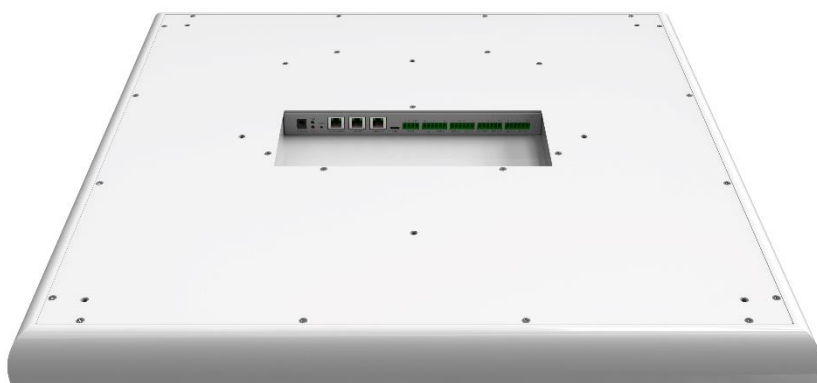
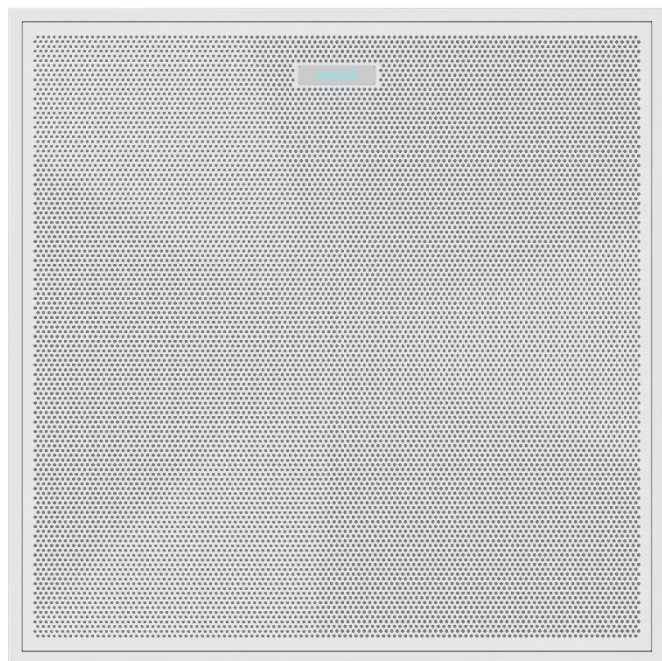




USER MANUAL

ITMIC-ARC129

Sensorless sound reinforcement
Ceiling array microphone



Thank you for using the seamless sound reinforcement ceiling array microphone. Please read this manual carefully to ensure safe and correct operation of the equipment. Please keep this manual properly for future reference.

The seamless sound amplification ceiling array microphone consists of 129 high fidelity microphones, designed with a composite circular array layout to provide the necessary pickup sampling conditions for the algorithm; The CPU adopts a professional audio processor (8-core, 6T high computing power) and is equipped with industry-leading audio signal processing algorithms, such as low latency ClearVoice AI algorithm, real-time feedback suppression engine, adaptive sound field control technology, multimodal AI noise reduction system, spatial sound field modeling technology, traditional audio processing+AI deep algorithm dual engine architecture, dynamic beamforming, etc., which can effectively improve the quality of voice amplification interaction; The design adopts a professional audio composite circular array layout microphone, which can achieve 17 amplification areas and 33 pickup areas, with a amplification distance of 4 meters and a pickup distance of 8 meters, effectively picking up sound from any position in the pickup area; Built in cascading function module, capable of cascading multiple seamless sound reinforcement ceiling array microphones; Built in Dante module to achieve network audio transmission function. Built in advanced algorithms that automatically match various scenes, whether it is the effect of local amplification or the effect of outputting to remote terminals, can achieve clear and high fidelity vocals.

