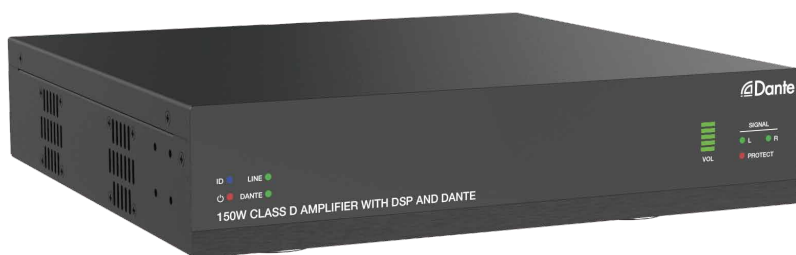


150W Class D Amplifier with DSP and Dante



User Manual

VER 1.0

Thank you for purchasing this product

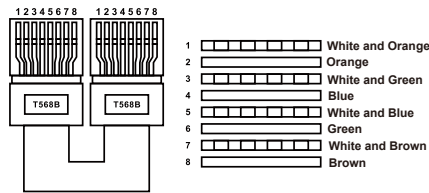
For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

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.

Caution

The product requires the use of UTP connectors. Please connect in direct interconnection method and do not cross connect.



Direct Interconnection Method

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1. Introduction

This product is designed as a two-channel amplifier using class D amplifier technology. It can be used for powering low impedance (4Ω/8Ω) stereo systems with a maximum power of 2 x 75 Watt, while bridging to a constant voltage (100V and 70V) is possible with a maximum output power of 150 Watt. It features Dante 2CH digital inputs and outputs, and balanced or unbalanced line level analog inputs and outputs.

This amplifier can be controlled via RS-232, LAN and Web GUI. It also features built-in DSP, auto-standby and maximum durability. It is suitable for a vast range of AV installations.

2. Features

- ☆ Dante 2CH digital audio, balanced or unbalanced line level analog inputs
- ☆ Dante 2CH digital audio, balanced or unbalanced line level analog and AMP outputs
- ☆ Built-in audio DSP processor
- ☆ Switching between Lo-Z and Hi-Z can be achieved to adapt to various types of speaker installation.
 - In Lo-Z output mode, single-channel 150 Watt or two-channel 2 x 75 Watt 4Ω/8Ω can be selected.
 - In Hi-Z output mode, single-channel 150 Watt with 70V/100V can be selected.
- ☆ Independent input gain, output EQ and volume control
- ☆ 48KHz sampling rate, 24bit independent A/D and D/A converters
- ☆ 5-12V trigger input
- ☆ Auto standby
- ☆ Flexible control via RS-232, LAN and Web GUI
- ☆ Half rack design/one rack design

3. Package Contents

- ① 1 x 150W Class D Amplifier
- ② 3 x 5pin-3.81mm Phoenix Connector (male)
- ③ 2 x 4pin-5.08mm Phoenix Connector (male)
- ④ 6 x Mounting Ear
- ⑤ 24 x Machine Screw
- ⑥ 1 x AC (100-240V) Multinational Power Cord (1.5 meters)
- ⑦ 1 x User Manual

