MXN-AMP

Microflex® PoE-Powered Amplifier

Shure MXN-AMP PoE amplifier manual. Find control software, how to install and troubleshoot, and specifications. Compatible with Shure MXP loudspeakers.

Version: 2.0 (2025-B)

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Microflex® PoE-Powered Amplifier

Shure MXN-AMP Setup

Videoconferencing Room Equipment

Your MXN-AMP is one part of a complete room system for videoconferencing. It's helpful to think about all the parts of your room system as you get started setting up the MXN-AMP.

A standard room includes some or all of this equipment:

- Microphone(s)
- DSP or other processor
- Loudspeakers (networked or analog)
- Computer with videoconferencing software
- Network switch
- Camera
- Amplifier(s)
- Accessories such as table mute buttons, tablets to control meetings, and other peripherals

The Microflex Ecosystem offers a complete portfolio of networked audio solutions that can be precisely tailored to your needs.

What Software Do I Need to Set Up This Amplifier?

Install this software on a computer that connects to the same network as the amplifier:

- **Control software** to adjust amplifier and passive loudspeaker settings. This amplifier has 2 options:

  Option 1: Shure Designer

  - Use for managing lots of Shure devices in 1 place
  - Control Shure devices and route audio between them

    - Create rooms to manage devices and design coverage

  Option 2: Web application (open using the Shure Update Utility)

    - Use to manage each Shure device separately
    - Control each device individually with its web application
    - Route audio using Dante Controller
- **Dante Controller** to route audio signals among other Dante devices. Not necessary if you're only routing audio to Shure devices in Designer.
- **Shure Update Utility** to update firmware on Shure devices and to find device web applications (download at shure.com/suu)

MXN-AMP Designer Setup Example

This example uses Shure Designer software to set up an MXN-AMP, an MXA901-R, an ANIUSB-MATRIX, and 2 MXP-1 loudspeakers. You can use other combinations of devices with MXN-AMP, but the setup in Designer is similar. You might use Designer if:

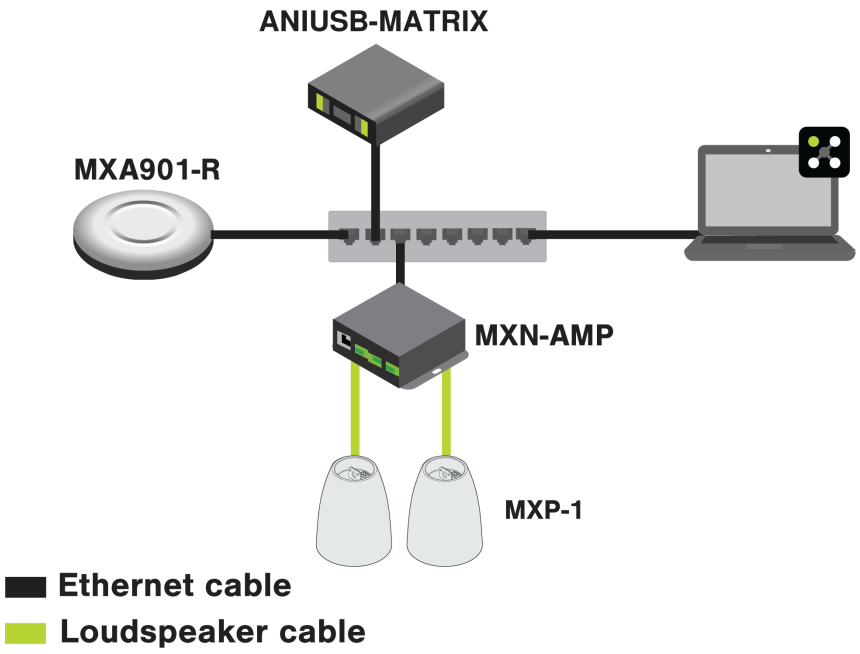
- You're managing many Shure devices in different spaces
- You're routing audio between many Shure devices

After this setup process, you should be able to:

- Access the MXN-AMP in Designer
- Adjust settings for the MXN-AMP and passive loudspeakers connected to the amplifier in Designer
- Adjust DSP and route audio between Shure networked devices
- Understand the basic workflow for working with devices in Designer

This example uses:

- Cat5e (or better) Ethernet cable
- Loudspeaker cable
- Network switch that provides Power over Ethernet Plus (PoE+)
    - **Note:** You can power this amplifier with PoE or PoE+.
- Computer with Shure Designer 6 software
- Computer with videoconferencing software
- MXA901-R
- ANIUSB-MATRIX
- 2 MXP-1 loudspeakers



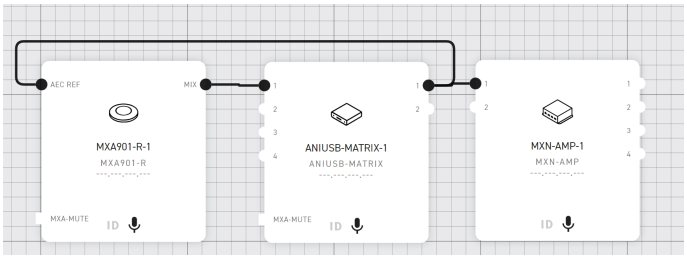
1. Install and Connect

1. Install the MXN-AMP and other devices. Connect networked audio devices to PoE or PoE+ ports on the network switch using Ethernet cable.
2. Connect the MXP-1 loudspeakers to the amp's block connectors with loudspeaker cable.
3. Connect the computer running Designer to the same network.

2. Route Audio in Designer

The easiest way to route audio in Designer is with Designer's auto route feature. This feature routes audio signals, applies DSP settings, turns on mute synchronization, and enables LED control for connected devices.

1. Open Designer. Check that you're connected to the correct network in `File > Designer preferences`.
2. Open a new design and drag the networked audio devices into the design.
3. Select Auto route. Designer optimizes routing and device settings for your equipment combination. If you remove or add devices, select Auto route again.



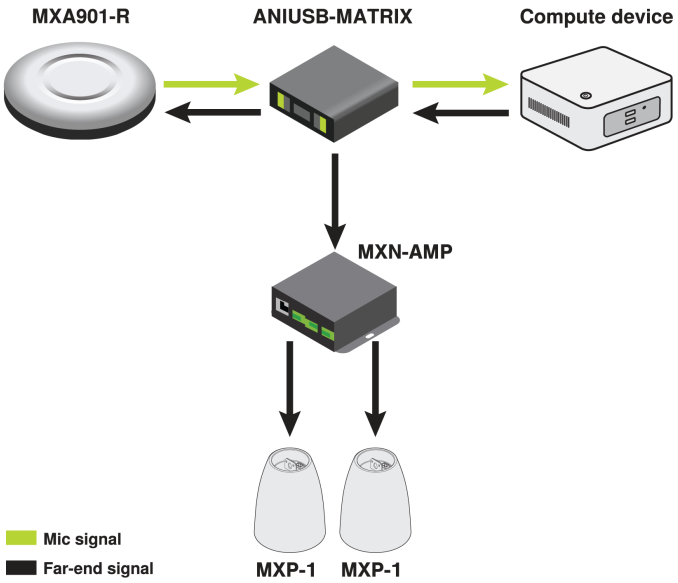
You can also route audio manually in Designer or use Dante Controller.

4. Check the audio routes, matrix mixer routes, the amplifier's loudspeaker output settings, and other settings to make sure they fit your needs.

5. Select Deploy and connect to send the settings to the installed devices. Designer walks you through associating the design devices with online devices.

3. Listen and Adjust

1. Connect the computer with videoconferencing software (such as Zoom or Microsoft Teams) to the ANIUSB-MATRIX's USB port.



2. Open the videoconferencing software on the computer connected to the ANIUSB-MATRIX. In the settings, choose ANIUSB-MATRIX as the speaker and microphone.
3. Place a test call with the whole system and have the far-end caller tell you how your microphone signal sounds. Adjust mic gain, EQ, or DSP in the microphone's IntelliMix tab. Adjust far-end signal gain, EQ, or DSP in the MXN-AMP's output or schematic tabs.