Matters needing attention:

1. Please comply with relevant national laws and not use this product for any illegal purposes;
2. Working temperature: 0-40 degrees Celsius, please use at the specified temperature;
3. Working humidity:<90%, this product does not have complete waterproof function;
4. During transportation and storage, it is necessary to prevent heavy pressure to avoid damage to the product;
5. Except for the installation of the suspension rod, other installation methods of this product must be fixed by hoisting with ropes;
6. Built in cascading function, capable of cascading multiple seamless sound reinforcement ceiling array microphones;
7. Built in Dante module, capable of digital audio network transmission function;
8. Please do not disassemble the product without authorization. If you encounter any problems during use, please contact after-sales service;
9. When installing and deploying, it is necessary to ensure that the suspended microphone is installed firmly to prevent it from falling off;
10. During installation and deployment, cables and equipment should be kept as far away as possible from strong electrical signal sources;

1. Unpacking inspection

When opening the outer packaging box, please check for any obvious damage to the appearance and confirm that the items match the list. Please refer to the table below for the specific list.

Accessory Name	specifications	quantity
Sensorless sound reinforcement ceiling array microphone	PCS	1
Power adapter (output: DC24V/2.7A)	PCS	1
Product suffix power cord (1.5M)	PCS	1
Infrared remote controller	PCS	1
3.81 spacing, 6P Phoenix wiring plug	PCS	4
3.81 spacing, 4P Phoenix wiring plug	PCS	1
Lifting accessories package (four M5 lifting rings, four 3-meter steel wire ropes, four spring hooks, 4 disc codes, 12 self tapping wires, and 12 rubber plugs)	PCS	4
User manual	PCS	1

2. Functional Features

1. Wide sound pickup: The seamless sound amplification ceiling array microphone is composed of a 129 unit omnidirectional array microphone, with a sound amplification distance of 4 meters and a sound pickup distance of 8 meters, achieving true seamless sound amplification wherever you go.

2. High volume: The sound feedback gain is 15dB. With a higher volume, it is less likely to howl and makes speaking without burden.

3. Clean sound: Implant ClearVoice AI deep algorithm to accurately recognize sound, remove various noises, and enhance speech signals.

4. High flexibility: Supports custom setting of positioning pickup, supports 33 pickup zones and 17 amplification zone mode settings, and can support multiple cascaded adaptation to different scenarios.

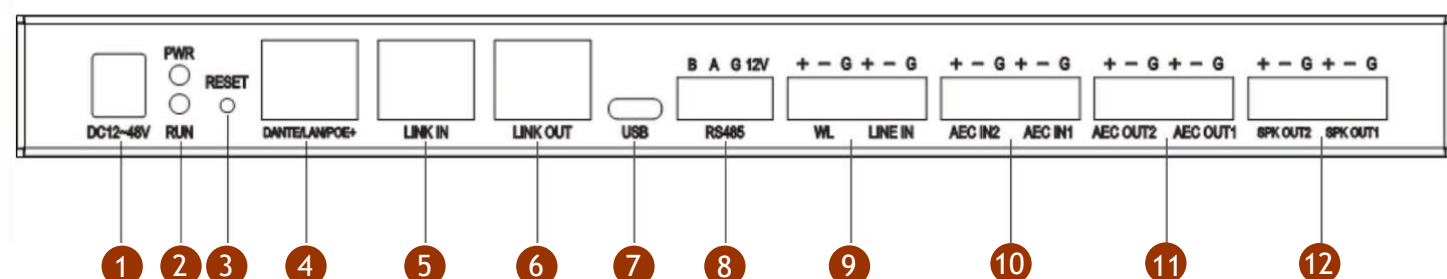
5. Easy to expand: Rich analog and digital (Dante, USB) audio interfaces, can be used independently, and can be connected to wireless microphones, without the need for additional audio processors;

7. Easy to manage: The system is simple and provides multiple external control methods such as infrared, 485, and network to meet different needs and make the system more flexible.

