DRIGER®

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USER MANUAL

MA-9U

Digital Array Microphone



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Notice

Product speci cations and information which were referred to in this document are for reference only. We may change, delete, or update any content at any time and without prior notice.

FCC NOTICE (Class A)

This product complies with Part 15 of the FCC Rules. The operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note

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 in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment o and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit di erent from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Class A ITE

Class A ITE is a category of all other ITE which satis es the class A ITE limits but not the class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instructions for use:

Warnin g

Operating this equipment in a residential environment may cause radio interference.

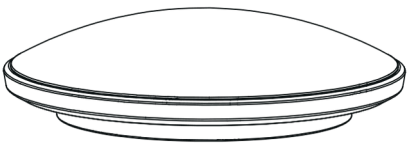
European Community Compliance Statement (Class A)

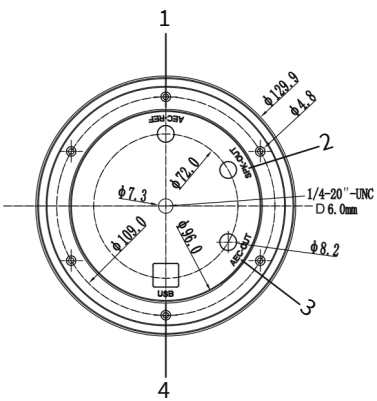
This product is herewith con rmed to comply with the requirements set out in the Council Directives on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive 2014/30/EU.

1 PackingList

Item	Quantity
Digital Array Microphone	1
USB Cable	1
3.5mm Audio Cable	1
Microphone Mounting Bracket (optional)	1
Quick Start Guide	1

2 AppearanceandInterface





No.	Name	Function
1	AEC-REF	Audio signal input interface, input the reference audio signal sent from the remote classroom.
2	SPK-OUT	Audio signal output interface, remote classroom audio can be output to local speakers for playback.
3	AEC-OUT	Audio signal output interface, sound collected by the local microphone can be output to the local terminal or recording host.
4	USB	USB audio interface, used to connect to USB host or to power microphone.

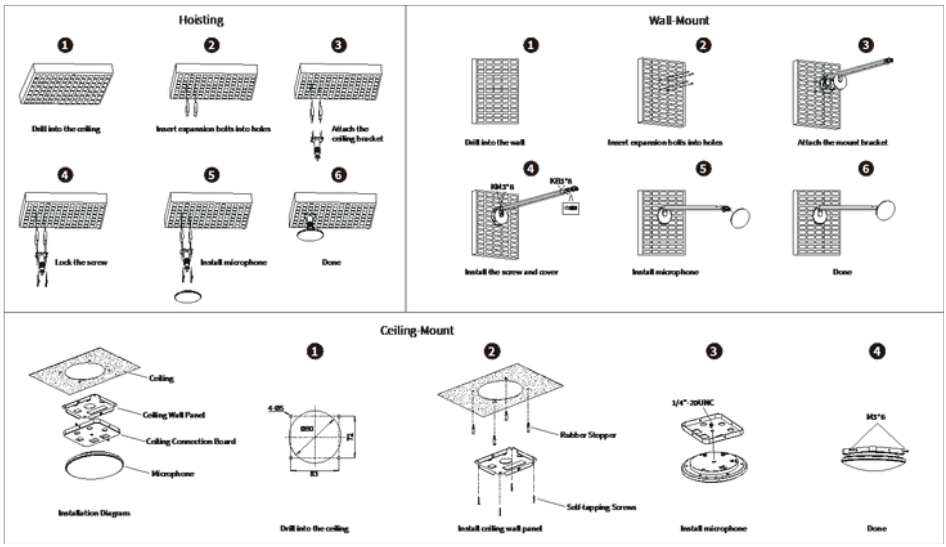
3 Product Feature

Digital Array Microphone, Long Distance Voice Pickup
Digital array microphone, 8m distance voice pickup. A hands-free lecture and presentation solution.
Intelligent Voice Tracking
Adaptive blind beamforming technology provides adaptability to di erent sound environments. With speech reinforcement, the microphone minimizes interference and keeps speech clear.
Multiple Audio Algorithms, High Quality of Sound
Using proprietary technologies including intelligent noise reduction, echo cancellation and reverberation suppression to ensure clear sound quality and comfortable communication. Less requirements of the classroom decoration. Supports full duplex communication.
Simply Installation, Plug and Play
Using standard USB and 3.5mm audio interface, zero con guration design, plug and play. Simple system and compact appearance, easy to install and maintain. Supports dual-mode (digital, analog) output.
Available in Two Colors, Blends into Di erent Environments
It adopts the technology of hot laminating and wrapping cloth. With natural visual e ect, white design adapts to white walls of classrooms, and black design blends into modern conference rooms.
Hoisting/Ceiling/Wall Flexible Installation
Support hoisting/ceiling/wall mounting, exible and fast deployment, and reduce operation and maintenance costs.

