Extron

DMP 64 Plus

ProDSP Digital Matrix Processor

User Guide

Mixers and Processors

68-3291-01, Rev. E
02 25

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 demProdukt 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 기호가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

주의: 이 기호가 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.

Trademarks
All trademarks mentioned in this guide are the properties of their respective owners.
The following registered trademarks (®), registered service marks (℠), and trademarks (™) are the property of RGB Systems, Inc. or Extron (see the current list of trademarks on the **Terms of Use** page at **www.extron.com**):

Registered Trademarks (®)
Extron®, Cable Cubby®, ControlScript®, CrossPoint®, DTP®, eBUS®, EDID Manager®, EDID Minder®, eLink®, Everlast®, Flat Field®, FlexOS®, Glitch Free®, GlobalViewer®, Global Configurator®, Global Scripter®, Hideaway®, HyperLane®, IP Intercom®, IP Link®, Key Minder®, LinkLicense®, LockIt®, MediaLink®, MediaPort®, NAV®, NetPA®, PlenumVault®, PoleVault®, PowerCage®, PURE3®, Quantum®, ShareLink®, Show Me®, StudioStation®, SoundField®, SpeedMount®, SpeedSwitch®, System *INTEGRATOR*®, TeamWork®, TouchLink®, V-Lock®, VN-Matrix®, VoiceLift®, WallVault®, WindoWall®, XPA®, XTP®, XTP Systems®, and ZipClip®
Registered Service Mark℠ : S3 Service Support Solutions
Trademarks (™)
AAP™, AFL™ - Accu-RATE Frame Lock, ADSP™ - Advanced Digital Sync Processing, AVEdge™, CableCover™, CDRS™ - Class D Ripple Suppression, Codec Connect™, DDSP™ - Digital Display Sync Processing, DMI™ - Dynamic Motion Interpolation, Driver Configurator™, DSP Configurator™, DSP Configurator PRO™, DSVP™ - Digital Sync Validation Processing, EQIP™, FastBite™, Flex55™, FOX™, FOXBOX™, InstaWake™, IP Intercom HelpDesk™, MAAP™, MicroDigital™, Opti-Torque™, PendantConnect™, ProDSP™, QS-FPC™ - QuickSwitch Front Panel Controller, Room Agent™, Scope-Trigger™, SIS™ - Simple Instruction Set, Skew-Free™, SpeedNav™, Triple-Action Switching™, True4K™, True8K™, Vector™ 4K, WebShare™, XTRA™, and ZipCaddy™

FCC Class A Notice

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

ATTENTION:

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

NOTES:

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

Battery Notice

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

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

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

Conventions Used in this Guide

Notifications

The following notifications are used in this guide:

CAUTION: Risk of minor personal injury.
ATTENTION : Risque de blessure mineure.

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

NOTE: A note draws attention to important information.