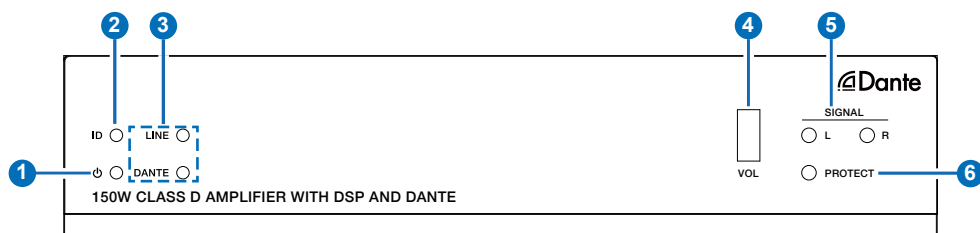
4. Specifications

Technical	
Input	1x Dante Network audio input 1x LINE balanced stereo 0dBu/10kΩ input
Output	1x Dante Network audio output 1x Stereo or constant voltage 70V/100V speaker output 1x LINE balanced stereo output
Input Sensitivity	Full power@0.775V (0dBu)
Output Power	DC power supply: 2x 75W@4Ω/8Ω; 1x 150W@8Ω; 1x 150W@70V/100V
Maximum Voltage Gain	27 - 30dB SE/39 - 42dB BTL
Amplifier Type	Class D
Frequency Response	20Hz - 20kHz @ ±3dB
Signal to Noise Ratio	87dB, 20Hz - 10kHz
THD+N	THD+N (1KHz@1W) 0.04%
Control	RS-232, Web GUI
Audio Format	LINE IN [Analog audio, Balanced 2CH, Max input level 2VRMS] LINE OUT [Analog audio, Balanced 2CH, Max output level 2VRMS] DANTE [Digital audio 2x2 in/out, PCM 2CH 44.1K-96KHz 16/24Bit] AMP OUT [Analog audio, Balanced 2CH, Max output level 24.5VRMS] 70V/100V AMP OUT [Analog audio, Unbalanced 1CH, Max output level 70V/100VRMS]
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)
Connection	
Input:	1x LINE IN [5pin-3.81mm Phoenix Connector] 1x DANTE [RJ45 connector]
Output:	1x LINE OUT [5pin-3.81mm Phoenix Connector] 1x 4/8Ω AMP OUT [MSTB 2.5-GF-5.08, 4-pin locking phoenix, 5.08mm] 1x 70V/100V AMP OUT [MSTB 2.5-GF-5.08, 4-pin locking phoenix, 5.08mm]
Control:	1x RS-232/TRG [5pin-3.81mm phoenix connector] [TRG: 5-12V trigger input to turn on/off the amplifier] 1x LAN [RJ45 connector]

Mechanical	
Housing	Front panel: Aluminum; Rear case: Metal Enclosure
Color	Black
Dimensions	240mm [W]×210mm [D]×44mm [H]
Weight	1.88Kg
Power Supply	DC Input: AC100 - 240V 50/60Hz
Power Consumption	240W (Max)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20%~90% RH (non-condensing)

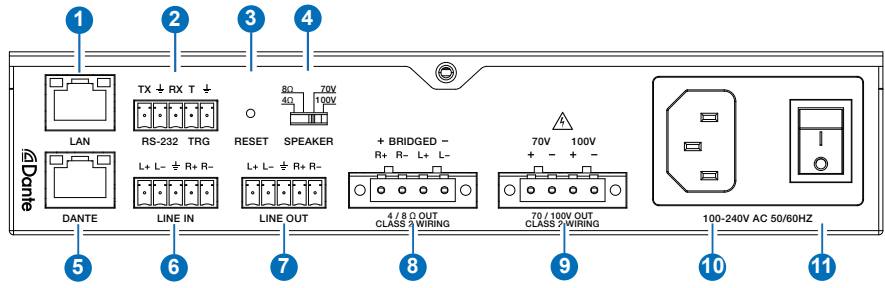
5. Operation Controls and Functions

5.1 Front Panel



No.	Name	Function Description
1	Power LED	When the product is powered on, the red power LED is on.
2	ID (show me) LED	This LED indicates the presence of the product. It can be controlled through Web GUI or API command. For example, when selecting the "On" option for "DANTE Identification" on the System page of the Web GUI, the ID (show me) LED on the front panel will flash, so that you can find the corresponding machine in the system.
3	LINE/DANTE LED	Input signal source indicators. When the DANTE or LINE IN port is selected as the signal input channel, the corresponding green LINE/DANTE LED is on. Note: The DANTE port is the signal input channel by default.
4	VOL LED	The main audio volume of the system is displayed in five green segments, with each segment corresponding to 20% of the volume. 50% of the main audio volume is displayed by default after system initialization. Note: The audio volume can be controlled through Web GUI or API command.
5	SIGNAL L/R LEDs	Left and right channel signal indicators of the stereo audio. When there is stereo audio signal, the LEDs will be on.
6	PROTECT LED	When the machine is protected by overtemperature, overcurrent or overvoltage, the PROTECT LED is on.

