Extron Electronics
INTERFACING, SWITCHING AND CONTROL

AXP 64 C AT • Setup Guide

This guide provides basic instructions for an experienced technician to install the AXP 64 C AT Audio Expansion Processor. For additional information and specifications, see the AXP 64 C AT product page at **www.extron.com**.

Disconnecting Power and Mounting the AXP 64 C AT

Before beginning installation, disconnect power to the AXP 64 C AT and turn off all devices that will be connected to it. The AXP 64 C AT is housed in a half rack wide, 9.5 inches deep, 1U high metal enclosure that can be set on a table (with the provided rubber feet attached), or be mounted underneath a conference table, inside a credenza, or anywhere microphones or other sources are located. Select a suitable mounting location, then choose an appropriate mounting option.

Make all external device connections before applying power.

Rear Panel Connections
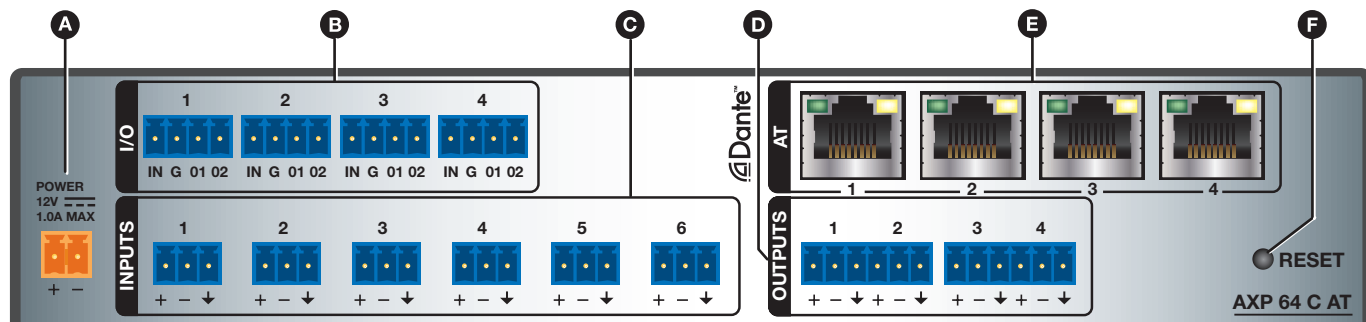
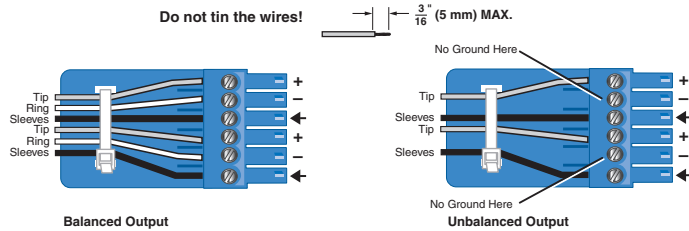|	
Ⓐ 12 VDC power input connector	Ⓓ Audio output connectors
Ⓑ Digital I/O connectors	Ⓔ AT port connectors
Ⓒ Mic/Line input connectors	Ⓕ Reset button, recessed

Figure 1. AXP 64 C AT Rear Panel

Ⓐ **12 VDC power input** – Connect the provided 12 VDC power supply to the rear panel captive screw connector (see **figure 2** on page 2) and plug in the power cord. The front panel power LED blinks while the unit is booting, then lights steadily when the AXP is powered and operational (see **figure 3**, Ⓐ, on page 3). Verify that the power LED lights.

Ⓑ **Digital I/O connectors** — Four 4-pole, 3.5 mm captive screw connectors associated with the mic/line inputs provide digital input and output ports to connect microphones with logic circuits. Each has an input (IN), a ground (G), and two output (O1 and O2) ports. The input port can enable mic mute from a remote source. The two output ports can provide tally back to the mic LEDs to indicate mic status. To wire these connectors, see the illustration at right.

Ⓒ **Mic/Line 1-6 input connectors** — Connect up to six balanced or unbalanced microphone or mono line level devices using the 3-pole, 3.5 mm captive screw connectors. Wire as shown below. Inputs 1 through 4 provide 48 volts phantom power.

$\frac{3}{16}$ " (5 mm) MAX.

Do not tin the wires!

Digital I/O Wiring

Balanced Input   Unbalanced Input
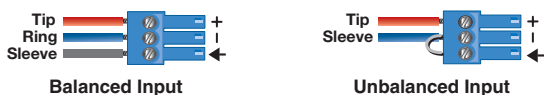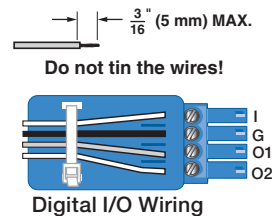
NOTE: The first four inputs can access any Dante channel on the network. An input can be analog or digital. Each channel can select either the associated rear panel analog input or the AT digital channel input assigned by Dante Controller (see **Dante Operation** on page 9).

