User Guide

NetPA Ultra Series Amplifiers

2-channel and 4-channel DSP and Dante-enabled power amplifiers

Extron

Safety Instructions

Safety Instructions • English

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

ATTENTION: This symbol, ⚠, when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, **www.extron.com.**

تعليمات السلامة • العربية

⚠ **تحذير:** هذا الرمز، ⚠، عند استخدامه على المنتج، مخصص لتنبيه المستخدم فيما يتعلق بوجود جهد كهربائي غير معزول على الغلاف الخارجي للمنتج وهو ما قد ينطوي على مخاطر حدوث صدمة كهربائية.

انتبه: هذا الرمز، ⚠، عند استخدامه على المنتج، مخصص لتنبيه المستخدم بتعليمات التشغيل والصيانة الهامة (الخدمة) في المواد التي يتم توفيرها مع المعدات.

للحصول على المزيد من المعلومات حول إرشادات السلامة، والتوافقات التنظيمية، والتوافق الكهرومغناطيسي/المجال الكهرومغناطيسي، وإمكانية الوصول، والموضوعات ذات الصلة، يُرجى مراجعة دليل السلامة والتوافق التنظيمي الخاص بإكسترون، الجزء رقم 68-290-01، على موقع إكسترون، **www.extron.com.**

Sicherheitsanweisungen • Deutsch

WARUNG: Dieses Symbol ⚠ auf dem Produkt soll den Benutzer darauf aufmerksam machen, dass im Inneren des Gehäuses dieses Produktes gefährliche Spannungen herrschen, die nicht isoliert sind und die einen elektrischen Schlag verursachen können.

VORSICHT: Dieses Symbol ⚠ auf dem Produkt soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Weitere Informationen über die Sicherheitsrichtlinien, Produkthandhabung, EMI/EMF-Kompatibilität, Zugänglichkeit und verwandte Themen finden Sie in den Extron-Richtlinien für Sicherheit und Handhabung (Artikelnummer 68-290-01) auf der Extron-Website, **www.extron.com.**

Instrucciones de seguridad • Español

ADVERTENCIA: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de voltaje peligroso sin aislar dentro del producto, lo que puede representar un riesgo de descarga eléctrica.

ATENCIÓN: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de importantes instrucciones de uso y mantenimiento estas estan incluidas en la documentación proporcionada con el equipo.

Para obtener información sobre directrices de seguridad, cumplimiento de normativas, compatibilidad electromagnética, accesibilidad y temas relacionados, consulte la Guía de cumplimiento de normativas y seguridad de Extron, referencia 68-290-01, en el sitio Web de Extron, **www.extron.com.**

Instructions de sécurité • Français

AVERTISSEMENT : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur la présence à l'intérieur du boîtier du produit d'une tension électrique dangereuse susceptible de provoquer un choc électrique.

ATTENTION : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur des instructions d'utilisation ou de maintenance importantes qui se trouvent dans la documentation fournie avec l'équipement.

Pour en savoir plus sur les règles de sécurité, la conformité à la réglementation, la compatibilité EMI/EMF, l'accessibilité, et autres sujets connexes, lisez les informations de sécurité et de conformité Extron, réf. 68-290-01, sur le site Extron, **www.extron.com.**

Istruzioni di sicurezza • Italiano

AVVERTENZA: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di tensione non isolata pericolosa all'interno del contenitore del prodotto che può costituire un rischio di scosse elettriche.

ATTENTZIONE: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di importanti istruzioni di funzionamento e manutenzione nella documentazione fornita con l'apparecchio.

Per informazioni su parametri di sicurezza, conformità alle normative, compatibilità EMI/EMF, accessibilità e argomenti simili, fare riferimento alla Guida alla conformità normativa e di sicurezza di Extron, cod. articolo 68-290-01, sul sito web di Extron, **www.extron.com .**

Instrukcje bezpieczeństwa • Polska

OSTRZEŻENIE: Ten symbol, ⚠, gdy używany na produkt, ma na celu poinformować użytkownika o obecności izolowanego i niebezpiecznego napięcia wewnątrz obudowy produktu, który może stanowić zagrożenie porażenia prądem elektrycznym.

UWAGI: Ten symbol, ⚠, gdy używany na produkt, jest przeznaczony do ostrzegania użytkownika ważne operacyjne oraz instrukcje konserwacji (obsługi) w literaturze, wyposażone w sprzęt.

Informacji na temat wytycznych w sprawie bezpieczeństwa, regulacji wzajemnej zgodności, zgodność EMI/EMF, dostępności i Tematy pokrewne, zobacz Extron bezpieczeństwa i regulacyjnego zgodności przewodnik, część numer 68-290-01, na stronie internetowej Extron, **www.extron.com.**

Инструкция по технике безопасности • Русский

ПРЕДУПРЕЖДЕНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии неизолированного опасного напряжения внутри корпуса продукта, которое может привести к поражению электрическим током.

ВНИМАНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии важных инструкций по эксплуатации и обслуживанию в руководстве, прилагаемом к данному оборудованию.

Для получения информации о правилах техники безопасности, соблюдении нормативных требований, электромагнитной совместимости (ЭМП/ЭДС), возможности доступа и других вопросах см. руководство по безопасности и соблюдению нормативных требований Extron на сайте Extron: , **www.extron.com,** номер по каталогу - 68-290-01.

安全说明 • 简体中文

警告: ⚠️产品上的这个标志意在警告用户，该产品机壳内有暴露的危险电压，有触电危险。

注意: ⚠️ 产品上的这个标志意在提示用户，设备随附的用户手册中有重要的操作和维护(维修)说明。

关于我们产品的安全指南、遵循的规范、EMI/EMF 的兼容性、无障碍使用的特性等相关内容，敬请访问 Extron 网站，**www.extron.com**，参见 Extron 安全规范指南，产品编号 68-290-01。

安全記事 • 繁體中文

警告:⚠️ 若產品上使用此符號，是為了提醒使用者，產品機殼內存在未隔離的危險電壓，可能會導致觸電之風險。

注意 ⚠️ 若產品上使用此符號，是為了提醒使用者，設備隨附的用戶手冊中有重要的操作和維護（維修）說明。

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

安全上のご注意 • 日本語

警告: この記号 ⚠️ が製品上に表示されている場合は、筐体内に絶縁されていない高電圧が流れ、感電の危険があることを示しています。

注意: この記号 ⚠️ が製品上に表示されている場合は、本機の取扱説明書に記載されている重要な操作と保守(整備)の指示についてユーザーの注意を喚起するものです。

安全上のご注意、法規厳守、EMI/EMF適合性、その他の関連項目については、エクストロンのウェブサイト **www.extron.com** より『Extron Safety and Regulatory Compliance Guide』(P/N 68-290-01) をご覧ください。

안전 지침 • 한국어

경고: 이 기호 ⚠️가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

주의: 이 기호 ⚠️가 제품에 사용될 경우, 장비와 함께 제공된 책자에 나와 있는 주요 운영 및 유지보수(정비) 지침을 경고합니다.

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

FCC Class B Notice

> **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:** 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:

```
^AR Merge 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 208.132.180.48: bytes=32 times=2ms TTL=32
C:\Program Files\Extron
```

Variables are written in *italics* 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 **https://www.extron.com/technology/glossary.aspx**.

Contents

Introduction

This section gives an overview of the Extron NetPA Ultra Series: NetPA U 1004, NetPA U 1004-70V, and NetPA U 1004-100V, as well as the NetPA U 1002, NetPA U 1002-70V, and NetPA U 1002-100V. The NetPA Ultra Series is a collection of 4-channel and 2-channel power amplifiers. Topics in this section include:

- **About This Guide**
- **About the NetPA Ultra Series**
- **Features**

About This Guide

This guide describes the NetPA Ultra Series: a series of 4-channel and 2-channel DSP and Dante enabled power amplifiers and discusses how to install, configure, and operate them.

In this guide, the terms "unit," "NetPA Ultra Series amplifier," "amplifier," and "power amplifier" refer to the NetPA Ultra Series of power amplifiers.

About the NetPA Ultra Series

The Extron NetPA Ultra Series NetPA U 1002 and NetPA U 1004 are Dante-enabled, ENERGY STAR® qualified power amplifiers that deliver two to four 100 watt channels in a half rack, 1U, plenum rated enclosure.

With their integrated DSP, the NetPA U 1002 and NetPA U 1004 include essential signal processing that offers the ability to meet the requirements of complex, decentralized systems, while Dante Domain Manager and AES67 support ensure wide compatibility with enterprise configurations and other network audio devices. Exceptional thermal design provides the ability to install units without using rack spaces for ventilation, conserving precious rack space. The NetPA U 1002 and NetPA U 1004 are highly efficient advanced Class D amplifiers that feature defeatable auto-standby with fast wake up and our patented CDRS – Class D Ripple Suppression.

Features

- **Receives audio from the Dante audio network as well as from analog mic/ line level inputs** — Select a channel from any remote Dante-enabled device on the network, or an analog source, to be brought into the NetPA Ultra Series for amplification.

- **100 watts rms output power per channel at 8 ohms, 4 ohms, or 70/100V** — All channels driven.

- **ENERGY STAR qualified amplifier with defeatable auto-standby and fast wake up** — Both the NetPA U 1004 and NetPA U 1002 are ENERGY STAR qualified amplifiers and energy efficient products that conserve energy and reduce cost. Both amplifiers meet ENERGY STAR qualification requirements with an auto-standby feature which automatically places the amplifier into `Standby mode` after 25 minutes of inactivity thereby dramatically reducing power consumption. And they quickly return to full power status in less than 100 ms upon signal detection, with minimal inrush current. Auto-standby can be disabled if required.

- **Single and dual rack-mount hardware included** — The included single and side-by-side rack-mount hardware simplifies planning and saves cost.

- **Integrated DSP** —
    - **The NetPA U 1004** has an 8x8 mix matrix which provides essential DSP processing including level control, filters, dynamics, and delay.
    - **The NetPA U 1002** has a 6x6 mix matrix that does the same action: providing essential DSP processing including level control, filters, dynamics, ducking and delay.

- **Convection cooled, fanless operation - can be stacked without extra rack space for ventilation** — The NetPA Ultra Series does not require internal fans or vents for cooling, ensuring quiet and reliable operation. They generate substantially less heat than conventional power amplifiers, making them ideal for rack-mount applications where space is limited (see **Rack Mounting Ventilation Recommendations** on page 9).

- **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 that is characteristic of Class D amplifiers, a source of RF emissions which can interfere with sensitive AV equipment such as wireless microphones.

- **Four channels in a 1U, half rack width enclosure** — The channel density of the NetPA U 1004 reduces rack space requirements for many installation.

- **Remote control and monitoring** —
    - Control and monitor the NetPA Ultra amplifier directly through the RS-232 port.
    - Control the NetPA Ultra amplifier through a DMP Plus processor over a Dante network.

- **Setup and configuration with Extron DSP Configurator Software** — Via the Dante network or USB.

- **UL 2043 plenum rated when used with optional Flexible Conduit Adapter Kit** — The NetPA Ultra Series meets UL 2043 for smoke and heat release for installation within a plenum airspace above a drop ceiling when used with the optional Flexible Conduit Adapter Kit. Above-the-ceiling placement conceals the amplifier to prevent theft, and is convenient for installing equipment when space inside the room is limited.

- **Professional grade signal-to-noise and THD+N performance** — The NetPA Ultra Series delivers professional grade performance, featuring 100 dB signal-to-noise ratio and THD+N of less than 0.1%.

- **Ultra low inrush current at power up - no need for power sequencing** — Allows multiple NetPA Ultra Series amplifiers to be powered on simultaneously without overloading power circuits.

- **Power factor correction - removes harmonic content on AC line** — The NetPA Ultra Series features power factor correction technology that smooths out the high peak currents of the amplifier current draw thereby minimizing the presence of high frequency harmonics on the AC power line and preventing audible artifacts from being transmitted to other audio equipment in the system.

- **Automatic clip limiter** — Detects actual onset of clipping. 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 Ultra Series to be remotely powered down when not in use, reducing operating cost.

- **High pass filter for high impedance models** — The 70V and 100V models feature a fixed high pass filter on the amplified outputs to prevent saturation of speaker transformers.

- **5 mm screw-lock captive screw speaker connectors** — Enable simple, secure connections with 22 to 12 AWG speaker cables.

- **Front and rear-mounted signal and protection indication LEDs** — Provide convenient indication of input signal presence and protection circuit activation from both sides of the equipment rack.

- **Front panel over-temperature LED** — Provides visual indication that the amplifier temperature has exceeded the optimal value, well in advance of the onset of thermal protection circuitry.

- **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**

Installation

This section describes the installation and setup of the NetPA Ultra Series of power amplifiers. Topics include:

- **Mounting the NetPA Ultra Series Amplifiers**
- **Rack Mounting**
- **Rack Mounting Ventilation Recommendations**
- **Flexible Conduit Adapter Kit**

Mounting the NetPA Ultra Series Amplifiers

The NetPA Ultra Series amplifiers can be mounted in a rack using the included rack ears, mounted on a rack shelf, set on a table or mounted in the plenum space above a ceiling-mounted projector. Also, two amplifiers can be connected using the bridging plate to create a full rack-width unit.

This guide uses images of the NetPA U 1004 to describe installation, but all the amplifiers are installed the same way.

Tabletop Use

Four self-adhesive rubber feet are included. Attach one foot at each corner on the bottom side of the amplifier and place the unit in a desired location.

Rack Mounting

The NetPA Ultra Series amplifiers can be mounted onto a rack using one of the following methods.

> **NOTE:** The following figures show the NetPA U 1004 being installed; however, both NetPA Ultra Series amplifiers are installed in the same way.

UL Rack Mounting Guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the installation of the equipment into a rack:

> **CAUTION:** Risk of minor personal injury:
>
> - **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. Therefore, consider installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by Extron.
>
> - **Reduced air flow** — Install the equipment in the rack so that the amount of air flow required for safe operation of the equipment is not compromised.
>
> - **Mechanical loading** — Mount the equipment in the rack so that uneven mechanical loading does not create a hazardous condition.
>
> - **Circuit overloading** — When connecting the equipment to the supply circuit, consider the connection of the equipment to the supply circuit and the effect that circuit overloading might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings when addressing this concern.
>
> - **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (such as the use of power strips).

Consignes UL pour le montage en rack

Les consignes UL (« Underwriters Laboratories ») suivantes concernent l'installation de l'équipement dans un rack :

> **ATTENTION :**   Risque de blessure mineure :
>
> - **Température ambiante élevée** — En cas d'installation de l'équipement dans un rack fermé ou composé de plusieurs unités, la température du rack peut être supérieure à la température ambiante. Par conséquent, il est préférable d'installer l'équipement dans un environnement qui respecte la température ambiante maximale (Tma) spécifiée par Extron.
>
> - **Réduction du flux d'air** — Si l'équipement est installé dans un rack, veillez à ce que le flux d'air nécessaire pour un fonctionnement sécurisé de l'équipement soit respecté.
>
> - **Charge mécanique** — Installez l'équipement en rack de manière à éviter toute situation dangereuse causée par le déséquilibre de la charge mécanique.
>
> - **Surcharge électrique** — Lorsque vous connectez l'équipement au circuit d'alimentation, observez la connexion de l'équipement et étudiez les effets possibles d'une surcharge du circuit sur les protections contre les surintensités et les conducteurs d'alimentation. Consultez à cet égard les indications de la plaque d'identification de l'équipement.
>
> - **Mise à la terre** — Assurez-vous que l'équipement est correctement mis à la terre. Accordez une attention particulière aux connexions électriques autres que les connexions directes au circuit de dérivation (ex. : les multiprises).

Rack Ear Mounting

The NetPA Ultra Series amplifiers ship with a set of rack ears, so that the half rack-width amplifiers can be installed in a full rack-width space.

Mount the amplifier with the rack ears by doing the following:

1. Remove the rubber feet from the bottom of the amplifier if previously installed.

2. Attach the included rack ears (one long and one short) to the sides of the amplifier with the four provided #6 machine screws (see figure 1, ❶).
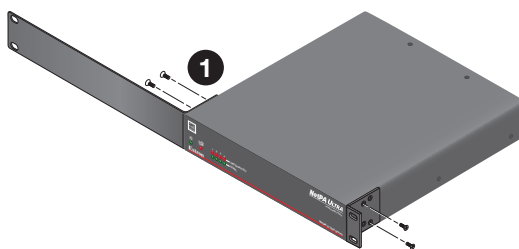
Figure 1.   **Installing Rack Ears onto the NetPA U 1004**

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 (see **figure 2**, ❶ on the next page).
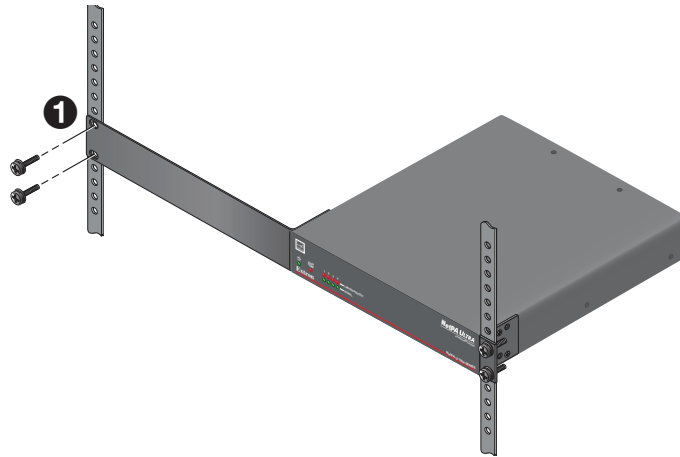
Figure 2.   **Securing NetPA U 1004 to Rack**

Bridge Plate Rack Mounting

The NetPA Ultra Series amplifiers ship with a bridge plate connector to allow two amplifiers to be connected together and form a full rack-width unit.

Mount two NetPA Ultra Series amplifiers by doing the following:

1.   If the rubber feet are installed on the bottom of the amplifier, remove them.

2.   Position two amplifiers upside down and next to each other.

3.   Use the bridge plate connector and the four provided #4 machine screws to connect the two amplifiers together (see figure 3, ❶).

4.   Attach the two short rack ears to the amplifiers with the four provided #6 machine screws (❷).

Mounting screws (4)
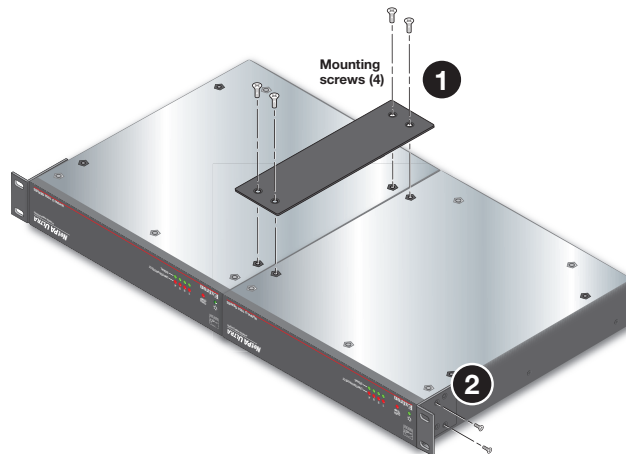
Figure 3.   **Installing NetPA Ultra Series Bridge Plate**

5.   Insert the amplifiers into the rack and align the holes in the rack ears with the holes in the rack.

6.   Secure the amplifiers to the rack using the four provided 10-32 3/4" screws (see **figure 4**, ❶ on the next page).
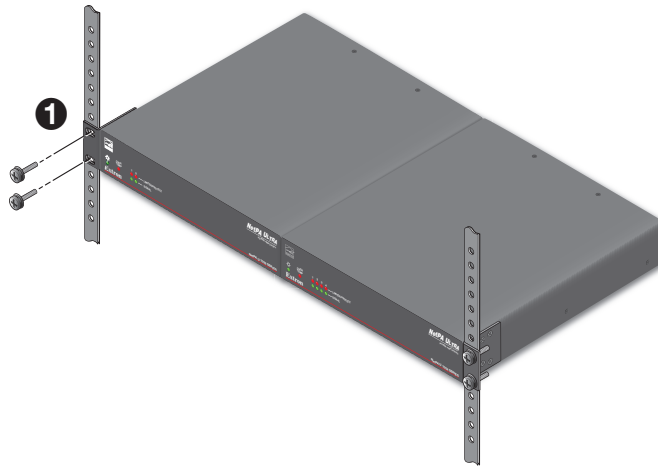
Figure 4.   Secure Connected NetPA Ultra Series to Rack

Rack Shelf Mounting

The NetPA Ultra Series can be mounted on a shelf using the optional RSU 129 1U Universal Rack Shelf Kit.

Mount the amplifier with the shelf as follows:

1. If the rubber feet are installed on the bottom of the amplifier, remove them.

2. Place the amplifier on one half of the rack shelf.

3. Align the front of the amplifier with the front of the shelf, and align the threaded holes on the bottom of the amplifier with the holes in the rack shelf.

4. Attach the amplifier to the rack shelf with the two provided 4-40 x 3/16" machine screws. Insert the screws from the underside of the shelf and fasten them into diagonally-opposite corners.

> **ATTENTION:**
> - Using screws longer than 3/16" damages the unit and voids the warranty.
> - L'utilisation de vis plus longues que 3/16" endommagera l'unité et annulera la garantie.

RSU 129
1U Universal Rack Shelf

False faceplate
uses 2 screws.

(2) 4-40 x 3/16"
Screws

Use 2 mounting holes
on opposite corners.
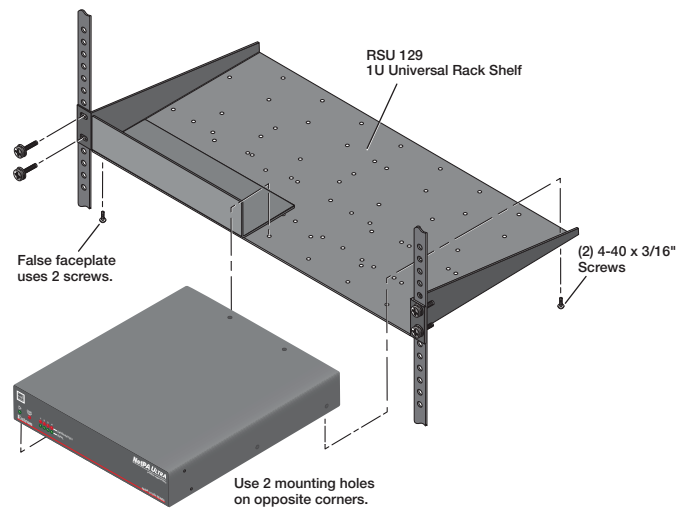
Figure 5.   Mounting the Amplifier onto a Rack Shelf

5. Optional, attach a false front panel, not provided with the amplifier, to the unoccupied side of the rack, or install a second half rack-width device to that side.

   Repeat steps 1 through 5 if a second device is being installed.

6. Attach the shelf to the rack by using the four 10-32 x 3/4" screws provided with the shelf. Insert the screws through #10 beveled washers, then through the holes in the rack (see **figure 5** on the previous page).

Rack Mounting Ventilation Recommendations

Excessive heat decreases the optimal lifetime of the power amplifier. An **Over Temp** indicator LED on the front panel of the amplifier lights red whenever 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 does not reach or go beyond +122°F (+50°C). No more than four amplifiers should be stacked one-on-top-of-the-other without an open space in between, as seen in figure 6.

The NetPA Ultra amplifiers can be arranged above or below another non-NetPA Ultra device. The environment around the amplifier should not reach or go beyond +122°F (+50°C).
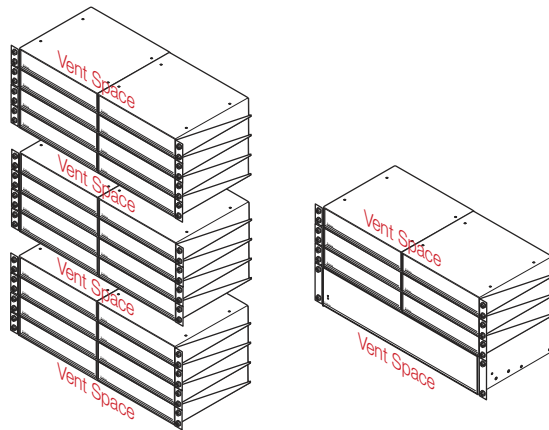
Figure 6. **Ventilation**

Flexible Conduit Adapter Kit

⚠ WARNING:

AVERTISSEMENT :

- The circuit breaker used for this connection should be rated no lower than 20 amps and no greater than 30 amps.

- Le disjoncteur utilisé pour cette connexion devrait avoir une cote comprise entre 20 et 30 amps.

- This unit must be installed in accordance with the National Electrical Code and with all local codes.

- Cet appareil doit être installé conformément au National Electrical Code et à tous les codes locaux.

- An **ALL-POLE MAINS SWITCH** with a contact separation of at least 3 mm in each pole shall be incorporated in the electrical installation of the building, The installation shall be carried out in accordance with all applicable installation rules.

- Un **interrupteur omnipolaire** avec une séparation contact d'au moins 3 mm dans chaque pôle, devra être incorporée dans l'installation électrique du bâtiment. L'installation doit être réalisée conformément à toutes les règles d'installation applicables.

- Installation and service must be performed by a qualified electrician only.

- L'installation et l'entretien doivent être effectués uniquement par un électricien qualifié.

- Make sure the source device and the NetPA Ultra are turned off and disconnected from the power source before you begin.

- Vérifiez que l'appareil source et le périphérique source sont éteints et déconnectés de la source d'alimentation avant de commencer.

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

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

- 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 / le coupleur d'appareil est utilisé comme dispositif de déconnexion et doit rester facilement utilisable.

- A UL-Listed electrical distribution box is recommended for the termination of the conduit opposite the NetPA Ultra amplifier. See **UL Requirements** on the next page.

- Un boîtier de distribution électrique certifié UL est recommandé pour la terminaison du conduit à l'opposé de l'amplificateur NetPA Ultra. Voir **UL Requirements**.

The optional Flexible Conduit Adapter Kit includes the following parts:

- One conduit adapter plate (pre-attached), for XPA 1002/2001 amplifiers
- One conduit adapter plate for XPA Ultra Series and NetPA Ultra Series amplifiers (not attached)
- One 6-foot long electrical conduit
- Three 7.5-foot 18-gauge power wires with spade connectors
- One UL rated zip tie wrap
- Three auxiliary crimp style spade connectors designed for 14- to 16-gauge wires

The kit provides a way to replace the IEC power cord with a conduit, where required by local codes.

> **NOTES:**
> - If needed, Extron recommends using a UL-Listed crimp tool to terminate the spade connectors. One recommended choice is Molex crimp tool.
> - The UL-Listed electrical distribution box is not included with the NetPA Ultra amplifier or the Flexible Conduit Adapter Kit. The installer is responsible for obtaining and installing the distribution box.

UL Requirements

The Underwriters Laboratories (UL) requirements listed below pertain to the installation of the flexible conduit onto an NetPA Ultra series power amplifier.

- This unit must not be used beyond its rated voltage range.
- This unit must be wired to a UL-Listed distribution box.

Installing the Flexible Conduit Adapter Kit

> ⚠ **WARNING:** Electrostatic discharge (ESD) can damage IC chips even though you cannot feel it. You must be electrically grounded before touching anything inside the NetPA Ultra. A grounding wrist strap is recommended.
>
> **ATTENTION :** Les décharges électrostatiques peuvent endommager les puces de circuit même si vous ne pouvez pas les sentir. Vous devez être électriquement relié à la terre avant de toucher un élément à l'intérieur du NetPA Ultra. Un braceletde mise à la terreest recommandé.

Install the flexible conduit to the NetPA Ultra Series amplifier as follows:

1. Unplug the IEC power cord from the amplifier.
2. Remove the eight screws from the top, sides, and bottom of the amplifier, then slide and lift the cover off (see **figure 7** on page 13).

