

## NetPA Ultra Series • Setup Guide

The NetPA Ultra Series is a series of DSP and Dante®-enabled audio power amplifiers for use in a low-impedance speaker systems or high-impedance line distribution audio systems.

NetPA U 1002 models deliver two channels of 100 watts, and is available in the following configurations:

- NetPA U 1002 (8  $\Omega$ /4  $\Omega$ )
- NetPA U 1002-70V (70 V)
- NetPA U 1002-100V (100 V)

NetPA U 1004 models deliver four channels of 100 watts, and is available in the following configurations:

- NetPA U 1004 (8  $\Omega$ /4  $\Omega$ )
- NetPA U 1004-70V (70 V)
- NetPA U 1004-100V (100 V)

The NetPA Ultra Series amplifiers all feature a compact 1U, 1/2-rack enclosure. The amplifiers have mounting holes for 9" and deeper rack shelves, and are plenum rated with an optional flex conduit adaptor. The units are convection cooled.

This guide provides instructions for an experienced installer to set up and operate these power amplifiers. The setup guide features the NetPA U 1004, but the other amplifiers are installed in the same manner. For full installation, configuration, and operation details, see the *NetPA U 1004 Series User Guide* available at [www.extron.com](http://www.extron.com).

## Installation Steps

### Step 1 — Mounting onto a Rack

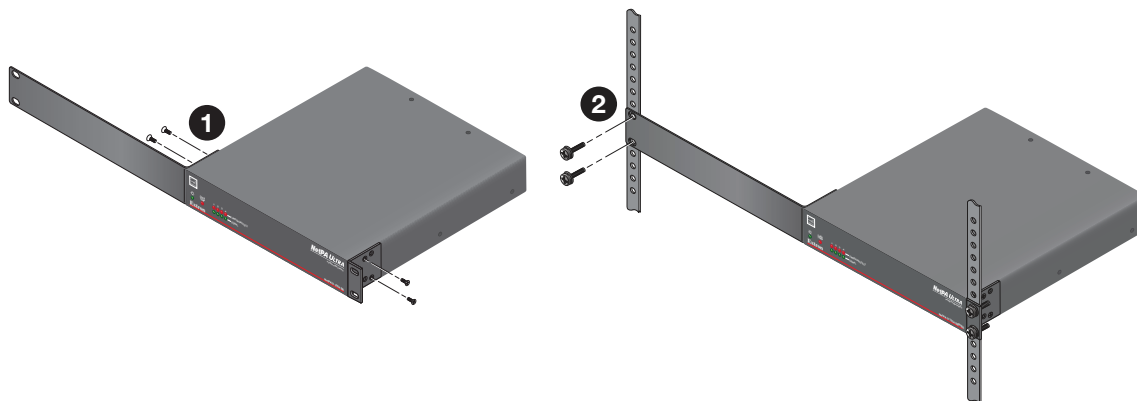
Turn off all of the equipment and disconnect it from the power source. Mount the amplifier as required. They can be securely mounted in a variety of locations, using optional Extron Mounting Brackets and accessories (see the [Extron website](http://www.extron.com) for compatible optional mounting accessories) or using the included 3-piece bracket system. The brackets do not come attached to the amplifier.

The following sections describe two methods of rack mounting the amplifiers.

#### Rack Ear Mounting (Single Unit)

All of the amplifiers ship with a set of rack ears, so these half rack-width amplifiers can be installed in a full rack-width space. Mount the amplifier with rack ears as follows:

1. If the amplifier has its rubber feet installed, remove them.
2. Attach the rack brackets (one long and one short) to the sides with the four provided #6 machine screws (1).
3. Insert the amplifier into the rack and align the holes in the rack ears with the holes on the rack.
4. Secure the amplifier to the rack using the four provided 10-32 x 3/4" screws (2).