D **Analog audio output connectors** — Audio outputs 1 through 4 are on two 3.5 mm, 6-pole captive screw connectors. Connect up to four balanced or unbalanced mono line level or two stereo outputs to these 6-pole 3.5 mm captive screw connectors. Wire as shown below.

Do not tin the wires!

$\frac{3}{16}$" (5 mm) MAX.

No Ground Here

DO NOT
Connect Here

Tip
Ring
Sleeves
Tip
Ring
Sleeves

+
–
+
–

Balanced Output

Tip

Sleeves
Tip

Sleeves

+
–

+
–

No Ground Here

Unbalanced Output

Alternatively, 3-pole or 5-pole connectors can be used (see the 5-pole wiring example at right).

5-pole CSR

RESET
AXP 64 C AT
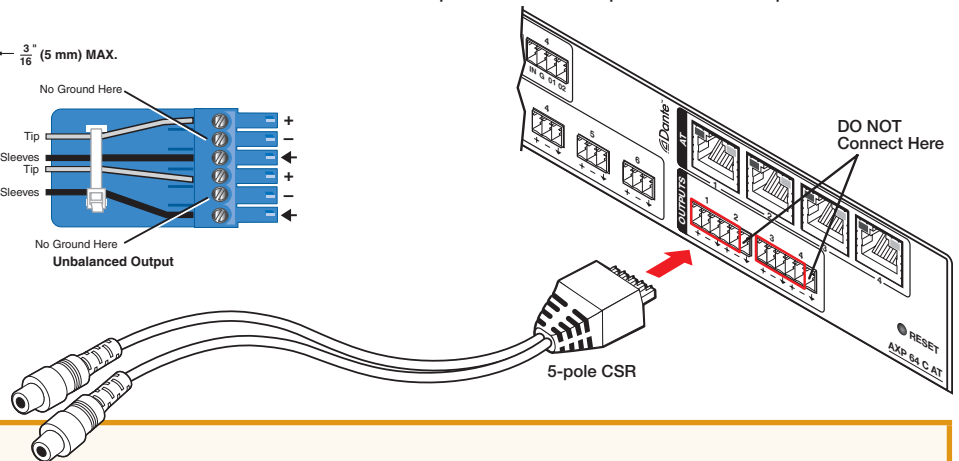
> **ATTENTION:**
> - For unbalanced audio outputs, connect the sleeves to the ground contact. DO NOT connect the sleeves to the negative (-) contacts.
> - Pour l'audio asymétrique, connectez les manchons au contact au sol. Ne PAS connecter les manchons aux contacts négatifs (–).

E **AT port connectors** — This four-port Gigabit switch with four RJ-45 Ethernet connectors supports digital audio transport (AT) and communications. Connect one or more ports to a LAN using standard CAT cable. Connect one or more AXP 64 C ATs to a device such as a DMP 128 AT to form a larger matrix system (see **Creating a Physical Dante Network** on page 8). Up to 56 channels can be connected.

F **Reset button** — Pressing this recessed button returns the AXP 64 C AT to its factory default state (see "Resetting" in the *AXP 64 C AT User Guide*).

Connecting Power

Wire the 12 VDC power supply as shown in figure 2.

+ –

Rear Panel
Power Receptacle

DC Power Cord
Captive Screw
Connector

Ridged

– Return
+12 VDC input

Smooth

Ground
all devices.

**External
Power Supply**
12 VDC, 1 A max.
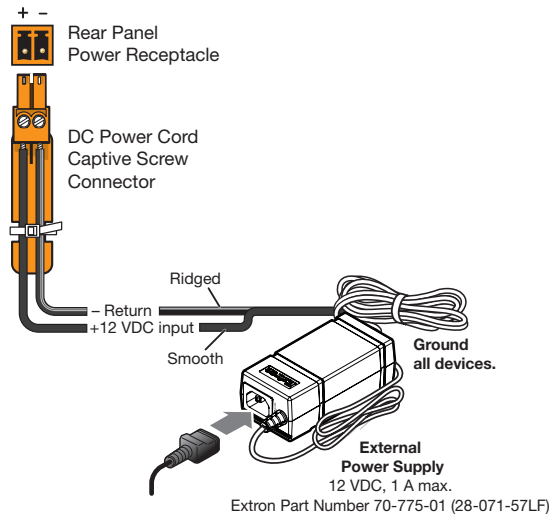Extron Part Number 70-775-01 (28-071-57LF)

Figure 2. External Power Supply Connection

With all connections made, power up the input devices, then apply power to the AXP 64 C AT.

> **ATTENTION:**
> - Do not connect power to the AXP until you have read the Attention notices at right.
> - Ne branchez pas l'alimentation au AXP avant d'avoir lu les mises en garde Attention a droit.

