

NetPA U 8001 SUB • Setup Guide

The Extron NetPA U 8001 SUB is an ENERGY STAR-qualified, Dante-enabled subwoofer amplifier with onboard audio DSP, designed specifically for use with the Extron SF 10C SUB in-ceiling subwoofer speaker, as well as other 8, 4, or 2 ohm subwoofers with similar power requirements. The NetPA U 8001 SUB can deliver up to 800 watts at 8 ohms, 650 watts at 4 ohms, or 325 watts at 2 ohms.

The NetPA U 8001 SUB is 1U high, half-rack width, and rack-mountable. The amplifier has mounting holes for 9-inch (22.86 cm) and deeper rack shelves, and is plenum-rated with an optional flex conduit adapter. The unit is convection-cooled.

This guide provides instructions for an experienced installer to set up and operate the NetPA U 8001 SUB subwoofer amplifier. For full installation, configuration, and operation details, see the *NetPA U 8001 SUB User Guide* available at 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. It 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 three-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)

The NetPA U 8001 SUB amplifier ships with a set of rack ears, so this half-rack width amplifier 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-inch screws (2).

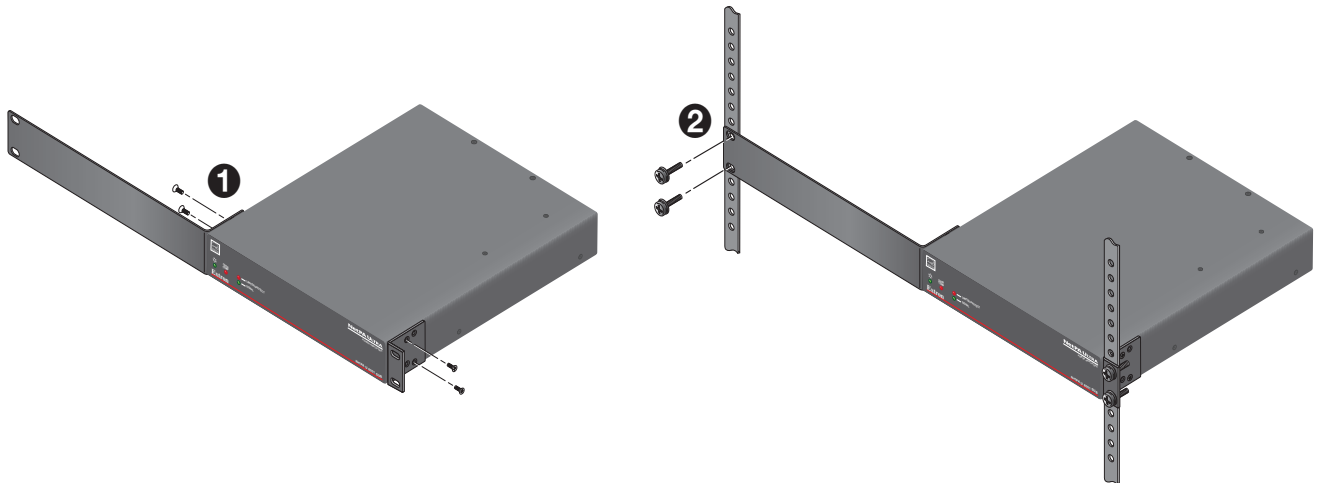


Figure 1. NetPA U 8001 SUB Rack Ear Mounting

Bridge Plate Rack Mounting (Side-by-Side)

The NetPA U 8001 SUB ships with a bridge plate connector to connect two amplifiers together and form a 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 side-by-side 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).

