



 **Relacart**®

CS-302M

Wired professional Conference
Discussion System



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Installation and Operation

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Introduction

Thank you for choosing a RELACART wired professional conference discussion system. You have joined thousands of other satisfied customers. Our years of professional experience of design and manufacturing to ensure our products' quality, performance and reliability.

01 Safety Operation and Notice

- 1、 Please read instructions for safety operation carefully before installation and operation. Please save your safety operation guide for future reference.
- 2、 Do not scratch, bend, twist, stretch or heat the power cord as this may cause damage to the power cord, resulting in a fire or electric shock.
- 3、 Do not open the device shell, otherwise it may cause electric shock. If you need to repair, maintain or repair, please contact your local agent.
- 4、 Do not touch the power plug with wet hands as this may cause a fire or electric shock.
- 5、 Do not attempt to modify this device. Failure to do so may result in personal injury or product malfunction.
- 6、 Do not use this equipment near water.
- 7、 If the power cord is damaged (such as a broken wire or bare core), obtain replacement parts from your dealer. Continued use of the equipment with a damaged power cord may result in fire or electric shock.
- 8、 To move the device he power, unplug the power cord, and unplug all connecting cables as this may damage the cable, resulting in a fire or electric shock.
- 9、 Before cleaning the device, unplug the power cord and unplug all connecting cables. Please clean it with a dry soft cloth.
- 10、 If the device is not in use for a long time, turn off the power, it is best to unplug the socket.
- 11、 With the power plug and appliance coupler as the disconnecting device, it should be kept easy to operate.
- 12、 For the safe use of the equipment and adequate ventilation, the minimum clearance around the equipment should be maintained at a distance of 5 cm or more.
- 13、 DO NOT cover the Ventilation holes, such as: newspaper / fabric / curtains and other items.
- 14、 Equipment should not be placed on a bare flame source, such as: lit candles.
- 15、 Battery should not be exposed to sunshine, roasted or other high temperature overheating environment.
- 16、 Do not throw the waste battery, please put in the designated bins.
- 17、 Water protection rating: IPX0
- 18、 The device can be used normally in tropical / temperate climates.
- 19、 This product is only suitable for safe use at the altitude of 2000m and below.
- 20、 This symbol “⚡” indicates that dangerous voltage constituting a risk of electric shock is present within this unit.
- 21、 All Relacart products will be afforded one year free maintenance except for man-made damage, such as:
 - the device is damaged by man-made factors.
 - the device is damaged by improper operation.
 - some components are damaged or loss after the self-disassembly.

02 System Overview

CS-302 is a simple and affordable Conference discussion system. With exquisite design, focusing on application of various conferences, the newly developed sound activate mode, the participants don't need operating manually, just speaking to microphones directly, the microphone unit can be started to speak, simple to use, fully applicable to the various conference locations.

This system is composed of software and hardware, adopt microprocessor control, the unit automatically detect settings, innovation speaking mode setting, limiting times setting, and implementation of system video preset functions. As a new generation of multi function, can be separated from the computer to use, convenient operation of the video tracking discuss conference system, is the ideal solution for conference engineering application.

03 System Performance Feature

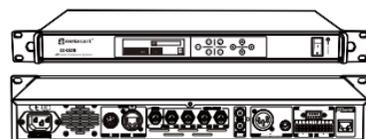
- Adopt the OLED display, can display the microphone status, operating mode, central controller status, the number of speaker, etc.
- 4 kinds of conference mode selection: FIFO, Automatic (with limiting time), Request, Sound activate.
- The central controller can select the number of speakers, active 2/3/4 microphones in a time.
- Support camera tracking, through the serial port RS-232 or RS-422 communication protocol control up to 4 cameras, compatible with VISCA, PELCO-D, PELCO-P 3 kinds of camera control code protocol.
- With 4 video inputs and 1 video output port, SD and HD SDI video inputs and outputs are supported. HD SDI supports HDcctv1.0, HD-SDI (ST292), 3G-SDI (ST424) and SD-SDI (259).
- 9-pin serial port control interface can be connected to intelligent control system for camera tracking.
- Support Dante protocol, flexible to meet various engineering solutions.
- The newly developed high-voltage, low-current power supply system minimizes line voltage losses and minimizes the effects of overly long connecting cables. One cable to connect more conference units makes installation easier.
- Adopt using anti shedding aviation cable hand in hand connection mode, the connection is simple, reliable and stable, the whole system required engineering and installation costs can be reduced.
- With automatic gain audio processing circuit, prevent feedback effectively and improve the clarity of the whole system.
- It is easy to expand and change configuration. The central controller connect up to 40 microphone units. If connect the EXP-124W, can connect up to 110 microphone units.
- Connecting telephone coupler can be applied directly to a remote call meeting.
- Chairman unit has the priority to override all delegate units, to control the atmosphere of the meeting.
- It has 4 conference modes including "FIFO", "limited time", "request", and "sound activation" to meet different meeting needs.
- With record output can connect the recorder, all records can be fully recorded, also can connect the external audio device.