Slide cover forward and lift straight up.
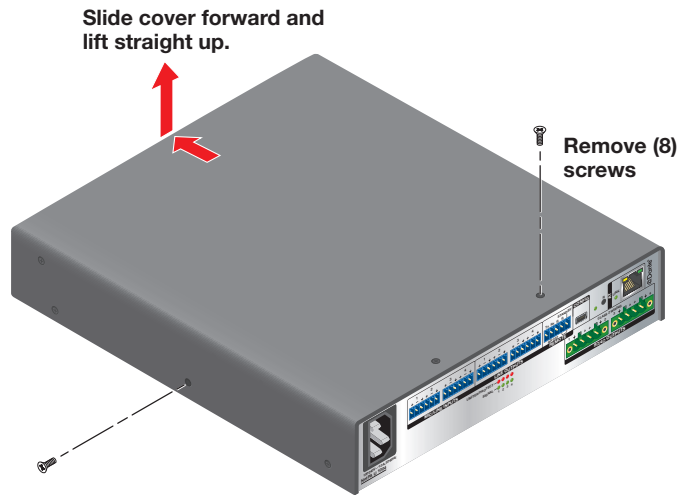
Remove (8) screws

Figure 7.   Removing the Cover

3. Remove the two screws holding the blue hot (line) and the brown neutral wires from the terminal block on the PCB. Put the screws to the side to be used later (see figure 8).

4. Remove the ground wire nut from the grounding stud located on the bottom of the enclosure, as shown below. Place the wire nut with the other screws to be used later.

5. Remove the wires attached to the IEC connector from the body of the amplifier, and slide the IEC connector and attached wires up and out of the amplifier enclosure.

Disconnect cables and remove IEC connector.

Blue Wire

Brown Wire

Remove nut
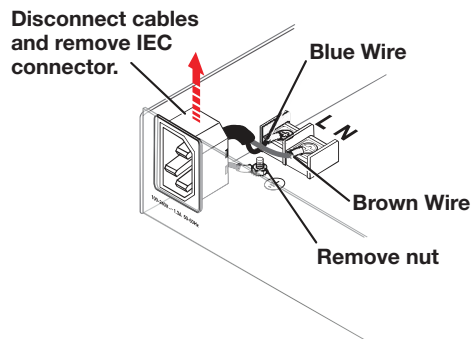
Figure 8.   Removing the IEC Connector

6. Remove the washer at the end of the conduit (see figure 9, washer-B), and remove the conduit adapter plate that ships attached to the conduit.

Separate adapter plate and washer from conduit

Conduit Adapter Plate
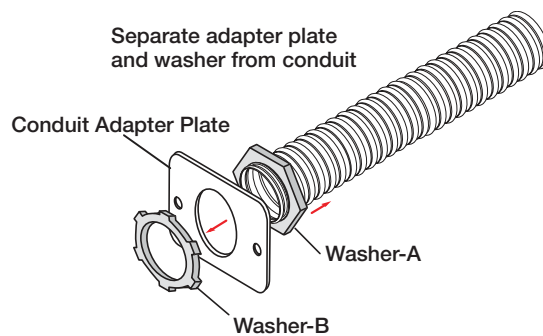
Washer-A

Washer-B

Figure 9.   Removing the Existing Adapter Plate

7. Place the adapter plate that ships with the conduit kit on the conduit, with the flat side of the plate facing the hexgonal nut (washer-A), and secure the new plate to conduit with the washer that was removed back in step 6 (washer-B) (see figure 10).

Place the adapter plate with the flat side against washer-A and secure with washer-B.

Washer-B

Washer-A

NetPA Ultra Series Conduit Adapter Plate
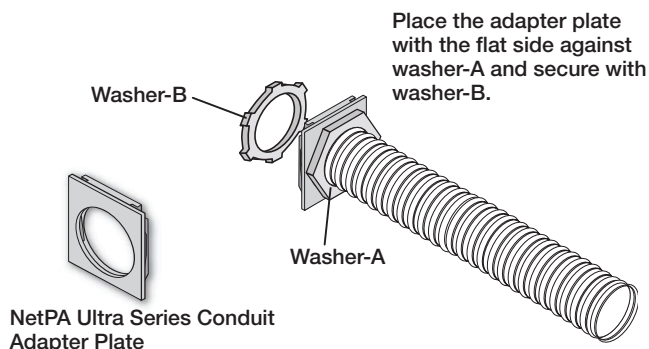
Figure 10.   Secure NetPA Ultra Series Adapter Plate to Conduit

8. Thread the blue, brown, and green 18-gauge power wires that are included with the flexible conduit adapter kit through the length of the electrical conduit.

9. Install the conduit with the new conduit plate attached into the opening from where the IEC connector was removed in step 5 (see figure 11).

10. Connect the blue hot (line) and the brown neutral wires to the terminal block on the PCB using the two screws removed back in step 3. Use the included zip tie wrap to secure the two wires together close to the terminals.

⚠ **WARNING:**   Ensure that you observe correct wire polarity. The following illustration shows the location of the hot (line) and neutral terminals.

AVERTISSEMENT : Respecter la polarité correcte des câble. L'illustration suivante indique l'emplacement des bornes de ligne et de neutre.

Tie Wrap

Slide IEC connector plate and conduit into enclosue.

Blue Wire ❶

Brown Wire ❷

Grounding Nut

❶ Blue wire — Hot Line
❷ Brown wire — Neutral
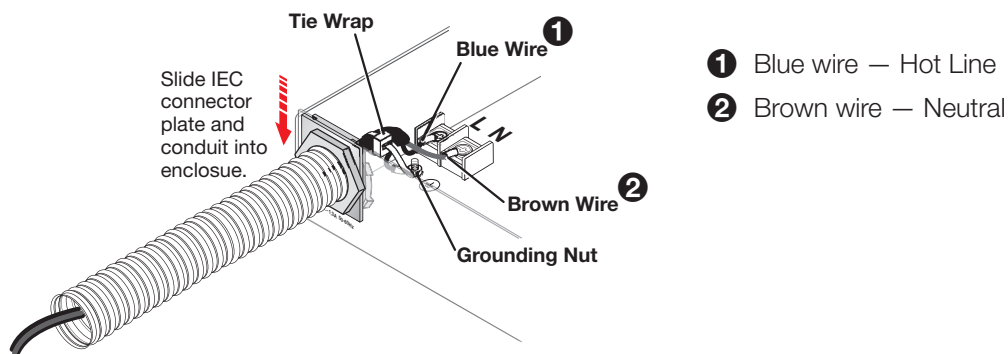
Figure 11.   Install the Conduit Assembly

11. Connect the ground wire, as shown in the figure above, to the grounding stud located on the bottom of the enclosure using the nut removed in **step 4** on the previous page.

12. Replace the cover of the NetPA Ultra amplifier by reattaching the eight screws removed in **step 2** on page 11.

Operation

This section describes the operation of the NetPA Ultra Series Amplifiers. Topics include:

- **Front Panel Features**
- **Rear Panel Features**
- **Operation**

- **Standby modes**
- **Hardware Reset Modes**

Front Panel Features

❶ **Power/Standby Indicator**   ❷ **Over Temp Indicator**   ❸ **Channel Status LEDs**

Figure 12.   NetPA Ultra Series Front Panel

> **NOTE:**   The front panels of all models in the NetPA Ultra Series function identically.

❶ **Power/Standby LED** — A single LED that lights green when the unit is on and active, and lights amber when:

- The unit is powering up and booting.
- The unit is in standby mode, which turns off all outputs from the amplifier although the amplifier still receives power.
- DC voltage is detected (see **Troubleshooting** on page 101).
- This LED unit flashes amber when an `Identify Device` request is sent to the unit via Dante Controller, and the Link Indicator LED located on the rear panel blinks green. Once the cycle has been completed, the LEDs return to normal.

> **NOTE:**   Power indicator LED may light amber for a short time after the removal of AC power. This is normal.

❷ Over Temp indicator (see **figure 12** on the previous page) — A single LED that lights red when the amplifier has exceeded the maximum recommended operating temperature. The amplifier recovers once the unit has sufficiently cooled down (see **Troubleshooting** on page 101).

❸ Channel Status LEDs — Two rows of two LEDs on the NetPA U 1002 units or two rows of four LEDs on the NetPA U 1004 units that represent amplifier channels.

- **Limiter/Protect LED** — This LED lights red when the channel is in protection mode, which is triggered by any of the limiter protection circuits such as:

  - When the channel is in an overload situation.

  - When the output short circuits.

  - When digital clipping is detected on the output of the DSP going into the amplifier channel.

  - When the channel overheats.

- **Signal LED** — This LED lights green when the output signal from a DSP channel that goes to an amplifier channel crosses the DSP signal detection threshold. The threshold is -59 dBFS.

> **NOTE:** The LEDs are also located on the rear panel.

Rear Panel Features
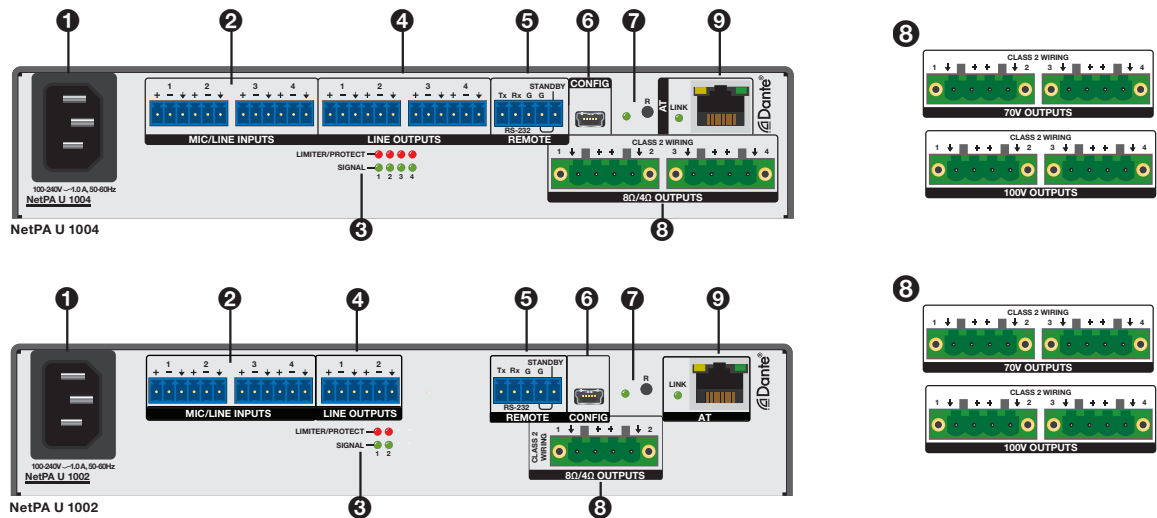
❶ IEC power receptacle	❷ Mic/Line Inputs	❸ Channel Status indicators
❹ Line Outputs	❺ Remote ports	❻ USB Config port
❼ Reset button with Reset mode LED	❽ Speaker Outputs	❾ AT port with Link LED

Figure 13.   NetPA Ultra Series Amplifier Rear Panels

> **NOTE:** The NetPA U 1004 and NetPA U 1002 rear panels are displayed above. The other rear panels in the NetPA Ultra Series amplifiers function identically.

❶ IEC power receptacle — Connect a standard IEC AC power cord here for power input (100 VAC to 240 VAC, 50-60 Hz) to the internal, auto-switching power supply. This connector may be replaced by the Flexible Conduit Adapter Kit (see **Flexible Conduit Adapter Kit** on page 10).

❷ Mic/Line Inputs (see **figure 13** on the previous page) — Connect up to four 3-pole 3.5 mm captive screw ports to input up to four balanced or unbalanced line level or microphone level signals.

> **NOTE:** Inputs remain active during standby. Phantom power is not available on any of the inputs (see figure 14 for captive screw connector wiring).

Tip / Ring / Sleeve — Balanced Input
Tip / Jumper / Sleeve — Unbalanced Input
$\frac{3}{16}$" (5 mm) MAX. Do not tin the wires!
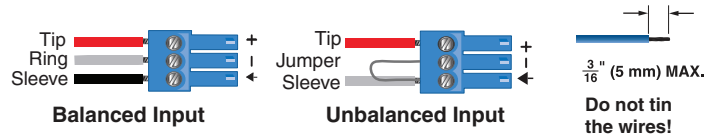
Figure 14. Captive Screw Connector Wiring

❸ Channel Status indicators (see **figure 13**) — Two double-stacked LEDs on the NetPA U 1002 units and four double-stacked LEDs on the NetPA U 1004 units. The top red LEDs are used for Limiter/Protect status, and the bottom green LEDs are for signal status.

The LEDs function the same as the LEDs on the front panel.

❹ Line Outputs (see **figure 13**) — Connect up to two or four 3-pole 3 mm captive screw connectors in order to output up to two or four balanced or unbalanced line level output signals.

> **NOTE:** The outputs do not remain active when the amplifier is in standby. For applications where the line and Dante outputs may be used independently during long periods of no amplifier activity, such as when the unit is being used as both an amplifier and off/on-ramp to the Dante network, the auto-standby timer must be disabled and the amplifier must not be forced into standby.

Tip / Ring / Sleeve — Balanced Mono Output
Tip / No Ground here / Sleeve — Unbalanced Mono Output
$\frac{3}{16}$" (5 mm) MAX. Do not tin the wires!

> **CAUTION:** For unbalanced autio outputs, connect the sleeves to the ground contact. **DO NOT** connect the sleeves to the negative (-) contacts.

Figure 15. Captive Screw Connector Wiring

❺ Remote ports (see **figure 13**) — Connect a 3.5 mm 3-pole captive screw connector to the RS-232 port to remotely monitor and control the unit. Connect a 3.5 mm 2-pole captive screw connector to the standby port to remotely place the amplifier in standby mode (see **figure 16** on the next page)).

Standby mode is activated when the **Standby** pin is connected to the G pin. Standby mode turns off all the outputs, although the amplifier still receives power. The power LED on the front panel lights amber when the amplifier is in standby mode.

The amplifier enters standby mode when one of the following happens and are prioritized as follows:

- Activation of the remote standby port (done by shorting the **STANDBY** pin to the ground pin).

- Through the **PSAV (Standby)** (see page 104) or through DSP Configurator (accessed via `Tools > Configure Standby Settings`).

- After 25-minutes of inactivity.

> **NOTE:** The inactivity timer can be disabled, and the **STANDBY** pin and SIS Command can continue to force the unit into `Standby` mode (see **Force standby on** on page 91 in the SIS Command section to learn how to force standby mode).
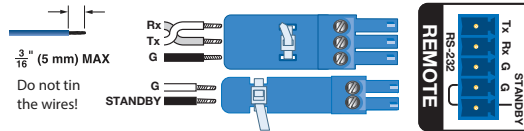
Figure 16. Captive Screw Connector Wiring

6 **USB CONFIG port** (see **figure 13** on page 15) — Connect a mini USB type B connector between this port and a computer for local configuration, and montoring the amplifier.

7 **Reset button with Reset Mode LED** — Press this recessed button (**R**) to reset the amplifier. There are various reset modes. The reset LED indicates which reset mode has been accessed.

- **Mode 1** — Hold the Reset button (**R**) while applying power to restore the unit firmware back to the default factory firmware. This recovers a unit that has incorrect code or updated firmware running. All user settings are maintained.

- **Mode 2** — Press the rear panel Reset button and quickly release it to cause a hardware reboot of the Dante module while preserving all of its settings such as IP configuration, routing, device name, channel names, and sampling rate.

- **Mode 3** — To cause an absolute system reset of the Dante module back to factory default conditions:

  With power on, press and hold the reset button for about 3 seconds until the reset LED blinks one time (once at 3 seconds), then release and within second press **Reset** button (**R**) momentarily (< 1 second).

  Following this reset, the Dante module proceeds to its normal boot sequence. This reset:

  - Restores the IP Configuration to default settings.
  - Clears all Dante audio channel routing.
  - Sets the Dante device name and channel names to default.

- **Mode 5** — With power on, press and hold the reset button for about 9 seconds until the reset LED blinks three times (once at 3 seconds, again at 6 seconds, again at 9 seconds), then release and press **Reset** momentarily (< 1 second).

  Mode 5 resets the device settings while preserving Dante specific settings such as IP configuration, routing, device name, channel names, and sampling rate.

  This reset:

  a. Sets mix-points to unity gain (**0** dBFS) and the following connections are made.

  - AT input 1 is routed to amp output 1
  - AT input 2 is routed to amp output 2
  - AT input 3 is routed to amp output 3
  - AT input 4 is routed to amp output 4

  - AT input 1 is routed to line output 1
  - AT input 2 is routed to line output 2
  - AT input 3 is routed to line output 3
  - AT input 4 is routed to line output 4

  b. Unmutes amp outputs and sets them to **-24** dB.

  c. Unmutes line outputs/AT outputs and sets them to unity gain.

d. Sets trim blocks to unity gain.

e. Unmutes gain blocks and sets them to unity gain.

f. Removes any inserted or active DSP.

g. Unmutes all inputs and sets them to unity gain.

h. Clears all preset and group master memory.

i. Turns off unsolicited responses for status updates.

j. Enables standby timer.

k. Ensures unit will not be in standby mode.

The `Reset` LED flashes 3 times in quick succession during the reset.

8 **Speaker Outputs** (see **figure 13** on page 15) — Connect up to two 4-pin, 5 mm captive screw connectors for up to four channels of speaker output. Each port has a screw flange to secure the plug to the connector. Observe the correct polarities for each channel as shown below.
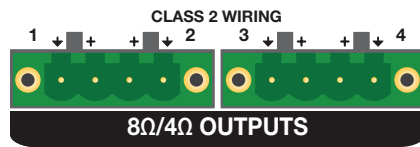
⚠ **WARNING:**
AVERTISSEMENT :
• Do not tie channel output pins to each other or to ground. Doing so will short out the outputs, damage the amplifier, or both.   • Ne pas lier les sorties 1 et 2 des canaux entre elles ou à la terre. Les sorties pourraient être court-circuitées et/ou l'amplificateur pourrait être endommagé
• To avoid risk of damage to the amplifier or the speakers, always connect low-impedance speaker loads (8 Ω / 4 Ω) 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 Ω/ 4 Ω) 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.

To wire the stereo audio output, do the following:

1. Strip and insert the speaker wires into the connector and tighten the captive screws.

Make sure to observe correct polarity.
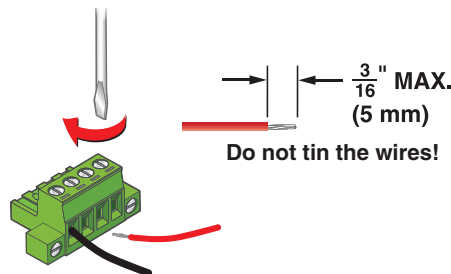
Figure 17. Securing Speakers Wire with Captive Screws

2. Insert the wired connector into the amplifier output, and secure the plug by tightening the screws on either side (see figure 18).
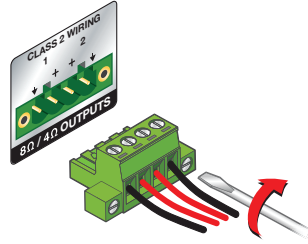
Figure 18.   Securing Speaker Connector to Amplifier with Screw Locks

9 **AT port with Link LED** (see **figure 13** on page 15) — Connect one RJ-45 connector to communicate with a Dante network. The port uses the Dante protocol, but can be configured for the AES 67 standard in Dante controller. It is one of the ways the amplifier communicates with DSP Configurator.

- The Link LED is locked to the Dante sync signal.

- The LED has three states in normal operation:

  - **Blinking (1 Hz) Green:** The Dante module generates network audio clock. The unit is the master clock

  - **Lit Solid Green:** The Dante module locked to network audio clock. The unit is synchronized to network audio clock.

  - **Off:** The Dante module not locked to network audio clock.

Go to **AT Port** on page 20 for more details on this port.

Operation

The section below details some of the NetPA Ultra Series amplifiers features.

Default

The following are the NetPA Ultra Series Amplifier defaults right out of the box:

- All mix-points and trim blocks are set to unity gain.

- All line outputs, gain blocks, and inputs are unmuted and set to unity gain.

- Attenuation blocks are set to -24 dB for amplified outputs

- All preset and group master memory is clear.

- Standby timer is enabled and unit is not in standby.

- Unsolicited response status monitoring is disabled.

- Routing — AT Inputs are routed to their respective amp and line outputs (for example, AT Input 1 routed to amp output 1 and line output 1.)

> **NOTE:**   The attenuation blocks of the amplifier outputs are set to -24 dB in order to prevent an excessive amount of signal from being passed to the speaker before the amplifier can be properly configured.

AT Port

The NetPA U 1004 supports four AT inputs, as well as four AT outputs (which are shared with the analog line outputs), while the NetPA U 1002 only supports 2 AT inputs and 2 AT outputs (these are not shared with the analog line outputs). Audio coming in from the mic/line inputs can be placed onto the Dante network, and the AT outputs can be received by any other device as long as it is using the Dante protocol. The port supports bi-directional channels of 24 bit/48 kHz digital audio.

> **NOTE:** The AT port can be set to 44.1 kHz, 48 kHz, 88.2 kHz, or 96 kHz, however the signal going through the DSP is converted to and processed at 48 kHz.

The AT port allows latency to be set per device at either 1.0 ms, 2.0 ms, or 5.0 ms.

Dante Controller provides control and configuration to the entries listed below. However, Dante Controller is not limited to the entries.

- Dante channel routing
- Dante channel naming
- Dante reboot
- Device naming
- Setting network master clock
- Get network and device Dante status

- Set DHCP mode and device IP address
- Setting sample rate to one of the following frequencies:
  - 44.1 kHz
  - 48 kHz
  - 88.2 kHz
  - 96 kHz

> **NOTES:**
> - For applications where the line and Dante outputs may be used independently during long periods of no amplifier activity, such as when the unit is being used as both an amplifier and off/on-ramp to the Dante network, the auto-standby timer must be disabled and the amp must not be forced into standby mode.
> - On NetPA U 1004 models, selecting 88.2 kHz or 96 kHz sample rates disables the transmit channels.

Standby modes

The amplifier may be placed into 3 standby modes through SIS, DSP Configurator or a control system. The amplifier may also be forced into standby through the rear panel contact closure.

To change the Standby settings via DSP Configurator:

Navigate to the `Tools` menu and select **Configure Standby Settings**, then make your selection to change the settings (see **figure 19** on the next page).

Standby modes

- Mode 0 = Disable Auto-Standby Timer
- Mode 1 = Enable Auto-Standby Timer
- Mode 2 = Force Standby mode
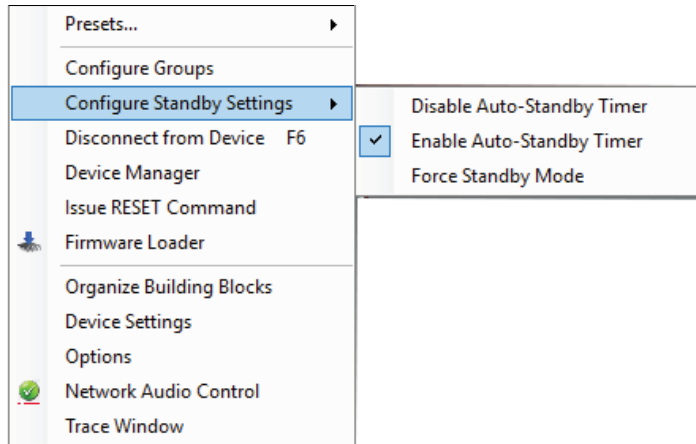
Figure 19.   Configuring Standby Settings with DSP Configurator

Standby Selection (via SIS or Control System):

- **Mode 0:** When the amplifier is in Standby mode 0, the Auto-Standby Timer is disabled and the amplifier does NOT automatically enter standby mode when no active signal is present on any amp channel for 25 minutes.

- **Mode 1:** When the amplifier is in Standby mode 1 (default), the Auto-Standby Timer is enabled. The amplifier remains active while there is an active signal on any amp channel. The amplifier enters standby mode if no active signal is present on any amp channel for 25 minutes. It returns to active upon detection of signal on any amp channel. When the SIS command is sent, the timer resets and the amplifier goes into power save state 1.

- **Mode 2:** When the amplifier is forced into Standby mode 2 via SIS, DSP Configurator, or a control system, the unit remains in standby until the amplifier is placed into Standby mode 0 or 1 the same way, regardless of signal presence.

- **Mode 3 (not accessible via DSP Configurator or SIS):** This mode occurs when the amplifier begins in Mode 1 and there is no active signal present on any amp channel for 25 minutes. In this mode the amplifier is in standby and can be taken out of standby via an active signal on any amp channel, DSP Configurator, or SIS.

- **Mode 4 (not accessible via DSP Configurator or SIS):**   When the amplifier is forced into standby via the STANDBY port (contact closure), it remains in this state until the contact is opened. Once opened, the amplifier returns to its last known standby state. This function overrides all other standby conditions.

NOTES:

- In Standby mode, the line and Dante outputs are muted.

- The auto-standby function relies on active signals that are routed to the amplified outputs. Signals that are routed only to the line or Dante outputs, but not the amplifier outputs, do not prevent the unit from going into auto-standby due to inactivity.

- For applications where the line and Dante outputs may be used independently during long periods of no amplifier activity, such as when the unit is being used as both an amplifier and off/on-ramp to the Dante network, the auto-standby timer must be disabled, and the amplifier must not be forced into Standby mode.

Bridging (8 ohm/4 ohm outputs only)

> **NOTE:** During bridged mono output, the + output from the odd channel becomes the positive terminal and the + output from the even channel becomes negative.

The output power to a speaker can be doubled by bridging the output.

> **NOTE:** Bridging is only available on the NetPA U 1002/1004 low-impedance models. The minimum load impedance when bridging is 8 ohms.

To bridge the output, follow the steps and refer to the following diagrams:

1. Connect the IEC power cord and power up the amplifier.

   Do not plug in any inputs yet.

2. Configure the amplifier.

   a. Determine the amplified output pair that is used for bridging: 1&2 (NetPA U 1002 or 1004) or 3&4 (NetPA U 1004 only).

   b. Determine the input or inputs feeding the output.

   c. Route the input or inputs to both outputs.

   The gain and mute should be the same for each mix point from each input to each output.
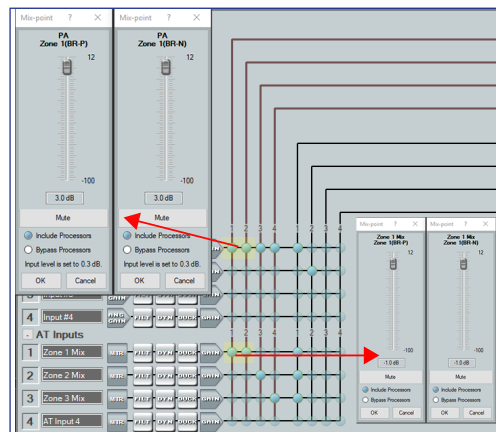
Figure 20.   Matching Gain and Mute

   d. Configure the amplified output pair. Each channel of the output pair must be configured similarly

   i. Configure the trim, delay, filter, dynamics, and attenuator block for the odd channel.
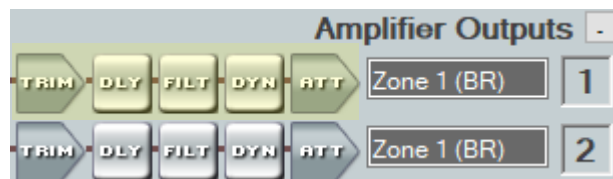
Figure 21.   Accessing Amplifier Output Block Panel

   ii. Copy and paste the configuration of the odd channel to the even channel.

   iii. Open the attenuator block of the even channel and click the polarity box to invert the signal (see **figure 22** on the next page). The sign on the box should change from '+' to '-' and its color should change to yellow.
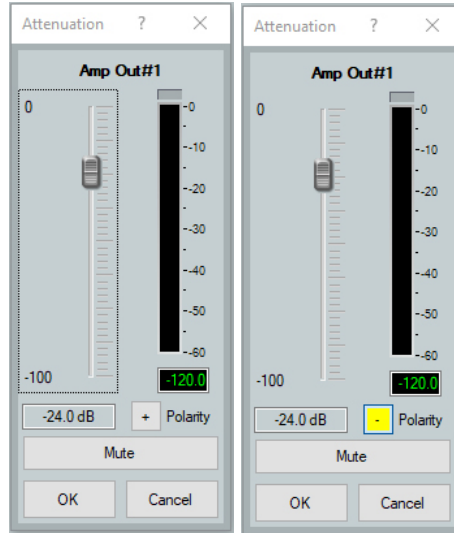
Figure 22.   Attenuation Blocks

iv. Create groups for the trim and attenuation blocks of the two channels to control gain and mute of both channels simultaneously.

