

Dante® Controller Hardware Box



User Manual

VER 1.0

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

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1. Introduction

The Dante® Controller Hardware Box is used to control and manage Dante®/AES67 devices. It supports dual 1G network ports, which can isolate the Control network and Dante® audio network. There is no need to search and add devices. Once a Dante® device is discovered, it can be paired.

The product supports Web GUI/TCP/RS-232/GPIO controls and PoE function.

2. Features

- ☆ ARM Cortex-A7 1GHz CPU, Linux OS
- ☆ Built-in Web GUI control page
- ☆ Integrated DAPI, support Dante® device management and control
- ☆ 2x 1G RJ-45 LAN to isolate Control network and Dante® audio network
- ☆ Transmission distance can be extended up to 328ft/100m via a CAT 5E/6/6A/7 cable
- ☆ Support App, Cloud Access Management Control
- ☆ External devices control via I/O with 5V, 12V level configurable
- ☆ Easy to integrate with the 3rd party major control system brands
- ☆ Control API via RS-232 and TCP/IP
- ☆ Security management
- ☆ PoE (802.af PD device) or local 12V power supply
- ☆ ESD and surge protections
- ☆ Reliable system design, ensuring 7*24 hours reliable and stable work

3. Package Contents

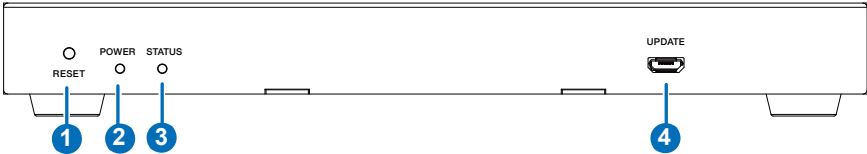
- ① 1x Dante® Controller Hardware Box
- ② 1x 20kHz-60kHz 12V IR Receiver Cable (1.5 meters)
- ③ 1x IR Blaster Cable (1.5 meters)
- ④ 2x 3-pin 3.81mm Phoenix Connector (Male)
- ⑤ 1x 6-pin 3.81mm Phoenix Connector (Male)
- ⑥ 2x Mounting Ears
- ⑦ 4x Machine Screws (KM3*4)
- ⑧ 1x 12V/1A Locking Power Adaptor
- ⑨ 1x User Manual

4. Specifications

Technical	
Network Bandwidth	1Gbps
Transmission Distance	328ft/100m CAT 5E/6/6A/7
Control Ports	2x 1G LAN [RJ45 connector] [VIDEO LAN support PoE] 1x IR IN [3.5mm audio jack, 12V level] 1x IR OUT [3.5mm audio jack] 1x DIGITAL I/O [6-pin 3.81mm phoenix connector] 2x RS-232 [3-pin 3.81mm phoenix connector] 1x UPDATE [Micro USB, 5-pin female]
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Dimensions	204mm (W) × 98.5mm (D) × 21.5 mm (H)
Housing	Metal Enclosure
Color	Black
Weight	521g
Power Supply	DC 12V/1A
Power Consumption	8.4W (Max.)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Operating Humidity	20% ~ 80% RH (relative humidity, non-condensing)
Storage Humidity	10% ~ 90% RH (relative humidity, non-condensing)

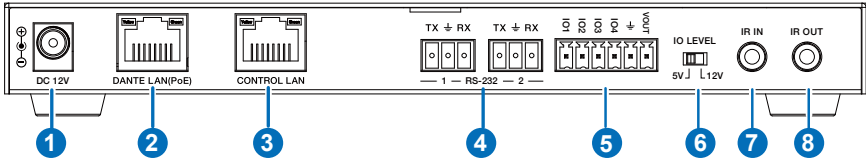
5. Operation Controls and Functions

5.1 Front Panel



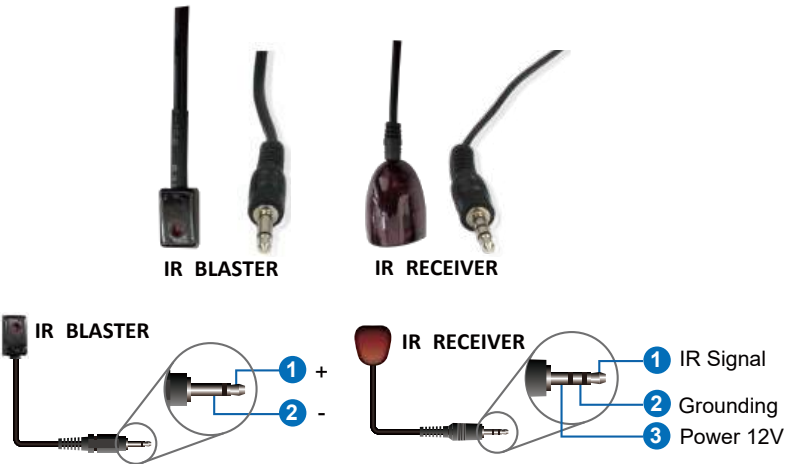
No.	Name	Function Description
1	RESET Button	Press and hold this button (about 10 seconds) until STATUS LED starts flashing, Controller will be reset automatically.
2	POWER LED	The red LED will light on when the Controller is powered on.
3	STATUS LED	The status LED will flash in yellowish-green every 1 second until Controller boots up completely and Control LAN is ready, then it becomes solid.
4	UPDATE	Firmware update port. <i>Note: Must keep no connection on this port when Controller works in normal mode.</i>