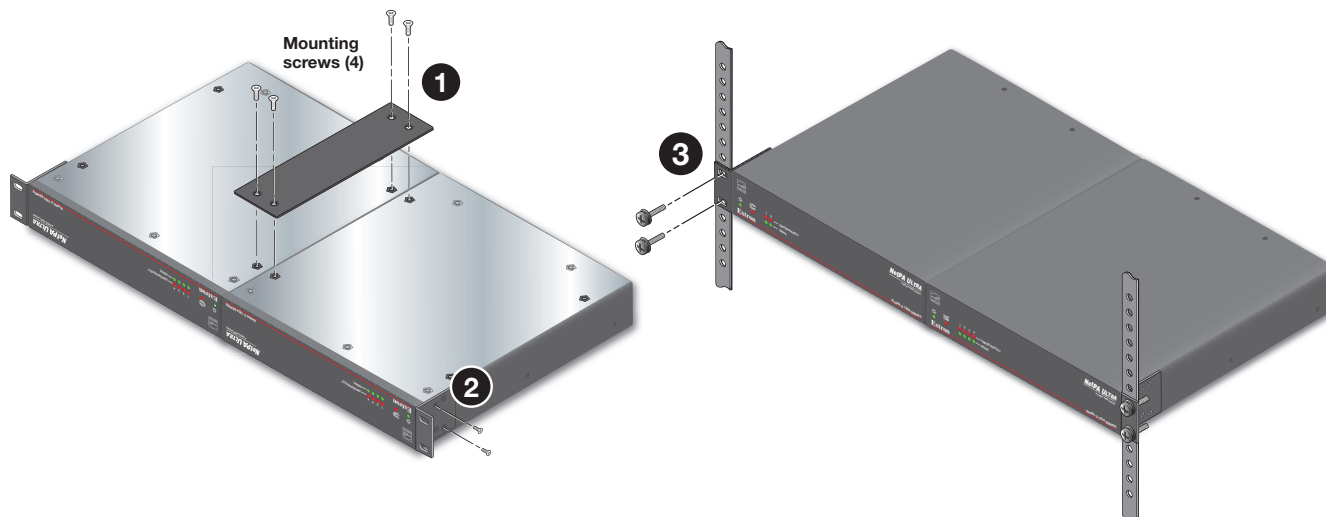


**Figure 1. NetPA U 1004 Rack Ear Mounting**

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The NetPA Ultra Series amplifiers all ship with a bridge plate connector to connect two amplifiers together and form full rack-width unit. Mount and connect two amplifiers as follows:

1. If the amplifier has its rubber feet installed, remove them.
2. Position two amplifiers upside down and next to each other as shown below.
3. Use the bridge plate connector and the four provided #4 machine screws to connect the two units together (1).
4. Attach the two short rack ears to the units with the four provided #6 machine screws (2).
5. Insert the amplifier into the rack and align the holes in the rack ears with the holes on the rack.
6. Secure the amplifier to the rack using the four provided 10-32 x 3/4" screws (3).



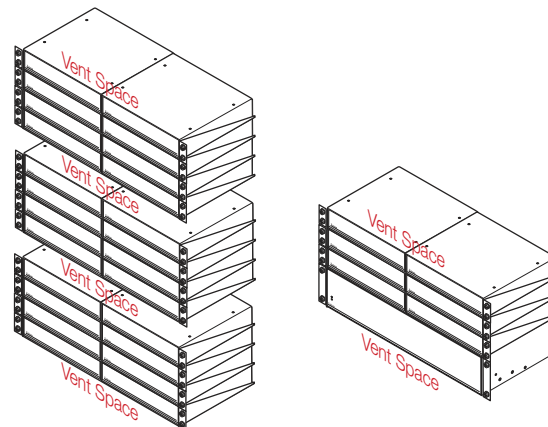
**Figure 2.** NetPA U 1004 Bridge Plate Rack Mounting

### Ventilation Recommendation

Excessive heat decreases the optimal lifetime of the power amplifier. An Over Temp LED indicator on the front panel of the amplifier lights red when the recommended operating temperature has been exceeded.

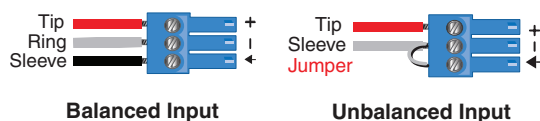
The NetPA Ultra amplifiers need to be arranged in a rack environment, so that the environment around the amplifier around does not reach or exceed +122 °F (+50 °C). No more than four amplifiers should be stacked one-on-top-of-the-other without an open rack space in between as seen in the image to the right.

The NetPA Ultra amplifiers can also be arranged above or below a non-NetPA Ultra device.



## Step 2 — Captive Screw Audio Cable Wiring

Wire the captive screw connectors to the input or output as shown in the following figures.