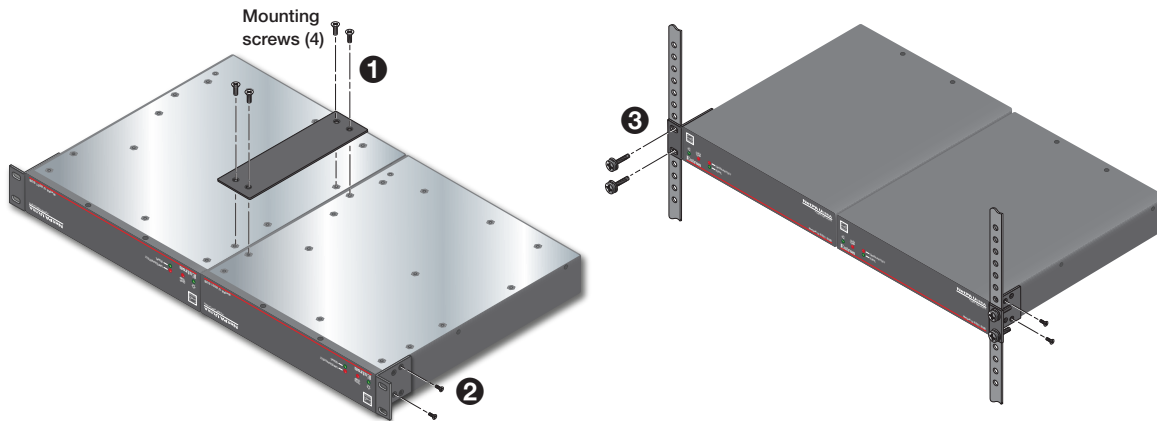


Figure 2. NetPA U 8001 SUB Bridge Plate Rack Mounting

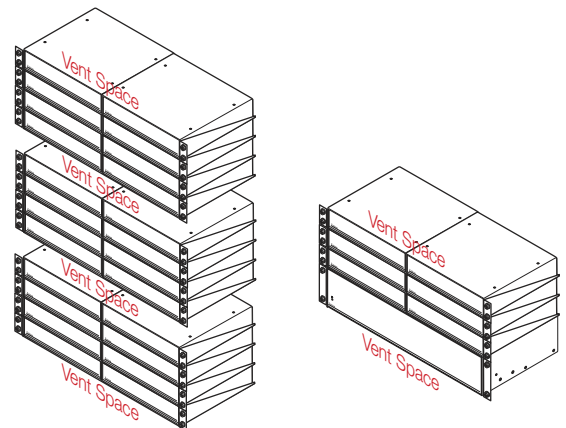
In addition to rack-mounting, the NetPA U 8001 SUB can also be mounted directly to the SF 10C SUB using the mounting hardware that is included with the speaker. Please see the *NetPA U 8001 SUB User Guide* for detailed setup instructions.

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.

NetPA Ultra amplifiers need to be arranged in a rack environment, so that the environment around the amplifier does not reach or exceed +122 °F (+50 °C). No more than four amplifiers in a group should be stacked without a ventilation opening between the groups.

The NetPA U 8001 SUB can also be arranged above or below a non-NetPA Ultra device, but in any case, the environment should never reach or exceed +122 °F (+50 °C).