5.2 Rear Panel



No.	Name	Function Description
1	DC 12V	DC 12V/1A power input port.
2	DANTE LAN (PoE)	1G Dante® LAN port, supporting PoE function. <i>Note: When PoE is enabled, DC 12V/1A power supply is not required.</i>
3	CONTROL LAN	The TCP/IP control network port.
4	3-pin Phoenix Connectors	Two identical RS-232 serial communication ports.
5	6-pin Phoenix Connector	4 channel I/O level outputs, 1 channel grounding, 1 channel power supply (supports up to 12V/0.5A) to the outside.
6	IO LEVEL DIP Switch	Used to control I/O level output and VOUT voltage. Switch to left: 5V I/O level output, VOUT is 5V. Switch to right: 12V I/O level output, VOUT is 12V.
7	IR IN	12V IR signal input port (For future function expansion).
8	IR OUT	IR signal output port (For future function expansion).

5.3 IR Pin Definition

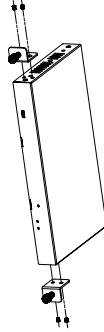


6. Rack Mounting Instruction

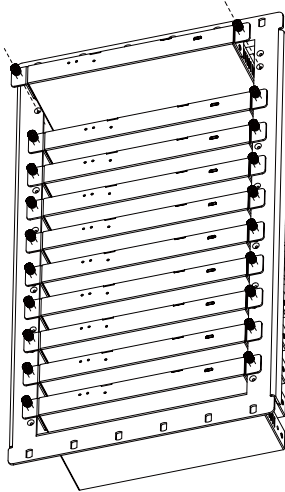
6.1 6U V2 Rack Mounting

This Controller can be mounted in a standard 6U V2 rack (Please contact your supplier for 6U V2 rack sale). The mounting steps are as follows:

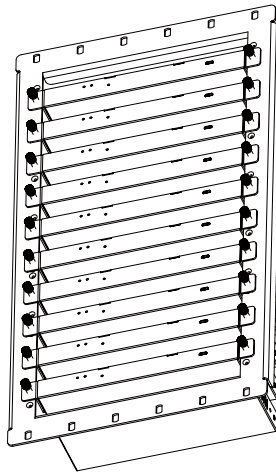
Step 1: Use included screws to fix two mounting ears on the Controller, as shown in the figure below:



Step 2: Insert the Controller with mounting ears into a 6U V2 rack (up to 10 units can be installed vertically), as shown in the figure below:



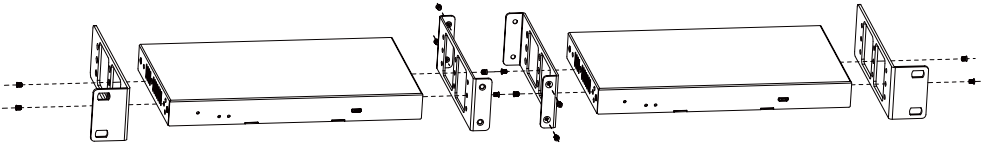
Step 3: Use screws to fix mounting ears on the rack to complete the mounting, as shown in the figure below:



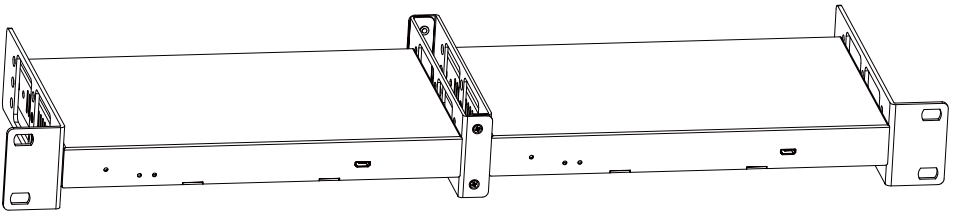
6.2 1U V2 Rack Mounting

This Controller also can be mounted in a standard 1U V2 rack. It is advised to install 2 units horizontally. The mounting steps are as follows:

Step 1: Use included screws to fix two 1U V2 rack panels on the Controller, and fix two rack panels on another Controller in the same way, as shown in the figure below:



