a Dante Device

NOTES:

- There may be multiple NetPA ATs connected to the network that have not been renamed. To identify one of these devices, you must obtain the MAC address of the desired device from the label on the rear panel.
- The identify device tool can also be used to identify the unit. Refer to [Identifying the Physical Device](#) on page 23.

3. The Device View dialog box populates with the selected NetPA AT information (see figure 32, ❶).

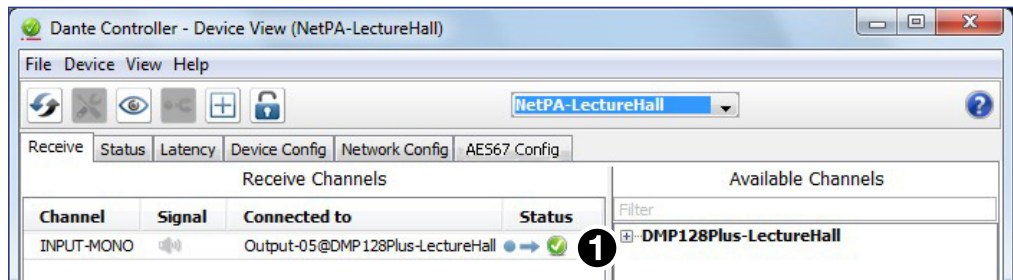


Figure 32. Device View Dialog Box

4. Select the **Status** tab (see figure 33, ①).

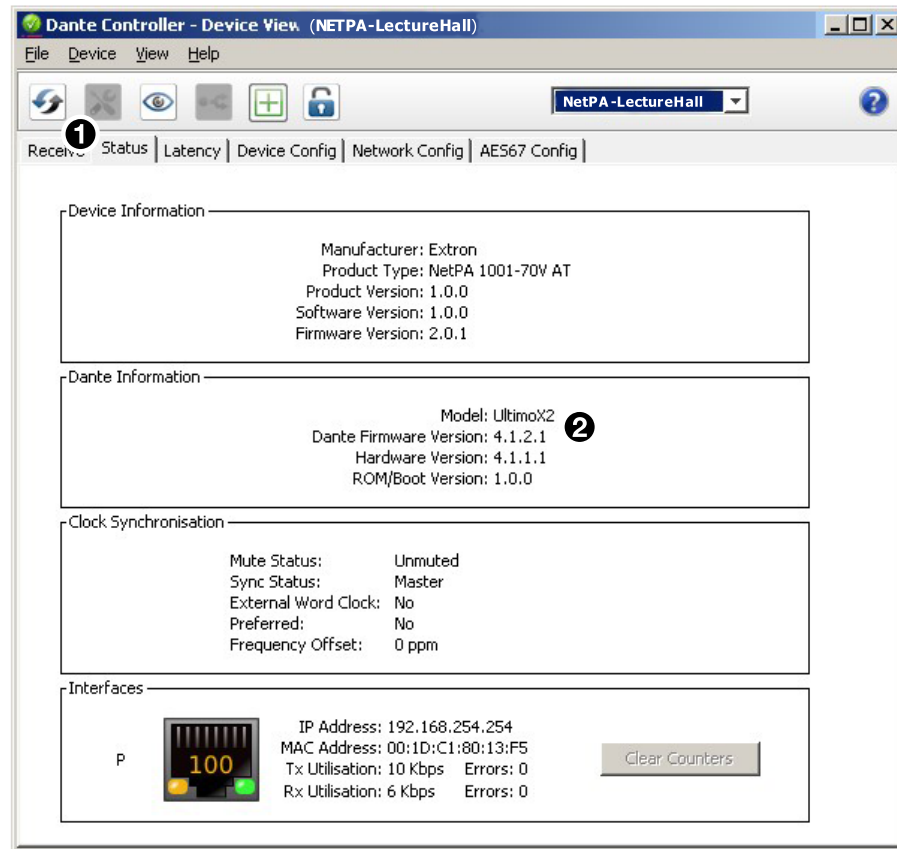


Figure 33. Status Tab - Checking Dante Information

5. Check the model and version number of the Dante firmware (②). If the model is UltimoX2 and the Dante firmware version is 4.1.2.1 or higher, DDM and AES 67 are supported on your unit.

Reference Information

This section describes mounting options and the defeatable auto power-down timer.

- [Mounting of the NetPA AT](#)
- [Defeatable Auto Power-down Timer](#)

Mounting of the NetPA AT

The NetPA AT can be mounted in the following ways:

- Set on a table
- Mounted on a rack shelf
- Mounted under a desk or tabletop

The half rack width, 9.5 inch (24.1 cm) deep enclosure is designed for inconspicuous under-table placement using the UTS 100 Series Under Table Shelf System or MBU 125 Low-Profile Mount Kit, available separately.

Tabletop Use

Each NetPA AT is supplied with rubber feet (not installed). For tabletop use, attach a self-adhesive rubber foot to each corner of the bottom of the unit.

UL Rack Mounting Guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the safe installation of the NetPA AT in a rack.

