



AMP-260-DNT

Advanced 2 or 4 Channel Dante[®] Amplifier

User Manual

Version: V1.0.0



Important Safety Instructions



1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.



6. Clean this apparatus only with dry cloth.



2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space.
Ensure the unit is well ventilated.



7. Unplug this apparatus during lightning storms or when unused for long periods of time.



3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.



8. Protect the power cord from being walked on or pinched particularly at plugs.



4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



9. Only use attachments / accessories specified by the manufacturer.



5. Do not place sources of naked flames, such as lighted candles, on the unit.



10. Refer all servicing to qualified service personnel.

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Introduction

Overview

This is a four-channel network amplifier for professional AV applications, such as mid-to-large meeting room spaces, university teaching spaces etc.

It features two audio inputs, include both line level and Dante audio, and two speaker outputs. The two speaker outputs could work independently in two rooms, or work together in a single room. The amplifier has audio DSP built-in, and supports audio operations such as gain control, audio filters, dynamic control, ducker, EQ, mute etc.

The amplifier supports two power supply methods, it could either be powered by local DC 24V 5A power supply, or by PoE+, which can receive power from network switch.

Features

- · Supports 1x line input
- Supports 2x2 Dante audio
- For 2x Dante inputs, it decodes the audio and feed to the amplifier built-in DSP, and sample rates supported includes 44.1kHz, 48kHz, 88.2kHz and 96kHz
- For 2x Dante outputs, it encodes the amplifier's output audio (after DSP), and transmit to Dante network. This is useful when several amplifiers are installed in daisy-chain
- Supports two power supplying methods: by local power adaptor (DC 24V, 5A) or by POE + from Ethernet switch
- · Supports different amplifier outputs. Note, when connecting 8ohm speakers, power will be halved
- · When the amplifier is powered by local power adapter, supports connecting to 4x 30watt 4ohm speakers or 2x 60watt 4ohm speakers
- · When the amplifier is powered by the connected Ethernet switch
- (PoE+): supports connecting 4x 3watt 4ohm speakers or 2x 7watt 4ohm speakers. When connecting 8ohm speakers, power will be halved
- · Audio DSP built-in, including gain/volume control, dynamic control, filters, EQ, ducker, mute, delay and limiter etc
- · Supports independent line audio output
- Supports multiple control options, including front panel buttons, and LAN control (Telnet & Web UI)

Package Contents

- 1x AMP-260-DNT Amplifier
- 1x DC 24V 5A Power Adapter
- 1x AC Power Cord with US Pins
- 1x AC Power Cord with UK Pins
- 1x AC Power Core with EU Pins
- 1x AC Power Cord with AU Pins
- 3x 5-Pin Phoenix Male Connector
- 2x 4-Pin Phoenix Male Connector
- 4x Mounting Brackets
- 4x Rubber Feet
- 1x Quickstart Guide

Specifications

Audio and Video				
1x Line In 2x Dante In				
1x Line Out 2x Low Impedance Speaker Out 2x Dante Out				
Stereo or 2CH PCM				
2x 60w 4-ohm using PSU 4x 30w at 4-ohm using PSU 2x 7w at 4-ohm when powering via PoE+ 4x 3w at 4-ohm when powering via PoE+ With 8-ohm speakers the output will be halved				
±1dB @ 20Hz - 20kHz				
Communication and Control				
2x 8-pin RJ-45 female 10/100Base-T PoE+ 802.3at				
CA SB-327 TLS HTTPS				
Power				
24v DC 5V 802.3at PoE+ Compliant				
120W MAX with power adapter 25.5W MAX over PoE+				
Environmental				
0 to + 45°C (32 to + 113 °F), 10% to 90%, non-condensing				
-20 to +70°C (-4 to + 158 °F), 10% to 90%, non-condensing				
Dimensions and Weight				
200mm x 215mm x 42mm				
1.27lbs / 2.80lbs				
Regulatory				
CE FCC RoHS RCM EAC UKCA				

