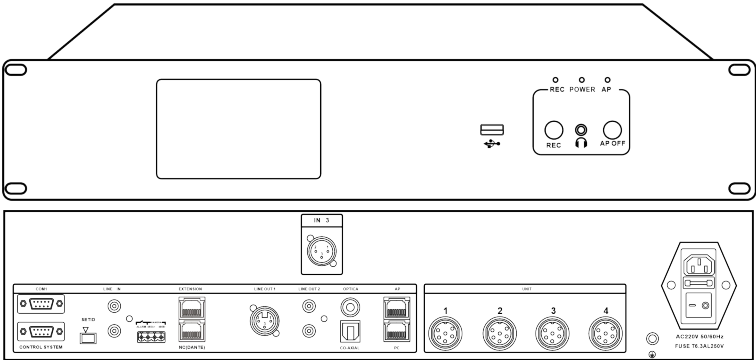


User Manual



Full Digital Conference System TCI-8500M

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Chapter 1: Safety Operation Guide

1.1 Safety Operation Guide

First of all, thank you for using our company's full-digital conference system. In order to ensure the reliable use of the equipment and the safety of personnel, please be sure to read the system connection and safety instructions carefully during installation, use, and maintenance, and operate in strict accordance with the requirements. At the same time, please Keep this manual in a safe place for future reference. Notes are as follows:

1. Please follow the "Warning" items in all equipment operating instructions.
2. Must abide by the rules and principles in the various operating guidelines.
3. Cleaning equipment: Before cleaning the equipment, please turn off the power first, disassemble each connected system conference unit, and wipe it with a dry soft cloth when cleaning.
4. Do not place the device in a humid place to avoid danger.
5. The indoor air must be kept unobstructed to facilitate the maintenance of the equipment.
6. Power supply voltage: America, Japan: AC100 V~120 V 60Hz Eurasia: AC 220 V~240 V 50Hz.
7. Grounding plug: three-pin grounding plug.
8. Please detour the extension cable required for equipment connection, and do not squeeze it with heavy objects, so as to effectively maintain the normal operation of the system.
9. In rainy and humid weather or when not in use for a long time, the main power switch of the equipment should be turned off.
10. Make sure that the casing of the device is not disassembled arbitrarily, and no hard conductors or liquid substances are allowed to remain in the casing.
11. When the equipment needs to be maintained, do not disassemble it by yourself, please contact the nearest after-sales service center in time.
12. All the products of our company will provide three-year free warranty, and the product must be sent to the repair point by the customer or returned to the repair point by the customer.
Except man-made damage, such as:
 - a. The equipment is broken or damaged due to human action
 - b. Damage to the equipment due to improper operation by the operator
 - c. Damage or loss of some equipment parts due to self-disassembly
13. Connect the device with the specified connecting cable.
14. Do not place the device in a place that is too cold or too hot.
15. When the equipment will not be used for a long time, please turn off the power, preferably unplug the power plug.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Chapter 2: System Introduction

2.1 System overview

This series of products uses the company's original digital processing and transmission technology with independent intellectual property rights, revolutionarily introduces all-digital technology and comprehensive network technology into the conference system, fully integrates advanced digital technology, network technology and audio technology. Not only that, the network full digital conference system is seamlessly connected with the conference sign-in system and the central control system, and it is the first in the industry to provide a complete and efficient comprehensive solution for modern conference systems.

The new network digital conference system is a standardized module product based on IEEE standard Ethernet communication. Help users realize rapid deployment and remote management of multiple systems. From small meeting rooms to large conference centers, it can meet the application needs of users in different occasions. The network digital conference system adopts network collaborative management, the system host can set the IP address, and adopts advanced TCP/IP network connection mode, which can realize the control and management of the system platform and the host, and realize distributed application and management; the network digital conference system host and The conference unit is connected to the microphone unit in a hand-in-hand manner, and the microphone unit is connected in series from end to end. All microphones adopt POE power supply mode, which can be connected in series with microphones, or connected to POE power supply exchange, so as to realize connection management in various ways.

The "ring-in-hand" connection technology is adopted between the conference units in the system, which is easy to install and realizes the connection double backup function. The system supports 48 kHz audio sampling frequency, and the frequency response of 64 channels can reach 80 Hz ~ 16 kHz.