3. Product Introduction

The seamless sound amplification ceiling array microphone makes conference sound administrators simple and efficient, with an ultra wide pickup range. Whether it's a small room with 30 people or a large auditorium with 800 people, every corner can hear the speech clearly. Equipped with low latency ClearVoice AI algorithm, it can automatically block interference such as keyboard sound and air conditioning noise, greatly improving meeting focus. Using dynamic beams, intelligent zone recording during discussions, and automatic tracking of the speaker's voice during speeches. During remote meetings, the sound is as authentic and natural as face-to-face communication. Simplify the system, no longer need to fill it with microphones, devices are hidden in the ceiling, and their presence is almost imperceptible during meetings, providing a clear and smooth communication experience.

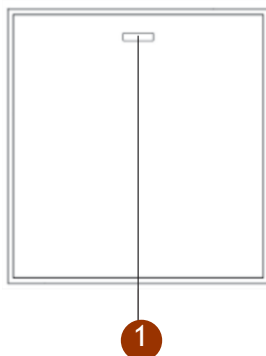
Interface function



Interface diagram of seamless sound reinforcement ceiling array microphone

1. DC12-48V interface: power interface, input voltage range DC12V-48V.
2. PWR/RUN : Normal power on, the red light is always on. The system is running normally and the green light is constantly on.
3. RESET : Restore factory settings.
4. DANTE/LAN/POE+ : Dante signal transmission interface/network interface/POE power supply network port.
5. LINK IN : Cascade link input network port.
6. LINK OUT : Cascade link output network port.
7. USB : Type C firmware upgrade interface, USB 2.0 audio transmission interface.
8. RS485 : 485 device control interface; Output voltage DC12V/0.4A.
9. WL/LINE IN : Wireless microphone analog input; External audio source (PC) analog input.
10. AEC IN1/2 : Remote audio (reference signal) analog input.
11. AEC OUT1/2 : Remote analog audio output.
12. SPK OUT1/2 : The speaker simulates audio output.

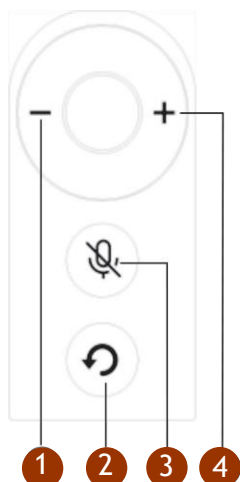
Indicator light function



Ceiling array microphone indicator light

1. function :
 - a. When the power is turned on, the red, blue, and green lights cycle on.
 - b. During normal operation, the green light remains on continuously.
 - c. When the microphone is muted for local amplification, the red light remains on.