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

Software Commands

Commands are written in the fonts shown here:

```
^AR Merge Scene,,0p1 scene 1,1 ^B 51 ^W^C.0
[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 used in this guide, the character "0" is used for the number zero and "O" is the capital letter "o."

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

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

Variables are written in *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 DMP 64 Plus and its features. Topics include:

About this Guide

This user guide contains installation, configuration, and operating information for the Extron DMP 64 Plus ProDSP Digital Audio Matrix Processor.

NOTE: Throughout this guide, the general terms “DMP Plus” or “mixer” are used interchangeably to refer to the DMP 64 Plus.

DMP 64 Plus Models

Model	Description
DMP 64 Plus C	6x4 Digital Matrix Processor w/ AEC
DMP 64 Plus C AT	6x4 Digital Matrix Processor w/ AEC and Dante
DMP 64 Plus C V	6x4 Digital Matrix Processor w/ AEC and VoIP
DMP 64 Plus C V AT	6x4 Digital Matrix Processor w/ AEC, VoIP, and Dante

About the DMP 64 Plus

The Extron DMP 64 Plus Digital Audio Matrix Processor is a 6x4 audio mixer with broad I/O expansion capabilities, including:

- 8 auxiliary inputs via VoIP (V models only), USB, and internal audio files.
- 16x16 expansion bus
- Dante® 32x16 AT channels (AT models only)
- VoIP (V models only)
- Digital I/O

The DMP 64 Plus features Extron ProDSP, automixing, AEC (Acoustic Echo Cancellation), and USB audio for use as an audio-to-PC interface. The DMP 64 Plus offers a configuration approach to DSP to simplify mixing, routing, conferencing, and room optimization. Quick and intuitive configuration using the Extron DSP Configurator software allows the DMP 64 Plus to be installed in very little time with easy-to-learn adjustments that can be applied in real-time. A digital audio expansion port (EXP) allows two EXP-capable devices to be linked together to expand input and output signal management and routing capabilities.

The DMP 64 Plus is ideal for presentation and conferencing applications in boardrooms, courtrooms, and conference centers requiring advanced matrix mixing and DSP.

In addition to EXP expansion capabilities, DMP 64 Plus AT models allow connection to a Dante audio network for transporting audio across a TCP/IP network. This further increases the DMP 64 Plus input and output expansion capabilities. DMP 64 Plus V models can register up to 8 VoIP lines per device. The DMP 64 Plus V can function as a VoIP interface, removing the need for dedicated VoIP hardware. The DMP 64 Plus has no front panel controls. All configuration is performed using the Extron DSP Configurator software from a host computer via Ethernet (recommended) or USB. The rear panel RS-232 port allows for serial control via SIS commands. Signal presence and clip LEDs for the six input channels and four output channels are on the front panel. Status indicators for EXP, LAN, and USB audio are also on the front panel.

Features

- **Four models with 6 mic/line inputs and 4 line outputs**
- **Six channels of AEC** — acoustic echo cancellation
- **All models include a configurable USB Audio interface** — Easy connectivity to computer based soft codecs and program playback sources. The input/output configuration of the USB Audio Interface can be set to 0x8, 2x6, 4x4, 6x2, or 8x0. This allows for more input or output streams, as required by the system application.
- **AT models provide Dante audio networking with Dante Domain Manager and AES67 support** —
  - Receives 32 channels from a Dante network
  - Transmits 16 channels to a Dante network
- **V-models include up to eight VoIP lines that support generic Session Initiation Protocol - SIP 2.0 connectivity per RFC 3261** — The DMP 64 Plus V models are compatible with select VoIP systems and can be used for a single VoIP line or as a VoIP farm for up to eight rooms.
- **Compact half rack size**
- **FlexInput capability on main inputs (AT models only)** — All six main inputs offer FlexInput capability to select a Dante channel, expansion input, or a local mic/line input. This allows incorporating the full range of DSP capabilities, including AEC, for incoming Dante channels.
- **Optional ACP Series audio control panels provide intuitive audio system control** — Directly connects to the DMP 64 Plus, offering flexible audio control for configurations that do not require a full control system.
- **Digital I/O ports for remote control or feedback** — Six digital input and output ports are provided, so that the DMP 64 Plus can be programmed to sense and then respond to external triggers such as mic activation, muting, and recall of presets.
- **Macros allow the sequencing of commands that can be sent to the local device or external devices via the LAN port** — A single DMP 64 Plus can act as the central interface from a control system, sending commands to other DMP and DTP CrossPoint units.
- **Advanced audio processing on all four analog outputs and all 16 direct Dante/Expansion outputs** — Up to 20 speaker zones can be implemented on one DMP 64 Plus with full processing for each zone, making it ideal for full mix-minus implementations.
- **16 virtual processing loops allow for great flexibility in sub-mixing and processing** — Processing common to many inputs can be applied using a single virtual channel.
- **Aux inputs and outputs can be individually configured as audio file players, USB Audio, or in the V-models, VoIP lines** — Audio file players can be allocated to any aux input and used to play back prerecorded content. USB Audio and VoIP can be allocated to any aux input and any aux output. In these cases, the aux inputs function like returns and the aux outputs function like sends. For USB audio, that would be sends and returns to/from a room PC running a software codec, and VoIP would be sends and returns to or from the central VoIP PBX.

- **Extensive mix matrixing in every DMP 64 Plus allows all inputs to be discretely routed to any or all outputs** — The mix matrix allows all main inputs, aux inputs, Dante inputs and virtual bus returns to be discretely routed to any or all of the analog outputs, aux outputs, Dante outputs and the virtual bus sends.
- **Up to eight audio file players can be used to play back audio files for system set-up or as part of the system design** — Use the provided pink noise, white noise, and sine wave files, or import your own WAV, MP3, WMA, AIFF, AAC, or RAW files. Supported file formats are automatically converted to 24-bit, 48 kHz RAW for approximately 20 minutes of playback time and saved to the onboard storage.
- **Low latency** — Powerful DSP chips maximize performance, resulting in latency that is very low, from input to output, regardless of the number of active channels or processes. While latency increases in channels with AEC enabled, and marginally with the automixer, overall latency remains low. This keeps audio in sync with video, and prevents distractions to presenters or performers resulting from delayed live audio.

Application Diagram

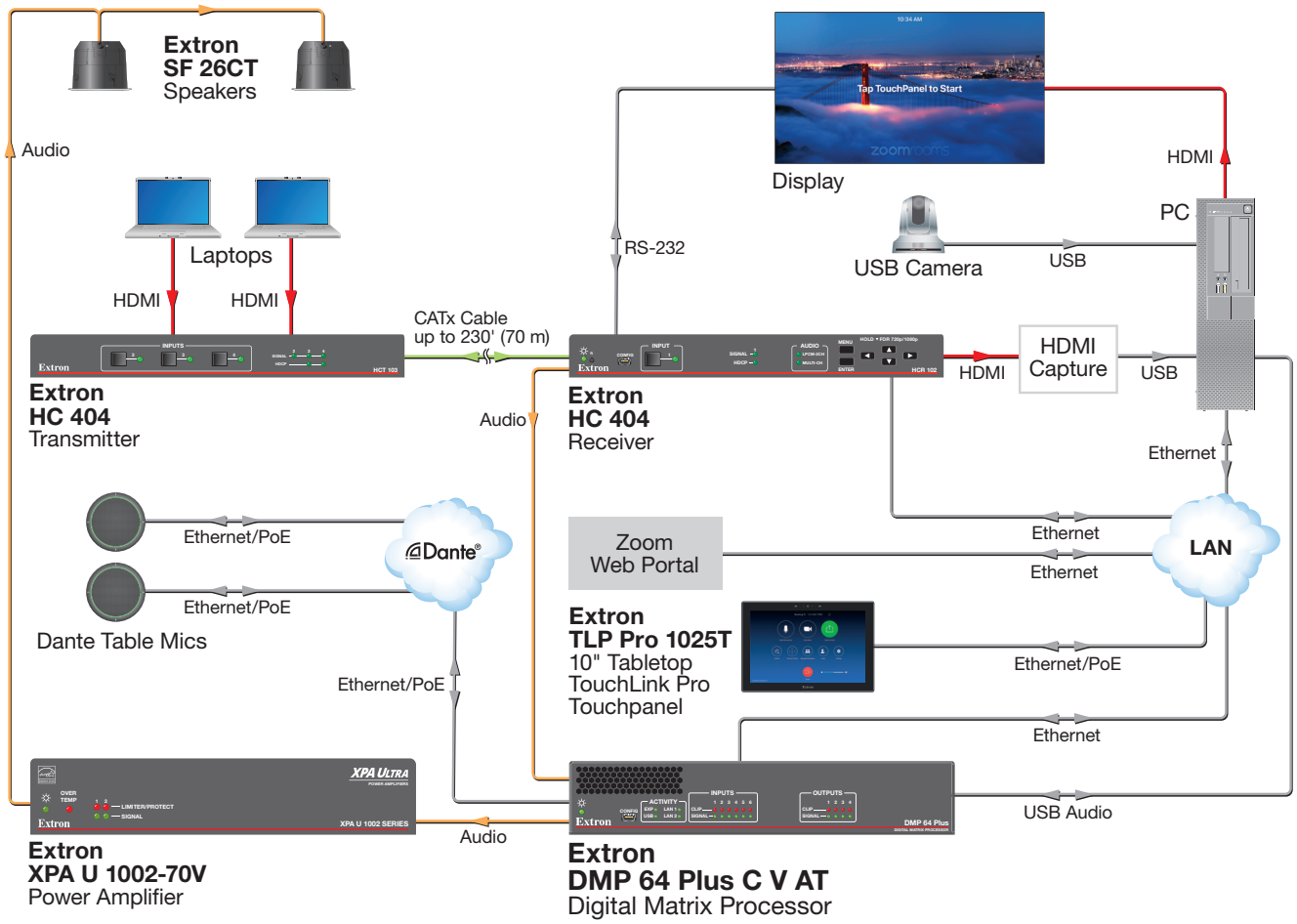


Figure 1. Typical Application of the DMP 64 Plus

Installation

This section describes the installation of the DMP 64 Plus, including:

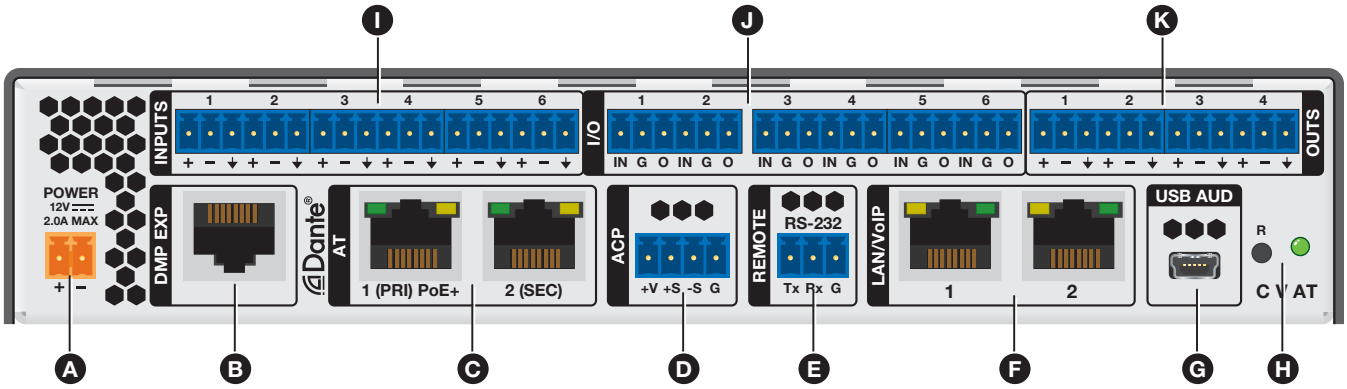
- **Installation Overview**
- **Rear Panel Features**
- **Front Panel Features**
- **Connection Details**
- **Reset Modes**

Installation Overview

Follow these steps to install and set up the DMP 64 Plus for operation:

1. Disconnect power from the DMP, and turn off all devices connected to the DMP.
2. If desired, mount the DMP (see **Equipment Mounting** on page 85).
3. Connect the cables, and configure the DMP (see “Rear Panel Features”).
4. Plug in the power supply and all connected devices.

Rear Panel Features



- **A** Power input
- **B** EXP port
- **C** AT ports (AT models only)
- **D** ACP port
- **E** RS-232 port
- **F** LAN ports
- **G** USB-Audio port
- **H** Reset button and LED
- **I** Mic/Line inputs
- **J** Digital I/O ports
- **K** Line outputs

Figure 2. Rear Panel Features

A **Power input** — Connect the included external 12 V, 2.0 A power supply to the 2-pole captive screw inlet (see **Power Supply Wiring** on page 9 for wiring details).

B **EXP port** — Connect an EXP-enabled device to this RJ-45 port for a digital audio connection using Extron proprietary protocol.

> **NOTE:** A one foot shielded CAT 6 cable is provided for the EXP connection. The maximum EXP cable length supported is 33 feet (10 meters).

C **AT ports (AT models only)** (see **figure 2** on page 4) — Two RJ-45 ports form a Gigabit switch that interfaces with the AT bus. The AT expansion bus uses Dante protocol for digital audio networking and allows DMP 64 Plus AT models to connect with other Dante-enabled devices to form a larger matrix (see **Dante Controller** on page 21 for details on the software required to configure the AT expansion bus).

The 2-port switch can be configured as two primary and secondary ports for redundant Dante configurations. In redundant configuration, audio traffic is duplicated. Port 1 is the primary port (PRI) and Port 2 is the secondary switch (SEC) (see **Redundant Configuration** on page 25 for details on configuring the DMP 64 Plus in redundant mode).

NOTE: Connecting an external power supply is not necessary when using PoE+ for power.

D **ACP port** — Use a 4-pole 3.5 mm captive screw connector to connect an ACP control device for configuration (see figure 3 for wiring details and **Configure ACP Panels** on page 17 or the *DSP Configurator Help File* for details on configuring the ACP).

NOTES:

- The DMP 64 Plus rear-panel ACP port provides 6 W of power.
- Use an Extron PS 1220EB power supply or Extron 12 V desktop power supply when additional power is required.
- Refer to the applicable Audio Control Panel (ACP) setup guides, available at **www.extron.com**, for wiring details.

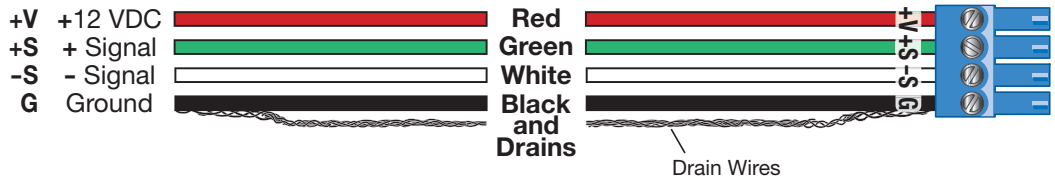


Figure 3. ACP Port Connector Wiring

E **RS-232 port** — For bidirectional RS-232 (±5V) serial control of the DMP, connect a host device, such as a computer or control system, via the 3-pole 3.5mm captive screw port. The default baud rate is 38400.

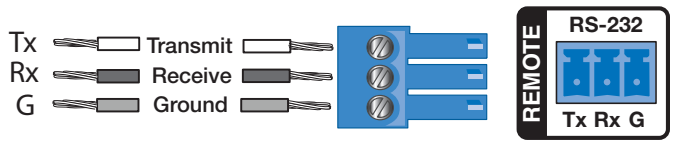


Figure 4. RS-232 Wiring

F **LAN (Ethernet) ports** — One RJ-45 port (non-V models) or two RJ-45 ports (V models) are available for control network traffic (all models) and VoIP network traffic (V models only) (see **TP Cable Termination for Ethernet Communication** on page 11 for wiring details). The host PC or control system and the DMP 64 Plus must be connected to the same network. The ports have two LEDs:

- **Link LED** — Lights green steadily to indicate a LAN connection.
- **Signal LED** — Blinks amber to indicate LAN signal activity.

NOTE: Only the DMP 64 Plus V-models have two LAN/VoIP ports. Non-V-models only have one LAN port.

LAN 1 defaults:

IP Address	Subnet Mask	Gateway	DHCP
192.168.254.254	255.255.255.0	0.0.0.0	OFF

LAN 2 (V models only) defaults:

IP Address	Subnet Mask	Gateway	DHCP
192.168.1.254	255.255.255.0	0.0.0.0	OFF

There are three ways the dual LAN ports can be configured on DMP 64 Plus V-models:

1. **Control and VoIP traffic on one LAN port** — Both control and VoIP traffic can be transported via a single LAN port.

   NOTE: By default, control and VoIP traffic are both transported on LAN 1.

2. **Control and VoIP traffic on one LAN port using a VLAN** — Both control and VoIP traffic can be transported via a single physical LAN port while utilizing a VLAN for VoIP traffic.
3. **Control and VoIP traffic on separate LAN ports** — Control and VoIP traffic can be transported on separate LAN ports with unique IP configurations.

The IP addresses can be configured via the internal web page (see **Communication Settings** on page 70) or Toolbelt (see **Software/Firmware Installation** on page 13 for details on downloading Toolbelt and the *Toolbelt Help File* for device configuration).

G **USB Audio port** (see **figure 2** on page 4) — Connect a Windows® or Mac® computer to this USB mini-B port to interface with the DMP 64 Plus as a USB audio device (see **Configure USB Audio** on page 17 or the *DSP Configurator Help File* for details on configuring the USB audio). Audio sample rate is 48 kHz/16 bit.

H **Reset button and LED** —Initiates three levels of resets. Use a pointed stylus, ballpoint pen, or small screwdriver to access the recessed button (see **Reset Modes** on page 12 for details on the different reset modes). When not displaying reset functions, the LED operates as a power indicator and matches the front panel power LED.

I **Mic/Line inputs** — Use 3-pole or 6-pole 3.5 mm captive screw connectors to connect up to six balanced or unbalanced microphone or mono line level sources (see figure 5 for wiring details). Inputs 1 through 6 provide phantom power and AEC.

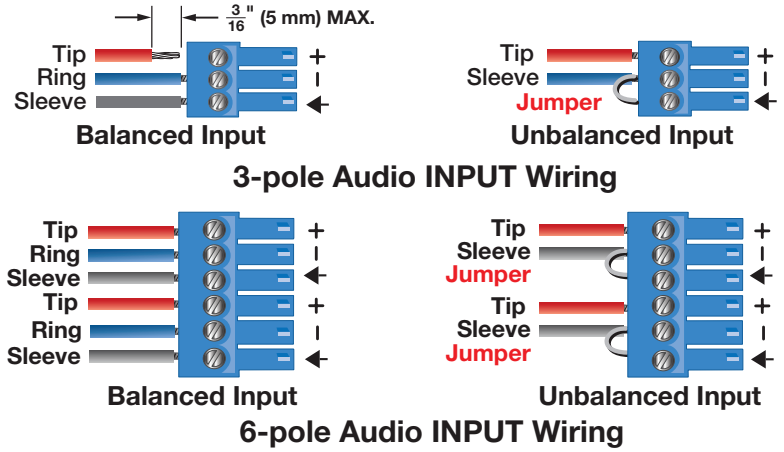


Figure 5. 3-pole and 6-pole Audio Input Wiring

ATTENTION:

- Condenser microphones require phantom power.
- Les microphones électrostatiques nécessitent une alimentation fantôme.

- Dynamic microphones do not need power.
- Les microphones dynamiques n'ont pas besoin d'alimentation.

- When a line level source is connected, be certain the +48 V phantom power is off (cleared).
- Lorsqu'une source de niveau ligne est connectée, soyez certain que l'alimentation fantôme +48 V est débranchée (enlevée).

J **Digital I/O ports** (see **figure 2** on page 4) — Connect three 6-pole 3.5 mm captive screw connectors (see figure 6 for wiring details). These configurable digital input and output ports are designed to connect to microphones with logic circuitry for mic mute and tally back functionality. Each port provides a common ground (see **Configure Digital I/O** on page 17 or the *DSP Configurator Help File* for configuration details).

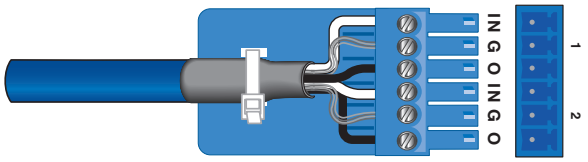


Figure 6. Digital I/O Connector

The Digital Input and Output ports function by reacting to either HIGH or LOW logic based on applied voltages.

Digital Input —

- If the input voltage is lower than 0.8 V, it is considered logic "LOW."
- If the input voltage is greater than 3.0 V, it is logic "HIGH."
- The maximum input voltage is 12.0 VDC.

Digital Output —

- The output port has an internal pull up to 5 V.
- The output "LOW" is less than 0.7 V.
- The output "HIGH" is greater than 3.5 V.
- The maximum output voltage is 5.0 VDC.

K **Line outputs** — Use 3-pole or 6-pole 3.5 mm captive screw connectors to connect up to four mono balanced or unbalanced line level devices or two stereo devices (see figure 7 for wiring details).

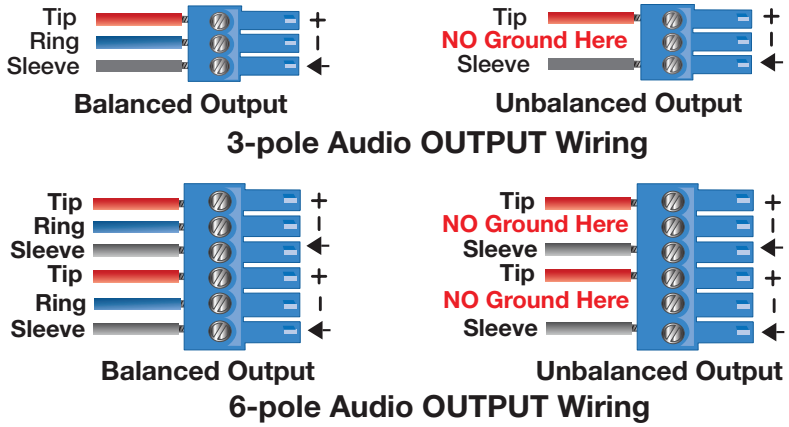


Figure 7. 3-pole and 6-pole Audio Output Wiring

ATTENTION:

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

Front Panel Features

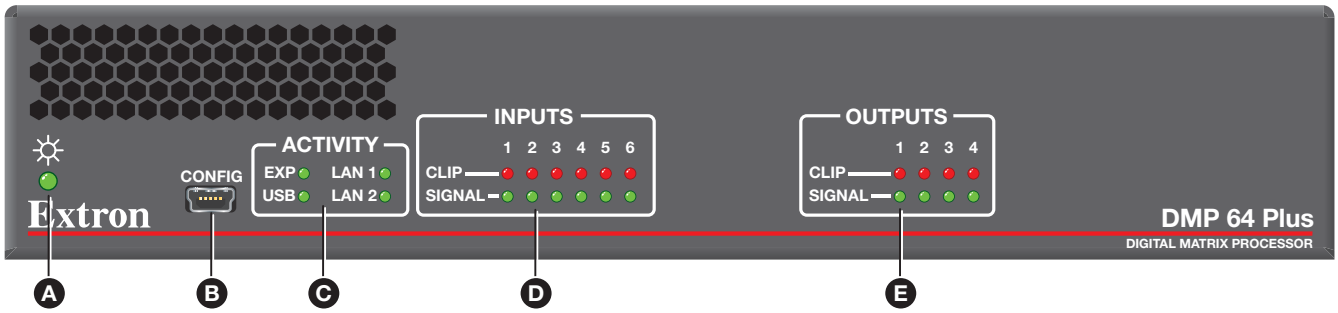


Figure 8. DMP 64 Plus Front Panel

Ⓐ **Power LED** — Blinks during boot up and lights steadily when the DMP 64 Plus is operational.

Ⓑ **USB Config port** — One USB type mini-B port is used for configuration. This port can also be used for firmware updates..

Ⓒ **Activity indicator LEDs** — These activity LEDs behave differently depending on the model of DMP 64 Plus:

- **EXP Indicator LEDs** (Non-AT Models) —
  - **Off** — The unit is not connected to a second EXP device.
  - **On** — The unit is connected to a second EXP device and is configured as the primary unit.
  - **Blinking** — The unit is connected to a second EXP device and is configured as the secondary unit.
- **EXP Indicator LEDs** (AT Models) —
  - **On** — The unit is connected to a second EXP non-AT device and is configured as the primary unit.
  - **Blinking** — The unit is not connected to a second device.
- **USB Activity Indicator LED** — Blinks to indicate audio streaming over USB.
- **LAN Activity Indicator LEDs** — Blink to indicate rear panel LAN port activity.

Ⓓ **Input indicator LEDs** — Stacked green and red LEDs display input signal presence and input signal clipping.

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

Ⓔ **Output indicator LEDs** — Stacked red and green LEDs display output signal presence and output signal clipping. Output indicator LEDs function identically to the input indicator LEDs (Ⓓ).

Connection Details

For connectors that require additional wiring details or recommendations, see the following sections pertaining to the type or connection.

Power Supply Wiring

A 12 VDC, 2.0 A power supply is provided with the DMP 64 Plus. Follow the **power supply wiring** instructions and **figure 9** on page 10 to wire the provided 2-pole captive screw connector to your power supply.

CAUTION: The DC output cables must be kept separate from each other while the power supply is plugged in. Remove power before wiring.

ATTENTION: Les câbles de sortie CC doivent être séparés les uns des autres tant que la source d'alimentation est branchée. Coupez l'alimentation avant d'effectuer les raccordements.

ATTENTION:

- Always use a power supply supplied and or specified by Extron. Use of an unauthorized power supply voids all regulatory compliance certification and may cause damage to the supply and the end product.
- Utilisez toujours une source d'alimentation fournie ou recommandée par Extron. L'utilisation d'une source d'alimentation non autorisée annule toute conformité réglementaire et peut endommager la source d'alimentation ainsi que le produit final.

- If not provided with a power supply, this product is intended to be supplied by a power source marked "Class 2" or "LPS" and rated at 12 VDC and a minimum of 2.0 A.
- Si ce produit ne dispose pas de sa propre source d'alimentation électrique, il doit être alimenté par une source d'alimentation de classe 2 ou LPS et paramétré à 12 V et 2.0 A minimum.

- Unless otherwise stated, the AC/DC adapters are not suitable for use in air handling spaces or in wall cavities.
- Sauf mention contraire, les adaptateurs AC/DC ne sont pas appropriés pour une utilisation dans les espaces d'aération ou dans les cavités murales.

- The installation must always be in accordance with the applicable provisions of National Electrical Code ANSI/NFPA 70, article 725 and the Canadian Electrical Code part 1, section 16. The power supply shall not be permanently fixed to building structure or similar structure.
- Cette installation doit toujours être en accord avec les mesures qui s'applique au National Electrical Code ANSI/NFPA 70, article 725, et au Canadian Electrical Code, partie 1, section 16. La source d'alimentation ne devra pas être fixée de façon permanente à une structure de bâtiment ou à une structure similaire.

- Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the unit. The ridges on the side of the cord identify the power cord negative lead (see **figure 9**).
- La polarité de la source d'alimentation est primordiale. Une polarité incorrecte pourrait endommager la source d'alimentation et l'unité. Les stries sur le côté du cordon permettent de repérer le pôle négatif du cordon d'alimentation (voir **l'illustration 9**).

- To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.
- Pour vérifier la polarité avant la connexion, brancher l'alimentation hors charge et mesurer sa sortie avec un voltmètre.

ATTENTION:

- The length of the exposed (stripped) copper wires is critical. **The ideal length is 3/16 inch (5 mm).** Longer bare wires can short together. Shorter wires are not as secure in the connectors and could be pulled out.
- La longueur des câbles exposés est primordiale lorsque l'on entreprend de les dénuder. **La longueur idéale est de 5 mm (3/16 inches)**. S'ils sont un peu plus longs, les câbles exposés pourraient se toucher et provoquer un court circuit. S'ils sont un peu plus courts, ils pourraient sortir, même s'ils sont attachés par les vis captives.

- Do not tin the wire leads before installing into the connector. Tinned wires are not as secure in the connector and could be pulled out. They may also break after being bent several times.
- Ne pas étamer les conducteurs avant de les insérer dans le connecteur. Les câbles étamés ne sont pas aussi bien fixés dans le connecteur et pourraient être tirés. Ils peuvent aussi se casser après avoir été pliés plusieurs fois.

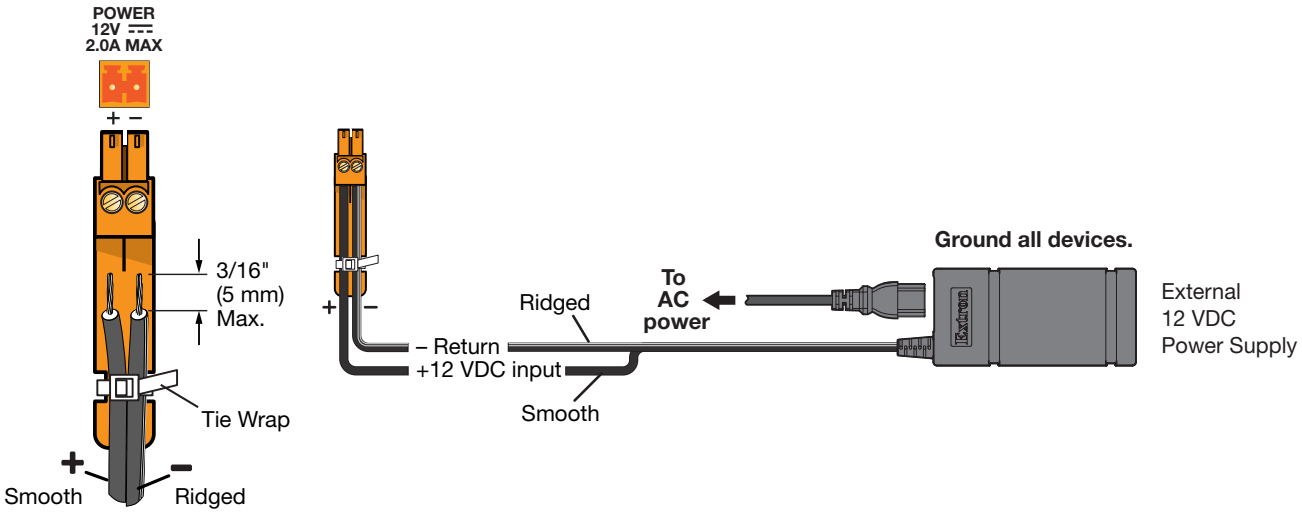


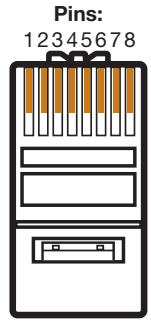
Figure 9. Power Input Wiring

1. Cut the DC output cord to the length needed.
2. Strip the jacket to expose 3/16 inches (5 mm) of the conductor wire (see figure 9).
3. Ensure the connections have the correct polarity as shown in the figure above. The wire with ridges is the ground wire.
4. Slide the exposed ends of the wire into the captive screw connector and secure by tightening the screws.
5. Use the supplied tie wrap to strap the power cord to the extended tail of the connector.

TP Cable Termination for Ethernet Communication

It is vital that your Ethernet cable be the correct cable type and that it be properly terminated with the correct pinout. Ethernet links use Category (CAT) 3, 5e, or CAT 6, unshielded twisted pair (UTP) or shielded twisted pair (STP) cables, terminated with RJ-45 connectors. Ethernet cables are limited to a length of 328 feet (100 meters). The cable can be terminated as either a patch cable or a crossover cable (see figure 10) and must be properly terminated for the application:

- **Patch (straight-through) cable** — Connection of the device to an Ethernet hub, router, or switch that also hosts a controlling computer.
- **Crossover cable** — Direct connection between the unit and a controlling computer



Crossover Cable
(for direct connection to a PC)

End 1		End 2	
Pin	Wire Color	Pin	Wire Color
1	white-orange	1	white-green
2	orange	2	green
3	white-green	3	white-orange
4	blue	4	blue
5	white-blue	5	white-blue
6	green	6	orange
7	white-brown	7	white-brown
8	brown	8	brown
T568B		**T568A**	

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

Straight-through Cable
(for connection to a switch, hub, or router)

End 1		End 2	
Pin	Wire Color	Pin	Wire Color
1	white-orange	1	white-orange
2	orange	2	orange
3	white-green	3	white-green
4	blue	4	blue
5	white-blue	5	white-blue
6	green	6	green
7	white-brown	7	white-brown
8	brown	8	brown
T568B		**T568B**	

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

Figure 10. RJ-45 Pin Assignment for Ethernet Connection

Reset Modes

The rear panel **RESET** button initiates three levels of resets. Use a pointed stylus, ballpoint pen, or small screwdriver to access the recessed button.

See the **Reset Modes** table on page 12 for a summary of the reset.

ATTENTION:

- Review the reset modes carefully. Some reset modes delete all user loaded content and revert the device to default configuration.
- Analysez minutieusement les différents modes de réinitialisation. Certains modes de réinitialisation suppriment l'intégralité du contenu chargé de l'utilisateur et remettent l'appareil au mode de configuration par défaut.

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

Reset Modes			
	Activation	**Result**	**Purpose and Notes**
Use Factory Firmware	Hold in the recessed rear panel **RESET** button while applying power to the unit. **NOTE:** Do not operate with the default firmware loaded by a this reset. Use it only to load the most current firmware to the device.	The device reverts to the factory default firmware for a single power cycle.	Use this mode to revert to the factory default firmware for a single power cycle if incompatibility issues arise with user-loaded firmware. All user files and settings are maintained.