- 1. Elevated operating ambient temperature** — If the equipment is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consider installing the equipment in an environment compatible with the +122 °F (+50 °C) maximum ambient temperature (T_{ma}) specified by Extron.
- 2. Reduced air flow** — Install the equipment in a rack so that the amount of air flow required for safe operation of the equipment is not compromised.
- 3. Mechanical loading** — Mount the equipment in the rack so that a hazardous condition is not achieved due to uneven mechanical loading.
- 4. Circuit overloading** — Connect the equipment to the supply circuit and consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- 5. Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (such as the use of power strips).

Rack Shelf Mounting

For rack mounting, do not install the rubber feet. The NetPA AT can be mounted on a 19 inch Universal 1U, UTS half rack, or basic rack shelf.

To rack mount the NetPA AT on a rack shelf:

1. If rubber feet are installed on the bottom of the NetPA AT, remove them.
2. Mount the NetPA AT on the rack shelf, using two 4-40 x 3/16 inch screws in opposite (diagonal) corners to secure the unit to the shelf (see figure 34).

ATTENTION:

- Using screws longer than 3/16" will damage the unit and void the warranty.
- L'utilisation de vis plus longues que 3/16" endommagera l'unité et annulera la garantie.

TIP:

Where access to the screws mounting the device to a shelf is difficult, mount the device to the shelf prior to installing the shelf in the rack..

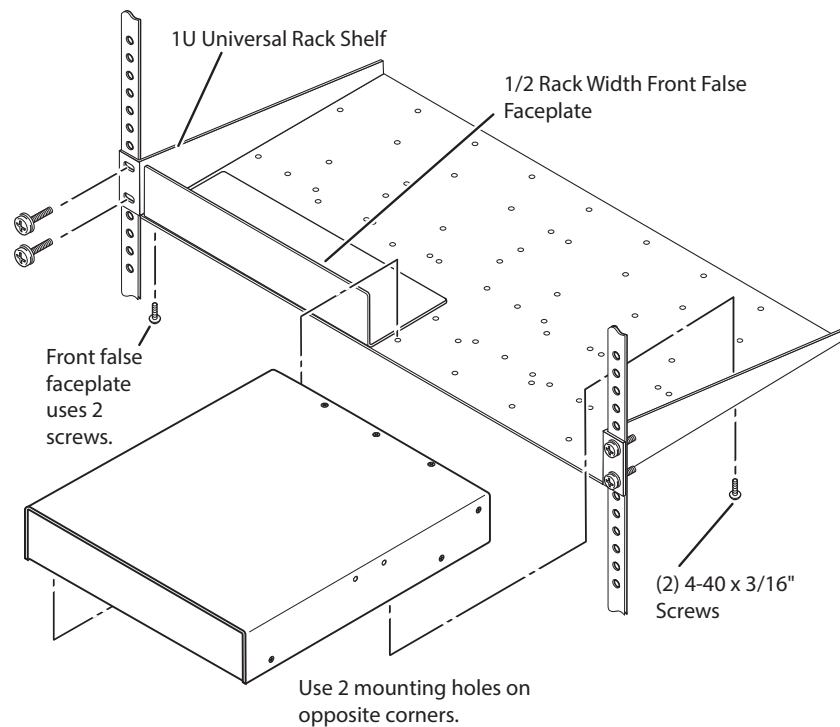


Figure 34. Mounting the NetPA AT on a Universal Rack Shelf

3. Install blank panels or other units on the rack shelf.

Under-desk Mounting

The table or wall mounting brackets extend approximately 1/4 inch (6.4 mm) above the top surface of the enclosure. This design allows for an air space between the enclosure and the surface to which it is mounted (see figure 35).

Mount the NetPA AT under a desk or table as follows:

1. Attach the MBU 125 brackets.
2. Hold the unit with the attached brackets against the underside of the table or other furniture. Mark the location of the screw holes of the bracket on the mounting surface.
3. Drill 3/32 inch (2 mm) diameter pilot holes, 1/4 inch (6.4 mm) deep in the mounting surface at the marked screw locations.
4. Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 1/4 inch of the screw's head protrudes.
5. Align the mounting screws with the slots in the brackets and place the unit against the surface, with the screws through the bracket slots.
6. Slide the unit slightly forward or back, then tighten all four screws to secure it in place.

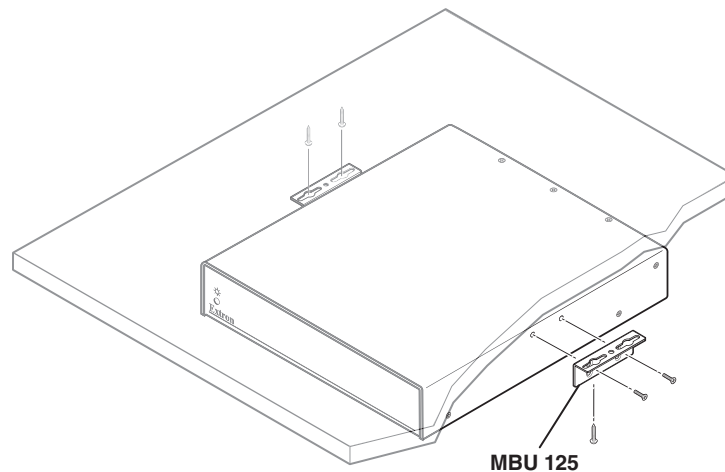


Figure 35. Under-furniture Mounting

Other Mounting Options

The NetPA AT can also be installed under furniture using the UTS 100 and UTS 150 under-table shelf system.