**Figure 3.** Input Wiring



**Figure 4.** Output Wiring

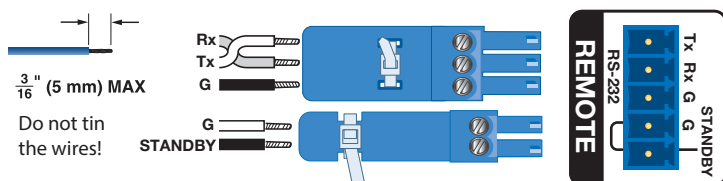
#### NOTE:

- Balanced or unbalanced stereo sources can be connected with 6-pole connectors.
- When using the 5-pole CSR 6 captive screw to RCA adapter, connect it so the far left plug is inserted into the far left jack of the 6-pole input.

## ATTENTION:

- For unbalanced audio outputs, 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 (-).

## Step 3 – Remote Ports



**Figure 5. Remote Volume Control and Standby Ports**

- Standby mode is forced when the Standby pin is connected to the second G pin. The power LED on the front panel lights amber when the amplifier is in Standby mode indicating that the amplifier is still receiving power despite the fact that it has turned off all the outputs.

**NOTE:** The enabling and disabling of the auto-standby timer is handled through SIS or DSP Configurator. For more details, consult the *NetPA Ultra Series User Guide*.

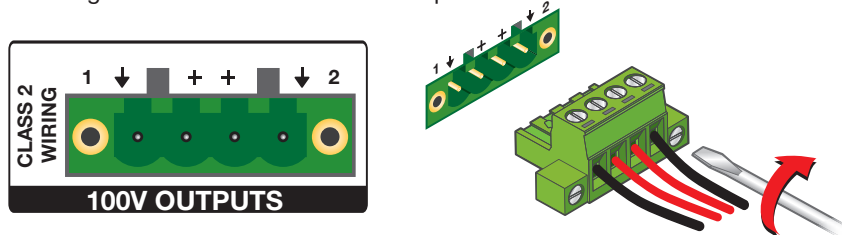
- Connect a 3.5 mm 3-pole captive screw connector to remotely control the volume via SIS commands, and connect a 3.5 mm, 2-pole captive screw to place the amplifier into Standby mode.

Protocol for the RS-232 port:

- 38,400 baud
- 1 stop bit
- 8 data bits
- no parity

## Step 4 – Speaker Wiring

Connect a four 4-pin, 5 mm captive screw connector for two channels of speaker output on the NetPA U 1002 group of amplifiers and up to four channels on the NetPA U 1004 group of amplifiers. Each port has a screw flange to secure the plug to the connector. Figure 6 shows how to wire the captive screw connector.



**Figure 6 Speaker Output Port and Wiring Diagram**

## ATTENTION:

- Do not tie channel output pins to each other or to ground. Doing so will short out the outputs, damage the amplifier, or both.
- Ne pas lier les sorties 1 et 2 des canaux entre elles ou à la terre. Les sorties pourraient être court-circuitées et/ou l'amplificateur pourrait être endommagé.
- To avoid risk of damage to the amplifier or the speakers, always connect low-impedance speaker loads (8  $\Omega$ /4  $\Omega$ ) and high-impedance speaker loads (70 V) to the appropriately marked output connectors on the amplifier.
- Pour éviter tout risque de détérioration de l'amplificateur ou des enceintes, connectez toujours les charges de l'enceinte faible impédance (8  $\Omega$ /4  $\Omega$ ) et les charges de l'enceinte haute impédance (70 V) aux connecteurs de sortie correctement identifiés sur l'amplificateur.

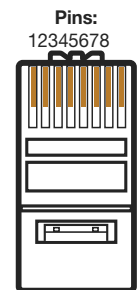
**NOTE:** You must use Class 2 wiring for this output to comply with UL requirements.

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## Step 5 – AT Port

Connect a RJ-45 connector to the AT port to connect and communicate with the Dante network. It is also one of the interfaces DSP Configurator uses to communicate with the amplifier. The Link LED indicates when a connection is made.

Go to [Configure Dante Device Settings](#) on page 5 for information on Dante settings. See the image to the right for wiring.