04 Conference Unit Performance Feature

- Delicate and fashion design, soft touching feeling with ergonomic.
- Advanced conferencing technology, compliant with ICE60914.
- Priority bottom to switch off the speaking unit.
- Microphone super wide visual angle OLED display, can display every working status.
- Microphone with super quiet electronic touch switch, can avoid the mechanical voiceswitching amplifier, microphone pickup operation can be controlled, and the microphone LED can display the working status.
- The microphone with illuminated ring, can indicate the working status .
- Unique audio processing circuits, can improve the clarity of the system.
- Unidirectional condenser microphone for high quality sound pickup.
- Fixed microphone design.
- Chairman unit has the priority to override and permit all delegate units , to control the atmosphere of the meeting.

05 Packing List

- ◆ Wireless conference system main controller * 1
- ◆ Power cable * 1
- ◆ 9P aviation socket extension line or 10m network cable * 1
- ◆ 9P aviation socket terminals or three-way matching terminal * 1
- ◆ 1 meter audio cable * 1
- ◆ Quick connector(female) * 2
- ◆ Rack mount kit (including screws) * 1set
- ◆ Simple operation manual * 1



Audio cable



three-way matching terminal



9P aviation socket terminals



Power cable



Network cable



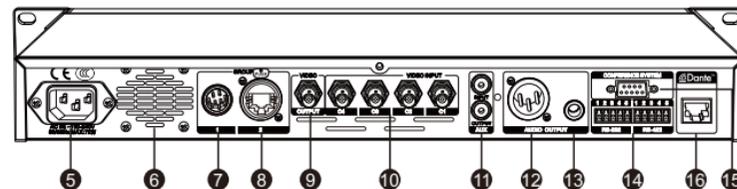
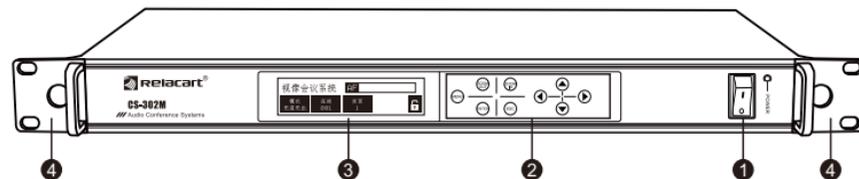
9P aviation socket extension line



Quick connector
(female)

Simple
Operation
Manual

06 Host Function Introduction

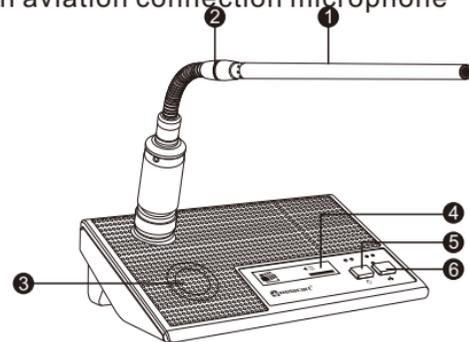


- ① POWER switch (with indicator light)
- ② Touch panel: touch control panel buttons.
- ③ OLED display: display settings and parameters
- ④ Rack mount kit: fixed installation.
- ⑤ Power input: standard IEC socket, can work in 110V / 240V 50 / 60Hz AC power supply.
- ⑥ OLED display, display settings and parameters
- ⑦ 9-pin aviation male connection port: It can be connected to the CS-302CD conference unit through the 9P aviation cable, and used with the auxiliary power supply EXP-124. A total of 110 conference units can be connected.