Panel Description

Front Panel



#	Name	Description
1	Power LED	On: The device is powered on. Off: The device is powered off.
2	Volume Indicators	Shows the amplifier output volume. When adjusting volume, the indicators will increase or decrease
3	VOL -	Press to decrease the volume
4	VOL+	Press to increase the volume

Rear Panel



#	Name	Description
1	DC 20V	Connect to the power adapter provided. The device also supports PoE+ function, and can be powered by the connected Ethernet switch (with PoE+ supported).
2	RESET	 Use a needle to hold the button for about 3s to reset IP; Use a needle to hold the button for about 10s to reset the device to factory defaults.
3	ETHERNET	Connect to the Ethernet switch for LAN control (Telnet & Web UI). When connect 1 (POE) ETHERNET port to the Ethernet switch with POE function, the device can be powered by the Ethernet switch.
4	LINE IN	5-pin 3.5mm phoenix connector. Connect to a line out device, or connect LINE OUT port of the previous device for daisy-chain connection.
5	GPIO	Connect to GPIO devices. Support connecting up to 3 GPIO devices.
6	LINE OUT	5-pin 3.5mm phoenix connector. Connect to LINE IN port of the next device for amplifier daisy-chain connection.
7 & 8	AMP OUT (Main & 2 nd)	Connect to speakers. By default, Main and 2nd are linked, and can switch source simultaneously. Note: The link and unlink status can be switched through API commands or Web UI Control.

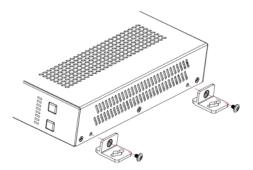
Installation and Wiring



Warning! Before installation, please ensure the device is disconnected from the power source.

Installation

- 1. Attach the installation bracket to the enclosure using the screws that were provided in the package separately.
- 2. The bracket is attached to the enclosure as shown.



- 3. Repeat steps from 1 to 2 for the other side of the device.
- 4. Attach the brackets to the surface you want to hold the device against using the screws (provided by others).

Wiring



Warning! Before wiring, disconnect the power from all devices. During wiring, connect and disconnect the cables gently.

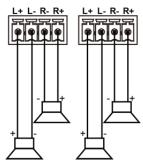
Instruction of AMP ports

The device equips with two AMP ports, and supports two working modes.

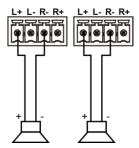
- 1. When the device is powered by the provided power adapter:
 - Supports connecting with 4 x 30watts 4ohm speakers;
 - Supports connecting with 2 x 60watts 4ohm speakers.
- 2. When the device is powered by POE+:
 - Supports connecting with 4 x 3watts 4ohm speakers;
 - Supports connecting with 2 x 7watts 4ohm speakers.

AMP ports pin connection are shown as the following figures:

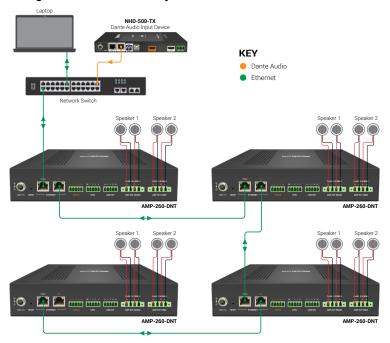
1. Stereo: Connecting with 4 x 30watts 4ohm speakers or 4 x 3watts 4ohm speakers:



2. Bridged Mono: Connecting with 2 x 60watts 4ohm speakers or 2 x 7watts 4ohm speakers:

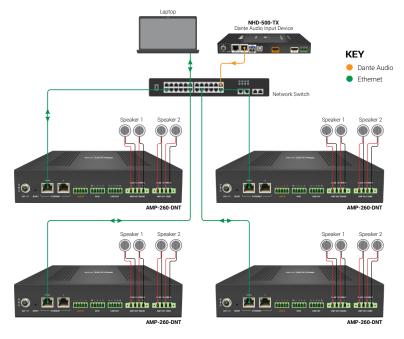


Wiring 1: AMP-260-DNT Daisy Chain



The amplifier supports daisy-chaining connection through ETHERNET ports. Connect one ETHERNET port of the first amplifier to one ETHERNET port of the second amplifier.