Figure 23.   Gain Controls

> **NOTES:**
> - Set the attenuator of the attenuation blocks (via the created group) to -24 dB or lower to prevent an unexpectedly loud signal from getting to the speaker when you first test the system (see figure 22).
> - For details on each processing block see **DSP Configurator Software** on page 28.

e. Verify that the gain structure through the signal chain is set appropriately, especially that the mix points are set to the same gain and mute values.

f. If using Dante inputs, make the ties as shown in **Dante Controller** (see page 75).

3. Unplug the IEC power cord from the amplifier.

4. Wire the outputs (see **figure 24** on the next page).
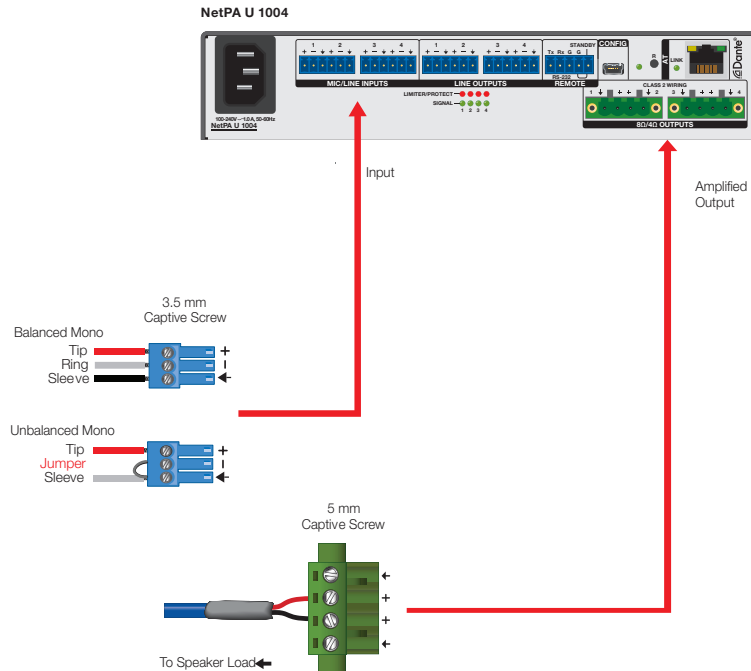
Figure 24.   Bridging the Output

> **NOTE:**   During bridged mono output, the + output from the odd channel becomes the positive terminal and the + output from the even channel becomes the negative terminal.

5. If needed, wire the inputs as shown in figure 24. If only using Dante inputs, skip this step.

6. Connect the IEC power cord and power up the amplifier.

7. Verify the configuration by testing the system.

Monitoring

There are two methods to monitor the amplifier, querying and unsolicited responses. Either method or a combination of the two can be employed.

> **NOTES:**
> - All status flags reset upon power cycle. Status flags can also be reset via SIS (see **Resets** on page 94).
> - See **Status** on page 95 of the SIS section and **Troubleshooting** on page 101 for detailed descriptions of each status.

Querying

- In the SIS section, see **Status** on page 95 for the commands to query.
- Each status command is capable of being queried.
- Query commands can be used when polling with a control system.
- All statuses can be queried, even when unsolicited responses are enabled.

Unsolicited responses

1. Set the unit to verbose mode 2 or 3.

2. Use the `NTFY` command (see **Status** on page 95) to configure.

    a. ⎡Esc⎤ M ⎡X1⎤ * ⎡X2⎤ NTFY ⟵

      ⎡X1⎤ = xxxx — Overload / Signal Presence / General / Digital Clipping
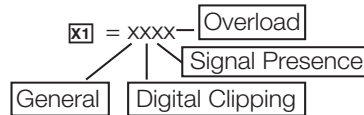
      • Where x = **1** (on) or **0** (off [Default]).

      • Determines which unsolicited responses get turned on.

    b. ⎡X2⎤ =

0 = All (Default)	**2** = RS-232
1 = Dante Port	**3** = USB

      • This variable specifies which port to direct the responses.

      • This is useful when you need to keep traffic to a minimum on a particular port or ports.

3. When listening over the Dante port, a DMP Plus Series device is needed to facilitate communication between the amplifier and control system.

The DMP can be set to pass through SIS commands to connected Dante controlled Extron devices.

To send an SIS command to the amplifier connected to a DMP:

    a. Connect the DMP and Dante controlled devices to the same network via their AT ports.

    b. Connect to the DMP via the DataViewer or HyperTerminal utility.

    c. Use the `Set verbose mode` command to set the DMP to Verbose mode 3 (see **Verbose Modes** on page 86).

    Example:

Command	Response
`w3cv`|	`Vrb3`⏎

    d. Use the *Query available remote devices* command to receive a list of Dante devices that are currently connected to the DMP.

    Example:

Command	Response
`waexpr`|	`ExprA●NetPA-U-xxxxxx`⏎ `AXI-XTP-RoomB`⏎⏎

e. Use the *Enable remote connection for listening* command to display the remote Dante controlled device responses based on the list of devices provided in the response in step d. Repeat if necessary for all desired devices.

Example:

Command	Response
`wcNetPA-U-xxxxxx*1expr|`	`ExprNetPA-U-xxxxxx*1↵`

> **NOTE:** Devices can be set up for listening even if not currently connected to the DMP unit.

f. To verify that the DMP is listening to the correct remote devices, use the *Query remote devices being listened to* command to display a list of all remote devices enabled with the command in step 5.

Example:

Command	Response
`wlexpr|`	`ExprL●NetPA-U-xxxxxx↵`

g. Send the desired command to the amplifier and confirm the correct response is received.

- When entering a command, use the "w" character in place of the <Esc> key and the "pipe" character (|) in place of a carriage-return. Failing to do so may cause the command to fail.

- The closing bracket (}) is necessary to successfully end a command before attempting to send a new command.

Example:

Command	Response
`{dante@NetPA-U-xxxxxx:wg40000*-10AU|}←`	`{dante@NetPA-U-xxxxxx}DsG40000*-10↵`

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

Hardware Reset Modes

> **ATTENTION:** The reset modes listed below will close all open IP and Telnet connections, and close all sockets.

MODE 1:	Hold the reset button (**R**) while applying power to restore the unit firmware back to the default factory firmware. This recovers a unit that has incorrect code or updated firmware running. All user files and settings are maintained.
MODE 2:	Press the rear panel reset button and quickly release it to cause a hardware reset of the Dante module while preserving all of its settings such as IP configuration, routing, device name, channel names, and sampling rate.
MODE 3:	To cause an absolute system rest of the Dante module back to factory default conditions, press and hold the rear panel reset button for 15 seconds until the AT (PoE) port LEDs flash. Following this reset, the Dante module will proceed to its normal boot sequence. This reset will: • Set the IP configuration to default settings • Clear all audio channel routing • Set the Dante device name and channel names to default

MODE 5:	With power on, press and hold the reset button for about 9 seconds until the Power LED blinks three times (once at 3 seconds, again at 6 seconds, again at 9 seconds,), then release and within 1 second press reset button (**R**) momentarily (<1 second).
	
	Mode 5 performs a complete reset to factory defaults, except for firmware and Dante:
	
	• Mix-points are set to unit gain (0 dBFS)
	    • AT input 1 is routed to amp output 1 AT input 1 is routed to line output 1
	    • AT input 2 is routed to amp output 2 AT input 2 is routed to line output 2
	    • AT input 3 is routed to amp output 3 AT input 3 is routed to line output 3
	    • AT input 4 is routed to amp output 4 AT input 4 is routed to line output 4
	• Amp outputs are unmuted and set to -24 dB
	• Line outputs are unmuted and set to unity gain
	• Trim blocks will be set to unity gain.
	• Gain blocks will be unmuted and set to unity gain
	• Any inserted or active DSP is removed
	• All inputs are set to unity gain and are unmuted
	• All preset and group master memory is cleared
	• Status monitoring unsolicited repsonses will be turned off
	• Standby timer will be enabled
	• Unit will not be in standby
	• The `Reset` button (**R**) LED flashes 3 times in quick succession during the reset.

DSP Configurator Software

Extron DSP Configurator Software is the main user interface for control and management of an Extron NetPA Ultra Series power amplifier and all of its audio functions, including mixing, gain, dynamics, filtering, delay, microphone ducking, and monitoring. This section describes the Extron DSP Configurator software and covers the following topics:

- **Downloading and Installing DSP Configurator**
- **Accessing the DSP Configurator Help File**
- **DSP Configurator Main Workspace**
- **DSP Configurator Inputs**
- **DSP Configurator Outputs**
- **Monitoring**

Downloading and Installing DSP Configurator

1. On **www.extron.com**, hover over the `Download` tab at the top of the page.

2. From the `Feature Software` list, select **DSP Configurator Software**.

3. From the `DSP Configurator Software` product page, click the blue **Download** button.

4. Select **Run** to run the DSP Configurator installer.

   or

   Select **Save** to save the install file to run at a later time.

5. To run DSP Configurator from the default install location, click **Start > Programs > Extron > DSP Configurator > DSP Configurator**.

6. From the DSP Configurator splash screen drop-down list (see figure 25, ❶), select the NetPA Ultra Series model that is connected to the host PC and click **OK** (❷).
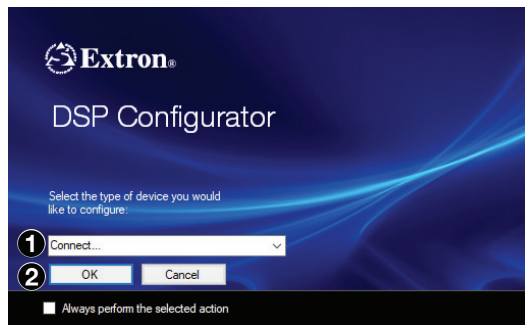
Figure 25.   **DSP Configurator Splash Screen**

Accessing the DSP Configurator Help File

DSP Configurator comes loaded with a context-sensitive help file, which can be accessed by clicking the **Help** icon (see the icon to the right) in the top right corner. The **Help** icon (⬚ ?) is always in the top right corner of any dialog box in DSP Configurator. There are other options to accessing the help file: click **Help > Contents** in the menu bar at the top of the main workspace, or press **F1**.

The help file contains detailed procedures and further instructions on all of the DSP Configurator features.

DSP Configurator Main Workspace

The DSP Configurator main workspace can be divided into four main sections (see figure 26). Each section contains various functions to configure the NetPA Ultra Series amplifiers. Use the expand and collapse button, next to the input and output group names to show or hide the groups and their corresponding mix matrices. If necessary, scroll through the window by using the mouse wheel or the scroll bar at the right side of the DSP Configurator main workspace.

❶ Menu Bar   ❷ Mic/Line Inputs   ❸ Mix-Points   ❹ Outputs
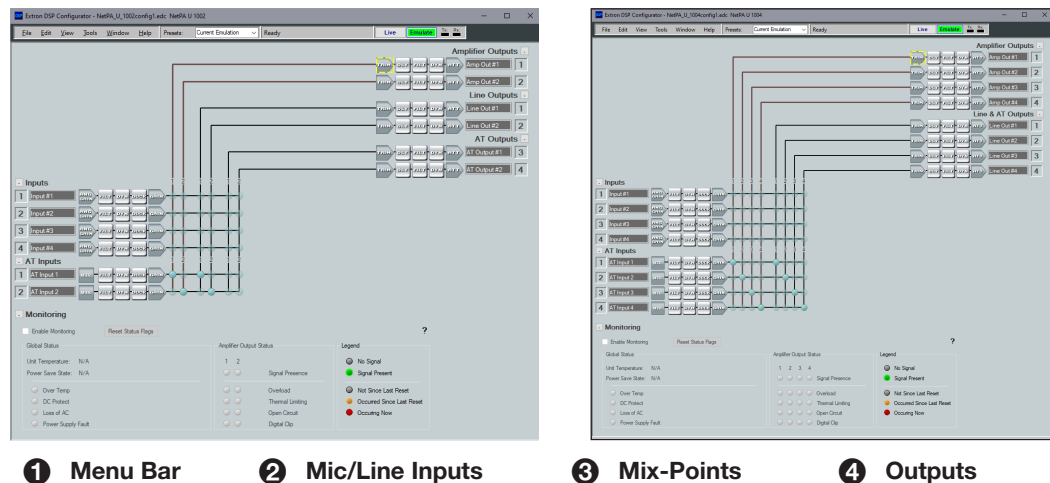
Figure 26. DSP Configurator Main Workspace

Menu Bar

File

The **File** menu offers the standard Windows File Menu options such as `New`, `Open`, `Save`, `Save As`, `Recent Files`, and `Exit`, along with three operations that are specific to Extron devices. Those operations are:

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

- **Export Single Device** — Saves the selected device in `Device Manager` as a configuration file. This function is used to save an individual device when there are multiple devices listed in the **Device Manager** (see page 68).

- **Backup** — Recalls and transfers all partial presets of a NetPA Ultra amplifier to the configuration file or template file within DSP Configurator.

- **Convert Device to...** — Select NetPA unit to which the current configuration file is converted. After a conversion target model is selected, the `Device Conversion` dialog opens. For more information, refer to the *DSP Configurator Help File* by clicking the context sensitive help (**?**) button in the dialog.

Edit

The `Edit` menu offers the standard Windows Edit Menu options such as `Cut`, `Copy`, and `Paste`.

View

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

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

- **Re-enable All Dialogs** — This option re-enables all dialog boxes to no longer appear based on user selection (certain dialog boxes appear as user-defeatable by selecting a checkbox that reads **Do Not Show This Dialog Again**).

- **Group Controls** — Opens the `Group Controls` dialog box to access existing group controls and add new groups.

- **Show All Channels** — Individual channels can be hidden by user selection. This provides options for the user to select which input and output groups are visible in the main workspace.

Tools

- **Presets** — Contains a submenu to mark and clear elements in the main workspace as well as an option to save marked elements to a preset (see **Presets** on page 63).

- **Configure Groups** — Opens the `Configure Groups` dialog box to create, edit, and delete `Gain` and `Mute` groups (see **Configuring Groups** on page 66).

- **Configure Standby Settings** — Opens a submenu to disable or enable the auto-standby timer or force standby mode.

- **Connect/Disconnect from Device** — When in `Emulate` mode, this reads as `Connect to Device` and opens the `Connect to Device` dialog box (see **Connect/ Disconnect from Device** on page 70). When in `Live` mode, this reads `Disconnect from Device` and returns software to `Emulate` mode.

- **Device Manager** — Opens the `Device Manager` dialog box (see **Device Manager** on page 68).

- **Issue RESET Command** — Clears the amplifier of all processors and other configuration settings. This command does not reset general settings such as IP address.

- **Firmware Loader** — Opens the `Firmware Loader` application, if it is installed (see **Firmware Loader** on page 70). Visit **www.extron.com** to download the software.

- **Organize Building Blocks** — Opens the `Organize Building Blocks` dialog box (see **Organize Building Blocks** on page 71).

- **Device Settings** — Opens the `Device Settings` dialog box to edit date and time, IP address, DHCP status, and other settings (see **Device Settings** on page 72).

- **Option**s — Opens the `Options` dialog box to configure DSP Configurator appearance, default settings, DSP value defaults, and so on (see **Options** on page 74).

- **Network Audio Control** — Opens the `Dante Controller` application by Audinate for routing audio over a Dante network (see **Dante Controller** on page 75).

Window

The **Window** menu offers the standard Windows Window Menu options such as `Cascade` and `Close All Windows`.

Help

The **Help** menu offers the standard Windows Help Menu options such as `Content`, `Search`, and `About`. The help file can be accessed by clicking **Content**.

Presets Drop-Down List

The **Presets** drop-down list allows the user to view and apply presets saved in the current configuration file or on a device connected in Live mode. Presets with an asterisk next to them are on the amplifier, but not in the current configuration file. Run a preset to load it into the configuration file. Alternatively, perform a backup to run all presets and load them into the current configuration file (see **File** on page 29).
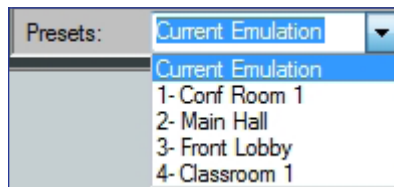
Figure 27.   Presets Drop-Down List

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

- **Recall** — Recalls the selected preset and applies settings to the main workspace.
- **Cancel** — Cancels the preset recall and returns to the main workspace with the current emulation or state intact.
- **Delete** — Deletes the selected preset from the configuration.

Figure 28.   Preset and Action Selection

DSP Configurator Status Panel

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

Live and Emulate Panel

The `Live` and `Emulate` buttons allow users to switch between Live and Emulate mode. This panel also displays transmit activity (Tx) and receive activity (Rx) when in `Live` mode.
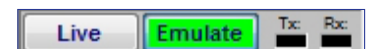
Emulate Mode

While in `Emulate` mode, DSP Configurator is functioning in an "offline" state. Changes made to the configuration file are not applied to a device.

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

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

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

Live Mode

Enter `Live` mode to connect to a NetPA Ultra Series amplifier and push or pull configurations between the device and host PC. In Live mode, changes made in DSP Configurator are directly applied to the NetPA Ultra Series amplifier. Additionally, presets can be created and stored on the device.

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

Connect to a NetPA Ultra Series Amplifier in Live Mode

1. Click the **Live** button in the menu bar of the DSP Configurator.
    Alternatively, select `Tools > Connect to Device` or press `<F6>` on the keyboard.

    The `Connect to device...` dialog box opens (see figure 7).

2. Connect to the NetPA Ultra Series Amplifier.

    To connect via USB:

    *   Click the **USB** tab in the dialog box (see figure 29, **Ⓐ**).
    *   Select the device from the **USB Devices** drop-down list (**Ⓑ**).

    To connect via RS-232:

    *   Click the **RS-232** tab in the dialog box. Select the Com port the device is connected to on the host PC from the **Com Port** drop-down list (**Ⓒ**), and then select the correct **Baud Rate**, **Parity Bit**, **Data Bit**, and **Stop Bit**.

    To connect via Dante:

    *   Click the **Dante** tab in the dialog box. Select the Ethernet port the device is connected to on the host PC from the **Network Adapters** drop-down list (**Ⓒ**).
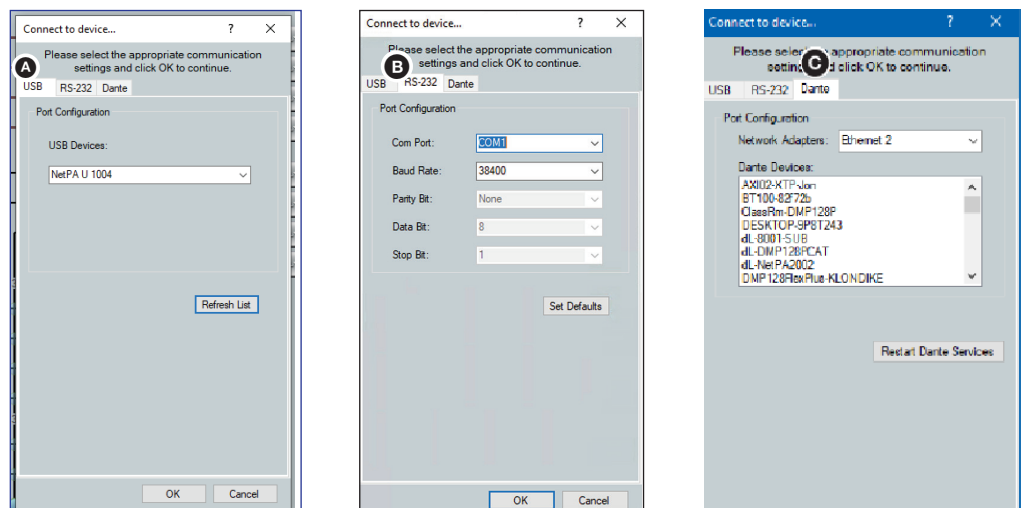
Figure 29.   Connect to device... Dialog Boxes

3. When a connection with a device is established, the `Synchronize with Device` dialog box opens (see figure 30).
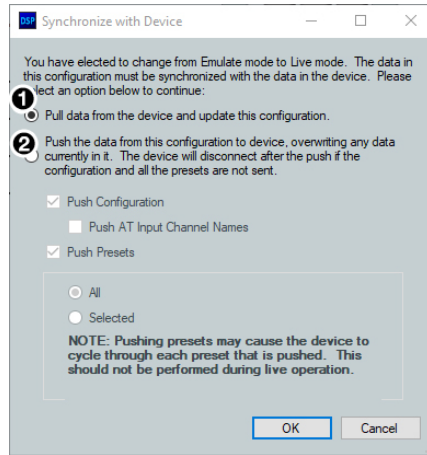
Figure 30. **Synchronize with Device Dialog Box**

❶ **Pull** — Pulls the configuration file and preset configurations from the device and displays it in the DSP Configurator main workspace.

❷ **Push** — Pushes the configuration file and preset configurations open in DSP Configurator to the connected NetPA U Series amplifier. The check boxes indicate what is pushed when **OK** is selected. Pushing a selected item overwrites that item on the device.

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

If only pushing selected presets, mark them from the dialog box shown in figure 31.
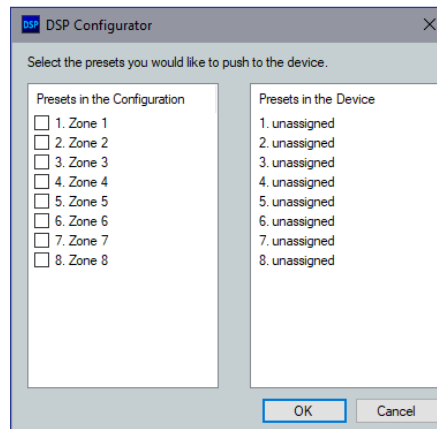
Figure 31. **Preset Selection Dialog Box**

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

Exit Live Mode and Enter Emulate Mode

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

2. Click **OK** to confirm.
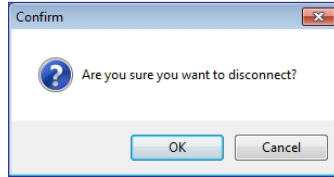
Figure 32. Confirm Disconnect

DSP Configurator Inputs

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

There are two types of inputs available:

*   Mic/Line Inputs
*   **AT Inputs**

Mic/Line Inputs

The four mic/line input channels in the NetPA Ultra Series amplifier are shown in DSP Configurator under the **Inputs** panel.

Figure 33. Inputs Panel

Inputs 1 - 4 can receive mic level or line level signals.

Naming an Input Channel

1. Click the input name field.

2. Highlight or delete the text and enter a new name.

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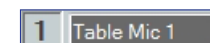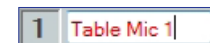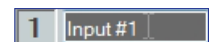
    Press <**Down Arrow**> key to navigate to and highlight the next name field.

    NOTE: Follow the same procedure to edit an input name.

Input Building Blocks

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

Figure 34. **Accessing Input Building Blocks**

Click the input number (see **figure 33** on the previous page) to open the `Building Blocks` dialog box.
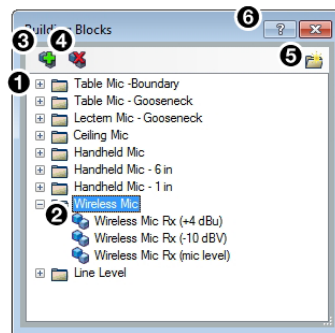
❶ Building Block Folders

❷ General Building Blocks

❸ Add a Building Block Button

❹ **Delete a Building Block Button**

❺ **New Folder Button**

❻ **Building Blocks Help Button**

Figure 35. **Input Building Blocks Dialog Box**

❶ **Building Block Folders** — These folders group input types together, such as table or handheld mics, for easy access (see figure 36).
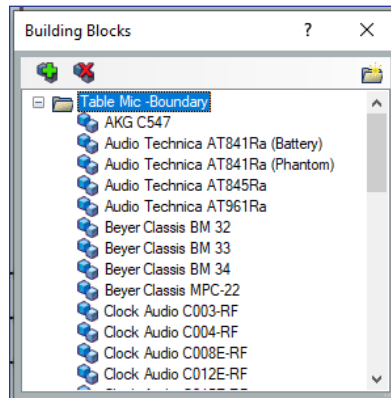
Figure 36. **Mic Building Block Folder Contents**

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

❸ **Add a Building Block Button** — Creates a custom building block from the current gain and processor settings on the selected channel.

When this button is clicked, the `Add a Building Block` dialog box opens. Name the new custom building block and choose a folder to save the block to, or create a new folder (see **figure 37** on the next page).
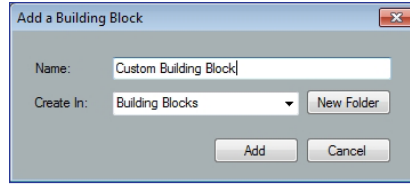
Figure 37.   Add a Building Block Dialog Box

❹ **Delete a Building Block Button** (see **figure 35** on the previous page) — Deletes the currently selected building block or building block folder. If default building blocks are deleted, they can be restored from the `Organize Building Blocks` dialog box. Custom building blocks can be saved to a file from the same dialog box (see **Organize Building Blocks** on page 71).

❺ **New Folder Button** — Creates a new folder or sub-folder in the `Building Blocks` dialog box.

❻ **Building Blocks Help Button** — Opens the `Building Blocks` topic of the *DSP Configurator Help File*. This topic contains more information on the different types of building blocks for inputs and outputs.

Mic/Line Inputs Processing

The mic/line input processing chain in DSP Configurator is visually represented by a string of blocks (see figure 38). Each block contains a specific processor or type of processor. For example, the `Input Gain` block contains a fader to boost or attenuate incoming signal, the `Filter` block contains several types of filters, and so on. Inputs 1 - 4 contain the following signal chain:

• **Input Gain Block**

• **Input Filter Block**

• **Input Dynamics Blocks**

• **Input Ducking Block**

• **Input Pre-Mixer Gain Block**

Figure 38.   Input Processing Chain

Input Gain Block

Double-click the **Input Gain** block (as seen to the right) to open the `Input Gain` dialog box.

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

❶ Input Name — This name changes to match the default or user defined input name.

❷ Gain Fader — Provides up to 60 dB of gain or 18 dB of attenuation.

- Click the fader once and press the <**Up Arrow**> or <**Down Arrow**> keys to adjust the fader up or down in 1 dB steps.

- Press the <**Page Up**> or <**Page Down**> keys to adjust the fader up or down in 10 dB steps.

❸ dBFS Meter — This meter displays the input signal level in dBFS ranging from -60 dBFS to 0 dBFS. Once the signal reaches or passes -1 dBFS (default) or the clip threshold defined in the `Options` dialog box (see **Options** on page 74), the clip box located at the top of the meter lights red.

❹ dBFS Numeric Readout — This read-only text box displays the numerical value of the input signal level in dBFS.

❺ Input Gain Text Field — This text field allows the user to enter a gain or attenuation value in 0.1 dB steps.

❻ Polarity Toggle Button — Inverts the signal polarity of the selected input. When the button displays the black **+** symbol on a gray field (▫), the polarity is normal. When the button displays the black **-** symbol on a yellow field (▫), the polarity is inverted.

❼ Mute Button — Mutes signal at the input stage, preventing it from going any further in the signal processing chain.

❽ OK Button — Confirms changes and closes the `Input Gain` dialog box.