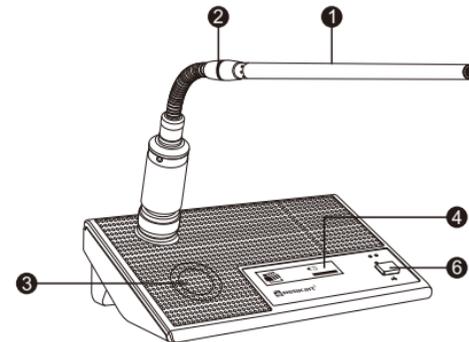
07 Microphone Unit Function Introduction

- ⑧ Female Ethernet port connection port: It can be connected to the CS-501CD or RS-361CD conference unit through a network cable. It can be used with the auxiliary power supply EXP-124W. A total of 110 conference units can be connected.
- ⑨ Camera BNC Video Output Port: mainly output camera video data.
- ⑩ Camera BNC Video Input Port: Connects to the camera's video output and can connect up to 4 cameras for video output.
- ⑪ RCA audio line port:
 - 1. Input port: can be directly connected to MP3 / DVD and other external audio signal input.
 - 2. Output port: Connects directly to the mixer or recorder.
- ⑫ Balanced XLR audio output port: XLR port can be connected to the mixer using a standard two-conductor shielded cable.
- ⑬ Unbalanced audio output port: ϕ 6.3mm port can be connected to an unbalanced input of a mixer or amplifier using standard unbalanced audio port.
- ⑭ Quick connector port: Camera communication port, can Control Up to 4 Cameras Compatible with VISCA, PELCO-D, PELCO-P 3 Camera Control Code Protocols.
 RS-422 port pin definition: 1.TXD- 2.TXD+ 3.RXD- 4.RXD+ 5.GND
 RS-232 port pin definition: 1.DSR 2.RX 3.DTR 4.TX 5.GND
- ⑮ 9-pin serial port control interface: Connect intelligent control system to achieve camera tracking.
- ⑯ Dante network port: Can connect devices that support various Dante protocols.

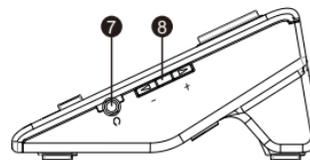
9-pin aviation connection microphone



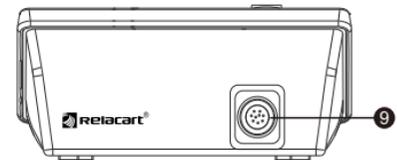
(CS-302C Chairman unit)
Top view



(CS-302D Delegate Unit)
Top view



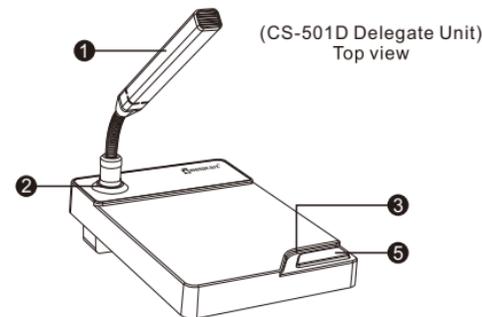
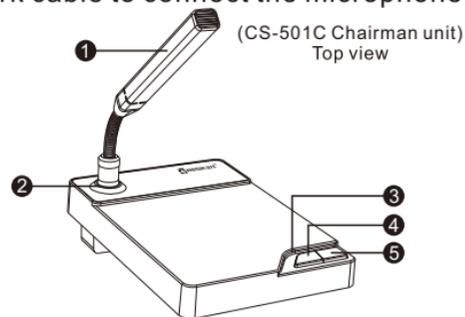
Right view



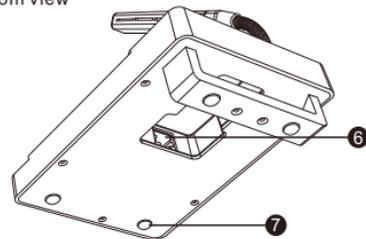
Rear view

- ❶ Super cardioid directional: High-quality condenser microphone provides clear and full sound quality, high sensitivity, and good long-distance pickup effect.
- ❷ Working status indicator: The light is off when muted, the light is on when speaking, the light flashes when waiting for the application.
- ❸ Monitor Speaker: The voice signal input from the chairman or delegate unit and the central unit is output from this speaker. Use the right monitor speaker control to adjust the monitor volume.
- ❹ LED display: Can display various working status.
- ❺ Priority speech key: allows the chairman unit to switch off the delegate unit being used. The chairman unit may choose to approve or not to approve the delegate unit to speak when applying for speech mode.
- ❻ Speaking key: When you press this key, the microphone speak indicator light and work light will be lit at the same time, the microphone is also open, press the button again, indicating the aperture and work lights off, and the microphone is turned off.
- ❼ Right headphone jack: Connect the headphone to this jack (mini jack). After the earphone is inserted, the speaker is muted and the sound is output through the earphone.
- ❽ Monitor speaker and headphone volume control buttons: "+" means volume up, "-" means volume down.
- ❾ Microphone connection: for communication between the host and the microphone.