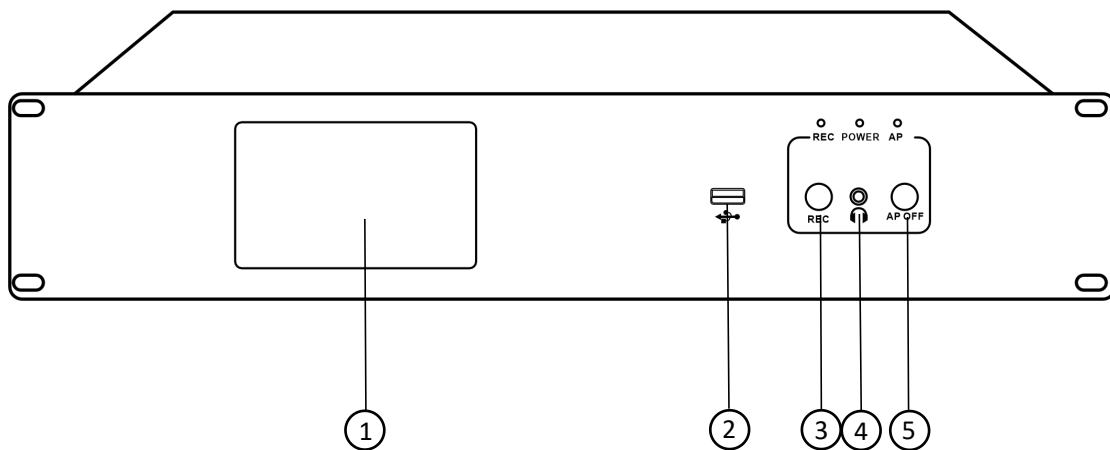
2.2 System List

Conference Controller packing list:

Item	Name	Qty	Unit
1	Conference Controller	1	pc
2	Power cable	1	pc

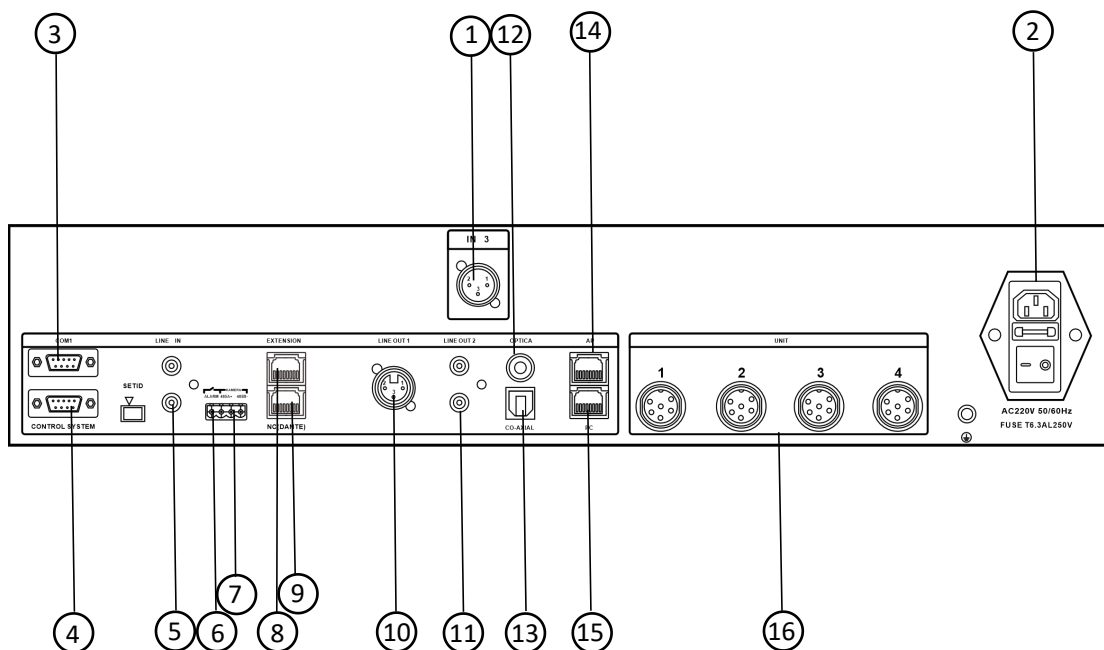
Chapter 3: Controller introduction

3.1 Front Panel



1. 4.3-inch full-color LCD display, used to display the status of all devices in the system.
2. USB port, used to insert U disk, maximum capacity 16G, format should be fat32, used for recording and storing files.
3. Recording start and stop buttons.
4. 3.5mm headphone jack. Use three headphone heads to monitor all microphone audio outputs.
5. Wireless microphone power-off button. Press and hold for 3 seconds to turn off the power of all wireless microphones.

3.2.Rear Panel



1. Line audio XLR balanced input
2. Power input socket and switch button
3. Connect to the RS-232 communication interface of external equipment.
4. Camera RS-232 communication interface
5. Line audio unbalanced lotus input
6. Short circuit triggers fire alarm interface
7. Camera 485 communication interface
8. EXTENSION, connect to conference system expansion equipment
9. DANTE module to connect external devices with DANTE protocol for audio interaction as optional*
10. Line audio XLR balanced output
11. Line audio unbalanced lotus output
12. Coaxial audio output as optional*
13. Optical fiber audio output, extending the microphone sound and transmitting it to optical fiber equipmen as optional*
14. WIFI network port, used to connect to wireless AP and manage wireless microphones
15. PC network port, the network port connected to the computer
- 16.1~4—used to connect the conference microphone.