> **ATTENTION:**
> - Always use a power supply provided by 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 par Extron. L'utilisation d'une source d'alimentation non autorisée annule toute conformité réglementaire et peut endommager la source d'alimentation ainsi que l'unité.
> - Unless otherwise stated, the AC/DC adapters are not suitable for use in air handling spaces or in wall cavities. The power supply is to be located within the same vicinity as the Extron AV processing equipment in an ordinary location, Pollution Degree 2, secured to the equipment rack within the dedicated closet, podium, or desk.
> - Sauf mention contraire, les adaptateurs AC/DC ne sont pas appropriés pour une utilisation dans les espaces d'aération ou dans les cavités murales. La source d'alimentation doit être située à proximité de l'équipement de traitement audiovisuel dans un endroit ordinaire, avec un degré 2 de pollution, fixé à un équipement de rack à l'intérieur d'un placard, d'une estrade, ou d'un bureau.
> - 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.

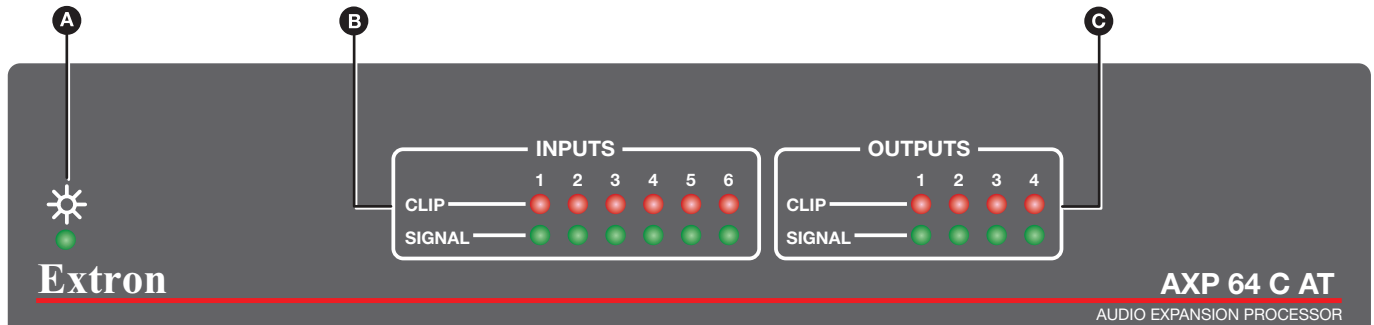## Front Panel Indicators

Figure 3. AXP 64 C AT Front Panel

Ⓐ **Power LED** — This green LED blinks during boot-up and lights steadily when the AXP 64 C AT is powered on and ready to operate.

Ⓑ **Input LEDs** — One pair for each of the six inputs:

- **Clip indicators** — These red LEDs light when the corresponding input signal exceeds -3 dBFS. The clip indicator remains on for 200 ms after the input signal drops below that level.

- **Signal indicators** — These green LEDs light when there is an active source on the corresponding input.

Ⓒ **Output LEDs** — One pair for each of the four analog outputs:

- **Clip indicators** — These red LEDs light when the corresponding output signal exceeds -3 dBFS. The clip indicator remains on for 200 ms after the output signal drops below that level.

- **Signal indicators** — These green LEDs light when a signal is detected on the corresponding output.

Connecting the AXP 64 C AT to a Network

The AXP 64 supports 100 and 1000 Mbps half duplex and full duplex connections. You can use either a straight-through Ethernet cable or a crossover cable to connect the AXP to a network via one of the four AT ports (see **figure 1**, Ⓔ, on page 1). The control device must be connected to the same network. Any one of the four AT ports can be dedicated as a control connection. If you do not know the IP address of the control device, use Dante Controller to obtain it (see **Finding a Dante Device Address** on page 6). When all connections are made and power is applied, the green (activity) LED of the connected AT port blinks to indicate data activity on the connection.

Downloading and Installing Dante Controller and DSP Configurator Software

There are no hardware controls for the AXP 64 C AT. Dante Controller from Audinate is required to select and route digital inputs and outputs to connected Dante-compatible devices. DSP Configurator is used for configuration.

Install DSP Configurator and Dante Controller on a PC running Microsoft® Windows® 7 or newer. For full details about computer requirements, see the product page on the Extron website. Dante Controller must be installed to rename the connected AXP 64 C AT to assist identification on the network.

Both software applications are available at **www.extron.com**.

1. On the Extron Electronics web page at **www.extron.com**, click the **Download** tab. The Download screen opens.

2. On Download screen, click the **Dante Controller** link (❶) on the left sidebar.

3. On the `Dante Controller` web page, click **Download** (❶).

4. On the `Download Center` page, follow the prompts to download the Dante Controller installer file.

5. If the `Download Center` page has closed, click the **Download** tab again to access the left sidebar.

6. On the left sidebar, click **DSP Configurator Software**.

7. On the `DSP Configurator` web page, click the **Download** button.

   The `Download Center` page is displayed again.