5.2 Rear Panel



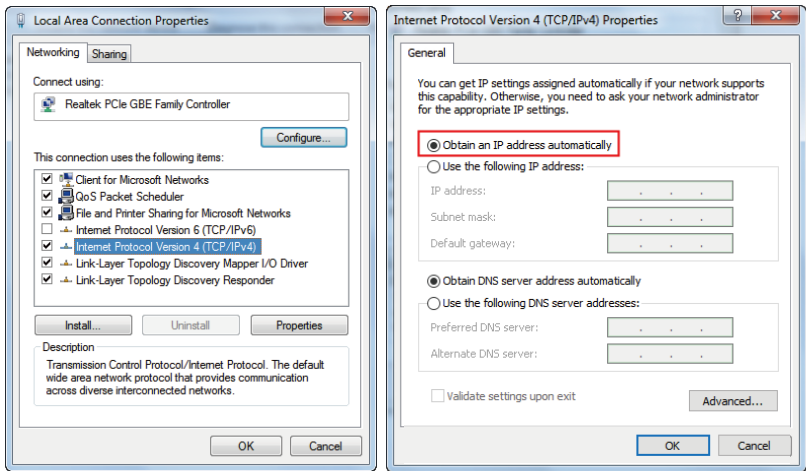
No.	Name	Function Description
1	LAN port	Connect to a PC for Web access. The default IP address is 192.168.0.200.
2	RS-232/TRG port	RS-232: Serial control port, used for RS-232 signal pass-through or controlling this product via RS-232 commands. TRG: T trigger signal input port, effective at high level. When this port is connected to a 5V/12V trigger voltage, the amplifier will be mute. After trigger is disconnected, the amplifier can output audio normally.
3	RESET button	Press and hold this button for 5 seconds to restore to factory default settings.
4	SPEAKER switch	Speaker high-low resistance switch, used to switch among Lo-Z (4Ω/8Ω), Hi-70V and Hi-100V.
5	DANTE port	Dante audio input and output port, using dynamic IP by default.
6	LINE IN port	Balanced stereo audio input port, with a Max input level of 2Vrms.
7	LINE OUT port	Balanced stereo audio output port, with a Max output level of 2Vrms.
8	4/8Ω OUT port	4/8Ω speaker output port. When this port is connected to a 4/8Ω speaker and the SPEAKER switch is dialed to 4/8Ω, the audio will be output from this port normally.
9	70/100V OUT port	70/100V speaker output port. When this port is connected to a 70/100V speaker and the SPEAKER switch is dialed to 70/100V, the audio will be output from this port normally.
10	Power port	100-240V AC 50/60Hz power input port.
11	Power switch	Press the power switch to turn on/off the power supply.

6. Dante Web GUI User Guide

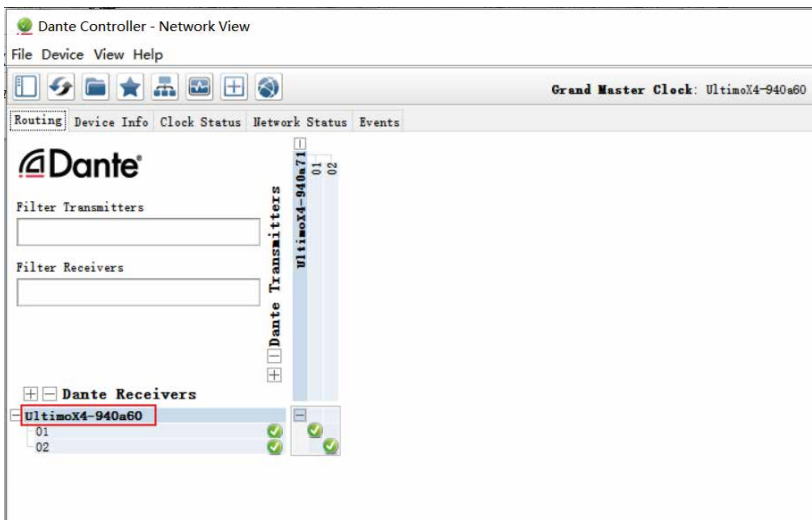
There is a built-in Dante Web GUI for the amplifier. The operation method is shown as below:

Step 1: Connect the amplifier and PC to the same Ethernet Switch with two Network cables.

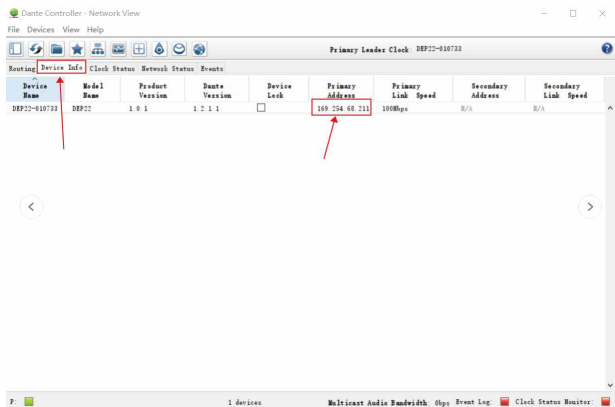
Step 2: Set the Network connection setting of PC to be “Obtain an IP address Automatically”.