Step 2 – Captive Screw Audio Cable Wiring

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

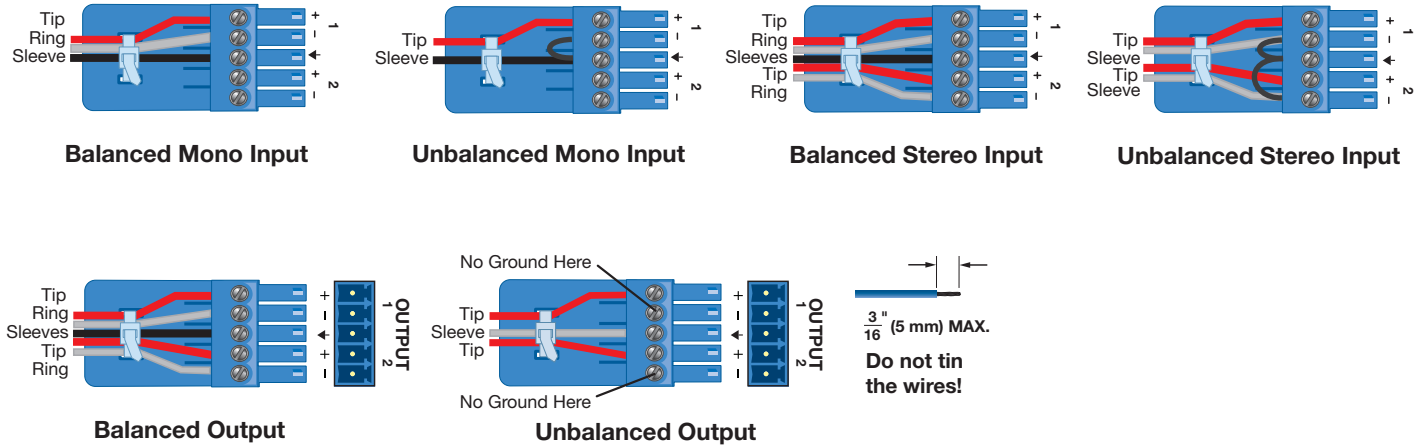


Figure 3. Line Input and Line Output Wiring

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

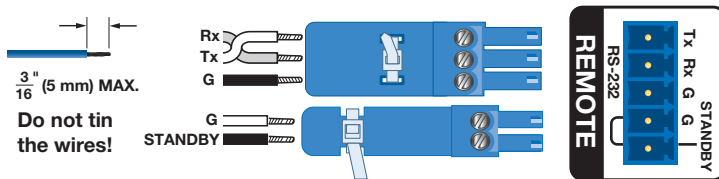


Figure 4. Remote Volume Control and Standby Ports

- 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 U 8001 SUB 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 2-pin, 5 mm captive-screw connector for speaker output on the NetPA U 8001 SUB amplifier. The port has a screw flange to secure the plug to the connector (see figure 5 to learn how to wire the captive screw connector).

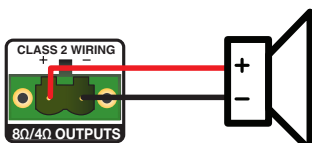


Figure 5. Speaker Output Port and Wiring Diagram

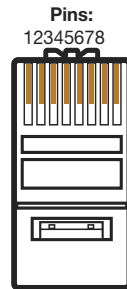
ATTENTION:

- You must use Class 2 wiring for this output to comply with UL requirements.
- Vous devez utiliser le câblage de classe 2 pour cette sortie afin de vous conformer aux exigences UL.
- 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 check that speaker loads are appropriately wired to the amplifier.
- Pour éviter les risques de dommages à l'amplificateur ou aux haut-parleurs, vérifiez toujours que les charges des haut-parleurs sont correctement câblées à l'amplificateur.

Step 5 – AT Port

Connect an 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**

Crossover Cable (for direct connection to a PC)			
Pin	End 1 Wire Color	Pin	End 2 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

Ensure all sources connected to the amplifier inputs are muted to avoid potential speaker damage during power-up.

Reconnect all the power cables and switch on the rest of the equipment before powering on the power amplifier. The amplifier boots-up for up to 10 seconds as the front panel LED flashes green.

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. The front panel LED lights green after approximately 20 seconds.

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 U 8001 SUB User Guide* for more information).

Double-check the correct load is connected and properly wired to the rear panel connection (see [Speaker Wiring](#) on page 3 for more information).

Step 8 – DSP Configurator Software Installation

There are no hardware controls for the NetPA U 8001 SUB. Configuration is performed using Extron DSP Configurator software, while control is performed via SIS commands. To learn about full computer requirements, see the DSP Configurator product page on www.extron.com.