Route Many MXN-AMPs

In the Shure Designer software, you can auto route :

- 1 amplifier with ANIUSB-MATRIX
- 2 or more amplifiers with P300 or IntelliMix Room

To route more amplifiers from the ANIUSB-MATRIX in Designer, route manually.

MXN-AMP Web Application Setup Example

This example uses device web applications and Dante Controller to connect an an MXN-AMP, an MXA901-R, an ANIUSB-MATRIX, and 2 MXP-1 loudspeakers. You might use web applications and Dante Controller if:

- You don't have many Shure devices to manage
- You need to route audio to third-party Dante devices

After this setup process, you should be able to:

- Open the MXN-AMP's web application
- Adjust settings and route audio in Dante Controller

This example uses:

- Cat5e (or better) Ethernet cable
- Loudspeaker cable
- Network switch that provides Power over Ethernet (PoE) or PoE+
  - **Note:** You can power this amplifier with PoE or PoE+.
- Computer with Shure Update Utility and Dante Controller software
- 2 MXP-1 loudspeakers
- ANIUSB-MATRIX

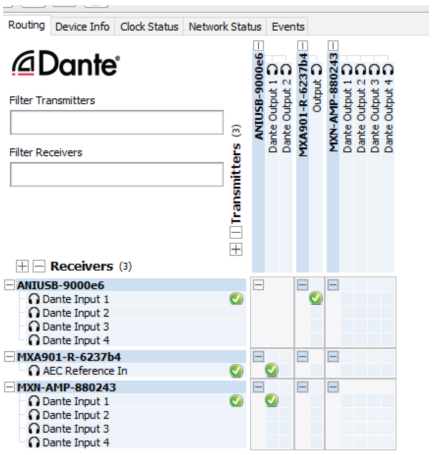
Step 1: Install and Connect

1. Install the MXN-AMP and other devices. Connect networked audio devices to PoE or PoE+ ports on the network switch using Ethernet cable.
2. Connect MXP-1 loudspeakers to the amp's block connectors with loudspeaker cable.
3. Connect the computer running Shure Update Utility and Dante Controller to the same network.
4. Open Shure Update Utility. Find the MXN-AMP in the list of devices. Double-click the amp's IP address to open its web application or right-click to copy and paste the IP address into your browser.

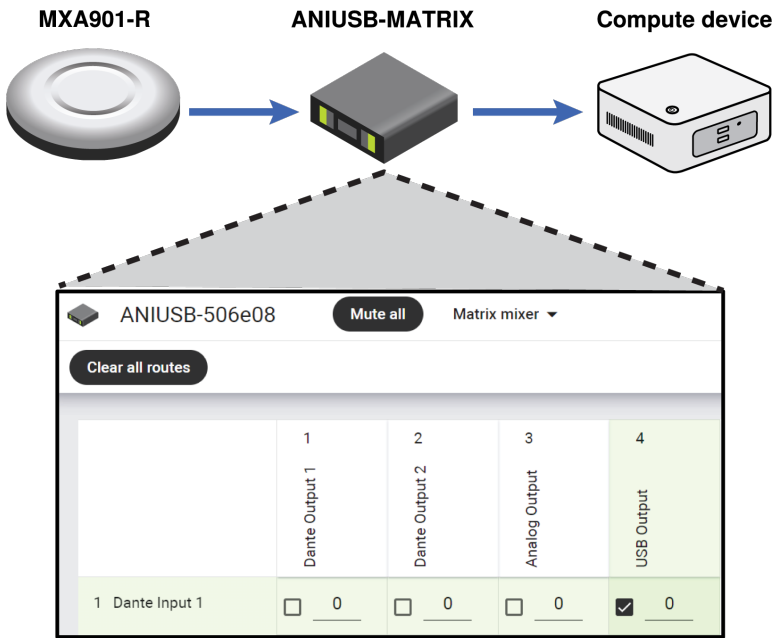
Step 2: Route Audio

Use Dante Controller to route audio to and from other Dante devices. We'll route signal from the ANIUSB-MATRIX to the MXN-AMP for this example.

1. Open Dante Controller and find your devices in the list of transmitters and receivers.
2. Make these routes:
   - MXA901 automix output to ANIUSB-MATRIX input
   - ANIUSB-MATRIX output to MXA901 AEC reference input
   - ANIUSB-MATRIX output to MXN-AMP input



3. Send audio from the ANIUSB-MATRIX to other sources using the ANIUSB-MATRIX's matrix mixer. Open the ANIUSB-MATRIX web application with Shure Update Utility. A common destination is a computer connected by USB with video-conferencing software (such as Zoom or Microsoft Teams).



Step 3: Listen and Adjust

1. Connect the computer with videoconferencing software (such as Zoom or Microsoft Teams) to the ANIUSB-MATRIX's USB port.
2. Open the videoconferencing software on the computer and choose ANIUSB-MATRIX as the speaker and microphone.
3. Place a test call with the whole system. Adjust gain, EQ, and DSP as needed.

About the Shure MXN-AMP

The MXN-AMP is a PoE-powered multichannel power amplifier designed for speech and program audio reproduction in meeting rooms. The MXN-AMP can drive up to 4 low-impedance loudspeakers or 1 series of 70/100-volt loudspeakers.

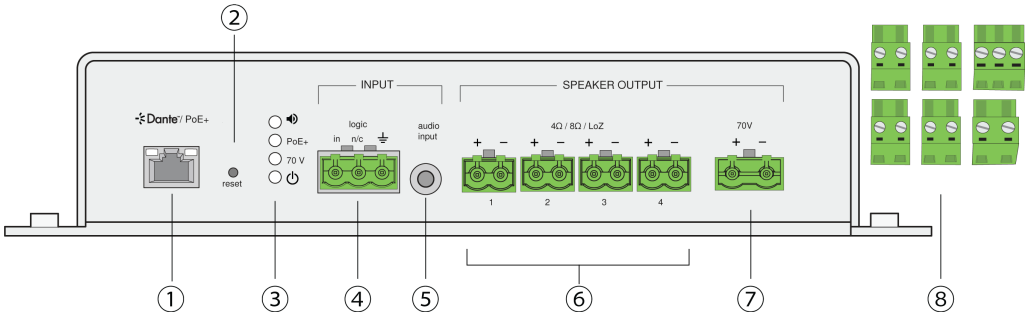
The MXN-AMP provides 4 Dante input and output channels. It also has 2 analog audio inputs (derived from a single 3.5mm TRS connector). Onboard Shure DSP utilities include EQ, delay, limiter, and a signal/tone generator. The MXN-AMP features Shure-designed loudspeaker presets for all MXP-series loudspeakers to ensure optimal audio performance. Custom device setting presets can also be defined in the MXN-AMP control software, and a logic input is provided to enable remote switching between device presets 1 and 2.

The MXN-AMP is a Shure secure networked endpoint, so audio is encrypted between the MXN-AMP and other Microflex Ecosystem devices in the room. The MXN-AMP can be rack-mounted with the available CRT-1 rack shelf and is plenum-rated for mounting above the ceiling.

Compatible Shure Loudspeakers

- MXP-1 Microflex Mini Pendant Passive Loudspeaker (User Guide)
- MXP-3 Microflex Wall Mount Passive Loudspeaker (User Guide)
- MXP-5 Microflex Ceiling Passive Loudspeaker (User Guide)
- MXP-6 Microflex Pendant Passive Loudspeaker (User Guide)

MXN-AMP Parts



1. Dante/PoE+ RJ45 port
2. Reset button

   Reset options:

   Network reset (press button for 4-8 seconds)

   Resets all Shure control and audio network IP settings to factory defaults. Audio and PoE+ LEDs flash green.

   Full factory reset (press button for longer than 8 seconds)

   Resets all network and Designer settings to the factory defaults. All LEDs flash green, then solid green after 8 seconds.