Reset Network Settings	Hold in the **RESET** button until reset LEDs blink twice (once at 3 seconds, again at 6 seconds). Then, release and press the **Reset** button again within 1 second. **NOTE:** Nothing happens if the momentary press does not occur within 1 second.	Sets the following back to factory default: • Digital I/O port mapping. • IP address for LAN 1 (192.168.254.254). • IP address for LAN 2 (192.168.1.254) • Subnet mask address for LAN 1 and LAN 2 (V-models only) = (255.255.255.0). • Gateway IP address for LAN 1 and LAN 2 (V-models only) = (0.0.0.0). Enable ARP capability. Turns off DHCP for LAN 1 and LAN 2 (V-models only)	Use this mode to reset all IP settings back to factory defaults.

Full Factory Reset	Hold in the **RESET** button until reset LEDs blink three times (once at 3 seconds, again at 6 seconds, again at 9 seconds). Then, release and press the **Reset** button again within 1 second.
	
	NOTE: Nothing happens if the momentary press does not occur within 1 second.
		Performs a complete reset to factory defaults (except the firmware).
		• Includes factory default from the *Reset Network Settings* reset.
		• Mix-points are set to unity gain (0 dB) and the following connections are made:
		  • Input 1 is routed to output 1.
		  • Input 2 is routed to output 2.
		  • Input 3 is routed to output 3.
		  • Input 4 is routed to output 4.
		• All audio inputs are set to unity gain.
		• All outputs are unmuted and set to unity again.
		• Any inserted or active DSP removed.
		• All preset and group master memory is cleared.
			Use this mode to start over with default configuration and uploading, and also to replace events.

Toggle DHCP Client	Press the **RESET** button five times (consecutively) within 2 seconds. Release the button. Do not press the button after the fifth consecutive press.	• If disabled, DHCP Client status is set to enabled. The reset LED blinks 6 times (0.1 seconds each blink) if the DHCP Client status is set to enabled. • If enabled, the DHCP Client status is set to disabled. The reset LED blinks 3 times (0.1 seconds each blink) if the DHCP Client status is set to disabled.	• DHCP toggle mode is supported on firmware version 1.11.0002 or higher. • By default, DHCP is off and the unit uses a static IP address. • When DHCP is disabled, the unit reverts to using the previously set static IP address.

DSP Configurator Software

Extron DSP Configurator Software is the main user interface for control and management of the Extron DMP 64 Plus 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:

Software/Firmware Installation

Visit **www.extron.com** to download and install the DSP Configurator Software.

NOTES:

- Download the latest versions of software and firmware for your product.
- An Extron Insider account is required to download and use the firmware or software.

1. Access **www.extron.com**, and log in to your Insider account.
2. Mouse over the **Download** tab (see figure 11, ❶) at the top of the page.

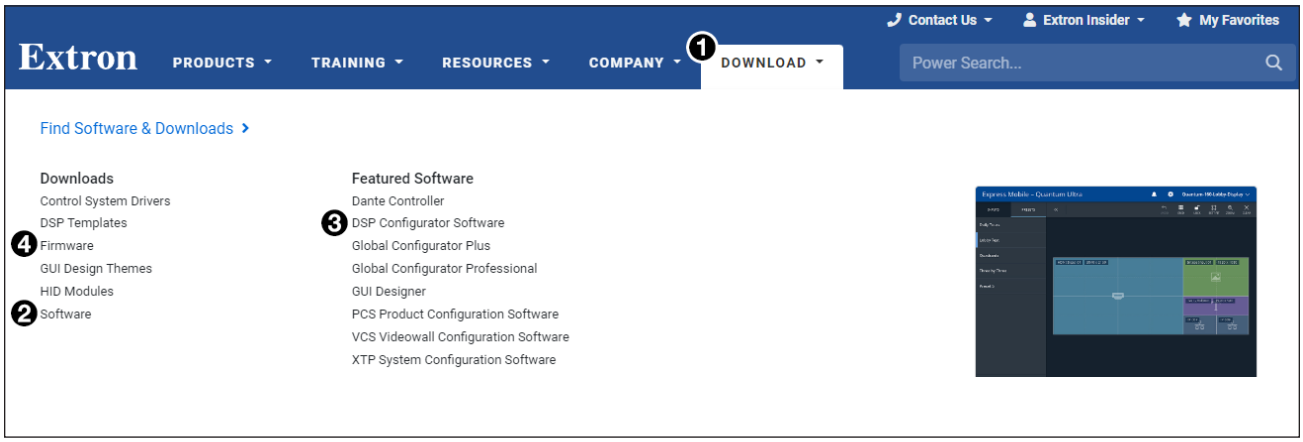


Figure 11. Software Links on Download Screen

3. Click the appropriate link on the drop-down list. The `Download Center` page opens.

   For software, click the **`Software`** link (❷).

   The `Download Center Software` page opens (see **figure 12** on page 14).

   NOTE: If the software is listed, click that link (see the **`DSP Configurator Software`** link in figure 11, ❸). The software product page opens. Skip to **step 5** on page 15.

   For firmware, click the **`Firmware`** link (❹).

   The `Download Center Firmware` page opens (see **figure 13** on page 14).

4. **For software,** type the name of the software into the **`Search Software`** field (see **figure 12**), and select the desired software. The selected software page opens below the search.

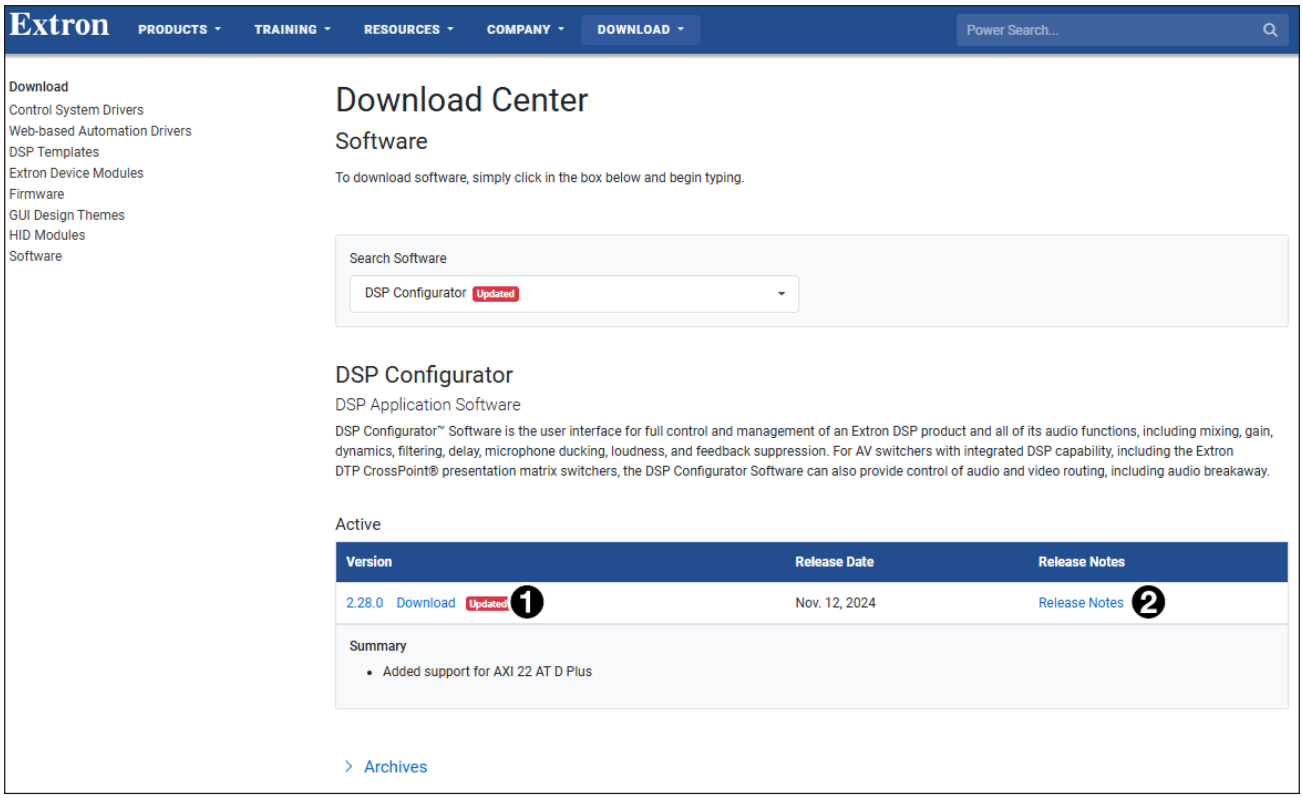


Figure 12. DSP Configurator Software

For firmware, type in the name of the device into the `Search Firmware` field (see figure 13), and select the desired device. The selected firmware page opens below the search.

NOTE: The desired device is not listed unless a firmware update is available.

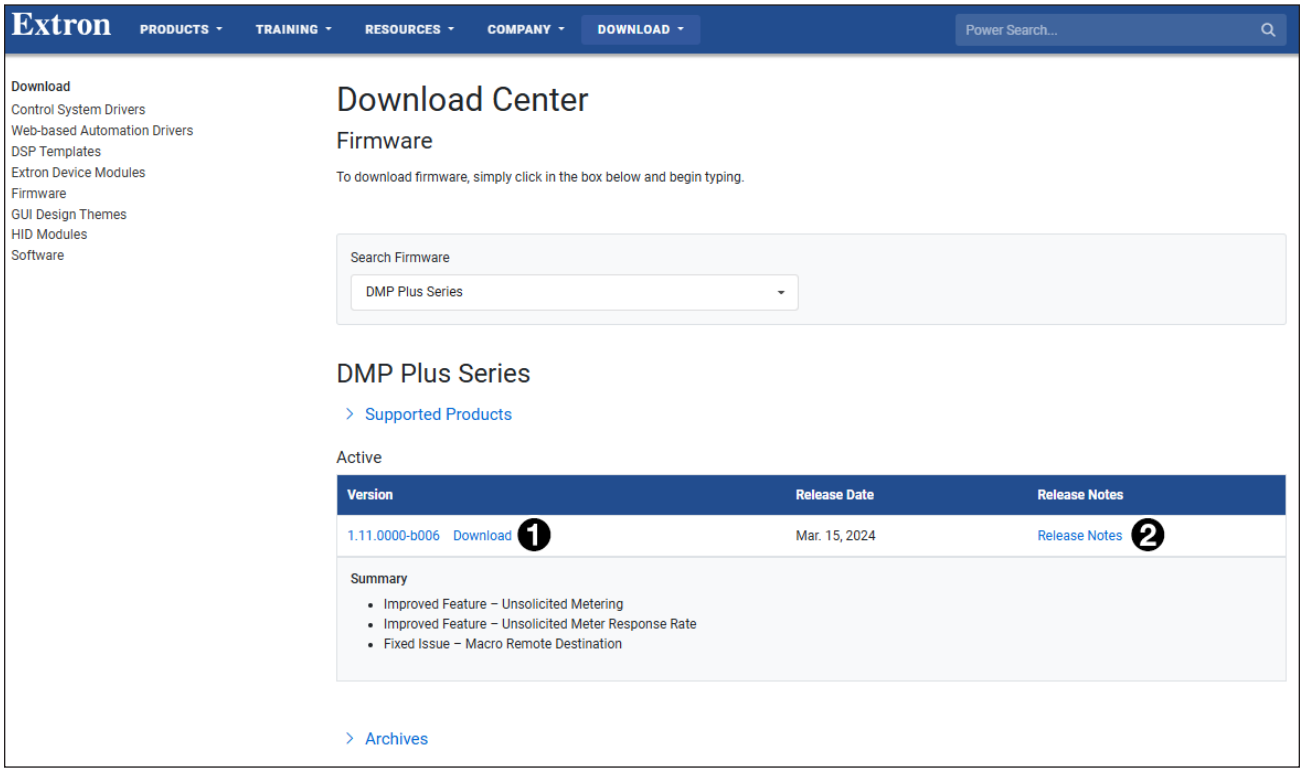


Figure 13. DMP Plus Firmware

5. Click **Download** (see **figure 12** and **figure 13** on page 14), and follow the on-screen instructions. An executable (.exe) file is downloaded to the PC. Run this program to place the firmware on the PC for future use. Make a note of the folder where the firmware file was saved.
6. **(Optional)** Click **Release Notes** for more information about the software or firmware.
7. **(Optional)** Click **Archives** to download previous versions of the software or firmware.

   NOTE: The **Archives** link is listed only if there is previous firmware.

8. Install the software.
   a. Navigate to the folder where the software file was downloaded.
   b. Double-click the executable file and follow the on-screen directions to install the software.

   For firmware:

   a. To install via internal web page, see **To update firmware** on page 71.
   b. To install via Toolbelt, see the *Toolbelt Help File*.
   c. To install via Firmware Loader, see the *Firmware Loader Help File*.

   NOTE: Firmware Loader can also be open from DSP Configurator in the Tools menu, if installed (see **Firmware Loader** on page 18.

Connecting to DSP Configurator

1. Open the DSP Configurator Software program from the desktop shortcut.

   Alternatively, to run DSP Configurator from the default install location, click

   Start> Programs> Extron> DSP Configurator.exe

   The Extron DSP Configurator splash screen opens (see figure 14).

2. From the DSP Configurator splash screen drop-down list (❶), select the DMP 64 Plus being connected to the host PC and click **OK** (❷).

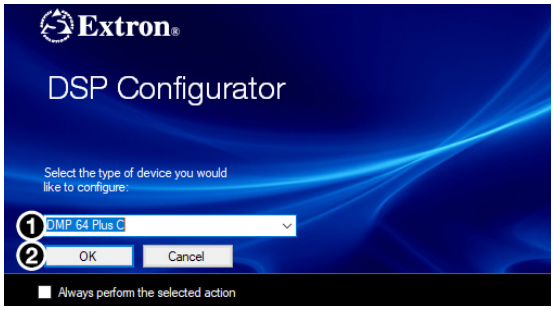


Figure 14. DSP Configurator

Accessing the DSP Configurator Help File

DSP Configurator comes loaded with a context-sensitive help file that can be accessed by clicking the help icon ( ) in the top right corner of any dialog box in DSP Configurator.

Alternatively, click **Help > Contents** in the menu bar at the top of the main workspace, or press **<F1>** on your keyboard. This help file contains detailed procedures and further instruction on all DSP Configurator features.

DSP Configurator Main Workspace

NOTE: For details about specific software features and device configurations, refer to the *DSP Configurator Help File*.

The DSP Configurator main workspace contains various functions to configure the DMP 64 Plus (see **figure 15** on page 16). Use the expand and collapse buttons ( ) next to the input and output group names to show or hide input and output groups and their corresponding mix matrices. If necessary, scroll through the window by using the mouse wheel or the scroll bar at the right side of the DSP Configurator main workspace.

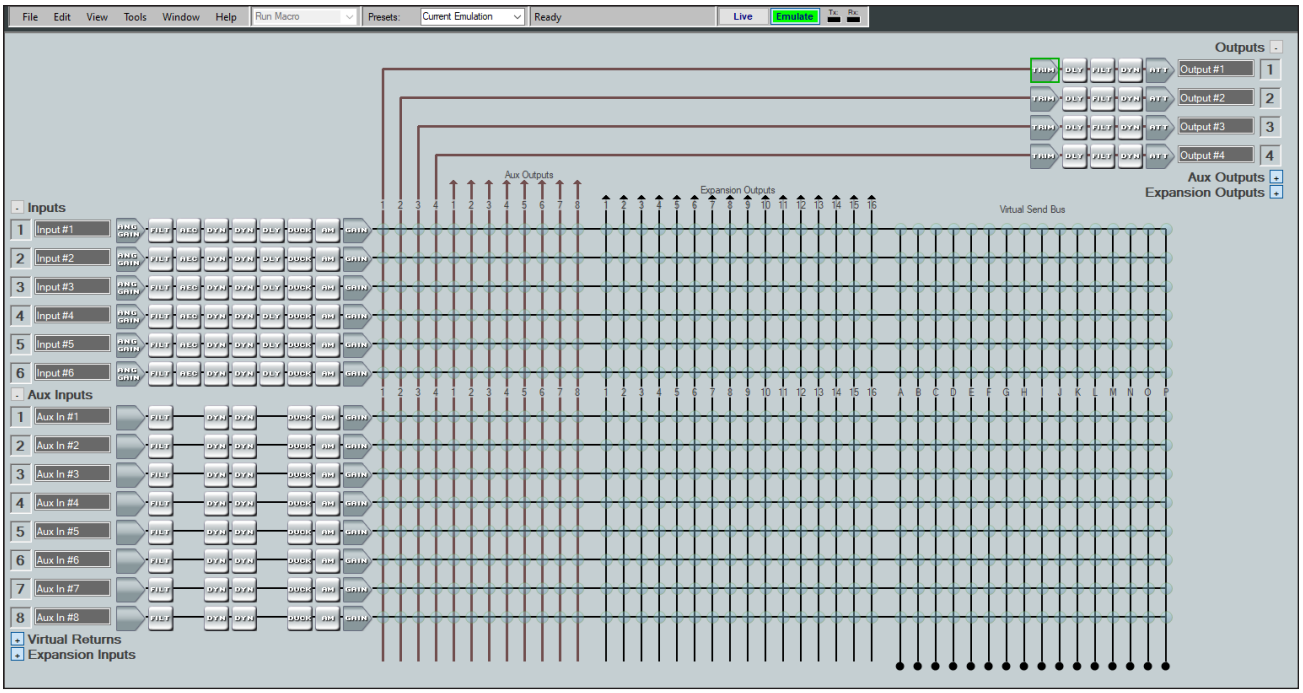
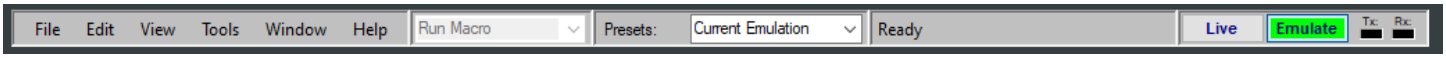


Figure 15. DMP 64 Plus DSP Configurator Main Workspace

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:

- **Export Single Device** — Saves the currently selected device in Device Manager as a configuration file. This function is used to save an individual device when there are multiple devices listed in the Device Manager (see **Device Manager** on page 18).
- **Backup** — Recalls and transfers all partial presets of a DMP 64 Plus to the configuration file or template file within DSP Configurator.

NOTES:

- Configuration files have an `.EDC` file extension and template files have an `.EDCT` file extension.
- The file operation, **`File`**, is only available in `Emulate` mode (see **Live and Emulate Panel** on page 19).

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

- **Convert Device to...** — Select a model of DMP 64 Plus to which the current configuration file is converted. After a conversion target model is selected, the Device Conversion dialog opens.

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, allowing use of the DSP Configurator workspace while simultaneously monitoring input and output activity.

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

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

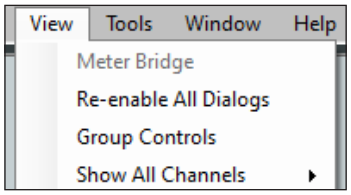


Figure 16. View Menu

- **Group Controls** — Opens the `Group Controls` dialog box to access existing group controls and add new groups.
- **AT Meters** — Opens a dialog box to select AT devices on the network. Double-click a device to open a meter bridge dialog box that displays AT transmit (Tx) and receive (Rx) channel levels for that device. The dialog box is a floating window, allowing use of the main workspace while simultaneously monitoring AT levels.
- **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** — Opens a submenu to mark and clear elements in the main workspace as well as an option to save marked elements to a preset
  - **Mark All Items** — Selects 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.
  - **Save Preset** — Saves the marked blocks and mix points of the current configuration as a preset.

    NOTE: When **`Save Preset`** is clicked, if items are marked only the elements marked with a green outline are saved to the preset.

  - **Clear Marked Items** — Unmarks all currently marked elements.
- **Configure Groups** — Opens the `Configure Groups` dialog box to create, edit, and delete Gain, Mute, and Meter groups.
- **Configure Digital I/O** — Opens the `Configure Digital I/O` dialog box to assign actions and modes to the digital inputs and outputs.
- **Configure Players** — Opens the `Configure Players` dialog box to upload audio files and assign them to players. `Player` control options are also found in the dialog box.
- **Configure ACP Panels** — Opens the `Configure ACPs` dialog box to configure `Extron Audio Control Panel` interfaces.
- **Configure Macros** — Opens the `Configure Macros` dialog box for creating, editing, and deleting macro functions.
- **Configure USB Audio** — Opens the `Configure USB Control` dialog with Windows communication volume and mute controls and Windows playback volume and mute controls to affect levels and mute status in the connected Extron USB audio processor.
- **Configure Internal Triggers** — Opens the `Internal Trigger Setup` dialog with the configuration, testing, and application of internal triggers.
- **Connect/Disconnect from Device** — In `Emulate` mode, **`Connect to Device`** is listed and opens the `Connect to Device` dialog box. In `Live` mode, **`Disconnect from Device`** is listed and returns the software to `Emulate` mode.

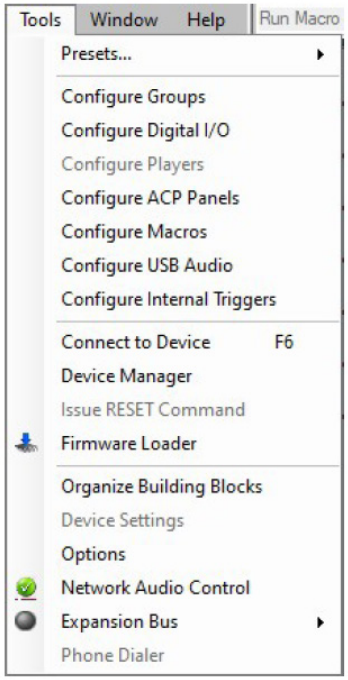


Figure 17. Tools Menu

- **Device Manager** — Opens the Device Manager dialog box .
- **Issue RESET Command** — Clears the device 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. Go to **www.extron.com** to download the software.
- **Organize Building Blocks** — Opens the Organize Building Blocks dialog box.
- **Device Settings** — Opens the Device Settings dialog box to edit date and time, IP address, DHCP status, Dante device, and other settings.
- **Options** — Opens the Options dialog box to configure DSP Configurator appearance, default settings, DSP value defaults, and so on.
- **Network Audio Control** — Opens the Dante Controller application by Audinate for routing audio over a Dante network.
- **Expansion Bus** — Contains a submenu to assign a DMP 64 Plus as a Primary or Secondary unit.
- **Phone Dialer** — Configure and test the DMP 64 Plus VoIP line. DSP Configurator must be connected Live to a DMP 64 Plus V-model in order for the Phone Dialer dialog to be opened.

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.

Run Macros Drop-Down

The **Run Macro** drop-down list is available when connected to the DMP 64 Plus in Live mode to view and run any macros that have been pushed to the device (see figure 18). The drop-down list is unavailable in Emulate mode.

The list of macros updates dynamically when a new macro is created. Macros created in DSP Configurator that have not been pushed to the device appear in the list with an asterisk to the right of the macro name. Only macros that have been pushed to the device can be run from the Run Macro drop-down list.

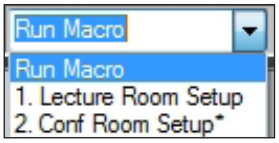


Figure 18. Macros

Presets Drop-Down List

Select the **Presets** drop-down list to view and apply presets saved in the current configuration file or on a device connected in Live mode (see figure 19). Presets with an asterisk next to them are on the DMP 64 Plus, 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 16).

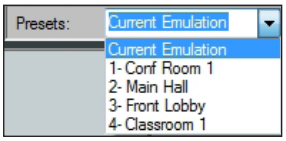


Figure 19. Presets

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.

DSP Configurator Status Panel

This Menu Bar 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 displays Ready.

Live and Emulate Panel

The **Live** and **Emulate** buttons allow users to switch between Live and Emulate mode and displays transmit (Tx) and receive (Rx) activity when in Live mode (see figure 20).

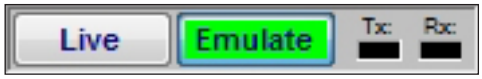


Figure 20. Live and Emulate Buttons

Live Mode

Enter Live mode to connect to a DMP 64 Plus and push or pull configurations between the device and host PC. In Live mode, changes made in DSP Configurator are directly applied to the device. Additionally, presets and macros can be created and stored on the device.

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

Connect to a DMP 64 Plus 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 21).

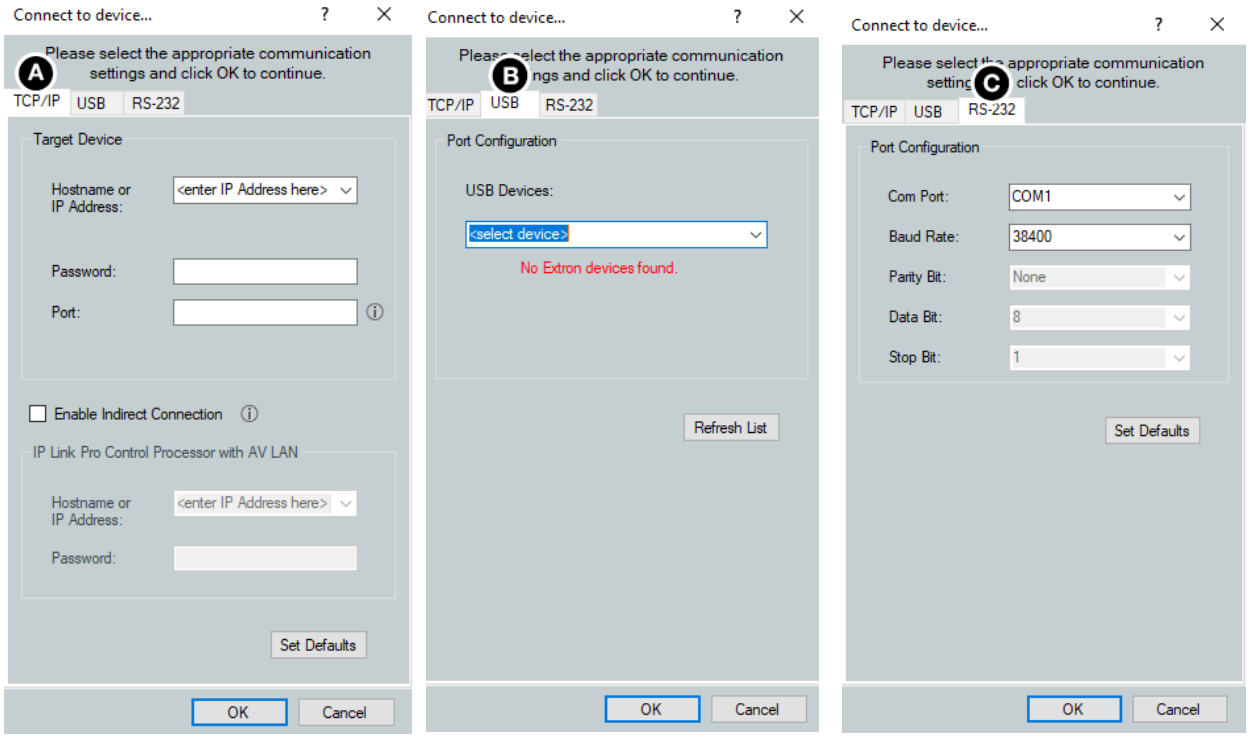


Figure 21. Connect to device...TCP/IP, USB, and RS-232

2. Connect to the DMP 64 Plus.

   To connect via TCP/IP (A):

   - Click the **TCP/IP** tab in the dialog box. Enter the IP address of the device in the **Hostname or IP Address** field. If necessary, enter the device password in the **Password** field.
   - Enter the port number in the **Port** field, if available. When port is not specified, DSP Configurator attempts to connect to secure ports first.

   To connect via USB (B):

   - Click the **USB** tab in the dialog box.
   - Select the device from the **USB Devices** drop-down list.

To connect via RS-232 (see figure 21, C on page 19):

- 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.

3. When a connection with a device is established, the Synchronize with Device dialog box opens (see figure 22).
   - **Pull** — Pulls the configuration file, presets, macros, and ACP configurations from the device and displays it in the DSP Configurator main workspace.
   - **Push** — Pushes the configuration file, presets, and AT Input Channel names open in DSP Configurator to the connected device. This overwrites any configuration currently on the device.

     NOTE: AT Input Channel names are only pushed when the checkbox is selected.

     Select the Selected radio button to open the DSP Configurator dialog box with a list of the available presets (see figure 23).
4. Once push or pull is completed, the current state of the connected device is displayed in the DSP Configurator status panel and the device is ready for further configuration.

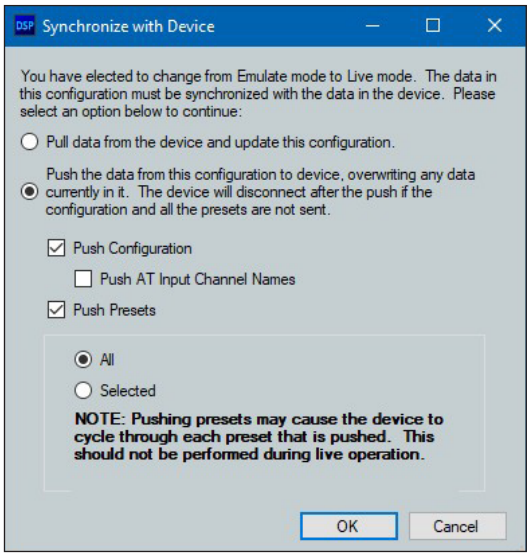


Figure 22. Synchronize with Device

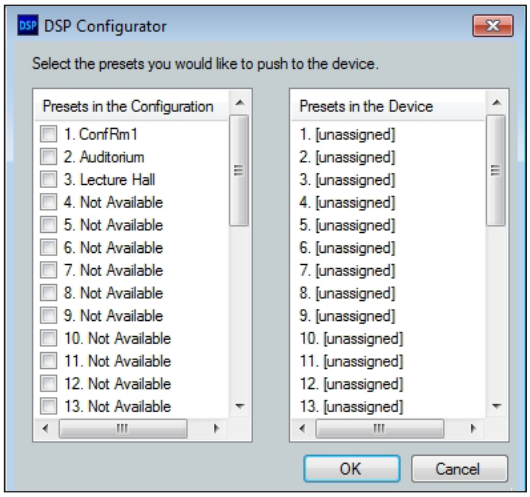


Figure 23. Preset Selection

Exit Live Mode and Enter Emulate Mode

1. Click the **Emulate** button in the DSP Configurator menu bar. Alternatively, select **Tools > Disconnect from Device** or press <**F6**> on the keyboard.
2. Click **OK** to confirm.

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 DMP 64 Plus.

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.

Dante Controller

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

Overview

DMP 64 Plus AT devices (DMP 64 Plus C AT and C V AT) 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 16 channels can be transmitted from the DMP 64 Plus AT to the Dante network and up to 32 channels can be received by the DMP 64 Plus AT from the Dante network.

Audio signals are converted by DMP 64 Plus AT devices, processed and routed to the AT bus, and transmitted onto the Dante network. Audinate recommends the Dante audio network be kept separate from other networks. However, the audio network can be shared with control traffic or unrelated data traffic. Audio channels can be unicast or multicast to make the best use of available bandwidth.

Downloading and Installing Dante Controller

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

To download Dante Controller:

1. On the Extron web page, 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` page, click **`Download`**.
4. On the `Download Center` page, fill in the required fields.
5. Click the **`Download dantecontroller.exe`** button.
6. If you choose to run the file, follow all prompts. If you saved the file, click the saved file to begin installation when ready.

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

Configuring the DMP 64 Plus in Dante Controller

Use a standard Ethernet cable to connect the DMP 64 Plus to a Dante network via the rear panel AT port (see C on page 5) and power the device.

Device Name

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

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

ATTENTION:

- It is essential that a Dante device be named before audio subscriptions with other devices are established. Existing subscriptions are removed when a device is renamed.
- Il est essentiel 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 DMP 64 Plus consists of the model name, followed by the last six characters of the Dante interface MAC address (for example, `DMP64P-0ee8ee`). In addition to renaming the device, individual Transmitter (Tx) and Receiver (Rx) channels can be renamed.

The Dante device name must be set before making any connections to other devices on the Dante network. Renaming a device after making connections removes existing connections to and from that device. Refer to **Renaming the DMP 64 Plus in Dante Controller** on page 23.

Receiver and Transmitter Names

In addition to renaming a device, individual transmitter and receiver channels can be renamed in Dante Controller. Rename transmitter and receiver channels to reflect the location of the device or the purpose of the transmitter or receiver. Ensure transmitter and receiver channels are renamed before making audio connections between devices. Refer to **Renaming a Receiver or Transmitter** on page 23 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.
- 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.

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 DMP 64 Plus in Dante Controller

NOTE: Dante device naming can also be done via DSP Configurator (see **Device Settings** on page 18).

1. Ensure that the control computer and a single DMP 64 Plus are connected to the same network.
2. From the control computer `Start` menu select:
   `All Programs > Audinate > Dante Controller > Dante Controller`
3. The `Dante Controller - Network View` screen opens.
   All Dante devices on the network are discovered and listed.
4. From the `Device` menu, select **`Device View`** or press **`<Ctrl+D>`** on the keyboard.
5. The `Dante Controller - Device View` dialog opens. Select the device being configured from the **`(Select a Dante Device...)`** drop-down list.

   NOTES:
   - If there are multiple DMP 64 Plus devices connected to the network that have not been renamed, obtain the Dante interface media access code (MAC) address of the desired device from the white label on the rear panel of the device in order to identify it in Dante Controller.
   - There are multiple MAC addresses listed on the rear panel of a DMP 64 Plus, one for the LAN port and one for the Dante interface. The Dante interface MAC address is listed beneath the LAN port MAC address.

   The `Device View` dialog populates with the selected DMP 64 Plus information.
6. Click the **`Device Config`** tab 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 **`DMP64Plus-MainRack`**.
8. Click **`Apply`**.
   A confirmation prompt opens.
9. Click **`Yes`** to confirm the new name, then close the `Device Configuration` dialog box. The new name is written to the Dante interface of the DMP 64 Plus. Repeat as necessary for all devices.

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

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.

ATTENTION:
- It is essential that a Dante device be named before audio subscriptions with other devices are established. Existing subscriptions are removed when a device is renamed.
- Il est essentiel 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.

To view the receiver or transmitter channels in Dante Controller, click the **+** sign next to the receiver or transmitter device name to expand it. The **+** sign becomes a **–** sign when the device is expanded.

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 or Transmitter

The default names shown in the Dante Receivers column are extracted from the Dante interface of the connected device. The DMP 64 Plus receivers are labelled EXP_In-01 through EXP_In-48 because the DMP 64 Plus can receive signal at the 48 EXP inputs. Follow the instructions on the next page to rename a receiver or transmitter.

To rename a DMP 64 Plus receiver or transmitter:

1. Open the Device View dialog box of the DMP 64 Plus.
2. From the **(Select a Dante Device..)** drop-down list, select the name of the desired DMP 64 Plus.
3. On the Device View screen, select the **Receive** tab or **Transmit** tab as desired.
4. Click the name of the receiver or transmitter to be renamed. The name becomes a text box with a cursor. Enter the new name (up to 31 characters) using any combination of letters, numbers, and special characters except for @, =, and . (period).
5. Press **<Enter>** on the keyboard to confirm the name, or click another channel text box.
6. Repeat steps 4 through 6 to rename additional receiver or transmitter channels.
7. When finished renaming receivers and transmitter, 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 DMP 64 Plus in Dante Controller** on page 23).

NOTE: If the DMP 64 Plus 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, DMP64Plus-0ee8ee).

1. Open Dante Controller.
2. On the Dante Controller-Network View screen, click the **Device Info** tab.
3. On the Device Info page, locate the name of the DMP 64 Plus in the Device Name column. The IP address is located in the Primary Address column. The IP address for the connected DMP 64 Plus is 192.168.11.120.

Physical Dante Network Setup

A physical network is required to share Dante audio channels between Dante-enabled devices like the DMP 64 Plus. Other Dante-enabled devices must be on the same physical network in order to communicate via Dante. A daisy chain topology can be used to connect multiple devices.

Daisy Chain topology has DMP 64 Plus units connected in succession (see figure 24).

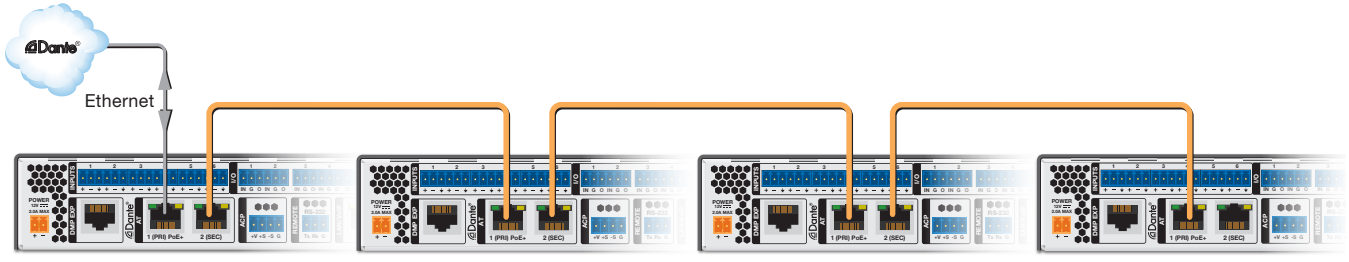


Figure 24. Daisy Chain Network Topology

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

Redundant Configuration

In redundant mode, the 2-port AT switch becomes separate primary and secondary ports that duplicate audio traffic. Port 1 is marked (PRI) PoE+ for primary while port 2 is marked (SEC) for secondary (see figure 183 below). Primary and secondary switches/ports cannot be connected together anywhere in the audio network. Redundant configuration can be enabled using Dante Controller or DSP Configurator.

To configure the DMP 64 Plus in redundant mode using Dante Controller:

1. Open Dante Controller.
2. Press **<Ctrl+D>** on the keyboard to access the Device View dialog box.
3. Select the desired DMP 64 Plus from the **(Choose a Dante Device...)** drop-down list.
4. Select the **Network Config** tab.
5. From the Dante Redundancy panel, use the drop-down to select **Redundant**.

NOTE: To configure the DMP 64 Plus in redundant mode using DSP Configurator, refer to the *DSP Configurator Help File*.