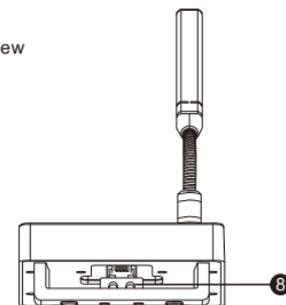
Network cable to connect the microphone



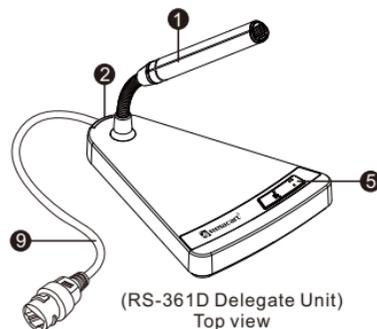
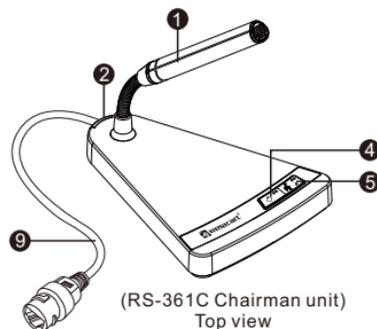
Bottom view



Rear view

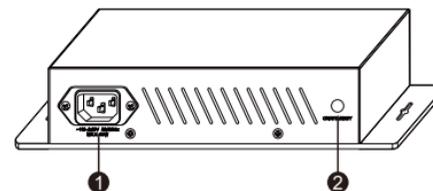


08 Conference System Repeater function introduction

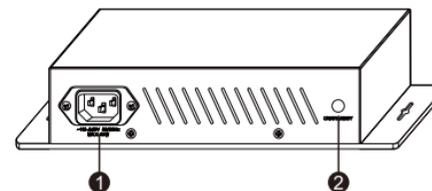


- ❶ Conjoined capsule: High-quality condenser microphone provides clear and full sound quality, high sensitivity, and good long-distance pickup effect.
- ❷ Working status indicator: The light is off when muted, the light is on when speaking, the light flashes when waiting for the application.
- ❸ Speaking status indicator: red when mute, green when speaking.
- ❹ Priority speech key: allows the chairman to switch off the delegate unit being used. The chairman unit may choose to approve or not to approve the delegate unit to speak when applying for speech mode.
- ❺ Speaking key: When you press this key, the microphone speak indicator light and work light will be lit at the same time, the microphone is also open, press the button again, indicating the aperture and work lights off, and the microphone is turned off.
- ❻ RJ 45 network cable port: connect to the conference system host, provide power supply and establish communication for the conference unit.
- ❼ Anti-vibration insulating glue, reduce the impact and vibration on the desktop.
- ❽ Network cable card slot: used to fix the network cable, unscrew the screw at the bottom of the groove, then place the network cable in the groove, and then tighten the screw.
- ❾ Microphone network cable connection: used for communication between host and microphone.

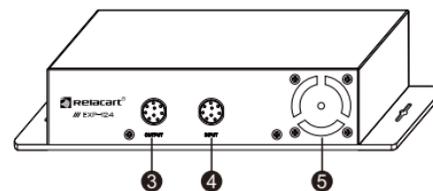
EXP-124 Repeater (Rear view)



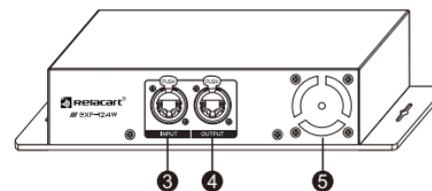
EXP-124W Repeater (Rear view)



EXP-124 Repeater (Front)



EXP-124W Repeater (Front)

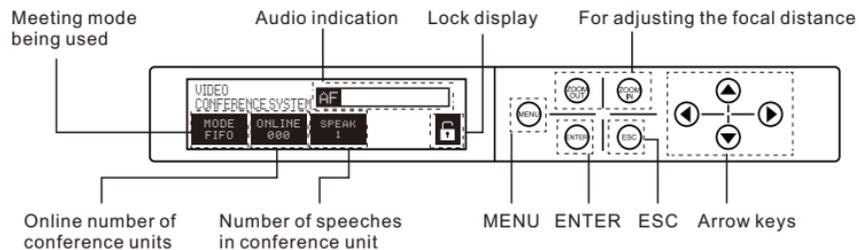


- ❶ Power socket: Support AC 110-240V, 50/60Hz input.
- ❷ Working indicator light: It lights up red when in standby and blue when it is working.
- ❸ 9P aviation male output terminal: connect the microphone unit of the next one.
- ❹ 9P aviation male input terminal: connect the microphone unit of the upper one.
- ❺ Cooling fan.