Wiring 2: AMP-260-DNT Powered by PoE+



Instruction of Dante:

The amplifier supports 2x2 Dante audio transmission. Before using Dante function, please enable all devices are connected to the same wired network, as the Dante Controller is only available on wired connections.

Connect the "Dante" port to a local area network, and launch the "Dante Controller" software on the laptop connected in the same network (Refer to https://www.audinate.com/products/software/dante-controller to download the latest Dante Controller). Pair the transmitters and receivers (both the transmitters and receivers are connected with the same network) as required on the Dante Controller with the amplifier. The paired transmitters can generate Dante audio and transmit it to the Dante in of the amplifier through the network, and the paired receiver can receive Dante audio from Dante out of the amplifier through the network. Users can set audio sources and audio outputs through API commands or web UI. Refer to the separate document "API Command Set_AMP-260-DNT" or "Web UI Control" section to get detail information.

Telnet Control

Connect a control PC to the LAN port of the device. Before you intend to control the device through telnet API, you shall establish connection between this device and your computer.

The form of the command for telnet connection is below:

telnet ip (port)

- · ip: The device's IP address.
- · port: The device's port number, this is non-required for some Telnet control tools. Default setting is 23.

For example, if the device's IP address is 192.168.11.143, the command for telnet connection shall be the following: telnet 192.168.11.143

Web UI Control

The Web UI designed for the amplifier allows basic controls and advanced settings of the amplifier and can be accessed through a browser with latest version, e.g., Chrome, Safari, Firefox, Opera, IE10+, etc. The default IP mode of the amplifier is DHCP. Default login password for Web UI is "admin".

To get access to Web UI

- 1. Connect one of the two ETHERNET ports to the ethernet switch with DHCP server, and connect the PC to the same ethernet switch.
- 2. Get the IP address through the "SmartSetGUI" tool on PC.
- 3. Input the IP address obtained in the last step in your browser and press "Enter" key on keyboard. The following page can be access in:





· To implement basic audio control of the device, click "User" to login as User. When login as User, no password is required.



• If advanced setting is required, click "Admin" and enter the password to login as Admin. The default password is "admin".





 When login web UI first time, after clicking "Admin Login", users will enter the following window to change login password. Input new password and click "Apply" to enter the main page.

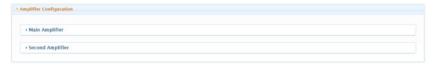


In User mode, users can also click "Admin Login" on the upper right corner, then input the password enter Amplifier Control, General Setting and
Advanced Setting pages. The default password is "admin". When login the admin mode first time, users also need to change login password firstly.
The operations are same with logging through the home page.



Web UI Introduction

The main page includes three tabs: Amplifier Control and Audio DSP.



Amplifier Control

Amplifier Configuration

Main Amplifier



This section allows users to set amplifier mode of the main amplifier port and checking the wiring of the main amplifier port.

- Amplifier Mode: Select an amplifier mode from the drop-down menu from "Stereo" and "Bridged Mono", the default setting is "Stereo".
 Stereo mode: supports connecting to 2x 30watt 40hm speakers (powered by the provided power source)
 Bridged Mono mode: supports connecting to 1x 60watt 40hm speakers (powered by the provided power source).
- · Amplifier Wiring: Shows the wiring diagram and used pins of the current mode.

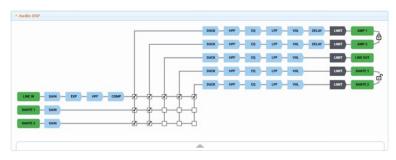
Second Amplifier



This section allows users to set amplifier mode of the second amplifier port and checking the wiring of the second amplifier port.

- Amplifier Mode: Select an amplifier mode from the drop-down menu from "Stereo" and "Bridged Mono", the default setting is "Stereo".
 Stereo mode: supports connecting to 2x 30watt 40hm speakers (powered by the provided power source)
 Bridged Mono mode: supports connecting to 1x 60watt 40hm speakers (powered by the provided power source).
- · Amplifier Wiring: Shows the wiring diagram and used pins of the current mode.