3.3.Main Functions

1. Supports both wired and wireless conferences.
2. Adopt adaptive interference avoidance technology to achieve stronger anti-interference ability, with 24 signals available.
3. Original digital ring network technology audio clock synchronous transmission technology, audio delay less than 5ms, uncompressed audio transmission with a sampling rate of 48K.
4. Built-in high-performance DSP processor with audio matrix, EQ, volume and other adjustment functions.
5. The audio input interface includes 1 RCA, and the audio output interface includes 1 RCA and 1 XLR. Each output channel can adjust EQ, volume and other parameters.
6. The conference host adopts TCP/IP network protocol and supports C/S and B/S architecture at the same time, which can be controlled by PC software or browser.
7. The software can control audio matrix parameters (including EQ, volume, microphone sensitivity, etc.).
8. The system supports a maximum of 5,300 wired conference units and 300 wireless conference units. The maximum number of speeches in the system is 8 wired microphones and 6 wireless microphones.
9. The optional ring-shaped hand-in-hand function ensures that the meeting can continue normally when one of the network cables is disconnected or there is a problem with the unit.
10. Support RS232 central control to realize microphone switch, priority, volume, shutdown and other controls.
11. The computer software can check the battery power, WiFi signal and other information status of the scanning wireless unit; it supports turning off all wireless units with one click and turning on and off a certain wireless unit individually.
12. Supports simultaneous interpretation function, the system can transmit up to 63+1 wired simultaneous interpretations at the same time.
13. It has a fire alarm linkage trigger interface to provide fire alarm information and remind the venue personnel to evacuate immediately to ensure the safety of the participants.
14. Supports PELCO-D and VISCA camera control protocols, which can control the tracking screen settings of 10 high-definition cameras to achieve automatic camera tracking.
15. Four microphone management modes: FIFO (first in, first out), NORMAL (normal mode), VOICE (voice control mode), APPLY (application mode).
16. The system has the functions of initiating meeting sign-in, voting, election, rating, satisfaction, customization, etc.
17. It has a 4.3-inch full-color touch screen, which allows parameter setting or viewing and any touch operation.
18. It has USB recording function. The physical button on the panel can start recording with one click, and there is a recording status indicator light.
19. Supports 10-band EQ adjustment function, and both LINEOUT output channels have 10-band EQ adjustment function.

20. The system unit has a hot-swappable function and will automatically restore its original function when plugged in again.
21. When separated from the use of computers, the conference system can also realize the function of limiting the number of speakers.
22. Optional support for docking with voice transcription server to realize voice transcription function
23. The dual-machine true backup function is optional. When one host is powered off and the host fails, it can automatically switch to slave machine operation to achieve dual backup functions.
24. It has independent 3.5 headphone monitoring function and can be used directly with conventional power 40mW headphones;

3.4 Technical Parameters:

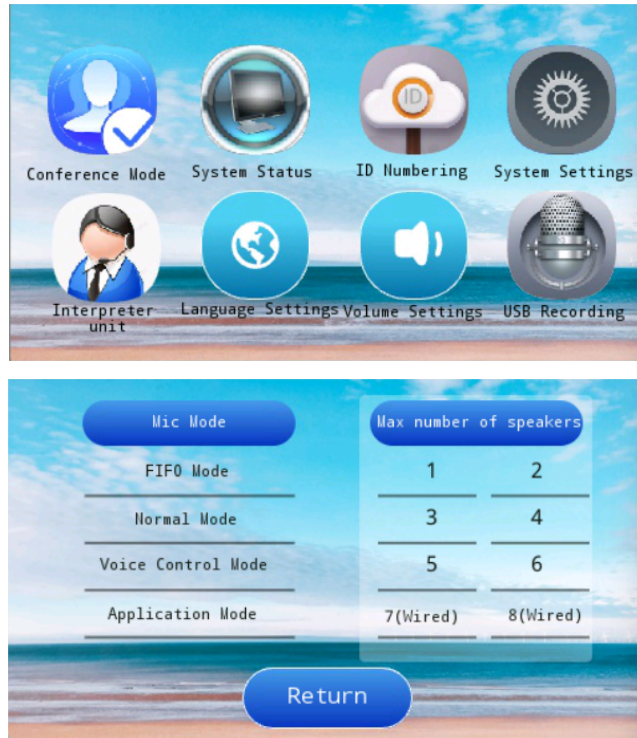
1. Microphone capacity: wired microphone ≤ 5300 ; wireless microphone ≤ 300
2. Simultaneous interpretation channels: 63+1 channels
3. Frequency response: 80~16KHz
4. Signal-to-noise ratio: $>80\text{dB(A)}$
5. Dynamic range: $>80\text{dB}$
6. Total harmonic distortion: $<0.05\%$
7. Main power supply: 100-240VAC
8. EXTENSION port: Connect to conference system expansion equipment
9. WIFI network port: connect to wireless AP
10. PC network port: connect to computer
11. Static power consumption: 30W
12. Output power consumption: 150W
13. Wired microphone connection method: special cable
14. Touch screen control: 4.3-inch full-color touch screen"

3.5 System environmental conditions

- Temperature range
 - Transport temperature: $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$
 - Operating temperature: $0^{\circ}\text{C} \sim +45^{\circ}\text{C}$

3.6 Conference Controller Operation Instructions

3.6.1 Conference management function



Click the conference mode from the main interface, and then enter the microphone management mode. There are four microphone modes in total, and you can switch to one of them according to the requirements of the venue. Generally, the number of "first in, first out mode" settings is the current maximum number of microphones allowed to be opened N (wired = 1/2/4/8; wireless = 1/2/ 4/6), without microphone, the maximum number is 6. The microphone mode will take effect on both wired and wireless microphones at the same time. For example, if the wired microphone mode selects the first-in-first-out mode, the wireless microphone mode will also select the first-in-first-out mode.