- ❶ Power socket: Support AC 110-240V, 50/60Hz input.
- ❷ Working indicator light: It lights up red when in standby and blue when it is working.
- ❸ Network cable input port: connect the microphone unit of the upper one.
- ❹ Network cable output port: connect the microphone unit of the next one.
- ❺ Cooling fan.

09 Setup and operation

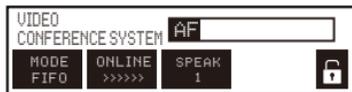
OLED display, Key operation instructions



Before the meeting starts, please connect the host unit and the delegate unit to the host computer to turn on the host. At this time, the host power indicator and the work indicator of each unit will be on, and the system will automatically search for the number of active microphone units and display on the LCD panel. If the number of microphones displayed on the LCD does not match the actual number used, check that all microphone units are connected to the system correctly.

A. Startup main interface

After turn on the power switch, the CS-302M main controller starts searching for online microphone units. After the search is completed, the number of online microphone units is displayed. The microphone unit must be connected to the host before data communication can be performed.



B. Conference Setup

① Touch the "MENU" button on the host panel to enter the conference setting menu, press "▲/▼" to scroll through the menu to select the conference mode, and then press "ENTER" to enter the next level. You can select one of the 4 speaking methods "FIFO", "Limited Time", "Request" and "Voice Activation".



FIFO: can active (1/2/3/4) microphone units in a time. When speaking microphone over the limit number of speakers who spoke first will be override. (The chairman unit is not limited) to keep the total number of open speaking units.



Main controller



Microphone unit

Limit Times: Allow maximum 5 speaking units, and can set the microphone to open 1min to 100 min, when the limited time is reach, subsequent microphone speaks. (The chairman unit is not limited) When the number of microphone speech units that have been turned on has reached the preset number (1/2/3/4), the delegate microphone units that apply for speech later are in the waiting state (the "Limit Times" displayed on the display of the microphone unit and The microphone indicator will flash, and the host will display the number of microphone speeches and the number of speeches waiting). After the microphone unit that has been opened for speech is closed, the representative unit waiting for speech will automatically start to speak to maintain the total number of open speech units.



Main controller



Microphone unit

Request: The operation of delegate unit should be approved by chairman unit.

- Chairman's microphone unit approval: When applying for the speaking mode, the chairman unit has been speaking for a long time. When a delegate unit requests to speak, press the " " speak button to allow the delegate unit, and press the " " priority button to reject the delegate unit.
- Main controller default approval:
 - "Enable Speak" means that the main controller passes by default when the chairman unit has not approved.
 - "Disable Speak" means that the main controller does not pass the delegate unit by default when the chairman unit has not approved.

"REQUEST" shown on the display when the delegate unit requests to speak the microphone indicator light will flash, and the chairman unit display will show the ID code of the delegate unit and "REQUEST" flashing. At this time, the chairman unit can approve or reject to speak. After the delegate unit speaks 20 seconds, if the chairman unit does not approve it, the main controller will approves it by default. When the number of microphone speeches has reached the preset number of turns on (1/2/3/4), the delegate unit request to speak later is in a waiting state (the main controller displays the number of microphone speeches and the number of waiting speeches). When the delegate unit is passed, it will turn off the first one to maintain the total number of open speech units.



Main controller



Microphone unit

Voice Activation: When the sound pressure picked up by the microphone unit is greater than the preset threshold, the speech will be automatically turned on. The sound pressure threshold can be set by the "Sensitivity" setting. When set the "Sensitivity" higher, and the lower of sound pressure threshold, it can easier turn on the microphone. Only one delegate unit can speak the under voice activation mode, when the maximum number of speakers is reached, subsequent microphone speaks.