Step 2: Fasten screws between two 1U V2 rack panels, so that two Controllers are mounted in a 1U V2 rack, as shown in the figure below:

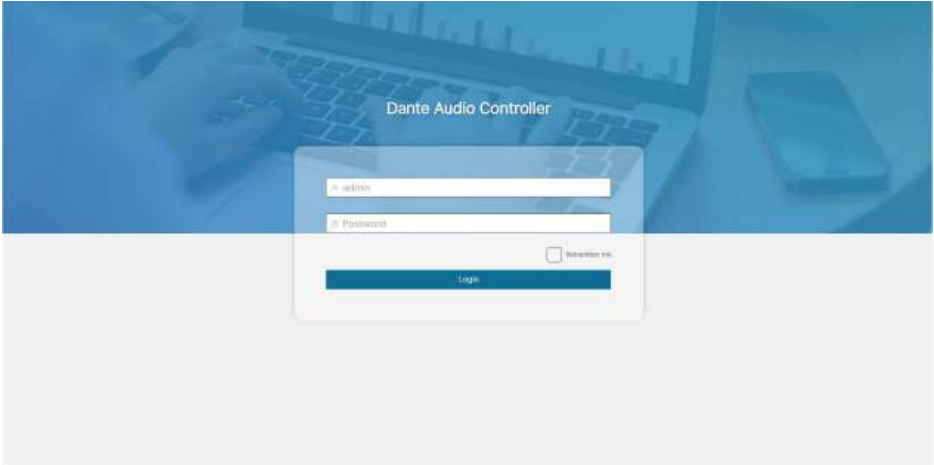


7. Web GUI Operation Guide

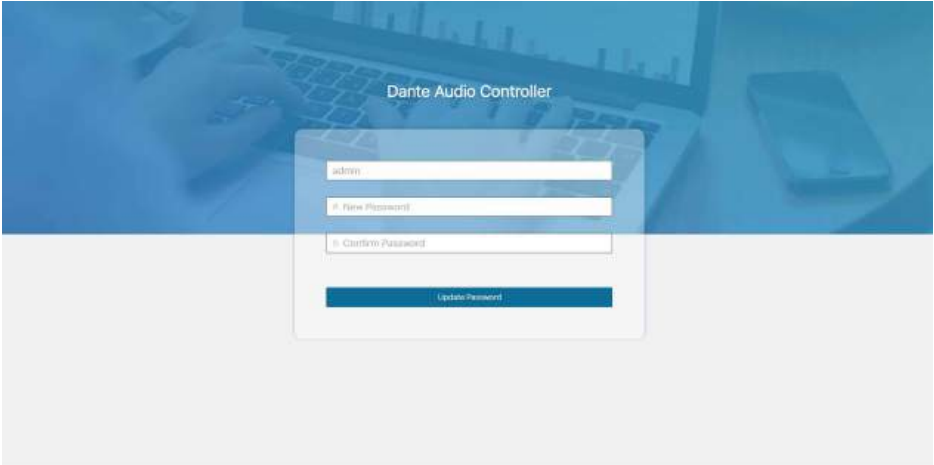
7.1 Preparation before Entering the System

You can use Controller's Web GUI to control all Dante®/AES67 devices at the Switch. The operation steps are as follows.

Step 1: Input the Controller's default IP address (Control LAN port: 192.168.6.100; Video LAN port: 169.254.8.100) or the URL (http://controller.local) into the Web browser address bar on the PC to enter the Web GUI login page.



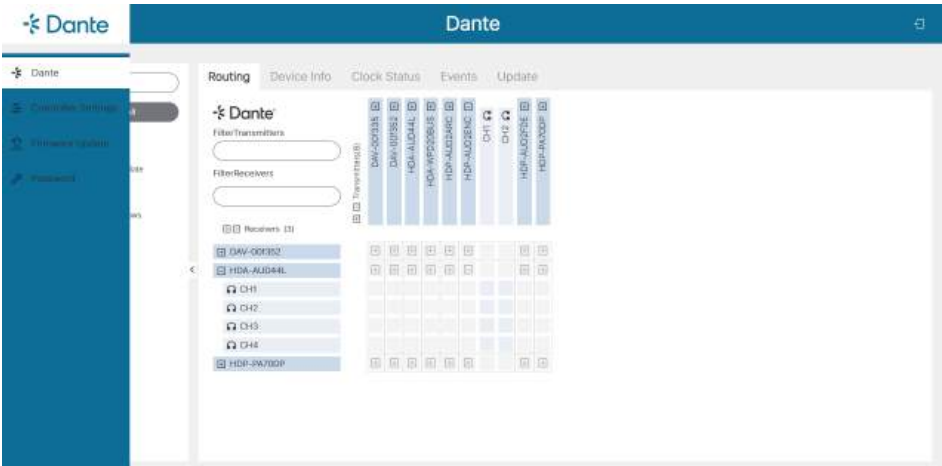
At first login, please select the initial username (admin) and input the initial password (admin) on the above login page. Then click “Login” to enter the password modification page, as shown below.