8. Follow the prompts to download DSP Configurator.

9. If you have saved either or both software files, install them when ready.

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

The installed DSP Configurator program files are saved in `C:\Program Files (x86)\Extron\DSP Configurator`.

NOTE: On the first installation of DSP Configurator, a USB driver automatically loads. Follow the on-screen instructions. After the USB driver loads, installation continues.

Setting Up the Dante Network

Communication between the AXP 64 C AT and a controlling device or a computer running software such as Extron DataViewer via a TCP socket using port 4333. Use a standard Ethernet cable to connect the AXP to a network via one of the four RJ-45 AT ports (see **figure 1**, **Ⓔ**, on page 1).

Renaming an AXP 64 C AT

Dante Controller auto-discovers all Dante devices on the network and advertises itself to allow other Dante-enabled devices to communicate with it.

> **NOTE:** The default device name is the model number followed by the last six digits of the MAC address of the device (located on a sticker on the rear panel).

Multiple devices on the same network can present difficulty identifying inputs and outputs. To avoid confusion, rename each device to a unique identifier.

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

1. Ensure that the control computer and a single **unnamed** AXP 64 C AT 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. All Dante devices on the network are discovered and listed.

3. From the **Device** menu, select **Device View**.

4. The `Dante Controller - Device View` dialog opens. Select your device from the `(Select a Dante Device...)` drop-down list.
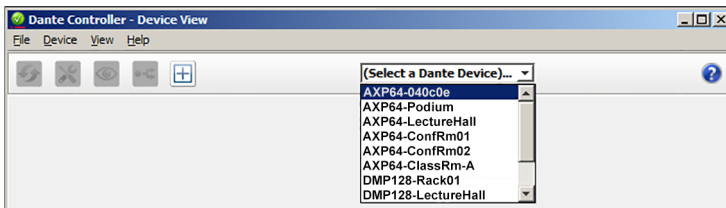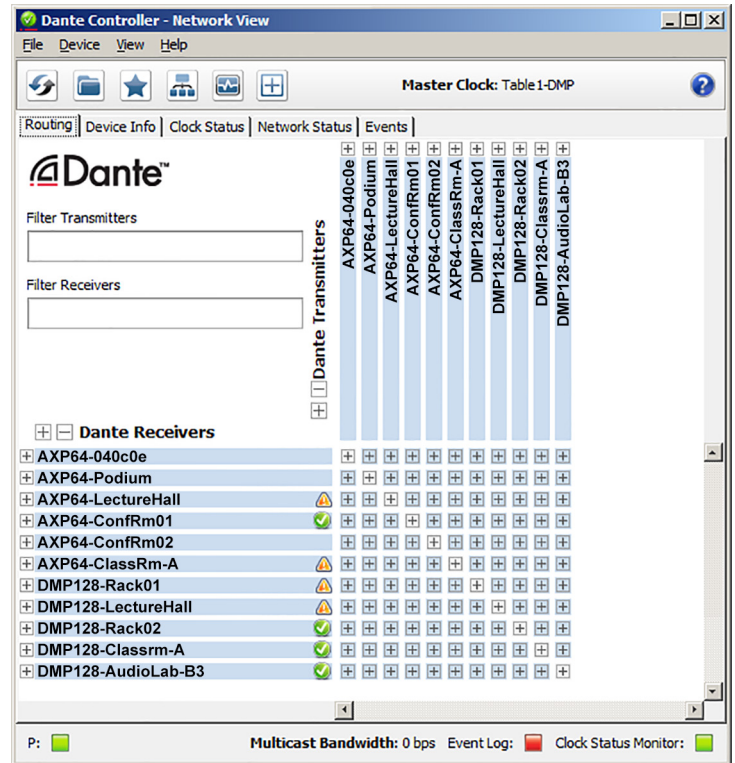
> **NOTE:** If there are multiple AXP 64s connected to the network that have not been renamed, to identify an individual device you must obtain the media access code (MAC) address of the desired device from the label on the rear panel.