3.6.2 First in first out mode (FIFO)

①FIFO Delegate unit open management

First in, first out: When the total number of open microphones is less than N, open the delegate unit directly; when the total number of open microphones reaches N and not all are chairman machines, the representative machines open the microphone first in first out among each other.

②FIFO Chairman unit open management

Preemption mechanism: The chairman unit can seize the right to open the microphone of the delegate unit (when the total number of open microphones reaches N and there is have delegate unit, the current chairman unit will be opened, the earliest delegate unit with open microphone will be squeezed out of the open microphone queue, and the delegate unit will be closed and turn on the current chairman unit);

Reminder when the open microphone is full: There is no first-in-first-out mechanism between chairman machines. When the total number of open microphones reaches N and all open microphones are chairman machines, when a new chairman machine is opened, the interface will display "Microphone is full";

Priority: Press the chairman unit priority button to activate the chairman priority function, which will immediately turn off the microphone-on state of all delegate unit. If the microphone of the chairman unit has not been turned on before, the microphone of the chairman unit will be turned on (when the number of currently open microphones is full and all are chairman units, the chairman unit will not be turned on).

3.6.3 Normal mode (NORMAL)

①NORMAL Delegate unit open management

Waiting mechanism: When the number of open delegate unit reaches N, it will enter the waiting state when other delegate unit are opened. The maximum number of waiting delegate units is also N. The delegate units can exit the waiting state by pressing the microphone button again while in the waiting state. When a certain delegate unit is turned off, the earliest delegate unit among all currently waiting microphones will be turned on automatically.

②NORMAL Chairman unit open management

Preemption mechanism: When the maximum number of open microphones N is reached, if the chairman microphone is opened, the representative machine will be squeezed out of the open microphone queue;

The open microphone is full prompt: The chairman machine has no waiting mechanism. When the current maximum number of open microphones is full and When all the opened microphones are chairman units, if you press another chairman unit, "Microphone is full" will be displayed;

Priority: Press the chairman machine priority key to activate the chairman priority function, and turn off the microphone on and waiting status of all representative machines. If the microphone of the chairman unit has not been turned on before, the microphone of the chairman unit will be turned on (when the number of currently open microphones is full and all are chairman units, the microphone of the chairman unit will not be turned on).

3.6.4 Voice control mode (VOICE CONTROL)

①VOICE Delegate unit open management

Waiting mechanism: When the number of open Delegate unit reaches N, they will enter the waiting state when other Delegate unit are opened. The maximum number of waiting Delegate unit is also N. In the waiting state, press the microphone button again to exit the waiting state. When a Delegate unit is turned off, the earliest microphone among all currently waiting microphones will be turned on automatically.

②VOICE Chairman unit open management

Voice control mechanism: The chairman microphone can automatically detect the current speech. If you speak to the chairman, the microphone will be turned on automatically.

Preemption mechanism: When the number of open microphones reaches N, if the chairman machine opens the microphone, the representative machine will be squeezed out of the open microphone queue (that is, the earliest opened representative microphone will be closed);

The open microphone is full prompt:Reminder when the open microphone is full: The chairman unit has no waiting mechanism. When the current maximum number of open microphones is full and all open microphones are chairman units, if you press another chairman unit, "Microphone is full" will be displayed;

Priority: Press the chairman machine priority key to start the chairman machine priority function, that is, immediately close all open and waiting representative units. If the chairman's microphone has not been opened before, the chairman's microphone will be opened (when the number of currently open microphones is full and all are chairman units, the chairman's microphone will not be opened).

6.5 Application Mode (APPLY)

①APPLY Delegate unit open management

Application mechanism: The representative unit presses the microphone open button to apply to the chairman machine to open the microphone. At this time, the chairman machine interface with a screen will remind, and the screen displays "Representative machine applies to open the microphone" (the chairman machine presses "Agree", and according to the application sequence, the Delegate unit will be turned on). The maximum number of microphones that Delegate unit can apply for is N. If it exceeds the limit, "Microphone applications are full" will be displayed. When the Delegate unit is in the application state, press it again to open the microphone to exit the application state.

Automatic cancellation mechanism: After the representative machine enters the state of applying for opening the microphone, if the chairman machine does not agree to open the microphone within 15 seconds, the representative machine will automatically cancel the application and exit the state of applying for opening the microphone.

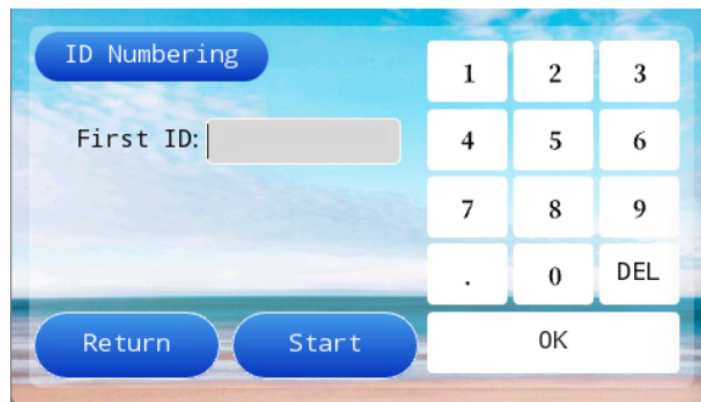
②APPLY Chairman unit open management

Preemption mechanism: Within the maximum allowed number of open microphones N, when the chairman's microphone is opened, the representative unit will be squeezed out of the open microphone queue (the earliest representative unit to be opened or the earliest representative unit to apply to speak is turned off);