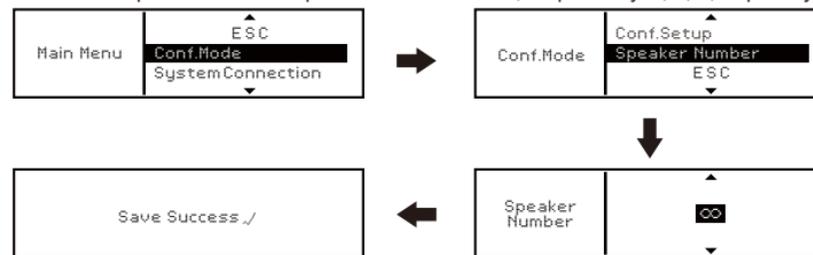


Main controller

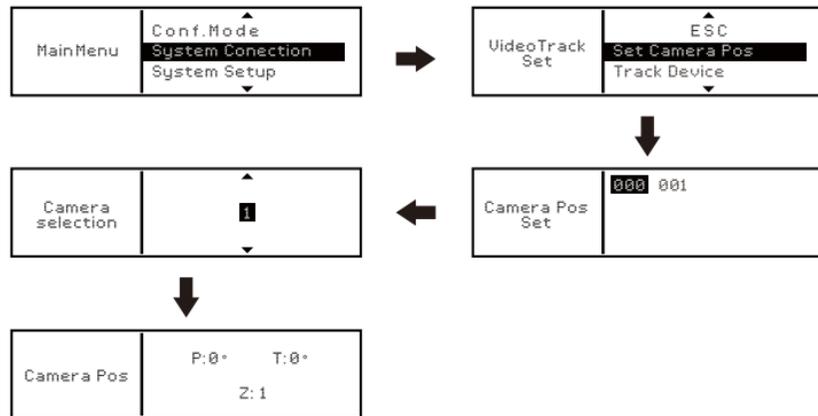


Microphone unit

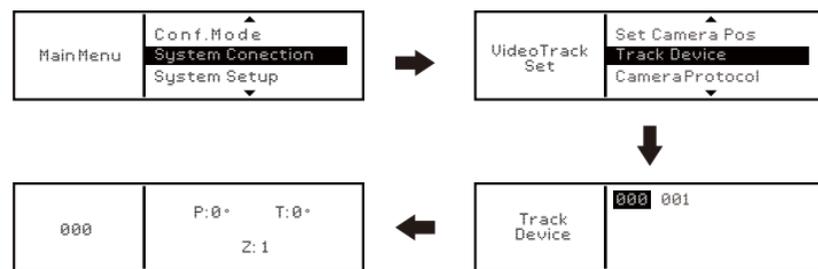
- Touch the "MENU" button on the host panel to enter the conference setting selection menu, press "▲/▼" to scroll through the menu to select the number of speaking units, and then press "ENTER" to enter the next level. You can select the number of microphone units that speak at the same time, respectively ∞, 2, 3, 4 quantity options.



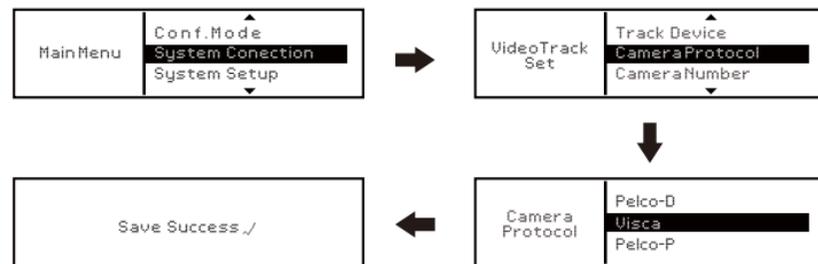
- ③ Touch the "MENU" button on the host panel to enter the video tracking setting selection menu, press "▲/▼" to scroll through the menu to select the device coordinate setting, and then press "ENTER" to enter the next level. You can select "000" and other machine to start. Complete the automatic video tracking settings of all conference units; using this function, you can set the video tracking of the camera according to the address of each unit.



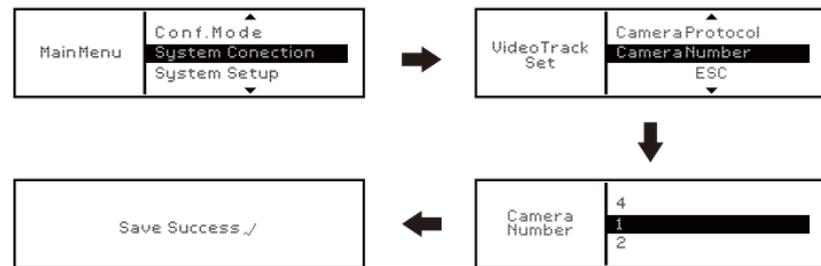
- ④ Touch the "MENU" button on the host panel to enter the video tracking setting selection menu, press "▲/▼" to scroll the menu to select the corresponding device, and then press "ENTER" to enter the next level. You can select "000" to start the machine. Manually change the tracking position of the camera. If the operator does not want the video camera to display the conference delegates who are speaking, they can use this function to select other unit addresses, change the camera's tracking, and turn to other conference delegates.



- ⑤ Touch the "MENU" button on the host panel to enter the video tracking setting selection menu, press "▲/▼" to scroll the menu to select the camera protocol, and then press "ENTER" to enter the next level. You can choose 3 different camera protocol schemes, respectively They are: Visca, Pelco-D, Pelco-P.