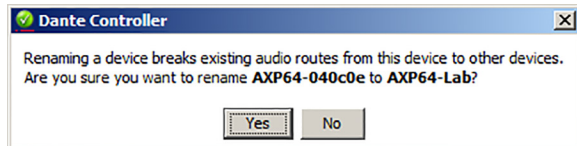The `Device View` dialog populates with the selected AXP 64 C AT information.
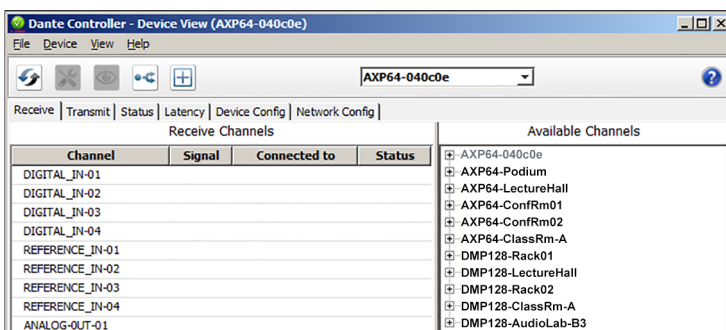
5. Click the **Device Config** tab (**❶**) to open the device configuration page.
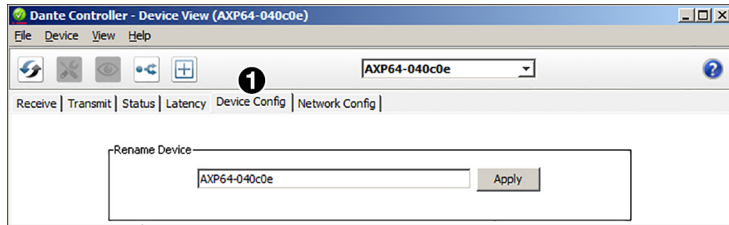
6. In the `Rename Device` panel, enter the new name of the device in the text field. No spaces are allowed in the name.

7. Click **Apply**. A confirmation prompt opens.

8. Click **Yes** to enter the new name, then close the `Device Configuration` dialog box.

The new name is written to the AXP 64 C AT. Repeat as necessary for all AXP 64 C AT devices.

NOTE: After the AXP 64 C AT is renamed, it can remain connected to the network. However, subsequent devices must be connected one at a time and renamed before the next device is connected.

Finding a Dante Device IP Address

To find the IP address of a Dante device, you need the name of the device (see **Renaming an AXP 64 C AT** on the previous page).

NOTE: If the AXP 64 has not been renamed, its default name consists of the product name followed by a hyphen (AXP64-) plus the last 6 digits of the unit MAC address (for example, AXP64-Ø4ØCØ6).

1. Open Dante Controller for Windows (see **Renaming an AXP 64 C AT**).

2. On the Dante Controller main screen, click the **Device Info** tab (**❶**).
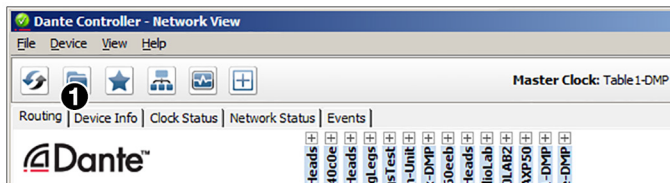
3. On the `Device Info` screen, locate the name of your AXP. The IP address is in the Primary Address column (**❶**).
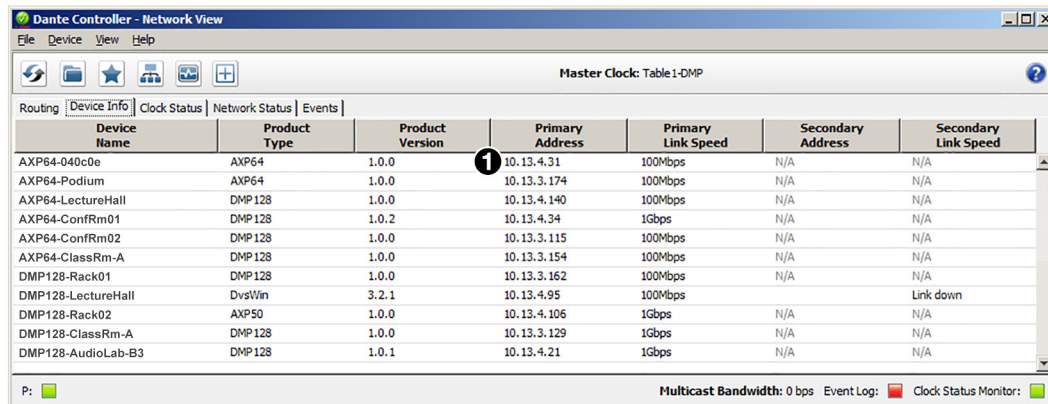

4. Connect the AXP to a computer (using a host communication utility such as Extron DataViewer) or to a control system.

5. Select a TCP/IP connection and enter the IP address of the AXP 64 where indicated. Enter 4333 for the port number.

Configuring the AXP 64 C AT

After the device is named, use the DSP Configurator to configure the AXP 64 C AT as desired.

1. Ensure the control computer and AXP 64 C AT are connected to the same network and that the AXP 64 C AT is renamed for identification (see **Renaming an AXP 64 C AT** on page 5).

2. Start the DSP Configurator software. From the drop-down list on the opening page, select **AXP 64 C AT** and press **OK**.