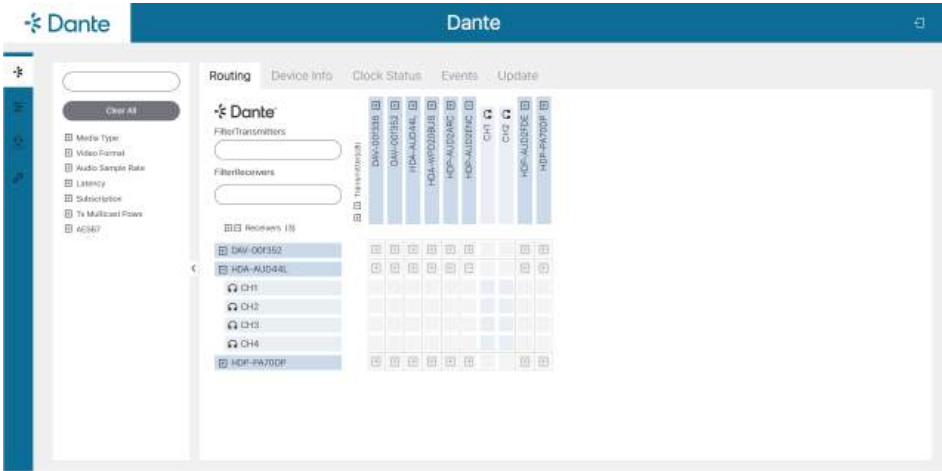
Please set a six-digit password using letters or numbers, then use the new password to log in to the Web GUI.

7.2 Functions and Operation

The main page of the Web GUI consists of four sections, including Dante, Controller Settings, Firmware Updates and Password. Click the item icon on the left to enter the corresponding page, as shown in the figure below.

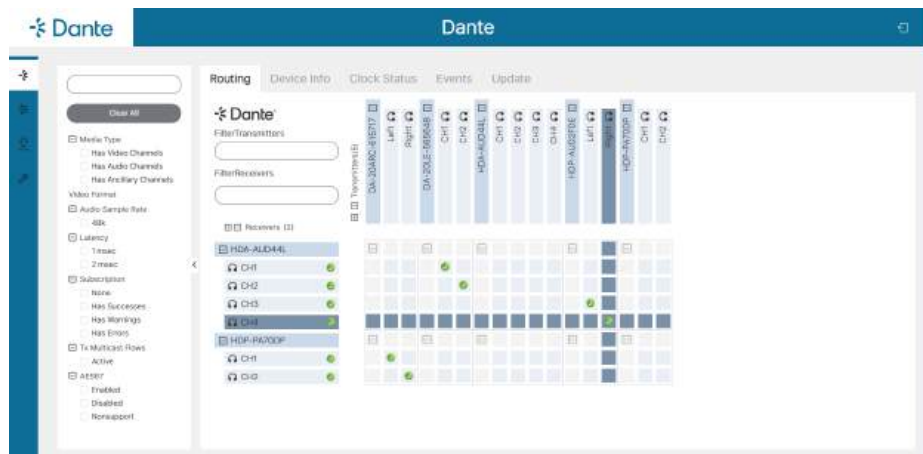


7.2.1 Dante



Routing

All devices in the system are displayed on this page. Before setting the Dante® routing, you can filter devices as required by checking the items on the left side of the page, or directly enter the filter items in the input box of Filter Transmitters/Filter Receivers. If clicking "Clear All", all filter items will be cleared.



Click the “+” icons of Transmitters and Receivers to expand devices, then set the Dante® routing according to your need.

The Dante® routing of audio L/R channel can be set independently.