Insert Twisted Pair Wires  
**RJ-45 Connector**

| <b>Crossover Cable</b><br>(for direct connection to a PC) |              |              |              |
|-----------------------------------------------------------|--------------|--------------|--------------|
| <b>End 1</b>                                              |              | <b>End 2</b> |              |
| Pin                                                       | Wire Color   | Pin          | Wire Color   |
| 1                                                         | white-orange | 1            | white-green  |
| 2                                                         | orange       | 2            | green        |
| 3                                                         | white-green  | 3            | white-orange |
| 4                                                         | blue         | 4            | blue         |
| 5                                                         | white-blue   | 5            | white-blue   |
| 6                                                         | green        | 6            | orange       |
| 7                                                         | white-brown  | 7            | white-brown  |
| 8                                                         | brown        | 8            | brown        |

**T568B**

**T568A**

A cable that is wired as TIA/EIA T568A at one end and T568B at the other (Tx and Rx pairs reversed) is a "crossover" cable.

## Step 6 – Powering on Amplifier and Adjustments

Reconnect all the power cables and switch on the rest of the equipment before powering on the power amplifier. The amplifier will boot-up for up to 10 seconds as the front panel LED lights amber.

Once the boot-up sequence is complete, the amplifier takes more time to sync with the Dante network, and begin the playback of streamed content. Once playback begins, the front panel LED lights green.

### ATTENTION:

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

## Step 7 – Checking LEDs

Check the Limiter/Protect and Signal LEDs on the front and rear panels to see if any problems are encountered (see "Front Panel Features and Troubleshooting" in the *NetPA Ultra Series User Guide* for more information).

## Step 8 – DSP Configurator Software Installation

There are no hardware controls for any of the units in the NetPA Ultra Series. Configuration and control is done using either Extron DSP Configurator software or SIS commands. To learn about full computer requirements, see the DSP Configurator product page on [www.extron.com](http://www.extron.com).

### Download DSP Configurator from the Extron Website

1. From the Extron home page ([www.extron.com](http://www.extron.com)), click the **Download** tab to open the **Download** page.
2. Under **Software** (located on the left side of the page), select **DSP Configurator Software**. The DSP Configurator Software product page opens.
3. Click the **Download** button and follow the on-screen instructions.

**NOTE:** An Extron Insider account is required to download DSP Configurator.

## Step 9 – NetPA Ultra Series Configuration

When power is connected to any unit of the NetPA Ultra Series and the rest of the audio system, audio output can be easily configured to any listening environment via the DSP Configurator. The following steps details how to configure a NetPA Ultra Series amplifier and uses the NetPA U 1004 as an example. However, all of the amplifiers are configured in the same way.

### Downloading and Installing 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**. The Dante Controller product page opens.
3. 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.

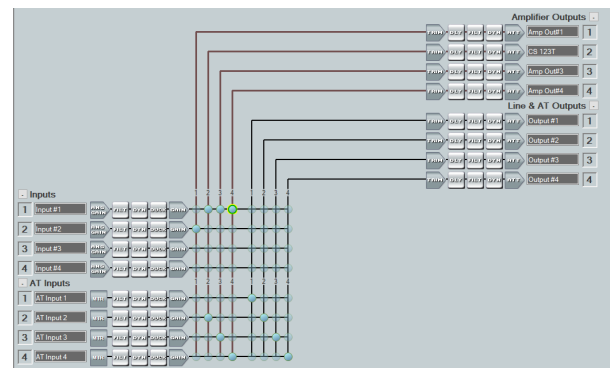
**NOTE:** The installed Dante Controller program files are saved in:  
C:\Program Files (x86)\Audinate\Dante Controller\DanteController.exe.

## Configure a NetPA Ultra Series Amplifier

1. Ensure the control computer is connected to either the AT port, RS-232 port or the rear panel USB configuration port.
2. Start the DSP Configurator software. From the splash screen drop-down menu, select the NetPA Ultra Series unit corresponding to the unit connected to the control computer. Click **OK**. The main workspace opens.
3. The software starts in Emulate mode:
  - a. To create a configuration file offline and then upload that configuration to a NetPA Ultra Series unit at a later time, remain in Emulate mode and save the configuration file.
  - b. To upload a configuration to the NetPA Ultra Series unit or download the current configuration from a unit, enter Live mode. When in Live mode, changes made in DSP Configurator immediately affect the connected NetPA Ultra Series unit. To enter Live mode, click **Live** at the top of the DSP Configurator workspace, or select **Tools > Connect to Device**, or press **<F6>** on the keyboard.