    The main screen opens. The main screen provides access to all the features of the AXP 64 C AT. Full details about using the software are found in the *AXP 64 C AT User Guide* on the Extron website or in the DSP Configurator help files.
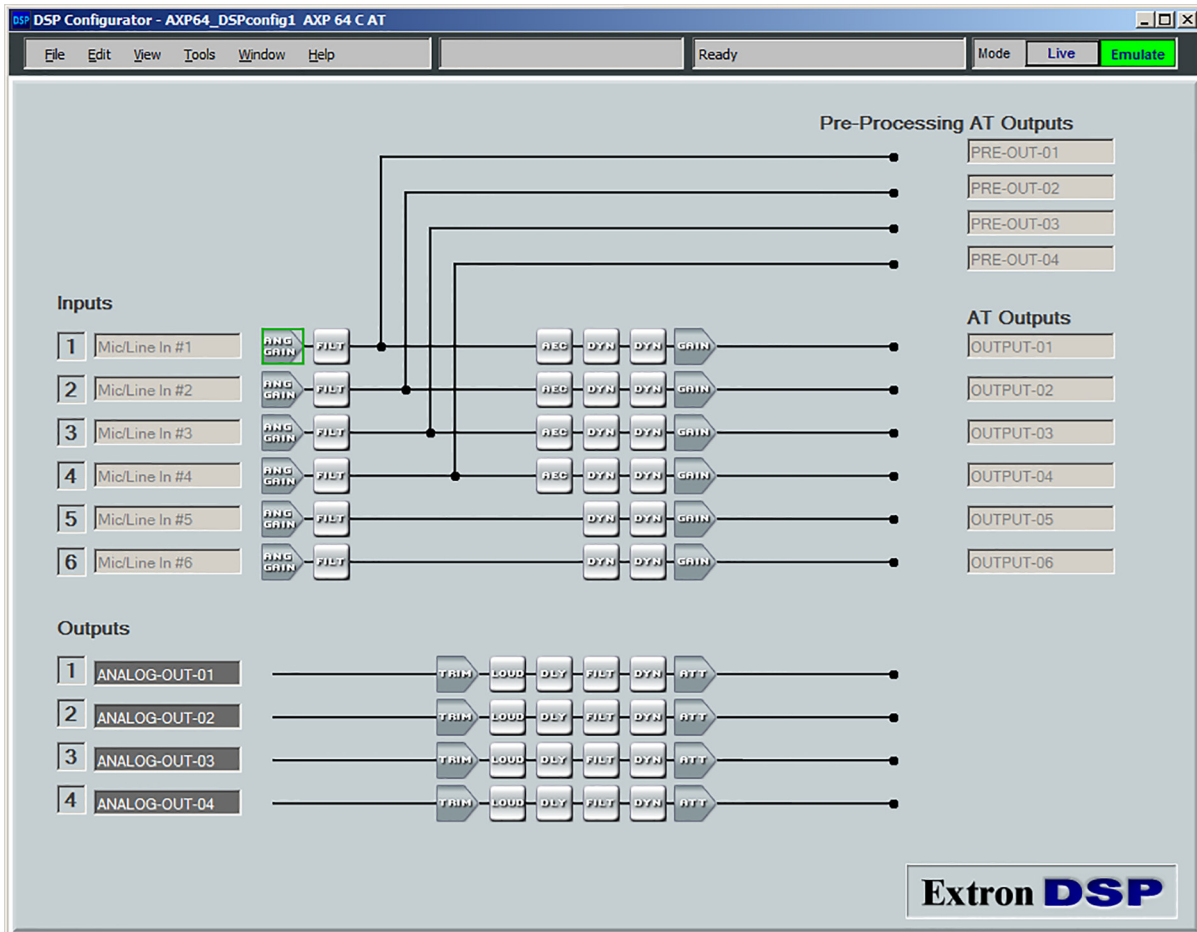

3. The program starts in Emulate mode. Select the appropriate operating mode as follows:

    *   To create a configuration offline to upload (push) to the AXP 64 C AT at a later time, keep the AXP in emulate mode.

    *   To push a configuration to the AXP, pull a configuration from the device, or to make immediate changes to the configuration or operation, click the `Live` button to place the AXP in Live mode.