Defeatable Auto Power-down Timer

The auto power-down timer determines whether or not the NetPA AT enters standby mode. The amplifier powers down if the input signal remains below the input signal detection threshold for about 25 minutes.

The timer resets whenever the input signal exceeds the input signal detection threshold. Resetting the timer starts a new 25-minute countdown until the amplifier powers down. Resetting the timer also causes an amplifier that is already powered down to “wake up” or power back up.

There may be times when it is desirable to bypass (disable) the auto power-down timer. Examples of when defeating the auto power-down circuit might be required include:

- If the amplifier is used in a paging system. When the amplifier has already powered down, the first syllable might be cut off as the amplifier wakes up from standby mode.
- If the input signal is so quiet that the level remains below the input signal detection threshold for 25 minutes, the timer cuts the audio in the middle of playback by placing the amplifier into standby mode.

To defeat the auto power-down timer, follow these instructions:

1. Disconnect power from the amplifier.

⚠ WARNING: Electric shock hazard. Disconnect power to the product before opening the case.

AVERTISSEMENT : Risque de choc électrique. Débranchez l'alimentation secteur du produit avant d'ouvrir le boîtier.

2. Remove the nine cover screws that secure the top enclosure cover to the NetPA AT. Three screws on top and three screws on each side (see figure 36).

ATTENTION:

- Exercise caution when removing the screws to avoid stripping the screw heads.
- Soyez prudent en retirant les vis afin d'éviter d'abîmer les têtes de vis.

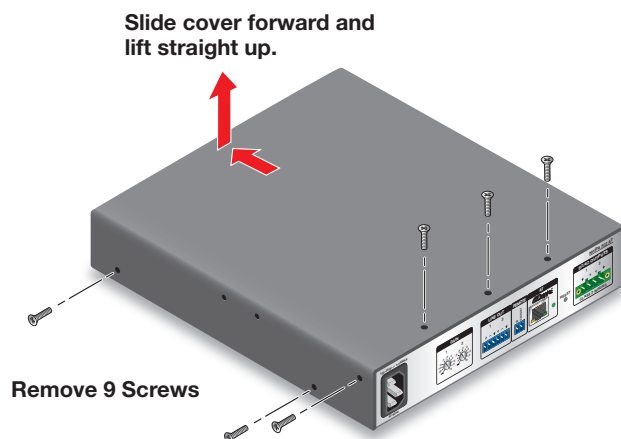


Figure 36. Remove the Top Cover

3. Slide the top enclosure cover forward so that the front panel end of the cover slides away from the rear panel end of the chassis then lift off the cover.

- The circuit board nearest the rear of the NetPA AT has a jumper to enable or disable the power-down timer. By default, the jumper is set to enable (the jumper set on the leftmost pins). Setting the jumper on the rightmost pins disables the power-down timer.

ATTENTION:

- Do not touch the electronic components or the connectors on the backplane or on the circuit boards without being electrically grounded.
- Ne pas toucher les composants électroniques ou les connecteurs sur la carte mère ou sur les circuits imprimés sans être électriquement relié à la terre.

- Enable the power-down timer by placing the jumper on the two leftmost pins. Disable the power-down timer by placing the jumper on the two rightmost pins (see figure 37).

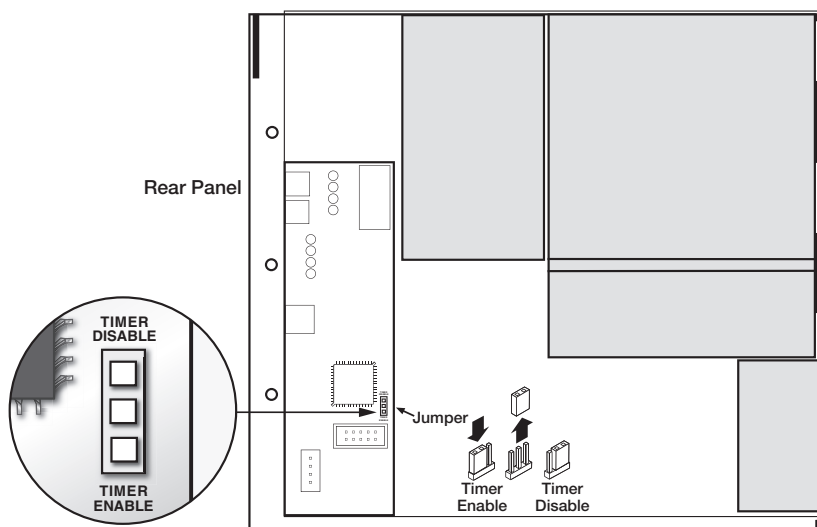


Figure 37. Jumper Pins

- Replace the top cover using nine cover screws that were removed previously in step 2 (three top screws and three screws on each side).

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
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.