Audio DSP



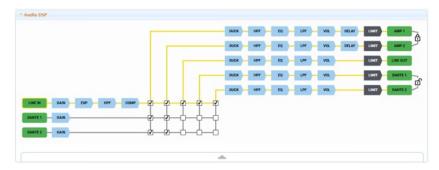
This section allows users to set audio routing and configure audio DSP.

Click the box at the intersection of an audio input and output to select this audio input as the source for this audio output. One audio output can select multiple audio inputs and one audio input can be selected for multiple outputs.

Default setting: AMP 1 and AMP 2 select LINE IN 1, DANTE IN 1 and DANTE IN 2 as input sources, DANTE OUT 1 and DANTE OUT 2 select LINE IN 1 as input sources.

Clicking an IN or OUT button, highlights the routing path, and the IN/OUT button will have a yellow frame.

Click the blue box labeled with the audio DSP name to enter the setup page (the selected button will have a light orange frame, and the corresponding in and out routing path is highlighted) for that specific audio DSP.



DSP configurations for inputs

• GAIN (For LINE IN, DANTE IN 1 and DANTE IN 2):



- Volume Meter: Display the active audio level of the corresponding audio input in real-time.
- Gain Control: Use the slider to adjust the audio gain. The default value is 0dB; Range: -20dB~+20dB.
- Volume Mute: Click to set the corresponding audio to mute/unmute. Default setting: Unmuted. When set it to mute, the corresponding button's color turns to rose red.



• EXP (Expander for LINE IN): To increase the difference in loudness between the quieter and louder sounds. When the Expand module is used, the quiet sounds (usually background noises) become quieter while the loud sounds become louder. The levels of audio signals that fall below the set threshold level are reduced.



On/Off: Click to set EXP of the corresponding audio input to on/off. Default setting: Off. When set the EXP to On:



Threshold (dB): Adjust the slider or input the value to set the threshold. Decreases the volume of audio signals that are below the threshold level.
 Default setting: OdB.

Expander Settings:

- Attack Time (ms): Input the attack time. Set the response speed of the expander to signal levels above the threshold. Default setting: 1ms; Range: 1~500ms
- Release Time (ms): Input the release time. Set the response speed of the expander to signal levels below the threshold. Default setting: 1000ms; Range: 1~2000ms
- Ratio: Input the ratio to set the amount to which the volume is decreased. The higher the ratio the more the audio level below the threshold is lowered. Default setting: 1; Range: 1~100.

· HPF (High pass filter for LINE IN): Use the HPF module to cut off low frequencies and let higher frequencies pass.



On/Off: Click to set HPF of the corresponding audio input to on/off. Default setting: Off. When the HPF is set to on:



Frequency (Hz): Adjust the knob slider or input the value to set the cut-off frequency. Frequencies under the cut-off frequency are attenuated. Default setting: 20Hz.

· COMP (Compressor for LINE IN): To reduce the signal dynamic range which is the difference between the loudest and quieter sounds.



On/Off: Click to set COMP of the corresponding audio input to on/off.

Default setting: Off.

When set the COMP to on:



Threshold (dB): Adjust the knob slider or input the value to set the threshold. The threshold is the level that the signal needs to rise above for the compressor to begin working. If a signal is too low or does not cross the threshold, the compressor allows the signal to pass through unchanged. Default setting: 0dB.

Expander Settings:

- Attack Time (ms): Input the attack time. The attack time is the response speed of the compression to signal levels above the threshold. Default setting: 1ms; Range: 1~500ms.
- Release Time (ms): Input the release time. The release time is the response speed of the compressor to signal levels above the threshold. Default setting: 1000ms; Range: 1~2000ms.
- Ratio: Input the ratio value to set thec to which the volume is decreased. Default setting: 1; Range: 0~100.