3. LED indicators

   All lights flashing green: Hardware identification

Audio LED Status

Audio Light Status	Activity
Solid green	Audio on at least 1 channel
Solid yellow	Device muted
Off	No audio on any channels

PoE+ LED Status

PoE+ Light Status	Activity
Solid green	Device is using PoE+
Solid yellow	Firmware update
Off	Device is using PoE

70V Mode LED Status

70V Light Status	Activity
Solid green	In 70V mode

70V Light Status	Activity
Off	Not in 70V mode. Device in LoZ mode.*

Power LED Status

Power Light Status	Activity
Solid green	Device on and ready
Flashing red	Error

4. Logic input
5. 3.5 mm TRS audio line input (stereo line in)
6. Low impedance loudspeaker outputs
7. 70V loudspeaker output
8. Block connectors

*LoZ mode is the default. Switch to 70V mode in the control software.

What's in the Box

Item	Part Number
Amp box	MXN-AMP
1 logic input block connector	Dinkle 2ESDV-03P
4 LoZ output block connectors	Dinkle 2ESDV-02P
1 70V output block connector	Dinkle 7ESDV-02P
2 ¼ in. screws, #4-40 UNC thread	30C1224G

Block Pin Assignments

Block Pin Assignments

Symbol	Assignment
+	Loudspeaker out +
−	Loudspeaker out -
in	Logic in
n/c	Not connected
⏚	Logic ground

MXN-AMP Specifications

Power Input

Power over Ethernet (PoE) or PoE+ over RJ45 (48 V = 25.5 W MAX)

Weight

2.43 lbs (1.1kg)

Product Dimensions

7.95 x 7.01 x 1.57 in. (202 x 178 x 40 mm) L x W x H

Amplifier Class

D

Audio Inputs

4 Dante in, 1 3.5 mm TRS connector with two audio line level inputs

Control Input

1 logic in

Audio Outputs

4 Dante output channels, 4 LoZ loudspeaker outputs, 1 70V loudspeaker output

Frequency Response

20 Hz to 20 kHz

Sample Rate

48 kHz

Bit Depth

24

Latency

Analog to analog

2.2 ms typical, 2.5 ms max (add 1 ms for Dante)

Signal-To-Noise Ratio

110 dB max

Output Level/Total Harmonic Distortion (THD)

at 1 kHz

THD less than 0.05% (0.01% typical)

Power Consumption

PoE	12.95 W max
PoE+	25.5 W max

Power Requirements

PoE (Class 0) or PoE+ (Class 4)

Output Power per Channel

LoZ Mode	3.25W
70V Mode	11.7W

Operating Temperature Range

-7 to 40°C (19.4 to 104°F)

Storage Temperature Range

-29 to 74°C (-20 to 165°F)

Plenum Rating

Suitable for use in air plenums per NEC section 300.22(c) and/or IMC section 602.

Cable Requirements

Cat 5e or higher (shielded cable recommended)

Block Connector Type

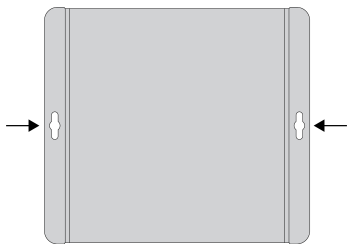
Logic Input	3-pin connector, 0.2 in. (5.08mm) pitch, Dinkle 2ESDV-03P
LoZ Output	2-pin connector, 0.2 in. (5.08mm) pitch, Dinkle 2ESDV-02P
70V Output	2-pin connector, 0.295 in. (7.5mm) pitch, Dinkle 7ESDV-02P

Control Software

Shure Designer

Install the MXN-AMP

You can mount the amplifier under a table, on a wall, or to any flat surface. Secure the keyholes (5 x 21 mm, 8 mm at the widest point) on each side with appropriate hardware.

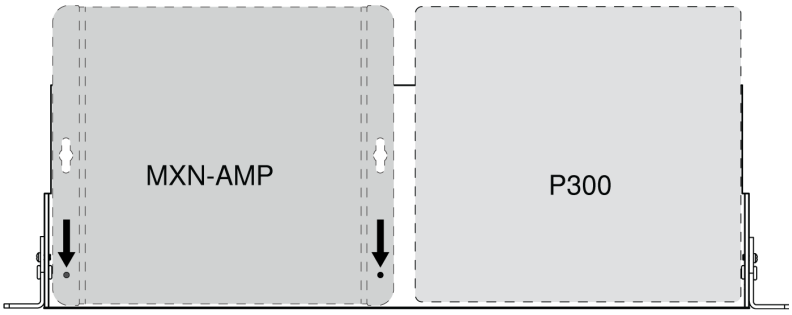


Rack Tray Mounting

You can also mount the MXN-AMP in the **CRT1 19" Rack Tray (optional accessory)** in a rack or under a table. The CRT1 supports the MXN-AMP and an additional device (MXN-AMP, P300, ANI4IN, ANI4OUT, ANI22, or ANIUSB-MATRIX).

Securing the Devices

Use the included screws from the mounting hardware kit to secure each MXN-AMP, P300, or Audio Network Interface (ANI) device. Devices can be mounted to face either direction. Insert the screws from the bottom in the appropriate holes.

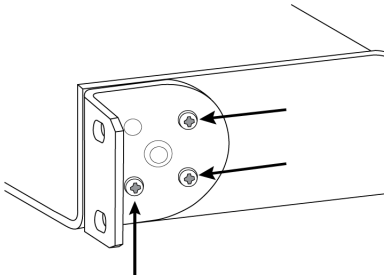


Rack Ear Configuration (CRT1)

The adjustable rack ears support mounting in a standard equipment rack or underneath a table.

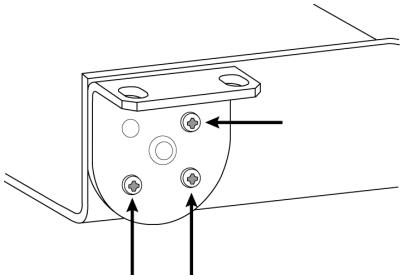
Standard 19" Rack Mount

1. Align the ears with the mounting holes pointed forward.
2. Install the screws that hold the ear to the tray as shown.



Under-Table Mounting

1. Align the ears with the mounting holes pointed upward.
2. Install the screws that hold the ear to the tray as shown.



Connect to Power

The MXN-AMP can use Power over Ethernet (PoE) or Power over Ethernet Plus (PoE+). Each option has different capabilities:

- PoE+ powers up to 4 low impedance loudspeakers or a series of 70-volt loudspeakers. (Loudspeaker model and tap settings determine how many 70-volt loudspeakers are supported.)
- PoE powers up to 2 low impedance loudspeakers and cannot power 70-volt loudspeakers.

Use one of the following to provide PoE or PoE+:

- Network switch with PoE or PoE+
- PoE or PoE+ injector device

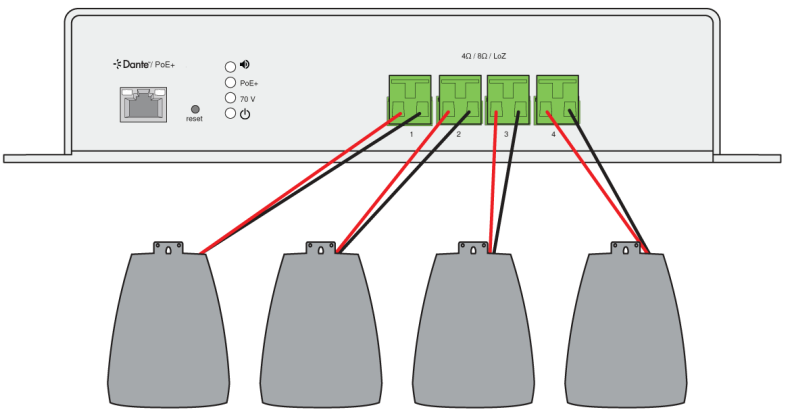
Note: To use Dante, your PoE/PoE+ source must also be a Dante-compatible gigabit device.