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.

DMP 64 Plus Transmitters and Receivers

In the DMP 64 Plus, the line output and EXP output channels are Dante transmitters because their audio output is transmitted onto the Dante network. Routing an analog output to the Dante network allows the signal to be output on both analog and Dante simultaneously, the same is true for the EXP outputs.

The DMP 64 Plus EXP input channels are Dante receivers because they receive digital audio signal from the Dante network that can then be routed and mixed into the DMP 64 Plus mix matrix.

Dante Routing Operation

Dante Controller is used for all network signal routing of transmitters and receivers for Dante-enabled devices. The DMP 64 Plus transmitters and receivers are available in Dante Controller for routing to other Dante devices.

Routing Devices

After the DMP 64 Plus 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. 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 the icon at the intersection.

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

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

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

Creating Subscriptions Between Transmitters and Receivers

1. Ensure the control computer and DMP 64 Plus 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.
3. 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.
4. To show the transmitters of a Dante device, click the **+** box next to the desired device in the `Dante Transmitters` panel, such as `AXI22D-ConfRm1`. The **+** changes to a **–** sign when the device expands.
5. To show the receivers of a Dante device, click the **+** box next to the desired device in the `Dante Receivers` panel, such as `DMP64Plus-MainRack`.
6. Click the intersection of the desired subscription between a transmitter and a receiver.
7. 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.

Sending SIS Commands to Dante Audio Interface Devices through the DMP

The DMP 64 Plus can be set to pass through SIS commands to connected Dante-controlled Extron devices (see **Dante Control and Configuration** on page 48 for SIS commands).

To send an SIS command to an AXI device connected to a DMP 64 Plus:

1. Connect the DMP and Dante-controlled devices to the same network via their AT ports (see **Physical Dante Network Setup** on page 24).
2. Connect to the DMP via DataViewer (see **SIS Configuration and Control** on page 30).

3. Use the *Set verbose mode* command to set the DMP to Verbose mode 3 (see **Set verbose mode** on page 42). Example:

Command	Response
w3cv|	*Vrb3*↵

4. Use the *Query available remote devices* command (see **Query available remote devices** on page 48) to receive a list of Dante devices that are currently connected to the DMP. Example:

Command	Response
waexpr|	*ExprA•AXI-XTP-RoomA*↵ *AXI-XTP-RoomB*↵↵

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

6. 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 4 (see **Enable remote connection for listening** on page 48). Repeat if necessary for all desired devices. Example:

Command	Response
*wcAXI02-XTP-RoomA*1expr|*	*ExprCAXI-XTP-RoomA*1*↵

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

8. 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 (see **Query remote devices being listened to** on page 48). Example:

Command	Response
wlexpr|	*ExprL•AXI-XTP-RoomA*↵

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

Command	Response
{dante@AXI02-XTP-RoomA:wg40000-10AU|}|*	*{dante@AXI02-XTP-RoomA}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.

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.

AES67 Mode

The AT models of the DMP Plus series support the AES67 audio over IP interoperability standard. This feature allows audio transport to and from other AES67-compatible devices, such as the Extron NAV series.

To enable AES67 mode:

1. Open Dante Controller and double-click the Dante device name in the **Routing** tab to open Device View.
2. Click on the **AES67 Config** tab. The configuration screen opens.
3. Select **Enabled** from the drop-down list.
4. Click the **Reboot** button to reboot the device and enable AES67.

To create an AES67 Multicast Flow:

1. Open Dante Controller and double-click the Dante device name in the **Routing** tab to open Device View.
2. Click the **Create a new multicast flow** button.
3. In the Flow Config section, click the **AES67** radio button.
4. In the Flow Config section, select **Auto** or **Manual Destination Address**. If manual is selected, enter the destination address.
5. Check the box for each channel to be included in the Multicast Flow.
6. Click **Create**.

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 reset 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 64 Plus AT and an AXI 44 AT, 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.

   The Configure Dante Interfaces dialog box opens.

   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.

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 box).
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, perform any of the following:

- Click the **`Help`** icon in the upper-right corner of the `Network View` screen.
- 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.

SIS Configuration and Control

Use Simple Instruction Set (SIS) commands to configure the DMP 64 Plus. This section provides information about using those commands. Topics include:

Host Control Ports

Rear Panel RS-232 Port

The DMP 64 Plus has a rear panel serial port (see **figure 2**, E on page 4) that can be connected to a host device such as a computer running Extron DataViewer, available at **www.extron.com**. The port makes serial control of the unit possible. Use the protocol information listed below to make the connection.

The protocol for the Remote serial port is as follows:

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

NOTE: The rear panel configuration port requires 38400 baud communication. This speed is higher than most other Extron products. The DMP 64 Plus 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.

Front Panel Configuration USB Port

The front panel USB mini-B type port (see **figure 8**, B on page 8) can be connected to a host computer for configuration using SIS commands. To connect the unit to a host computer, download the USB driver, follow the on-screen instructions, and configure the unit as required.

Ethernet (LAN) Port

The rear panel Ethernet ports (see **figure 2**, F) can be connected to an Ethernet LAN or WAN. Communications between the unit and the controlling device is via Telnet, using port 23. The Telnet port can be changed, if necessary, via SIS, using DataViewer, or other port configuration application. This connection makes SIS control of the unit possible using a computer connected to the same LAN or WAN.

Default IP Address

To access the DMP 64 Plus via the LAN port (LAN 1 on V-models), the IP address, subnet mask, and the gateway address for the devices are needed. If the address have not been changed, the factory-specified defaults are:

- **DHCP** `OFF`
- **IP address** `192.168.254.254`
- **Gateway address** `0.0.0.0`
- **Subnet address** `255.255.255.0`

Establishing a Connection

The Ethernet cable can be terminated as a straight-through cable or a crossover cable and must be properly terminated for your application (see **TP Cable Termination for Ethernet Communication** on page 11).

- **Crossover cable** — Direct connection between the computer and the device.
- **Patch (straight) cable** — Connection of the device to an Ethernet LAN.

To establish a network connection to the device:

1. Open a TCP socket to port 23 using the DMP 64 Plus IP address.

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

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

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

Connection Timeouts

The Ethernet link times out after a designated period of time with no communication. By default, this timeout value is 5 minutes, but the value can be changed (see **Set global IP port timeout** on page 40).

NOTE: Extron recommends leaving the default timeout at 5 minutes and periodically issuing the `Query` (**Q**) command to keep the connection active. If there are long idle periods, disconnect the socket and reopen the connection when another command must be sent.

Verbose Modes

Telnet connections can be used to monitor for changes that occur, such as SIS commands from other Telnet sockets or serial port changes. For a Telnet session to receive change notices, the Telnet session must be in verbose mode 1 or 3. In verbose mode 1 or 3, the Telnet socket reports changes in messages that resemble SIS command responses (see **Set verbose mode** on page 42).

Tagged and Untagged Responses

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

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

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

NOTE: All query responses listed in this guide are shown untagged.

Simple Instruction Set Control

Host-to-Unit Instructions

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

Device-Initiated Power-Up Message

When the device completes its start-up, it issues the following message to the host:

`© Copyright 2019-2022, Extron Electronics DMP 64 Plus {model}, Vx.xx, 60-nnnn-nn↵`

`Day, DD MMM YYYY HH:MM:SS↵`

- *{model}* is the full model name (for example, DMP 64 Plus C V AT).
- V*x.xx* is the firmware version number
- 60-*nnnn-nn* is the part number of the unit

The DMP 64 Plus sends the boot and copyright messages under the following circumstances:

- If the DMP 64 Plus is off and RS-232 connection is already set up (the PC is cabled to the DMP 64 Plus and a serial communication program such as DataViewer is open), the connected unit sends these messages via RS-232 when first powered on.
- The DMP 64 Plus sends the boot and copyright messages when a Telnet connection to the DMP 64 Plus is opened via Telnet, but not via RS-232. If using a Telnet connection, the copyright message, date, and time may be followed by a password prompt.

Password Prompt

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

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

NOTES:

- The factory configured password for this device is set to the device serial number. When performing a factory reset, the password is set to the default password, which is no password.
- Passwords are case sensitive. Passwords only apply to IP connections and can be up to 128 characters in length.

Using the Command and Response Table

Symbols are used throughout the SIS tables to represent variables in the command response fields. Command and response examples are shown throughout the table. The ASCII to HEX conversion table (see figure 25) is for use with the command and response tables.

Space →

ASCII to Hex Conversion Table										Esc	1B	CR	ØD	LF	ØA
	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 25. ASCII to Hex Conversion Table

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 DMP 64 Plus 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

E12 – Invalid port number

E13 – Invalid parameter

E14 – Not valid for this configuration

E17 – Invalid command for signal type

E18 – System timed out

E22 – Busy

E24 – Privilege violation

E25 – Device not present

E26 – Maximum connections exceeded

E27 – Bad filename or file not found

E28 – Bad file name or file not found

E31 – Attempt to break port pass-through when not set

Simple Control Port Commands

Port 23 is the default port for Telnet. Port 80 is the default port for web browsers. Both can be mapped to different ports.

Special Characters

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

The DMP 64 Plus rejects the following characters:

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

Symbol Definitions

↵ = CR/LF (carriage return with line feed)

| or ← = Soft carriage return (no line feed)

• = Space

* = Asterisk character (which is a command character, not a variable)

Esc or W = Escape key

NOTES:

- If unit does not support or recognize the entered commands, nothing happens and no response is issued.
- 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.

KEY:		
X1	=	**Port Number** — 01 (always 01 for DMP 64 Plus)
X2	=	**GMT Offset Value** — This represents hours and minutes (hh:mm) offset from Greenwich Mean Time.
X3	=	**Unit Name** — A text string up to 63 characters drawn from the alphabet (A-Z), digits (0-9), and minus sign/ hyphen (-).
X4	=	**Local Date and Time Format** — *MM/DD/YY-HH:MM:SS*
X5	=	**IP address (*xxx.xxx.xxx.xxx*)** — Leading zeros in each of the 4 fields are optional in setting values and are suppressed in responses.
X6	=	**Hardware MAC Address** — 00-05-A6-*xx-xx-xx*
X7	=	**Subnet Mask (*xxx.xxx.xxx.xxx*)** — Leading zeros in each of the 4 fields are optional in setting values and are suppressed in responses.
X8	=	**Dante Device Name** — Device names are not case sensitive.
X9	=	**Date and Time in Hex** — Date and time returned in 7 hex bytes (month, day, year, hour, minutes, seconds, and day of the week with Sunday = 1)
X10	=	**Verbose/Response mode** — 0 = Clear/none (default for Telnet connections) 1 = Verbose mode (default for USB and RS-232 host control) 2 = Tagged responses for queries 3 = Verbose mode and tagged responses for queries
X11	=	**Baud Rate** — 300, 600, 1200, 1800, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400 (default), 57600, or 115200
X12	=	**Parity (only the first letter is needed)** — **O** = odd **E** = even **N** = none (default) **S** = space **M** = mark
X13	=	**Data Bits** — 7, 8 (default = 8)
X14	=	**Port Type** — 0 = RS-232 (default)
X15	=	**Flow Control (only the first letter is needed)** — **H** = hardware **S** = software **N** = none (default)
X16	=	**Data Pacing** — Specified in milliseconds between bytes. 0000-1000 ms (default is 0 ms). For host port or ports, this value is ignored and always returns a 0.
X17	=	**Password** — 0-128 characters. All human-readable characters are permitted except "**|**". Password cannot be a single space. Passwords are case-sensitive.
X18	=	**Reading Password** — Responds with 4 asterisks (****) if password exists and empty if not, instead of actual password.
X19	=	**Default Name** — A combination of the model name and the last 3 pairs of the MAC address of the unit.
X20	=	**Serial Port** — 1-n = Redirect serial port data from the specified port to allow for a transparent pass through mode.
X21	=	**Connection Security Level** — 11 = User 12 = Administrator
X22	=	**Extron Remote Connection Mode** — 0 = Disabled 1 = Enable

X23	=	**IP Timeout** — The number of seconds before timeout on IP connections (min = 1, max = 65000 and default = 30 [300 seconds]). If no data is received during the timeout period, the Ethernet connection closes. Each step = 10 seconds.
X24	=	**Stop Bits** — 1, 2 (default = 1)
X25	=	**NTP Status** — 0 = Disabled (default) 1 = Enable
X26	=	**Configuration Type** — 0 = IP configuration 1 = Device-specific parameters
X27	=	**Firmware Query** — 0 = Detailed version information (includes all 2Q, 3Q, and 4Q) 1 = Firmware Version 3 = Factory base code version 2 = Final Stage bootloader 4 = Updated firmware version
X28	=	**NIC Number** — Network Interface Card number 1 or 2 (only V-models have 2 NICs)
X29	=	**Prefix (subnet mask bits)** — Subnet 255.255.0.0 is represented as a Prefix value of /16.
X30	=	**Text up to 64 characters.**
X31	=	**Digital Input Status** — 0 = Logic low 1 = Logic high
X32	=	**Digital I/O Channel** — 1 through 6
X33	=	**Action Type** — 0 = No action/off **Mutes** 1 = Level trigger (low mutes) 2 = Level trigger (high mutes) 3 = Edge trigger (high to low mutes, low to high unmutes) 4 = Edge trigger (high to low unmutes, low to high mutes) 5 = Toggle trigger (high to low toggles mute) 6 = Toggle trigger (low to high toggles mute) **Group Mutes** 7 = Level trigger (low mutes) 8 = Level trigger (high mutes) 9 = Edge trigger (high to low mutes, low to high unmutes) 10 = Edge trigger (high to low unmutes, low to high mutes) 11 = Toggle trigger (high to low toggles mute) 12 = Toggle trigger (low to high toggles mute) **Macros** 13 = Edge trigger (high to low starts macro) 14 = Edge trigger (low to high starts macro **Presets** 15 = Edge trigger (high to low recalls preset) 16 = Edge trigger (low to high recalls preset)
X34	=	**Varies according to the action type** **Mutes** Input number for muting. If X33 is not specified, muting matches the input with the corresponding I/O channel number. **Group Mutes** Group member for muting. If X33 is not specified, muting matches the group with the corresponding I/O channel number. **Macros** Macro number. If X33 is not specified, the macro number defaults to the corresponding I/O channel number. **Presets** Preset number. If X33 is not provided, the preset number defaults to the corresponding I/O channel number.
X35	=	**Digital Output** — 1

X36	=	**Output Mode** — 0 = Output always high 1 = Output always low **Mutes** 2 = Mute high 3 = Unmute high **Group Mutes** 4 = Group mute high 5 = Group unmute high **Macros** 6 = Macro started set high once (blink) 7 = Macro started set low once (blink) **Presets** 8 = Presets recalled set high once (blink) 9 = Preset recalled set low once (blink) **Automix Gate Status** 10 = Automix gate on (>1024) set high 11 = Automix gate on (>1024) set low **Signal Presence** 12 = Signal presence (>-40 dBFS) set high 13 = Signal presence (>-40 dBFS) set low
X37	=	**Varies according to the output mode** — **Mutes** Input number for monitoring. If X36 is not specified, monitoring defaults to the input with the corresponding I/O channel number. **Group Mutes** Group member for mute monitoring. If X3^ is not specified, muting matches the group with the corresponding I/O channel number. **Macros** Macro number. If X36 is not specified, the macro number defaults to the corresponding I/O channel number. **Presets** Preset number. If X36 is not provided, the preset number defaults to the corresponding I/O channel number. **Automix Gate Status** Input number for automix gate monitoring. If X36 is not specified, the input number defaults to the corresponding I/O channel number. **Signal Presence** Input number for signal presence monitoring. If X36 is not specified, the input number defaults to the corresponding I/O channel number.
X38	=	**Preset Number** — 1 through 32
X39	=	**Input Number** — 1 through 20 (inputs 13-20 are Aux inputs 1-8)
X40	=	**Virtual Return Number** — 1 through 16
X41	=	**EXP Input Number** — 1 through 16
X42	=	**Output Number** — 1 through 16 (inputs 9-16 are Aux outputs 1-8)
X43	=	**EXP Output Number** — 1 through 16
X44	=	**Name** — Invalid characters = ~ , @ = ‘ [ ] { } < > ` “ : ; | and ?
X45	=	**Audio File Name** — Valid characters are A-Z, a-z, 0-9, _.
X46	=	**Player ID** — 1 through 8

X47	=	**Play State** — 0 = Stopped 1 = Playing
X48	=	**Macro Number** — 1 through 64. Response is padded with a leading 0.
X49	=	**Macro Status** — 0 = Macro idle, 1-32 = Macro step
X50	=	**Macro Name** — 24 characters maximum (A-Z, a-z, 0-9, _)
X51	=	**SNMP Access** — 0 = Disabled (default) 1 = Enabled
X52	=	**Ethernet Port Number** — 0 = Off, custom port numbers must be 1024 or higher
X53	=	**SIS Command** — SIS command to be sent to remote Dante-controlled device.
X54	=	**SIS Command Response** — Response from remote Dante-controlled device, tagged by DMP.
X55	=	**DHCP Status** — 0 = Off (default) 1 = On
X56	=	**Network Interface Card #** — 1 = LAN 1 2 = LAN 2
X58	=	**Target OID** — See **Object ID (OID) Number Tables** on page 57.
X59	=	**Level Value** — Level values use a 10x multiplier system to set gain via SIS command. For example, if the desired gain value is +10.3 dB, the SIS value would be 103 (10.3 x 10). If the desired gain value is -8.2 dB, the SIS value would be -82 (-8.2 x 10), and so on. -12.0 dB to +12.0 dB, (-120 to 120) in 0.1 dB increments. -19.0 dB to 80 dB, (-180 to 800) in 0.1 dB increments. -100.0 dB to +12.0 dB, (-1000 to 120) in 0.1 dB increments. **NOTE:** The integers only need to be signed if they are a negative number.
X60	=	**Mute Status** — 0 = Unmute 1 = Mute
X61	=	**Group Master Group Number** — 1 through 64
X62	=	**Group Fader Setting** — dB, value in 0.1 dB increments using a 10x multiplier and negative numbers, but not decimal places. The valid range depends on the type of gain block that is assigned to the group number X59 specified in the command: -180 to 800 (-18 dB to +80 dB) -1000 to 120 (-100.0 dB to +12.0 dB) -120 to 120 (-12.0 dB to +12.0 dB) -1000 to 0 (-100.o dB to +0.0 dB) **NOTE:** Leading zeros are ignored.
X63	=	**Group Fader Increment/decrement** — dB value, in 0.1 dB increments, to raise or lower a group fader.
X64	=	**Group Fader Soft Limit** — dB value, in 0.1 dB increments.
X65	=	**Group Type** — 6 = Gain 12 = Mute 21 = Meter
X66	=	**Meter Group Number** — 1 through 64
X67	=	**Unsolicited Meter Rate (responses per second)** — 1-10; default is 1 (for firmware before v1.11.0000-b006) 1-25; default is 1 (for firmware v1.11.0000-b006 or higher)
X68	=	**Unsolicited Meter Group Setting** — 0 disables unsolicaited meter responses, 1-64 specifies/enables a meter group for unsolicited meter value responses; 0 at power on.
X69	=	**Group Master Meter Group Number** — 1 through 64

X70	=	**Source Mode** — 0 = Disabled 1 = File/Tone Playback: Player 1 2 = File/Tone Playback: Player 2 3 = File/Tone Playback: Player 3 4 = File/Tone Playback: Player 4 5 = File/Tone Playback: Player 5 6 = File/Tone Playback: Player 6 7 = File/Tone Playback: Player 7 8 = File/Tone Playback: Player 8 9 = USB 1 Rx: Left Channel 10 = USB 1 Rx: Right Channel 11 = USB 2 Rx: Left Channel 12 = USB 2 Rx: Right Channel 13 = USB 3 Rx: Left Channel 14 = USB 3 Rx: Right Channel 15 = USB 4 Rx: Left Channel 16 = USB 4 Rx: Right Channel 17 = VoIP Line 1 Rx 18 = VoIP Line 2 Rx 19 = VoIP Line 3 Rx 20 = VoIP Line 4 Rx 21 = VoIP Line 5 Rx 22 = VoIP Line 6 Rx 23 = VoIP Line 7 Rx 24 = VoIP Line 8 Rx
X71	=	**Update Status** — 0 = Disabled 1 = Enabled
X72	=	**Meter Level** — -150.0 dBFS to 0.0 dBFS (1500 to 0000)
X73	=	**Output Mode** — 0 = Disabled 1 = USB 1 Tx: Left Channel 2 = USB 1 Tx: Right Channel 3 = USB 2 Tx: Left Channel 4 = USB 2 Tx: Right Channe 5 = USB 3 Tx: Left Channel 6 = USB 3 Tx: Right Channel 7 = USB 4 Tx: Left Channel 8 = USB 4 Tx: Right Channel 9 = VoIP Line 1 Tx 10 = VoIP Line 2 Tx 11 = VoIP Line 3 Tx 12 = VoIP Line 4 Txx 13 = VoIP Line 5 Tx 14 = VoIP Line 6 Tx 15 = VoIP Line 7 Tx 16 = VoIP Line 8 Tx
X74	=	**Gate Monitoring Status** — 0 = Gate monitoring disabled 1024 = Gate monitoring enabled
X75	=	**Meter Status** — 0 = Meter off 1 = Meter on
X76	=	**Monitoring Threshold** — 0 = Disabled 0001-2000 = Signal threshold to monitor (-0.1 to -100.0 dBFS)
X77	=	**Meter Value** — 0000-2000 = 0.0 to -200.0 dBFS
X78	=	**Meter Relative to Threshold** — 0 = Above threshold 1 = Equal to or below threshold
X79	=	**Signal level when gate is opened or closed** — 0000-1023 = gate closed, ≥1024 = gate opened
X80	=	**Line Number** — 1-8
X81	=	**Appearance Number** — 1-8 (where 1 is originating two-party call)
X82	=	**Phone Number** — No spaces allowed. Valid characters are 0-9, *, #.
X83	=	**Return Code** — 0 = Ok 1 = Fail
X84	=	**Operating State** — 0 = Enable 1 = Disable
X85	=	**Auto Answer Mode** — 0 = Disabled 1 = Delay (seconds) 2 = Follow SIP header
X86	=	**Delay Value** — Represents time in seconds.
X87	=	**Display Name** — Any commas returned is displayed as hyphens (-).
X88	=	**Time Stamp** — Example: Date: Thu, 08 Sept 2017 16:24:35 GMT
X89	=	**Registration Status** — 0 = Unregistered 1 = Registered to 1st proxy 2 = Registered to 2nd proxy 3 = None 4 = Not registered (failed)
X90	=	**Call Status** — 0 = None 1 = Inactive 2 = Active 3 = On Hold 4 = Incoming 5 = Outgoing