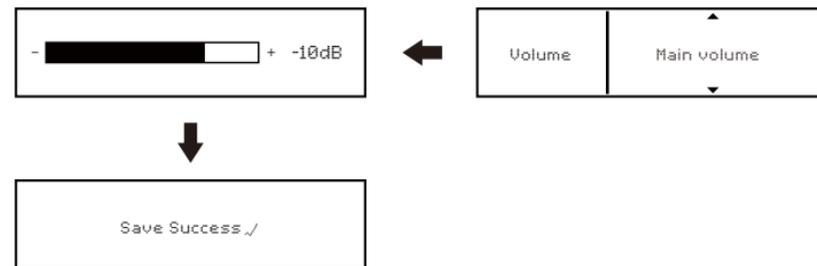
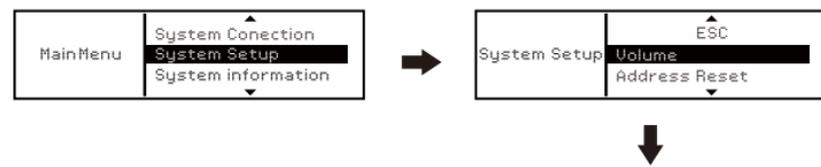


- ⑥ Touch the "MENU" button on the host panel to enter the video tracking setting selection menu, press "▲/▼" to scroll through the menu to select the camera protocol, and then press "ENTER" to enter the next level to select 1-4 cameras to work.



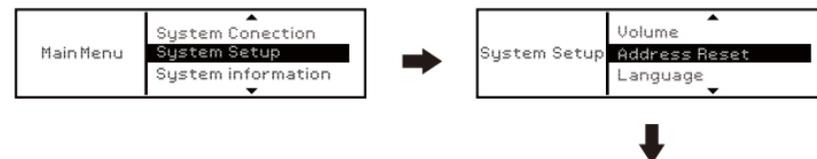
C. System Setup

- ① Touch the "MENU" button on the host panel to enter the system setting selection menu, press "▲/▼" to scroll through the menu to select the volume setting, and then press "ENTER" to enter the next level to select "Main volume" and "Line input volume", "Dante input volume" one of the 3 types of volume to control the volume level.



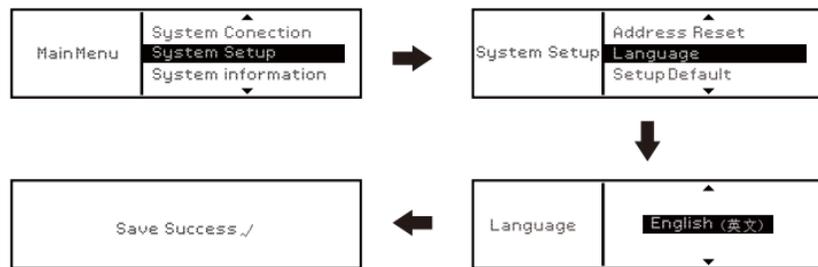
Main volume: Control the master volume output of the main controller.
Line input volume: control the volume of line device input to the main controller.
Dante input volume: control the volume of Dante device input to the main controller.

- ② Touch the "MENU" button on the host panel to enter the system setting selection menu, press "▲/▼" to scroll through the menu to select the address reassignment, and then press "ENTER" to enter the next level of selection. This function arranges the address of the microphone unit in the order of "001, 002, 003 ..." to help the operator more conveniently select and find the microphone unit when setting the video tracking. Choose "Yes" to do this, or "No" to do so.

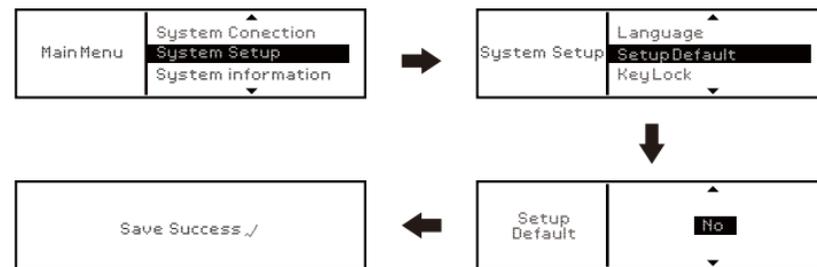




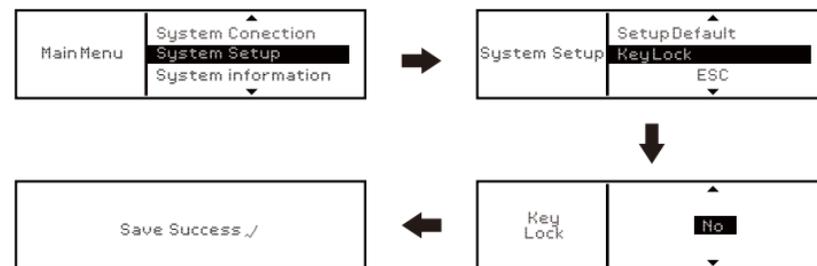
- ③ Touch the “MENU” button on the host panel to enter the system setting selection menu, press “▲/▼” to scroll through the menu to select the language setting, and then press “ENTER” to enter the next level of language selection.