**NOTE:** When Live mode is selected, a connection dialog box appears. Select the desired connection type and follow the on-screen prompts (see the *NetPA Ultra Series User Guide* for more information on connecting live to a device).

The main workspace provides access to mix matrices, gain blocks, and DSP processors for configuring a NetPA Ultra Series unit. It also provides a menu bar across the top with additional configuration tools. For more information on using the DSP Configurator, see the “DSP Configurator” section of the *NetPA Ultra Series User Guide*, or the *DSP Configurator Help File* that can be accessed by selecting **Help > Contents** or pressing **<F1>**. Most dialog boxes within DSP Configurator contain a **Help** button ( ? ) in the top right corner. Click this button to open the help file topic for that particular dialog box.



## Configure Dante Device Settings

Dante settings in the NetPA Ultra Series can be configured from DSP Configurator. The device can be named in the Dante Device Settings, which assists with indentifying a specific device in the Dante Controller software when there are multiple entries on the audio network.

**ATTENTION:** It is crucial that a Dante device be named before audio subscriptions with other devices are established. Existing subscriptions are removed when a unit is renamed.

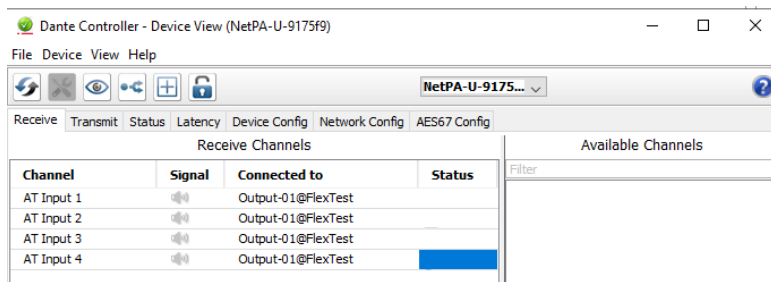
### To configure Dante device settings:

1. Open DSP Configurator and connect live to the NetPA Ultra Series.
2. Select **Tools > Device Settings**. The **Device Settings** dialog box opens.
3. From the tabs at the top of the **Device Settings** dialog box, select **Dante Device**.
4. In the **Device Name** field, give the NetPA Ultra Series unit a name (recommended to be device model and location) so that it can be easily identified in Dante Controller. No spaces are allowed in the name.
5. Dante device network settings can also be configured in this dialog box. Use the radio buttons and text fields to choose **DHCP** (recommended) or **Static IP** and enter a static IP address configuration.
6. Click **Apply**.
7. Click **OK** to confirm changes and close the **Device Settings** dialog box.

## Renaming the NetPA Ultra Series Amplifier in Dante Controller

1. From the control computer **Start** menu select: **All Programs > Audinate > Dante Controller > Dante Controller**
2. The Dante Controller - Network View screen opens. All Dante devices on the network are discovered and listed.
3. From the Device menu, select **Device View** or press **<Ctrl+D>** on the keyboard.
4. The Dante Controller - Device View dialog opens. Select the device being configured from the (**Select a Dante Device...**) drop-down list. The **Device View** dialog populates with the selected NetPA Ultra Series information.

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**Figure 7** Populated Device View Dialog Box