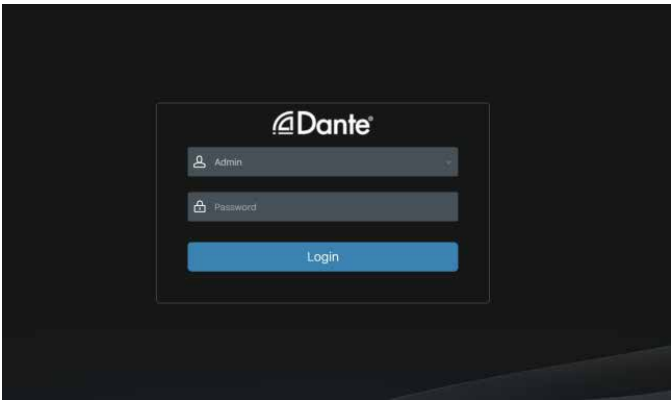
Step 3: Open the Dante Controller software on the PC, and find the Dante device on the Routing page, as shown in the figure below.



Step 4: Click the Device Info tab to check the IP address of the Dante device.



Step 5: Input the IP address of Dante device into your browser on the PC to enter the login interface of the Dante Web GUI.

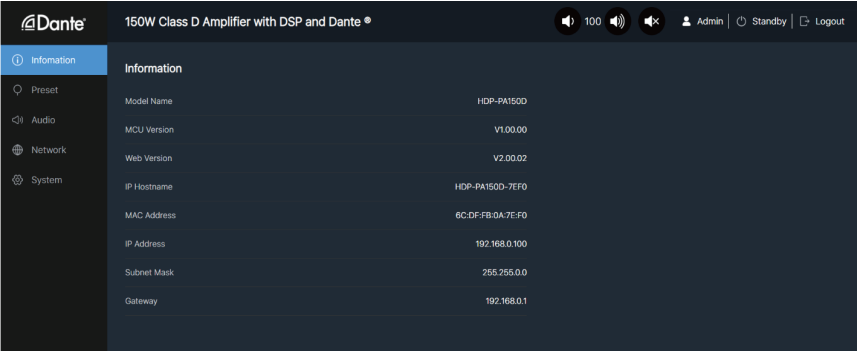


The default usernames and passwords are as below:

Username	User	Admin
Password	1234	1234

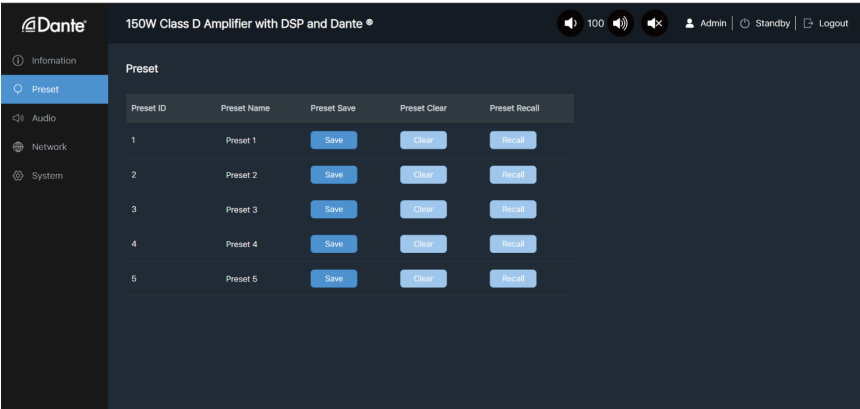
Step 6: Select the default username “Admin” and input the password “1234”, then click the “Login” button to enter the Information page of Dante Web GUI.

■ Information Page



The Information page provides basic information about the model name, software version and IP information.

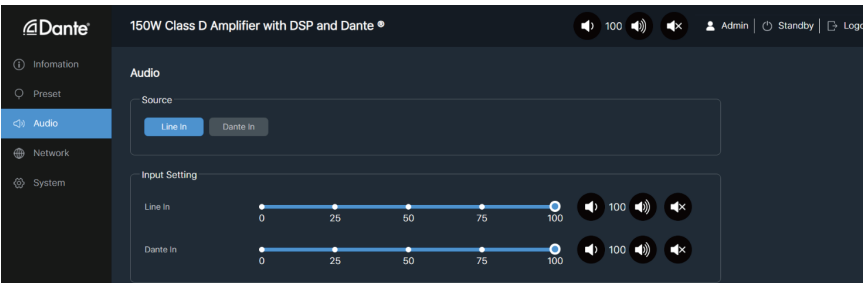
■ Preset Page



You can set up to 5 preset scenes on the Preset page.