X91	=	**Duration** — HH:MM:SS
X92	=	**Codec name**
X93	=	**Jitter in milliseconds**
X94	=	**Packet drop count**

X95	=	**Total packet count**
X96	=	**Extension Number** — Valid characters are 0-9, *, #.
X97	=	**Hold Status** — 0 = Off 1 = On hold
X98	=	**Repeat Status** — 0 = Play once 1 = Repeat
X98	=	**Target OID** — See **Automixer OIDs** on page 60.
X99	=	**Mute/Phantom Power Status** — 0 = Disabled (default) 1 = Enabled
X100	=	**Gate Status** — 0 = Gate closed 1 = Gate opened

Command and Response Table for SIS Commands

Command	ASCII command (host to device)	Response (device to host)	Additional description
Information Requests			
General information	I	V00X00•A06x04•E32x16↵	Response varies depending on model.
Model name	1I	DMP 64 Plus↵	Response varies depending on model.
Model description	2I	Digital audio matrix processor↵	Response varies depending on model.
System memory usage	3I	<*number*> Bytes Used out of <*number*> KBytes↵	
User memory usage	4I	<*number*> Bytes Used out of <*number*> KBytes↵	
Query firmware version	Q	{version *x.xx*}↵	
Query firmware version with build	*Q	{version *x.xx.xxxx*)↵	
Query firmware version (advanced)	X27Q	{*specific version info*}↵	
Query part number	N	*zz-zzzz-zz*↵	

KEY: X27 = Firmware Query: 0 = Detailed version information (includes all 2Q, 3Q, and 4Q); 1 = Firmware version; 2 = Final stage bootloader; 3 = Factory base code version; 4 = Updated firmware version

Ethernet Data Port			
Set current connected port timeout	Esc0*X23TC←	Pti0*X23↵	
View current connected port timeout	Esc0TC←	X23↵	
Set global IP port timeout	Esc1*X23TC←	Pti1*X23↵	
View global IP port timeout	Esc1TC←	X23↵	

KEY: X23 = IP Timeout: The number of seconds before timeout on IP connections (min = 1, max = 65000, default = 30 [300 seconds]). If no data is received during the timeout period, the Ethernet connection closes. Each step = 10 seconds.

Serial Data Port			
Configure parameters	EscX1*X11,X12,X13,X28CP←	CpnX1•CcpX11,X12,X13,X24↵	
View parameters	EscX1CP←	X11,X12,X13,X24↵	
View mode	EscX1CY←	X13↵	
Configure flow control	EscX1*X15,X16CF←	CpnX1•CflX15,X16↵	
View flow control	EscX1CF←	X15,X16↵	

KEY:
- X1 = Port Number: 01 (always 01 for DMP 64 Plus)
- X11 = Baud Rate: 300, 600,1200, 1800, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400 (default), 57600, 115200
- X12 = Parity: Odd, Even, None (default), Mark, Space. Only use the first letter.
- X13 = Data Bits: 7, 8 (default)
- X14 = Port Type: 0 = RS-232 (default)
- X15 = Flow Control: Hardware, Software, None (default). Only use the first letter.
- X16 = Data Pacing: Specified in milliseconds between bytes. 0000-1000ms (default is 0 ms). For host port or ports, this value is ignored and always returns a 0.
- X24 = Stop Bits: 1 (default) or 2.

Command	ASCII command (host to device)	Response (device to host)	Additional description
IP Setup Commands			
Set unit name	Esc X3 CN ←	Ipn • X3 ↵	
Set unit name to factory default	Esc • CN ←	Ipn • X19 ↵	
View unit name	Esc CN ←	X3 ↵	
Set date/time	Esc X4 CT ←	Ipt • X4 ↵	
View date/time	Esc CT ←	X4 ↵	
View date/time in hex	Esc * CT ←	X9 ↵	
View GMT offset	Esc CZ ←	X2 ↵	
Set DHCP on	Esc 1DH ←	Idh1 ↵	
Set DHCP off	Esc 0DH ←	Idh0 ↵	
View DHCP mode	Esc DH ←	X55 ↵	
NOTE: The following commands affect the LAN port on a C AT model and the LAN 1 port on the C V AT.			
Set IP address	Esc X5 CI ←	Ipi • X5 ↵	
View IP address	Esc CI ←	X5 ↵	
View hardware address (MAC)	Esc CH ← *Verbose Mode 2/3*	X6 ↵ Iph X6 ↵	
Set subnet mask	Esc X7 CS ←	Ips • X7 ↵	
View subnet mask	Esc CS ←	X7 ↵	
Set gateway IP address	Esc X5 CG ←	Ipg • X5 ↵	
View gateway IP address	Esc CG ←	X5 ↵	
Set IP	Esc X28 * X5 CISG ←	Cisg • X28 * X5 / X29 * X5 ↵	In all CISG commands, the first X5 represents the IP address, X29 represents the subnet mask, and the second X5 represents the gateway IP address.
Set IP/subnet	Esc X28 * X5 / X29 CISG ←	Cisg • X28 * X5 / X29 * X5 ↵	
Set IP/subnet/gateway (all)	Esc X28 * X5 / X29 * X5 CISG ←	Cisg • X28 * X5 / X29 * X5 ↵	
View IP/subnet/gateway (all)	Esc X28 CISG ←	X5 / X29 * X5 ↵	
Set DNS server IP address	Esc X5 DI ←	Ipd • X5 ↵	
View DNS server IP address	Esc DI ←	X5 ↵	

KEY:

X2 = GMT Offset Value: This represents hours and minutes (*hh:mm*) offset from Greenwich Mean Time.
X3 = Unit Name: Text string up to 63 characters drawn from the alphabet (A-Z), digits (0-9), and minus sign/hyphen (-).
X4 = Local Date and Time Format: *MM/DD/YY-HH:MM:SS*
X5 = IP Address: *xxx.xxx.xxx.xxx*
Leading zeros in each of the 4 fields are optional in setting values and are suppressed in responses.
X6 = Hardware MAC Address: 00-05-A6-*xx-xx-xx*
X7 = Subnet Mask: *xxx.xxx.xxx.xxx*
Leading zeros in each of the 4 fields are optional in setting values and are suppressed in responses.
X9 = Date and Time in Hex: Date and time returned in 7 hex bytes (month, day, year, hour, minutes, seconds, and day of the week with Sunday = 1).
X19 = Default Name: Combination of unit model name and last 3 pairs of MAC address
X28 = NIC Number: Network Interface Card number 1 or 2 (only V-models have 2 NICs)
X29 = Prefix (subnet mask bits): Subnet 255.255.0.0 is represented as a Prefix value of /16.
X55 = DHCP Status: 0 = off (default) 1 = on

Command	ASCII command (host to device)	Response (device to host)	Additional description
IP Setup Commands (continued)			
Set verbose mode	Esc X10 CV ↵	Vrb X10 ↵	
View verbose mode	Esc CV ↵	X10 ↵	
Get connection count	Esc CC ↵	{*number of connections*} ↵	

KEY: X10 = Verbose/Response Mode: 0 = Clear/none (default for Telnet/IP) 1 = Verbose mode (default for RS-232 and USB) 2 = Tagged responses for queries 3 = Verbose mode and tagged responses for queries

Password and Security Settings			
Set admin password	Esc X17 CA ↵	Ipa•X18 ↵	
Clear admin password	Esc •CA ↵	Ipa• ↵	
View admin password	Esc CA ↵	X18 ↵	
Set user password	Esc X17 CU ↵	Ipu•X18 ↵	
Clear user password	Esc •CU ↵	Ipu• ↵	
View user password	Esc CU ↵	X18 ↵	
Query session security level	Esc CK ↵	X21 ↵	

NOTE: The factory configured password for this device has been set to the device serial number. Passwords are case sensitive. Performing a *Reset to Factory Defaults* removes the password.

KEY: X17 = Password: 0-128 characters. All human-readable characters are permitted except "|". Password cannot be a single space. Passwords are case-sensitive.
X18 = Reading Password: Responds with 4 asterisks (****) if password exists and empty if not, instead of actual password.
X21 = Connection Security Level: 11 = User 12 = Administrator

Directories			
Change/create directory	Esc *path/directory/CJ* ↵	Dir•path/directory/ ↵	
Back to root directory	Esc /CJ ↵	Dir•/ ↵	
Up one directory	Esc ..CJ ↵	Dir•path/directory/ ↵	
View current directory	Esc CJ ↵	path/directory/ ↵	
File Commands			
Erase current directory and contained files	Esc EF ↵	Ddl ↵	
Erase current directory and subdirectories	Esc //EF ↵	Ddl ↵	
List files from current directory	Esc DF ↵	filenamex•date/time•length ↵ filenamex•date/time•length ↵	Responses for Esc DF ↵ and Esc LF ↵ are in the same format.
List files from current directory and below	Esc LF ↵	filenamex•date/time•length ↵ ... space_remaining•bytesleft ↵↵	
Load file to user flash memory	Esc +UF*filesize,filename* ↵	Upl ↵	
Retrieve file from user flash memory	Esc *filename* SF ↵	{responds with 4 bytes of file size and unprocessed data in file}	

Command	ASCII command (host to device)	Response (device to host)	Additional description
Backup/Restore Device Configuration			
Save device configuration (to file system)	Esc 1*X26XF ←	Cnfg1*X26 ↵	
Restore device configuration	Esc 0*X26XF ←	Cnfg0*X26 ↵	
KEY: X26 = Configuration type: 0 = IP configuration, 2 = Device-specific parameters			
NTP (Network Time Protocol)			
Enable NTP to set the time	Esc 1NTEN ←	Nten1 ↵	
Disable NTP	Esc 0NTEN ←	Nten0 ↵	
Sync NTP now	Esc 2NTEN ←	Nten2 ↵	
View NTP status	Esc NTEN ←	X25 ↵	
Set NTP IP address	Esc X5NTIP ←	NtipX5 ↵	
Set multiple NTP IP addresses	Esc X5*...X5NTIP ←	NtipX5*...X5 ↵	
Clear NTP IP address	Esc •NTIP ←	Ntip ↵	
View NTP IP address	Esc NTIP ←	X5 ↵	
KEY: X5 = IP address: *xxx.xxx.xxx.xxx.* Leading zeros in each of the 4 fields are optional in setting values X25 = NTP status: 0 = Disabled (default) 1 = Enabled			
Port Assignment			
Set telnet port map	Esc X52MT ←	PmtX52 ↵	LAN 1 only
Reset telnet port map	Esc 23MT ←	Pmt00023 ↵	LAN 1 only
Disable telnet port	Esc 0MT ←	Pmt00000 ↵	LAN 1 only
View telnet port map	Esc MT ←	X52 ↵	LAN 1 only
Set web port map	Esc X52MH ←	PmhX52 ↵	LAN 1 only
Reset web port map	Esc 80MH ←	Pmt00080 ↵	LAN 1 only
Disable web port map	Esc 0MH ←	Pmt00000 ↵	LAN 1 only
View web port map	Esc MH ←	X52 ↵	LAN 1 only
Set telnet port map	Esc ZX56*X52PMAP ←	PmapZ•X56*X52 ↵	
Reset telnet port map	Esc ZX56*23PMAP ←	PmapZ•X56*00023 ↵	Reset port to default 23
Disable telnet port	Esc ZX56*0PMAP ←	PmapZ•X56*00000 ↵	
View telnet port map	Esc ZX56PMAP ←	X93 ↵	
Set web port map	Esc WX56*X52PMAP ←	PmapW•X56*X52 ↵	
Reset web port map	Esc WX56*80PMAP ←	PmapW•X56*00080 ↵	Reset port to default 80
Disable web port map	Esc WX56*0PMAP ←	PmapW•X56*00000 ↵	
View web port map	Esc WX56PMAP ←	X52 ↵	
Set SNMP port map	Esc AX56*X52PMAP ←	PmapA•X56*X52 ↵	
Reset SNMP port map	Esc AX56*161PMAP ←	PmapA•X56*00161 ↵	Reset port to default 00161
Disable SNMP port	Esc AX56*0PMAP ←	PmapA•X56*00000 ↵	
KEY: X52 = Ethernet Port Number: 0 = Off, custom port numbers must be 1024 or higher X56 = Network Interface Card #: 1 = LAN 1 2 = LAN 2			

Command	ASCII command (host to device)	Response (device to host)	Additional description
Port Assignment (continued)			
View SNMP port map	Esc A X56 PMAP ←	X93 ↵	
Set SIS-over-SSH port map	Esc B X56 * X52 PMAP ←	PmapB • X56 * X52 ↵	
Reset SIS-over-SSH port map	Esc B X56 *22023PMAP ←	PmapB • X56 *22023 ↵	Reset port to default 443
Disable SIS-over-SSH port	Esc B X56 *0PMAP ←	PmapB • X56 *00000 ↵	
View SIS-over-SSH port map	Esc B X56 PMAP ←	X52 ↵	
Set SSL port map	Esc S X56 * X52 PMAP ←	PmapS • X56 * X52 ↵	
Reset SSL port map	Esc S X56 *443PMAP ←	PmapS • X56 *00443 ↵	
Disable SSL port	Esc S X56 *0PMAP ←	PmapS • X56 *00000 ↵	
View SSL port map	Esc S X56 PMAP ←	X52 ↵	

KEY: X52 = Ethernet Port Number: 0 = Off, custom port numbers must be 1024 or higher
X56 = Network Interface Card #: 1 = LAN 1 2 = LAN 2

SNMP (Simple Network Management Protocol)			
Set unit contact	Esc C X30 SNMP ←	SnmpC * X30 ↵	
Set unit contact to default	Esc C • SNMP ←	SnmpC*Not•Specified ↵	
View unit contact	Esc CSNMP ←	X30 ↵	
Set unit location	Esc L X30 SNMP ←	SnmpL * X30 ↵	
Set unit location to default	Esc L • SNMP ←	SnmpL*Not•Specified ↵	
View unit location	Esc LSNMP ←	X30 ↵	
Set community public (read-only)	Esc P X30 SNMP ←	SnmpP * X30 ↵	
Set community public to default	Esc P • SNMP ←	SnmpP*public ↵	
View community public	Esc PSNMP ←	X30 ↵	
Enable SNMP access	Esc E1SNMP ←	SnmpE*1 ←	
Disable SNMP access	Esc E0SNMP ←	SnmpE*0 ←	
View SNMP access setting	Esc ESNMP ←	X51 ↵	

KEY: X30 = Text: Up to 64 characters.
X51 = SNMP Access: 0 = Disabled (default) 1 = Enabled

Command	ASCII command (host to device)	Response (device to host)	Additional description
Digital I/O			
Get input status	Esc X32 GPIT ←	X33 * X34 ↵	
Get output status	Esc X32 * X35 GPOT ←	X36 * X37 ↵	
Get state for input	Esc X32 GPI ←	Gpi X32 * X31 ↵	

KEY:

X31 = Digital Input Status: 0 = Logic low 1 = Logic high

X32 = Digital I/O Channel: 1 through 6

X33 = Action Type: 0 = No action/off

Mutes

1 = Level trigger (low mutes) 2 = Level trigger (high mutes)

3 = Edge trigger (high to low mutes, low to high unmutes)

4 = Edge trigger (high to low unmutes, low to high mutes)

5 = Toggle trigger (high to low toggles mute) 6 = Toggle trigger (low to high toggles mute)

Group Mutes

7 = Level trigger (low mutes) 8 = Level trigger (high mutes)

9 = Edge trigger (high to low mutes, low to high unmutes)

10 = Edge trigger (high to low unmutes, low to high mutes)

11 = Toggle trigger (high to low toggles mute) 12 = Toggle trigger (low to high toggles mute)

Macros

13 = Edge trigger (high to low starts macro) 14 = Edge trigger (low to high starts macro)

Presets

15 = Edge trigger (high to low recalls preset) 16 = Edge trigger (low to high recalls preset)

X34 = Various according to action type:

Mutes — Input number for muting. If X33 is not specified, muting matches the input with the corresponding I/O channel number.

Group Mutes —Group member for muting. If X33 is not specified, muting matches the group with the corresponding I/O channel number.

Macros — Macro number. If X33 is not specified, the macro number defaults to the corresponding I/O channel number.

Presets — Preset number. If X33 is not provided, the preset number defaults to the corresponding I/O channel number.

X35 = Digital Output: 1

X36 = Output Mode: 0 = Output always high 1 = Output always low

Mutes

2 = Mute high 3 = Unmute high

Group Mutes

4 = Group mute high 5 = Group unmute high

Macros

6 = Macro started set high once (blink) 7 = Macro started set low once (blink)

Presets

8 = Preset recalled set high once (blink) 9 = Preset recalled set low once (blink)

Automix Gate Status

10 = Automix gate on (>1024) set high 11 = Automix gate on (>1024) set low

Signal Presence

12 = Signal presence (>-40 dBFS) set high 13 = Signal presence (>-40 dBFS) set low

X37 = Various according to output mode:

Mutes — Input number for monitoring. If X36 is not specified, monitoring defaults to the input with the corresponding I/O channel number.

Group Mutes —Group member for monitoring. If X36 is not specified, the macro number defaults to the corresponding I/O channel number.

Macros — Macro number. If X36 is not specified, the macro number defaults to the corresponding I/O channel number.

Presets — Preset number. If X36 is not provided, the preset number defaults to the corresponding I/O channel number.

Automix Gate Status — Input number for automix gate monitoring. If X36 is not specified, the number defaults to the corresponding I/O channel number.

Signal Presence — Input number for signal presence monitoring. If X36 is not specified, the input number defaults to the corresponding I/O channel number.

Command	ASCII command (host to device)	Response (device to host)	Additional description
Reboot Commands			
Reboot system	Esc1BOOT←	Boot1↵	
Reboot network	Esc2BOOT←	Boot2↵	
Ping			
Execute test	Esc{address/name} PING}←	{*address*}*{*bytes*}* {*ttl*}*{*time*}↵	
Example:	Esc192.168.254.254 PING←	192.168.254.254*64*64*3.469	
If ping fails to get reply from address		{*address*}*0*0*0↵	
Time zone and Daylight Settings			
Set time zone	Esc{*zone name*}*TZON←	Tzon•{*zone name, description*}↵	
View current time zone	EscTZON←	{*zone name, description*}↵	
List all time zones	Esc*TZON←	{*zone name, description*}↵ ...↵ ...↵↵	
Write Names			
Write input name	EscX39,X44NI←	NmiX39,X44↵	
Write virtual return name	EscX40,X44NL←	NmlX40,X44↵	
Write EXP input name	EscX41,X44NE←	NeiX41,X44↵	
Write output name	EscX42,X44NO←	NmoX42,X44↵	
Write EXP output name	EscX43,X44NX←	NexX43,X44↵	
Write preset name	EscX38,X44NG←	NmgX38,X44↵	

KEY:

X38	= Preset number:	1 through 32
X39	= Input number:	1 through 20 (inputs 13-20 are Aux inputs 1-8)
X40	= Virtual return number:	1 through 16
X41	= EXP input number:	1 through 16
X42	= Output number:	1 through 16 (outputs 9 through 16 Aux inputs 1-8)
X43	= EXP output number:	1 through 16
X44	= Name:	Invalid characters = ~ , @ = ‘ [ ] { } < > ` “ : ; | \ and ?

Command	ASCII command (host to device)	Response (device to host)	Additional description
View Names			
View input name	EscX39NI←	X44↵	
View virtual return name	EscX40NL←	X44↵	
View EXP input name	EscX41NE←	X44↵	
View output name	EscX42NO←	X44↵	
View EXP output name	EscX43NX←	X44↵	
View preset name	EscX38NG←	X44↵	

KEY:

X38	= Preset number:	1 through 32
X39	= Input number:	1 through 20 (inputs 13-20 are Aux inputs 1-8)
X40	= Virtual return number:	1 through 16
X41	= EXP input number:	1 through 16
X42	= Output number:	1 through 16 (outputs 9 through 16 Aux inputs 1-8)
X43	= EXP output number:	1 through 16
X44	= Name:	Invalid characters = ~ , @ = ‘ [ ] { } < > ` “ : ; | \ and ?

Command	ASCII command (host to device)	Response (device to host)	Additional description
Recall Presets			
Recall preset	Esc X38 .	Rpr X38 ↵	
KEY: X38 = Preset number: 1 through 32			
Reset to Factory Default			
Reset presets and names	Esc ZG ←	Zpg ↵	
Reset individual preset	Esc X38 ZG ←	Zpg X38 ↵	
Partial factory reset	Esc ZXXX ←	Zpx ↵	
Reset flash file system	Esc ZFFF ←	Zpf ↵	
Full factory reset	Esc ZQQQ ←	Zpq ↵	
Reset all device settings and delete files	Esc ZY ←	Zpy ↵	Reset excludes IP address, subnet mask, gateway IP address, unit name, DHCP, and port mapping in order to preserve communication with the device.
KEY: X38 = Preset number: 1 through 32			
Player File Management			
Set file to slot association	Esc A X46 * X45 CPLY ←	CplyA X46 * X45 ↵	
Clear file to slot association	Esc A X46 *•CPLY ←	CplyA X46 *• ↵	
View file to slot association	Esc A X46 CPLY ←	X45 ↵	
KEY: X45 = Audio file name: Valid characters are A-Z, a-z, 0-9, _ X46 = Player ID: 1 through 8			
Player Commands			
Start playback on a specific player	Esc X46 *1PLAY ←	Play X46 *1 ↵	
Stop playback on a specific player	Esc X46 *0PLAY ←	Play X46 *0 ↵	
Player status	Esc X46 PLAY ←	X47 ↵	
Set player repeat	Esc M X46 * X98 CPLY ←	CplyM X46 * X98 ↵	Turning off repeat during playback stops playback after current iteration.
Get player repeat status	Esc M X46 CPLY ←	X98 ↵	
Playback finished	Unsolicited	Play X46 *0 ↵	
KEY: X46 = Player ID: 1 through 8 X47 = Play State: 0 = Stopped 1 = Playing X98 = Repeat status: 0 = Play once 1 = Repeat			

Command	ASCII command (host to device)	Response (device to host)	Additional description
Macro Commands			
Run macro	Esc R X48 MCRO ←	McroR X48 ↵	
Kill macro	Esc K X48 MCRO ←	McroK X48 ↵	
Get macro status	Esc S X48 MCRO ←	X49 ↵	
Set macro name	Esc A X48 * X50 MCRO ←	McroA X48 * X50 ↵	
Get macro name	Esc A X48 MCRO ←	X50 ↵	
Set power-on macro	Esc P X48 MCRO ←	McroP X48 ↵	Using 0 for X48 clears power-on macro assignment.
Get power-on macro	Esc PMCRO ←	X48 ↵	

KEY:
X48 = Macro number: 1 through 64. Response is padded with a leading 0.
X49 = Macro status: 0 = Macro idle, 1-32 = Macro step
X50 = Macro name: 24 characters maximum (A-Z, a-z, 0-9, and "-")

Asynchronous Macro Commands			
Macro started		McroSTARTED X48 ↵	
Macro finished		McroFINISHED X48 ↵	
Macro failed		McroFAILED X48 * X49 ↵	
Macro killed		McroKILLED X48 * X49 ↵	

KEY:
X48 = Macro number: 1 through 64. Response is padded with a leading 0.
X49 = Macro status: 0 = Macro idle, 1-32 = Macro step

Dante Control and Configuration

The following commands configure the DMP 64 Plus to listen for and pass through SIS commands meant for Extron endpoints controlled over Dante, such as AXI AT or NetPA Ultra AT devices.

NOTE: The DMP must be set to Verbose mode 1/3 when using the Dante Control and Configuration commands.

Query available remote devices	Esc AEXPR ← *Verbose Mode 2/3*	•X8 ↵ X8 ↵ ... ↵↵ ExprA•X8 ↵ X8 ↵ ... ↵↵	
Enable remote connection for listening	Esc C X8 * X22 EXPR ← *Verbose Mode 2/3*	X8 * X22 ↵ ExprC X8 * X22 ↵	All listening disabled when DMP Dante module rebooted.
Read remote connection listening status	Esc C X8 EXPR ← *Verbose Mode 2/3*	X22 ↵ ExprC X8 * X22 ↵	
Query remote devices being listened to	Esc LEXPR ← *Verbose Mode 2/3*	•X8 ↵ X8 ↵ ... ↵↵ ExprL•X8 ↵ X8 ↵ ... ↵↵	
Send command to remote device	{dante@X8:X53} ← *Verbose Mode 1/3* **example command:** {dante@AXI-RoomA:wg60000*-10AU|} ←	{dante@X8}X54 ↵ **example command:** {dante@AXI-RoomA}DsG60000*-10 ↵	

KEY:
X8 = Dante device name: Device names are not case sensitive.
X22 = Extron remote connection mode: 0 = Macro idle 1 = Enabled
X53 = SIS command: SIS command to be sent to remote Dante-controlled device.
X54 = SIS command response: Response from remote Dante-controlled device, tagged by DMP.

Command	ASCII command (host to device)	Response (device to host)	Additional description
USB Call Status			
View USB 1 call status	Esc H1UPHN ←	UphnH1*X90 ↵	

KEY: X90 = Call status: 0 = Inactive 1 = Active

Command and Response Table for DSP SIS Commands

Command	ASCII command (host to device)	Response (device to host)	Additional description
Many digital signal processor (DSP) functions such as gain, mute, and group masters can be controlled using SIS commands. An understanding of the audio signal flow is helpful for using audio DSP SIS commands. The following gain blocks are addressable via SIS commands: • Mic/Line Input (gain and mute) • Pre-mixer (gain and mute) • Virtual Return (gain and mute) • Output (attenuation and mute) • Aux Input (gain, mute, and source) • Mix-points (gain and mute) • Post-mixer (gain only)			
Audio Level Control			
NOTES: 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 `+80` dB in `0.1` dB increments when the source is set to analog. The mic/line input gain range is `-18` dB to `+24` dB in `0.1` dB increments when the source is set to a digital input (for more on changing the input source (see the *DSP Configurator Help File* for more information). • The pre-mixer gain and virtual return gain range is `-100` dB to `+12` dB in `0.1` dB increments. • The post-mixer trim 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 with the DMP 64 in Verbose mode 2 or 3.			
Set gain level	Esc G X58 * X59 AU ↵	DsG X58 * X59 ↵	Set gain on OID X58 to a value of X59 dB.
Example 1 (mic/line input 1):	Esc G40000*120AU ↵	DsG40000*120 ↵	Set the mic/line input 1 to a level of +12.0 dB.
Example 2 (pre-mixer gain 1):	Esc G40100*-8AU ↵	DsG40100*-8 ↵	Set pre-mixer gain 1 to a value of -0.8 dB.
Read gain level	Esc G X58 AU ↵	DsG X58 * X59 ↵	Gain on OID X58 is set to a value of X59 dB.
Example 1 (mic/line input 1) :	Esc G40000AU ↵	DsG40000*550 ↵	Mic/line input 1 gain is set to a value of +55.0 dB.
Example 2 (post-mixer gain 1) :	Esc G60100AU ↵	DsG60100*55 ↵	Output 2, post mixer gain is set to a value of +5.5 dB.
NOTE: If the input source is set to a digital input (AT or Expansion input), use the H parameter instead of the G parameter when setting or reading input gain level (for more on changing the input source, see the *DSP Configurator Help File* for more information).			
KEY: X58 = Target OID: See **Object ID (OID) Number Tables** on page 57. X59 = Level value: dB value in 0.1 dB steps. Gain uses 10x multiplier (+10 dB = 100, -3.4 dB = -34, and so on).			
Audio Mute			
Audio mute	Esc M X58 *1AU ↵	DsM X58 *1 ↵	Mute audio at X58.
Audio unmute	Esc M X58 *0AU ↵	DsM X58 *0 ↵	Unmute audio at X58.
Mute status	Esc M X58 AU ↵	DsM X58 * X60 ↵	
KEY: X58 = Target OID: See **Object ID (OID) Number Tables**. X60 = Mute status: 0 = Unmute, 1 = Mute			
Phantom Power			
Enable phantom power	Esc Z X58 *1AU ↵	DsZ X58 *1 ↵	Phantom power is only available on mic/line inputs 1 through 8.
Disable phantom power	Esc Z X58 *0AU ↵	DsZ X58 *0 ↵	
Phantom power status	Esc Z X58 AU ↵	DsZ X58 * X99 ↵	
KEY: X58 = Target OID: See **Object ID (OID) Number Tables**. X99 = Phantom power status: 0 = Disabled (default), 1 = Enabled			

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

NOTES:

- For information on configuring groups, see the *DSP Configurator Help File*.
- A group must have assigned members for these commands to have an effect.
- For X62, a positive (+) value is assumed unless a negative (-) value is specified.
- If entering an X62 value outside the valid range for the group or outside the soft limits, the DMP 64 responds with an E13 error (invalid parameter).
- X62, X63, and X64 values can be sent without leading zeroes.

Set a group fader value	Esc D X61 * X62 GRPM ←	GrpmD X61 * X62 ↵	Set a group fader to a value of X62.
Example:	EscD2*-239GRPM←	GrpmD2*-293↵	Set group 2 fader control to -29.3 dB.
Increment a group fader value	Esc D X61 * X63 +GRPM ←	GrpmD X61 * X62 ↵	Increase the level of X61 by X63 dB.