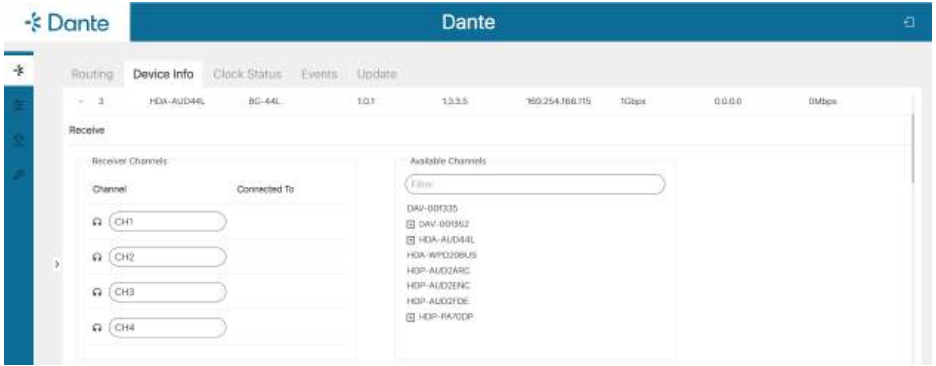
Device Info

Dante									
Dante									
Routing	Device Info	Clock Status	Events	Update					
ID	Name	Model Name	Product Version	Dante Version	Primary Address	Primary Link Speed	Secondary Address	Secondary Link Speed	
1	DAV-C01335	DAV-T	2.0.0	1.5.1.2	169.254.7.171	10Gbps	N/A	N/A	
2	DAV-C01352	DAV-R	2.0.0	1.5.1.2	169.254.20.14	10Gbps	N/A	N/A	
3	HDA-AUD44L	BD-44L	1.0.1	1.3.3.5	169.254.166.116	10Gbps	0.0.0.0	GMbps	
4	HDA-WP020BUS	WP020BUS	1.0.1	1.3.3.5	169.254.19.130	100Mbps	N/A	N/A	
5	HDP-AUD2ARC	DA-20ARC	1.0.0	4.2.9.10	169.254.10.102	100Mbps	N/A	N/A	
6	HDP-AUD20ENC	DA-20LE-PRO	1.0.0	4.2.9.10	169.254.10.128	100Mbps	N/A	N/A	
7	HDP-AUD20FDE	DA-20FE	1.0.0	4.2.9.10	169.254.187.86	100Mbps	N/A	N/A	
8	HDP-PA700P	PA700P	1.0.1	1.3.3.5	169.254.96.9H	100Mbps	N/A	N/A	

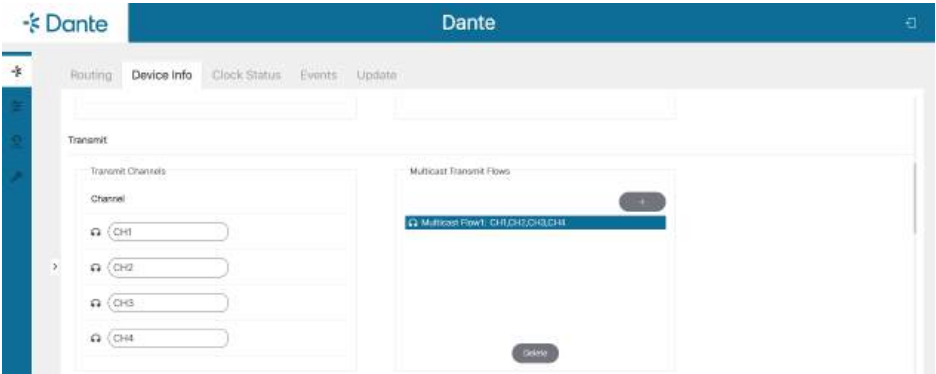
The Device Info page displays the information of devices in the system, including ID, name, model name, product version, Dante® version, primary address, primary link speed, secondary address and secondary link speed. In addition, you can view details or configure each device after clicking the drop-down icon on the left side of ID.

Device Configuration

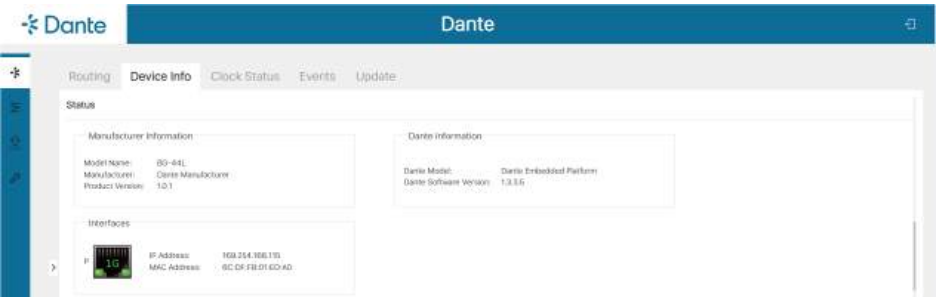
① **Receive:** The Receiver Channels area displays the current receiver channels and the channels they are routed to. You can filter the channels by entering the items in the input box of Available Channels.