- ① **Preset Name:** You can name the preset scene. (Chinese name is not supported.)
- ② **Preset Save:** Click the Save button to save the scene.
- ③ **Preset Clear:** Click the Clear button to clear the saved scene.
- ④ **Preset Recall:** Click the Recall button to recall the saved scene.

■ Audio Page



Source Select

- ① **Line In:** Click “Line In” to select the LINE IN port as the signal input channel for audio output.
- ② **Dante In:** Click “Dante In” to select the DANTE port as the signal input channel for audio output.

Input Setting: You can respectively set the output volume or mute/unmute the audio for Line In\Dante In.



Output Setting

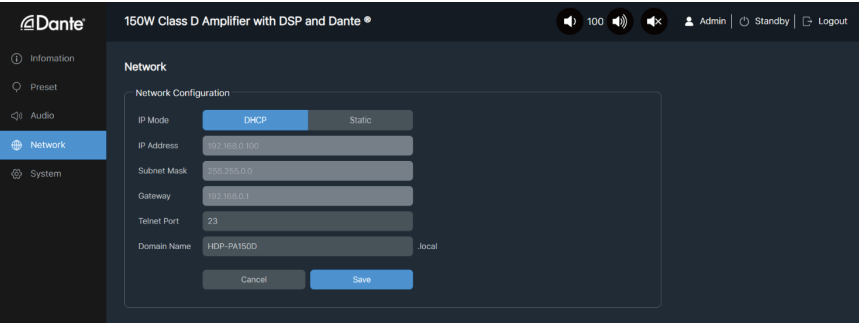
- ① **Master Out:** You can respectively set the output volume or mute/unmute the audio for Speaker Out\Line Out\Dante Out, or set them together when turning on three options synchronously.
- ② **Speaker Out\Line Out\Dante Out:** Click the drop-down list of Mix to select the audio output channel for Speaker Out\Line Out\Dante Out. You can set the delay, increase/decrease the audio or mute/unmute the audio.



GEQ Setting

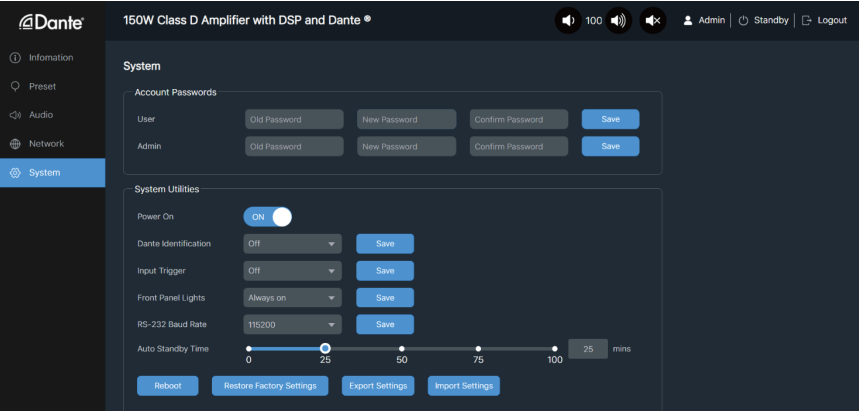
- ① **Output:** Click the drop-down list to select the output channel.
- ② **Equalizer:** Click the buttons to set the equalizer.
 - Flat: Set all EG to 0db.
 - Custom1: Set EQ for custom 1.
 - Custom2: Set EQ for custom 2.

■ Network Page



Network Configuration: You can set the IP Mode (DHCP/Static), IP Address, Subnet Mask, Gateway, Telnet Port and Domain Name.
Note: The Domain Name “HDP-PA150D.local” can be used to login the Web GUI. After setting up, click “Save” to take effect, or you can click “Cancel” to cancel the setting.

■ System Page



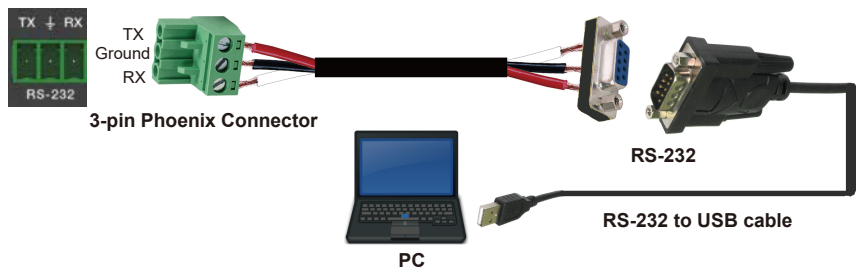
Account Passwords: You can modify the login password for User and Admin. After setting up, click “Save” to take effect.