Example:	EscD2*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 X61 * X63 -GRPM ←	GrpmD X61 * X62 ↵	Decrease the level of the X61 group fader by X63 dB.
View the group fader value	Esc D X61 GRPM ←	GrpmD X61 * X62 ↵	In verbose modes 0 and 1, the response is simplified to X62↵.
Mute a group	Esc D X61 *1GRPM ←	GrpmD X61 *1↵	Mute all blocks in group X61.
Unmute a group	Esc D X61 *0GRPM ←	GrpmD X61 *0↵	Unmute all blocks in group X61.
View a group mute value	Esc D X61 GRPM ←	GrpmD X61 * X60 ↵	For group masters, X60 is always expressed as an unsigned or negative value.
Set soft limits	Esc L X61 * X64upper * X64lower GRPM ←	GrpmL X61 * X64 * X64 ↵	Set the groups soft limits to X64upper and X64lower.
Example:	EscL2*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.

KEY:

X60 = Mute status: 0 = Unmute 1 = Mute

X61 = Group master group number: 1 through 64

X62 = 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 (X61).

X63 = Group fader increment/decrement: dB value in 0.1 dB steps to raise or lower a group fader. Gain uses 10x multiplier (+10 dB = 100+). + or - goes after the number.

X64 = Group fader soft limit: dB value in 0.1 dB steps. Gain uses 10x multiplier (+10 dB = 100+).

Command	ASCII command (host to device)	Response (device to host)	Additional description
Audio Group Master Commands (continued)			
View soft limits	Esc L X61 GRPM ←	GrpmL X61 * X64 * X64 ↵	In verbose modes 0 and 1, the response is simplified to X64 * X64 ↵.
View group type	Esc P X61 GRPM ←	GrpmP X61 * X65 ↵	
View group members	Esc O X61 GRPM ←	GrpmO X61 * X58[1] * X58[2] * . . . * X58[n] ↵	X58 is the control address. In verbose modes 0 and 1, the response is simplified to X58[1] * X58[2] * . . . * X58[n] ↵

KEY:
X58 = Target OID: See **Object ID (OID) Number Tables** on page 57.
X61 = Group master group number: 1 through 64
X64 = Group fader soft limit: dB value in 0.1 dB steps. Gain uses 10x multiplier (+10 dB = 100+).
X65 = Group type: 6 = Gain, 12 = Mute, 21 = Meter

Unsolicited Meter Groups

NOTE: See the *DSP Configurator Help File* for more information on groups.

Set unsolicited meter response rate	Esc R X67 GRPU ←	GrpuR X67 ↵	
View unsolicited meter response rate	Esc RGRPU ← *Verbose Mode 2/3*	X67 ↵ GrpuR X67 ↵	
Set unsolicited meter group	Esc G X68 GRPU ←	GrpuG X68 ↵	
View unsolicited meter group	Esc GGRPU ← *Verbose Mode 2/3*	X68 ↵ GrpuG X68 ↵	

NOTES:
- If the device is using firmware before v1.11.0000-b006, the commands above are **global**.
- If the device is using firmware v1.11.0000-b006 or higher, the commands above are **session-based**.

View OID members in meter group	Esc O X66 GRPM ←	GrpmO X66 * <OID>[1] * <OID>[2] . . . * <OID>[n] ↵	This returns the group number, followed by the list of OIDs.
Enable meters in meter group	Esc D X66 * 1 GRPM ←	GrpmD X66 * 1 ↵	
Disable meters in meter group	Esc D X66 * 0 GRPM ←	GrpmD X66 * 0 ↵	

KEY:
X66 = Meter group number: 1 through 64
X67 = Unsolicited meter rate (response per second): 1-10; default is 1 (for firmware before v1.11.0000-b006) 1-25; default is 1 (for firmware v1.11.0000-b006 or higher)
X68 = Unsolicited meter group setting: 0 disables unsolicited meter responses, 1 - 64 specifies/enables a meter group for unsolicited meter value responses; 0 at power on.

Unsolicited Meter Group Response

Unsolicited meter group values		GrpmV X69 * <val>[1] * <val>[2] * . . . * <val>[n] ↵	Verbose modes 1/3 only.

NOTES:
- Values in the response can be 0 to 1500 (0.0 to -150.0 dBFS).
- The order of the values is the numerical order of the OIDs/members in that group.

KEY: X69 = Group master meter group number: 1 through 64

Command	ASCII command (host to device)	Response (device to host)	Additional description
Aux Input 1 through 8			
Set source mode	Esc D X58 * X70 AU ←	Ds D X58 * X70 ↵	
Get source mode	Esc D X58 AU ←	X70 ↵	
Set mute	Esc M X58 * X60 AU ←	Ds M X58 * X60 ↵	
Get mute status	Esc M X58 AU ←	X60 ↵	
Set analog gain	Esc G X58 * X59 AU ←	Ds G X58 * X59 ↵	
Read gain	Esc G X58 AU ←	X59 ↵	

KEY:
X58 = Target OID: See **Object ID (OID) Number Tables** on page 57
X59 = Level value: dB value in 0.1 dB steps. Gain uses 10x multiplier (+10 dB = 100, -3.4 dB = -34, and so on).
X60 = Mute status: 1 = Off 2 = Engaged
X70 = Source mode:

0 = Disabled	9 = USB 1 Rx: Left Channel	18 = VoIP Line 2 Rx
1 = File/Tone Playback: Player 1	10 = USB 1 Rx: Right Channel	19 = VoIP Line 3 Rx
2 = File/Tone Playback: Player 2	11 = USB 2 Rx: Left Channel	20 = VoIP Line 4 Rx
3 = File/Tone Playback: Player 3	12 = USB 2 Rx: Right Channel	21 = VoIP Line 5 Rx
4 = File/Tone Playback: Player 4	13 = USB 3 Rx: Left Channel	22 = VoIP Line 6 Rx
5 = File/Tone Playback: Player 5	14 = USB 3 Rx: Right Channel	23 = VoIP Line 7 Rx
6 = File/Tone Playback: Player 6	15 = USB 4 Rx: Left Channel	24 = VoIP Line 8 Rx
7 = File/Tone Playback: Player 7	16 = USB 4 Rx: Right Channel	
8 = File/Tone Playback: Player 8	17 = VoIP Line 1 Rx	

Aux Output 1 through 8

Set output mode	Esc D X58 * X73 AU ←	Ds D X58 * X73 ↵	
Get output mode	Esc D X58 AU ←	X73 ↵	
Set mute	Esc M X58 * X60 AU ←	Ds M X58 * X60 ↵	
Get mute status	Esc M X58 AU ←	X60 ↵	
Set attenuation	Esc G X58 * X59 AU ←	Ds G X58 * X59 ↵	
Read attenuation level	Esc G X58 AU ←	X59 ↵	

KEY:
X58 = Target OID: See **Object ID (OID) Number Tables**.
X59 = Level value: dB value in 0.1 dB steps. Gain uses 10x multiplier (+10 dB = 100, -3.4 dB = -34, and so on).
X60 = Mute status: 1 = Off 2 = Engaged
X73 = Output mode:

0 = Disabled	6 = USB 3 Tx: Right Channel	12 = VoIP Line 4 Rx
1 = USB 1 Tx: Left Channel	7 = USB 4 Tx: Left Channel	13 = VoIP Line 5 Rx
2 = USB 1 Tx: Right Channel	8 = USB 4 Tx: Right Channel	14 = VoIP Line 6 Rx
3 = USB 2 Tx: Left Channel	9 = VoIP Line 1 Tx	15 = VoIP Line 7 Rx
4 = USB 2 Tx: Right Channel	10 = VoIP Line 2 Tx	16 = VoIP Line 8 Rx
5 = USB 3 Tx: Left Channel	11 = VoIP Line 3 Tx	

Metering

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

Read meter level	Esc V X58 AU ←	X71 * X72 ↵	
Enable meter updates	Esc V X58 * X71 AU ←	Ds V X58 * X71 ↵	

KEY:
X58 = Target OID: See **Object ID (OID) Number Tables**.
X71 = Update status: 1 = Disabled 2 = Enabled
X72 = Meter level: -150.0 dBFS to 0.0 dBFS (1500 to 0000)

Command	ASCII command (host to device)	Response (device to host)	Additional description
Automixer Gate Monitoring			
Get current automixer gate status	Esc J X98 AU ←	X74 ↵	
Unsolicited automixer gate status update	This is enabled by selecting the Automix dialog **Monitor Gate** checkbox in DSP Configurator (see the *DSP Configurator Help File* for details).	DsV X98 * X75 * X79 * X100 ↵	

KEY:
- X74 = Gate monitoring status: 0 = Gate monitoring disabled; 1024 = Gate monitoring enabled
- X75 = Meter status: 0 = Meter off; 1 = Meter on
- X79 = Signal level when gate is opened or closed. 0000-1023 = gate closed, ≥1024 = gate opened.
- X98 = Target OID: See **Automixer OIDs** on page 60.
- X100 = Gate status: 0 = Gate closed; 1 = Gate opened

Signal Level Monitoring (SLM)			
SLM tracks when the signal at a metered gain OID crosses a set threshold level. When SLM is enabled for an OID, an unsolicited message is sent when the threshold level is crossed. The response includes the OID, meter on/ off status, level after the threshold was crossed, and if the level was going up or down when the threshold was crossed.			
Set SLM status	Esc J X58 * X76 AU ←	DsJ X58 * X76 ↵	
Get current threshold status	Esc J X58 AU ←	X76 ↵	
Unsolicited meter value		DsV X58 * X75 * X77 * X78 ↵	

KEY:
- X58 = Target OID: See **Object ID (OID) Number Tables** on page 57
- X75 = Meter status: 1 = Meter off; 2 = Meter on
- X76 = Monitoring threshold: 0 = disabled; 0001-2000 = signal threshold to monitor (-0.1 to -200.0 dBFS).
- X77 = Meter value: 0000-2000 = 0.0 to -200.0 dBFS
- X78 = Meter relative to threshold: 0 = Above threshold; 1 = Equal to or below threshold

Command and Response Table for VoIP SIS Commands

Command	ASCII command (host to device)	Response (device to host)	Additional description
NOTE: All SIS responses in this section are in Verbose modes 2 and 3. In Verbose modes 0 or 1, responses are not tagged.			
Call Control			
End call	Esc END X80 , X81 VOIP ←	VoipEND X80 , X81 , X83 ↵	
End call on all appearances	Esc END X80 VOIP ←	VoipEND X80 , 0 , X83 ↵	
Dial string	Esc DIAL X80 , X82 VOIP ←	VoipDIAL X80 , X82 , X83 ↵	
Dial digits	Esc DD X80 , X81 , X82 VOIP ←	VoipDD X80 , X81 , X82 , X83 ↵	
Answer	Esc ANS X80 , X81 VOIP ←	VoipANS X80 , X81 , X83 ↵	
Reject	Esc REJ X80 , X81 VOIP ←	VoipREJ X80 , X81 , X83 ↵	
Hold	Esc HOLD X80 , X81 , X97 VOIP ←	VoipHOLD X80 , X81 , X97 , X83 ↵	
Transfer	Esc XFER X80 , X81 , X82 VOIP ←	VoipXFER X80 , X81 , X82 ↵	
KEY: X80 = Line number: 1 through 8 X81 = Appearance number: 1 through 8 (where 1 is the originating two-party call) X82 = Phone number: No spaces allowed. Valid characters are 0-9, *, # X83 = Return code: 0 = Ok 1 = Fail X97 = Hold status: 0 = Off 1 = On hold			
Call Settings			
Set do not disturb	Esc DND X80 , X84 VOIP ←	VoipDND X80 , X84 ↵	
Get do not disturb status	Esc DND X80 VOIP ←	VoipDND X80 , X84 ↵	
Set auto answer	Esc AA X80 , X85 VOIP ←	VoipAA X80 , X85 ↵	
Get auto answer status	Esc AA X80 VOIP ←	VoipAA X80 , X85 ↵	
Set auto answer delay	Esc AD X80 , X86 VOIP ←	VoipAD X80 , X86 ↵	
Get auto answer delay status	Esc AD X80 VOIP ←	VoipAD X80 , X86 ↵	
KEY: X80 = Line number: 1 through 8 X84 = Operating state: 0 = Enable 1 = Disable X85 = Auto answer mode: 0 = Disabled 1 = Delay (seconds) 2 = Follow SIP header X86 = Delay value: Represents time in seconds.			

Command	ASCII command (host to device)	Response (device to host)	Additional description
Unsolicited Responses			
Busy		VoipBusy[X80],[X81]↵	
Rejected		VoipRejected[X80],[X81]↵	
Unreachable		VoipUnreachable[X80],[X81]↵	
Terminated		VoipTerminated[X80],[X81]↵	
Incoming		VoipIncoming[X80],[X81],[X87],[X88],[X96]↵	
Registration status		VoipRS[X80],[X89]↵	
Line status		VoipLS[X80],[X90],[X90],[X90],[X90],[X90],[X90],[X90],[X90]↵	Each [X90] entry represents an appearance of the line.

KEY:
- [X80] = Line number: 1 through 8
- [X81] = Appearance number: 1 through 8 (where 1 is the originating two-party call)
- [X87] = Display name: Any commas returned are displayed as hyphens (-)
- [X88] = Time stamp: Example: Date: Thu, 08 Sept 2017 16:24:35 GMT
- [X89] = Registration status: 0 = Unregistered; 1 = Registered to 1st proxy; 2 = Registered to 2nd proxy; 3 = None; 4 = Not registered (failed)
- [X90] = Call status: 0 = None; 1 = Inactive; 2 = Active; 3 = On hold; 4 = Incoming; 5 = Outgoing

Line Status Queries (get only)			
Registration status	[Esc]RS[X80]VOIP←	VoipRS[X80],[X89]↵	
Line status	[Esc]LS[X80],[X81]VOIP←	VoipLS[X80],[X81],[X90]↵	
Line status (without index)	[Esc]LS[X80]VOIP←	VoipLS[X80],[X90],[X90],[X90],[X90],[X90],[X90],[X90],[X90]↵	Each [X90] entry represents an appearance of the line.
Caller name	[Esc]NAME[X80],[X81]VOIP←	VoipNAME[X80],[X81],[X87],[X96]↵	
Duration	[Esc]DUR[X80],[X81]VOIP←	VoipDUR[X80],[X81],[X91]↵	
Codec	[Esc]CD[X80],[X81]VOIP←	VoipCD[X80],[X81],[X92]↵	
Jitter Rx	[Esc]JR[X80],[X81]VOIP←	VoipJR[X80],[X81],[X93],[X94],[X95]↵	
Line Extension	[Esc]LE[X80]VOIP←	VoipLE[X80],[X96],[X87]↵	

KEY:
- [X80] = Line number: 1 through 8
- [X81] = Appearance number: 1 through 8 (where 1 is the originating two-party call)
- [X87] = Display name: Any commas returned are displayed as hyphens (-)
- [X89] = Registration status: 0 = Unregistered; 1 = Registered to 1st proxy; 2 = Registered to 2nd proxy; 3 = None; 4 = Not registered (failed)
- [X90] = Call status: 0 = None; 1 = Inactive; 2 = Active; 3 = On hold; 4 = Incoming; 5 = Outgoing
- [X91] = Duration: *HH:MM:SS*
- [X92] = Codec name: Alphanumeric characters only
- [X93] = Jitter in milliseconds
- [X94] = Packet drop count
- [X95] = Total packet count
- [X96] = Extension number: Valid characters are 0-9, *, #

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 62.

Input Path OIDs

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 Input 5	40004
Mic/Line Input 6	40005

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
Mic/Line Input 5	40104
Mic/Line Input 6	40105

Aux Input Gain Block	OID
Aux Input 1	40012
Aux Input 2	40013
Aux Input 3	40014
Aux Input 4	40015
Aux Input 5	40016
Aux Input 6	40017
Aux Input 7	40018
Aux Input 8	40019

Aux Input Pre-mixer Gain Block	OID
Aux Input 1	40112
Aux Input 2	40113
Aux Input 3	40114
Aux Input 4	40115
Aux Input 5	40116
Aux Input 6	40117
Aux Input 7	40118
Aux Input 8	40119

Virtual Return Pre-mixer Gain Block	OID
Virtual Return A	50100
Virtual Return B	50101
Virtual Return C	50102
Virtual Return D	50103
Virtual Return E	50104
Virtual Return F	50105
Virtual Return G	50106
Virtual Return H	50107

Virtual Return Pre-mixer Gain Block	OID
Virtual Return I	50108
Virtual Return J	50109
Virtual Return K	50110
Virtual Return L	50111
Virtual Return M	50112
Virtual Return N	50113
Virtual Return O	50114
Virtual Return P	50115

Expansion Bus Pre-mixer Gain Block	OID
AT In 1 / EXP 1	50200
AT In 2 / EXP 2	50201
AT In 3 / EXP 3	50202
AT In 4 / EXP 4	50203
AT In 5 / EXP 5	50204
AT In 6 / EXP 6	50205
AT In 7 / EXP 7	50206
AT In 8 / EXP 8	50207
AT In 9 / EXP 9	50208
AT In 10 / EXP 10	50209
AT In 11 / EXP 11	50210
AT In 12 / EXP 12	50211
AT In 13 / EXP 13	50212
AT In 14 / EXP 14	50213
AT In 15 / EXP 15	50214
AT In 16 / EXP 16	50215
AT In 17	50216
AT In 18	50217
AT In 19	50218
AT In 20	50219
AT In 21	50220
AT In 22	50221
AT In 23	50222
AT In 24	50223

Expansion Bus Pre-mixer Gain Block	OID
AT In 25	50224
AT In 26	50225
AT In 27	50226
AT In 28	50227
AT In 29	50228
AT In 30	50229
AT In 31	50230
AT In 32	50231
EXP 1	50232
EXP 2	50233
EXP 3	50234
EXP 4	50235
EXP 5	50236
EXP 6	50237
EXP 7	50238
EXP 8	50239
EXP 9	50240
EXP 10	50241
EXP 11	50242
EXP 12	50243
EXP 13	50244
EXP 14	50245
EXP 15	50246
EXP 16	50247

NOTES:

- Non-AT models only use the first 16 channels of the Expansion Bus.
- For AT models, the last 16 Expansion Bus channels are Expansion Inputs.

Output Path OIDs

Line Output Post-mixer Trim Block	OID
Line Output 1	60100
Line Output 2	60101
Line Output 3	60102
Line Output 4	60103

Line Output Attenuation Block	OID
Line Output 1	60000
Line Output 2	60001
Line Output 3	60002
Line Output 4	60003

Aux Output Post-mixer Trim Block	OID
Aux Output 1	60108
Aux Output 2	60109
Aux Output 3	60110
Aux Output 4	60111
Aux Output 5	60112
Aux Output 6	60113
Aux Output 7	60114
Aux Output 8	60115

Aux Output Gain Block	OID
Aux Output 1	60008
Aux Output 2	60009
Aux Output 3	60010
Aux Output 4	60011
Aux Output 5	60012
Aux Output 6	60013
Aux Output 7	60014
Aux Output 8	60015

EXP Output Post-mixer Trim Block	OID
EXP Output 1	60116
EXP Output 2	60117
EXP Output 3	60118
EXP Output 4	60119
EXP Output 5	60120
EXP Output 6	60121
EXP Output 7	60122
EXP Output 8	60123

EXP Output Post-mixer Trim Block	OID
EXP Output 9	60124
EXP Output 10	60125
EXP Output 11	60126
EXP Output 12	60127
EXP Output 13	60128
EXP Output 14	60129
EXP Output 15	60130
EXP Output 16	60131

EXP Output Attenuation Block	OID
EXP Output 1	60016
EXP Output 2	60017
EXP Output 3	60018
EXP Output 4	60019
EXP Output 5	60020
EXP Output 6	60021
EXP Output 7	60022
EXP Output 8	60023

EXP Output Attenuation Block	OID
EXP Output 9	60024
EXP Output 10	60025
EXP Output 11	60026
EXP Output 12	60027
EXP Output 13	60028
EXP Output 14	60029
EXP Output 15	60030
EXP Output 16	60031

Automixer OIDs

NOTES:

- Automixer OIDs are used only to read unsolicited automixer gate status responses (see **Automixer Gate Monitoring** on page 54).
- Non-AT models only use the first 16 channels of the Expansion Bus.
- For AT models, the last 16 Expansion Bus channels are Expansion Inputs.

Mic/Line Input Automixer OID	OID
Mic/Line Automixer 1	59000
Mic/Line Automixer 2	59001
Mic/Line Automixer 3	59002

Mic/Line Input Automixer OID	OID
Mic/Line Automixer 4	59003
Mic/Line Automixer 5	59004
Mic/Line Automixer 6	59005

Aux Input Automixer OID	OID
Aux Automixer 1	59012
Aux Automixer 2	59013
Aux Automixer 3	59014
Aux Automixer 4	59015

Aux Input Automixer OID	OID
Aux Automixer 5	59016
Aux Automixer 6	59017
Aux Automixer 7	59018
Aux Automixer 8	59019

Expansion Bus Automixer OID	OID
Automixer 1	59020
Automixer 2	59021
Automixer 3	59022
Automixer 4	59023
Automixer 5	59024
Automixer 6	59025
Automixer 7	59026
Automixer 8	59027

Expansion Bus Automixer OID	OID
Automixer 9	59028
Automixer 10	59029
Automixer 11	59030
Automixer 12	59031
Automixer 13	59032
Automixer 14	59033
Automixer 15	59034
Automixer 16	59035

Expansion Bus Automixer OID	OID
Automixer 17	59036
Automixer 18	59037
Automixer 19	59038
Automixer 20	59039
Automixer 21	59040
Automixer 22	59041
Automixer 23	59042
Automixer 24	59043

Expansion Bus Automixer OID	OID
Automixer 25	59044
Automixer 26	59045
Automixer 27	59046
Automixer 28	59047
Automixer 29	59048
Automixer 30	59049
Automixer 31	59050
Automixer 32	59051

Expansion Bus Automixer OID	OID
Automixer 33	59052
Automixer 34	59053
Automixer 35	59054
Automixer 36	59055
Automixer 37	59056
Automixer 38	59057
Automixer 39	59058
Automixer 40	59059

Expansion Bus Automixer OID	OID
Automixer 41	59060
Automixer 42	59061
Automixer 43	59062
Automixer 44	59063
Automixer 45	59064
Automixer 46	59065
Automixer 47	59066
Automixer 48	59067

Mix-point OIDs

NOTE: In the following 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 Input to Analog and Aux Output Mix Matrix

	Out 1	Out 2	Out 3	Out 4	Aux Out 1	Aux Out 2	Aux Out 3	Aux Out 4	Aux Out 5	Aux Out 6	Aux Out 7	Aux Out 8
Mic 1	20000	20001	20002	20003	20008	20009	20010	20011	20012	20013	20014	20015
Mic 2	20100	20101	20102	20103	20108	20109	20110	20111	20112	20113	20114	20115
Mic 3	20200	20201	20202	20203	20208	20209	20210	20211	20212	20213	20214	20215
Mic 4	20300	20301	20302	20303	20308	20309	20310	20311	20312	20313	20314	20315
Mic 5	20400	20401	20402	20403	20408	20409	20410	20411	20412	20413	20414	20415
Mic 6	20500	20501	20502	20503	20508	20509	20510	20511	20512	20513	20514	20515

Mic/Line Input to EXP Output Mix Matrix

	EXP Out 1	EXP Out 2	EXP Out 3	EXP Out 4	EXP Out 5	EXP Out 6	EXP Out 7	EXP Out 8	EXP Out 9	EXP Out 10	EXP Out 11	EXP Out 12	EXP Out 13	EXP Out 14	EXP Out 15	EXP Out 16
Mic 1	20032	20033	20034	20035	20036	20037	20038	20039	20040	20041	20042	20043	20044	20045	20046	20047
Mic 2	20132	20133	20134	20135	20136	20137	20138	20139	20140	20141	20142	20143	20144	20145	20146	20147
Mic 3	20232	20233	20234	20235	20236	20237	20238	20239	20240	20241	20242	20243	20244	20245	20246	20247
Mic 4	20332	20333	20334	20335	20336	20337	20338	20339	20340	20341	20342	20343	20344	20345	20346	20347
Mic 5	20432	20433	20434	20435	20436	20437	20438	20439	20440	20441	20442	20443	20444	20445	20446	20447
Mic 6	20532	20533	20534	20535	20536	20537	20538	20539	20540	20541	20542	20543	20544	20545	20546	20547

Mic/Line Input to Virtual Send Mix Matrix

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Mic 1	20016	20017	20018	20019	20020	20021	20022	20023	20024	20025	20026	20027	20028	20029	20030	20031
Mic 2	20116	20117	20118	20119	20120	20121	20122	20123	20124	20125	20126	20127	20128	20129	20130	20131
Mic 3	20216	20217	20218	20219	20220	20221	20222	20223	20224	20225	20226	20227	20228	20229	20230	20231
Mic 4	20316	20317	20318	20319	20320	20321	20322	20323	20324	20325	20326	20327	20328	20329	20330	20331
Mic 5	20416	20417	20418	20419	20420	20421	20422	20423	20424	20425	20426	20427	20428	20429	20430	20431
Mic 6	20516	20517	20518	20519	20520	20521	20522	20523	20524	20525	20526	20527	20528	20529	20530	20531

Aux Input to Analog and Aux Output Mix Matrix

	Out 1	Out 2	Out 3	Out 4	Aux Out 1	Aux Out 2	Aux Out 3	Aux Out 4	Aux Out 5	Aux Out 6	Aux Out 7	Aux Out 8
Aux 1	21200	21201	21202	21203	21208	21209	21210	21211	21212	21213	21214	21215
Aux 2	21300	21301	21302	21303	21308	21309	21310	21311	21312	21313	21314	21315
Aux 3	21400	21401	21402	21403	21408	21409	21410	21411	21412	21413	21414	21415
Aux 4	21500	21501	21502	21503	21508	21509	21510	21511	21512	21513	21514	21515
Aux 5	21600	21601	21602	21603	21608	21609	21610	21611	21612	21613	21614	21615
Aux 6	21700	21701	21702	21703	21708	21709	21710	21711	21712	21713	21714	21715
Aux 7	21800	21801	21802	21803	21808	21809	21810	21811	21812	21813	21814	21815
Aux 8	21900	21901	21902	21903	21908	21909	21910	21911	21912	21913	21914	21915

Aux Input to EXP Output Mix Matrix

	EXP Out 1	EXP Out 2	EXP Out 3	EXP Out 4	EXP Out 5	EXP Out 6	EXP Out 7	EXP Out 8	EXP Out 9	EXP Out 10	EXP Out 11	EXP Out 12	EXP Out 13	EXP Out 14	EXP Out 15	EXP Out 16
Aux 1	21232	21233	21234	21235	21236	21237	21238	21239	21240	21241	21242	21243	21244	21245	21246	21247
Aux 2	21332	21333	21334	21335	21336	21337	21338	21339	21340	21341	21342	21343	21344	21345	21346	21347
Aux 3	21432	21433	21434	21435	21436	21437	21438	21439	21440	21441	21442	21443	21444	21445	21446	21447
Aux 4	21532	21533	21534	21535	21536	21537	21538	21539	21540	21541	21542	21543	21544	21545	21546	21547
Aux 5	21632	21633	21634	21635	21636	21637	21638	21639	21640	21641	21642	21643	21644	21645	21646	21647
Aux 6	21732	21733	21734	21735	21736	21737	21738	21739	21740	21741	21742	21743	21744	21745	21746	21747
Aux 7	21832	21833	21834	21835	21836	21837	21838	21839	21840	21841	21842	21843	21844	21845	21846	21847
Aux 8	21932	21933	21934	21935	21936	21937	21938	21939	21940	21941	21942	21943	21944	21945	21946	21947

Aux Input to Virtual Send Mix Matrix

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Aux 1	21216	21217	21218	21219	21220	21221	21222	21223	21224	21225	21226	21227	21228	21229	21230	21231
Aux 2	21316	21317	21318	21319	21320	21321	21322	21323	21324	21325	21326	21327	21328	21329	21330	21331
Aux 3	21416	21417	21418	21419	21420	21421	21422	21423	21424	21425	21426	21427	21428	21429	21430	21431
Aux 4	21516	21517	21518	21519	21520	21521	21522	21523	21524	21525	21526	21527	21528	21529	21530	21531
Aux 5	21616	21617	21618	21619	21620	21621	21622	21623	21624	21625	21626	21627	21628	21629	21630	21631
Aux 6	21716	21717	21718	21719	21720	21721	21722	21723	21724	21725	21726	21727	21728	21729	21730	21731
Aux 7	21816	21817	21818	21819	21820	21821	21822	21823	21824	21825	21826	21827	21828	21829	21830	21831
Aux 8	21916	21917	21918	21919	21920	21921	21922	21923	21924	21925	21926	21927	21928	21929	21930	21931

Virtual Return to Analog and Aux Output Mix Matrix

	Out 1	Out 2	Out 3	Out 4	Aux Out 1	Aux Out 2	Aux Out 3	Aux Out 4	Aux Out 5	Aux Out 6	Aux Out 7	Aux Out 8
Rtn A	22000	22001	22002	22003	22008	22009	22010	22011	22012	22013	22014	22015
Rtn B	22100	22101	22102	22103	22108	22109	22110	22111	22112	22113	22114	22115
Rtn C	22200	22201	22202	22203	22208	22209	22210	22211	22212	22213	22214	22215
Rtn D	22300	22301	22302	22303	22308	22309	22310	22311	22312	22313	22314	22315
Rtn E	22400	22401	22402	22403	22408	22409	22410	22411	22412	22413	22414	22415
Rtn F	22500	22501	22502	22503	22508	22509	22510	22511	22512	22513	22514	22515
Rtn G	22600	22601	22602	22603	22608	22609	22610	22611	22612	22613	22614	22615
Rtn H	22700	22701	22702	22703	22708	22709	22710	22711	22712	22713	22714	22715
Rtn I	22800	22801	22802	22803	22808	22809	22810	22811	22812	22813	22814	22815
Rtn J	22900	22901	22902	22903	22908	22909	22910	22911	22912	22913	22914	22915
Rtn K	23000	23001	23002	23003	23008	23009	23010	23011	23012	23013	23014	23015
Rtn L	23100	23101	23102	23103	23108	23109	23110	23111	23112	23113	23114	23115
Rtn M	23200	23201	23202	23203	23208	23209	23210	23211	23212	23213	23214	23215
Rtn N	23300	23301	23302	23303	23308	23309	23310	23311	23312	23313	23314	23315
Rtn O	23400	23401	23402	23403	23408	23409	23410	23411	23412	23413	23414	23415
Rtn P	23500	23501	23502	23503	23508	23509	23510	23511	23512	23513	23514	23515

Virtual Return to EXP Output Mix Matrix

	EXP Out 1	EXP Out 2	EXP Out 3	EXP Out 4	EXP Out 5	EXP Out 6	EXP Out 7	EXP Out 8	EXP Out 9	EXP Out 10	EXP Out 11	EXP Out 12	EXP Out 13	EXP Out 14	EXP Out 15	EXP Out 16
Rtn A	22032	22033	22034	22035	22036	22037	22038	22039	22040	22041	22042	22043	22044	22045	22046	22047
Rtn B	22132	22133	22134	22135	22136	22137	22138	22139	22140	22141	22142	22143	22144	22145	22146	22147