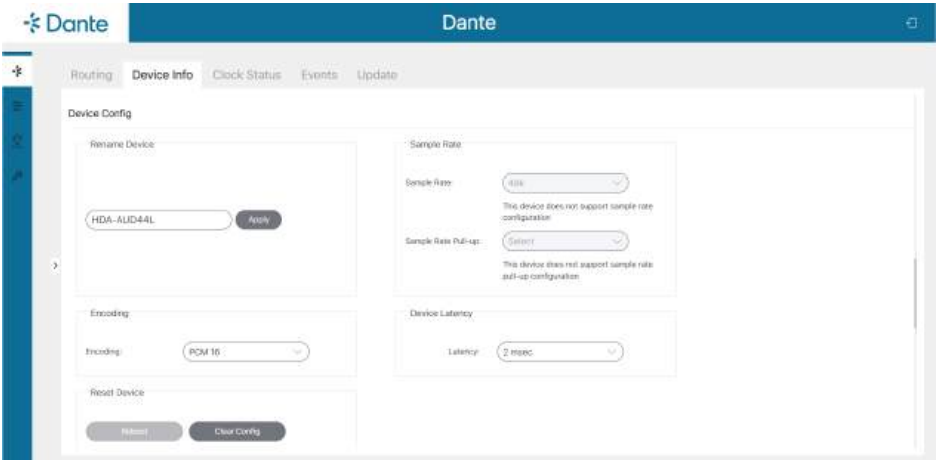
② **Transmit:** The Transmit Channels area displays the selected transmit channels, and you can rename each channel. The Multicast Transmit Flows displays the current multicast flow, and you can add new multicast flows by clicking the “+” icon or delete the multicast flow by clicking “Delete”.



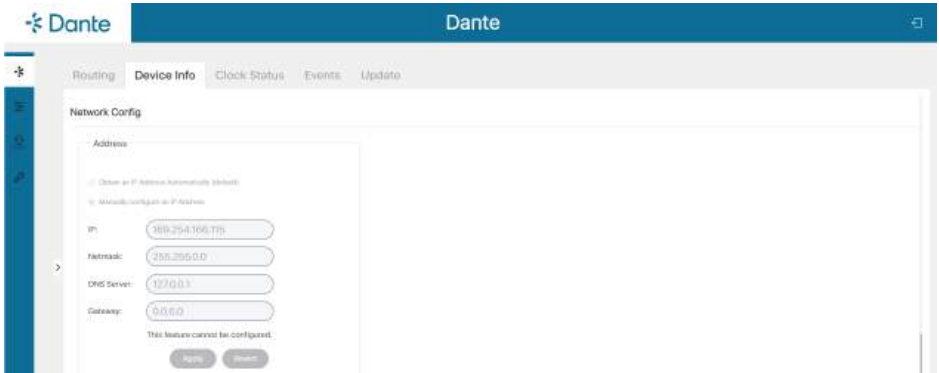
③ **Status:** You can view the manufacturer information (model name/manufacturer/product version), Dante® information (Dante® model/Dante® software version) and interfaces (IP address/Mac Address).



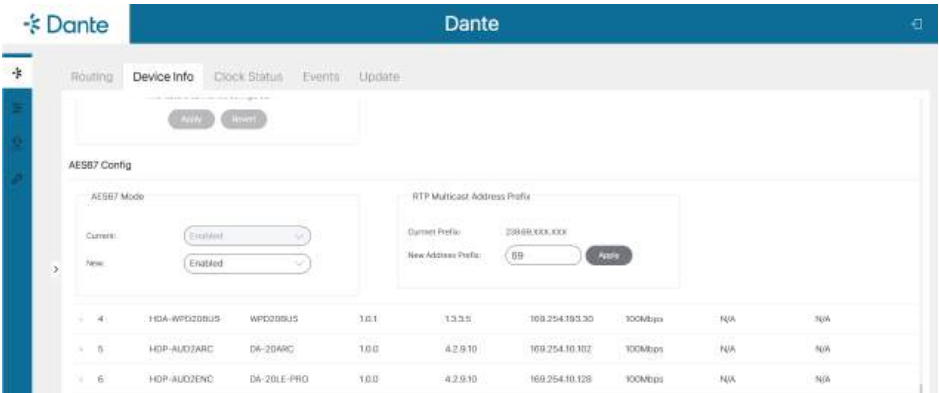
④ **Device Config:** You can view/set the sample rate (44.1k/48k/88.2k/98k), encoding formats (PCM 16/24/32), and the device latency (2/3/4/5/10 msec), reboot the device, or clear the configuration of the device. Rename device is only available for third-party Dante® devices. The characters “ ”, “_” and “'” are not allowed.



⑤ **Network Config:** You can view/set the network configuration of the device.



⑥ **AES67 Config:** You can view/set the AES67 configuration of the third-party Dante® device.



Clock Status

The Clock Status page displays the clock status of devices in the system, including ID, name, Sync status, mute status, clock source, primary v1 multicast, primary v2 multicast, secondary v1 multicast, secondary v2 multicast and preferred leader.

Note: When the clock of the device synchronize the time of the leader Dante® device, the Sync light is green, otherwise, both the Sync and mute lights are red and there is no signal output.