The open microphone is full prompt:Reminder when the open microphone is full: The chairman unit has no waiting mechanism. When the current maximum number of open microphones is full and all open microphones are chairman units, if you press another chairman unit, "Microphone is full" will be displayed;

Priority: Press the priority button of the chairman machine to activate the chairman priority function, that is, immediately shut down all representative units that speak and representative units that apply to speak. If the microphone of the chairman unit has not been opened before, the microphone of the chairman unit will be opened (when the number of currently opened microphones is full and all are chairman units, the chairman microphone will not be opened)

3.6.6 Setting microphone ID number



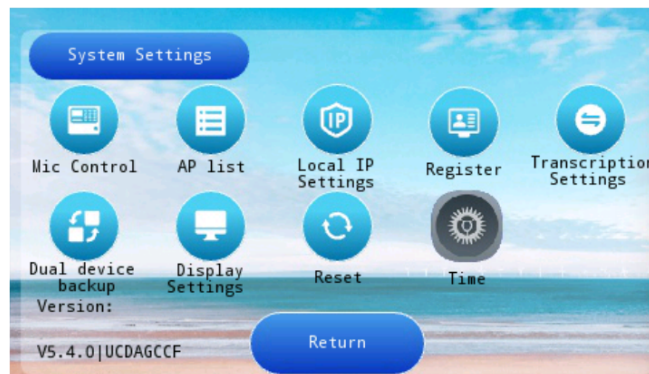
Enter the ID editing interface in the main function interface. If you need to change the starting ID number, you can select the starting ID number box and press the keyboard to set the starting ID number (range 1 ~ 4095). When the starting ID number is greater than 300, the starting ID for wireless ID numbering will be set start with 1,since the maximum number of wireless units is 300. After setting, press "Confirm" to save the modified value; press "Start" to start ID programming. At this time, you can manually operate the microphone on all units to program ID (the unit's ID and currently available ID will be displayed). After pressing, the red indicator light on the unit lights up, indicating that the operation is valid (the current ID is set as the local ID). Press "End" to end the software ID programming state.

3.6.7 Online microphone status



Enter the system status interface from the main function interface to view the number and classification of all currently online units. The current system only contains chairman unit, delegate unit and interpreter unit. You can view the actual changes in system status by plugging in the current chairman unit and delegate unit (the controller's detection time for plugging in is in the idle state of the controller, and the maximum time is 1 minute. If the display is not updated, please wait patiently for verification, it is forbidden to frequently plug in and out the unit during use).

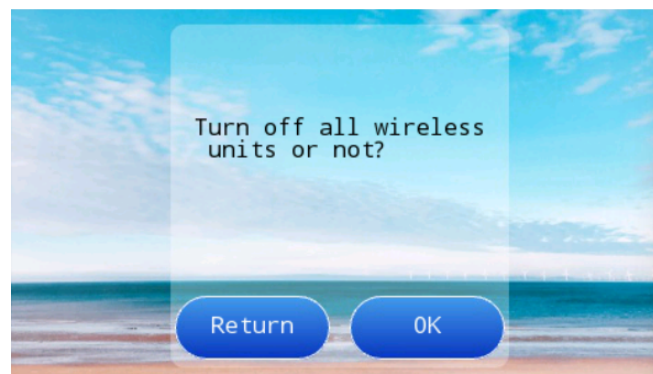
3.6.8 System Setting



Enter the system status interface from the main function interface, with a total of 8 sub-items to choose from. And the current version number can be displayed in the lower left corner.

3.6.8.1 Mic Control

Click Mic control you can enter the wireless unit to shut down, and then press Confirm to turn off the power of all wireless microphones with one click.



3.6.8.2 AP List

Click AP List to enter the AP list control interface

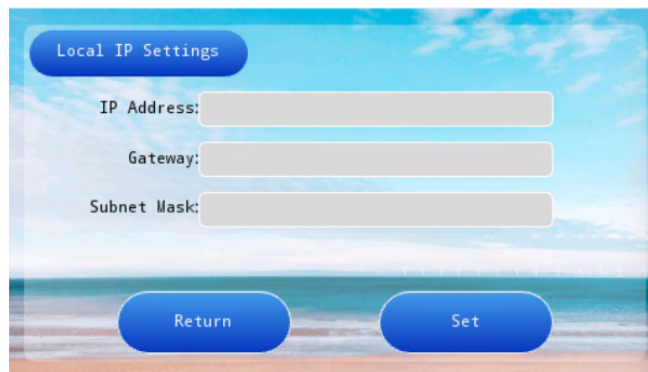
Click the Reconfigure AP button to enter the AP configuration interface

Click to set channel blacklist to block the channels you don't want to access.