❾ Cancel Button — Reverts any changes made to the contained parameters back to their states when the current instance of the `Input Gain` dialog box was opened and closes the dialog box.

❿ Input Gain Help Button — Opens the `Mic/Line Input Gain` topic in the *DSP Configurator Help* file for further assistance in configuring input gain.
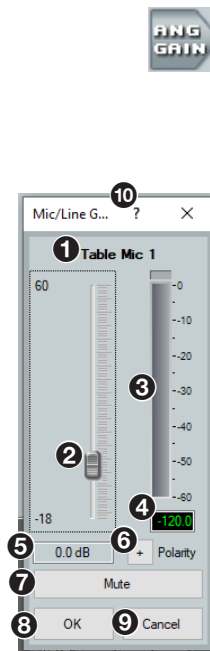
Input Filter Block

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

Alternatively, right-click the **Filter** block and select **Insert**, then select a filter to insert it into the block (see **figure 39** on the next page).

High Pass Filter Butterworth

Low Pass Filter Butterworth

Bass & Treble Filters

Parametric EQ

High Pass Linkwitz-Riley
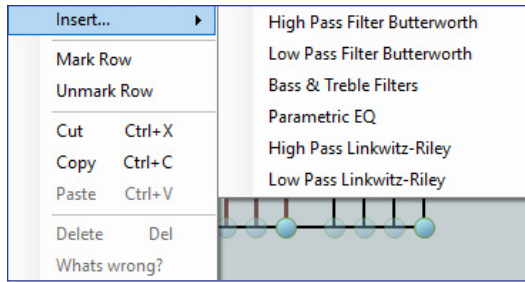
Figure 39.   Insert Filter Drop-Down List

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

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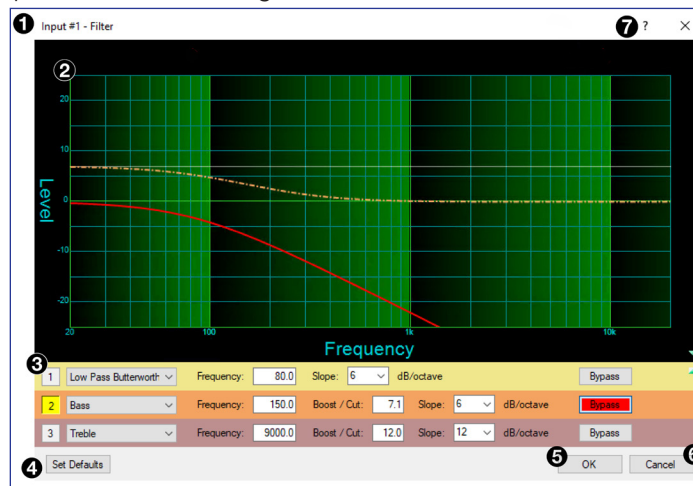
❶ **Filter Channel Name**

❷ **Filter Graph**

❸ **Filter List**

❹ **Set Defaults Button**

❺ **OK Button**

❻ **Cancel Button**

❼ **Filters Help Button**

Figure 40.   Filter Dialog Box

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

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

If a filter is active (not bypassed), it appears as a solid red curve. If a filter is bypassed, it appears as a broken orange curve (such as the bass filter in slot 2).

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

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

Available filters include:

- High Pass Butterworth
- Low Pass Butterworth
- Bass
- High Pass Linkwitz-Riley
- Low Pass Linkwitz-Riley
- Treble
- Parametric

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

❹ Set Defaults Button (see **figure 40** on the previous page) — Resets all filter parameters of all filters in the filter list to their default values.

To reset a single filter to default parameters, right-click the filter number on the left side of the `Filter` dialog box, and select **`Set to Default`** (see the image on the right).
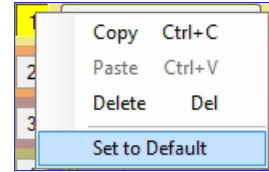
❺ OK Button — Confirms changes made to the contained parameters and closes the `Filter` dialog box.

❻ Cancel Button — Reverts any changes made to the contained parameters back to their states when the current instance of the `Filter` dialog box was opened and closes the dialog box.

❼ Filters Help Button — Opens the `About Filters` topic in the *DSP Configurator Help File*. This help file topic discusses each filter type in greater detail.

Input Dynamics Blocks

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

From the **`Dynamics`** drop-down list, two types of dynamics processors are available. Select a dynamics processor type to insert it into the `Dynamics` block.
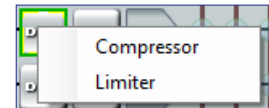
There is one `Dynamics` block available per mic/line input channel. Each block can be configured with any of the processor types.

The two types of dynamics processors available are:

- **Compressor**
- **Limiter**

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

If a dynamics processor has been inserted and needs to be changed to a different dynamics processor, right-click the dynamics block, hover over **`Insert`**, and select a new processor to insert it (see figure 41).
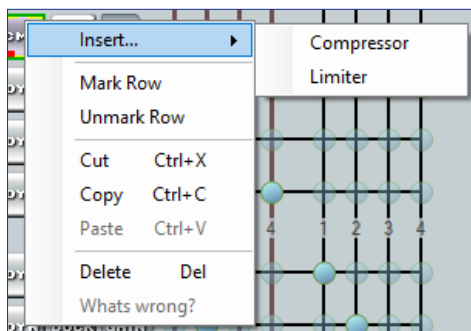
Figure 41.   Changing Dynamics Processors

Compressor

Figure 42.   **Compressor Dialog Box**
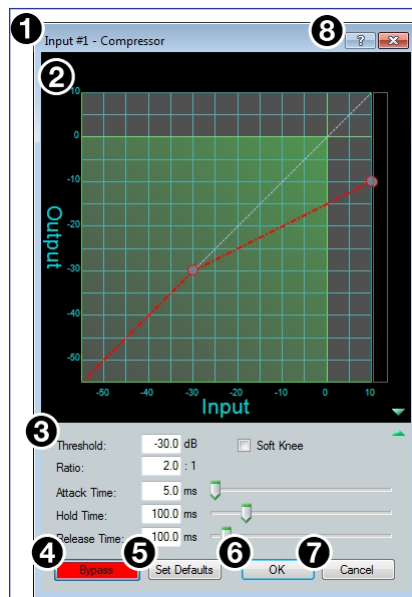
❶ Compressor Channel Name

❷ Compressor Graph

❸ Compressor Parameters List and Control

❹ Bypass Button

❺ Set Defaults Button

❻ OK Button

❼ Cancel button

❽ Dynamics Help Button

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

❷ **Compressor Graph** — Graphically displays compressor parameter settings. Parameters can also be adjusted using this graph. Click and drag the dot within the green area of the graph to adjust the compressor `Threshold`. Click and drag the dot outside the green box to adjust the compressor `Ratio`.

❸ **Compressor Parameters List and Control** — Lists all configurable parameters for the compressor.

- Text fields are available to adjust `Threshold`, `Ratio`, `Attack Time`, `Hold Time`, and `Release Time`.

- Click and drag sliders to adjust `Attack Time`, `Hold Time`, and `Release Time`.

- Click a slider once and use the <`Left Arrow`> and <`Right Arrow`> keys to adjust the respective parameter in 1 ms steps.

- Select the `Soft Knee` checkbox to provide a more natural implementation of compression when the signal reaches the threshold.

❹ **Bypass Button** — Bypasses the compressor. When the button is red, bypass is enabled.

❺ **Set Defaults Button** — Resets all compressor parameters to their default values. To view individual parameter default values, see the *DSP Configurator Help File* by clicking the `Dynamics Help` button (❽) to open the `About Dynamics` topic.

❻ **OK Button** — Confirms changes made to the contained parameters and closes the `Compressor` dialog box.

❼ **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the `Compressor` dialog box was opened and closes the dialog box.

❽ **Dynamics Help Button** — Opens the `Dynamics Operation` topic of the *DSP Configurator Help File* for further assistance in operating dynamics processors.

Limiter

Figure 43. Limiter Dialog Box

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

2 Limiter Graph — Graphically displays limiter parameter settings. Parameters can also be adjusted using this graph.

- Click and drag the dot on the graph to adjust the limiter `Threshold`.

3 Limiter Parameters List and Control — Lists all configurable parameters for the limiter.

- Text fields are available to adjust `Threshold`, `Attack Time`, `Hold Time`, and `Release Time`.

- Click and drag sliders to adjust `Attack Time`, `Hold Time`, and `Release Time`.

- Click a slider once and use the <`Left Arrow`> and <`Right Arrow`> keys to adjust the respective parameter in 1 ms steps.

- Select the `Soft Knee` checkbox to provide a more gradual implementation of limiting when the signal reaches the threshold.

4 Bypass Button — Bypasses the limiter. When the button is red, bypass is enabled.

5 Set Defaults Button — Resets all limiter parameters to their default values.

To view individual parameter default values, see the *DSP Configurator Help File* by clicking the `Dynamics Help` button (**8**) and navigate to the `About Dynamics` topic.

6 OK Button — Confirms changes made to the contained parameters and closes the `Limiter` dialog box.

7 Cancel Button — Reverts any changes made to the contained parameters back to their states when the current instance of the `Limiter` dialog box was opened and closes the dialog box.

8 Dynamics Help Button — Opens the `Dynamics Operation` topic of the *DSP Configurator Help File* for further assistance in operating dynamics processors.

Input Ducking Block

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

- **Ducker** — Decreases levels on specified channels when signal is present above a set threshold on the duck source (trigger).

- **Adaptive Gain** — Increases levels on specified channels when signal is present above a set threshold on the adaptive gain source channel (trigger).

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

Select **Ducker** to insert a ducking processor into the duck block (as seen on the right). Select **Adaptive Gain** to insert an adaptive gain processor into the duck block. Depending on the processor selected, the duck block displays DUCK for a ducker or **AG** for adaptive gain.
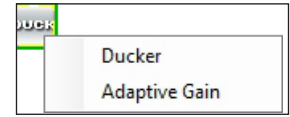
If a ducking processor has been inserted and needs to be changed to a an adaptive gain processor, or vice versa, right-click the block and hover over **Insert** to insert a different processor (see figure 44).
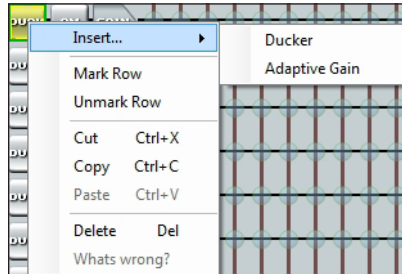
Figure 44. **Changing Ducking Processor**

Ducker

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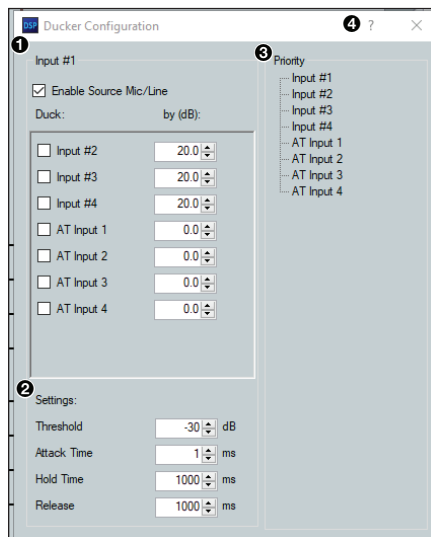
❶ **Duck Source Configuration**

❷ **Duck Parameter Settings**

❸ **Duck Priority Tree**

❹ **Ducking Operation Help Button**

Figure 45. **Ducker Configuration Dialog Box**

① Duck Source Configuration (see **figure 45** on the previous page) — The **Enable Source Mic/Line** checkbox is checked when a ducker is inserted (default). In the `Duck` column, check the inputs that are ducked. In the by `(dB)` column, enter the amount of ducking that occurs on each channel selected in the `Duck` column. When the threshold is exceeded on the duck source, ducking occurs on the selected channels.

② Duck Parameter Settings — Contains controls for setting `Threshold`, `Attack Time`, `Hold Time`, and `Release`. Click the **Ducking Operation Help** button (**④**) to open the `Ducking Operation` topic in the *DSP Configurator Help File*.

③ Duck Priority Tree — Displays the ducking priority for all `Input` and `Aux In` channels. Select another input to populate the `Ducker Configuration` dialog with the ducker information for that channel. Channels with an adaptive gain processor are appended with an `(AG)`. Channels with adaptive gain processors cannot be selected from this dialog box.

④ Ducking Operation Help Button — Opens the `Ducking Operation` topic of the *DSP Configurator Help File* for further assistance in ducker configuration.

Adaptive Gain

After inserting an adaptive gain processor, double-click the **AG** icon to open the `Adaptive Gain` dialog box.
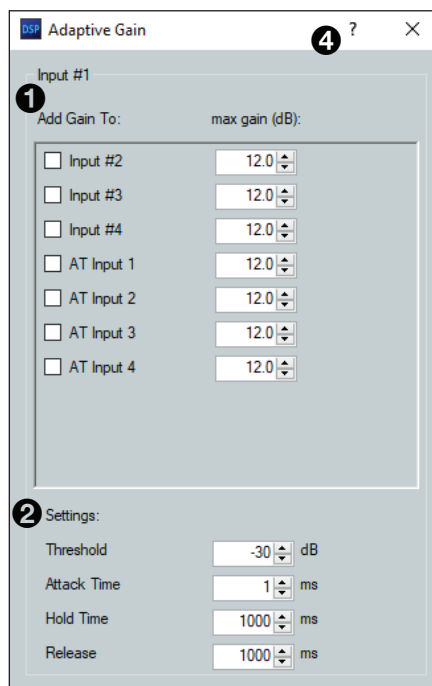
① Adaptive Gain Source Configuration

② Adaptive Gain Parameter Settings

③ Adaptive Gain Help Button

Figure 46.   Adaptive Gain Dialog Box

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

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

② **Adaptive Gain Parameter Settings** (see **figure 46** on the previous page) — Contains controls for `Threshold`, `Attack Time`, `Hold Time`, and `Release Time`.

③ **Adaptive Gain Help Button** — Opens the `About Adaptive Gain` topic in the *DSP Configurator Help File*. This help file topic discusses the `Adaptive Gain` window in greater detail.

Input Pre-Mixer Gain Block

Double-click the pre-mixer `Gain` block (as seen on the right) to open the `Pre-mixer Gain` dialog box.

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

① **Input Name**

② **Pre-mixer Gain Fader**

③ **Pre-mixer Gain Text Box**

④ **Mute Button**

⑤ **OK Button**

⑥ **Cancel Button**

⑦ **Pre-mixer Gain Help Button**
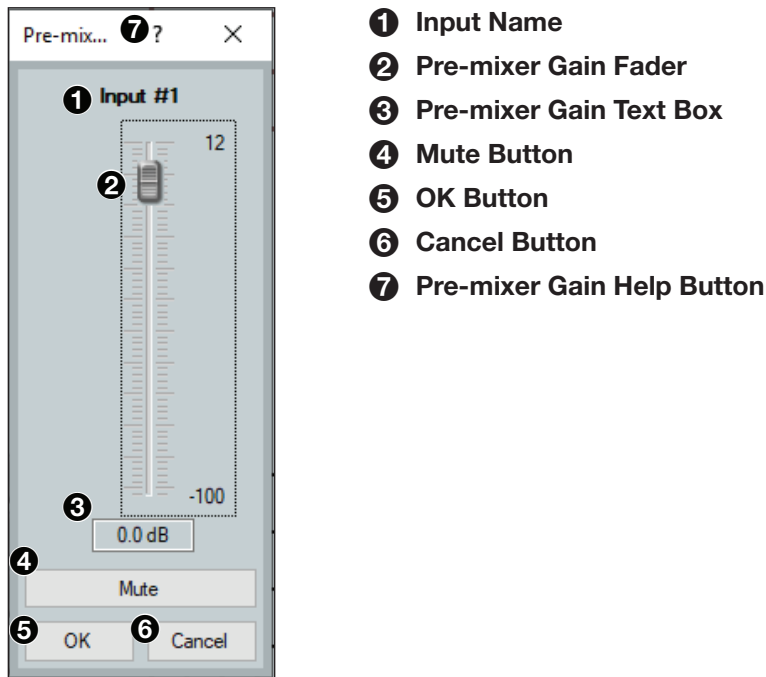
Figure 47.   Input Pre-mixer Gain Dialog Box

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

② **Pre-mixer Gain Fader** — Click and drag the gain fader to provide up to 12 dB of gain or 100 dB of attenuation in 1 dB steps. Click the fader and use the <**Up Arrow**> or <**Down Arrow**> keys to adjust the fader up or down in 1 dB steps.

③ **Pre-mixer Gain Text Box** — Enter a gain or attenuation value in 0.1 dB steps.

④ **Mute Button** — Mutes signal at the pre-mixer stage, preventing it from reaching the mix matrices.

⑤ **Input Pre-mixer Gain Dialog Box**— Confirms changes made to the contained parameters and closes the `Pre-mixer Gain` dialog box.

⑥ **Cancel Button** — Reverts any changes made to the contained parameters back to their states when the current instance of the `Pre-mixer Gain` dialog box was opened and closes the dialog box.

⑦ **Pre-mixer Gain Help Button** — Opens the `Pre-mixer Gain` topic of the *DSP Configurator Help File* for further assistance in understanding operating the `Pre-mixer Gain` dialog.

AT Inputs

AT inputs receive signal from the Dante network when connected to an audio network. The NetPA Ultra series amplifiers can receive four channels of audio via Dante.

Renaming an Input

> **NOTE:** Renaming an AT input in DSP Configurator affects the receiver name in Dante Controller. Alternatively, renaming a receiver channel name in Dante Controller affects the name displayed in DSP Configurator (see **Renaming a Receiver or Transmitter** on page 79).

1. Click the expansion or **AT input** name field.

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

3. Press the <**Enter**> key or navigate away from the field to confirm and apply the new name. Press the <**Down Arrow**> key to navigate to and highlight the next name field.
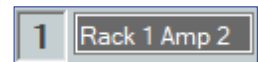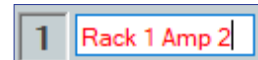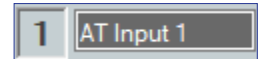
   > **NOTE:** Follow the same procedure to edit an AT Input name.

AT Inputs Overview

AT inputs allow an amplifier to receive signal from the audio network. Network audio routing is done with Dante Controller (see **Dante Controller** on page 75).
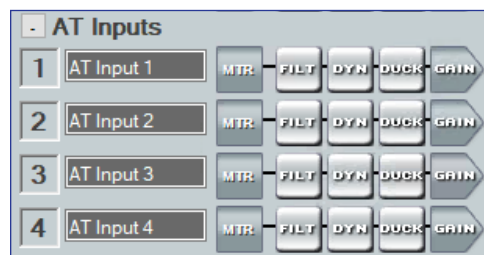
Figure 48.   AT Inputs

AT Inputs Processing

The AT inputs contain three processor blocks and a meter block in their signal chain:

1. Meter Block
2. Filter Block
3. Dynamics Block
   - Compressor Block
   - Limiter Block
4. Ducker Block
   - Ducker Block
   - Adaptive Gain Block
5. Pre-Mixer Gain Block

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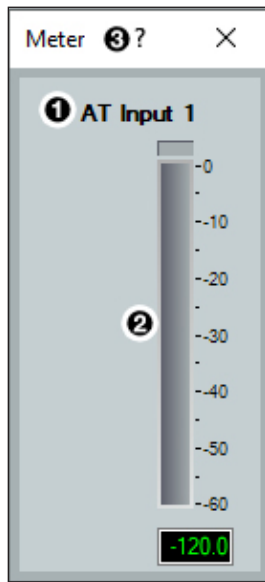
① **AT Input Name** — This name changes to match the default or user defined input name.

② **AT Input Meter** — Provides a readout to view input activity.

③ **Meter Help Button** — Opens the `AT Input Meter` topic of the *DSP Configurator Help File* for further assistance in understanding operating the `AT Input Meter` dialog.

Figure 49.   AT Input Meter Block

AT Input Filter Block

The AT input filter block functions the same as the mic/line input filter block.

AT Input Dynamics Block

The AT input dynamics block functions the same as the mic/line input dynamics block.

AT Input Ducker Block

The AT input ducker block functions the same as the mic/line input ducker block.

AT Input Pre-Mixer Gain Block

The AT input pre-mixer gain block functions the same as the mic/line input pre-mixer gain block.

Mix-Points

DSP Configurator contains four mix matrices that connect all inputs and outputs. The mix matrices set post-processing mix levels.

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

> **NOTE:** In order for mix-points to appear in the workspace, the input group sending signal to the mix-point must be expanded and the input channel must be visible.
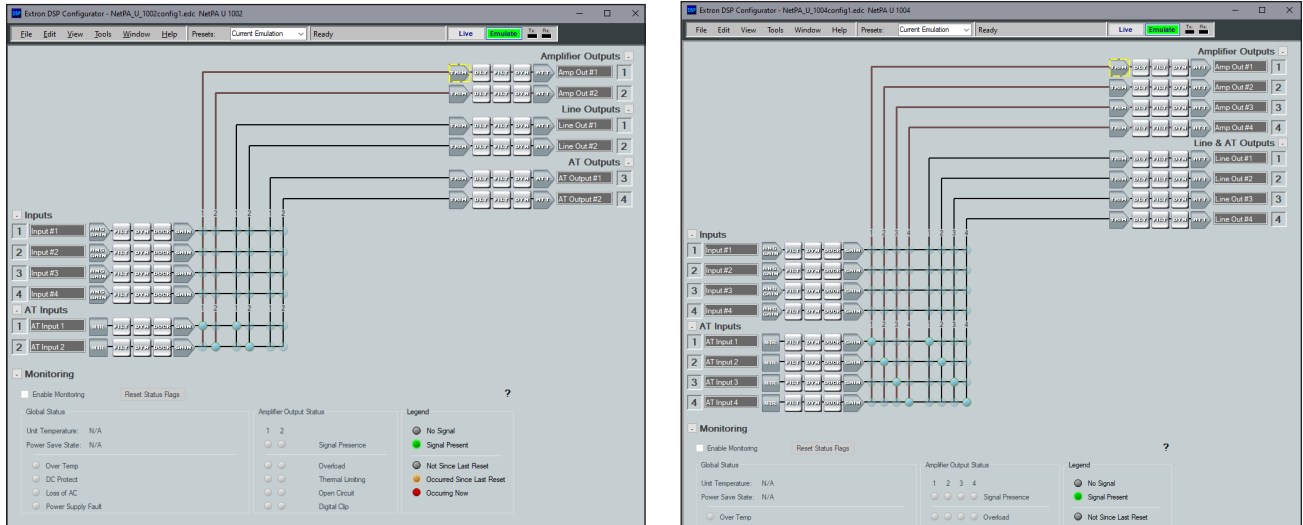
Figure 50. DSP Configurator Mix Matrices

Mix-Point Dialog Box

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

❶ Mix-Point Input and Output — Displays which input (top) and output (bottom) the mix-point is connecting.

❷ Mix-point fader — Click and drag the mix-point fader to provide up to 12 dB of gain or 100 dB of attenuation in 1 dB steps. Click the fader and use the <**Up Arrow**> or <**Down Arrow**> keys to change the level in 1 dB steps.

❸ Level Text box — Allows specific level values to be entered in 0.1 dB steps.

❹ Mute button — Mutes the mix-point (muted by default). When the button is red, the mix point is muted.

❺ Mix Dot selection — Two radio buttons allow selection of the type of input processing applied to the mix-point. `Include Processors` includes signal processing at the mix-point and marks the mix-dot teal to signify this. `Bypass Processors` bypasses signal processing at the mix-point and marks the mix-dot green to signify signal processing is bypassed.

❻ OK button — Confirms changes made to the contained parameters and closes the `Mix-point` dialog box.

❼ Cancel button — Reverts any changes made to the contained parameters back to their states when the current instance of the `Mix-Point` dialog box was opened and closes the dialog box.

❽ Mix-point Help button — Opens the `Mix-Point` topic of the DSP Configurator Help File for further assistance in understanding operating the `Mix-Point` dialog.
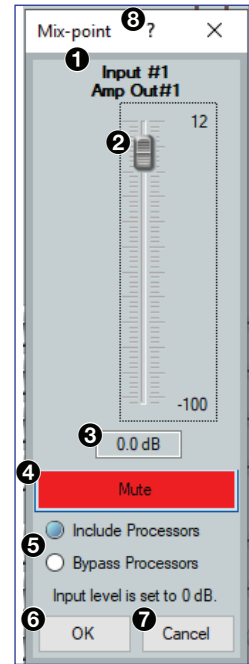
Mix-Point Context Menu

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

❶ Mute — Mutes the mix-point.

❷ Unmute — Unmutes the mix-point and creates an audio path between an input and output.

❸ Include Processors — Includes signal processing at the mix-point and marks the mix-dot teal to signify this.

❹ Bypass Processors — Bypasses signal processing at the mix-point and marks the mix-dot green to signify signal processing is bypassed.

❺ Cut — Cuts the mix-point parameter configuration, preparing it to be pasted to another mix-point. The parameter configuration information is not removed until it is pasted to another mix-point.

❻ Copy — Copies the mix-point parameter configuration, leaving the mix-point intact and preparing it to be pasted to another mix-point.

❼ Paste — Pastes a previously cut or copied mix-point parameter configuration to the selected mix-point.

❽ Delete — Deletes the mix-point parameter configuration and mutes the mix-point.

❾ Mark Row — Marks the entire row containing the selected mix-point, highlighting all of the elements.

❿ Unmark Row — Unmarks the entire row containing the selected mix-point.
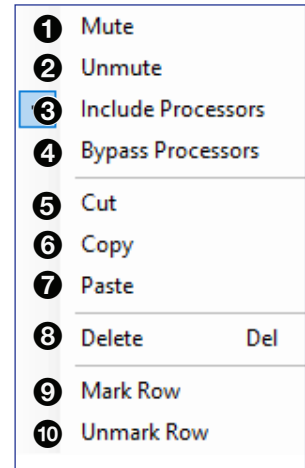
DSP Configurator Outputs

The outputs run along the top right of the main workspace in DSP Configurator. There are two types of outputs available:

- **Line/AT Outputs (NetPA U 1004)**
- **Amplifier Outputs**

These outputs receive signal when mix-point connections are made between an input and an output in the mix-matrices.

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

Line/AT Outputs (NetPA U 1004)

In the NetPA U 1004, four outputs are available in the Line and AT Outputs panel and route signals to the four balanced/unbalanced line level outputs as well as the four AT outputs. Signals routed to these outputs are also transmitted on the Dante network.
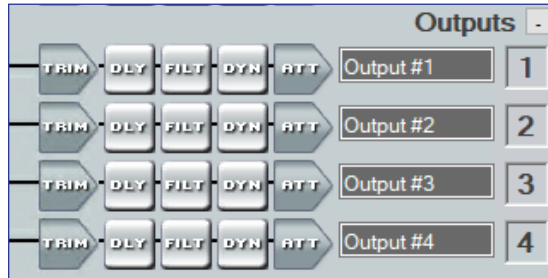
Figure 51. **Outputs Panel for the NetPA U 1004**

Line/AT Outputs (NetPA U 1002)

The NetPA U 1002 has two separate channels for the line outputs and two separate channels for the AT outputs. Each output has to be routed to individually.
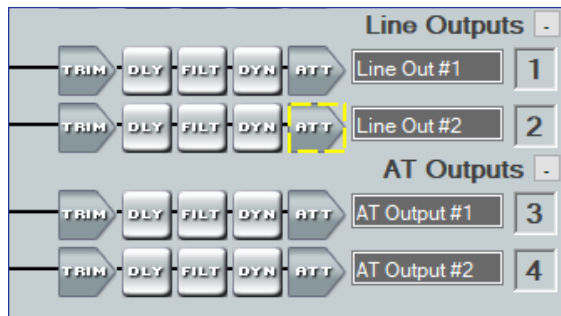
Figure 52. **Outputs Panel for the NetPA U 1002**

Naming an Output

1. Click the output name field.
2. Delete the text and type the desired output name.
3. Press the <**Enter**> key or navigate away from the field to confirm and apply the new output name.
4. Press the <**Down Arrow**> key to navigate to and highlight the next name field.
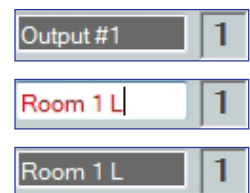
NOTE: Follow the same procedure to edit an Output name.