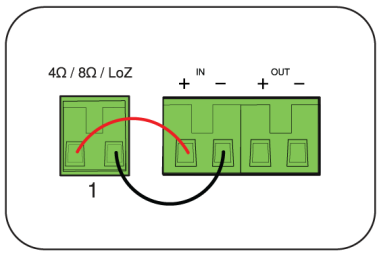
Connect Loudspeakers to MXN-AMP

Note: LoZ and 70V outputs can't be used at the same time. To switch output settings, adjust the settings in the control software or factory reset the amplifier.

Low Impedance Loudspeakers

To connect low impedance loudspeakers, use the LoZ outputs. You can add up to 4 loudspeakers, 1 for each output. Wire positive to positive and negative to negative.

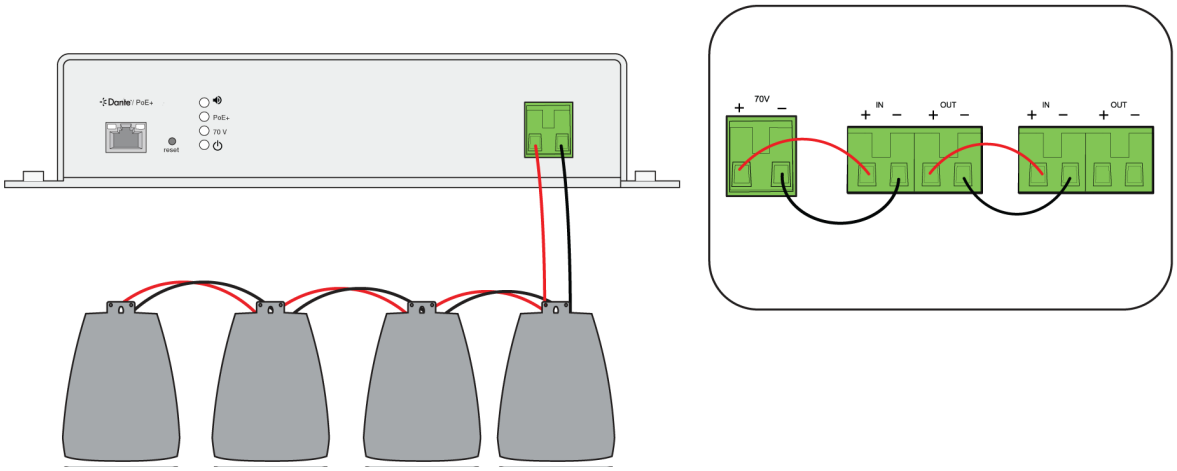




70-Volt Loudspeakers

To connect 70V loudspeakers, use the 70V output.

1. Adjust the tap settings on your loudspeakers. (See more on choosing tap settings.)
2. Wire the amplifier to the first loudspeaker, positive to positive and negative to negative.
3. Wire remaining loudspeakers in parallel, positive to positive and negative to negative.



Amplifier Input and Output Channels

Input Channels

The amplifier has 4 Dante input channels. You can set channels 3 and 4 to be dual mono analog inputs or Dante inputs.

Input channels are useful for sending a far-end signal and program audio to your loudspeakers.

Use the Dante input channels to sum and send Dante signals to loudspeakers. Use the stereo analog input channels to send analog signals to loudspeakers.

Output Channels

The amplifier has 4 Dante output channels. The output channels are useful for sending signal to another amplifier, an AEC reference channel, or an active loudspeaker.

There are 2 processing options for the Dante output signal:

Pre-DSP

Sends a pre-DSP signal to the Dante output. (DSP is still applied to the loudspeaker output.)

You may want pre-DSP to send an unprocessed signal to another amplifier. This option prevents DSP blocks from stacking on top of each other.

Post-DSP

Sends a post-DSP signal to the Dante output.

You may want post-DSP if you have lots of processing for passive loudspeakers or if you want to send processed signal to an active loudspeaker or an AEC reference channel.

Switch between LoZ and 70V Modes

The amp's LoZ and 70V outputs can’t be used at the same time. The default mode is LoZ, but you can switch output modes in the control software.

If you have a small to medium room, have short cable runs, and need more audio channels, consider LoZ mode. In LoZ output mode:

- The 4 LoZ loudspeaker outputs are on.

  Important: You need PoE+ to power more than 2 LoZ loudspeaker outputs.

- The 70V loudspeaker output is turned off.
- Each Dante or analog input can be summed and routed to any LoZ loudspeaker output.
- The signal generator can be routed to any LoZ loudspeaker output.

If you have a larger room, have longer cable runs, and only need 1 amp channel, consider 70V mode. In 70V output mode:

- The 70V loudspeaker output is on.

  Important: You need PoE+ to switch to 70V mode.

- The LoZ loudspeaker outputs are turned off.
- Dante and analog inputs can be summed and routed to the 70V loudspeaker output.
- The signal generator can be routed to the 70V loudspeaker output.

You can switch output modes without losing your settings.

Firmware Updates

Use the Shure Update Utility (SUU) to update device firmware. Keep device firmware updated to take advantage of additional features and improvements.

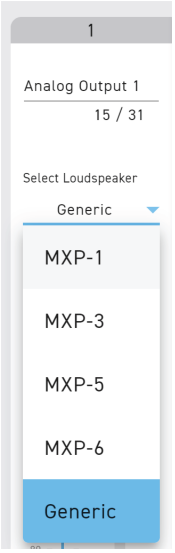
Download the most recent version of the SUU from shure.com/SUU.

Adjust DSP Settings

Use Loudspeaker Presets

Loudspeaker presets are on the Outputs page of the control software.

- For Shure MXP-series passive loudspeakers, select your loudspeaker.
- For other loudspeakers, select Generic.



Note: To adjust EQ and other DSP settings for your passive loudspeakers, go to the MXN-AMP's Outputs page.

Parametric Equalizer

Maximize audio quality by adjusting the frequency response with the parametric equalizer.

Common equalizer applications:

- Improve speech intelligibility
- Reduce noise from HVAC systems or video projectors
- Reduce room irregularities
- Adjust frequency response for reinforcement systems

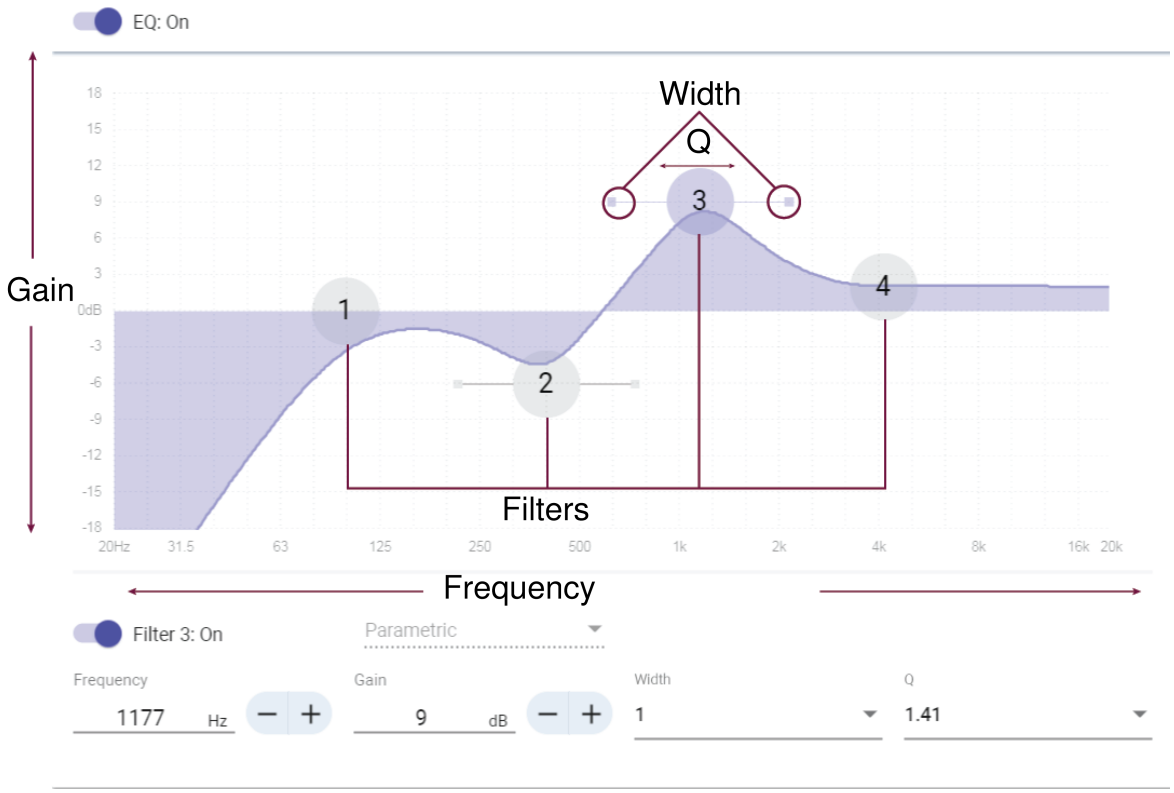
Setting Filter Parameters

Adjust filter settings by manipulating the icons in the frequency response graph, or by entering numeric values. Disable a filter using the checkbox next to the filter.