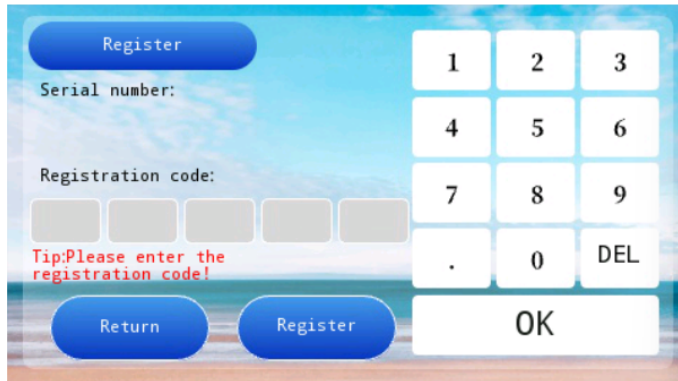
3.6.8.3 Local IP setting

Click local IP setting to setting the controller IP address.



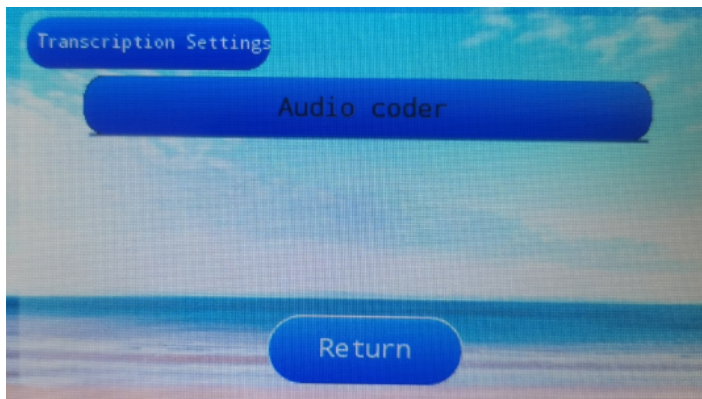
3.6.8.4 Register

Temporary registration code for customer testing



3.6.8.5 Transcription Settings

Used when connected to a voice transcription device



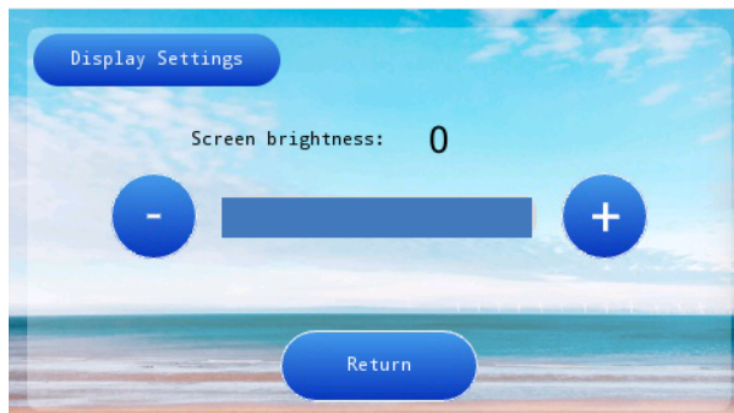
3.6.8.6 Dual Device backup

Set the main and backup controller, as well as the slave machine's IP address, time, etc.



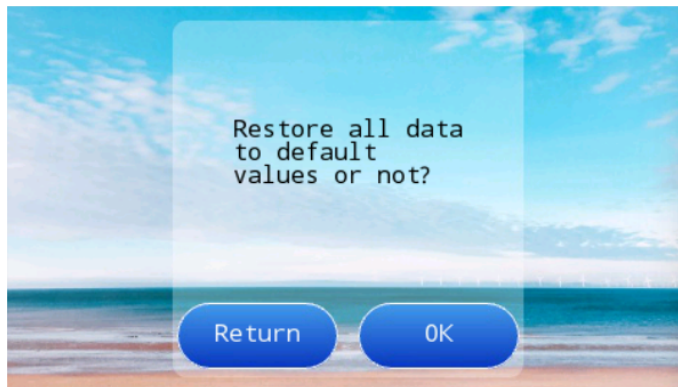
3.6.8.7 Display Setting

Adjust the brightness of the controller screen



3.6.8.8 Reset

Restore default parameter settings



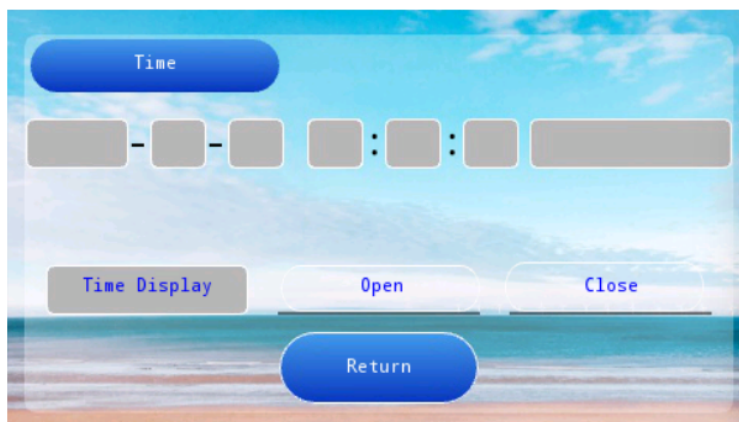
Enter the restore default interface and confirm whether you need to restore the default. Restoring to default means restoring factory settings.