Line/AT Output Building Blocks

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

Figure 53. **Accessing Building Blocks on an Output**

Click the output number to open the `Building Blocks` dialog box.
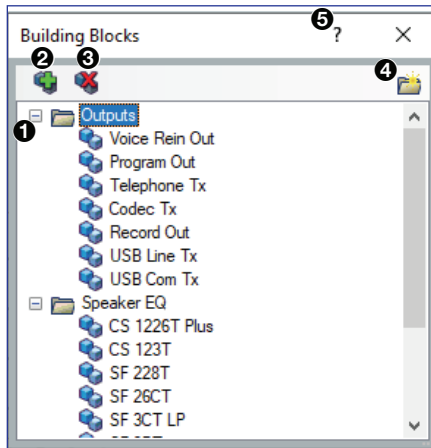
1 Output Building Blocks List
2 Add a Building Block Button
3 Delete a Building Block Button
4 New Folder Button
5 Building Blocks Help Button

Figure 54.   Output Building Blocks Dialog Box

1 **Output Building Blocks List** — Contains building blocks for output channels.

2 **Add a Building Block Button** — Allows users to create custom building blocks, saving the currently applied gain and processor settings on the selected channel. Click the icon to open the `Add a Building Block` dialog box. This allows users to name the new custom building block and choose the folder to save the block to an existing folder, or create a new folder.
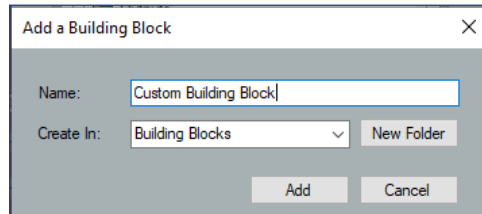
Figure 55.   Add a Building Block Dialog Box

3 **Delete a Building Block Button** — Deletes the currently selected building block or building block folder. If default building blocks are deleted, they can be restored from the `Organize Building Blocks` dialog box.

4 **New Folder Button** — Creates a new folder or sub-folder.

5 **Building Blocks Help Button** — Opens the `Building Blocks` topic of the *DSP Configurator Help File*. This topic contains more information on the different types of building blocks for inputs and outputs.

Line/AT Output Processing

The output processing chain in DSP Configurator is represented by a string of blocks (see figure 56). Each block contains a specific processor or type of processor. Each output contains the following processor chain:

- **Line/AT Output Trim Block**
- **Line/AT Output Delay Block**
- **Line/AT Output Filter Block**
- **Line/AT Output Dynamics Block**
- **Line/AT Output Attenuation Block**

Figure 56.   Output Processing Chain

Line/AT Output Trim Block

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

The `Post-mixer Trim` dialog box provides pre-processing gain and attenuation control for the selected output.
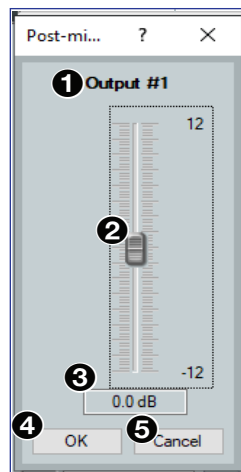
① Output Name — This name changes to match the default or user defined output name

② Post-mixer Trim Fader — Click and drag the trim fader to provide up to 12 dB of gain or 12 dB of attenuation in 0.1 dB steps. Click the trim fader and use the **<Up Arrow>** or **<Down Arrow>** to adjust the fader up or down in 0.1 dB steps.

③ Post-mixer Trim Text Box — Allows the user to enter a gain or attenuation value in 0.1 dB steps.

④ OK Button — Confirms changes made to the contained parameters and closes the `Post-mixer Trim` dialog box.

⑤ Cancel Button — Reverts any changes made to the contained parameters back to their states when the current instance of the `Post-mixer Trim` dialog box was opened and closes the dialog box.

Figure 57.   Post-mixer Trim Dialog Box

Line/AT Output Delay Block

Double-click the **Delay** block to open the delay drop down. Click **Delay** to insert the delay processor into the block.
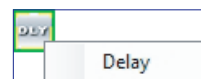
Once a delay processor is inserted into the `Delay` block, double-click the block to open the `Delay` dialog box.

❶ Delay channel name
❷ Units of measurement
❸ Delay fader and text box
❹ Temperature panel
❺ OK button
❻ Set Defaults
❼ Cancel button
❽ Bypass button
❾ Delay Help button
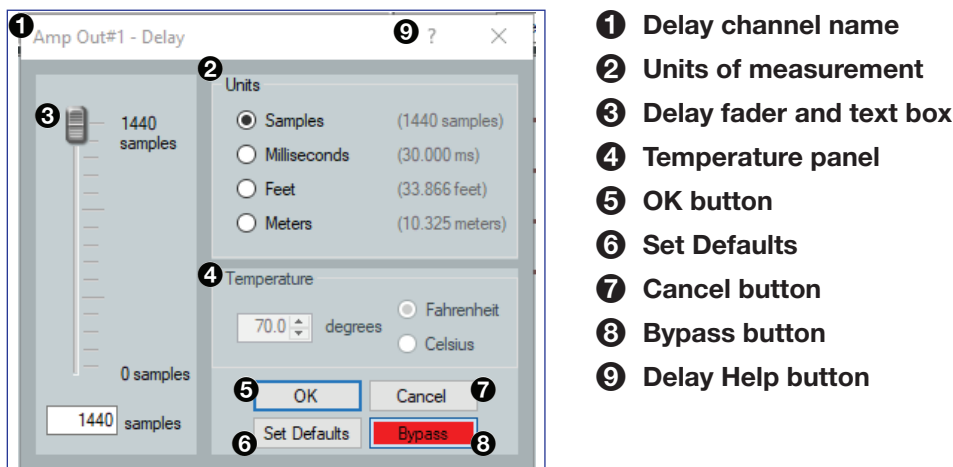
Figure 58.   Delay Dialog Box

❶ Delay channel name — The name changes to match the default of user defined output name.

❷ Units of measurement — Radio buttons change the unit of measurement used by the delay fader and text box. **Samples**, **Milliseconds**, **Feet** and **Meters** are available units of measurement. Values are converted when the unit of measurement is changed. Changing the unit of measurement does not alter the amount of delay applied to the signal.

❸ Delay fader and text box — Adjust the amount of delay applied to the signal. Click and drag the fader up or down to increase or decrease the amount of delay. Click the fader once and use the <**Up Arrow**> or <**Down Arrow**> to adjust delay in one sample step (or the one sample equivalent in milliseconds, feet, or meters). Use the text box below the fader to input a delay value.

❹ Temperature panel — Becomes available when using delay in feet or meters. Compensates delay for ambient temperature in the acoustic space. Temperature is not available when using samples or milliseconds as the unit of measurement.

❺ OK button — Confirms changes made to contained parameters and closes the `Delay` dialog box.

❻ Set Defaults button — Resets the delay to the default setting.

❼ Cancel button — Reverts any changes made to the contained parameters back to their states when the current instance of the `Delay` dialog box was opened and closes the dialog box.

❽ Bypass button — Bypasses the delay. When the button is red, bypass is enabled.

❾ Delay Help button — Opens the `Delay Operation` topic of the *DSP Configurator Help File* for further assistance in understanding operating the delay processor.

Line/AT Output Filter Block

One filter block is available for each output channel. This filter block functions the same as the mic/line input filter block (see **Input Filter Block** on page 37 for information on configuring input filters).

Line/AT Output Dynamics Block

One dynamics block is available for each output channel. This block functions the same as the mic/line input dynamics block (see **Input Dynamics Blocks** on page 39 for information on configuring the output dynamics block).

Line/AT Output Attenuation Block

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

The `Attenuation` dialog box provides attenuation control for the selected output.
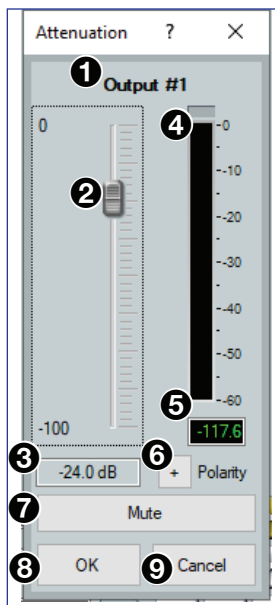
❶ **Output name** — This name changes to match the default or user defined output name.

❷ **Output attenuation fader** — Click and drag the trim fader to provide up to 100 dB of attenuation. Click the trim fader and use the <**Up Arrow**> or <**Down Arrow**> to adjust the fader up or down in 1 dB steps.

❸ **Output attenuation text box** — Allows the user to enter a gain or attenuation value in 0.1 dB steps.

❹ **dBFS meter** — Provides post-attenuation and pre-mute a readout of the output signal level.

❺ **dBFS text readout** — Displays a numerical readout of the output signal level

❻ **Polarity button** — Click this button to invert the signal polarity of the selected output.

- When the button displays the black **+** symbol on a gray field (▫), the polarity is normal.

- When the button displays the black **-** symbol on a yellow field (▫), the polarity is inverted.

❼ **Mute button** — Mutes the signal at the output stage.

❽ **OK button** — Confirms changes made to the contained parameters and closes the `Attenuation` dialog box.

❾ **Cancel button** — Reverts any changes made to the contained parameters back to their states when the current instance of the `Attenuation` dialog box was opened and closes the dialog box.

Balancing NetPA Amplifier Output Level and XPA Input Sensitivity

Setting proper gain structure is necessary to ensure maximum audio clarity and amplifier output performance. To properly balance the input sensitivity of XPA amplifiers, when used in conjunction with NetPA Ultra Series amplifiers, follow the steps outlined below.

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

The following is an example of how to adjust the NetPA U 1002/1004 internal amplifiers to match an external XPA amplifier connected to the NetPA U 1002/1004 line outputs:

1. Ensure the NetPA U 1002/1004 outputs are properly connected to the XPA amplifier inputs. Refer to the *NetPA U 1002/1004 User Guide* and *XPA User Guide* found on **www.extron.com** for more details on connecting the amplifiers.

2. Set the attenuation potentiometer on the XPA input to -10 dB (12 o'clock position).

3. Open DSP Configurator and connect live to the NetPA U 1002/1004.

4. Double-click the Line Output ATT block (highlighted in yellow) to open the attenuation dialog box (see the image on the right).

5. Set the Line Output attenuator(s) to -7 dB. The attenuation value can be adjusted by either dragging the fader (see figure 59, ❶), or clicking in the display box (❷), and manually entering the desired value.
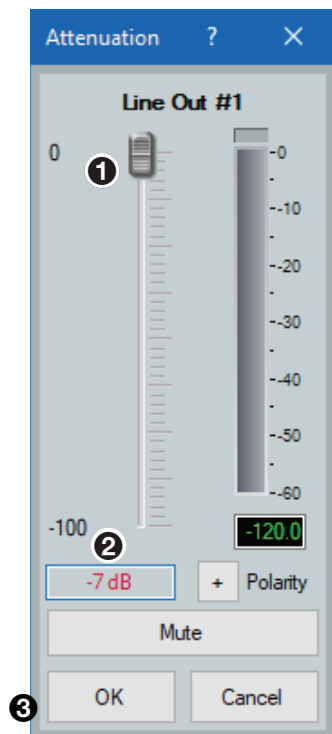
Figure 59.   **Line Out Dialog Box**

6. Click **OK** (❸) to apply the change and close the dialog box.

7. Double-click the Amplifier Output ATT block (highlighted in yellow in **figure 60** on the next page) to open the attenuation dialog (see **figure 62** on the next page).
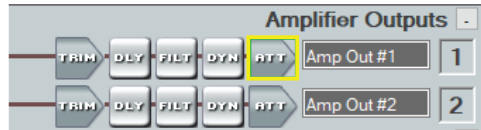
Figure 60.   Amplifier Outputs Block

8. Set the Amp Out attenuator(s) to 0 dB (see figure 62). The attenuation value can be adjusted by either dragging the fader (❶), or clicking in the display box (❷), and manually entering the desired value.
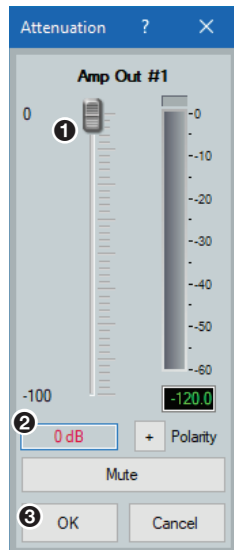
Figure 61.   Amp Out Dialog Box

9. Click **OK** (❸) to apply the change and close the dialog box.

Amplifier Outputs

The NetPA U 1004, features four discrete processing paths to the amplifier outputs, while the NetPA U 1002 features two processing paths to the amplifier outputs. All audio inputs can be routed to an amplifier output via discrete amplifier output mix-points.

Figure 62.   Amplifier Output Panel for the NetPA U 1004
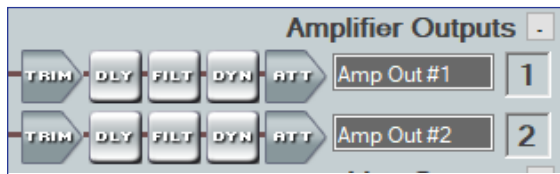
Figure 63.   Amplifier Output Panel for the NetPA U 1002

Naming an Amplifier Output

1. Click the `Amplifier Output` name field.

2. Delete the text and type the desired `Amplifier Output` name.

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

4. Press the <`Down Arrow`> to navigate to and highlight the next name field.
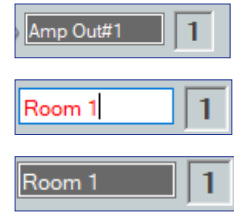
> **NOTE:** Follow the same procedure to edit an output name.

Amplifier Outputs Processing

The amplifier output processing chain in DSP Configurator is represented by a string of blocks (see figure 64). Each block contains a specific processor or type of processor. The processor chain is as follows:

- Amplifier Output Trim Block
- Amplifier Output Delay Block
- Amplifier Output Filter Block
- **Amplifier Output Dynamics Block**
- **Amplifier Output Attenuation Block**

Figure 64. **Amplifier Output Processing Chain**

Amplifier Output Trim Block

One trim block is available for each amplifier output channel. The trim block functions the same as the line/AT output trim block (see **Line/AT Output Trim Block** on page 52) for information on configuring output filters).

Amplifier Output Delay Block

One delay block is available for each amplifier output channel. The delay block functions the same as the line/AT output delay block (see **Line/AT Output Delay Block** on page 53) for information on configuring output filters).

Amplifier Output Filter Block

One filter block is available for each amplifier output channel. This filter block functions the same as the line/AT output filter block (see **Input Filter Block** on page 37) for information on configuring output filters).

High-Pass Filter Information

For high impedance amplifiers like the NetPA U 1004-70V/100V and
NetPA U 1002-70V/100V, a fixed high-pass filter is inserted into the output chain of the
amplified outputs. This filter takes up one of the filter slots in the output filter block. This
high-pass filter is inserted to prevent the saturation of the transformer cores in the 70V/100V
speaker chain by low frequency content. The filter corner frequency and slope can be
adjusted. The frequency adjustment has a lower limit of 35 Hz. The filter cannot be deleted,
and the filter type cannot be changed.
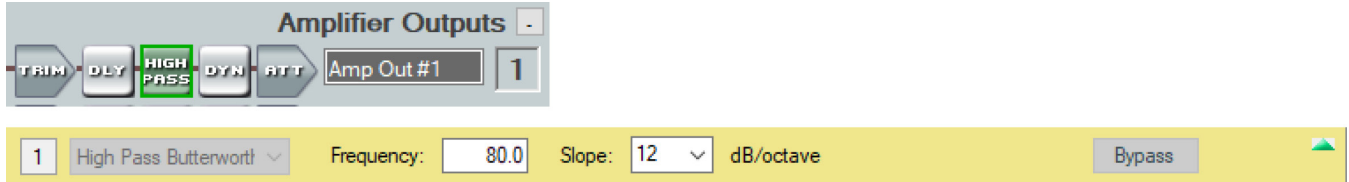
Figure 65.   **High-Pass Filter**

Amplifier Output Dynamics Block

One dynamics block is available for each amplifier output channel. This block functions the
same as the line/AT input dynamics block (see **Input Dynamics Blocks** on page 39) for
information on configuring the output dynamics block).

Amplifier Output Attenuation Block

One attenuation block is available for each amplifier output channel. The attenuation
block functions the same as the line/AT output attenuation block (see **Line/AT Output
Attenuation Block** on page 54) for information on configuring output filters).

Monitoring

The monitoring section of the workspace contains read-only information about the
NetPA Ultra device.
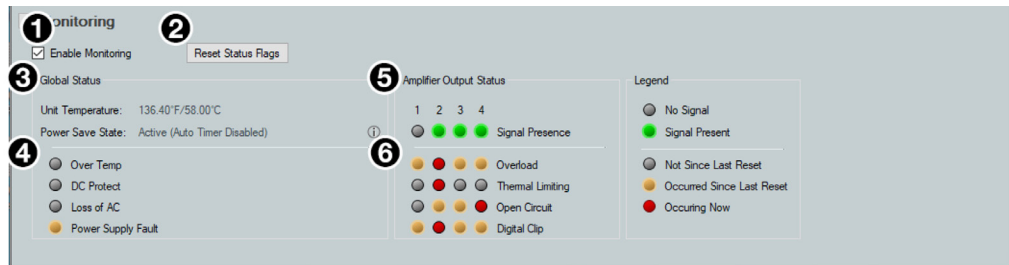
❶	**Enable Monitoring check box**	❹	**Global Status faults**
❷	**Reset Flag Status button**	❺	**Amplifer Output Status section**
❸	**Global Status section**	❻	**Fault statuses section**

Figure 66.   **Monitoring Panel**

❶ Enable Monitoring check box (see **figure 66** on the previous page) — To enable the monitoring feature, click this check box.

> **NOTE:**
> - Enabling monitoring in DSP Configurator only enables it while using DSP Configurator.
> - Enabling monitoring does not enable or disable unsolicited responses.
> - For details on using the monitoring feature outside of DSP Configurator, see **Status Commands** on page 102.

❷ Reset Flag Status button (see **figure 66**) —   Click to reset all status flags.

> **NOTE:**
> - If the fault condition is still occurring, the flag remains red following the reset.
> - Status flags are reset when power is cycled.
> - Once a system has been serviced to address a fault, the status flags should be reset, either all at once through the reset status flag button, SIS, or individually through SIS.

❸ Global Status section (see **figure 66**) —

- **Unit temperature** — Displays the internal temperature of the amplifier at a particular location.

- **Power Save State** — Indicates the standby state that the amplifier is currently in.

  - **Active (Auto Timer Disabled)** — The `Auto-Standby Timer` is disabled, and the amplifier **does NOT** automatically enter standby mode when no active signal is present on any amp channel for 25 minutes.

  - **Active (Auto Timer running but not triggered)** — The `Auto-Standby Timer` is enabled. The amplifier remains active while there is an active signal on any amp channel. The amplifier enters standby mode if no active signal is present on any amp channel for 25 minutes. It returns to active upon detection of signal on any amp channel. When the SIS command is sent, the timer resets.

  - **Standby (SIS triggered)** — When the amplifier is forced into standby via SIS through DSP Configurator or a control system, the unit does not wake from standby until the amplifier is placed into Standby Mode 0 or 1 (Active [Auto Timer Disabled] or Active [Auto Timer running but not triggered], respectively) the same way, regardless of signal presence.

  - **Standby (Timer triggered)** — The amplifier has entered standby mode because no active signal was present on any amp channel for 25 minutes. It returns to active upon detection of signal on any amp channel.

  - **Standby (Contact Closure triggered)** — The amplifier has been forced into standby via the `STANDBY` port (contact closure), and remains in this state until the contact is opened. Once opened, the amplifier returns to its last known active standby state. This function overrides all other standby conditions.

④ Global Status faults (see **figure 66**) — These are faults that are not specific to an amplifier channel, see table below for details on the specific faults.

Status	Possible Triggers	Possible Causes	Possible Solutions
Over Temp	The amplifier has exceeded the recommended operating temperature. See specifications on the Extron website, **www.extron.com**.	The ambient environment exceeds the recommended operating temperature.	• Verify that the placement of the amplifier allows for suitable ventilation and airflow • Avoid placing equipment on top or below the amplifier. • Verify that the operating temperature is within the specified range.
DC Protection	A DC signal has been detected on an amplifier channel.	Hardware failure.	• Disconnect power then reconnect power to the unit to determine if the unit immediately goes into standby upon power up • The amplifier may need to be serviced.
Loss of AC	• If a "2" is reported: Loss of AC is detected. • If a "1" is reported: A momentary loss of AC power has been detected in the past.	There is or has been a disruption in power.	Check the system power distribution.
Main power supply fault	The main power supply has shut down for reasons other than loss of AC, going into standby, or DC protect and is effectively muting all output channels.	• The power supply has overheated. • There is a damaged component.	• Allow the amplifier to cool down. • Make sure the correct speaker load is connected. • Check that speakers are tapped appropriately. • Recheck the amplifier gain structure. • Verify that the amplifier ambient environment does not exceed the recommended operating temperature (see suggestions for Over Temp).

⑤ Amplifer Output Status section (see **figure 66** on page 58) — `Signal Presence` indicates the presence of or lack of a signal on a particular channel.

- Green when the audio signal crosses the signal detection threshold of the output channel (–60 dBFS).
- Gray when the audio signal does not cross the signal detection threshold of the output channel.

⑥ Fault statuses section (see **figure 66**) — These are faults specific to an amplifier channel, see table below for details on the specific faults.

Status	Possible Triggers	Possible Causes	Possible Solutions
Output Thermal limiting	The specified amplifier channel has overheated and is muting the affected channel.	• The channel is driving too low of a speaker load impedance. • The channel is being fed a heavily clipped or distorted signal. • The amplifier operating environment exceeds the recommended operating temperature.	• Make sure the correct speaker load is connected. • Check that speakers are tapped appropriately. • Recheck the amplifier gain structure. • Verify that the amplifier ambient environment does not exceed the recommended operating temperature (see suggestions for **Over Temp** on the previous page).
Overload	• The current or power limiter has been triggered. • A short on the affected output channel has been detected.	• Too much current is being drawn due to overdriving the output. • An improper speaker load has been attached (for example, attaching a low impedance speaker to a high impedance output). • The output has been shorted.	• Recheck the amplifier gain structure. • For low-impedance loads: Verify that total impedance at the amplifier is ≥ 4 ohms. • For 70V/100V speaker loads: Recheck speaker taps. • Check for shorts at the output and throughout the speaker chain.
Open Circuit	The affected channel has detected an open circuit.	• The connection to the speaker chain has been broken. • An improper speaker load has been attached (for example, attaching a high impedance speaker to a low impedance output). • No speaker load is attached.	• Check for an open circuit at the output and throughout the speaker chain. • Recheck speaker taps.
Digital clip	Audio output sounds distorted.	The output DAC is being overdriven.	Recheck the amplifier gain structure.
Unit in standby	The unit has been placed into standby.	• The auto-standby timer has timed out. • The contact closure port is engaged on the rear panel. • SIS has forced the unit into standby. • DC has been detected on an output.	• Check that there is sufficient signal going to the amplifier channel. • Check that the standby port is not engaged. • Check that the SIS is not forcing the unit into standby. • If none of the above work, check for a DC fault (see suggestions for DC protection).

⑦ Legend — (see **figure 66** on page 58)

- **Red** — The amplifier is actively detecting a fault.
- **Yellow** — The amplifier is not actively detecting a fault, but one has been detected since the last time the status flags were reset.
- **Gray** — The amplifier has never detected a fault.

Open Circuit Detect

For high impedance amplifiers, open circuit detect requires that the speaker chain be tapped at a minimum of 16 Watts.

For this detection circuit to function, adequate audio signal must be present at the output channel. The output attenuation meters should be bouncing above -50 dBFS.

If at any point an open circuit is detected (yellow or red status), the system should be inspected.

Loss of AC

Since status flags are reset after a power cycle, the amplifier only reports this fault for the short time it remains active after it loses power. This is generally enough time for it to report loss of power to DSP Configurator before disconnecting. Once power is restored and DSP Configurator reconnects, the indicator is gray.

In the event that this status is yellow while DSP Configurator is connected to the amplifier, this represents a short disruption in power.

Configuration Tools

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

- **Presets**
- **Groups**
- **Device Manager**
- **Connect/Disconnect from Device**
- **Firmware Loader**
- **Organize Building Blocks**
- **Device Settings**
- **Options**

Presets

Preset options are available from the `Tools` menu.
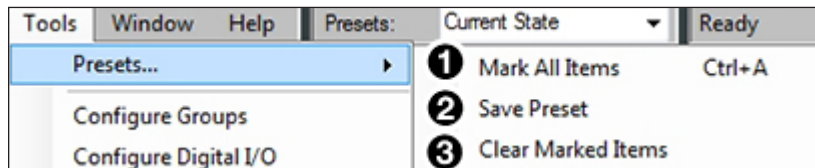
Figure 67. Presets Options

❶ **Mark All Items** — Marks all gain blocks, processor blocks, and mix-points in the main workspace. Performing this function before saving a preset ensures every element in the workspace is saved to the preset.

❷ **Save Preset** – Saves the marked blocks and mix points of the current configuration as a preset. When **Save Preset** is clicked, the dialog box opens showing that only the elements marked with a green outline are saved to the preset. This option is only available if items are marked.

❸ **Clear Marked Items** — Unmarks all currently marked elements.
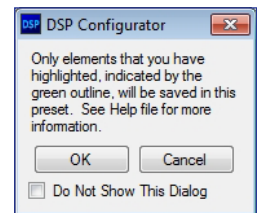
Methods for Marking Items

Marked items are highlighted in green (see figure 68). There are four ways to mark items in DSP Configurator:

- **Mark All** — Press **\<Ctrl+A\>** on the keyboard to mark all items in the main workspace.

- **Mark Group** — Click and drag the cursor to create a box around a group of items to mark them.

    Click and drag the cursor while holding the **\<Shift\>** key to create box around another group of items to mark them while keeping previous group marked.

- **Mark Series** — Click the first item in the series to mark it, then press **\<Shift+Click\>** on the final item in the series. All items between the first and last items are marked.

- **Mark Multiple Individual** – Click the first item to mark it and press **\<Ctrl+Click\>** to mark additional items anywhere in the main workspace.

Figure 68.   Marked Items Highlighted in Green

Configuring Presets

1. Create a configuration to be saved as a preset (see **DSP Configurator Software** on page 28).

2. Mark the items to be included in the preset.

3. Select **Tools** > **Presets** > **Save Preset**.

4. From the **Save a Preset** dialog box, enter the preset number (1 through 8) in the **Preset Number** field (see figure 69, ❶). Preset slots that do not already have a preset assigned read **unassigned**. Enter a name into the **Preset Name** field (❷), 12 character maximum).

5. Click **OK** (❸) to save the preset.
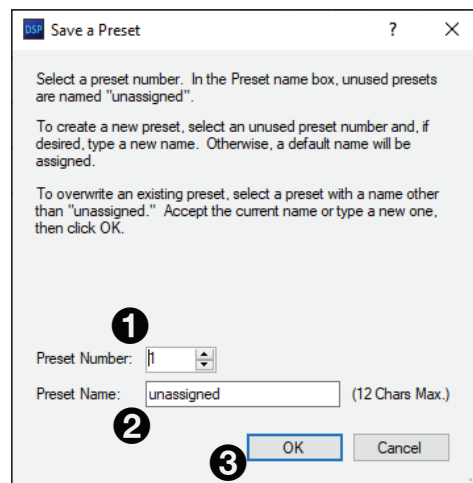
Figure 69.   Save a Preset Dialog Box

> **NOTE:** When a configuration file is pushed to a NetPA Ultra Series amplifier, presets contained within that file are available for recall from DSP Configurator or SIS commands.