System Utilities

- ① **Power On:** Click “ON/OFF” to power on/off the amplifier.
- ② **Dante Identification:** Click the drop-down list to set the display status of the ID LED on the front panel of the amplifier.
- ③ **Input Trigger:** Click the drop-down list to set the input trigger mode.
- ④ **Front Panel Lights:** Click the drop-down list to set the display status of the VOL LED on the front panel of the amplifier.
- ⑤ **RS-232 Baud Rate:** Click the drop-down list to set the RS-232 baud rate. After setting up, click “Save” to take effect.
- ⑥ **Auto Standby Time:** Drag the slider to set the auto standby time.
- ⑦ **Reboot:** Click “Reboot” to reboot the amplifier.
- ⑧ **Restore Factory Settings:** Click this button to restore the amplifier to factory settings.
- ⑨ **Export Settings:** Click this button to export configuration files.
- ⑩ **Import Settings:** Click this button to import configuration files.

7. RS-232 Control Command

The product also supports RS-232 command control. Connect the RS-232 port of the product to a PC with a 3-pin phoenix connector cable and an RS-232 to USB cable. The connection method is as follows.



Then open a Serial Command tool on PC to send ASCII commands to control the product. The ASCII command list about the product is shown as below.

ASCII Command				
Serial port protocol: Baud rate: 115200 (default), Data bits: 8bit, Stop bits:1, Parity bit: none TCP/IP protocol port: 8000				
x - Parameter 1, y - Parameter 2				
Command Code	Function Description	Example	Feedback	Default Setting
System Setting				
help	Get the list of all commands	help	===== Help Info MCU 1.1.0 Web 1.1.0 help Get the list of all commands r type Get device model r fw version Get Firmware version =====	List all API commands
?	Get the list of all commands	?	===== Help Info MCU 1.1.0 Web 1.1.0 help Get the list of all commands r type Get device model r fw version Get Firmware version =====	List all API commands
r type	Get device model	r type	HDP-PA150D	
r status	Get device current status	r status	Get the unit all status: power, FAN, audio source, in/out volume, mute, mix, delay time, L-Inverter, R-Inverter, amplifier mode, EQ, trigger, standby time, baud rate, network status	

Command Code	Function Description	Example	Feedback	Default Setting
r fw version	Get Firmware version	r fw version	MCU 1.1.0 Web 1.1.0	
s power on	Power on the device	s power on	Power on System Initializing... Initialization Finished! MCU 1.1.0 Web 1.1.0	
s power off	Power off the device	s power off	Power off	
r power	Get current power state	r power	power on /power off	
s reboot	Reboot the device	s reboot	Reboot... System Initializing... Initialization Finished! MCU 1.1.0 Web 1.1.0	
s reset	Reset system settings to default (Should type "Yes" to confirm, "No" to discard)	s reset	Sure to Reset System Settings To Default? Type "Yes" after next prompt to confirm...	
s reset all	Reset system and network settings to default (Should type "Yes" to confirm, "No" to discard)	s reset all	Sure to Reset System and Network Settings To Default? Type "Yes" after next prompt to confirm...	
s auto stb x	Set system auto standby time x=0: auto standby off x=[1-120]: auto standby time (mins)	s auto stb 10	Set auto standby time: 10mins	10
r auto stb	Get system auto standby time	r auto stb	Auto standby time: 10mins	
s lcd on/off/15/30/60	Set volume LCD always on or auto turn off in power on state or turn on 15s/30s/60s	s lcd on s lcd off s lcd on 15	Set LCD light always on Set LCD light always off Set LCD light on 15s	on
r lcd	Get volume LCD on/off status	r lcd	LCD light always on	
s idled on/off/15/30/60	Set ID LED on or auto turn off in power on state or turn on 15s/30s/60s	s idled on s idled on 15	Set ID LED light always on Set ID LED light on 15s	off
r idled	Get id LED on/off status	r idled	ID LCD light always on	
s trigger on/off x	Set trigger on/off with trigger level:x x=0: Low Level (0V) Mute Output x=1: High Level (5-12V) Mute Output	s trigger on 1 s trigger off	Set trigger on with high level Set trigger off	off
r trigger	Get trigger on/off status	r trigger	Trigger on with high level	
s rsb x	Set serial port baud rate to xbps x=(115200,57600,38400,19200,9600,4800)	s rsb 115200	Set baud rate to 115200	115200
r rsb	Get serial port baud rate	r rsb	Baud rate 115200	
s fan x on/off	Set fan:x auto turn on or always off x=[0-2] 0:All, 1:Fan1, 2:Fan2	s fan 0 on	Set all fan on	on
r fan	Get fan status	r fan	All fan on	
Input Setting				
s input x	Set input source to x x=[1-2] 1:Line, 2:Dante	s input 1	Set input: Line	
r input	Get current input source	r input	Input: Line	
s input x vol y	Set input:x volume to y x=[0-2] 0:All, 1:Line, 2:Dante y=[0-100] volume value	s input 1 vol 50	Set input line volume: 50	50
r input x vol	Get input:x volume value x=[0-2] 0:All, 1:Line, 2:Dante	r input 1 vol	Input line volume: 50	