4 ProductSpeci cation

Audio Parameter	
Microphone Type	Digital Array Microphone
Array Microphone	Built-in 7 mics to form ring array microphone, 360° omnidirectional pickup
Sensitivity	-26 dBFS
Signal Noise to Ratio	64 dB(A)
Frequency Response	20Hz ~ 16kHz
Pickup Range	8m
USB Protocol	Support UAC
Automatic Echo Cancellation (AEC)	Support
Automatic Noise Suppression (ANS)	Support
Automatic Gain Control (AGC)	Support
Hardware Interface	
Audio Input	1 x AEC-REF: 3.5mm line in interface
Audio Output	1 x SPK-OUT: 3.5mm line out interface 1 x AEC-OUT: 3.5mm line out interface
USB Interface	1 x USB: USB audio interface
General Speci cation	
Power Input	USB 5V
Dimensions	Φ130mm x H33mm

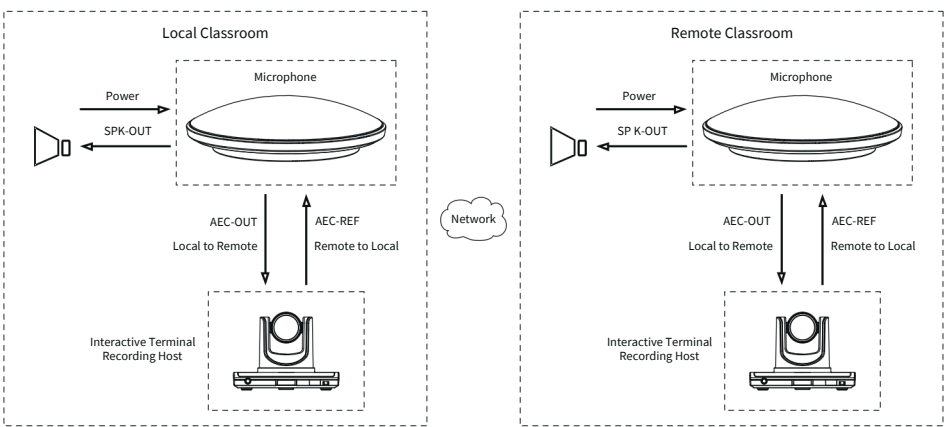
5 ProductInstallation



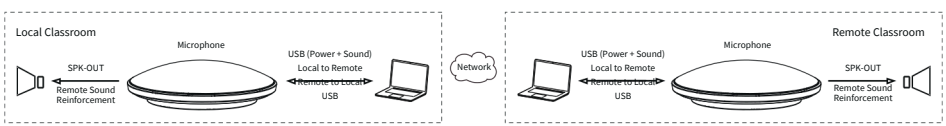
Note The installation diagram is for reference only. The bracket is not standard. Please refer to the actual product for the packing accessories.

6 NetworkApplication

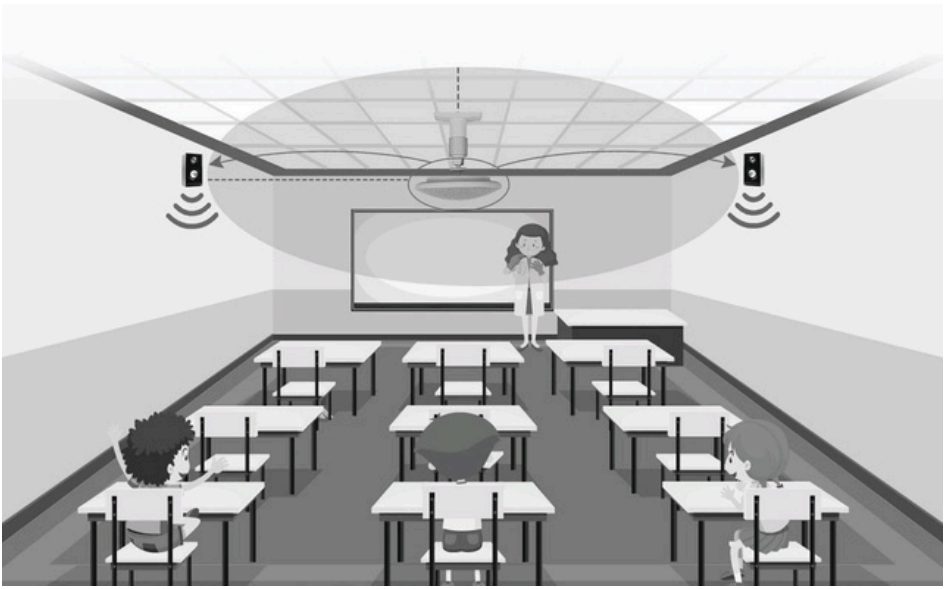
6.1 AnalogConnection(3.5mmInterface)



6.2 DigitalConnection(USBInterface)



7 ApplicationScenario



Note The schematic diagram is for reference only. Please refer to the actual application scenario for equipment and installation.