Rtn C	22232	22233	22234	22235	22236	22237	22238	22239	22240	22241	22242	22243	22244	22245	22246	22247
Rtn D	22332	22333	22334	22335	22336	22337	22338	22339	22340	22341	22342	22343	22344	22345	22346	22347
Rtn E	22432	22433	22434	22435	22436	22437	22438	22439	22440	22441	22442	22443	22444	22445	22446	22447
Rtn F	22532	22533	22534	22535	22536	22537	22538	22539	22540	22541	22542	22543	22544	22545	22546	22547
Rtn G	22632	22633	22634	22635	22636	22637	22638	22639	22640	22641	22642	22643	22644	22645	22646	22647
Rtn H	22732	22733	22734	22735	22736	22737	22738	22739	22740	22741	22742	22743	22744	22745	22746	22747
Rtn I	22832	22833	22834	22835	22836	22837	22838	22839	22840	22841	22842	22843	22844	22845	22846	22847
Rtn J	22932	22933	22934	22935	22936	22937	22938	22939	22940	22941	22942	22943	22944	22945	22946	22947
Rtn K	23032	23033	23034	23035	23036	23037	23038	23039	23040	23041	23042	23043	23044	23045	23046	23047
Rtn L	23132	23133	23134	23135	23136	23137	23138	23139	23140	23141	23142	23143	23144	23145	23146	23147
Rtn M	23232	23233	23234	23235	23236	23237	23238	23239	23240	23241	23242	23243	23244	23245	23246	23247
Rtn N	23332	23333	23334	23335	23336	23337	23338	23339	23340	23341	23342	23343	23344	23345	23346	23347
Rtn O	23432	23433	23434	23435	23436	23437	23438	23439	23440	23441	23442	23443	23444	23445	23446	23447
Rtn P	23532	23533	23534	23535	23536	23537	23538	23539	23540	23541	23542	23543	23544	23545	23546	23547

Virtual Return to Virtual Send Mix Matrix

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Rtn A		22017	22018	22019	22020	22021	22022	22023	22024	22025	22026	22027	22028	22029	22030	22031
Rtn B	22116		22118	22119	22120	22121	22122	22123	22124	22125	22126	22127	22128	22129	22130	22131
Rtn C	22216	22217		22219	22220	22221	22222	22223	22224	22225	22226	22227	22228	22229	22230	22231
Rtn D	22316	22317	22318		22320	22321	22322	22323	22324	22325	22326	22327	22328	22329	22330	22331
Rtn E	22416	22417	22418	22419		22421	22422	22423	22424	22425	22426	22427	22428	22429	22430	22431
Rtn F	22516	22517	22518	22519	22520		22522	22523	22524	22525	22526	22527	22528	22529	22530	22531
Rtn G	22616	22617	22618	22619	22620	22621		22623	22624	22625	22626	22627	22628	22629	22630	22631
Rtn H	22716	22717	22718	22719	22720	22721	22722		22724	22725	22726	22727	22728	22729	22730	22731
Rtn I	22816	22817	22818	22819	22820	22821	22822	22823		22825	22826	22827	22828	22829	22830	22831
Rtn J	22916	22917	22918	22919	22920	22921	22922	22923	22924		22926	22927	22928	22929	22930	22931
Rtn K	23016	23017	23018	23019	23020	23021	23022	23023	23024	23025		23027	23028	23029	23030	23031
Rtn L	23116	23117	23118	23119	23120	23121	23122	23123	23124	23125	23126		23128	23129	23130	23131
Rtn M	23216	23217	23218	23219	23220	23221	23222	23223	23224	23225	23226	23227		23229	23230	23231
Rtn N	23316	23317	23318	23319	23320	23321	23322	23323	23324	23325	23326	23327	23328		23330	23331
Rtn O	23416	23417	23418	23419	23420	23421	23422	23423	23424	23425	23426	23427	23428	23429		23431
Rtn P	23516	23517	23518	23519	23520	23521	23522	23523	23524	23525	23526	23527	23528	23529	23530	

Expansion Bus Input to Analog and Aux Output Mix Matrix

NOTES:

- Non-AT models only use the first 16 channels of the Expansion Bus.
- For AT models, the last 16 Expansion Bus channels are Expansion Inputs.

	Out 1	Out 2	Out 3	Out 4	Aux Out 1	Aux Out 2	Aux Out 3	Aux Out 4	Aux Out 5	Aux Out 6	Aux Out 7	Aux Out 8
Exp 1	23600	23601	23602	23603	23608	23609	23610	23611	23612	23613	23614	23615
Exp 2	23700	23701	23702	23703	23708	23709	23710	23711	23712	23713	23714	23715
Exp 3	23800	23801	23802	23803	23808	23809	23810	23811	23812	23813	23814	23815
Exp 4	23900	23901	23902	23903	23908	23909	23910	23911	23912	23913	23914	23915
Exp 5	24000	24001	24002	24003	24008	24009	24010	24011	24012	24013	24014	24015
Exp 6	24100	24101	24102	24103	24108	24109	24110	24111	24112	24113	24114	24115
Exp 7	24200	24201	24202	24203	24208	24209	24210	24211	24212	24213	24214	24215
Exp 8	24300	24301	24302	24303	24308	24309	24310	24311	24312	24313	24314	24315
Exp 9	24400	24401	24402	24403	24408	24409	24410	24411	24412	24413	24414	24415
Exp 10	24500	24501	24502	24503	24508	24509	24510	24511	24512	24513	24514	24515
Exp 11	24600	24601	24602	24603	24608	24609	24610	24611	24612	24613	24614	24615
Exp 12	24700	24701	24702	24703	24708	24709	24710	24711	24712	24713	24714	24715
Exp 13	24800	24801	24802	24803	24808	24809	24810	24811	24812	24813	24814	24815
Exp 14	24900	24901	24902	24903	24908	24909	24910	24911	24912	24913	24914	24915
Exp 15	25000	25001	25002	25003	25008	25009	25010	25011	25012	25013	25014	25015
Exp 16	25100	25101	25102	25103	25108	25109	25110	25111	25112	25113	25114	25115
Exp 17	25200	25201	25202	25203	25208	25209	25210	25211	25212	25213	25214	25215
Exp 18	25300	25301	25302	25303	25308	25309	25310	25311	25312	25313	25314	25315
Exp 19	25400	25401	25402	25403	25408	25409	25410	25411	25412	25413	25414	25415
Exp 20	25500	25501	25502	25503	25508	25509	25510	25511	25512	25513	25514	25515
Exp 21	25600	25601	25602	25603	25608	25609	25610	25611	25612	25613	25614	25615
Exp 22	25700	25701	25702	25703	25708	25709	25710	25711	25712	25713	25714	25715
Exp 23	25800	25801	25802	25803	25808	25809	25810	25811	25812	25813	25814	25815
Exp 24	25900	25901	25902	25903	25908	25909	25910	25911	25912	25913	25914	25915
Exp 25	26000	26001	26002	26003	26008	26009	26010	26011	26012	26013	26014	26015
Exp 26	26100	26101	26102	26103	26108	26109	26110	26111	26112	26113	26114	26115
Exp 27	26200	26201	26202	26203	26208	26209	26210	26211	26212	26213	26214	26215
Exp 28	26300	26301	26302	26303	26308	26309	26310	26311	26312	26313	26314	26315
Exp 29	26400	26401	26402	26403	26408	26409	26410	26411	26412	26413	26414	26415
Exp 30	26500	26501	26502	26503	26508	26509	26510	26511	26512	26513	26514	26515
Exp 31	26600	26601	26602	26603	26608	26609	26610	26611	26612	26613	26614	26615
Exp 32	26700	26701	26702	26703	26708	26709	26710	26711	26712	26713	26714	26715
Exp 33	26800	26801	26802	26803	26808	26809	26810	26811	26812	26813	26814	26815
Exp 34	26900	26901	26902	26903	26908	26909	26910	26911	26912	26913	26914	26915
Exp 35	27000	27001	27002	27003	27008	27009	27010	27011	27012	27013	27014	27015
Exp 36	27100	27101	27102	27103	27108	27109	27110	27111	27112	27113	27114	27115
Exp 37	27200	27201	27202	27203	27208	27209	27210	27211	27212	27213	27214	27215
Exp 38	27300	27301	27302	27303	27308	27309	27310	27311	27312	27313	27314	27315
Exp 39	27400	27401	27402	27403	27408	27409	27410	27411	27412	27413	27414	27415
Exp 40	27500	27501	27502	27503	27508	27509	27510	27511	27512	27513	27514	27515
Exp 41	27600	27601	27602	27603	27608	27609	27610	27611	27612	27613	27614	27615
Exp 42	27700	27701	27702	27703	27708	27709	27710	27711	27712	27713	27714	27715
Exp 43	27800	27801	27802	27803	27808	27809	27810	27811	27812	27813	27814	27815
Exp 44	27900	27901	27902	27903	27908	27909	27910	27911	27912	27913	27914	27915
Exp 45	28000	28001	28002	28003	28008	28009	28010	28011	28012	28013	28014	28015

	Out 1	Out 2	Out 3	Out 4	Aux Out 1	Aux Out 2	Aux Out 3	Aux Out 4	Aux Out 5	Aux Out 6	Aux Out 7	Aux Out 8
Exp 46	28100	28101	28102	28103	28108	28109	28110	28111	28112	28113	28114	28115
Exp 47	28200	28201	28202	28203	28208	28209	28210	28211	28212	28213	28214	28215
Exp 48	28300	28301	28302	28303	28308	28309	28310	28311	28312	28313	28314	28315

Expansion Bus to EXP Output Mix Matrix

NOTES:

- Non-AT models only use the first 16 channels of the Expansion Bus.
- For AT models, the last 16 Expansion Bus channels are Expansion Inputs.

	EXP Out 1	EXP Out 2	EXP Out 3	EXP Out 4	EXP Out 5	EXP Out 6	EXP Out 7	EXP Out 8	EXP Out 9	EXP Out 10	EXP Out 11	EXP Out 12	EXP Out 13	EXP Out 14	EXP Out 15	EXP Out 16
Exp 1	23632	23633	23634	23635	23636	23637	23638	23639	23640	23641	23642	23643	23644	23645	23646	23647
Exp 2	23732	23733	23734	23735	23736	23737	23738	23739	23740	23741	23742	23743	23744	23745	23746	23747
Exp 3	23832	23833	23834	23835	23836	23837	23838	23839	23840	23841	23842	23843	23844	23845	23846	23847
Exp 4	23932	23933	23934	23935	23936	23937	23938	23939	23940	23941	23942	23943	23944	23945	23946	23947
Exp 5	24032	24033	24034	24035	24036	24037	24038	24039	24040	24041	24042	24043	24044	24045	24046	24047
Exp 6	24132	24133	24134	24135	24136	24137	24138	24139	24140	24141	24142	24143	24144	24145	24146	24147
Exp 7	24232	24233	24234	24235	24236	24237	24238	24239	24240	24241	24242	24243	24244	24245	24246	24247
Exp 8	24332	24333	24334	24335	24336	24337	24338	24339	24340	24341	24342	24343	24344	24345	24346	24347
Exp 9	24432	24433	24434	24435	24436	24437	24438	24439	24440	24441	24442	24443	24444	24445	24446	24447
Exp 10	24532	24533	24534	24535	24536	24537	24538	24539	24540	24541	24542	24543	24544	24545	24546	24547
Exp 11	24632	24633	24634	24635	24636	24637	24638	24639	24640	24641	24642	24643	24644	24645	24646	24647
Exp 12	24732	24733	24734	24735	24736	24737	24738	24739	24740	24741	24742	24743	24744	24745	24746	24747
Exp 13	24832	24833	24834	24835	24836	24837	24838	24839	24840	24841	24842	24843	24844	24845	24846	24847
Exp 14	24932	24933	24934	24935	24936	24937	24938	24939	24940	24941	24942	24943	24944	24945	24946	24947
Exp 15	25032	25033	25034	25035	25036	25037	25038	25039	25040	25041	25042	25043	25044	25045	25046	25047
Exp 16	25132	25133	25134	25135	25136	25137	25138	25139	25140	25141	25142	25143	25144	25145	25146	25147
Exp 17	25232	25233	25234	25235	25236	25237	25238	25239	25240	25241	25242	25243	25244	25245	25246	25247
Exp 18	25332	25333	25334	25335	25336	25337	25338	25339	25340	25341	25342	25343	25344	25345	25346	25347
Exp 19	25432	25433	25434	25435	25436	25437	25438	25439	25440	25441	25442	25443	25444	25445	25446	25447
Exp 20	25532	25533	25534	25535	25536	25537	25538	25539	25540	25541	25542	25543	25544	25545	25546	25547
Exp 21	25632	25633	25634	25635	25636	25637	25638	25639	25640	25641	25642	25643	25644	25645	25646	25647
Exp 22	25732	25733	25734	25735	25736	25737	25738	25739	25740	25741	25742	25743	25744	25745	25746	25747
Exp 23	25832	25833	25834	25835	25836	25837	25838	25839	25840	25841	25842	25843	25844	25845	25846	25847
Exp 24	25932	25933	25934	25935	25936	25937	25938	25939	25940	25941	25942	25943	25944	25945	25946	25947
Exp 25	26032	26033	26034	26035	26036	26037	26038	26039	26040	26041	26042	26043	26044	26045	26046	26047
Exp 26	26132	26133	26134	26135	26136	26137	26138	26139	26140	26141	26142	26143	26144	26145	26146	26147
Exp 27	26232	26233	26234	26235	26236	26237	26238	26239	26240	26241	26242	26243	26244	26245	26246	26247
Exp 28	26332	26333	26334	26335	26336	26337	26338	26339	26340	26341	26342	26343	26344	26345	26346	26347
Exp 29	26432	26433	26434	26435	26436	26437	26438	26439	26440	26441	26442	26443	26444	26445	26446	26447
Exp 30	26532	26533	26534	26535	26536	26537	26538	26539	26540	26541	26542	26543	26544	26545	26546	26547
Exp 31	26632	26633	26634	26635	26636	26637	26638	26639	26640	26641	26642	26643	26644	26645	26646	26647
Exp 32	26732	26733	26734	26735	26736	26737	26738	26739	26740	26741	26742	26743	26744	26745	26746	26747
Exp 33	26832	26833	26834	26835	26836	26837	26838	26839	26840	26841	26842	26843	26844	26845	26846	26847
Exp 34	26932	26933	26934	26935	26936	26937	26938	26939	26940	26941	26942	26943	26944	26945	26946	26947
Exp 35	27032	27033	27034	27035	27036	27037	27038	27039	27040	27041	27042	27043	27044	27045	27046	27047
Exp 36	27132	27133	27134	27135	27136	27137	27138	27139	27140	27141	27142	27143	27144	27145	27146	27147
Exp 37	27232	27233	27234	27235	27236	27237	27238	27239	27240	27241	27242	27243	27244	27245	27246	27247
Exp 38	27332	27333	27334	27335	27336	27337	27338	27339	27340	27341	27342	27343	27344	27345	27346	27347
Exp 39	27432	27433	27434	27435	27436	27437	27438	27439	27440	27441	27442	27443	27444	27445	27446	27447

	EXP Out 1	EXP Out 2	EXP Out 3	EXP Out 4	EXP Out 5	EXP Out 6	EXP Out 7	EXP Out 8	EXP Out 9	EXP Out 10	EXP Out 11	EXP Out 12	EXP Out 13	EXP Out 14	EXP Out 15	EXP Out 16
Exp 40	27532	27533	27534	27535	27536	27537	27538	27539	27540	27541	27542	27543	27544	27545	27546	27547
Exp 41	27632	27633	27634	27635	27636	27637	27638	27639	27640	27641	27642	27643	27644	27645	27646	27647
Exp 42	27732	27733	27734	27735	27736	27737	27738	27739	27740	27741	27742	27743	27744	27745	27746	27747
Exp 43	27832	27833	27834	27835	27836	27837	27838	27839	27840	27841	27842	27843	27844	27845	27846	27847
Exp 44	27932	27933	27934	27935	27936	27937	27938	27939	27940	27941	27942	27943	27944	27945	27946	27947
Exp 45	28032	28033	28034	28035	28036	28037	28038	28039	28040	28041	28042	28043	28044	28045	28046	28047
Exp 46	28132	28133	28134	28135	28136	28137	28138	28139	28140	28141	28142	28143	28144	28145	28146	28147
Exp 47	28232	28233	28234	28235	28236	28237	28238	28239	28240	28241	28242	28243	28244	28245	28246	28247
Exp 48	28332	28333	28334	28335	28336	28337	28338	28339	28340	28341	28342	28343	28344	28345	28346	28347

Expansion Bus to Virtual Send Mix Matrix

NOTES:

- Non-AT models only use the first 16 channels of the Expansion Bus.
- For AT models, the last 16 Expansion Bus channels are Expansion Inputs.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Exp 1	23616	23617	23618	23619	23620	23621	23622	23623	23624	23625	23626	23627	23628	23629	23630	23631
Exp 2	23716	23717	23718	23719	23720	23721	23722	23723	23724	23725	23726	23727	23728	23729	23730	23731
Exp 3	23816	23817	23818	23819	23820	23821	23822	23823	23824	23825	23826	23827	23828	23829	23830	23831
Exp 4	23916	23917	23918	23919	23920	23921	23922	23923	23924	23925	23926	23927	23928	23929	23930	23931
Exp 5	24016	24017	24018	24019	24020	24021	24022	24023	24024	24025	24026	24027	24028	24029	24030	24031
Exp 6	24116	24117	24118	24119	24120	24121	24122	24123	24124	24125	24126	24127	24128	24129	24130	24131
Exp 7	24216	24217	24218	24219	24220	24221	24222	24223	24224	24225	24226	24227	24228	24229	24230	24231
Exp 8	24316	24317	24318	24319	24320	24321	24322	24323	24324	24325	24326	24327	24328	24329	24330	24331
Exp 9	24416	24417	24418	24419	24420	24421	24422	24423	24424	24425	24426	24427	24428	24429	24430	24431
Exp 10	24516	24517	24518	24519	24520	24521	24522	24523	24524	24525	24526	24527	24528	24529	24530	24531
Exp 11	24616	24617	24618	24619	24620	24621	24622	24623	24624	24625	24626	24627	24628	24629	24630	24631
Exp 12	24716	24717	24718	24719	24720	24721	24722	24723	24724	24725	24726	24727	24728	24729	24730	24731
Exp 13	24816	24817	24818	24819	24820	24821	24822	24823	24824	24825	24826	24827	24828	24829	24830	24831
Exp 14	24916	24917	24918	24919	24920	24921	24922	24923	24924	24925	24926	24927	24928	24929	24930	24931
Exp 15	25016	25017	25018	25019	25020	25021	25022	25023	25024	25025	25026	25027	25028	25029	25030	25031
Exp 16	25116	25117	25118	25119	25120	25121	25122	25123	25124	25125	25126	25127	25128	25129	25130	25131
Exp 17	25216	25217	25218	25219	25220	25221	25222	25223	25224	25225	25226	25227	25228	25229	25230	25231
Exp 18	25316	25317	25318	25319	25320	25321	25322	25323	25324	25325	25326	25327	25328	25329	25330	25331
Exp 19	25416	25417	25418	25419	25420	25421	25422	25423	25424	25425	25426	25427	25428	25429	25430	25431
Exp 20	25516	25517	25518	25519	25520	25521	25522	25523	25524	25525	25526	25527	25528	25529	25530	25531
Exp 21	25616	25617	25618	25619	25620	25621	25622	25623	25624	25625	25626	25627	25628	25629	25630	25631
Exp 22	25716	25717	25718	25719	25720	25721	25722	25723	25724	25725	25726	25727	25728	25729	25730	25731
Exp 23	25816	25817	25818	25819	25820	25821	25822	25823	25824	25825	25826	25827	25828	25829	25830	25831
Exp 24	25916	25917	25918	25919	25920	25921	25922	25923	25924	25925	25926	25927	25928	25929	25930	25931
Exp 25	26016	26017	26018	26019	26020	26021	26022	26023	26024	26025	26026	26027	26028	26029	26030	26031
Exp 26	26116	26117	26118	26119	26120	26121	26122	26123	26124	26125	26126	26127	26128	26129	26130	26131
Exp 27	26216	26217	26218	26219	26220	26221	26222	26223	26224	26225	26226	26227	26228	26229	26230	26231
Exp 28	26316	26317	26318	26319	26320	26321	26322	26323	26324	26325	26326	26327	26328	26329	26330	26331
Exp 29	26416	26417	26418	26419	26420	26421	26422	26423	26424	26425	26426	26427	26428	26429	26430	26431
Exp 30	26516	26517	26518	26519	26520	26521	26522	26523	26524	26525	26526	26527	26528	26529	26530	26531
Exp 31	26616	26617	26618	26619	26620	26621	26622	26623	26624	26625	26626	26627	26628	26629	26630	26631
Exp 32	26716	26717	26718	26719	26720	26721	26722	26723	26724	26725	26726	26727	26728	26729	26730	26731

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Exp 33	26816	26817	26818	26819	26820	26821	26822	26823	26824	26825	26826	26827	26828	26829	26830	26831
Exp 34	26916	26917	26918	26919	26920	26921	26922	26923	26924	26925	26926	26927	26928	26929	26930	26931
Exp 35	27016	27017	27018	27019	27020	27021	27022	27023	27024	27025	27026	27027	27028	27029	27030	27031
Exp 36	27116	27117	27118	27119	27120	27121	27122	27123	27124	27125	27126	27127	27128	27129	27130	27131
Exp 37	27216	27217	27218	27219	27220	27221	27222	27223	27224	27225	27226	27227	27228	27229	27230	27231
Exp 38	27316	27317	27318	27319	27320	27321	27322	27323	27324	27325	27326	27327	27328	27329	27330	27331
Exp 39	27416	27417	27418	27419	27420	27421	27422	27423	27424	27425	27426	27427	27428	27429	27430	27431
Exp 40	27516	27517	27518	27519	27520	27521	27522	27523	27524	27525	27526	27527	27528	27529	27530	27531
Exp 41	27616	27617	27618	27619	27620	27621	27622	27623	27624	27625	27626	27627	27628	27629	27630	27631
Exp 42	27716	27717	27718	27719	27720	27721	27722	27723	27724	27725	27726	27727	27728	27729	27730	27731
Exp 43	27816	27817	27818	27819	27820	27821	27822	27823	27824	27825	27826	27827	27828	27829	27830	27831
Exp 44	27916	27917	27918	27919	27920	27921	27922	27923	27924	27925	27926	27927	27928	27929	27930	27931
Exp 45	28016	28017	28018	28019	28020	28021	28022	28023	28024	28025	28026	28027	28028	28029	28030	28031
Exp 46	28116	28117	28118	28119	28120	28121	28122	28123	28124	28125	28126	28127	28128	28129	28130	28131
Exp 47	28216	28217	28218	28219	28220	28221	28222	28223	28224	28225	28226	28227	28228	28229	28230	28231
Exp 48	28316	28317	28318	28319	28320	28321	28322	28323	28324	28325	28326	28327	28328	28329	28330	28331

Internal Web Pages

The DMP 64 Plus features an internal web server, displayed as a web page. Two web pages are available: one for general configuration and one for VoIP configuration (V-models only).

The pages allow you to monitor and adjust certain settings of the DMP 64 Plus via LAN connection. Use a web browser to view the pages on a PC or control system connected to the device rear panel LAN port (non-V-models) or LAN/VoIP port (V-models only).

This section gives an overview of the internal web pages, which are always available and cannot be erased or overwritten. Topics include:

Accessing the Embedded Web Pages

To access the internal web pages:

1. Connect the DMP Plus to a LAN using the rear panel LAN port.
2. On the connected PC, open a web browser.
3. Enter the IP address of the DMP Plus in the browser **`Address`** field.

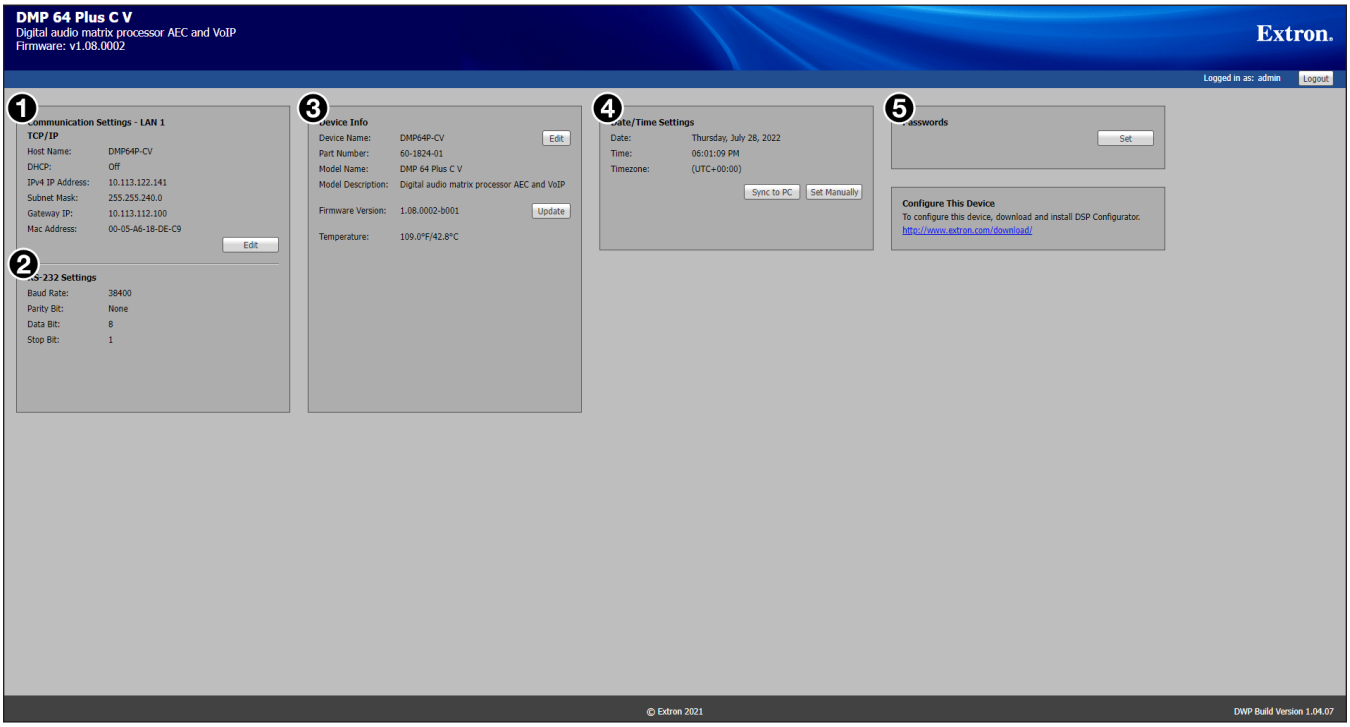
   For the VoIP web page: Enter the IP address followed by `/www/voip.html`.

   NOTE: If the local system administrators have not changed the IP address, and the device has not been assigned an IP address via DHCP, the default address (LAN for non-V-models, LAN 1 for V-models) is `192.168.254.254`.
4. Press the **`<Enter>`** key on the keyboard.
5. Enter `user` or `admin` in the **`Username`** field and the password (if one exists) in the **`Password`** field when prompted.

   NOTE: The factory configured passwords for all accounts on this device have been set to the device serial number. In the event of the complete system reset, the password reverts to the default, which is no password.
6. Click **`Sign In`**.

DMP 64 Plus Default Web Page

The DMP 64 Plus default internal web page provides an overall, read-only view of the device status, with some editable fields (see figure 26).



Panels are:

❶ **Communication Settings** ❸ **Device Info** ❺ **Passwords**

❷ **RS-232 Settings** ❹ **Date/Time Settings**

Figure 26. DMP 64 Plus Default Web Page

The internal web page does not automatically update. To see an updated page, click the **Refresh** button on the web browser.

Communication Settings

The Communication Settings panel (see figure 27) displays the TCP/IP communication settings. Click **EDIT** (❶) to open the Communication Settings dialog box (see figure 28) and edit the TCP/IP settings. The following can be edited: DHCP status, IP address, subnet mask, and default gateway.

NOTE: If the **Use DHCP** checkbox is checked (enabled), the IP address, subnet mask, and default gateway cannot be edited.

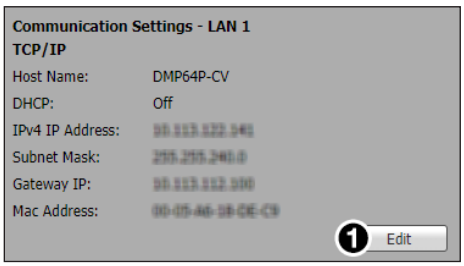


Figure 27. Comm Settings Panel

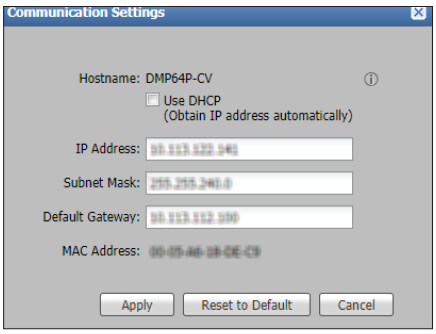


Figure 28. Comm Settings

RS-232 Settings

The RS-232 Settings panel (see figure 29) provides a read-only display of the device RS-232 settings.

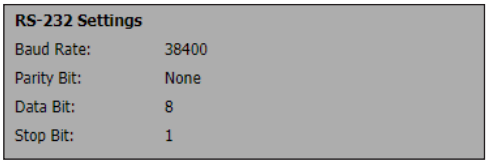


Figure 29. RS-232 Settings

Device Info

The Device Info panel (see figure 30) displays the temperature , device name, a brief product description, and the part number. The **EDIT** button (❶) is available to change the device name or reset back to the default name. The panel also displays the firmware version and an **UPDATE** button (❷) for firmware updates.

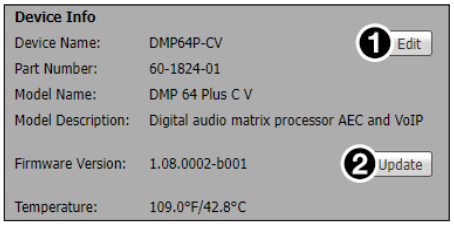


Figure 30. Device Info

To change the device name:

1. Click **EDIT** (❶).

   The Device Name dialog box opens (see figure 31).

2. Edit the device name as desired.
3. When finished editing, click APPLY to confirm your changes or CANCEL to close the window without making changes.

   Click **Reset to Default** to revert back to the default device name.

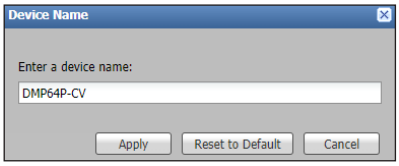


Figure 31. Device Name

To update the firmware:

1. Click **UPDATE** (see figure 30, ❷).

   The Firmware Update dialog box opens (see figure 32).

2. Click **Browse**.

   The Open dialog box opens (figure 33).

3. Select the desired firmware, and click **Open**.

   NOTE: Only files with a .S19 and .eff extensions are accepted.

   The firmware file appears in the **Firmware** field (see figure 32).

4. Click **Upload** to update the firmware.

   Click **Cancel** to keep the current firmware.

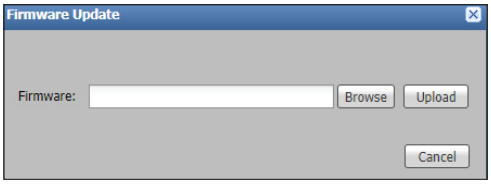


Figure 32. Device Name

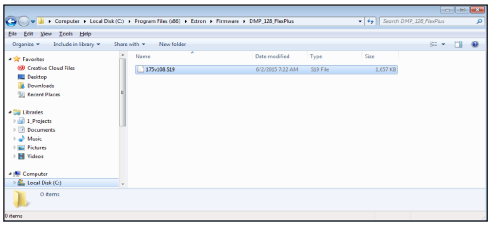


Figure 33. Choose File to Upload

NOTE: Refer to **Software/Firmware Installation** on page 13 for details on downloading the firmware.

Date/Time Settings

The Date/Time Settings panel (see figure 34) displays the date, time, and time zone information for the device.

- Click **Sync to PC** (❶) to sync the date and time on the device to the date and time on the host computer.
- Click **Set Manually** (❷) to set the date, time, and time zone,

  The Date and time Settings dialog box opens (see figure 35).

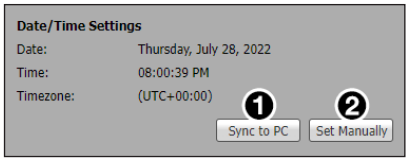


Figure 34. Date/Time Settings

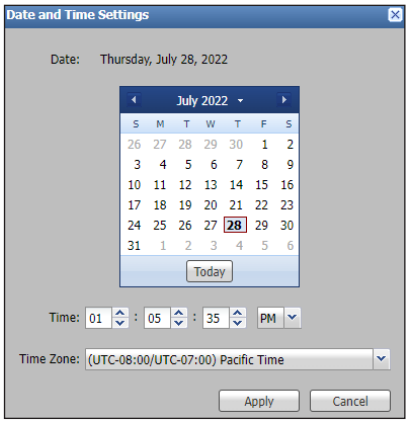


Figure 35. Calendar

Passwords

The Passwords panel displays the option to change the password (see figure 36).

To change the password:

1. Click **Set** (❶).

   The Passwords dialog box opens (see figure 37).
2. In the **Password:** field, enter the current password.
3. In the **Confirm Password:** field, enter the new password.
4. Click **Apply** to change the password.

   Click **Cancel** to keep the password.

NOTES:

- An administrator password must be applied before a user password can be applied.
- The factory configured password for this device has been set to the device serial number. Passwords are case sensitive. Performing a *Reset to Factory Defaults* removes the password.

Figure 36. Passwords

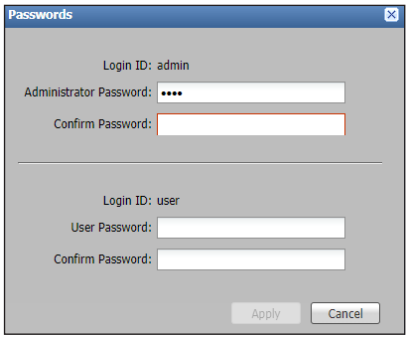


Figure 37. Change Password

DMP 64 Plus VoIP Web Page

The DMP 64 Plus VoIP web page consists of the following tabs for configuration (see figure 38):

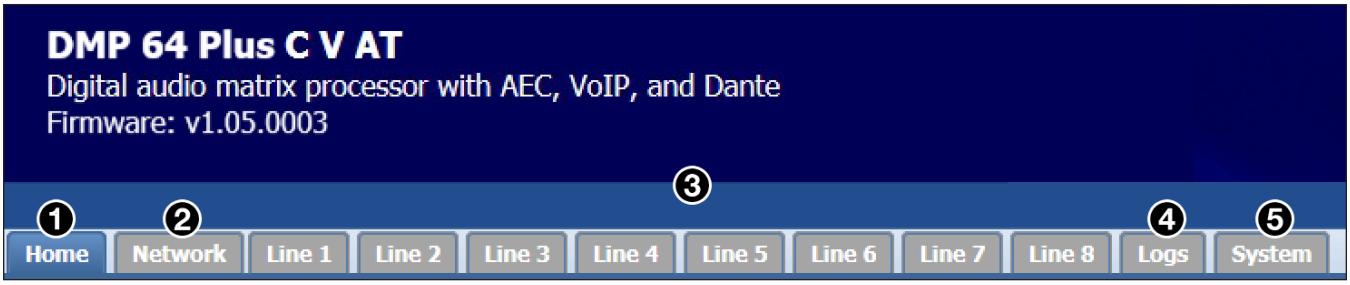


Figure 38. VoIP Web Page Tabs

❶ **Home** — Displays VoIP statuses and details.