PEQ Filter Settings

Setting	Function
Filter Type	Only the first and last band have selectable filter types. **Parametric:** Attenuates or boosts the signal within a customizable frequency range **Low Cut:** Rolls off the audio signal below the selected frequency **Low Shelf:** Attenuates or boosts the audio signal below the selected frequency **High Cut:** Rolls off the audio signal above the selected frequency **High Shelf:** Attenuates or boosts the audio signal above the selected frequency
Frequency	Select the center frequency of the filter to cut or boost

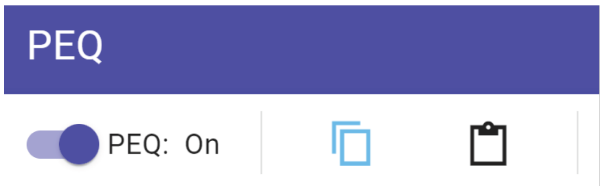
Setting	Function
Gain	Adjusts the level for a specific filter (+/− 18 dB)
Q	Adjusts the range of frequencies affected by the filter. As this value increases, the bandwidth becomes thinner.
Width	Adjusts the range of frequencies affected by the filter. The value is represented in octaves. **Note:** The Q and width parameters affect the equalization curve in the same way. The only difference is the way the values are represented.



Copy and Paste Equalizer Channel Settings

Use to quickly apply the same PEQ setting across multiple channels.

1. Select the PEQ of the desired channel.
2. Click copy.
3. Select the channel to apply the PEQ setting to and click paste.



Equalizer Applications

Conferencing room acoustics vary based on room size, shape, and construction materials. Use the guidelines in following table.

Uses for EQ

EQ Application	Suggested Settings
Treble boost for improved speech intelligibility	Add a high shelf filter to boost frequencies greater than 1 kHz by 3-6 dB
HVAC noise reduction	Add a low cut filter to attenuate frequencies below 200 Hz
Reduce flutter echoes and sibilance	Identify the specific frequency range that "excites" the room: 1. Set a narrow Q value. 2. Increase the gain to between +10 and +15 dB, and then experiment with frequencies between 1 kHz and 6 kHz to pinpoint the range of flutter echoes or sibilance. 3. Reduce the gain at the identified frequency (start between −3 and −6 dB) to minimize the unwanted room sound.
Reduce hollow, resonant room sound	Identify the specific frequency range that "excites" the room: 1. Set a narrow Q value. 2. Increase the gain to between +10 and +15 dB, and then experiment with frequencies between 300 Hz and 900 Hz to pinpoint the resonant frequency. 3. Reduce the gain at the identified frequency (start between −3 and −6 dB) to minimize the unwanted room sound.

Delay

If you're installing loudspeakers in a large area, you may need to time-align some speakers using delay. This ensures that the signal arrives to all parts of the room at the same time for even coverage.

Limiter

Use the limiter to prevent output signals from clipping or distorting. To use, enter a dBFS value for the threshold. With the limiter enabled, the output signals will not exceed the threshold.

Signal Generator

The signal generator plays 4 different signals to help you tune your system and balance sound levels. Dante inputs get bypassed when you use the signal generator. The signal generator is pre-EQ, so you can apply EQ to the signal.

Gain adjustment at 0 dB is referenced to 76 dB SPL at 1 meter.

Pink noise

Equal energy per octave. Use to check levels and to verify coverage in multi-speaker installations.

White noise

Equal energy at each frequency. Use to check levels and to verify coverage in multi-speaker installations.

Sine wave

Plays a tone at the selected frequency. Use to check levels, assess comb filtering effects, and identify possible standing waves.

Sweep

Plays a tone at every frequency that the loudspeaker can reproduce, starting from the lowest frequency and sweeping up to the highest. Use to identify possible mounting deficiencies, such as rattling or buzzing.

Mute the Amplifier and Loudspeakers

You can mute the amplifier at 4 points:

1. **Device mute:** Mutes the whole device. The mute icon on the Routing page is for device mute.
2. **Input mute:** Mutes the selected Dante or analog input channel. `[Your device] > Inputs`
3. **Loudspeaker output mute:** Mutes the loudspeaker output. `[Your device] > Outputs`
4. **Dante output mute:** Mutes the Dante output channel. `[Your device] > Outputs`.

Note: You can also find all these mute points on the amplifier's Schematic page.

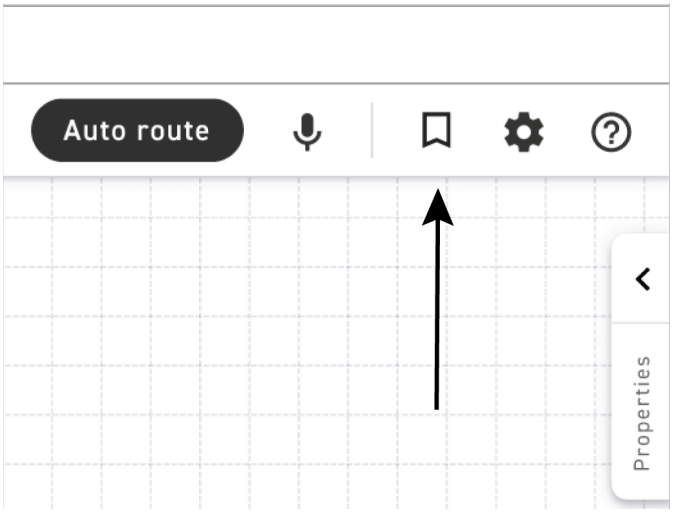
Save and Apply Presets

When your devices are set up for a given room, you might want to save specific settings as a preset. Presets are also useful in a multipurpose or divisible room with different configurations. When the room configuration changes, you can apply a preset from 1 of the 10 preset slots available.

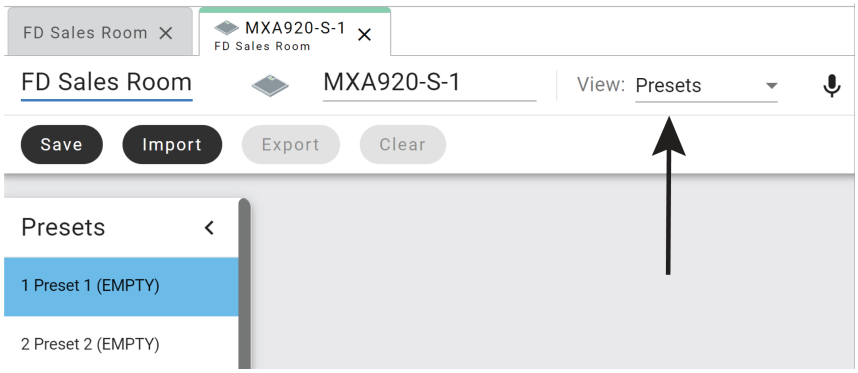
- **Designer room presets:** retain the settings of each device in the room
- **Device presets:** retain the settings of a particular device

Save Settings as Presets:

1. Select  (Presets)
   - For Designer room presets, this is on the routing and coverage pages.



◦ For device presets, double-click a virtual or online device and then choose presets.