Output DSP configurations

• DUCK: When multiple audio outputs are present, the selected primary audio needs to play, and the ducking function will automatically reduce the volume of other audio signals.



On/Off: Set Ducking to on/off. Default setting: off.

When set DUCK to on:



- Threshold (dB): Use the knob slider, or enter the value to specify the volume threshold for ducking to occur. The lower the value is set, the easier the ducking is triggered. Default setting is -35dB.
- Ducker Settings:
 - Ducker Master: Click to select the master input source from the drop-down menu for triggering ducking. When the selected input source reaches the ducking trigger, other inputs are ducked.
 - Attack Time (ms): Input the time to set the time it takes to lower the volume to the Ducking Depth after the Ducking Trigger threshold is met.
 Default setting: 1ms; Range: 1~500ms.
 - Release Time (ms): Input the time to set the time it takes to return to the regular volume from Ducking Depth. When the release time times out, the ducking audio's volume comes back up to its normal volume. Default setting: 1000ms; Range:1~2000ms.
 - Ratio: Input the ratio value to set the volume reduction ratio. The lower the value is set, the lower the volume of the specified audio input is
 when ducking is triggered. Default setting is 10.
- HPF (High pass filter): Use the HPF module to cut off low frequencies and let higher frequencies pass.



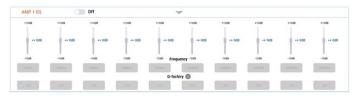
On/Off: Set HPF function to on/off. Default setting: off.

When it is set to on:



Frequency (Hz): Use the knob slider or input the value to set the cut-off frequency. Frequencies under the cut-off frequency are attenuated. Default setting: 20Hz.

• EQ (Equalizer): To change the balance of different frequency components in the audio signal.



On/Off: Set EQ function to on/off. Default setting: off.

When set it to on:



- Frequency: Use the slider bars above the frequencies to adjust the audio amplitude in different frequencies. Default setting: 0dB; Range: -10dB ~ 10dB
- Q-factory: Input the Q-factor value in each frequency. When boosting or cutting a particular frequency, the Q- factor represents the width of the frequency range that is affected. Default setting: 1.4; Range: 0~16.
- LPF (Low pass filter): To cut off high frequencies and let lower frequencies pass.



On/Off: Set the LPF function to on/off. Default Setting: Off. When set it to on:



Frequency (Hz): Use the knob slider or input the value to adjust the frequency. Default setting: 20000Hz.

· VOL (Volume):



- · Volume Meter: Display the corresponding output audio intensity of the corresponding audio input in real-time.
- Gain Control: Use the slider to set the gain of the corresponding audio output. Default setting: 0dB.
- Volume Mute: Click to set the corresponding audio output to mute/unmute. Default setting: Unmuted. When set it to mute, the corresponding button's color turns to rose red.



· DELAY (for AMP 1 and AMP 2): Set the delay to accommodate the audio to the listeners distance from the speakers.



On/Off: Set the delay function to on/off. Default setting: On.

Delay (ms): Use the knob slider or input the value to adjust the delay time. Default setting: 100ms. Range: 0~150ms.

- (unlink) / (link): Click to set the corresponding two outputs to link or unlink.
 - For AMP 1 and AMP 2: When set them to link, AMP 1 and AMP 2 select the same input source(s) simultaneously, and mute function is performed simultaneously. Other DSP configurations such as Ducker, EQ, and volume, etc., allows to be adjusted independently. Default setting: link.
 - For DANTE OUT 1 and DANTE OUT 2: When set them to link, select the same input source(s) simultaneously, and the DSP configurations will be synchronous. The two Dante outputs output stereo audio when in link status. Default setting: unlink.

Advanced Settings

Information



This section shows the device's information, including Model, Mac address, IP address and firmware version.

GPIO Settings



This section allows users to set GPIO pins.

- GPIO Channel: Select the port number from the drop-down menu to configure.
- GPIO Type: Select the GPIO trigger type from the drop-down menu between Digital In and Digital Out.