Command Code	Function Description	Example	Feedback	Default Setting
s input x vol+	Increase input:x volume x=[0-2] 0:All, 1:Line, 2:Dante	s input 1 vol+	Increase input line volume: 52	
s input x vol-	Decrease input:x volume x=[0-2] 0:All, 1:Line, 2:Dante	s input 1 vol-	Decrease input line volume: 50	
s input x mute on/off	Set input:x mute on/off x=[0-2] 0:All, 1:Line, 2:Dante	s input 1 mute on	Set input line mute on	
r input x mute	Get input:x mute on/off x=[0-2] 0:All, 1:Line, 2:Dante	r input 1 mute	Input line mute on	
Output Setting				
s master member x y z	Set master output member (x/y/z=0-1) x=0: Exclude Speaker Out x=1: Include Speaker Out y=0: Exclude Line Out y=1: Include Line Out z=0: Exclude Dante Out z=1: Include Dante Out	s master member 1 1 1	Set master member: 1 1 1	1 1 1
r master member	Get master output member	r master member	Master member: 1 1 1	
s master vol x s vol x	Set master output volume to x x=[0-100] volume value	s master vol 50 s vol 50	Set master volume: 50	50
r master vol r vol	Get master output volume	r master vol r vol	Master volume: 50	
s master vol+ s vol+	Increase master output volume	s master vol+ s vol+	Increase master volume: 52	
s master vol- s vol-	Decrease master output volume	s master vol- s vol-	Decrease master volume: 50	
s master mute on/off s mute on/off	Set master output mute on/off	s master mute on s mute on	Set master mute on	0
r master mute r mute	Get master output mute on/off status	r master mute r mute	Master mute on	
s output x vol y	Set output:x volume to y x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante y=[0-100] volume value	s output 1 vol 50	Set output speaker volume: 50	50
r output x vol	Get output:x volume value x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante	r output 1 vol	Output speaker volume: 50	
s output x vol+	Increase output:x volume x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante	s output 1 vol+	Increase output speaker volume: 52	
s output x vol-	Decrease output:x volume x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante	s output 1 vol-	Decrease output speaker volume: 50	
s output x mute on/off	Set output:x mute on/off x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante	s output 1 mute on	Set output speaker mute on	
r output x mute	Get output:x mute on/off status x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante	r output 1 mute	Output speaker mute on	
s output x mix y	Set output:x mix:y x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante y=[1-4] 1:Stereo, 2:Left, 3:Right, 4:Left and Right	s output 1 mix 1	Set output speaker mix: Stereo	Stereo