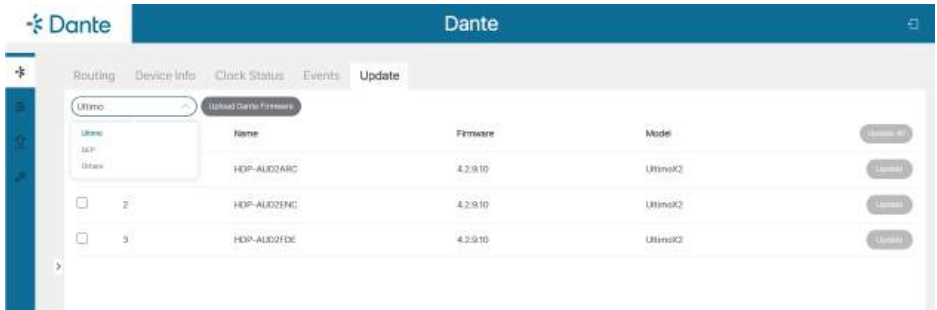
Dante									
Dante									
Routing Device Info Clock Status Events Update									
ID	Name	Sync	Mute	Clock Source	Primary v1 Multicast	Primary v2 Multicast	Secondary v1 Multicast	Secondary v2 Multicast	Preferred Leader
1	DAV-001335			Dante	Follower	N/A	N/A	N/A	N/A
2	DAV-001352			Dante	Follower	N/A	N/A	N/A	N/A
3	HDA-AUD44L			Dante	Follower				N/A
4	HDA-WPD00BUS			Dante	Follower	Disabled	N/A	N/A	N/A
5	HDP-AUD2ARC			Dante	Follower		N/A	N/A	☐
6	HDP-AUD2ENC			Dante	Leader	Leader	N/A	N/A	☐
7	HDP-AUD2DE			Dante	Follower		N/A	N/A	☐
8	HDP-PA20DP			Dante	Follower		N/A	N/A	N/A

Events

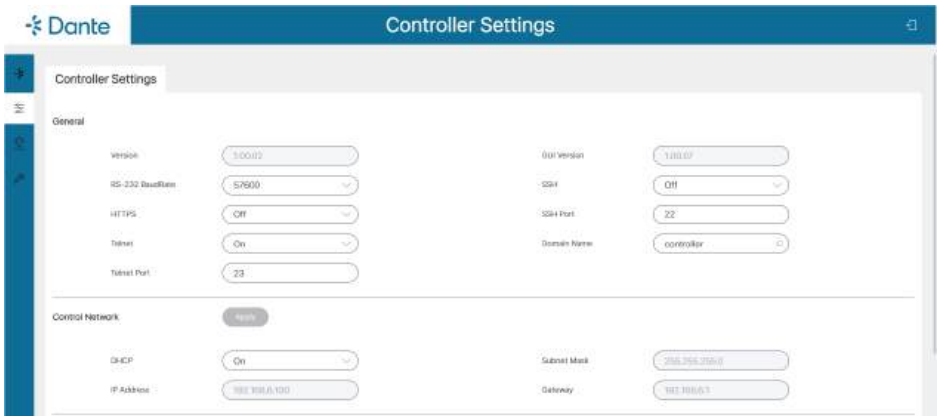
The Events page displays the event information of devices in the system, including number, timestamp, device name and event content.

Update

Third-party Dante® devices in the system can be updated on this page. Click the drop-down menu to select the Dante® device type (Only Ultimo/DEP devices can be updated), then check the box to select the devices to be updated, and click “Upload Dante Firmware” to upload the update firmware. After loading, you need to click “Update All” to update firmware for all selected Dante® devices, or click “Update” to update firmware for a single Dante® device.



7.2.2 Controller Settings



Controller Settings

① **General:** The general settings of the Controller. You can check the Controller Version and GUI Version. In addition, you can set the RS-232 BaudRate, HTTPS, Telnet, Telnet Port, SSH, SSH Port and Domain Name.

② **Control Network:** The network port configuration of the Controller connected to the router, PC directly or network Switch in where the PC for control is. When DHCP is set to “Off”, you can manually set the IP Address, Subnet Mask and Gateway as required, then click “Apply” to take effect. When DHCP is set to “On”, the system will search and fill the IP Address with the one assigned by the router automatically.

Note: When DHCP is set to “Off” which is in Static IP mode, the network settings of Control LAN and PC should stay in same network segment. Otherwise, the controller Web GUI can not be accessed from PC until you change PC network settings in same network segment.

③ **Dante Network:** The network port configuration of the Controller connected to the network where the Dante® devices stay. When DHCP is set to “Off”, you can manually set the IP Address, Subnet Mask and Gateway as required, then click “Apply” to take effect. When DHCP is set to “On” (by default), the system will search and fill the IP Address with the one assigned by the router automatically.