❷ **Network** —Allows network configuration for the interface, QoS/LLDP-MED, transport, NAT traversal, and advanced settings.

❸ **Line** — Allows the user to register a SIP account, add or remove codecs from selected lines, and configure dialing options. Eight line tabs are available.

❹ **Logs** — Displays a running log of SIP transaction relating to all lines on the device.

❺ **System** — Allows user to export VoIP configurations to a JSON file.

Home Tab

The **Home** tab displays high-level information about the DMP 64 Plus VoIP configuration. There are two main panels: **VoIP Status** and **Details** on page 74 (see figure 39).

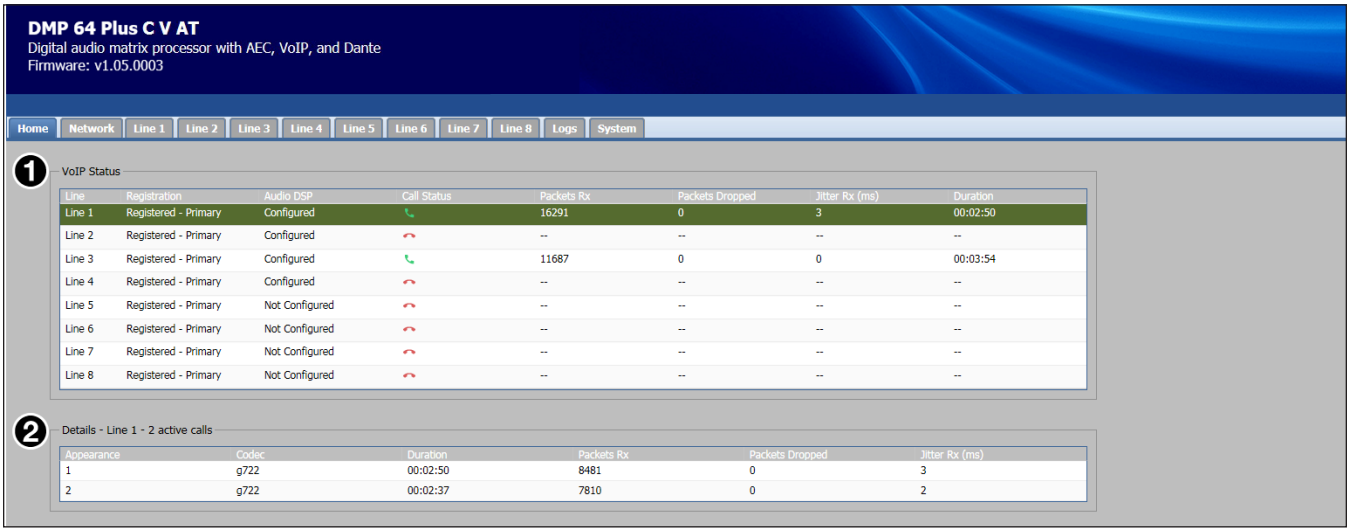


Figure 39. Home Page

VoIP Status

The `VoIP Status` panel (❶) displays the status of the following parameters for each line:

- **Line** — Displays the VoIP line number.
- **Registration** — Displays the current registration status of that line. Registered lines indicate whether the primary or secondary server is used.
- **Audio DSP** — Displays whether the line is assigned to an Aux channel in the DMP 64 Plus (`Configured`) or the line is not assigned to an Aux channel (`Not Configured`) (see the *DSP Configurator Help File* for details on assigning Aux inputs).

- **Call Status** — Displays a green “off hook” (active) or a red “on hook” (inactive) icon depending on the call status of that line.
  - **Packets Rx** — Displays the total number of packets received on the line for the current call.
  - **Packets Dropped** — Displays the total number of packets dropped on that line for the current call.
  - **Jitter Rx** — Displays the current inbound network jitter value for that line in the current call (highest network jitter value if multiple appearances of jitter).
  - **Duration** — Displays the duration of the current call in *hh:mm:ss* format.

Details

The `Details` panel (see **figure 39**, ❷ on page 73) displays the details of each appearance within the line currently selected in the VoIP Status panel including the current codec in use, call duration, packets received, packets dropped, and inbound jitter.

Network Tab

The **`Network`** tab has five secondary tabs for VoIP network configuration:

• **Interface** • **QoS/LLDP-MED** • **Transport** • **NAT Traversal** • **Advanced**

NOTE: For more information regarding VoIP network configuration, refer to the DMP 64 Plus product page at **www.extron.com**.

Interface

The **`Interface`** tab allows user to set the VoIP interface (see figure 40).

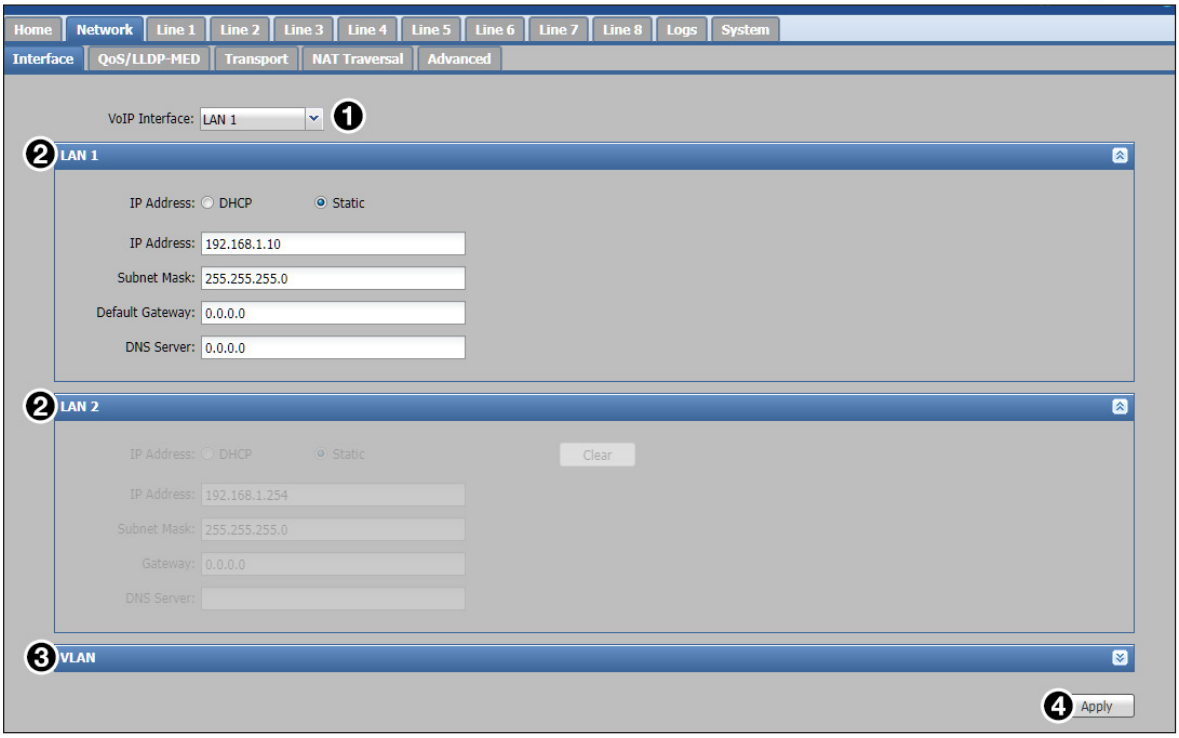


Figure 40. Interface Tab

To set the VoIP interface:

1. From the **`VoIP Interface`** drop-down list (❶) select the desired LAN/VoIP port to be used for VoIP network traffic. Options are **`LAN 1`**, **`LAN 2`**, and **`VLAN`**.

   NOTE: Only select **`VLAN`** when joining a tagged network port on the switch.

2. For the LAN 1 and LAN 2 panels (see **figure 40**, ❷ on page 74), select **DHCP** or **Static** for the **IP Address** field.
   - If **DHCP** is selected, all other fields are greyed out.
   - If **Static** is selected, fill out the **IP Address**, **Subnet Mask**, and **Gateway** fields.
3. For the VLAN panel (see ❸ and figure 41):

NOTE: VLAN panel is only available when **VLAN** is selected from the VoIP **Interface** drop-down list (see **figure 40**, ❶).

Figure 41. VLAN Panel

   a. Select the **DHCP** or **Static** radio button for the IP Address field.
      - If **DHCP** is selected, all other fields are greyed out.
      - If **Static** is selected, fill out the **IP Address**, **Subnet Mask**, and **Gateway** fields.
   b. Select the **LAN 1 VLAN** or **LAN 2 VLAN** radio button.
   c. Enter an appropriate VLAN ID tag in the **VLAN ID** field.
5. Click **Apply** (see **figure 40**, ❹) to save and apply the changes.

QoS/LLDP-MED

The **QoS/LLDP-MED** tab allows users to set the PCP (Priority Code Point) and Differentiated Services Code Point (DSCP) decimal value for layer 2 and 3 as well as enable or disable the Link Layer Discovery Protocol - Media Endpoint Discovery (LLDP-MED) (see figure 42).

NOTE: Consult the VoIP system administrator before changing any QoS values.

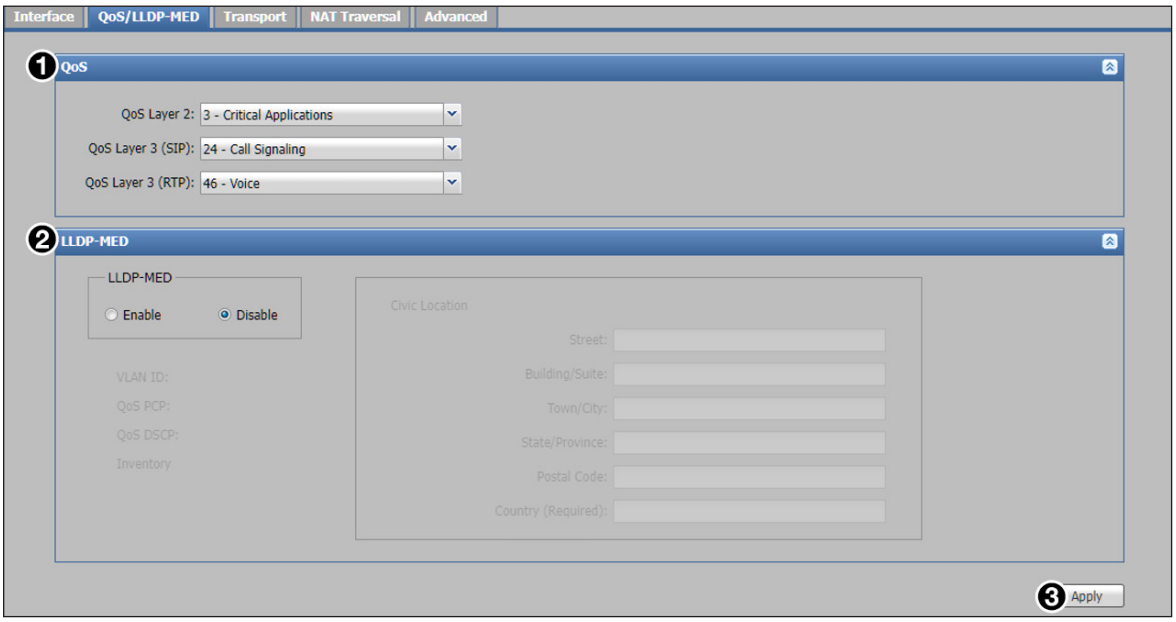


Figure 42. VoIP Network QoS/LLDP-MED Tab

Three drop-down lists are available:

- **QoS Layer 2** — Select the PCP decimal value for layer 2 network frames. Default is **`3 - Critical Applications`**.
- **QoS Layer 3 (SIP)** — Select the DSCP decimal value for layer 3 SIP network packets. Default is **`24 - Call Signaling`**.
- **QoS Layer 3 (RTP)** — Select the DSCP decimal value for layer 3 RTP network packets. Default is **`46 - Voice`**.

The `LLDP-MED` panel (❷) allows user to **`Disable`** (default) or **`Enable`** the LLDP-MED. When disabled, all other fields are greyed out. When enabled, the following fields are available:

- **VLAN ID checkbox** — Select to read the voice VLAN ID from the network and automatically configure the DMP 64 Plus VLAN tag (VLAN must be selected as the interface for this feature to work)
- **QoS PCP checkbox** — Select to read PCP values from the network and automatically configure layer 2 QoS.
- **QoS DSCP checkbox** — Select to read DSCP values from the network and automatically configure layer 3 QoS.

  NOTE: VLAN ID, QoS PCP, and QoS DSCP values read from the network and applied to the DMP 64 Plus overwrite any manually specified values.

- **Inventory checkbox** — Select to send the DMP 64 Plus model number, part number, and firmware details to the network switch.
- **Civic Location checkbox** — Select to send the location details entered into the `Civic Location` panel. This is useful when logging the physical location of the DMP 64 Plus for network management purposes.

Click **`Apply`** (❸) to save and apply all changes.

Transport

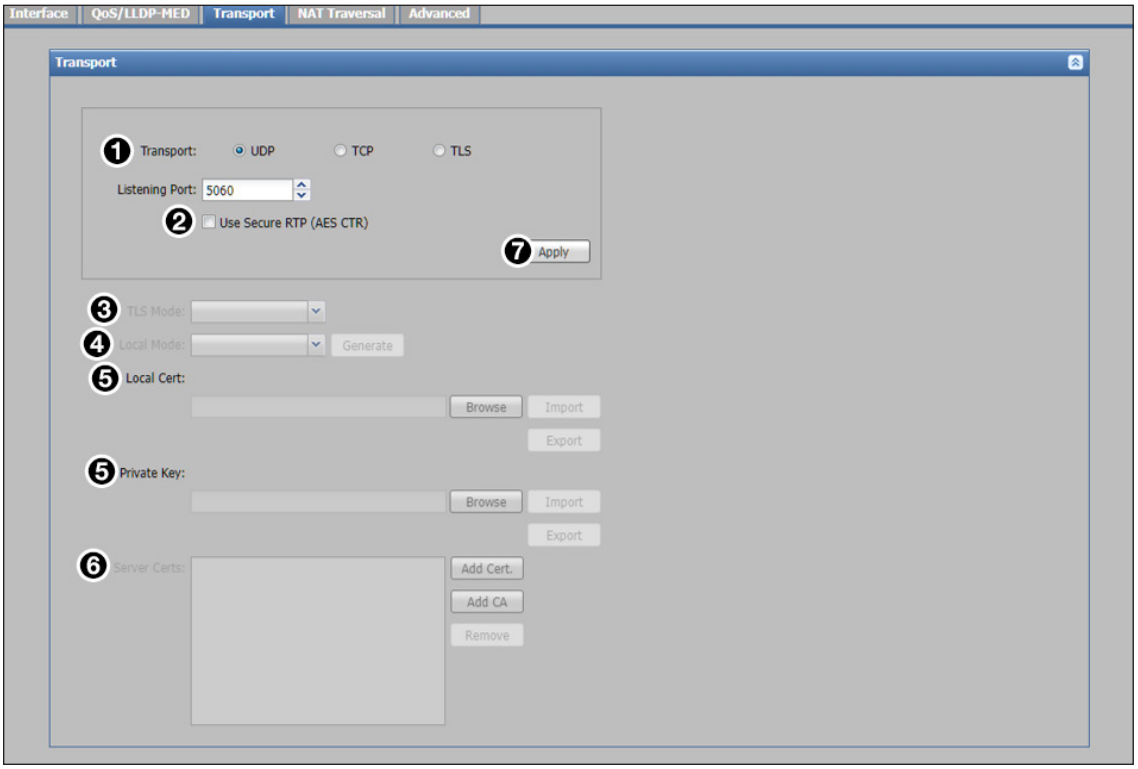


Figure 43. VoIP Network Transport Tab

❶ **Transport radio buttons** — Select **UDP** (default), **TCP**, or **TLS** transport protocols.

> **NOTE:** When **TLS** is selected, the listening port changes from 5060 to 5061. The listening port can be manually adjusted.

❷ **Use Secure RTP (AES CTR) checkbox** — Check the box to encrypt RTP audio streams using the AES CTR cipher.

❸ **TLS Mode drop-down list** — Select **Always Allow** or **Always Verify** TLS modes.

> **NOTE:** This option is only available when **TLS** is selected as the transport protocol.

❹ **Local Mode drop-down list** — Choose a default local certificate or upload a custom local certificate to the DMP 64 Plus. When the default certificate is selected, click **Generate** to force the DMP 64 Plus to self-generate a new local certificate and private key. Self-generated certificates can be exported by clicking the **Export** button.

> **NOTE:** Certificates and private keys must be in the Privacy Enhanced Mail (PEM) format. The certificate filename cannot be longer than 32 characters, including the .pem extension.

❺ **Local Cert and Private Key**— If **Upload** is selected for Local Mode (❹), click the **Browse** button to locate a certificate or private key on the host PC. Click **Import** to commit this certificate or key to the DMP 64 Plus. Click **Export** to save the current local certificate or key to the default download directory of the web browser on the host PC.

❻ **Server Certs** — Displays up to eight server certificates that can be stored on the DMP 64 Plus at any one time. The following buttons are available:

- **Add Cert** — Click to add a server certificate to the system.
- **Add CA** — Click to add a Certificate Authority certificate to the system.
- **Remove** — Highlight a listed certificate and click this button to remove it from the system.

❼ **Apply button** — Click to save and apply the changes.

NAT Traversal

The **NAT Traversal** tab allows the user to set the NAT traversal method (see figure 44).

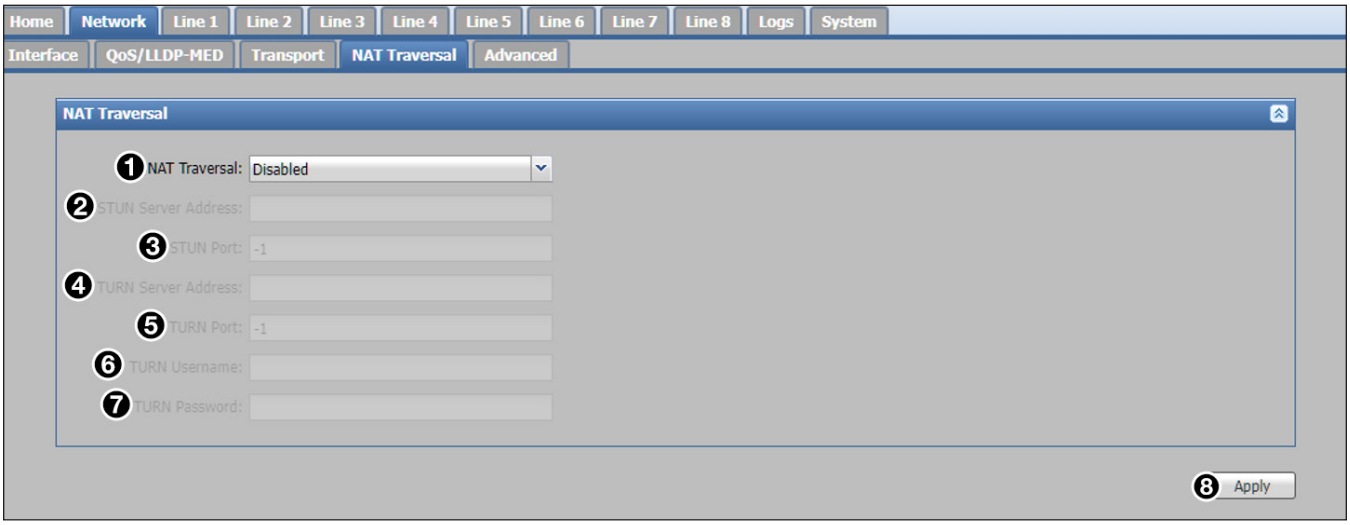


Figure 44. VoIP Network NAT Traversal Tab

To disable NAT traversal, select **Disabled** from the **NAT Traversal** drop-down list (❶). Click **Apply** (❽) to save and apply changes.

NOTES:

- The default is disabled.
- When the **Apply** button is clicked, network services on the DMP 64 Plus restart. This process can take up to 30 seconds.

To set the STUN Server as the NAT traversal method:

1. From the **NAT Traversal** drop-down list (❶), select **STUN Server**.
2. In the **STUN Server Address** field (❷), enter the IP address or domain name of the STUN server.
3. In the **STUN Port** field (❸), enter the port number of the STUN server.
4. Click **Apply** (❽) to save and apply changes.

To set the TURN Server as the NAT traversal method:

1. From the **NAT Traversal** drop-down list (❶), select **TURN Server**.
2. In the **TURN Server Address** field (❹), enter the IP address or domain name of the TURN server.
3. In the **TURN Port** field (❺), enter the port number of the TURN server.
4. If required, enter the username for the TURN server in the **TURN Username** field (❻).
5. If required, enter the password for the TURN server in the **TURN Password** field (❼).
6. Click **Apply** (❽) to save and apply changes.

To set STUN/TURN (ICE) as the NAT traversal method:

1. From the **NAT Traversal** drop-down list (❶), select **STUN/TURN (ICE)**.
2. In the **STUN Port** field (❸), enter the port number of the STUN server.
3. In the **TURN Port** field (❺), enter the port number of the TURN server.
4. Click **Apply** (❽) to save and apply changes.

   ICE then automatically determines the appropriate method for traversal.

Advanced

The **Advanced** tab allows the user to make changes to line re-registration, RTP port range, and outgoing calls (see figure 45).

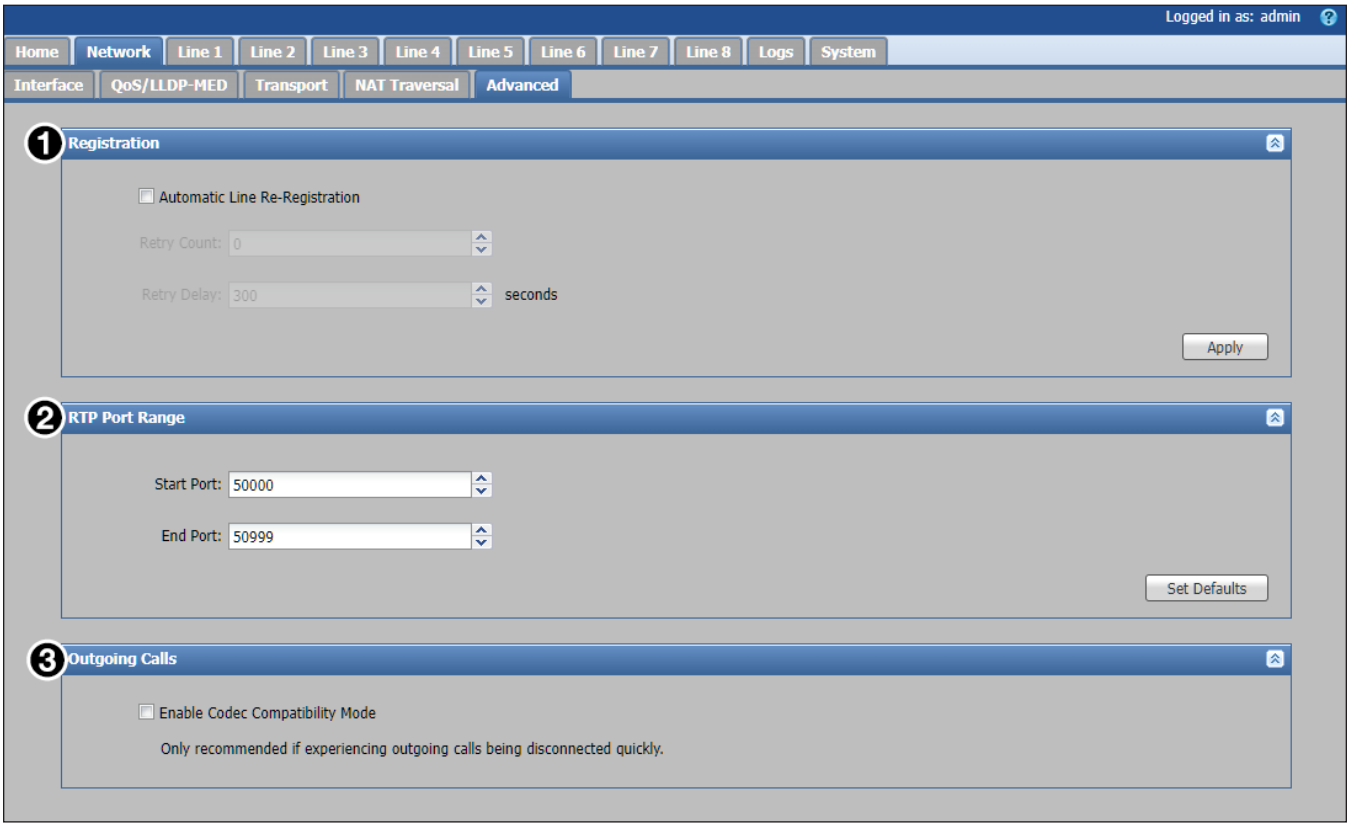


Figure 45. VoIP Network Advanced Tab

❶ **Registration** — Click the **Automatic Line Re-registration** checkbox to enable or disable automatic line re-registration. If enabled, use **Retry Count** and **Retry Delay** drop-down lists to set the necessary values. Click **Apply** to save changes.

❷ **RTP Port Range** — Use the **Start Port** and **End Port** drop-down lists to set the necessary values. The valid port range is 1024-65534.

NOTES:

- Changes to the RTP Port Range settings take effect immediately whether using direct input or the stepper buttons.
- The Start Port value must be lower than the End Port value.
- The **Set Defaults** button sets the Start Port to 50000 and the End Port to 50999.

❸ **Outgoing Calls** — Disabled by default. If required, click the checkbox to enable codec compatibility mode.

Line Tabs

The **Line** tabs allow the user to register and configure the audio and dialing of the lines. There are three secondary tabs: **Registration**, **Audio** on page 81, and **Dialing** on page 81.

Registration

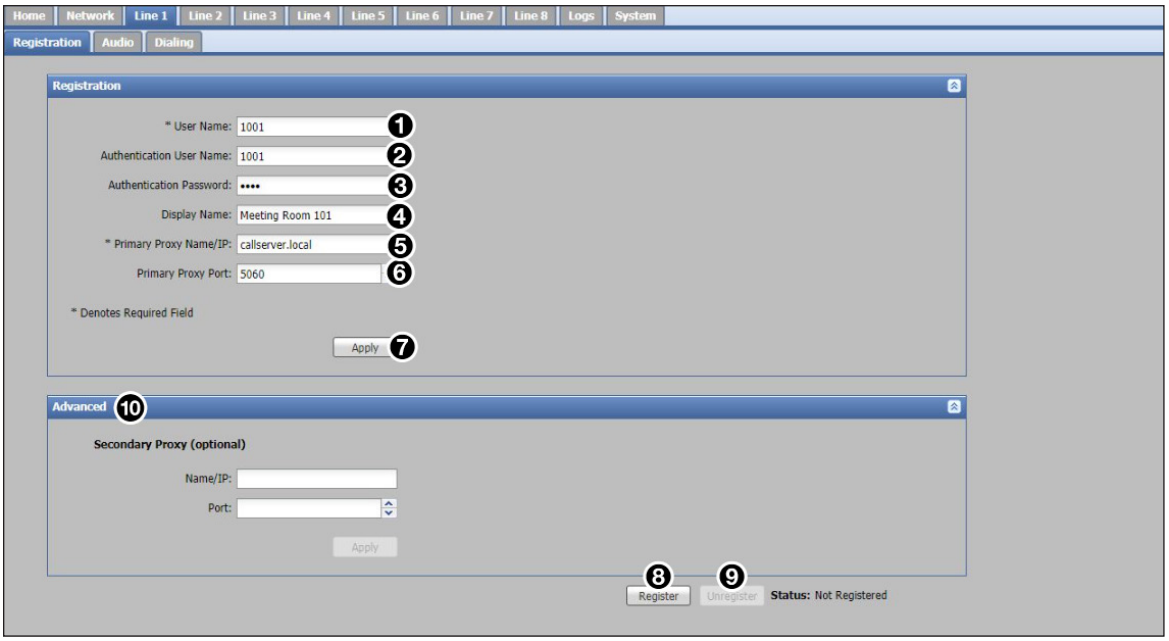


Figure 46. VoIP Line Registration Tab

To register a SIP account:

1. In the **User Name** field (see figure 46, ❶), enter the user name currently assigned to the DMP 64 Plus through the call server.

   NOTE: "User Name" is referred to as "Line Extension" by some call servers.

2. In the **Authentication User Name** field (❷), enter a name for the line (optional). In some cases, this is the same as the user name entered in step 1.
3. In the **Authentication Password** field (❸), enter the call server registration password.

   NOTE: If a password is not required by the call server, leave this field blank.

4. In the **Display Name** field (❹), enter a display name for the line (optional).
5. In the **Primary Proxy Name/IP** field, enter the call server IP address or domain name.
6. In the **Primary Proxy Port** field (❻), enter the SIP traffic port number.

   NOTE: If no port number is specified by the user, 5060 is used by default.

7. Click **Apply** (❼) to make the changes to the DMP 64 Plus (click **Clear** to clear all fields). Applying the changes does not initiate line registration with the call server.
8. Click **Register** (❽) to initiate registration with the call server. Registration is confirmed in the Status field next to the **Register** button.

   NOTES:

   - To unregister a line from the call server, click **Unregister** (❾).
   - To clear data from a field, delete the data from the field, and click **Apply** (❼).
   - If registration is unsuccessful, refer to the logs page (see **Logs Tab** on page 82) and contact the VoIP system administrator.

Advanced Options

The `Advanced` panel (see **figure 46**, ❿ on page 80) allows a secondary proxy to be specified for redundancy purposes.

Audio

Codecs can be added or removed from the selected line in the **`Audio`** tab (see figure 47). Codecs added to the line are available during call negotiation. A minimum of one codec must be present in the `Assigned` column. Codecs placed higher on the list are treated as preferred codecs during call negotiation.

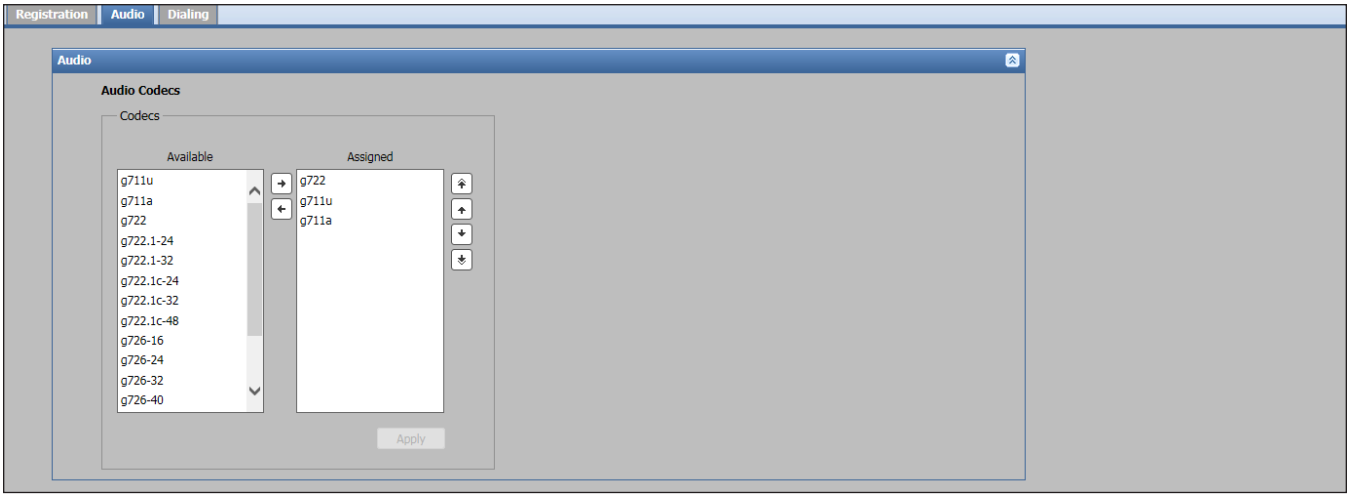


Figure 47. VoIP Line Audio Configuration Tab

To move a codec between the Available and Assigned column, select the desired codec and click the arrows between the columns.

To change codec priority in the Assigned column, click and drag the desired codec to the desired position in the list.

Click **`Apply`** to save and apply the codec configurations.

Dialing

The **`Dialing`** tab allows dialing behavior to be configured for the selected line (see figure 48).

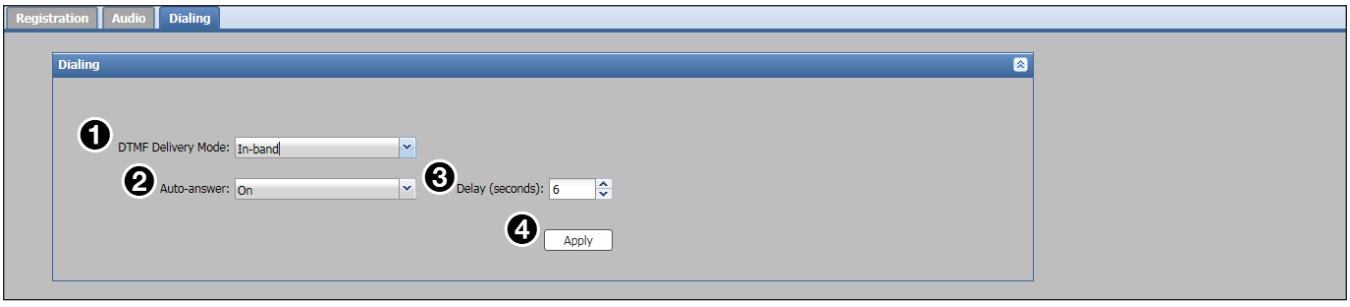


Figure 48. VoIP Line Dialing Tab

❶ **DTMF Delivery Mode drop-down list** — Select the DTMF delivery mode.

> **NOTE:** Always consult with the VoIP system administrator to determine the correct DTMF mode.

❷ **Auto-answer drop-down list** — Select **`On`** or **`Off`** for auto-answer answer features.

❸ **Delay (seconds)** — If auto-answer is enabled, enter the amount of delay in seconds before the call is automatically answered.

❹ **Apply button** — Click to save and apply the changes

Logs Tab

The **Logs** tab provides a running log of SIP transaction relating to all lines on the device (see figure 49). Issues such as registration errors and call failures can be identified on this page without having to use external troubleshooting tools.

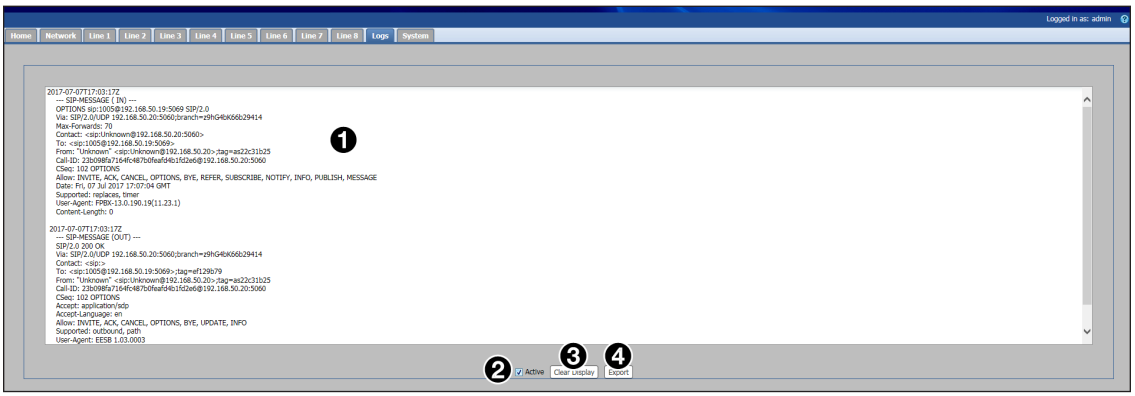


Figure 49. VoIP Logs Tab

❶ **Log Window** — Displays SIP transaction, including SDP.

❷ **Active checkbox** — Check this box to activate transaction logging. Default is unchecked.

❸ **Clear Display button** — Clears all log data currently in the log window.

❹ **Export button** — Exports the contents of the log window to a text file. The exported text file is automatically stored in the default download directory of the web browser.

NOTE: For more information regarding VoIP logs, refer to the DMP 64 Plus product page on www.extron.com.

System Tab

The **System** tab allows users to export VoIP configurations to a JSON file (see figure 50). These configuration files are used to return DMP 64 Plus devices to a known VoIP configuration. Additionally, partial configurations (individual JSON fields) can be applied using the import tool.

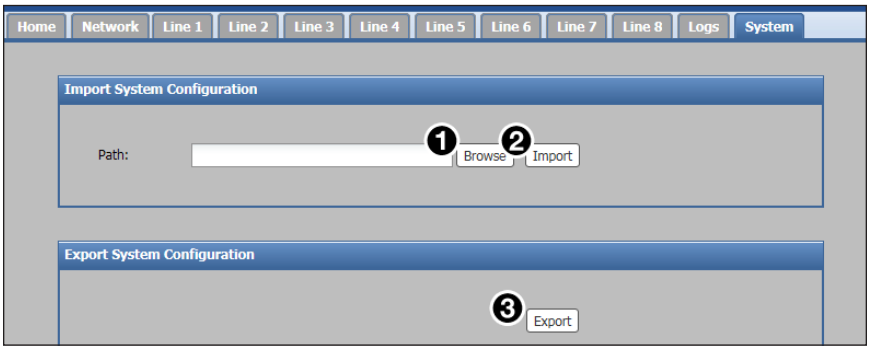


Figure 50. VoIP System Page

To import a system configuration:

1. Click **Browse** (❶).
2. Locate the system configuration file to be imported.
3. Click **Import** (❷).

NOTE: It may take up to 30 seconds to import settings. A dialog box opens to indicate a successful import.

To export a system configuration, click **Export** (❸). The exported JSON file is automatically stored in the default download directory of the web browser.

Using a Configuration File to Update VoIP Settings

The `Import System Configuration` panel can be used to update advanced VoIP settings. This may be required when configuring the DMP Plus to be compatible with certain VoIP systems.

NOTE: For more detailed instructions and information on various types of VoIP systems, see the article at **www.extron.com/article/voip**.

To configure the advanced VoIP settings:

NOTES:

- Importing a `.conf` file applys updates only to the respective settings that are included in the file. Default or other current settings on the device are not reset or removed by importing a new `.conf` file.
- Multiple settings can be changed when importing a single `.conf` file. It is not necessary to make a separate `.conf` file for each desired setting change.

1. Create a new blank text file using a suitable basic text editor, or export the current system configuration file (see **System Tab** on page 82).
2. Make configuration changes by adding new text, editing the existing text, or removing text from the file.

   (Example 1) To enable the Automatic Line Re-Registration:

   a. Enter the following text into the document, if not already present:

   {"network":{"registration_fail_retry_count":5,"registration_fail_retry_delay":300}}

   NOTE: When enabled, this function attempts re-registration once the SIP timer has expired. By default the SIP timer is set to 3600 seconds (60 mins). By default, the Automatic Line Re-Registration feature is disabled, with the "`registration_fail_retry_count`" set to zero (`0`).

   - *registration_fail_retry_count":5*
     This is the number of attempts a Line makes to re-register.

     NOTES:

     - The example above is set to five (`5`) reconnections attempts.
     - If this is set to zero (`0`), the feature is disabled.
     - Valid Range of values: `0` - `99`

   - *registration_fail_retry_delay":300*
     This is the amount of time between registration attempts in seconds.

     NOTES:

     - The example above is set to `300` seconds (5 mins) between reconnections attempts.
     - Valid Range of values: `120` - `3600`

   (Example 2) To update the RTP port range:

   a. Enter the following text into the document, if not already present:

   {"network":{"rtpstartport":2048,"rtpendport":3329}}

   - *rtpstartport":2048* and *rtpendport":3329* is the range.

   b. Replace the values with the desired range.

   NOTES:

   - The port range may differ depending on the phone system being used.
   - The default port range for VoIP RTP traffic on the DMP Plus Series is `50000-50999`.

3. Save the file as `voipConfig.conf`.
4. Navigate to the **`System`** tab of the VoIP web page (see **System Tab**).

5. In the `Import System Configuration` panel, click the **`Browse`** button (see **figure 50**, ❶ on page 82) to locate the `voipConfig.conf` file created in the previous steps.
6. Click the **`Import`** button (❷) to update the DMP Plus Series with the new settings. A notification appears once the settings have applied successfully.

Reference Information

This section provides additional information for the DMP 64 Plus.

- **Equipment Mounting**
- **Best Practices for Cleaning Your Extron Products**

Equipment Mounting

ATTENTION:

- Installation and service must be performed by authorized personnel only.
- L'installation et l'entretien doivent être effectués par le personnel autorisé uniquement.

The DMP can be set on a table, mounted in a rack, or mounted under a desk or table.

Tabletop Use

Four adhesive rubber feet are included with the DMP 64 Plus. For tabletop use, attach one foot at each corner on the bottom of the unit, and place it where desired.

Mounting Kits

Mount the unit using any optional compatible mounting kit listed on the Extron website (**www.extron.com**), in accordance with the directions included with the kit. For rack mounting, see "UL Rack-Mounting Guidelines" starting below.

UL Rack-Mounting Guidelines

The following Underwriters Laboratories (UL) requirements pertain to the installation of the DMP 64 Plus into a rack.

CAUTION:

- **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

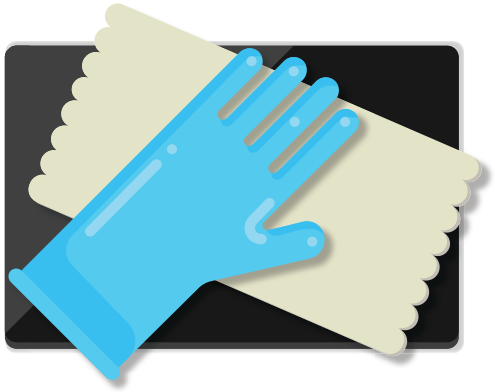
Les consignes UL (« Underwriters Laboratories ») suivantes concernent l'installation en rack d'un boîtier DMP 64 Plus :

ATTENTION:

- **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).

Best Practices for Cleaning Your Extron Products

There may be times when it becomes necessary to clean your Extron product. Plastic surfaces and cosmetic finishes can be damaged by long term exposure to chemicals. Therefore, Extron recommends the following guidelines when cleaning our products.



All Extron products can be safely cleaned with:

1. 70% concentration or higher Isopropyl Alcohol
2. Disinfectant cleaners that:
   - Are non-ammonium based (for example, contains no ammonium chloride)
   - Contain 2% or less sodium hypochlorite (for example, 2% bleach, 98% water)

It is important to follow these general guidelines when cleaning:

1. If possible, unplug the device.
2. Spray the cleaner on a lint-free cloth until the cloth is damp.
3. Do not spray the cleaner directly onto the product.
4. Gently clean the product surface using the cloth.

Your health and safety are our top priority. Keeping devices clean, especially those in high-traffic environments and high-use applications, is a crucial step in minimizing the spread of infections. Please contact us if you have any questions about the guidelines or if you have a question about cleaning the product.

Extron Warranty

Extron warrants its powered products against defects in materials and workmanship for a period of three years from the date of invoice. In the event of malfunction during the warranty period, Extron will repair or replace a product to whatever extent it shall deem necessary to restore the product to proper operating condition.

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 non-Extron authorized modification to the product. 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.

Powered Warranty Exception

Everlast™ Power Supplies — Extron warrants Everlast power supplies against any defects in materials and workmanship for a period of seven years from the date of invoice. In the event of a malfunction during the warranty period, Extron will repair or replace the power supply to its original operating condition. Extron engineers will examine the returned product and determine whether the Everlast Power Supply Warranty or Powered Product Warranty applies.

Speakers — Extron warrants Flat Field®, SoundField®, SpeedMount®, Column Array, and System INTEGRATOR® speakers against any defects in materials and workmanship for a period of five years from the date of invoice.

Touchscreens — Extron warrants touchscreen display and overlay components against any defects in materials and workmanship for a period of one year from the date of invoice.

Annotator 300 — Extron warrants the Annotator 300 against any defects in materials and workmanship for a period of five years from the date of invoice.

Non-Powered Warranty Exception

Cable Cubby, Hideaway Surface Access Enclosures and Retractors — Extron warrants Cable Cubby cable access enclosures, HSA Hideaway Surface Access enclosures, and Retractor cable retraction modules for a period of three years from the date of invoice.

Active Cables and Active Adapters — Extron warrants active cables and active adapter cables for a period of three years from the date of invoice.

Cable Termination Tools and Dies — Extron warrants cable termination tools for a period of three years from the date of invoice, excluding the die.

Return Information

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.

NOTE: To assure the highest level of service, a return authorization number must be obtained from Extron before products are returned for service. Products must be shipped to Extron, prepaid along with proof of purchase **only** after obtaining a Return Authorization (RA) number from the Extron Customer Support department.

Please contact Extron to receive an RA (Return Authorization) number:

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		

Worldwide Headquarters: Extron USA West, 1025 E. Ball Road, Anaheim, CA 92805, 800.633.9876