Infrared remote control function

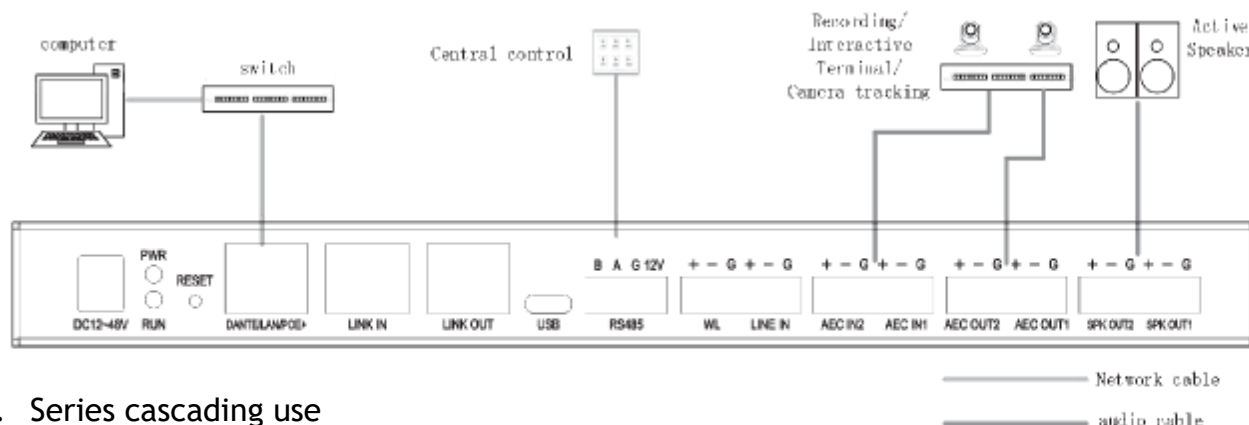


Infrared remote control function diagram

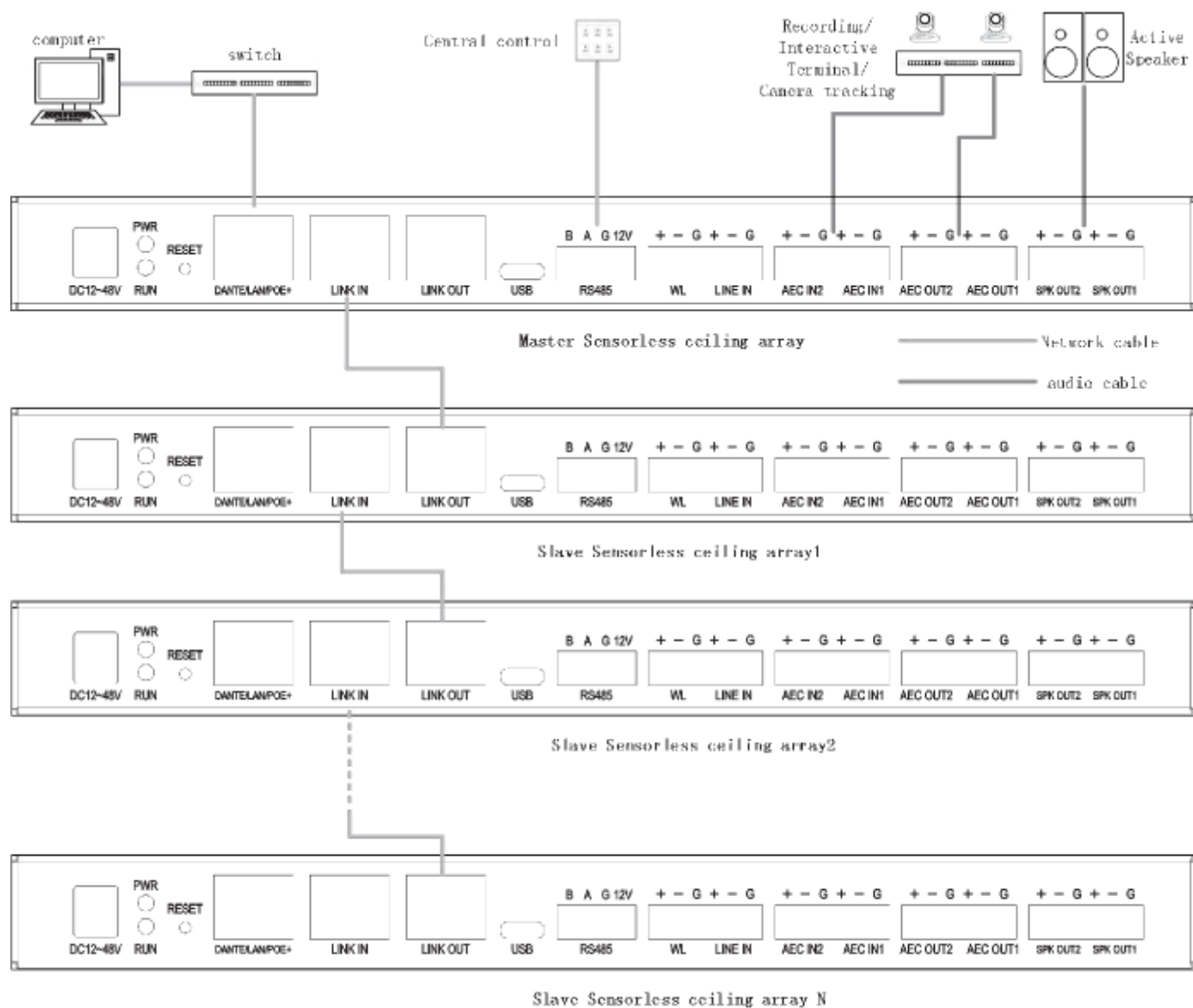
1. Volume-: Reduce the local amplification volume of the ceiling array microphone.
2. Restore default: Control the ceiling array microphone to restore the default volume.
3. Ceiling array microphone local sound amplification mute: Control the mute and unmute of ceiling array microphone.
4. Volume+: Increase the local amplification volume of the ceiling array microphone.