The default parameters are as follows:
The conference mode is FIFO, the number of wired microphones is 8, and the number of wireless microphones is 6;

The starting ID of programming ID is 0001;
The default touch screen display interface is in English;
The initial LINE OUT1/2 volume is 31;
The local IP address is 192.168.11.168, the subnet mask is 255.255.255.0, and the gateway is 192.168.11.1

3.6.8.9 Time

Setting time



3.6.9 Interpreter unit

Select the mode of the translation station on this interface, click Start ID to ID the translation station, and click OK on the translation station to complete the ID numbering.



3.6.10 Language Settings

The language setting can be switched between Chinese, English, Russian and French



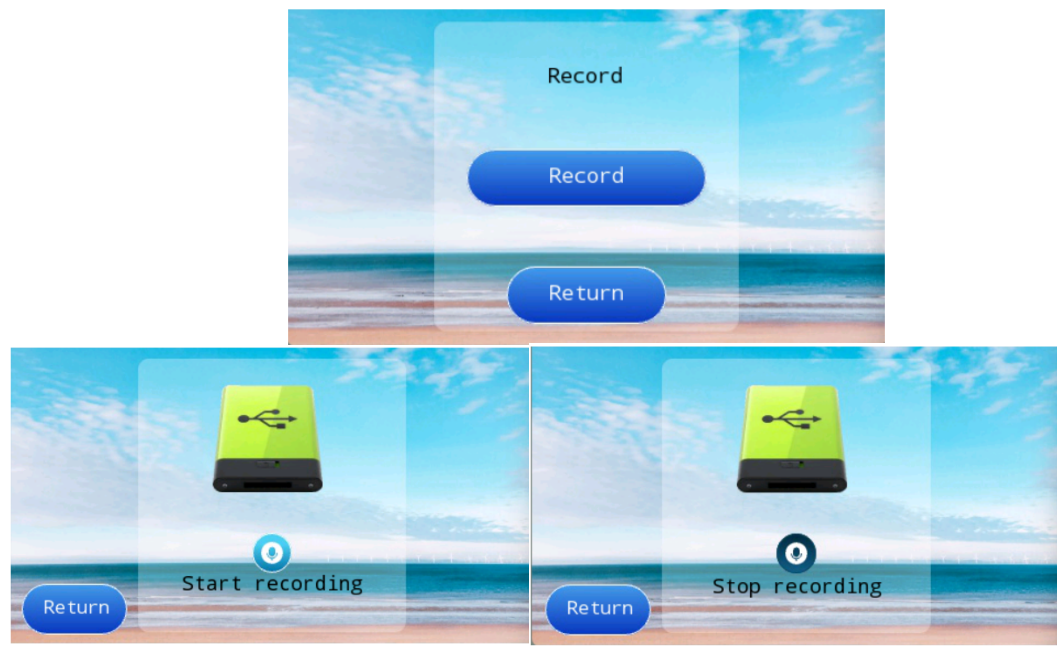
3.6.11 Volume Setting



Hardware wiring method: Connect the external sound source to the background music input port LINE IN1/2, and output it from LINE OUT1/2 to the power amplifier speaker device.

After entering the system settings from the main function interface, and then entering the volume adjustment, you can enter the volume adjustment interface. Use the +/- buttons to adjust the high and low volume values to hear the changing effect of the actual music. The volume is adjustable from 0 to 31, and when it is 0, the background music is muted.

3.6.12 USB recording



Enter the recording interface. If a USB flash drive is inserted, you can play background music or record the mix of LINE IN and microphone. When entering recording without inserting the USB flash drive, the interface will prompt "Please insert the USB flash drive".

Note:

- 1) Please use the matching USB flash drive.
- 2) Audio files can only be stored in the specified AUDIO folder.
- 3) U disk supports up to 16G, use the original factory equipped U disk.

3.6.13 Camera Control

The conference controller supports the VISCA/PELDCD_D camera protocol. It can directly connect to a single camera through 232/485, or it can connect to the camera tracking host to connect multiple cameras. The camera settings need to be implemented using PC software.

3.6.14 Camera connection and configuration

485 mode---Users can use the CAMERA-485 interface on the back of the host to directly connect to the camera port, and operate the VISCA/PELDCD_D protocol camera through the PC software's pre-meeting preparation->camera control page, set the corresponding position and select Save Preset position, after saving the preset positions of all units in sequence, select the panoramic position and save (must operate in this order). After saving, the user can choose to call the preset position to check whether it is correct. After everything is completed, check whether the camera downgrade mechanism is correct by switching the microphone on and off.

232 mode---Users can directly connect to the CONTROL SYSTEM interface of the conference host through the 232 serial port cable originally configured by the camera to operate the camera in the same way as the 485 mode.

Connect the CONTROL SYSTEM interface to the CONTROL interface of the camera tracking host through the 232 line, and then connect the T/R+ and T/R- ports of the tracking controller's CAMERA NET to the camera port, then you can control VISCA/PELDCD-D Protocol camera as above.