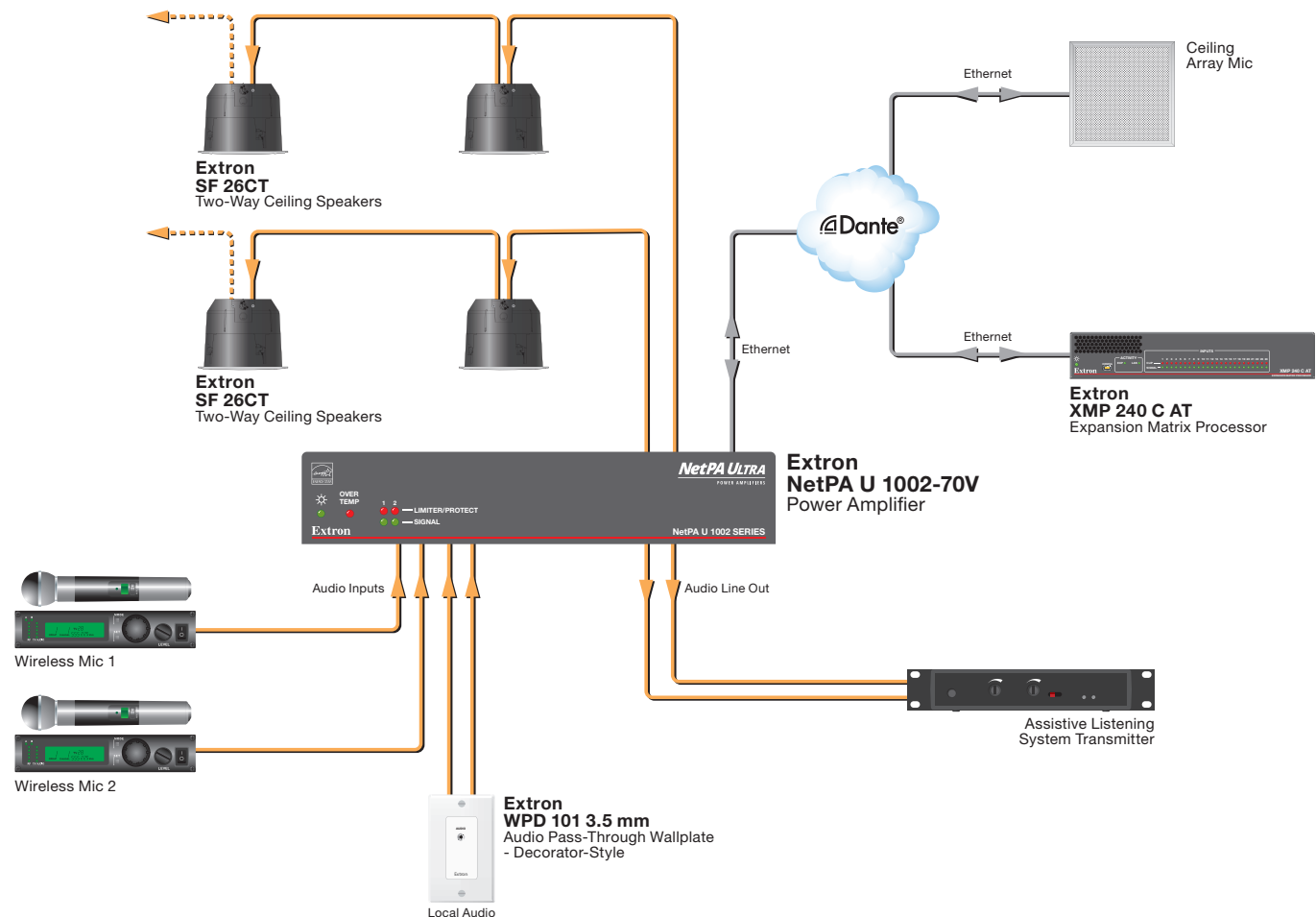
5. Click the **Device Config** tab to open the Device Config page.
6. In the Rename Device panel, enter the new name of the device in the text field.

**NOTE:** No spaces are allowed in the name and names should be significant identifiers.  
For example, **NetPAUAmplifier-MainRack**

7. Click **Apply**. A confirmation prompt opens. Click **Yes** to confirm the new name.
8. Repeat as necessary for all devices.

## Creating a Physical Dante Network

A physical network is required to share Dante audio channels among Dante-enabled devices like those found in the NetPA Ultra Series. Other devices capable of sending and receiving audio over a Dante network must be on the same physical network in order to communicate with Dante. (see figure 8 for an example of a Dante network.)



**Figure 8** Physical Dante Network Diagram

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## Dante Network Setup

Use a standard Ethernet cable to connect a NetPA Ultra Series amplifier to a Dante network via the AT port. Launch the Dante Controller program.

Dante Controller automatically discovers all Dante devices on the network and allows other Dante-enabled devices to communicate with it. The default device name is the model name followed by the last six characters of the device MAC address (for example, **NetPA-U-xxxxxx**). Multiple devices on the same network can present difficulty in identifying inputs and outputs. To avoid confusion, rename each device to a unique identifier.