2. Select an open preset slot.
3. Enter a name for the preset.
4. Click Save.

Apply Presets

1. Open the presets view  .
2. Choose the preset you want.
3. Select Apply.The applied preset has a check mark next to it.

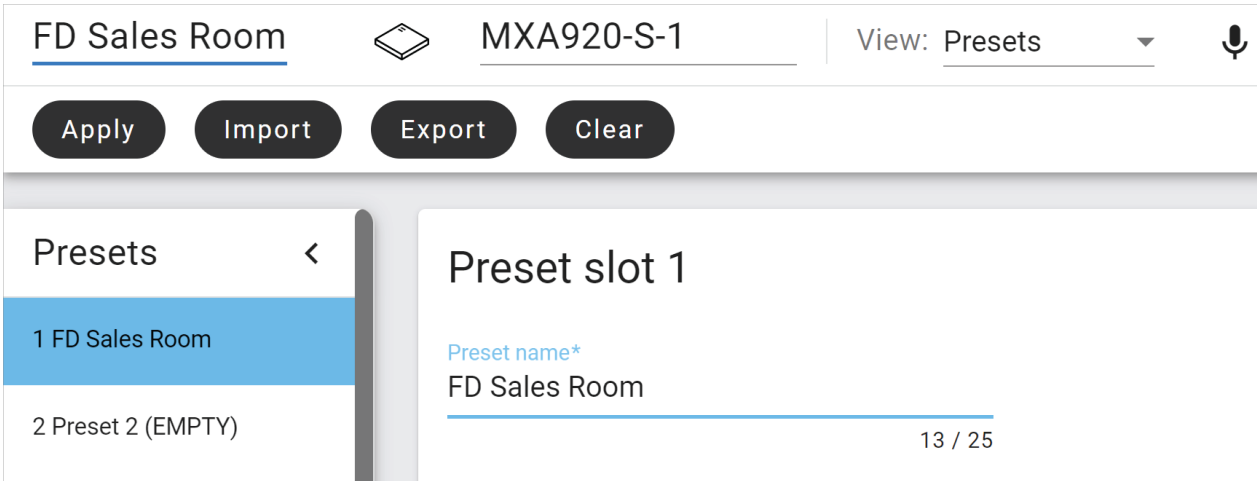
Notes:

- Routing information is not saved in presets.
- If your room is online, preset activity may cause the audio to momentarily drop out.
- Any changes made after applying a preset are not saved to that preset. Save new settings to a new preset slot or over-write the old preset.
- A preset name conflict happens when 2 or more devices have a different name in the same preset slot. When there's a conflict, you can still pass audio, adjust settings, and create presets. To resolve the conflict, you can rename, overwrite, or clear the preset slot.

Export Virtual Device Presets

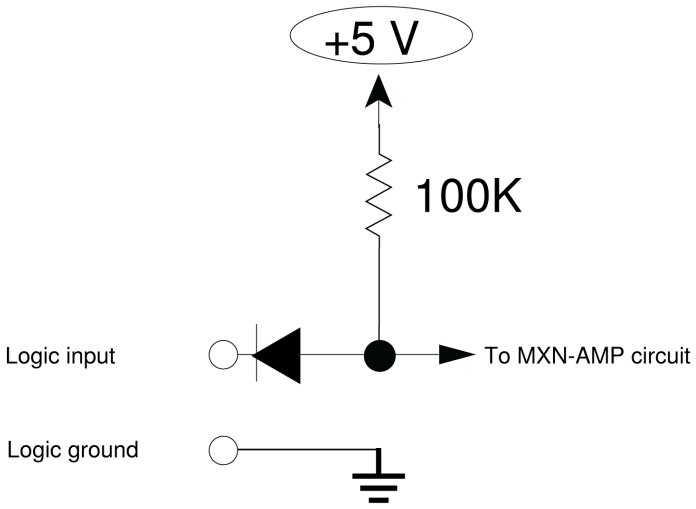
You can export a virtual device's settings as a preset file (.json). This allows you to import and apply that preset to an online device in its web application.

1. Double-click the virtual device.
2. Go to the presets view.
3. Select Export.



Switch between Presets with Logic

The logic control input lets you switch between presets 1 and 2 on the amplifier with switch/contact closure or a third-party control system. When the MXN-AMP receives a 0–5V TTL signal, it automatically switches presets.



Important: Make all logic ground connections to the ground pin, including power supply ground of external logic circuitry. To avoid switch clicks, do not connect logic ground to audio, chassis, or rack grounds.

Default Settings

Logic	Description	Preset
Logic high	Nothing connected or logic signal changes from low to high.	Preset 1
Logic low	Voltage lowered with switch/contact closure, voltage lowered with third-party control system, or logic signal changes from high to low.	Preset 2

You can also map preset 1 to logic low and preset 2 to logic high. Set up switching behavior and presets in the control software.

Important: Logic switch settings are included in device presets 1 and 2. To properly use the logic switch:

1. Turn on and set up logic: `[Your device]` > `Settings` > `Operation Mode`
2. Save device presets 1 and 2 to ensure all logic switch settings are the same for both presets: `[Your device]` > `-Presets`

These presets apply to audio settings, not network, security, or system settings. Your preset also remains after a power cycle.

Shure Audio Encryption

Audio is encrypted with the Advanced Encryption Standard (AES-256), as specified by the US Government National Institute of Standards and Technology (NIST) publication FIPS-197.

Audio encryption is only supported among Shure devices. It is not supported with third-party devices.

Important: For encryption to work:

- Devices must be online and support encryption.
- Encryption must be turned on for all devices in the room.
- You must disable AES67 in Dante Controller. AES67 and AES-256 can't be used at the same time.

To turn on encryption:

In an online room, select  > `Audio encryption` > `Turn on encryption`. You can auto generate a key or enter one manually.

To re-key or turn off encryption:

In an online room, select  > `Audio encryption` and enter any passwords.

Set Up the 802.1X Protocol for a Device

Select Shure devices support the IEEE 802.1X port access protocol for network authentication.

Important: To use the 802.1X security protocol with Shure devices, set the network switch to multiple host authentication. You must also make accommodations to allow the audio network interface to connect to the network. The audio network interface doesn't support the 802.1X protocol.

Setting up 802.1X is a two-part process.

To set up 802.1X, you will need:

- Details about your authentication server's EAP method
- Any required credentials or certificates for that method, for example:
  - MD5 and PWD
    1. User ID and passphrase
  - TLS and PEAP
    1. User ID and passphrase
    2. Certificate (with certificate types) in the .PEM format
- Any passwords to access the devices if they are password locked

Step 1: Configure Settings on Test Network

1. Connect the device to your test network and discover it using Designer.
2. Initialize the device if necessary. Open the device and go to `Settings` > `Network` > `802.1X`.
3. Choose your EAP method from the menu.
4. Enter any required credentials and load any necessary certificates.
5. Press Save to save the 802.1X settings to the device.
6. Enable 802.1X and select Reboot later.

Step 2: Connect to a Credentialed Network

1. Connect your device to the credentialed network.
2. Ensure that Designer is connected to the credentialed network.
3. Go to `Settings` > `Network` > `802.1X` and enable 802.1X. Reboot the device for the 802.1X settings to take effect.
4. If the device doesn't appear in Designer after the reboot, reconnect to the test network and check all 802.1X settings for the selected EAP method.

Turn Off or Clear 802.1X Settings

You can turn off 802.1X settings temporarily, or clear them from the device. Open the device and go to `Settings` > `Network` > `802.1X`

- **Disable**: Click the 802.1X switch to turn off 802.1X settings. Click the switch again to enable 802.1X.
- **Clear**: Click Clear 802.1X settings to remove 802.1X settings from the device.

Note: Resetting to factory default clears all 802.1X settings.

Change 802.1X Settings

You may need to change a device's 802.1X settings if the enterprise's 802.1X settings are changing. The best way to do this is to change the 802.1X settings on the devices, and then make changes to the authentication server.