4. Product usage and installation

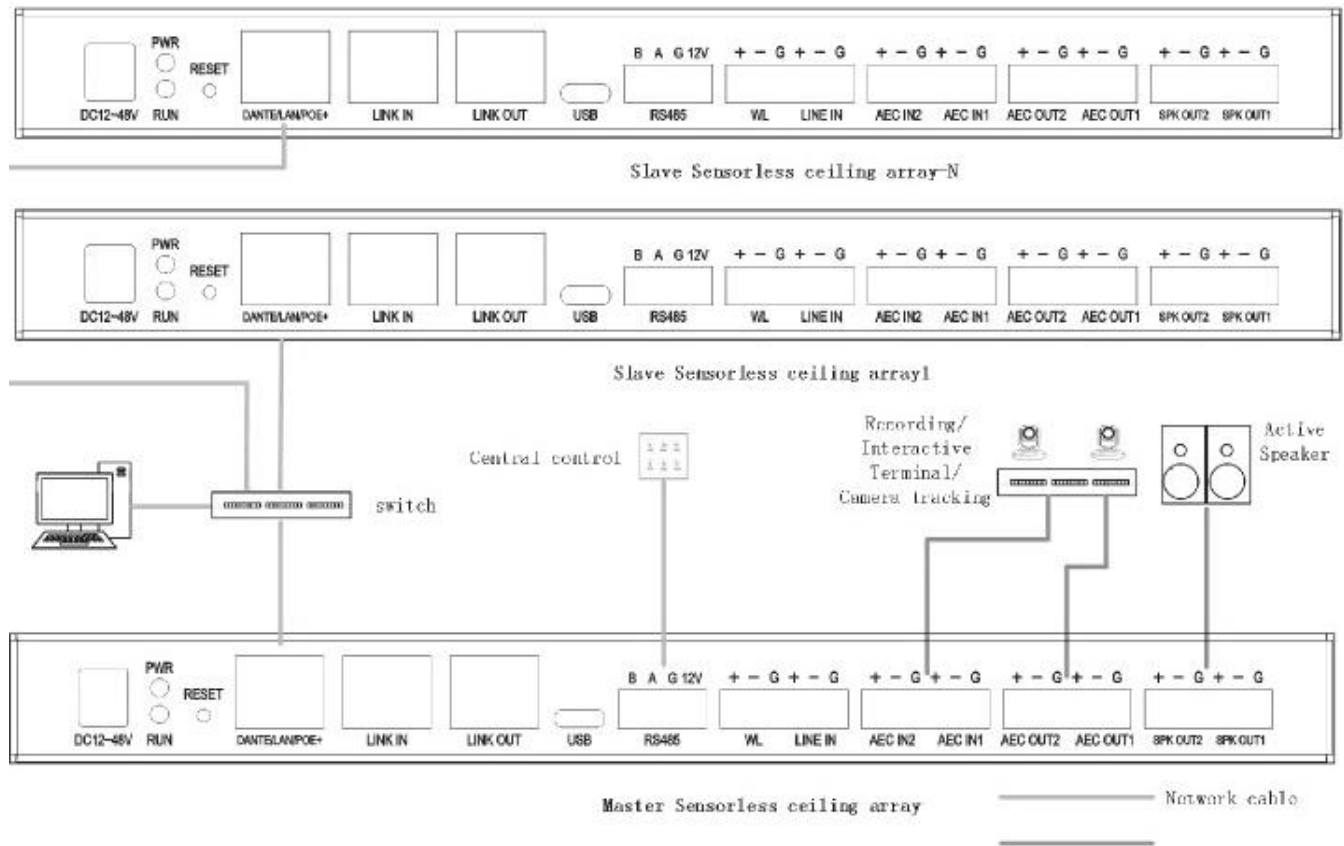
1. Single machine use



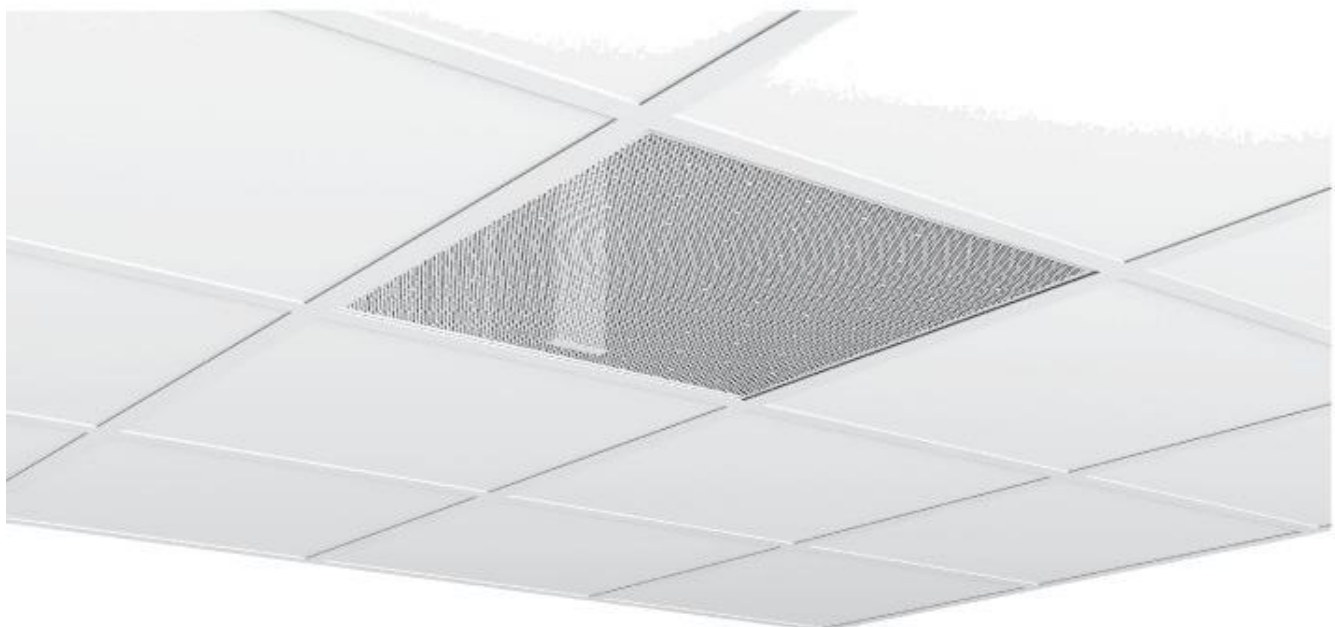
2. Series cascading use



3. Parallel cascading use



4. Installation method 1: Embedded into the ceiling (must be suspended and fixed with ropes)



5. Installation method 2: Rope hoisting



6. Installation method 2: Rope hoisting



5. Product parameters

Module	Function	Specific parameters
Algorithm specifications	Support algorithm	AFC. ANS. AEC. AGC.ARR
	Sound feedback gain	18dB
	Noise reduction amplitude	>30dB
	Echo cancellation amplitude	>90dB
	Echo cancellation length	>1s
	Reverberation suppression	>18dB
	Maximum gain	>30dB
	AI noise reduction	support
	Automatic mixing	support
	Beamforming	support
	Sound source localization	support
Microphone specifications	Number of microphones	129
	Sensitivity	-32±2dB
	Signal to Noise Ratio	70dB
	Frequency response	75-20KHz
Hardware specifications	Sampling rate	48K
	Frequency response	20Hz-20KHz , +0.5dB
	Signal to Noise Ratio	100dB
	Degree of distortion	TO.1%
	Input impedance (balanced)	20KΩ
	Output impedance (balanced)	2000
	Maximum input level (balanced)	4dBu
	Maximum output level (balanced)	10dBu
	Dante Audio	support
	Cascade function	support
	485Central control interface	support
	Input power supply	DC 12V-48V/POE
	Power	25W
Other specifications	Dimensions (length x width x height)	600•600•42.8mm
	Net weight of equipment	6.03kg
	Operation temperature	0°C-40°C
	Storage temperature	-20°C-60°C
	Colour	Pearl White

6. Product usage

1. Client configuration software

1.1 Compatible operating systems: Windows 7 (64 bit), Windows 10 system (64 bit).

1.2 Compatible hardware devices: PCs with mainstream office and home configurations can run normally.

1.3 Installation method: No installation required, exe file format can be directly opened and used.

1.4 Remote network requirements: Same local area network.

2. configuration debugging

2.1 After the device is installed and deployed according to the requirements, run the client configuration software micDemo.exe.

2.2 The default IP address of the device at the factory is 192.168.1.100, subnet mask: 255.255.255.0, gateway: 192.168.1.1; Please add the IP address of the network segment in the PC first. The PC and the smart audio host need to be in the same network segment in order to connect properly.

2.3 Default parameters: When the device leaves the factory, a recommended parameter configuration is built-in as the default configuration based on typical application scenarios. The parameters can be adjusted and saved on site according to the actual sound field environment.

2.4 Restore default parameters: If you need to restore the factory default parameters, you can restore the default factory settings in the client software.

3. Firmware upgrade: Connect the device, and after the system finds the device, perform a firmware upgrade on the system.