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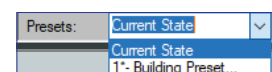
Groups

Groups allow master control of gain and mute for groups of channels. Groups are used in control configurations.

Click **Tools** > **Configure Groups** to open the `Configure Groups` dialog box.
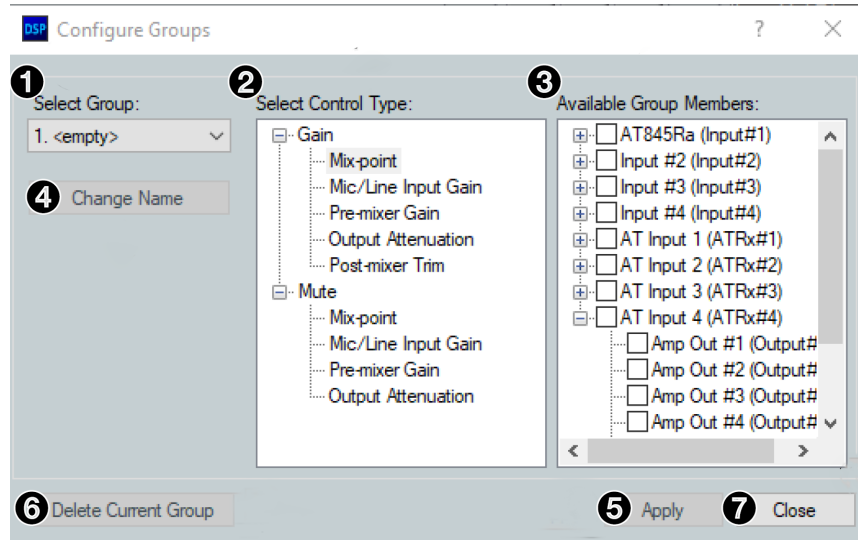
① **Select Group**	⑤ **Apply button**
② **Select Control Type**	⑥ **Delete Current Group button**
③ **Available Group Member**	⑦ **Close button**
④ **Change Name button**	

Figure 70.   Group Controls Dialog Box

① **Select Group** — Provides a drop-down list to select the number of the group to be configured. If the group has been configured and named, the group name appears next to the group number. If the group slot is empty, it reads `<empty>` next to the group number. There are 32 group slots available.

② **Select Control Type** — Group controls can manage gain and mute for the specified inputs, mix-points, or outputs. From the `Select Control Type` panel, select the type of control from the `Gain` or `Mute` lists.

③ **Available Group Members** — This section populates according to the selected control type and lists all inputs, mix-points, and outputs available to be added as group members. Check the box next to a member to add it to the group. Group members must be the same control type. The maximum number of group members for a single group is 8.

④ **Change Name button** — Once a group has been created, select it from the `Select Group` drop-down list (①), click **Change Name** to change the name of the selected group.

⑤ **Apply button** — Click **Apply** after changes to a group have been made. The `Confirm Group Details` dialog box opens allowing the group name and number to be edited. Click **OK** to apply group changes.

⑥ **Delete Current Group button** — Select a group from the `Select Group` drop-down list and click **Delete Current Group** to delete the group.

⑦ **Close button** — Click **Close** to close the dialog box. Any changes that have not been applied are lost.

Configuring Groups

To create a new group:

1. Select **Tools** > **Configure Groups** to open the `Configure Groups` dialog box.

2. From the `Select Group` drop-down list, select a group slot to configure (see figure 71, ❶).

3. From the `Select Control Type` panel (❷), expand a control type.

4. Choose which gain stage the control type affects.

5. From the `Available Group Members` panel, select the channels to be configured as group members (❸).

6. Click **Apply** (❹).
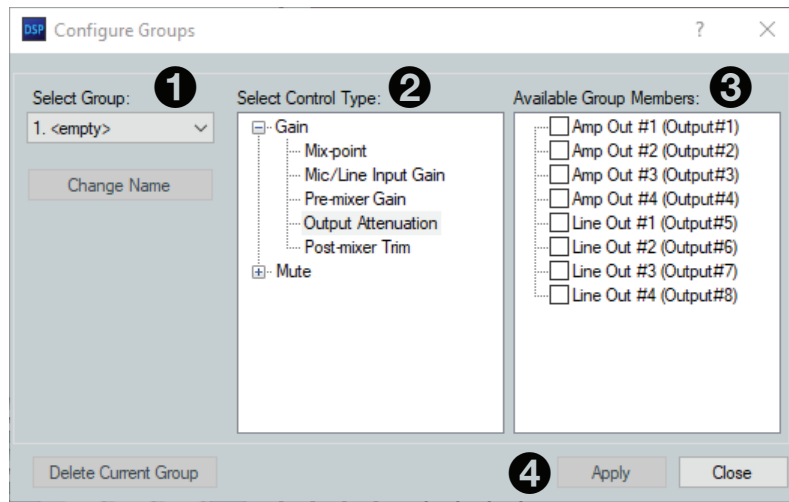
Figure 71.   Configure Groups Dialog Box

7. Confirm the group number and name from the `Confirm Group Details` dialog box (see figure 72, ❶).

8. Click **OK** to confirm all details and create the group (❷).
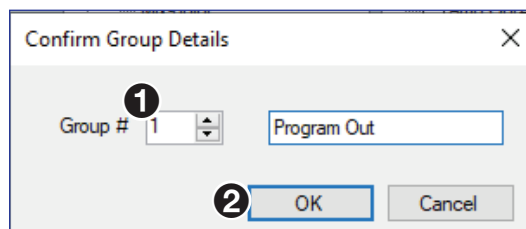
Figure 72.   Confirm Group Details Dialog Box

To edit an existing group:

1. Select **Tools** > **Configure Groups** to open the `Configure Groups` dialog box (see figure 73).

2. From the **Select Group** drop-down list (❶), select an existing group to edit.

3. From the `Select Control Type` panel (❷), expand a control type.

4. Choose which gain stage to edit.

5. From the `Available Group Members` panel (❸), select or deselect channels to be members of the group.

6. Click **Apply** (❹).

7. From the `Confirm Group Details` dialog box, the group number and group name can be edited (❺).

8. Click **OK** to confirm the group details (❻).

9. When the `Overwrite Group` dialog box opens, click **OK** to confirm the changes made to the group.

To edit only a group name:

1. Choose the group from the **Select Group** drop-down list (❶).

2. Click **Change Name** (❼).

3. From the `Change Group Name` dialog box, enter the new group name into its field (❺).

4. Click **OK** (❻).
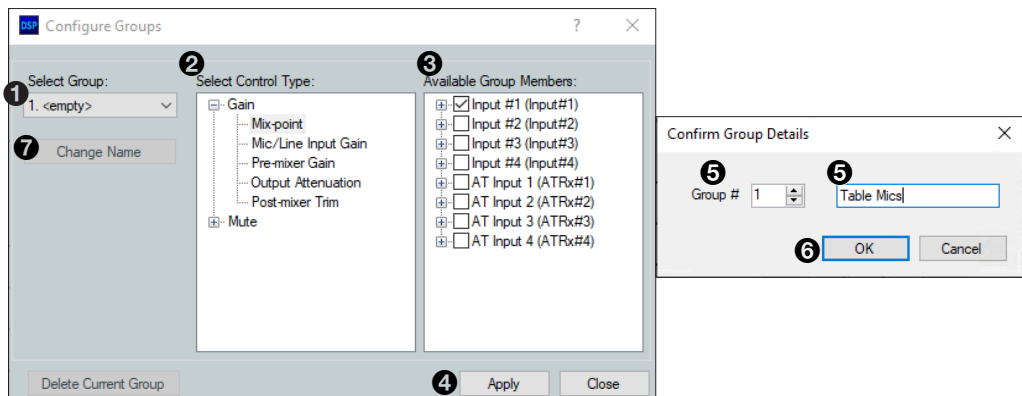
Figure 73.   Editing a Group

Device Manager

`Device Manager` is used to configure and switch between multiple devices in Live or Emulate mode within DSP Configurator (see figure 74). Devices can be placed and ordered in user-created folders for easily tracking systems with devices across multiple rooms. When `Device Manager` contains multiple devices, all device configurations are saved in a single DSP Configurator file.

Select **Tools** > **Device Manager** to open the `Device Manager` dialog box.
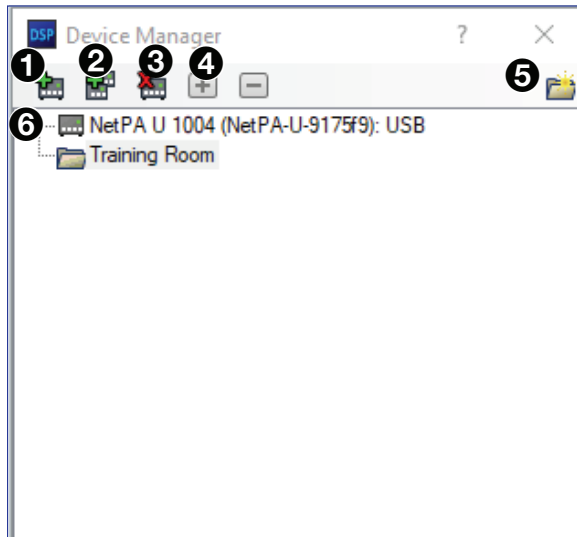
Figure 74.   Device Manager Dialog Box

➊ **Add Device Button** — Click the 🗔 button to open the DSP Configurator splash screen to select another device to be configured. As a device is chosen or connected, it is added to the Device Manager dialog box.

➋ **Clone Device Button** — Click the 🗔 button to clone the currently selected device. When a device is cloned, information within the device configuration file is also cloned.

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

➌ **Remove Device Button** — Click the 🗔 button to remove the currently selected device from the device manager. Select a folder and click this button to delete the folder and all devices it contains.

➍ **Expand and Collapse All Buttons** — Click the ➕ icon to expand all folders and show the devices it contains. Click the ➖ to collapse all folders.

➎ **New Folder Button** — Click the 🗀 button to create a new folder to drag a device into.

➏ **Device List Panel** — Lists the devices and folders in Live and Emulate mode. From this panel, devices can be clicked and dragged into folders, placed in custom order, and folders can be renamed. If the device is connected via LAN, the device IP is displayed. Double-clicking a device in this list initiates a pull (see **figure 88** on page 80).

The color of the icon next to a device name indicates `Live` or `Emulate` status, as well as whether the device is configured as a `Primary` or `Secondary EXP` device. Devices with color icons are in Live mode. Devices with grayed icons are in `Emulate` mode. Devices with blue icons are configured as `Secondary` units.

Managing Devices in Device Manager

To add a device:

1. Click **Tools** > **Device Manager** to open the **Device Manager** dialog box.

2. Click the **Add Device** button (see figure 75, ❶).

3. From the DSP Configurator splash screen drop-down, select the device to be added to **Device Manager** (see figure 76, ❶).

   Select **Connect...** to open the **Connect to device...** dialog box and directly connect with a device. When connecting directly, DSP Configurator performs a pull of the newly connected device configuration.

4. Click **OK** (❷).

Figure 75.   Adding a Device
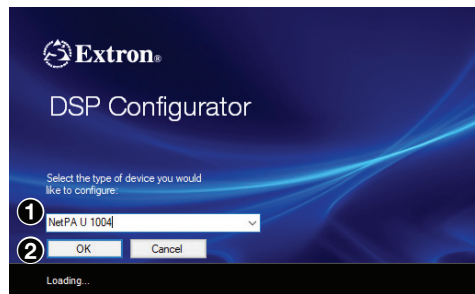
Figure 76.   Selecting a Device to be Added

To arrange devices into a folder:

1. From the **Device Manager** dialog box, click the **New Folder** button (see figure 77, ❶).

2. Enter a name for the folder. The text for the folder name is automatically highlighted and ready to be edited (❷).

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

3. Press **<Enter>**.

4. Click and drag devices over the folder name and release to insert the devices into a folder (❸).
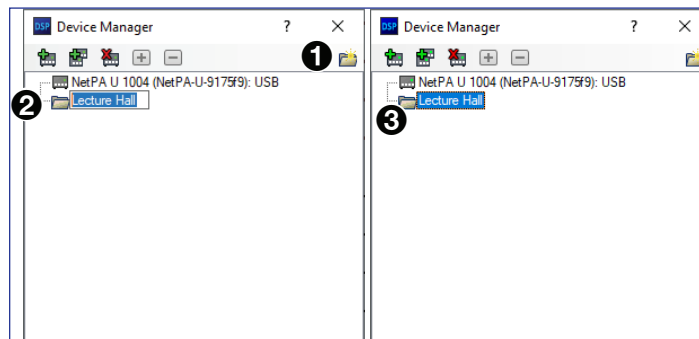
Figure 77.   Arranging Devices Into a Folder

Connect/Disconnect from Device

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

For detailed instructions on connecting to an amplifier, see **Connect to a NetPA Ultra Series Amplifier in Live Mode** on page 32. For detailed instructions on disconnecting from a NetPA Ultra Series amplifier, see **Exit Live Mode and Enter Emulate Mode** on page 34.

Firmware Loader

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

> **NOTE:** Extron Firmware Loader software must be installed on the host PC in order for it to be opened.

Downloading Firmware Updates

1. Go to **www.extron.com** and click the **Download** tab at the top of the page.

2. From the `Download` page, select the **`Firmware`** link near the middle of the page.

3. The **`Firmware`** link opens the firmware `Download Center` page. Click **`N`** from the alphabet list at the top of the page.

4. Select the **Download** link at the right side of the NetPA Ultra Series amplifier listing.

> **NOTES:**
> - You must have an Extron Insider account and log in to that account to download the firmware.
> - The firmware release notes provide details about the changes between different firmware versions. The file can be downloaded from the same page as the firmware.

5. Submit the required information and follow the on-screen instructions to start the download. Note where the file is saved.

6. From the save location, open the executable (`.exe`) file.

7. Follow the instructions on the firmware upgrade Installation Wizard screens to install the new firmware on the computer.

8. Once the installer has been run, the `Firmware Upgrade` dialog box opens, click **`Next`** to begin the installation process.

9. The terms of installation must be agreed to. Select the **`I accept...`** radio button and click **`Next`**.

10. An installation status dialog box opens that displays the completion status of firmware download and installation.

11. When the firmware is installed, the Firmware Upgrade dialog box displays that the installation is complete and the install location of the firmware file. By default, firmware is installed in either:

- `Program Files (x86) > Extron > Firmware > NetPA_U_1002 > vx.xx`

- `Program Files (x86) > Extron > Firmware > NetPA_U_1004 > vx.xx`

- If the **View the Release Notes** checkbox is checked, a PDF of the firmware release notes opens automatically. Likewise, if the **View the Update Install** checkbox is checked, a PDF of the update notes open automatically. The boxes are checked by default.

- Click **Finish** to close the dialog box.

12. Use Firmware Loader to update the amplifier firmware. Refer to the *Firmware Loader Help File* for more information in using the Firmware Loader software.

Organize Building Blocks

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

Select **Tools** > **Organize Building Blocks** to open the `Organize Building Blocks` dialog box.
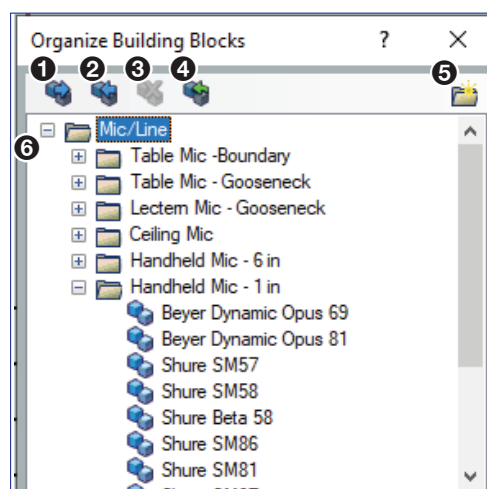
❶ Export Building Blocks File button

❷ Import Building Blocks File button

❸ Delete Building Block button

❹ **Restore Default Building Blocks button**

❺ **New Folder button**

❻ **Building Blocks panel**

Figure 78. **Organize Building Blocks Dialog Box**

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

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

❷ **Import Building Blocks File button** — Click the ⬇ button to browse the computer for building block files to import to DSP Configurator.

❸ **Delete Building Block button** — Click the ✖ button to delete the currently selected building block.

④ **Restore Default Building Blocks button** (see **figure 78** on the previous page) — If default building blocks that come installed with DSP Configurator are deleted, click the ![icon] button to restore them.

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

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

⑤ **New Folder button** — Click the ![icon] button to create a new folder that building blocks can be dragged into. Upon creation, a default folder name is highlighted and a custom name can be entered. Click a folder name twice to edit the folder name.

⑥ **Building Blocks panel** — This panel contains folders and building blocks. Click and drag building blocks to change their order or place them inside folders. Click a building block name twice to edit the building block name. Click a folder name twice to edit the name of the folder.

Device Settings

The `Device Settings` dialog box provides access to general settings of a NetPA Ultra Series amplifier. Select **Tools > Device Settings** to open the `Device Settings` dialog box. Device settings are only available when connected live to a device.

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

- **Unit Info**
- **Serial Settings**
- **Dante Device**

Unit Info

The `Unit Info` tab displays the unit name, firmware version, device model, device part number, and device MAC address.
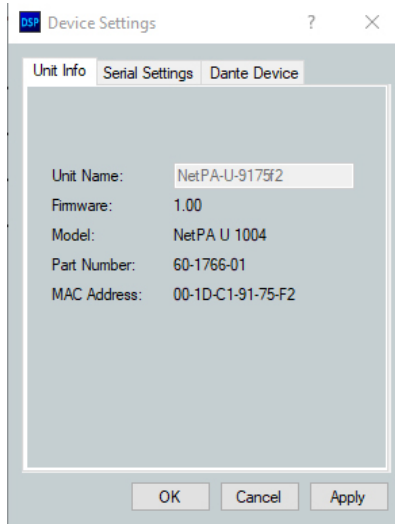
Figure 79.   Unit Info Tab

Serial Settings

The `Serial Settings` tab display the baud rate of the rear panel RS-232 port.
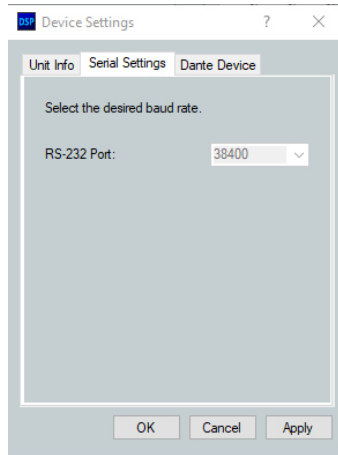
Figure 80.   Serial Settings Tab

Dante Device

This tab allows the NetPA Ultra Series Dante settings to be configured within DSP Configurator without opening Dante Controller.

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

Dante Device Name

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

To assign the Dante device name:

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

Dante Device Network Settings

To configure Dante network settings:

1. Select the **DHCP** or **Static IP** radio buttons. If using DHCP, the NetPA Ultra Series Dante interface is assigned an IP address by the DHCP server and Dante network configuration is complete. If **Static IP** is selected, proceed to step 2.
2. Enter a valid network configuration into the respective fields.
3. Click **Apply**.

To reboot the Dante interface:

• Click **Reboot Dante**. Only the Dante interface reboots, not the entire unit.

To refresh the device name and network configuration displayed:

• Click **Refresh** to have DSP Configurator refresh information from the NetPA Ultra Series Dante interface.

Options

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

Dante Controller

This section describes the NetPA Ultra Series network installation, configuration, and control using Dante Controller for Windows and covers the following topics:

- **Overview**
- **Downloading and Installing Dante Controller**
- **Configuring a NetPA Ultra Series Amplifier in Dante Controller**
- **Dante Controller Operation**
- **Dante Troubleshooting**

Overview

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

Up to 4 channels can be transmitted from a NetPA U 1004 amplifier (2 channels on the NetPA U 1002) to the Dante network and up to 4 channels can be received by a NetPA U 1004 amplifier (2 channels on the NetPA U 1002) from the Dante network. Audio signals are converted by NetPA Ultra Series amplifiers, processed and routed to the Line/AT Outputs, and transmitted onto the Dante network. Audinate recommends the Dante audio network be kept separate from other networks. However, the audio network can be shared with control traffic or unrelated data traffic. Audio channels can be unicast or multicast to make the best use of available bandwidth.

The NetPA Ultra Series amplifiers are receivers and transmitters for audio signals on a Dante Network. This is possible via the unit AT port. The amplifiers can be found anywhere on the Ethernet network and can be relocated without reconfiguring the unit or the network. Dante Controller can configure (but is not limited to) Dante channel routing and naming, device naming, obtaining network and device status, and setting the device IP address.

> **NOTES:**
> - The AT port can be set to 44.1 kHz, 48 kHz, 88.2 kHz or 96 kHz, however the signal going through the DSP is converted to and processed at 48 kHz.
> - For applications where the line and Dante outputs may be used independently during long periods of no amplifier activity, such as when the unit is being used as both an amplifier and off/on-ramp to the Dante network, the auto-standby timer must be disabled and the amplifier must not be forced into standby mode.

Downloading and Installing Dante Controller

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

To download 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**.

3. From the `Dante Controller` product page, click the blue **Download** button.

4. Select **Run** to run the Dante Controller installer. Select **Save** to save the install file to run at a later time.

5. If you choose to run the file, follow all prompts. If you saved the file, click the saved file to begin installation when ready.

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

Configuring a NetPA Ultra Series Amplifier in Dante Controller

Use a standard Ethernet cable to connect the NetPA Ultra Series to a Dante network via the rear panel AT port (see **Rear Panel Features** on page 15) and power the device.

Device Name

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

- Connect devices to the Dante network one at a time.

- Rename each device before making audio connections in Dante Controller.

- Rename each device with a unique and meaningful identifier.

- Rename each device before the next device is connected to the Dante network.

See **Renaming the NetPA Ultra Series Amplifier in Dante Controller** on the next page for renaming procedure.

> **ATTENTION:** It is essential that a Dante device be named before audio subscriptions with other devices are established. Existing subscriptions are removed when a device is renamed.
>
> **ATTENTION :** Il est essentiel qu'un appareil Dante soit nommé avant l'établissement des abonnements audio avec d'autres appareils. Les abonnements existants sont supprimés lorsqu'un appareil est renommé.

In Dante Controller, a device can be renamed to identify the device on the audio network. The default device name of the NetPA Ultra Series consists of the model name, followed by the last six characters of the Dante interface MAC address (for example, `NetPA-U-xxxxxx`). In addition to renaming the device, individual Transmitter (Tx) and Receiver (Rx) channels can be renamed.

Receiver and Transmitter Names

In addition to renaming a device, individual transmitter and receiver channels can be renamed in Dante Controller. Rename transmitter and receiver channels to reflect the location of the device or the purpose of the transmitter or receiver. Ensure transmitter and receiver channels are renamed before making audio connections between devices. See **Renaming a Receiver or Transmitter** on page 79 for renaming procedure.

Dante Controller Naming Conventions

- Device names follow Domain Name System (DNS) hostname rules. Legal characters are `A-Z`, `a-z`, `0-9`, and hyphen (-). Names must begin with a letter and cannot end with a hyphen (-).

- Dante Tx and Rx channel names (also known as labels) can be up to 31 characters in length. Label names are not case-sensitive. For example, `ANALOG OUT-1` and `analog out-1` are recognized as the same name. Unicode and non-roman characters are not supported.

- Tx and Rx channel labels can use any character except equals (=), period (.), or @.

- Tx and Rx channel labels must be unique on a device but do not need to be unique on the network.

Renaming the NetPA Ultra Series Amplifier in Dante Controller

> **NOTE:** Dante device naming can also be done via DSP Configurator (see **Device Manager** on page 68).

1. Ensure that the control computer and a single NetPA Ultra Series amplifier is connected to the same network.

2. From the control computer **Start** menu select:
   `All Programs > Audinate > Dante Controller > Dante Controller`

3. The `Dante Controller - Network View` screen opens. All Dante devices on the network are discovered and listed.

4. From the `Device` menu, select **Device View** or press **<Ctrl+D>** on the keyboard (see figure 81).
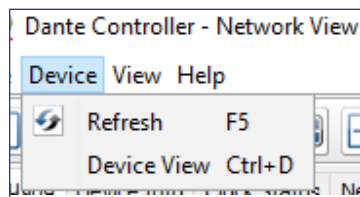
Figure 81.   Opening Device View

5. The `Dante Controller - Device View` dialog opens. Select the device being configured from the **(Select a Dante Device...)** drop-down list (see figure 82, ❶).

Figure 82.   Device View and Select a Dante Device Drop-Down

> **NOTE:** If there are multiple NetPA Ultra Series devices connected to the network that have not been renamed, obtain the Dante interface media access code (MAC) address of the desired device from the white label on the rear panel of the device in order to identify it in Dante Controller.

The `Device View` dialog populates with the selected **NetPA Ultra Series** information.
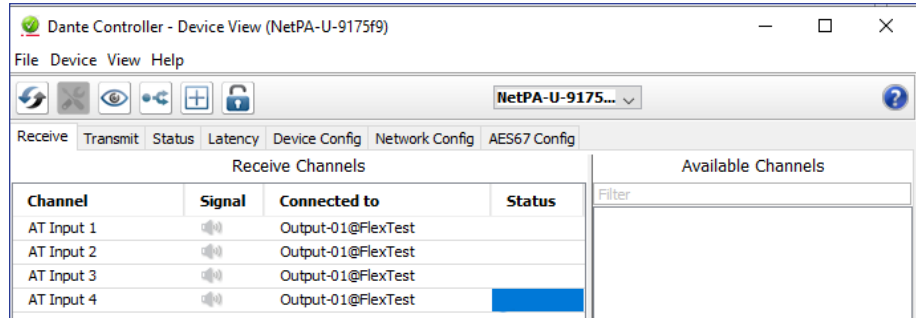
Figure 83.   Populated Device View Dialog Box

6. Click the `Device Config` tab (see figure 84, ❶) to open the `Device Config` page.

7. In the `Rename Device` panel, enter the new name of the device in the text field. No spaces are allowed in the name. Names should be significant identifiers. For example, enter **NetPAUAmplifier-MainRack** (❷).