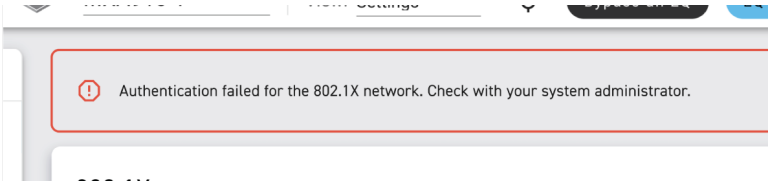
To change device settings:

1. While still connected to the credentialed network, find the device in Designer and go to `Settings` > `Network` > `802.1X`.
2. Make changes and click Save.
3. Make any changes to the authentication server.
4. Reboot your devices. The devices should connect to the credentialed network with the updated 802.1X settings.

Troubleshooting 802.1X Setup Issues

If the device doesn't appear in Designer on the credentialed network, there's a problem with the device's 802.1X settings. To troubleshoot, take the device off the credentialed network and connect it to the test network. You can make any necessary changes to the 802.1X settings, and then reconnect to the credentialed network.

If you attempt to enable 802.1X on a device, but the authentication fails, you will see this notification:



If this occurs, check with your system administrator.

Use Command Strings

This device receives logic commands over the network. Many parameters controlled through Designer can be controlled using a third-party control system, using the appropriate command string.

Common applications:

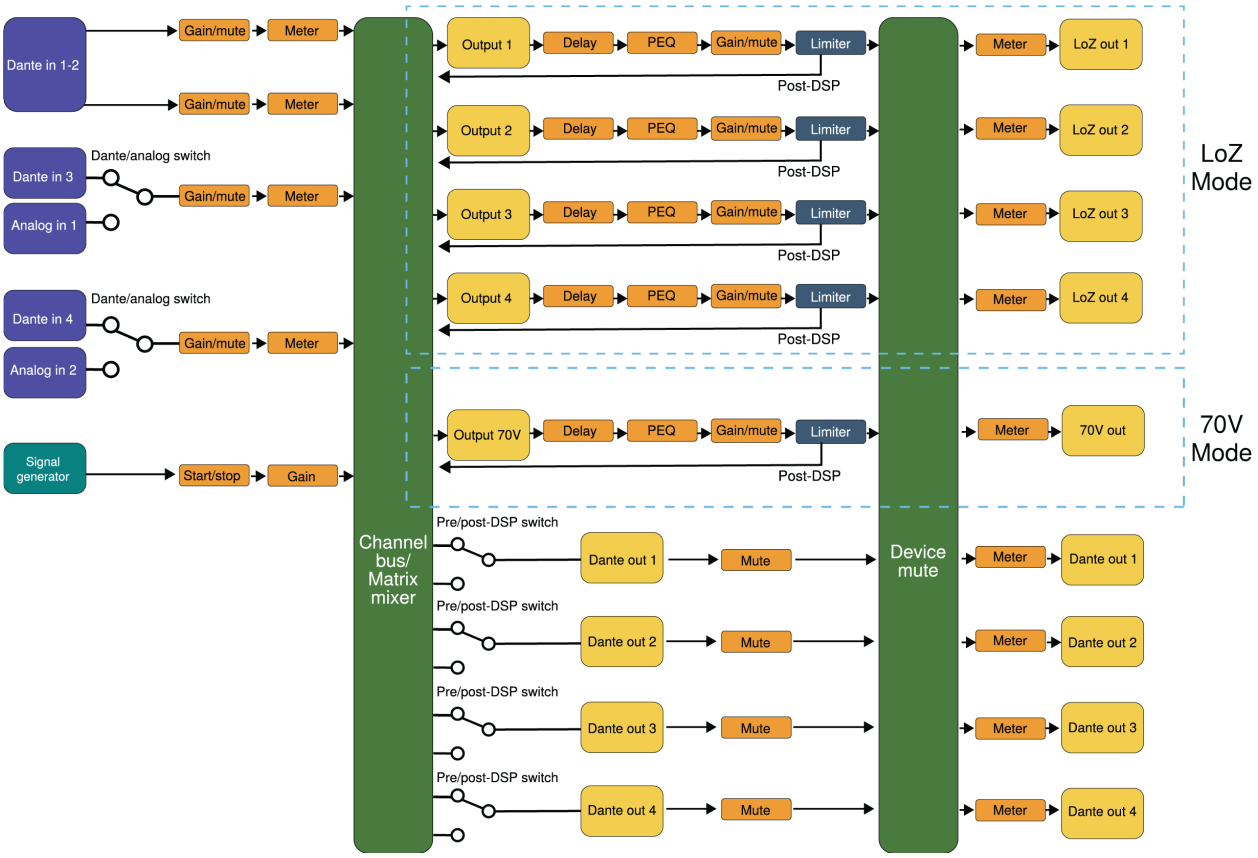
- Mute
- LED color and behavior
- Loading presets
- Adjusting levels

A complete list of command strings is available at:

https://www.shure.com/en-US/docs/commandstrings/MXN-AMP.

MXN-AMP Signal Path Diagram

The following diagram shows the signal path for the MXN-AMP. Use Designer or the web application to adjust DSP or change output modes.



Notes

If you are using Dante output channels in LoZ mode:

- Pre-DSP signals do not go through the matrix mixer. Signals are sent from the Dante input to the respective output channel (Dante in 1 to Dante output 1, Dante in 2 to Dante output 2, etc.).
- Post-DSP signals are sent from the LoZ output to the respective Dante output channel (LoZ output 1 to Dante output 1, LoZ output 2 to Dante output 2, etc.)

In 70V mode:

- Processing for output channels 1-4 is turned off.
- Pre-DSP signals do not go through the matrix mixer. Signals are sent from the Dante input to the respective output channel (Dante in 1 to Dante output 1, Dante in 2 to Dante output 2, etc.).
- Post-DSP signals are sent from the 70V output channel to all Dante output channels.

Learn more about the amplifier's output channels and pre- and post-DSP.

Troubleshoot the Shure MXN-AMP

Troubleshooting

Problem	Solution
No sound	Check cables and connections. Make sure your amplifier is wired to your loudspeakers, plugged in, powered on, and routed correctly. Make sure the amplifier or loudspeaker channels are not muted in the control software.
Audio clipped, distorted, humming, buzzing, too soft, or too loud	Check cables and connections. Make sure your loudspeaker is connected to your amplifier and that your amplifier is plugged in, powered on, and routed correctly. Check the gain and audio meters in the control software. See if the peak is too high (reaching red in the meter) or too low (hardly reaching green in the meter). Make sure your amplifier and loudspeakers match impedance and that the amplifier is in the right output mode (either LoZ or 70V) in the control software. Make sure other electrical devices aren't interfering with your audio setup Check the quality of your audio source
Not enough bass/treble	Adjust EQ of the amplifier in Designer or the web application. Make sure the correct loudspeaker preset is selected on the Outputs page of the MXN-AMP's control software.
Device does not appear on the network	Check that the amplifier is plugged into an appropriate PoE or PoE+ source and that its control IP address is in the correct subnet. Turn off other network interfaces not used to connect to the device (including Wi-Fi) If using dynamic IP addressing, check that the DHCP server is functioning See if the computer's firewall or the network are blocking multicast traffic, especially on ports 8427 UDP and/or 57383 UDP. Reset the device For more device troubleshooting, see the FAQ.
Incompatible firmware	Update device firmware with the Shure Update Utility or update your version of Designer .

Additional Resources

- Shure Knowledge Base FAQs
- Command strings for Shure devices
- Shure API documentation
- Shure Enterprise Networking Troubleshooting Checklist
- Shure Systems YouTube channel

Download Shure Software

- Shure Designer
- Shure Update Utility
- Software and firmware archive

Dante Flows for Shure Devices

Dante flows get created any time you route audio from one Dante device to another. One Dante flow can contain up to 4 audio channels. For example: sending all 5 available channels from an MXA310 to another device uses 2 Dante flows, because 1 flow can contain up to 4 channels.

Every Dante device has a specific number of transmit flows and receive flows. The number of flows is determined by Dante platform capabilities.