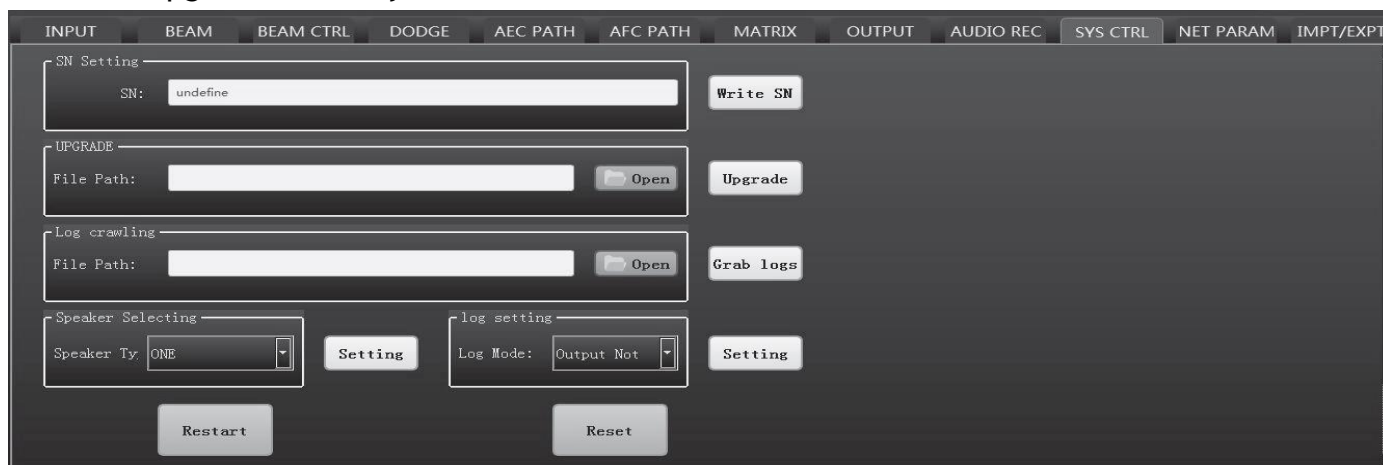


Figure 6.1 Upgrade Interface Diagram

Firmware upgrade method: Open the client - System Control - Firmware Upgrade, find the upgrade file path checkbox, import the specified upgrade file into the system, click Start Upgrade to automatically complete the firmware upgrade; During the upgrade, the parameter configuration remains unchanged, and a successful upgrade will automatically restart; After reconnecting the device, it is necessary to restore the factory settings again.

7. Troubleshooting

Phenomenon	Reason	Solution
PC tool cannot be opened	Antivirus software restrictions	Close antivirus software.
	Tool damage	Update PC Tools.
The network cannot communicate normally	Network reasons	Check the device status light.
		Check the PC network to ensure consistency between network segments and devices.
		Hardware RESET restores default, using default network for search.
		When cascading in series, the LINK IN of the previous unit is connected to the LINK OUT of the next unit, and the last unit cannot be connected to the network.
		When cascaded in parallel, each device can only have one network port connected to the network.
		Three network ports cannot be connected to the same network at the same time, only one port can be connected to the network.
	Network port malfunction	Check the status of the PC network port light.
Low output volume	Equipment failure	Depot repair
	Configuration issues	Check the input and output configuration status.
	Output gain level	Each output of AEC OUT and SPK OUT has hardware analog gain adjustment, with a total of 4 levels: 0dB, -12dB, -18dB, -24dB; The default is 0dB.
	Wiring malfunction	Check if the input and output wiring is correct.

8. Reference Table for Content of Toxic and Harmful Substances or Elements

Table of Toxic and Hazardous Substances or Elements Content in the Management Measures for Pollution Control of Electronic Information Products.

Hazardous substance						
Component name	Hazardous substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr ⁶⁺)	Polybrominated biphenyls (PBB)	PBDE
Metal parts	•	0	0	0	0	0
Plastic parts			0	0	0	0
Circuit board	•	0	0	0	0	0
Wire rod	•	0	0	0	0	0
Power supply	•	0	0	0	0	0
Accessory			0	0	0	0
This table is prepared in accordance with the provisions of SJ/T 11364-2014. : The content of the hazardous substance in all homogeneous materials of the component is below the limit requirements specified in GB/T 26572. = : The content of the hazardous substance in at least one homogeneous material of the component exceeds the limit requirements specified in GB/T 26572, and there is currently no mature alternative solution in the industry that meets the environmental requirements of the EU RoHS directive.						

We will not be responsible for free warranty in any of the following

- Product damage caused by violating the instructions in the product manual.
- Hardware damage caused by improper assembly.
- Product damage caused by unauthorized modification or self repair.
- damage caused by exceeding the allowed usage or storage environment.
- Product damage caused by abnormal external forces.
- Natural disasters can cause product damage due to other force majeure events.
- Unable to provide this warranty card and valid purchase voucher.
- Remove or damage the disassembly label without authorization.
- Other situations not covered by the exemption warranty.