        > **NOTE:**   Changing from emulate to live mode opens the `Connect to device...` dialog box (shown at right). Select the device in the `Dante Devices` panel.
        >
        > On the next dialog box that appears, select the appropriate radio button to pull data from the selected device to update your configuration, or to push data from the current configuration to the selected device, overwriting any existing data.
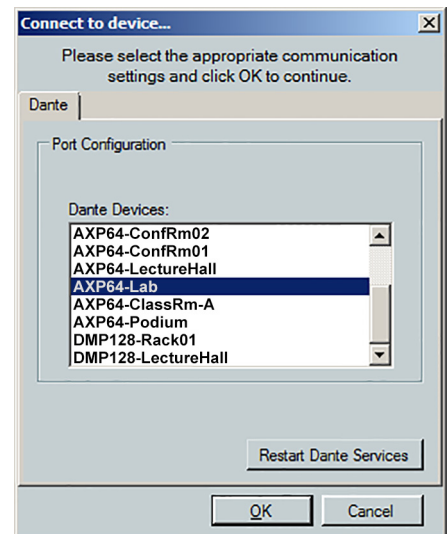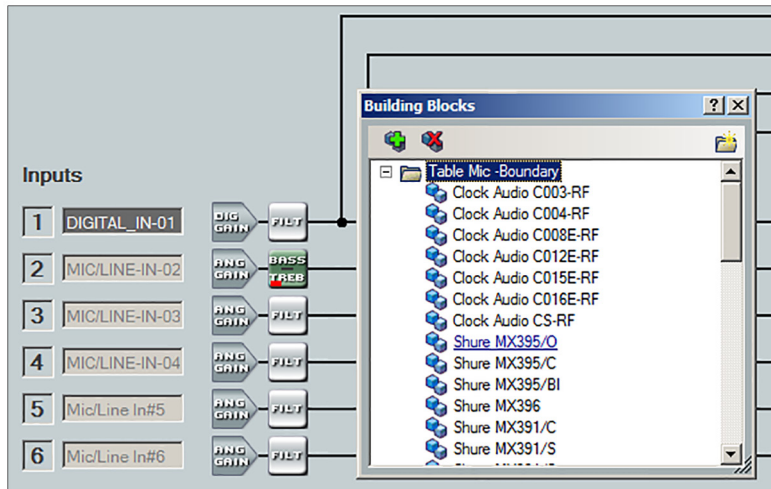
Loading Building Blocks

The discrete signal paths can be individually loaded with pre-configured, modular templates called building blocks. These blocks are designed for specific microphones, source devices, analog and digital inputs, and can streamline initial configuration. The building blocks contain configuration parameters tailored to a selected input device.

Loading a building block configures each block in the signal path with pre-determined parameters to match the selected device characteristics. Although tailored for the specific device, the processing blocks can still be customized, if necessary.

To load a building block:

1. Click the input number. The `Building Blocks` dialog opens.

2. Choose a building block that best describes the connected input device. As the pointer moves over the selection, the text is underlined. Click the selection to load the block.

    The building block loads pre-configured processor and gain block parameters. Processor blocks are initially bypassed.

3. If necessary, further customize the processor blocks according to the requirements of the system (see the *AXP 64 C AT User Guide* on the **Extron website**).

Creating a Physical Dante Network

A physical network is required to share Dante audio channels between AXP 64 C AT and devices such as the DMP 128 AT. The AXP 64 C AT and the DMP 128 AT each have a four-port switch with four RJ-45 connectors located on the back panel that accept standard network cables. A DMP 128-based Dante network can be configured in a daisy-chain or star network topology using the four-port switch and the Dante Controller in switched mode.

Star Network

Star network topology places one DMP 128 AT as the central unit, which connects directly to up to three AXP units (see figure 4). Alternatively, a larger network switch in place of the central DMP 128 AT allows more than four AXP 64 C ATs to connect in the star configuration.
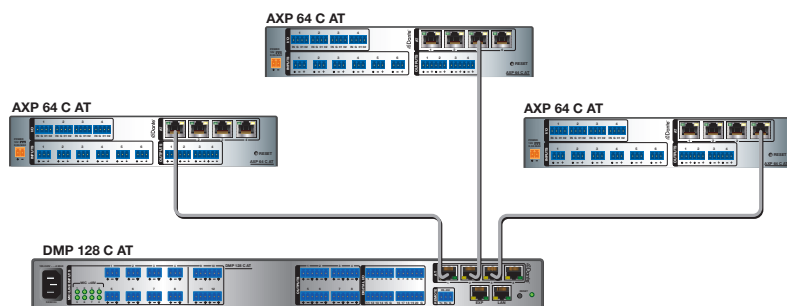

Figure 4. Star Network Topology

Daisy Chain Configuration

A daisy chain configuration can also be used. Each unit is connected to both the previous unit and the next unit in the chain.
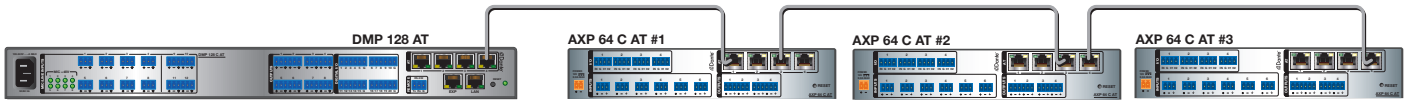

DMP 128 AT   AXP 64 C AT #1   AXP 64 C AT #2   AXP 64 C AT #3

Figure 5.   **Daisy Chain Topology**

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

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

Dante Operation

Selecting Devices

After the inputs of the AXP 64 C AT are configured, they must be routed to the other Dante devices on the audio network. To do this, use Dante Controller.