Download DSP Configurator from the Extron Website

1. From the Extron home page (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.

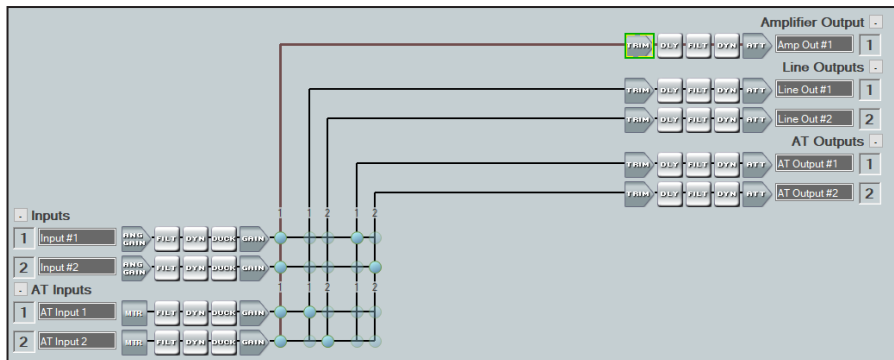
NOTE: An Extron Insider account is required to download DSP Configurator.

Step 9 – NetPA U 8001 SUB Configuration

When power is connected to the unit and the rest of the audio system, audio output can be easily configured to any listening environment via the DSP Configurator. The following steps detail how to configure a NetPA U 8001 SUB amplifier.

Configure the NetPA U 8001 SUB 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 list, select **NetPA U 8001 SUB**. 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 U 8001 SUB unit at a later time, remain in Emulate mode and save the configuration file.
 - b. To upload a configuration to the NetPA U 8001 SUB unit or download the current configuration from the unit, enter Live mode. When in Live mode, changes made in DSP Configurator immediately affect the connected NetPA U 8001 SUB. 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 U 8001 SUB User Guide* for more information on connecting live to a device).

The main workspace provides access to mix matrices, gain blocks, and DSP processors (including a crossover filter) for configuring a NetPA U 8001 SUB. 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 U 8001 SUB 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.

Downloading and Installing Dante Controller

1. From 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 or 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 Dante Device Settings

Dante settings in the NetPA U 8001 SUB can be configured from DSP Configurator. The device can be named in the Dante Device Settings, which assists with identifying a specific device in the Dante Controller software when there are multiple devices on the Dante 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.
- Il est crucial qu'un appareil Dante soit nommé avant la création d'abonnements audio avec d'autres appareils. Les abonnements existants sont supprimés lorsqu'une unité est renommée.

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To configure Dante device settings:

1. Open DSP Configurator and connect live to the NetPA U 8001 SUB.
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 U 8001 SUB 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 U 8001 SUB 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 U 8001 SUB information.

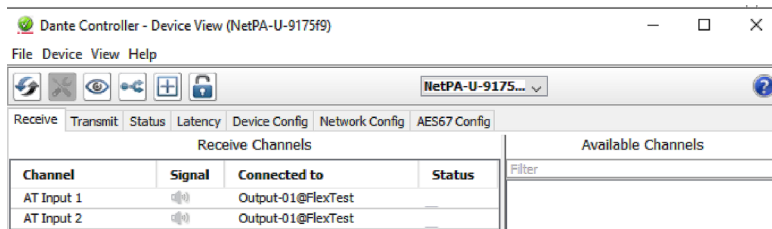


Figure 6. Populated Device View Dialog Box

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.
8. Click **Yes** to confirm the new name.
9. 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 U 8001 SUB. 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 7 on the right for an example of a Dante network).

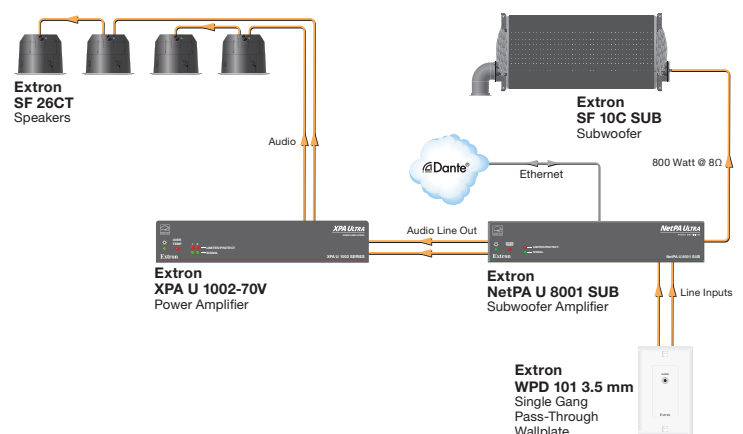


Figure 7. Example of a Dante Network

Dante Network Setup

Use a standard Ethernet cable to connect a NetPA U 8001 SUB 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.