8. Click **Apply** (❸).

A confirmation prompt opens.
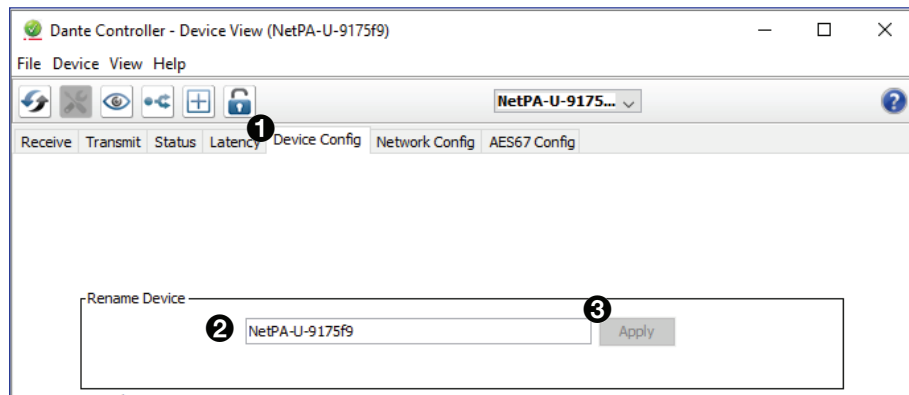
Figure 84.   Device Config Dialog, Rename Device

9. Click **Yes** (see figure 85, ❶) to confirm the new name, then close the `Device Configuration` dialog box. The new name is written to the Dante interface of the NetPA Ultra Series amplifier. Repeat as necessary for all devices.
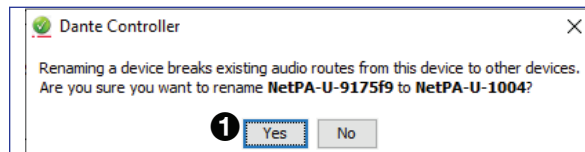
Figure 85.   Rename Device Confirmation Dialog Box

Renaming a Receiver or Transmitter

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

To view the receiver or transmitter channels in Dante Controller, click the plus (**+**) sign next to the receiver or transmitter device name to expand it. The plus (**+**) sign becomes a minus (**-**) sign when the device is expanded (see figure 86, ❶).
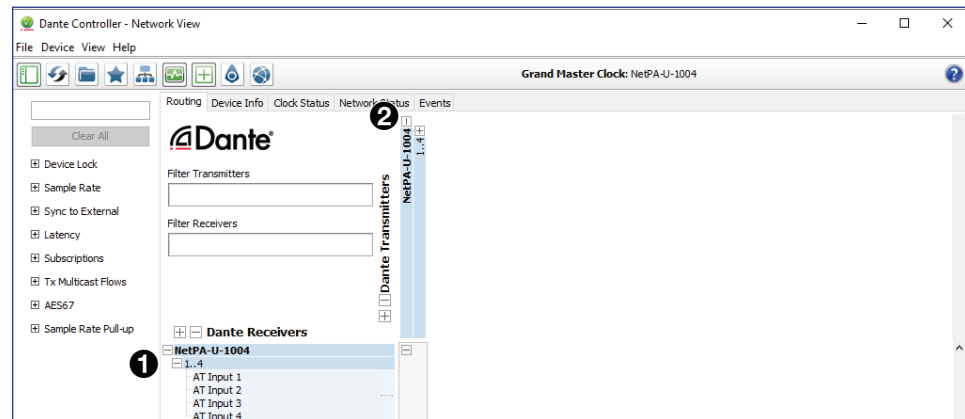
Figure 86.   Expanded Device View — Input and Output Names

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

Renaming a Receiver

The default names shown in the `Dante Receivers` column are extracted from the Dante interface of the connected device (see **figure 87**, ❶ on page 80). The NetPA Ultra Series receivers are labelled `AT Input 1` through `AT Input 4`. Follow the instructions below to rename a receiver.

To rename a NetPA Ultra Series receiver:

1. From the `Device` menu on the `Network View` screen, select **`Device View`**, or press **`<Ctrl+D>`** on the keyboard. The `Device View` dialog box opens.

2. From the **`(Select a Dante Device..)`** drop-down list, select the name of the desired NetPA Ultra Series amplifier (see **figure 87**, ❶).

3. On the `Device View` screen, select the **`Receive`** tab (❷).

4. Click on the name of the receiver to be renamed. The name becomes a text box with a cursor (❸).

5. Enter the new name (up to 31 characters) using any combination of letters, numbers, and special characters except for @, =, and . (period).

6. Press **`<Enter>`** on the keyboard to confirm the name, or click another channel text box.

7. Repeat steps 4 through 6 to rename additional receiver channels.

8. When finished renaming receivers, close the `Device View` dialog box.
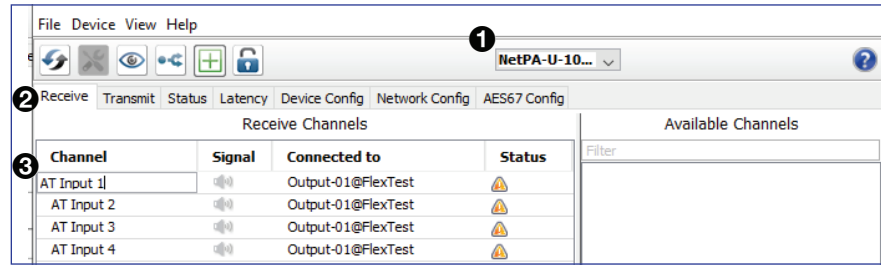
Figure 87.   Device View Screen — Renaming an Amplifier

Renaming a Transmitter

The default names shown in the `Dante Transmitters` column are extracted from the Dante interface of the connected device (see figure 87, ❶). The NetPA Ultra Series receivers are labelled `Line Output 1` through `Line Output 4`. Follow the instructions below to rename a transmitter.

To rename a NetPA Ultra Series transmitter:

1. From the `Device` menu on the `Network View` screen, select **Device View**, or press <**Ctrl+D**> on the keyboard. The `Device View` dialog box opens.

2. From the **(Select a Dante Device..)** drop-down list, select the name of the desired NetPA Ultra Series amplifier (see figure 88, ❶).

3. On the `Device View` screen, select the **Transmit** tab (❷).

4. Click on the name of the receiver to be renamed. The name becomes a text box with a cursor (❸).

5. Enter the new name (up to 31 characters) using any combination of letters, numbers, and special characters except for @, =, and . (period).

6. Press <**Enter**> on the keyboard to confirm the name, or click another channel text box.

7. Repeat steps 4 through 6 to rename additional receiver channels.

8. When finished renaming receivers, close the `Device View` dialog box.

Finding a Dante Device IP Address

To find the IP address of a Dante device, the name of the device is needed (see **Renaming the NetPA Ultra Series Amplifier in Dante Controller** on page 77).

> **NOTE:**   If the NetPA Ultra Series amplifier has not been renamed, its default name consists of the product name followed by a hyphen, plus the last 6 digits of the device MAC address (for example, `NetPA-U-xxxxxx`).

1. Open `Dante Controller`.

2. On the `Dante Controller-Network View` screen, click the **Device Info** tab (see figure 88, ❶).

3. On the `Device Info` page, locate the name of the NetPA Ultra Series in the `Device Name` column (❷). The IP address is located in the `Primary Address` column (❸). In the example, the IP address for the connected NetPA Ultra Series is `192.168.254.254`.
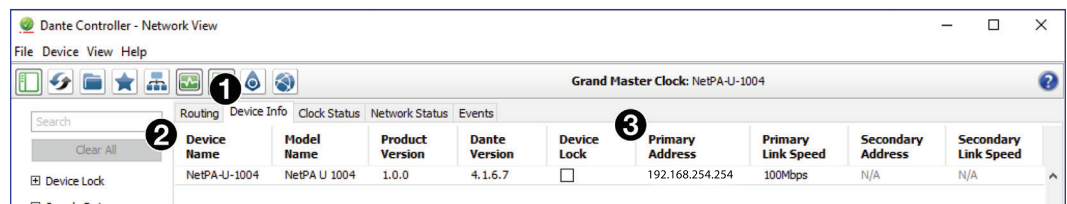
Figure 88.   Device Info Page

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. Each output has to be routed independently.

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.

Dante Routing Operation

Dante Controller is used for all network signal routing of transmitters and receivers for Dante-enabled devices. The NetPA Ultra Series transmitters and receivers are available in Dante Controller for routing to other Dante devices.

Routing Devices

After the NetPA Ultra Series amplifier is configured, the channels can be routed to the other Dante devices on the audio network. Channels transmitted to the network or received from the network are routed using the Dante Controller `Routing` tab on the `Network View` page (see **figure 89** on page 82). The transmitters, listed horizontally along the top of the screen, and the receivers, listed vertically down the left side, form a matrix whose intersections are the connection points between the receivers and transmitters.

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

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

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

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

Creating Subscriptions Between Devices

1. Ensure the control computer and NetPA Ultra amplifier are connected to the same network.

2. From the start menu select:
   All Programs > Audinate > Dante Controller > Dante Controller

   The `Dante Controller - Network View` screen opens.

   Dante Controller auto-discovers Dante devices on the network and advertises itself to allow other Dante-enabled devices to communicate with it. Transmitters connect to receivers using the subscription matrix.
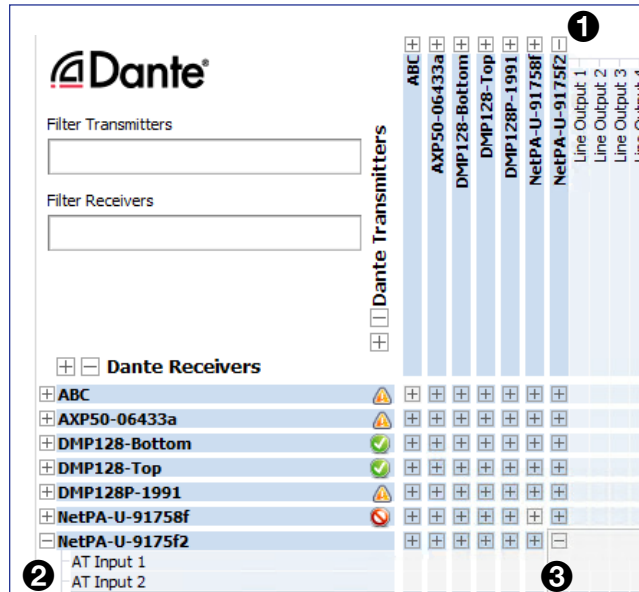
Figure 89. Routing Tab of Network View Screen

3. To show the transmitters of a Dante device, click the **+** box next to the desired device in the `Dante Transmitters` panel, such as `NetPA-U-9175f2` (❶). The plus (**+**) changes to a minus (**–**) sign when the device expands.

4. To show the receivers of a Dante device, click the **+** box next to the desired device in the `Dante Receivers` panel, such as `NetPA-U-9175f2` (❷).

5. Click the intersection of the desired subscription between a transmitter and a receiver (❸).

   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 connect to only one transmitter. A transmitter can connect to multiple receivers.

Disconnecting Inputs from Outputs

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

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

Dante Troubleshooting

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

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

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

Simplifying the Network for Troubleshooting

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

1. Bypass network switches by connecting two Dante-compatible units, such as a DMP 128 Plus AT and a NetPA U 1004, via their AT ports.

2. Connect the PC to an unused AT port with an Ethernet cable.

3. Use Dante Controller to check if the issue was resolved before moving on to network interface troubleshooting.

4. If the issue is resolved, add connections and hardware one at a time, checking for proper operation after each addition, until the point of failure is discovered (typically a bad cable or invalid redundant configuration).

Troubleshooting the Network Interface

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

1. Click the **Choose a Dante Interface** icon (see figure 90, ❶). The `Configure Dante Interfaces` dialog box opens.
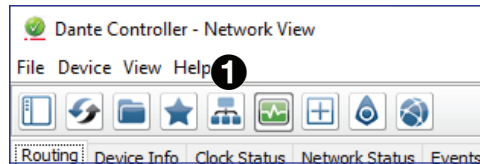
Figure 90.   **Choose a Dante Interface Icon**

Be certain the correct LAN connection is selected (the PC LAN port that is physically connected to the AT network) and note the IP address.
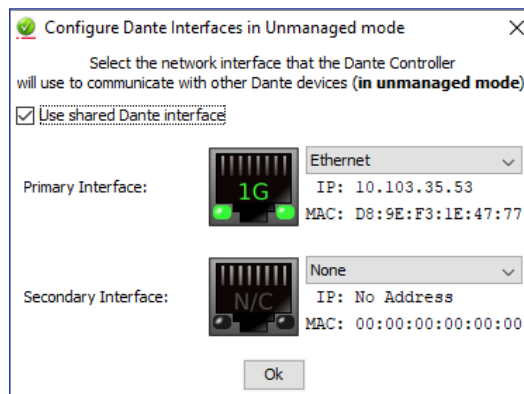
Figure 91.   **Configure Dante Interfaces Dialog Box**

2. If it is on, turn off the PC wireless adapter. Disable all connections except the LAN port connected to the Dante network (verify this is the correct port by checking the IP address shown in the `Configure Dante Interfaces` dialog).

3. Turn off all anti-virus and firewall software on the computer.

4. Enable DHCP on the remaining network connection. This forces the computer to acquire an IP address from the Dante interface.

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

Restarting Dante Controller

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

- Click the **Help** icon in the upper-right corner of the `Network View` screen (see figure 92).

- Select **Help**, then **Online Help** or **Offline Help** from the menu.

- Press the <**F1**> key on the computer keyboard for online help or <**Shift+F1**> for offline help.
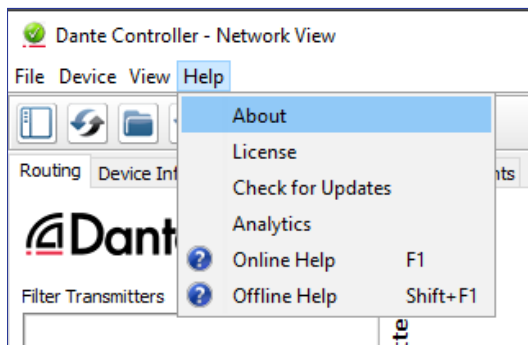
Figure 92.   Accessing the Dante Help File

Remote Control and Configuration

This section describes how to control the NetPA Ultra Series power amplifiers with SIS commands and covers the following topics:

- **Connection Options**
- **Host-to-Device Communications**
- **Using the Command and Response Tables**
- **Symbol Definitions**
- **Command and Response Table**
- **Object ID (OID) Number Tables**

Connection Options

The NetPA U 1002 and NetPA U 1004 can both be remotely connected via a host computer or other device (such as a control system) attached to the rear panel RS-232 port, AT port, or the USB Config port.

The NetPA Ultra Series amplifiers can be set up and controlled using SIS commands or DSP Configurator software (see **Rear Panel Features** on page 15) for details on the configuration and control port connections). For information on DSP Configurator, (see **Accessing the DSP Configurator Help File** on page 29).

SIS Commands can be sent to Dante audio interface devices through a DMP Plus device. To learn how to do this, visit **www.extron.com** and read any of the user guides from the DMP Plus series of matrix processors, such as the **DMP 128 Plus**.

SIS commands can be executed using the Extron DataViewer application available from **www.extron.com**. The host computer issuing the commands can be connected via the following connections:

- **RS-232 Port**
- **USB Config Port**

RS-232 Port

The NetPA Ultra Series has a serial port that can be connected to a host device such as a computer running either the DataViewer or HyperTerminal utilities. The port makes serial control of the NetPA Ultra Series possible.

The NetPA Ultra Series amplifiers use the following baud rate and protocols:

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

> **NOTES:**
> - The rear panel configuration port requires 38400 baud communication. This speed is higher than most other Extron products. The NetPA Ultra Series control software automatically sets the connection for the appropriate speed. When using DataViewer or similar application, make sure the host PC or control system is set for 38400 baud.
> - See **Rear Panel Features** on page 15 for additional details on connecting to the RS-232 port.

AT Port

The NetPA Ultra Series amplifiers can be connected to a Dante network. SIS Commands can be sent to Dante audio interface devices through a DMP Plus device. To learn how to do this, visit **www.extron.com** and read any of the user guides from the DMP Plus series of matrix processors, such as the DMP 128 Plus.

The NetPA Ultra Series amplifier Dante port defaults are as follows:

• DHCP: ON

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

• **Crossover cable** — Direct connection between the computer and the NetPA Ultra Series amplifier.

• **Straight-through (Patch) cable** — Connection of the NetPA Ultra Series amplifier to an Ethernet LAN.

Pins:
12345678

Insert Twisted Pair Wires

RJ-45 Connector

Crossover Cable (for direct connection to a PC)				Straight-through Cable (for connection to a switch, hub, or router)			
End 1		**End 2**		**End 1**		**End 2**	
Pin	**Wire Color**	**Pin**	**Wire Color**	**Pin**	**Wire Color**	**Pin**	**Wire Color**
1	white-orange	1	white-green	1	white-orange	1	white-orange
2	orange	2	green	2	orange	2	orange
3	white-green	3	white-orange	3	white-green	3	white-green
4	blue	4	blue	4	blue	4	blue
5	white-blue	5	white-blue	5	white-blue	5	white-blue
6	green	6	orange	6	green	6	green
7	white-brown	7	white-brown	7	white-brown	7	white-brown
8	brown	8	brown	8	brown	8	brown
T568A		**T568B**		**T568B**		**T568B**	

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.

A cable wired the same at both ends is called a "straight-through" cable because no pin/pair assignments are swapped.

Figure 93.   RJ-45 Ethernet Connector Pin Assignments

USB Config Port

The NetPA Ultra Series has a rear panel USB port that can be connected to a computer as a host device running the DataViewer utility for control of the device. Once a connection is established, SIS programming can begin (see **Host-to-Device Communications** on the next page).

Verbose Modes

To receive change notices, the session must be in verbose mode 1 or 3 (see **Set verbose mode** on page 90). In verbose mode 1 or 3, the unit reports changes in messages that resemble SIS command responses.

Tagged and Untagged Responses

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

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

• **Untagged (verbose 0 or 1)**: 600←, just the gain value with no other information.

• **Tagged (verbose 2 or 3)**: DsG40000*600←, the type of query sent, the OID queried, and the gain value.

Host-to-Device Communications

NetPA Ultra Series-initiated Messages

The NetPA Ultra Series initiates messages under specific conditions. No response is required for the host. The NetPA Ultra Series-initiated messages are listed below.

Copyright Message

The NetPA Ultra Series initiates the following copyright message when it is first powered on or when a USB connection to the NetPA Ultra is made for the first time since the amplifier powered up.

`(c) Copyright 2020, Extron Electronics, {model}, Vn.nn, 60-nnnn-nn↵`

- *Vn.nn* is the firmware version number.
- *{model}* is the full model name, NetPA U 1004, for example.
- *60-nnnn-nn* is the NetPA Ultra Series amplifier part number.

The NetPA Ultra Series amplifier sends the boot and copyright messages under the following circumstances:

- If the NetPA Ultra Series is off and RS-232 connection is already set up (the source PC is cabled to the NetPA Ultra Series and a serial communication program such as DataViewer is open), the connected unit sends these messages via RS-232 when first powered on.
- The NetPA Ultra sends the boot and copyright messages when a USB connection to the NetPA Ultra is made for the first time since the amplifier powered up.

Using the Command and Response Tables

SIS commands consist of a string (one or more characters per command field). No special characters are required to begin or end a command sequence. When a NetPA U amplifier determines a command is valid, it executes the command and sends a response to the host device. All responses end with a carriage return and a line feed, signaling the end of the response character string.

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

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

Figure 94.   ASCII to Hex Conversion Table

The Command and Response tables list valid ASCII commands, the NetPA Ultra Series responses to the host, and descriptions of the command functions with the results of executing the commands.

Upper and lower case text can be used interchangeably except where noted.

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

Error Responses

When the NetPA Ultra Series is unable to execute the command, it returns an error response to the host. The error response codes and their descriptions are as follows:

E10 —	Unrecognized command	E18 —	System/command timed out
E12 —	Invalid port number	E24 —	Busy
E13 —	Invalid parameter	E25 —	Device not present
E14 —	Not valid for this configuration	E30 —	Hardware Failure (followed by colon and descriptor #)
E17 —	Invalid command for signal type		

Symbol Definitions

- •   =   Space
- ↵   =   Carriage return with line feed
- ←   =   Carriage return with no line feed
- | =   Pipe (vertical bar) character. For URL-encoded commands, has the same function as ←.
- Esc   =   Escape
- W   =   For URL-encoded commands, has the same function as Esc
- *   =   Asterisk character (which is a command character, not a variable)

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

Command and Response Table

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Generic Hardware Setup and Access			
Query Part Number	N	60-1766-01↵(1004) 60-1766-02↵(1004-70V) 60-1766-12↵(1004-100V) 60-1767-01↵(1002) 60-1767-02↵(1002-70V) 60-1767-12↵(1002-100V)	Pno 60-1766-01↵ Pno 60-1766-02↵ Pno 60-1766-12↵ Pno 60-1767-01↵ Pno 60-1767-02↵ Pno 60-1767-12↵
Query Model Number	1I	NetPA•U•1004 NetPA• U•1004-70V NetPA•U•1004-100V NetPA• U•1002 NetPA• U•1002-70V NetPA• U•1002-100V	Inf01*NetPA•U•1004↵ Inf01*NetPA•U•1004-70V↵ Inf01*NetPA•U•1004-100V↵ Inf01*NetPA•U•1002↵ Inf01*NetPA•U•1002-70V↵ Inf01*NetPA•U•1002-100V↵
Query Model Description	2I	100•watt•4•Channel•low • impedance•amplifier•with• DSP•and•Dante↵ (1004) 100•watt•4•Channel•70 • volt •amplifier•with•DSP•and•Dante ↵ (1004-70V) 100•watt•4•Channel•100•volt• amplifier•with•DSP•and Dante↵ (1004-100V) 100•watt•2•Channel•low• impedance•amplifier•withDSP• Dante↵(1002)	Inf02*100•watt•4•Channel•low• impedance•amplifier•with•DSP•and• Dante↵(1004) Inf02*100•watt•4•Channel•70•volt •amplifier•with•DSP•and•Dante↵ (1004-70V) Inf02*100•watt•4•Channel•100•volt •amplifier•with•DSP•and•Dante↵ (1004-100V) Inf02*100•watt•2•Channel•low• impedance•amplifier•with•DSP•and• Dante↵(1002)
		100•watt•2•Channel•70•volt• amplifier•with•DSP •and Dante ↵(1002-70V) 100•watt•2•Channel•100•volt• amplifier•with•DSP•and Dante↵ (1002-100V)	Inf02*100•watt•2•Channel•70 • volt • amplifier•with•DSP•and• Dante↵(1002-70V) Inf02*100•watt•2•Channel•100•volt • amplifier•with•DSP•and•Dante↵ (1002-100V)
Query Firmware Version	Q	<version>↵	Ver01*<version>↵
Query Firmware Version (w/patch)	*Q	<version>↵	Bld*<version>
Query embedded OS type/version	14Q	<embedded OS version>↵	Ver14*<embedded OS version>↵
Query build and any special-build text	20Q	<version info + build and any special-buid text>↵	Ver20*<version info + build and any special-buid text>↵
Query detailed Firmware Version	0Q	X199↵	Ver00 * X199↵
KEY:			
X199	<bootloader version> - <factory code version> - <updated code version>		

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Generic Hardware Setup and Access (continued)			
Set verbose mode	`Esc` `X22` CV ←	Vrb `X22` ↵	Vrb `X22` ↵
View verbose mode	`Esc` CV ← Verbose mode 2/3	`X22` ↵	Vrb `X22` ↵
Reboot Dante Device	`Esc` BEXPD ←	ExpdB ↵	Reboot only the Dante interface. NetPA device remains on during Dante reboot.
Query Current Status	`Esc` KEXPD ← Verbose mode 2/3	`X16` ↵	ExpdK `X16` ↵

KEY:

`X16`	=	**Soft limit High value**		
`X22`	=	**Verbose/Response Mode**	0 = clear 1 = verbose mode	2 = tagged response for queries 3 = verbose mode and tagged responses for queries

Network Commands

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Set DHCP On	`Esc` D1EXPD ←	ExpdD1 ↵	E13 is returned if DHCP is already enabled. DHCP must be off in order for this command to be accepted as valid (DHCP is enabled by default). Dante device reboot is also required for the command to take effect.
View DHCP status	`Esc` DEXPD ← Verbose mode 2/3	`X15` ↵	ExpdD `X15` ↵
Set Dante IP/subnet/ gateway	`Esc` I `X3` * `X4` * `X5` EXPD ←	ExpdI `X3` * `X4` * `X5` ↵	Using this command automatically turns DHCP off. Dante device must be rebooted for new IP configuration to take effect (see the Reboot Dante device command in the previous page)

KEY: Baud Rate: 38400

`X3`	=	**IP address**	xxx.xxx.xxx.xxx	
`X4`	=	**Subnet mask**	xxx.xxx.xxx.xxx	
`X5`	=	**Gateway IP**	xxx.xxx.xxx.xxx	
`X15`	=	**DHCP status**	1 = enabled (**default**),	0 = disabled

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
View IP/subnet/gateway	`Esc` IEXPD ← Verbose mode 2/3	`X3` * `X4` * `X5` ↵	ExpdI `X3` * `X4` * `X5` ↵
View MAC address	`Esc` HEXPD ←	`X6` ↵	ExpdH `X6` ↵
View Dante device name	`Esc` NEXPD ←	`X7` ↵	ExpdN `X7` ↵

KEY: Baud Rate: 38400

`X3`	=	**IP address**	xxx.xxx.xxx.xxx
`X4`	=	**Subnet mask**	xxx.xxx.xxx.xxx
`X5`	=	**Gateway IP**	xxx.xxx.xxx.xxx
`X6`	=	**MAC address**	xx-xx-xx-xx-xx-xx
`X7`	=	**Dante device name**	Dante device name Device names follow Domain Name System (DNS) hostname rules. Legal characters are A-Z, a-z, 0-9, and hyphen (-). Names must begin with a letter and cannot end with a hyphen (-)

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Standby Commands			
Disable standby	`Esc`0PSAV⏴	Psav`X121`↵	

> **NOTE:** Turns off standby mode.

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Enable auto standby (Default)	`Esc`1PSAV⏴	Psav`X121`↵	

> **NOTE:** The amplifier enters auto power save mode if there is no active signal for 25 minutes. Whenever this command is sent, the standby timer restarts and the amplifier goes into power save state.

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Force standby on	`Esc`2PSAV⏴	Psav`X121`↵	

> **NOTE:** Unit goes into standby and stays in standby until PSAV is set to another mode.

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Query standby power mode, power save state	`Esc`PSAV⏴ Verbose mode 2/3	`X121`*`X122`↵	Psav`X121`*`X122`↵

> **NOTES:**
> - When the amplifier is first powered up, the amplifier will be in Psav1*1.
> - Unsolicited responses will be sent out when the unit goes into or out of standby mode.
> - Line outputs are disabled when in standby mode.
> - Standby power mode should be set to '0' if this amplifier is to be used as an off-ramp.
> - Standby Priority: The standby contact closure port has the highest priority and supersedes SIS and the timer.
>   SIS is the next highest priority and supersedes the timer.
>   The timer has the lowest priority and can be overruled by contact closure and/or SIS.

KEY:

`X121`	=	**SIS Standby power mode**	0 = auto standby timer disabled	2 = standby triggered (SIS triggered)
			1 = (Default) auto standby timer running, but not triggered	
`X122`	=	**Power save state**	0 = unit is active and auto standby timer disabled	2 = standby triggered (SIS triggered)
			1 = (Default) auto standby timer running, but not triggered)	3 = standby triggered (timer triggered)
			4 = standby triggered (contact closure triggered	

> **NOTE:** When the standby contact closure is shorted, the unit goes into mode 4 and cannot come out of mode 4 until the port is no longer shorted. Once the short is removed the unit returns to its last known standby mode and the timer resets.

> **NOTE:** Unsolicited responses will be sent out when the unit goes into or out of standby mode.

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Naming			
Write Name			
Write input name	`Esc` `X1` , `X2` NI ←	Nmi `X1` , `X2` ↵	
Write output name	`Esc` `X1` , `X2` NO ←	Nmo `X1` , `X2` ↵	
Write preset name	`Esc` `X3` , `X4` NG ←	Nmg `X3` , `X4` ↵	
Write group master name	`Esc` N `X14` *name GRPM ←	GrpmN `X14` *name ↵	
View Name			
View input name	`Esc` `X1` NI ← Verbose mode 2/3	`X2` ↵ Nmi `X1` , `X2` ↵	
View output name	`Esc` `X1` NO ← Verbose mode 2/3	`X2` ↵ Nmo `X1` , `X2` ↵	
View group master name	`Esc` N `X14` GRPM ← Verbose mode 2/3	name ↵ GrpmN `X14` *name ↵	
Presets			
Recall Preset	`X3` .	Rpr `X3` ↵	

KEY:

`X1`	=	**Input/output number**	**Input:**	1 = Analog Line Input 1 2 = Analog Line Input 2 3 = Analog Line Input 3 4 = Analog Line Input 4	**Output:**	1 = Amplifier Output 1 2 = Amplifier Output 2 3 = Amplifier Output 3 4 = Amplifier Output 4	5 = Analog Line Output 1 6 = Analog Line Output 2 7 = Analog Line Output 3 8 = Analog Line Output 4

`X2` = **Input/output name** — 12 characters. Illegal characters: ~ , @ = ` [ ] { } < > ` " ; : | \ and ?

`X3` = **Preset number** — 1 to 8

`X4` = **Preset name** — Illegal characters: ~ , @ = ` [ ] { } < > ` " ; : | \ and ?