1. Ensure the control computer and AXP 64 C AT are connected to the same network.

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

    The `Dante Controller - Network View` screen opens.

    Dante Controller auto-discovers Dante devices on the network and advertises itself to allow other Dante-enabled devices to communicate with it. Device inputs are Dante receivers (listed vertically on the left) and device outputs are Dante transmitters (listed horizontally across the top). Transmitters (outputs) connect to receivers (inputs) using the connection matrix.

3. Click the + box next to any Dante device in the `Dante Receivers` panel, (such as the DMP 128 (❶ in the example at right) to show all device inputs.

4. Click the + box next to the AXP 64 C AT (❷) in the `Dante Transmitters` panel to show all device outputs.
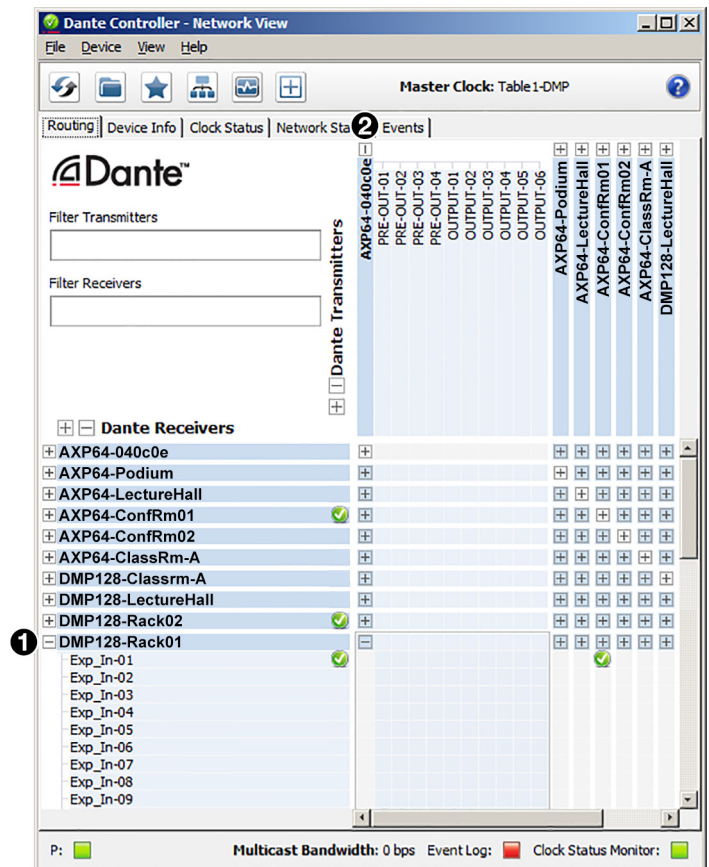
Routing Inputs and Outputs

1. Click the + box next to the input channels (receivers) on another Dante device (DMP128-Rack01 DIGITAL_IN-01 in the example at right).

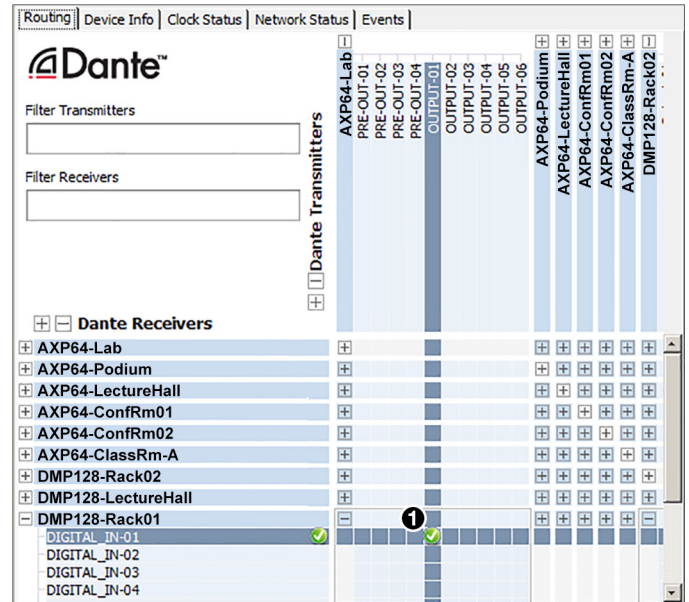   All device outputs (transmitters) display horizontally.

2. Click the junction of the desired connection (❶).
   Example: AXP64-Lab OUTPUT-01 to DMP128-Rack01 DIGITAL_IN-01 (shown at right).

   A check mark at the junction indicates the connection is made. A check mark is also placed next to the receiver channel.

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

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

   Additional AXP 64 C AT outputs (Dante transmitters) can be connected to or disconnected from other Dante device inputs (Dante receivers) using the same method (see the "Dante Controller" section of the *AXP 64 C AT User Guide* for information on Dante Controller operation).

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