8 InstallationEnvironment

1) In the early stage of the project construction, the construction site shall be surveyed in advance. If the school can choose the installation classroom, it can choose or request to choose the classroom with better environment.
Poor acoustic environment: the ceiling of the classroom is grid, the surrounding environment of the classroom is too smooth, the space is too large, and the reverberation time of speaking in the middle of the classroom is too long.
Build sound better environment: The classroom has plaster ceiling or do build sound environment, wall porous board, ceiling is not too complex beams, the window has thick curtains, etc., in the middle of the classroom speech reverberation time is moderate.
Give priority to the classrooms with square dimensions, avoid the classrooms with strange shapes.
2) The classroom should not be too high. It is better to have a suspended ceiling. The height is generally 3~4 meters. It is di cult to construct in the too high space, and the reverberation time is too long, which a ects the language clarity.
3) The echo reverberation test in the classroom (RT60). After arriving at the scene, stand in the middle of the classroom and shout for test. Test the echo reverberation in the physical space of the classroom. The best reverberation time is 0.4-0.6 seconds. It is better to have no large area of glass.
4) Due to poor classroom discipline, primary and secondary schools should try to install microphones close to teachers, and the height of hoisting should be appropriately reduced to reduce the interference of students' small talk.

9 ClassroomInstallation

9.1 MicrophoneInstallation

1) InstallationHeight: Intheory,thecloserthemicrophoneistothespeaker, the better. However, considering that the microphone is too low, there may be a risk of damage or falling. Therefore, it is recommended to stay as close to the speech area as possible according to the situation on the spot.
It is recommended to be installed in front of the lectern, 2-2.5 meters horizontally from the blackboard, 2.3-2.6 meters high from the ground is appropriate, so that teachers can move around to take care of the two sides of the ampli cation, while considering the safety o exible processing.

2) InstallationMethodandLocation: Itishoistedbythederrick,centered horizontally near the platform, and the microphone plate is placed toward the platform area, focusing on picking up the teacher's lecture sound in the platform area.

3) DerrickLength: Themicrophoneisstuckontheboomand xed.Thelength of the boom depends on the height of the classroom. Generally, 0.6-1.2 meters telescopic boom is used for classrooms about 3.5 meters high. Finally, the microphone should be 2.3-2.6 meters away from the ground. The microphone should face down 30-45 degrees and point to the teacher's head and mouth.

9.2 SpeakerInstallation

1) Installation Height: The recommended height from the ground is 2.0-2.6 meters.

2) InstallationMethodandLocation: Thebracketiswallmounted.Itis recommended to be installed in the middle of the left and right sides of the classroom. The distance from the microphone is more than 3 meters in a straight line. There should be no fans or beams in the middle to avoid a ecting the microphone sound eld learning. Choose this location for installation. On the one hand, the speaker can take care of the students in the back row. On the other hand, the time of sound returning to the speaker is short, and the hearing experience is more comfortable. When there are many glass surfaces, they can be installed on the column. For classrooms with an area o ess than 90 square meters, install a microphone and a pair of speakers in the middle of the classroom. For classrooms with an area of more than 100 square meters, install 4 or 6 speakers or more.

9.3 SocketInstallation

An optional socket panel with a USB socket can be installed next to the speaker for easy access to the microphone and speaker. It can also be powered by a USB adapter or directly use a device with a USB interface (TV or large display, etc.).

Notic e

When the microphone and speaker are connected to the same wall plug for power supply, the microphone and speaker need to be turned on or o at the same time.

9.4 SwitchInstallation

You can choose a single switch panel, installed on the side of the door or the blackboard, with a label, easy for teachers to open and close.

9.5 WeakCurrentWiring

The wiring of the classroom should be in accordance with the comprehensive wiring standard for weak current and the requirements of the school. The strong current and weak current should be routed separately, and the lines should be hidden as far as possible. PVC grooves or pipes can be laid; Microphone cable with shielding copper core is recommended, and speaker cable with shielding copper core of 300 is recommended.

9.6 AcceptanceTest

After installation, male voice and female voice tests, empty classroom and full seat tests shall be carried out to ensure user satisfaction.
Test index 1: Speech intelligibility: It should be clear and not muddy.
Test index 2: The sound pressure of human voice is recommended to reach about 70~75db, and it is best to reach 80db.
Test index 3: It is better to cover the platform for the pickup distance of vocal reinforcement.
Test index 4: When the empty classroom is used, there should be no howling, and the echo trail should be adjusted to the minimum, so that the teacher who is full can hear clearly.

10 Problem and Solution

1) Howlingappearsatstartup

For example, it is normal for the microphone to whistle slightly when it is just started. When the device is just started, it needs to learn to adapt to the live sound eld environment, and it will stop automatically after the learning is completed.

2) Persistenthowling

For example, when the USB is connected to the computer, con rm whether the listening function is turned on, and check whether the audio input and output wiring is looped back.

3) Thesoundreverberationisnotclear

First check whether the room is too small and the reverberation is too large, and then check the settings of the power ampli er or speaker EQ to see if the low frequency part is adjusted too much.

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