When select Digital In (default)

- Low-state Threshold (V): Define the low detect voltage threshold (the range is 1 to 4V).
- · High state Threshold (V): Define the high detect voltage threshold (the range is 2 to 5V).

This mode reads the digital input of an external sensor device that is connected to the GPIO port, and detects High (upon passing Max threshold from Low state) or Low (upon passing Min threshold from High state) port states according to the user defined voltage threshold levels.

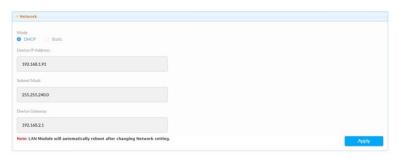
• GPIO State: If the detected result is less than the low-state threshold users set, it wills display "LOW" here, and if the result is more than the high-state threshold users set, it will display "HIGH" here.

When select Digital Out

- Pull-up Resistor: Set Pull-up Resistor to "Connected" / "Disconnected".
- · GPIO State: Set GPIO state to "High" or "Low"

When set the GPIO State to "High", and set Pull-up Resistor to "Connected", the amplifier supplies an internal 5V Pull-up resistor. While set Pull-up Resistor to "Disconnected", the pull-up voltage is determined by the external connected pull-up resistor. When GPIO state is set to "Low", it will output low level.

Network



Network is used to set between the static and dynamic IP address.

DHCP: When enabled, the IP address of the Amplifier is assigned automatically by the DHCP server connected.

Static: When enabled, set up the IP address manually.

Apply: Click to enable the network setting.

Default Setting: DHCP.

Note: When "Static" is selected, please ensure your PC is in the same network segment as the Amplifier.

Please wait for 2-3 minutes for the Amplifier's LAN module to reboot and reconnect after the network setting is changed.

Security



- SSH Protocol (Secure Shell Protocol) (Enabled/Disabled): Set SSH protocol to enable or disable. Default setting: Enabled.
 When it is set to enable, users can change the SSH login password. The default password is "admin"
 Note: The password must be 4 to 16 characters in length, and alphanumeric only.
- TLS Protocol (Disable/Enable): Set TLS (Transport Layer Security) to enable or disable, when it is set to enable, users can change the TelnetS login password. The default setting is "Disable". The default password for logging in the Telnet is "admin".



Note: The password must be 4 to 16 characters in length, and alphanumeric only.

HTTPS (Enable): Set HTTPS to "Enable" or "Disable". The default setting is "Enable". HTTPS (Enable): Https is mandatory supported. HTTPS is a secure version of the HTTP protocol that builds an SSL encryption layer over HTTP and encrypts the transmitted data. HTTP network protocol is the most widely used hypertext transfer protocol, this method allows a third-party to listen in and eavesdrop on the transferred information. To ensure the secure data transmission, the HTTP can be disabled, and the all the information can be transferred via HTTPS. HTTPS protocol encrypts the clear text, so it becomes incomprehensible for a third-party and keeps the data secure.

Change Admin Login Password



This section allows users to change admin password. The default password is "admin". Apply: Click to perform the change.

Note: Password must be 4 to 16 characters in length (alphanumeric only).

FW Update

This section allows users to update firmware.



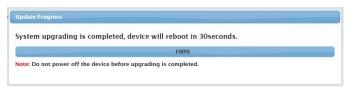
To update Firmware

1. Click "Browse" for the update file.



- 2. Click "Update" to proceed.
- 3. The amplifier will reboot automatically after upgrading is completed.

Note: Do not power off the amplifier during the upgrading.



System

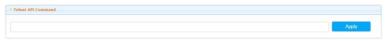


- Reboot: Click to reboot the device, and wait 2 minutes to re-access Web UI by refreshing the browser.
- Factory Reset: Click to reset the device to factory defaults, and wait 2 minutes to re-access Web UI by refreshing the browser.

Telnet API Command

This section allows users to input and send API commands to the amplifier.

The return value will be display in "Log" part.



Apply: Click "Apply" to send the input command to the amplifier.

Log

This section shows the operation log and commands return.

Export Log: Click to export the log file to local PC.