Dante Controller Operation

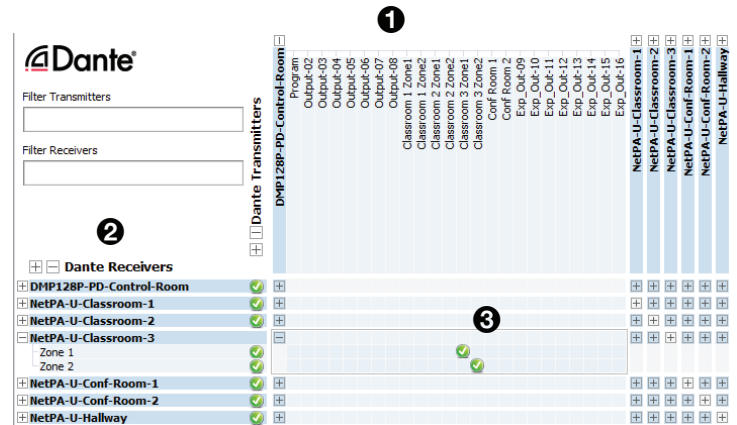
Dante Transmitters and Receivers

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.

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-Classroom-1 (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 DMP128P-PD-Control-Room (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 configurations, such as sample rates, latency, and clock settings are saved instantly.

For more information on configuring a NetPA U 8001 SUB unit in Dante Controller, see the “Dante Controller” section of the *NetPA U 8001 SUB User Guide* found on www.extron.com.

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Gain Structure

The input sensitivity of the NetPA U 8001 SUB amplifier is 0 dBFS. To achieve maximum output power without degrading audio clarity, the peak signal level on the meter at the amplifier channel output attenuators should be set at—or as close as possible—to 0 dBFS.

The default configuration of the DSP blocks are as follows:

- **Input Signal Chain**
 - All analog input gains (ANG GAIN) are set to 0 dB.
 - All Dante inputs do not have an input gain inserted.
 - All processors are disabled.
 - All input pre-mix gains are set to 0 dB.
- **Mix Points**
 - Analog inputs are mixed at -6 dB to the amplifier output channel and mixed at 0 dB to the AT outputs.
 - AT inputs are mixed at -6 dB to the amplifier output and at 0 dB to the Line outputs.
- **Output Signal Chain**
 - All output trims are set to 0 dB.
 - Amplifier channel output attenuator is set to -24 dB.
 - Line and AT output attenuators are set to 0 dB.

Setting-Up Gain Structure

Setting proper gain structure is necessary to ensure maximum audio clarity and amplifier output performance. To set-up gain structure, follow the steps outlined below, using a calibrated pink noise source.

1. Ensure all pre-mix gain and output trim blocks are set to 0 dB.
2. If mixing a stereo input to the subwoofer output, set mix point gain to -6 dB for each input channel. If mixing a mono input to the amplifier output, set mix point gain to 0 dB.
3. Adjust the Line Input ANG GAIN blocks so the output meter reads -17 dBFS.
4. Adjust the output attenuators, so the output meter reads -17 dBFS.

Refer to the *NetPA U 8001 SUB User Guide* found on www.extron.com for more details on setting-up gain structure.

NOTE: When setting levels, pay attention to avoid digital clipping.

Crossover Filter

One filter block is available for each output channel. This filter block offers a crossover filter that links the parameters of two (one high-pass and one low-pass) or three (two high-pass and one low-pass) output filters. To apply a crossover filter to the output channel, follow the procedure found in the *NetPA U 8001 SUB User Guide*.

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.