Dante Flows for Shure Devices

Dante Platform	Shure Devices Using Platform	Transmit Flow Limit	Receive Flow Limit
Brooklyn II	ULX-D, SCM820, MXWAPT, MXWANI, P300, MXCWAPT	32	32
Brooklyn II (without SRAM)	MXA920, MXA910, MXA902, MXA710, AD4, AD600, APXD2	16	16
IP Core	MXA920-V3, MXA902-V3, MXA901	32	32
Ultimo/UltimoX	MXA310, ANI4IN, ANI4OUT, ANIUSB-MATRIX, ANI22, MXN5-C	2	2
DEP	ANIUSB-MATRIX-V3, MXN-AMP	2	2
DAL	IntelliMix® Room	16	16

Learn more about Dante flows in our FAQs or from Audinate.

Switch and Cable Recommendations for Dante Networking

Switches and cables determine how well your audio network performs. Use high-quality switches and cables to make your audio network more reliable.

Network switches should have:

- Gigabit ports. 10/100 switches may work on small networks, but gigabit switches perform better.

- Power over Ethernet (PoE) or PoE+ ports for any devices that require power
- Management features to provide information about port speed, error counters, and bandwidth used
- Ability to switch off Energy Efficient Ethernet (EEE). EEE (also known as "Green Ethernet") may cause audio dropouts and problems with clock synchronization.
- Diffserv (DSCP) Quality of Service (QoS) with strict priority and 4 queues

Ethernet cables should be:

- Cat5e or better
- Shielded

This device is IEEE 802.3at compliant. Use a switch or injector that follows this standard.

For more information, see our FAQ about switches to avoid.

Safety and Regulatory Information for Wireless Products

Important Safety Instructions

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Allow sufficient distances for adequate ventilation and install in accordance with the manufacturer’s instructions.
8. DO NOT install near any heat sources such as open flames, radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not place any open flame sources on the product.
9. DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. USE only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose the apparatus to dripping and splashing. DO NOT put objects filled with liquids, such as vases, on the apparatus.
16. The MAINS plug or an appliance coupler shall remain readily operable.

17. The airborne noise of the Apparatus does not exceed 70dB (A).
18. Apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
19. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
20. Do not attempt to modify this product. Doing so could result in personal injury and/or product failure.
21. Operate this product within its specified operating temperature range.
22. Follow local regulations and consult qualified personnel if the product installation or relocation requires construction work. Choose mounting hardware and an installation location that can support the weight of the product. Avoid locations subject to constant vibration. Use the required tools to install the product properly. Inspect the product periodically.

WARNING:

- Voltages in this equipment are hazardous to life. No user-serviceable parts inside. Refer all servicing to qualified service personnel. The safety certifications do not apply when the operating voltage is changed from the factory setting.
- If water or other foreign objects enter the inside of the device, fire or electric shock may result.

Regulatory Information for Class A EMC Products

EU Class A Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CE Notice

Hereby, Shure Incorporated declares that this product with CE Marking has been determined to be in compliance with European Union requirements.

The full text of the EU declaration of conformity is available at the following site: https://www.shure.com/en-EU/support/declarations-of-conformity.

UKCA Notice

Hereby, Shure Incorporated declares that this product with UKCA Marking has been determined to be in compliance with UKCA requirements.

The full text of the UK declaration of conformity is available at the following site: https://www.shure.com/en-GB/support/declarations-of-conformity.

UK Cybersecurity

UK SI 2023 NO. 1007 STATEMENT OF COMPLIANCE

Product Type: Relevant connectable products as defined by The Product Security and Telecommunications Infrastructure (Security Requirements for Relevant Connectable Products) Regulations 2023.

Manufacturer Statement: We, Shure Incorporated, certify and declare as manufacturer under our sole responsibility, that the above mentioned product(s) conform(s) to Schedule 2 of the essential requirements of the listed applicable United Kingdom Statutory Instruments (including their amendments) and the associated norms.

Information on how to report security issues: The latest version of Shure's Disclosure policy can be found at the following link: https://www.shure.com/en-GB/about-us/security

Security update periods: Shure provides support regarding hardware and software updates that continue the integral cyber security safety of Shure products up to 24 months after end of life (AEOL). For the full statement regarding Shure's product support policy, and information regarding products end of life status information can be found at the following link: https://www.shure.com/en-GB/about-us/security

Manufacturer:
Shure Incorporated 5800 Touhy Avenue
Niles, Illinois, 60714-4608 U.S.A.
Website: www.Shure.com.

Technical documentation is kept at:
Shure Incorporated, Corporate Global Compliance Engineering Division

UK Importer/Representative:
Shure UK Limited
Unit 2, The IO Centre, Lea Road, Waltham Abbey, Essex, EN9 1AS, U.K.
Phone: +44 (0)1992 - 703058
Email: EMEAsupport@shure.de

On behalf of Manufacturer:

Chad Ayers

01 February 2024 Niles, Illinois

Senior Director, Global Compliance

FCC Notice

This product has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Notice: The FCC regulations provide that changes or modifications not expressly approved by Shure Incorporated could void your authority to operate this equipment.

For information regarding responsible party and other matters relating to FCC compliance, please contact Shure Incorporated, 5800 W. Touhy Avenue, Niles, Illinois 60714-4608 U.S.A. shure.com/contact

Canada, ISED Notice

Notice: The Industry Canada regulations provide that changes or modifications not expressly approved by Shure Inc. could void your authority to operate this equipment.

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

KCC Notice

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

CNCA Notice

警告使用者： 此为A级产品。在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

BSMI Notice

警告：

為避免電磁干擾，本產品不應安裝或使用於住宅環境。

Environmental Regulatory Information

Registration, Evaluation, Authorization of Chemicals (REACH) Directive

REACH (Registration, Evaluation, Authorization of Chemicals) is the European Union (EU) and the United Kingdom (UK) chemical substances regulatory framework. Information on substances of very high concern contained in Shure products in a concentration above 0.1% weight over weight (w/w) is available upon request.

Waste Electrical and Electronic Equipment (WEEE) Directive

In the European Union and the United Kingdom, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

BSMI Notice

有關於台灣進口商的資訊, 請參考產品標籤上的BSMI檢驗標識號碼 （例如：R35393代表益誠國際驗證股份有限公司/臺北市中山區長安東路2段108號7樓之5）

Recycling Information

Please consider the environment, electric products and packaging are part of regional recycling schemes and do not belong to regular household waste.

中国 RoHS

部件名称	有害物质									
	Pb	Cd	Hg	Cr(VI)	PBB	PBDE	DBP	BBP	DIBP	DEHP
电路模块	X	○	○	○	○	○	○	○	○	○
金属模块	X	○	○	○	○	○	○	○	○	○
线缆及其组件	X	○	○	○	○	○	○	○	○	○
电源适配器*	X	○	○	○	○	○	○	○	○	○
锂电池组*	X	○	○	○	○	○	○	○	○	○

本表格依据 SJ/T11364 的规定编制。

O: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T26572 规定的限量要求以下。

X: 表示该有害物质至少在该部件某一均质材料中的含量超出 GB/T26572 规定的限量要求。

注 1：本产品大部分的部件采用无害的环保材料制造，含有有害物质的部件皆因全球技术发展水平的限制而无法实现有害物质的替代。

注 2：以上未列出的部分,表明其有害物质含量均满足电器电子产品有害物质限制使用国家标准要求

*:表示如果包含部分

臺灣 RoHS

設備名稱：音頻擴大器 Equipment name　　型號（型式）：MXN-AMP Type designation (Type)

單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞Mercury (Hg)	鎘Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
电路元器件	–	O	O	O	O	O
外壳	O	O	O	O	O	O
螺丝	–	O	O	O	O	O
塑胶件	O	O	O	O	O	O
包装材料	O	O	O	O	O	O

備考1.〝超出0.1 wt %〞及〝超出0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。
Note 1：“Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備考2.〝o〞係指該項限用物質之百分比含量未超出百分比含量基準值。
Note 2：“○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考3.〝－〞係指該項限用物質為排除項目。
Note 3：The “–” indicates that the restricted substance corresponds to the exemption.