`X14` = **Group master number** — 1 through 32

Audio Level Control

NOTE: The command format is the same regardless of the control point, but the acceptable gain range varies depending on the control point.
- The mic/line input gain range is -18 dB to +60 dB in 0.1 dB increments.
- The pre-mixer gain and virtual return gain range is -100 dB to +12 dB in 0.1 dB increments.
- The post-mixer gain and virtual return gain range is -12 dB to +12 dB in 0.1 dB increments. Post-mixer trim cannot be muted
- The output attenuation gain range is -100 dB to 0 dB in 0.1 dB increments.
- All responses are shown in Verbose Mode 2 or 3.

Set gain level	`Esc` G `X72` * `X73` AU ←	DsG `X72` * `X73` ↵	Set gain on OID `X72` to a value of `X73` dB.
Read gain level	`Esc` G `X72` AU ←	DsG `X72` * `X73` ↵	Read gain on OID `X72` to a value of `X73` dB.

KEY:

`X72` = Target OID — See **Object ID (OID) Number Tables** on page 99.

`X73` = Gain value — Levels use a 10x multiplier system with no decimal spaces. For example, a level of +10.4 dB would be entered as 104 and a level of -3.2 dB would be entered as -32

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Audio Mute			
Audio mute	`Esc` M `X72` *1AU ←	DsM `X72` *1 ↵	Mute audio at `X72`.
Audio unmute	`Esc` M `X72` *0AU ←	DsM `X72` *0 ↵	Unmute audio at `X72`.
Mute status	`Esc` M `X72` AU ←	DsM `X72` * `X74` ↵	

Audio Group Master Commands

> **NOTES:**
> - For information on configuring groups, see **Groups** on page 65.
> - A group must have assigned members for these commands to have an effect.
> - For `X74`, a positive (+) value is assumed unless a negative (-) value is specified.
> - If entering an `X74` value outside the valid range for the group or outside the soft limits, the amplifier responds with:
>   - **For gains**: The maximum upper/lower range of the soft limit or maximum upper/lower range of the group.
>   - **For mutes**: E13 error (invalid parameter `X74`, `X14`, and `X16` values can be sent without leading zeroes.

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Set a group fader value	`Esc` D `X14` * `X16` GRPM ←	GrpmD `X14` * `X16` ↵	Set a group fader to a value of `X16`.
Example:	`Esc` D2*-239GRPM ←	GrpmD2*-293 ↵	Set group 2 fader control to -29.3 dB.
Increment a group fader value	`Esc` D `X14` * `X20` +GRPM ←	GrpmD `X14` * `X16` ↵	Increase the level of `X14` by `X20` dB.
Example:	`Esc` D2*30+GRPM ←	GrpmD2*-263 ↵	Raise the group 2 fader 3 dB from -29.3 dB (set in example above) to -26.3 dB.
Decrement a group fader value	`Esc` D `X14` * `X20` –GRPM ←	GrpmD `X14` * `X16` ↵	Decrease the level of the `X14` group fader by `X20` dB.
View the group fader value	`Esc` D `X14` GRPM ← Verbose mode 2/3	`X16` ↵ GrpmD `X14` * `X16` ↵	
Mute a group	`Esc` D `X14` *1GRPM ←	GrpmD `X14` *1 ↵	Mute all blocks in group `X14`.
Unmute a group	`Esc` D `X14` *0GRPM ←	GrpmD `X14` *0 ↵	Unmute all blocks in group `X14`.
View a group mute value	`Esc` D `X14` GRPM ←	GrpmD `X14` * `X74` ↵	For group masters, `X74` is always expressed as an unsigned or negative value.
Set soft limits	`Esc` L `X14` * `X17`upper* `X17`lower GRPM ←	GrpmL `X14` * `X17` * `X17` ↵	Set the groups soft limits to `X17`upper and `X17`lower.
Example:	`Esc` L2*60*-60GRPM ←	GrpmL2*60*-60 ↵	Set the upper soft limit for the group 2 fader to +6.0 dB and the lower limit to -6.0 dB.
View soft limits	`Esc` L `X14` GRPM ← Verbose mode 2/3	`X17` * `X17` ↵ GrpmL `X14` * `X17` * `X17` ↵	.

> **KEY:**
>
> | | | | |
> |---|---|---|---|
> | `X14` | = | **Group master number** | 1 through 32 |
> | `X16` | = | **Group fader setting** | dB value in 0.1 dB steps, using negative numbers and eliminating decimal places using a 10x multiplier. -100.0dB to +80.0 dB is represented by -1000 to 800. The valid range depends on the type of gain or trim block assigned to the group number (`X14`). |
> | `X17` | = | **Group fader soft limit** | dB value in 0.1 dB steps. Gain uses 10x multiplier (+10 dB = 100+). |
> | `X72` | | **Target OID** | See Object ID (OID) Number Tables on page 97. |
> | `X74` | = | **Mute** | 0 = Unmute   1 = Mute |

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Audio Group Master Commands (continued)			
View group type	`Esc` P `X14` GRPM ←	`GrpmP` `X14` * `X67` ↵	
View group members	`Esc` O `X14` GRPM ←	`GrpmO` `X14` * `X55`¹ * `X55`² * . . . * `X55` ↵	`X58` is the control address. In verbose modes 0 and 1, the response is simplified to `X55`¹ * `X55`² * . . . * `X55`ⁱ ↵

KEY:

`X55`	=	**Target OID:**	See Object (OID) Number Tables on page 61	
`X14`	=	**Group master number:**	1 through 32	
`X67`	=	**Group type**	6 = Unmute	12 = Mute

Resets

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Reset Status	`Esc` `X999` ZSTS ←	`Zsts` `X999` ↵	Reset the "x" flag of a selected status from 1 to 0. Setting (variable `X999`) to "0" resets all statuses.
Reset presets and names	`Esc` ZG ←	`Zpg` ↵	
Reset individual preset	`Esc` `X311` ZG ←	`Zpg` `X311` ↵	
System Reset (Factory Default	`Esc` ZXXX ←	`Zpx` ↵	

NOTES: Returns everything but the Dante settings to factory default conditions.

The following changes take place:

- Mix-points are set to unity gain (0 dBFS) and the following connections are made:
- AT input 1 is routed to amp output 1 and line output 1
- AT input 2 is routed to amp output 2 and line output 2
- AT input 3 is routed to amp output 3 and line output 3
- AT input 4 is routed to amp output 4 and line output 4
- All inputs, gain blocks, and line output attenuators are unmuted and set to unity gain.
- Trim blocks are set to unity gain; all amplified output attenuators are unmuted and set to -24 dB.
- Any inserted or active DSP is removed; all preset and group master memory is cleared.
- Status monitoring unsolicited responses are turned off.
- Standby timer is enabled; units not in standby.

KEY:

`X311`	=	**Preset**	# [8 max]
`X999`	=	**Status**	0 = Resets all "x" flags from 1 to 0; 53, 54, 55, 57, 58, 60, 61, and **64** = Resets the specific ##STAT's "x" flag(s) from one to zero.

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Status			
Unsolicited responses are triggered whenever there is a change in status. Each status, when polled, gives the status at the time of polling.			
NOTES: • Unsolicited responses are disabled by default for status commands that are capable of sending unsolicited responses. Unsolicited responses can be configured with the `Esc`M`X104`*`X105`NTFY← command. • See View fault statuses of system below for more detail on the various fault statuses.			
Monitoring Configuration	`Esc`M`X104`*`X105`NTFY←	NtfyM`X104`*`X105`↵	NtfyM`X104`*`X105`↵
Configures which monitoring commands can report back unsolicited responses on which port.			
View Monitoring Configuration	`Esc`MNTFY←	`X104`*`X105`↵	NtfyM`X104`*`X105`↵

KEY:

`X104` = **Monitoring configuration (4-digits)**

nBasicnDigital clipnOverloadnSignal presence

n = 1 or 0   1 = enabled   0 = disabled   (Default = 0000)
Enabled: Unsolicited responses are sent out when there is a change in status.
Disabled: Unsolicited responses are disabled.

Basic monitoring includes
- System over temp
- DC protect
- Output Thermal limiting
- Standby status
- Output open circuit
- Main power supply status
- Loss of AC

`X105` = **Port**   0 = All port (**Default**)   1 = Dante (AT)   2 = RS-232   3 = USB

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Status (continued)			
View internal operating temperature status in °C	`Esc`20STAT← Verbose mode 2/3	`X91`↵ 20Stat`X91`↵	

> **NOTE:** This indicates an internal temperature in the amplifier.

Command Function	SIS Command	Response	Additional Description
View fault statuses of system	`Esc`32STAT← Verbose mode 2/3	`X92`*y1^1...y1^n↵ 32Stat`X92`*y1^1...y1^n↵	

> **NOTE:** `X92` gives an overview of the current status of the amplifier system and channels. Rather than ping every `Esc`##STAT← command, this command gives an overview of the current status of the system and channels.

KEY:

`X91` = xxx (degrees Celsius) Internal Temperature

`X92` = **Global Fault Status (five digits)** — $_n$System Overtemp$_n$DC Protect$_n$Loss of AC$_n$Power Supply Fault$_n$Standby Status

System Overtemp (53STAT):   0 = Not or never detected   1 = No longer detected   2 = Detected now
Caution: Amplifier functionality has been modified to protect itself.

DC Protect (54STAT):   0 = Not or never detected   1 = No longer detected   2 = Detected now
Service: This may not be a recoverable error; unit may need to be serviced.

Loss of AC (60STAT):   0 = Not or never detected   1 = No longer detected   2 = Detected now
Error: Amplifier, in part or as a whole, has shut down or is misconnected.

Power Supply Fault (61STAT):   0 = Not or never detected   1 = No longer detected   2 = Detected now
Error: Amplifier, in part or as a whole, has shut down or is misconnected.

Standby Status: 0 = unit is active and auto standby timer disabled   3 = standby triggered (timer triggered)
1 = auto standby timer running, but not triggered (default)   4 = standby triggered (contact closure triggered)
2 = standby triggered (SIS triggered)

> **NOTE:** When the standby contact closure is shorted, the unit goes into mode 4 and cannot come out of mode 4 until the port is no longer shorted. Once the short is removed, the unit goes back to its last known standby mode and the timer resets

Status: Noteworthy change made to amplifier operation

`Y1` = **Channel Fault Status (five digits)** — $_n$Signal presence$_n$Overload$_n$Output thermal limiting$_n$Output open circuit$_n$Digital clipping

Signal Presence (62STAT):   0 = Not present   1 = Present
Status: Noteworthy change made to amplifier operation.

Overload (57STAT):   0 = Not or never detected   1 = No longer detected   2 = Detected now
Caution: Amplifier functionality has been modified to protect itself.

Output Thermal Limiting (55STAT):   0 = Not or never detected   1 = No longer detected   2 = Detected now
Caution: Amplifier functionality has been modified to protect itself.

Output Open Circuit (58STAT):   0 = Not or never detected   1 = No longer detected   2 = Detected now
Error: Amplifier, in part or as a whole, has shut down or is misconnected.

Digital Clipping (64STAT):   0 = Not or never detected   1 = No longer detected   2 = Detected now
Caution: Amplifier functionality has been modified to protect itself

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Status (continued)			
View system over temp fault status	`Esc`53STAT←	`X94`↵	53Stat`X94`↵
NOTE: This command displays the current over temp fault status of the power supply. Once the amplifier cools enough and recovers, the value is set from 2 to 1.			
View DC protection fault status	`Esc`54STAT←	`X95`↵	54Stat`X95`↵
NOTE: This command displays the current DC fault status. If the unit recovers, the value is set from 2 to 1. Power cycling may or may not recover the unit. If not, the amplifier may need to be serviced.			
View thermal limiting status	`Esc`55STAT←	`X96`(1)*...`X96`(n)↵	55Stat`X96`*(1)...`X96`(n)↵
NOTE: This command displays the current thermal limiting status of each output channel. Once the output channel cools enough and recovers, the value is set from 2 to 1. Each channel is represetned in the response as part of the string. "n" represents the output channel number.			
View Overload Protect status	`Esc`57STAT←	`X98`(1)*...`X98`(n)↵	57Stat`X98`(1)*...`X98`(n)↵
NOTE: This command displays the status of the limiter, whether it is engaged or not. Once the limiter disengages, the value is set from 2 to 1. Each channel is represented in the response as part of the string. "n" represents the output channel number. The limiter engages for both current and power limiting. When a short is detected the affected channel shuts down.			

KEY:

`X94` = **System Over Temp Values**:

0 = System temperature was within the normal operating temperature range at the time the command checked the status and has not gone over the temperature threshold in the past.

1 = System temperature was within the normal operating temperature range at the time the command checked the status, but has gone over the temperature threshold in the past.

2 = System temperature was over the normal operating temperature range at the time the command checked the status. The Over Temp LED is on.

`X95` = **DC protect**:

0 = DC on any of the outputs was not detected at the time the command checked the status and has not gone over the temperature threshold in the past.

2 = The amplifier was protecting itself from DC on any of the outputs at the time the command checked the status. The amplifier is in protection mode and does not come out of standby, and the power LED is amber. Power cycling may or may not recover the amplifier; the amplifier may need servicing.

`X96` = **Output thermal limiting**: (The left most `X96` represents output channel 1 and the right most `X96` represents the highest output channel.)

0 = The indicated amplifier channel was within its normal operating temperature range at the time the command checked the status and has not exceeded its normal operating temperature range in the past.

1 = The indicated amplifier channel was within its normal operating temperature range at the time the command checked the status, but has gone over the normal operating temperature range in the past.

2 = The indicated amplifier channel has exceeded its normal operating temperature range at the time the command checked the status. The indicated channel's clip/protect LED is lit.

`X98` = **Overload Protect:** (The left most `X98` represents output channel 1 and the right most `X98` represents the highest output channel.)

0 = The indicated amplifier channel limiter threshold was not reached, nor was a short detected, at the time the command checked the status and has not been reached/detected in the past.

1 = The indicated amplifier channel limiter threshold was not reached, nor was a short detected, at the time the command checked the status, but it was reached/detected in the past.

2 = The indicated amplifier channel limiter threshold was reached, or a short was detected, at the time the command checked the status. The indicated channel limiter is engaged, or if shorted it is muted, and the clip/protect LED is on.

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Status (continued)			
View Output Open Circuit Status	`Esc`58STAT`←`	`X99`(1)*...`X99`(n)`↵`	58Stat`X99`(1)*...`X99`(n)`↵`

> **NOTE:** This command displays the current output channel open circuit fault status. Once the amplifier has detected that a load has been connected to the output, the value is set from 2 to 1. When there is insufficient signal to take a measurement, no changes are made to the status. Each channel is represented in the response as part of the string. "n" represents the output channel number.

Loss of AC	`Esc`60STAT`←`	`X101``↵`	60Stat`X101``↵`

> **NOTE:** This command indicates if a disruption in power was detected or if a loss of AC is detected.

Main power supply status	`Esc`61STAT`←`	`X102``↵`	61Stat`X102``↵`

> **NOTE:** This command displays the current power supply fault status. If the unit recovers, the value is set from 2 to 1. Power cycling may or may not recover the unit; the amplifier may need to be serviced.

Signal Presence	`Esc`62STAT`←`	`X103`(1)*...`X103`(n)`↵`	62Stat`X103`(1)*...`X103`(n)`↵`

> **NOTE:** Each channel is represented in the response as part of the string. "n" represents the output channel number.

View Digital clip status	`Esc`64STAT`←`	`X106`(1)*...`X106`(n)`↵`	64Stat`X106`(1)*...`X106`(n)`↵`

> **NOTE:** This command displays the status of digital clipping on the DSP outputs going to amplifier channel. Once digital clipping is no longer, detected, the value is set from 2 to 1. Each channel is represented in the response as part of the string. "n" represents the DSP output channel number.

KEY:

`X99` = **Output open circuit:** (The left most `X99` represents output channel 1 and the right most `X99` represents the highest output channel.)

 0 = The indicated amplifier channel did not detect an open at the time the command checked the status and has not detected an open in the past.

 1 = The indicated amplifier channel did not detect an open at the time the command checked the status, but an open was detected open was detected in the past.

 2 = The indicated amplifier channel detected an open at the time the command checked the status.

`X101` = **Loss of AC**:

 0 = Loss of AC was not detected at the time the command checked the status.

 1 = A disruption was detected in the past.

 2 = Loss of AC has been detected at the time the command checked the status.

`X102` = **Main power supply status**:

 0 = A fault on the main power supply was not detected at the time the command checked the status and has not been detected in the and has not been detected in the past.

 1 = A fault on the main power supply was not detected at the time the command the checked the status, but a fault on the main power supply has not been detected in the past.

 2 = A fault on the main power supply was detected at the time the command checked the status.

`X103` = **Signal presence status:** (The left most `X103` represents output channel 1 and the right most `X103` represents the highest output channel.)

 0 = No signal detected   1 = Signal detected

`X106` = **Digital clip status:** (The left most `X106` represents output channel 1 and the right most `X106` represents the highest output channel.)

 0 = The indicated output channel did not detect digital clipping at the time the command checked the status and has not been detected in the past.

 1 = The indicated output channel did not detect digital clipping at the time the command checked the status, but has been detected in the past.

 2 = The indicated amplifier channel detected digital clipping at the time the command checked the status

Command Function	SIS Command (Host to Device)	Response (Device to Host)	Additional Description
Status (continued)			
Reset status	`Esc` `X999` `ZSTS` ←	`Zsts` `X999` ↵	

> **NOTE:** Resets the flag of a selected status from 1 to 0. Each status can be selected, depending on the value of `X999`. When `X999` = 0, all flags are reset.

> **KEY:**
>
> `X999` = **Status**   0 = Resets all "x" flags from 1 to 0; 53, 54, 55,57,58, 60, 61, and 64 = Resets the specific ##STAT's "x" flag(s) from one to zero.

Object ID (OID) Number Tables

The following tables list input and output gain OIDs. For mix-point OID tables, see **Mix-point OIDs** on page 100).

Input Path OIDs (NetPA U 1004)

Mic/Line Input Gain Block	OID
Mic/Line Input 1	40000
Mic/Line Input 2	40001
Mic/Line Input 3	40002
Mic/Line Input 4	40003

Mic/Line Pre-mixer Gain Block	OID
Mic/Line Input 1	40100
Mic/Line Input 2	40101
Mic/Line Input 3	40102
Mic/Line Input 4	40103

AT Input MTR Block	OID
AT Input 1	50000
AT Input 2	50001
AT Input 3	50002
AT Input 4	50003

Mic/Line Pre-mixer Gain Block	OID
AT Input 1	50100
AT Input 2	50101
AT Input 3	50102
AT Input 4	50103

Input Path OIDs (NetPA U 1002)

Mic/Line Input Gain Block	OID
Mic/Line Input 1	40000
Mic/Line Input 2	40001
Mic/Line Input 3	40002
Mic/Line Input 4	40003

Mic/Line Pre-mixer Gain Block	OID
Mic/Line Input 1	40100
Mic/Line Input 2	40101
Mic/Line Input 3	40102
Mic/Line Input 4	40103

AT Input MTR Block	OID
AT Input 1	50000
AT Input 2	50001

Mic/Line Pre-mixer Gain Block	OID
AT Input 1	50100
AT Input 2	50101

Output Path OIDs (NetPA U 1004)

Amplifier Output Trim Block	OID
Amp Output 1	60100
Amp Output 2	60101
Amp Output 3	60102
Amp Output 4	60103

Amplifier Output Attenuation Block	OID
Amp Output 1	60000
Amp Output 2	60001
Amp Output 3	60002
Amp Output 4	60003

Line Output Trim Block	OID
Line Output 1	60104
Line Output 2	60105
Line Output 3	60106
Line Output 4	60107

Line Output Attenuation Block	OID
Line Output 1	60004
Line Output 2	60005
Line Output 3	60006
Line Output 4	60007

Output Path OIDs (NetPA U 1002)

Amplifier Output Trim Block	OID
Amp Output 1	60100
Amp Output 2	60101

Amplifier Output Attenuation Block	OID
Amp Output 1	60000
Amp Output 2	60001

Line Output Trim Block	OID
Line Output 1	60102
Line Output 2	60103

Line Output Attenuation Block	OID
Line Output 1	60002
Line Output 2	60003

AT Output Trim Block	OID
AT Output 1	60104
AT Output 2	60105

AT Output Attenuation Block	OID
AT Output 1	60004
AT Output 2	60005

Mix-point OIDs

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

Mic/Line and Digital Input to Analog and Aux Output Mix Matrix (NetPA U 1004)

	Amp Out 1	Amp Out 2	Amp Out 3	Amp Out 4	Line Out 5	Line Out 6	Line Out 7	Line Out 8
Mic In 1	20000	20001	20002	20003	20004	20005	20006	20007
Mic In 2	20100	20101	20102	20103	20104	20105	20106	20107
Mic In 3	20200	20201	20202	20203	20204	20205	20206	20207
Mic In 4	20300	20301	20302	20303	20304	20305	20306	20307
Digital AT In 5	20400	20401	20402	20403	20404	20405	20406	20407
Digital AT In 6	20500	20501	20502	20503	20504	20505	20506	20507
Digital AT In 7	20600	20601	20602	20603	20604	20605	20606	20607
Digital AT In 8	20700	20701	20702	20703	20704	20705	20706	20707

Troubleshooting

The front and rear panels have LED warning indicators, as described below.

Amplifier Fails to Exit Standby Mode Promptly

The input channel signal LED lights green when an input signal is detected.

Power LED Color	Signal LED State	Problem Description	Problem Solution
Amber	Not Lit	No output signal	No input detected. Verify the input signal. If an input signal is present, raise the input level until signal LED lights.
Green or Amber	Lights Intermittently	Unit does not promptly exist standby mode when inputs signal is present	The output signal level of the source may be too low to cross the signal detection threshold of the amplifier (see amplifier specs at **www.extron.com**, for details). Increase the signal level of the source until the signal LED lights consistently, or defeat the standby timer.
Amber	Lit	No output signal	Amplifier has been placed in standby mode and the output has been turned off. Check remote port and SIS. DC Fault may have been detected.
Amber	Lit	DC Fault is detected. Unit does not exit standby.	Verify, through DSP Configurator or the status commands, if a DC fault has been detected. Disconnect power, then disconnect the standby port. Reconnect power to the unit to determine if the unit immediately goes into standby mode upon power up. The amplifier may need to be serviced.

Amplifier Enters Standby Mode Too Early

The input channel signal LED lights green per indicated input channel when an input signal is detected.

Power LED Color	Signal LED State	Problem Description	Problem Solution
Green or Amber	Lights Intermittently	Enters standby mode early	The output signal level of the source may be too low to cross the signal detection threshold of the amplifier (see amplifier specs at **www.extron.com**, for details). Increase the signal level of the source until the signal LED lights consistently or defeat the standby timer.

Limiter/Protect LED Warning Indicators

The output channel Limiter/Protected LED lights green per indicated input channel when an input signal is detected.

LED State	Problem Description	Problem Solution
Blinks	Audio clipping is occurring at the rate of one blink per clip.	Reduce the power output to avoid overdriving the amplifier and causing clipping
Lights steadily	The amplifier may be overheating.	Determine the reason for the overheated state and allow the amplifier to cool. The LED resumes its normal operation after the amplifier recovers from the overheated state.
	Output channel leads are shorted.	Check speakers and speaker wiring for shorts.

Over Temp Indicator LED

This indicator does not represent a hard failure of the unit. It is a warning the amplifier has exceeded the recommended operating temperature for optimal product lifetime.

LED State	Problem Description	Problem Solution
Lights steadily	Amplifier has exceeded the recommended operating temperature. The LED turns off after the amplifier cools down.	• Verify that the placement of the amplifier allows for suitable ventilation and airflow **Rack Mounting Ventilation Recommendations** on page 9. • Avoid placing equipment on top or below the amplifier. • Verify that the operating temperature is within the specified range.

Status Commands

> **NOTE:** Status flags automatically reset when the amplifier is power cycled.

Status	Possible Triggers	Possible Causes	Possible Solutions
53STAT: Over Temp	The amplifier has exceeded the recommended operating temperature. See specifications.	The ambient environment exceeds the recommended operating temperature.	• Verify that the placement of the amplifier allows for suitable ventilation and airflow. • Avoid placing equipment on top or below the amplifier. • Verify that the operating temperature is within the specified range.
54STAT: DC Protection	A DC signal has been detected on an amplifier channel.	Hardware failure.	• Disconnect power then reconnect power to the unit to determine if the unit immediately goes into standby upon power up. • The amplifier may need to be serviced.
55STAT: Output Thermal limiting	The specified amplifier channel has overheated and is muting the affected channel.	• The channel is driving too low of a speaker load impedance. • The channel is being fed a heavily clipped/distorted signal. • The amplifier operating environment exceeds the recommended operating temperature.	• Make sure the correct speaker load is connected. • Check that speakers are tapped appropriately. • Recheck the amplifier gain structure. • Verify that the amplifier ambient environment does not exceed the recommended operating temperature (See 53STAT).

Status	Possible Triggers	Possible Causes	Possible Solutions
`57STAT: Overload`	• The current/power limiter has been triggered. • A short on the affected output channel has been detected.	• Too much current is being drawn due to overdriving the output. • An improper speaker load has been attached (for example: Attaching a low impedance speaker to a high impedance output). • The output has been shorted.	• Recheck the amplifier gain structure. • For low-impedance loads: Verify that total impedance at the amplifier is ≥ 4 ohms. • For 70V/100V speaker loads: Recheck speaker taps. • Check for shorts at the output and throughout the speaker chain.
58STAT: Open Circuit	• The affected channel has detected an open circuit.	• The connection to the speaker chain has been broken. • An improper speaker load has been attached (for example Attaching a high impedance speaker to a low impedance output). • No speaker load is attached.	• Check for an open circuit at the output and throughout the speaker chain. • Recheck speaker taps.
60STAT: Loss of AC	• If a "2" is reported: Loss of AC is detected. • If a "1" is reported: A momentary loss of AC power has been detected in the past.	There is or has been a disruption in power.	Check the system power distribution.
61STAT: Main power supply fault	The main power supply has shut down for reasons other than loss of AC, going into standby, or DC protect and is effectively muting all output channels.	• The power supply has overheated. • There is a damaged component.	• Allow the amplifier to cool down. • Make sure the correct speaker load is connected. • Check that speakers are tapped appropriately. • Recheck the amplifier gain structure. • Verify that the amplifier's ambient environment does not exceed the recommended operating temperature (see suggestions for 53STAT) • If none of the above work, power cycle the amplifier. If that does not work, the amplifier may need to be serviced.
62STAT: Signal presence	A signal has been detected	N/A	N/A
64STAT: Digital clip	The output DAC to the amplifier channel has detected clipping.	The output DAC is being overdriven.	Recheck the amplifier gain structure.

Status	Possible Triggers	Possible Causes	Possible Solutions
PSAV (Standby)	The unit has been placed into standby.	• The auto-standby timer has timed out. • The contact closure port is engaged on the rear panel. • SIS has forced the unit into standby. • DC has been detected on an output.	• Check that there is sufficient signal going to the amplifier channel. • Check that the standby port is not engaged. • Check that the SIS is not forcing the unit into standby. • If none of the above work, check for a DC fault (see **Monitoring Configuration 2** on page 95)

Mic/Line and Digital Input to Analog and Aux Output Mix Matrix (NetPA U 1002)

	Amp Out 1	Amp Out 2	Line Out 1	Line Out 2	Digital AT Out 1	Digital AT Out 2
Mic In 1	20000	20001	20002	20003	20004	20005
Mic In 2	20100	20101	20102	20103	20104	20105
Mic In 3	20200	20201	20202	20203	20204	20205
Mic In 4	20300	20301	20302	20303	20304	20305
Digital AT In 1	20400	20401	20402	20403	20404	20405
Digital AT In 2	20500	20501	20502	20503	20504	20505

Extron Warranty

Extron 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 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
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 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

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

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 and 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.