**NOTE:** To simplify setup, connect only one Dante device to the network at a time.

## Finding a Dante Device IP Address

1. Open Dante Controller.
2. On the Dante Controller-Network View screen, click the **Device Info** tab.
3. On the Device Info page, locate the name of the NetPA Ultra Series in the **Device Name** column. The IP address is located in the **Primary Address** column. In the example below, the IP address for the connected NetPA Ultra Series is 192.168.254.254.

| Routing                    | Device Info  | Clock Status    | Network Status | Events                   |                 |                    |                   |           |   |
|----------------------------|--------------|-----------------|----------------|--------------------------|-----------------|--------------------|-------------------|-----------|---|
| Device Name                | Model Name   | Product Version | Dante Version  | Device Lock              | Primary Address | Primary Link Speed | Secondary Address | Seco Link |   |
| A-NetPAUAmplifier-MainRack | NetPA U 1004 | 1.0.0           | 4.1.6.7        | <input type="checkbox"/> | 192.168.254.254 | 100Mbps            | N/A               | N/A       | ▲ |
| AXI44-Test                 | AXI 44 AT    | 1.0.0           | 3.10.4.1       | <input type="checkbox"/> | 192.168.254.21  | 100Mbps            | N/A               | N/A       |   |
| DMP128-Bottom              | DMP128Plus   | 1.2.1           | 4.0.9.1        | <input type="checkbox"/> | 192.168.254.13  | 1Gbps              | N/A               | N/A       |   |

Figure 6. Device Info Page

## 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.

### NetPA Ultra Series Transmitters and Receivers

In the NetPA U 1004, the line output signals are parallel to their respective Dante output signal. The signal being sent out of a line output is the same signal being sent out of its respective Dante output. In the NetPA U 1002, the line outputs are independent of Dante outputs.

The NetPA Ultra Series AT input channels are Dante receivers because they receive digital audio signal from the Dante network that can then be routed and mixed into a mix matrix. The NetPA U 1004 has four Dante inputs, while the NetPA U 1002 has two Dante inputs.

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## Network View Layout

In the Dante Controller software, Dante transmitters are listed horizontally across the top of the Network View (1), while Dante receivers are listed vertically on the left side of the window (2). Creating a link in the connection matrix routes audio from a transmitter to a receiver (3).

## Routing Devices

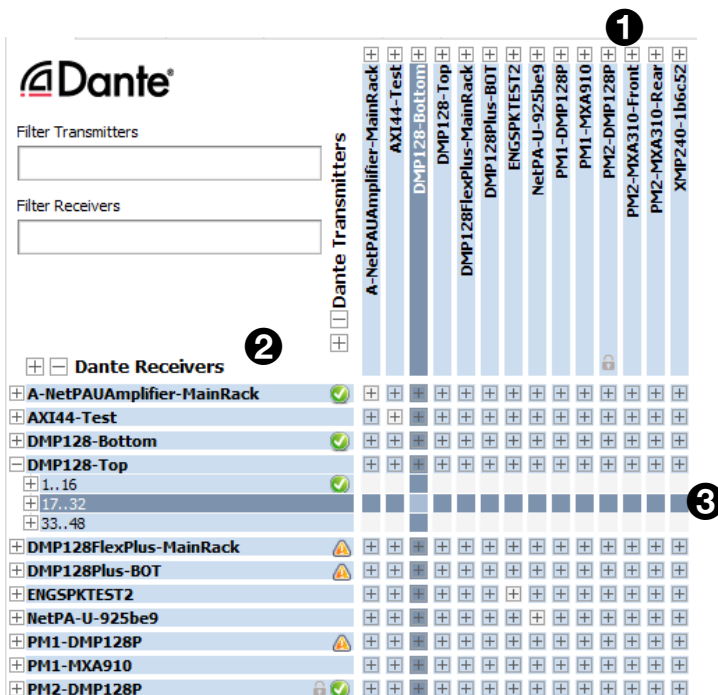
1. To show the transmitters of a Dante device, click the + box next to the desired device in the Dante Transmitters panel, such as NetPA-U-9175f2 (1). The + changes to a - sign when the details for the device expand.
2. To show the receivers of a Dante device, click the + box next to the desired device in the Dante Receivers panel, such as a NetPA-U-MainRack (2).
3. Click the intersection of the desired subscription (discrete connection) between a transmitter and a receiver (3). 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 connect to multiple receivers.

4. 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.

For more information on configuring a NetPA Ultra Series unit in Dante Controller, see the “Dante Controller” section of the *NetPA Ultra Series User Guide* found on [www.extron.com](http://www.extron.com).



For 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.