3.6.15 Description of the actual use of camera tracking

Upgrade: Turn on the microphone, and the camera will automatically track the position of the newly opened microphone.

Downgrade: Turn off the microphone, and the camera will automatically downgrade to the last microphone position when the microphone was on.

Midway status change: During use, if a microphone is turned off midway, the microphone position will be automatically cleared, and the upgrade and downgrade mechanism remains unchanged.

No microphone state: the camera will point to the panoramic position.

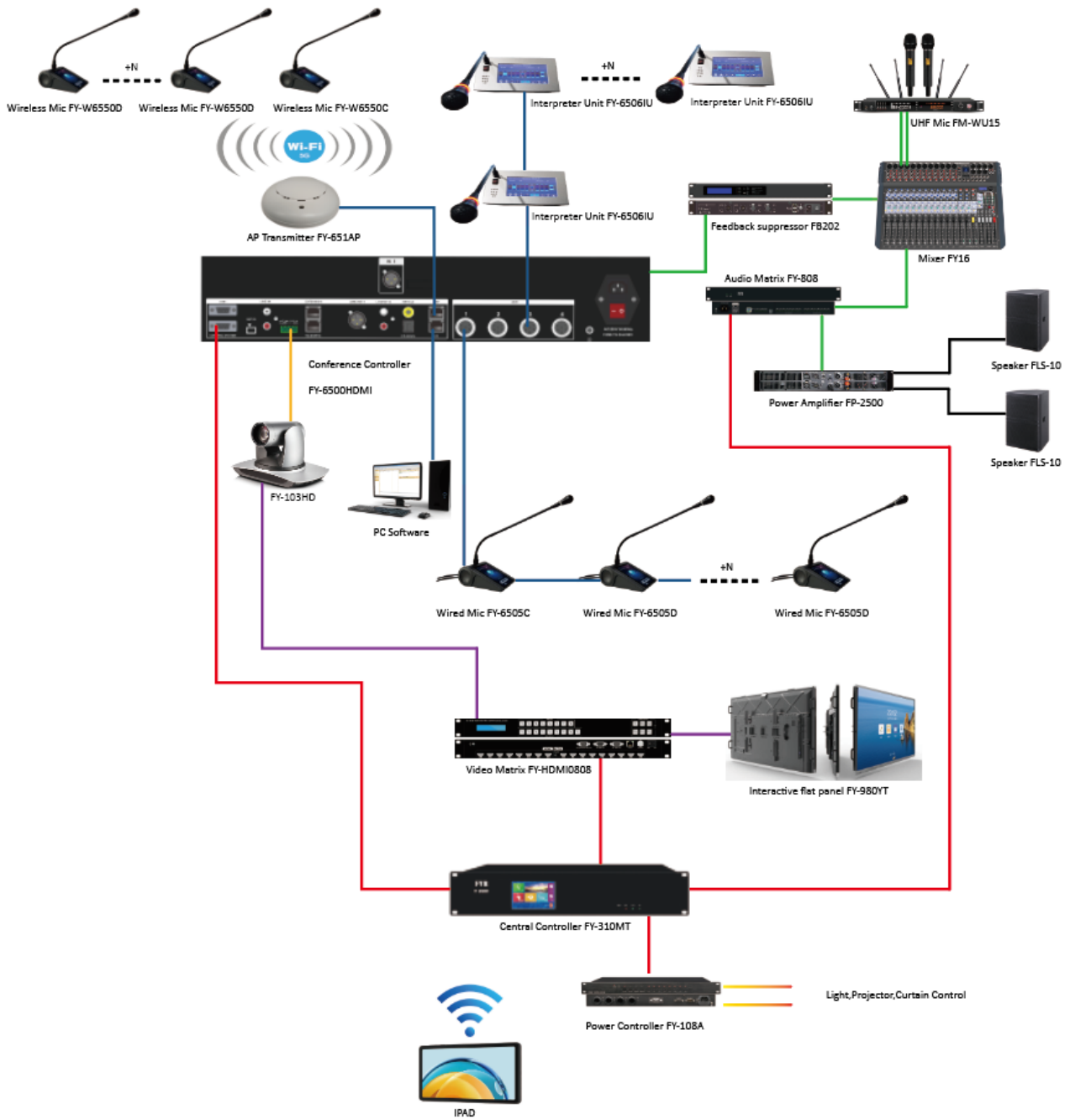
For example: There are currently cameras 1, 2, 3, and 4. When microphones 1, 2, 3, and 4 are turned on in sequence, the cameras will track the positions of microphones 1, 2, 3, and 4 in turn. If microphone 2 is turned off at this time, The camera will not change. If microphone 4 is turned off, the camera will point to position 3. Turn off microphone 3 and the camera will point to position 1. Turn off microphone 1 and the camera will point to the panoramic position.

3.6.16 Fire Alarm



By short-circuiting the two signals output by the ALARM behind the conference host (simulating sending a fire alarm signal to the host), the conference host display and microphone display will both remind the alarm signal. When this interface signal detects that the fire alarm is canceled (i.e. open circuit), it will automatically return to normal.

3.7. System connection diagram





CAUTION: Do not open the equipment cover arbitrarily, so as not to electric shock. Please contact the professionals to maintain if necessary.