④ **Controller Reset:** Click “Settings Reset” to reset controller all settings except network settings; Click “Network Reset” to reset controller network settings; Click “Reset All” to reset controller all settings including network settings.

7.2.3 Firmware Update

Firmware Update: Click the file icon to select and upload the Controller firmware package, then click “Update” to start the firmware update. When the progress bar reaches 100%, the update is complete.

7.2.4 Password



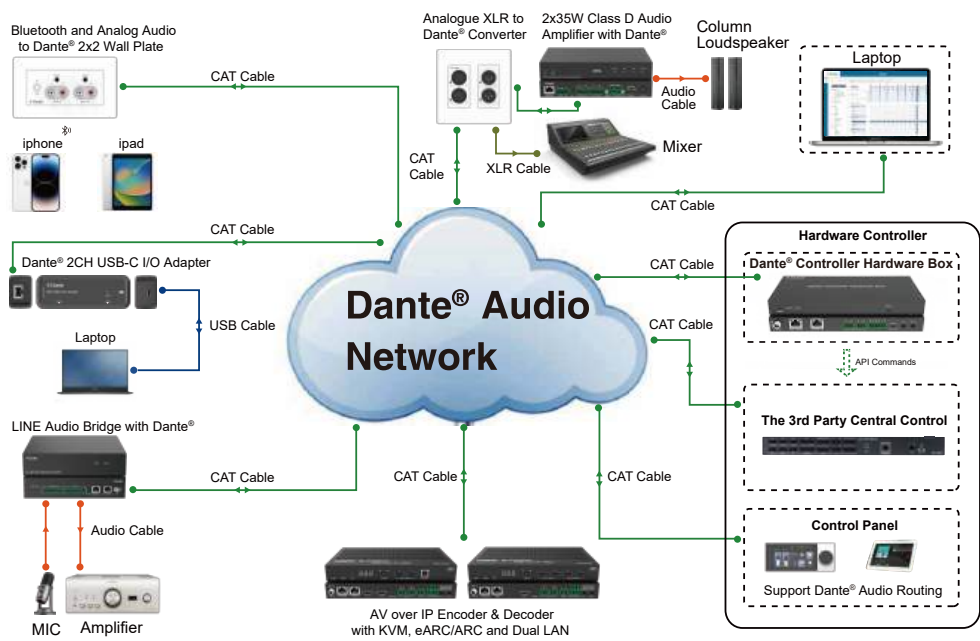
On this page, you can change the password by inputting the Old Password, New Password and Confirm Password, and then clicking “Apply” to take effect.

Notes:

- (1) The password requires a minimum length of 6 characters and a maximum of 8 characters. Special characters are not supported.
- (2) The New Password can't be the same as Old Password.
- (3) The New Password and Confirm Password must be the same.
- (4) After changing password, the system will skip to the Web GUI login page automatically. You need to log in the Web GUI again with the new password.

In addition, there is a logout icon in the upper right corner of each page of the Web GUI. Clicking the icon will exit the Web GUI and automatically skip to the login page.

8. Application Example



Notes:

(1) The Controller has two LAN ports, one is Dante® LAN and the other one is Control LAN. The purpose of designing Controller with two LAN ports is to isolate Dante® audio network from control network. So to make Dante® audio network as an independent network which can not be accessed from control network directly, it's for bringing network security and avoiding Dante® audio network traffic flowing into the network in which the controls and managements are for the IP system.

The strongly recommended system setup is connecting Dante® audio LAN and Dante® audio devices in a network Switch, connecting Control LAN and PC in another network Switch.

The controls from Control LAN can be achieved by Web GUI/Telnet or SSH login/API commands, all these controls can be bridged by the Controller and applied onto Dante® audio LAN. The two LANs are isolated.

For simple usage, you can only connect all Dante® audio devices and Dante® audio LAN and PC RJ-45 port into a single network, and let the Control LAN port not-connected (floating), as Dante® audio LAN also supports Web GUI/Telnet or SSH login/API commands controls, this seems "convenient" for general use scenarios, but this is only suggested for system in which there is no network isolation requirement or network traffic non-sensitive. Only Control LAN connected while Dante® audio LAN floating, this is not allowed.

(2) For the default IP mode of Control LAN port of the Controller Box is DHCP, the PC also needs to be set to "Obtain an IP address automatically" mode, and an optional DHCP server (e.g. network router) is recommended in the system.

(3) If there is no DHCP server in the system, 192.168.6.100 will be used as the IP address of Control LAN port. You need to set the IP address of the PC to be in the same network segment. For example, set PC's IP address as 192.168.6.88.

(4) You can access the Web GUI by inputting URL "http://controller.local" or the Control LAN port IP address 192.168.6.100 (in case of no optional router) on your computer's browser.

(5) When the Network Switch does not support PoE, the Controller Box should be powered by DC power adapter.