Command Code	Function Description	Example	Feedback	Default Setting
r output x mix	Get output:x mix mode x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante	r output 1 mix	Output speaker mix: Stereo	
s output x delay y	Set output:x delay:y x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante y=[0-50]: Delay Time, Millisecond	s output 1 delay 50	Set output speaker delay: 50ms	0
r output x delay	Get output:x delay value x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante	r output 1 delay	Output speaker delay: 50ms	
s output x eq y val z	Set output:x GEQ index:y to value:z x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante y=[1-31]: EQ index z=[0-20]: EQ value(dB)	s output 1 eq 1 val 10	Set output speaker GEQ index 1: 20dB	10
r output x eq y val	Get output:x GEQ index:y value x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante y=[1-31]: EQ index	r output 1 eq 1 val	Output speaker GEQ index 1: 20dB	
s output x eq preset y	Set output:x GEQ to preset:y x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante y=[1-3] 1:Flat, 2:Custom1, 3:Custom2	s output 1 eq preset 1	Set output speaker GEQ: Flat	1
r output x eq preset	Get output:x GEQ preset x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante	r output 1 eq preset	Output speaker GEQ: Flat	
s output x eq clear	Set output:x GEQ clear x=[0-3] 0:All, 1:Speaker, 2:Line, 3:Dante	s output 1 eq clear	Set output speaker GEQ clear	
Preset Setting				
s preset save x	Save the current unit's settings to the specified preset:x All settings except network setting. x=[1-5]: Preset 1 - Preset 5	s preset save 1	Save to preset 1	
s preset recall x	Recall a specified preset:x into unit All settings except network setting. x=[1-5]: Preset 1 - Preset 5	s preset recall 1	Recall preset 1	
s preset clear x	Clear a specified preset:x All settings except network setting. x=[1-5]: Preset 1 - Preset 5	s preset clear 1	Clear preset 1	
s preset x name y	Set preset:x name to y x=[1-5]: Preset 1 - Preset 5 y: Preset name, max 16 characters	s preset 1 name MeetingRoom 1	Set preset 1 name: MeetingRoom 1	
r preset x name	Get preset:x name x=[1-5]: Preset 1 - Preset 5	r preset 1 name	Preset 1 name: MeetingRoom 1	
Network Setting				
r ipconfig	Get the Current IP Configuration	r ipconfig	IP Mode: DHCP IP: 192.168.62.106 Subnet Mask: 255.255.255.0 Gateway: 192.168.62.1 TCP/IP port: 8000 MAC: 6C:DF:FB:0C:B3:8E (Static: 169.254.100.200 255.255.0.0 169.254.100.1)	

Command Code	Function Description	Example	Feedback	Default Setting
r mac addr	Get network MAC address	r mac addr	MAC: 6C:DF:FB:0C:B3:8E	
s ip mode x	Set network IP mode to static IP or DHCP x=[0-1] 0.Static, 1.DHCP	s ip mode 0	IP mode: Static (Please use "s net reboot!" command or repower device to apply new config!)	1
r ip mode	Get network IP mode	r ip mode	IP mode: DHCP	
s ip addr xxx.xxx.xxx.xxx	Set network IP address	s ip addr 192.168.1.100	IP address: 192.168.0.100 (Please use "s net reboot!" command or repower device to apply new config!) DHCP on, Device can't config static address, set DHCP off first.	
r ip addr	Get network IP address	r ip addr	IP: 192.168.0.100	
s subnet xxx.xxx.xxx.xxx	Set network subnet mask	s subnet 255.255.255.0	Subnet Mask: 255.255.255.0 (Please use "s net reboot!" command or repower device to apply new config!) DHCP on, Device can't config subnet mask, set DHCP off first.	
r subnet	Get network subnet mask	r subnet	Subnet Mask: 255.255.255.0	
s gateway xxx.xxx.xxx.xxx	Set network gateway	s gateway 192.168.1.1	Gateway: 192.168.1.1 (Please use "s net reboot!" command or repower device to apply new config!) DHCP on, Device can't config gateway, set DHCP off first.	
r gateway	Get network gateway	r gateway	Gateway: 192.168.1.1	
s tcp/ip port x	Set network TCP/IP port (x=1~65535)	s tcp/ip port 8000	TCP/IP port: 8000	8000
r tcp/ip port	Get network TCP/IP port	r tcp/ip port	TCP/IP port: 8000	
s telnet port x	Set network telnet port (x=1~65535)	s telnet port 23	Telnet port: 23	23
r telnet port	Get network telnet port	r telnet port	Telnet port: 23	
s net reboot	Reboot network modules	s net reboot	Search for IP, Please wait ...! IP Mode: DHCP IP: 192.168.62.106 Subnet Mask: 255.255.255.0 Gateway: 192.168.62.1 TCP/IP port: 8000 Telnet port: 23 MAC: 6C:DF:FB:0C:B3:8E (Static: 169.254.100.200 255.255.0.0 169.254.100.1)	

Command Code	Function Description	Example	Feedback	Default Setting
Password Setting				
s admin password x	Set admin login password (x=[16 characters max])	s admin password 1234	admin password: 1234	1234
r admin password	Get admin login password	r admin password	admin password: 1234	
s user password x	Set user login password (x=[16 characters max])	s user password 1234	user password: 1234	1234
r user password	Get user login password	r user password	user password: 1234	

8. Connection Diagram