- ④ Touch the “MENU” button on the host panel to enter the system setting selection menu, press “▲/▼” to scroll through the menu to select restore factory settings, then press “ENTER” to enter the next level of selection, if you select “Yes”, it will restore to the host factory default settings.



- ⑤ Touch the “MENU” button on the host panel to enter the system setting selection menu, press “▲/▼” to scroll through the menu to select key lock, and then press “ENTER” to enter the next level of selection. If you select “Yes”, the host key is locked and cannot Select the function menu, the lock icon on the main interface of the host closes the “”, select the function menu, it will prompt “key lock”.



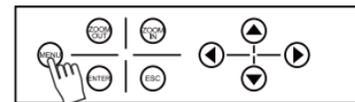
10 Camera tracking operation

D. System information

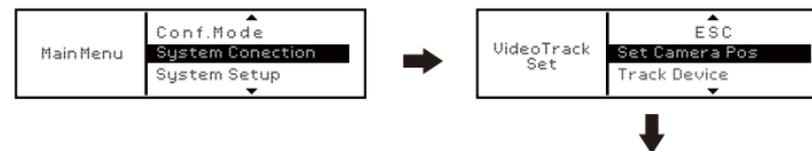
Select Information, the system software version information is displayed.

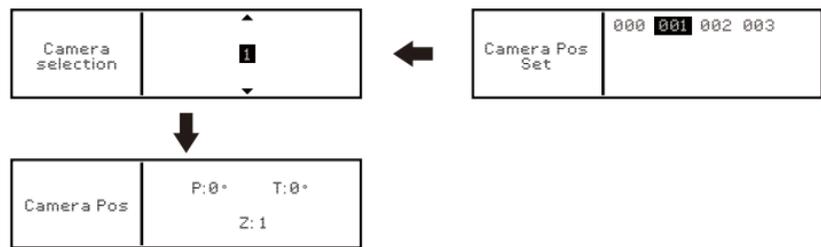


1. Connect the camera and projector equipment to the CS-302 system. The CS-302 host will enter the main menu, and select "Video Track Set" → "Set Camera Pos", "Track Device", "Camera Protocol" and "Cameras Number" Compatible camera protocols and the number of cameras used.

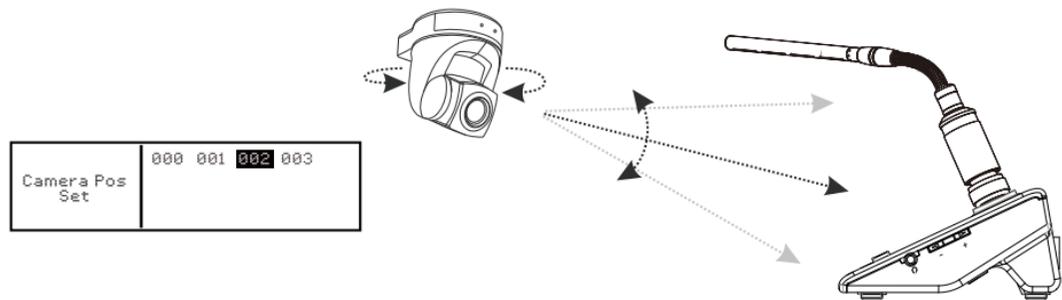


2. Press the ESC key to return to the "Video Track Set" menu selection window, and then select "Set Camera Pos", then you can get the conference unit address code, select the conference unit address code that needs to be set and press the "ENTER" key to enter the camera selection menu, Press the "▲/▼" button to select the camera to be tracked, and then press the "ENTER" button to enter the coordinates setting. At this time, the indicator light of the corresponding conference unit will flash; press the "▲/▼/◀/▶" button and "ZOOM IN" / on the panel. The "ZOOM OUT" key can control the camera to point to the desired position, and finally press the "ENTER" key to save the coordinates of the conference unit. At the same time, the host exits to the "device coordinate setting" interface, press the "▲/▼" button to select the next conference unit to set the camera tracking coordinates.

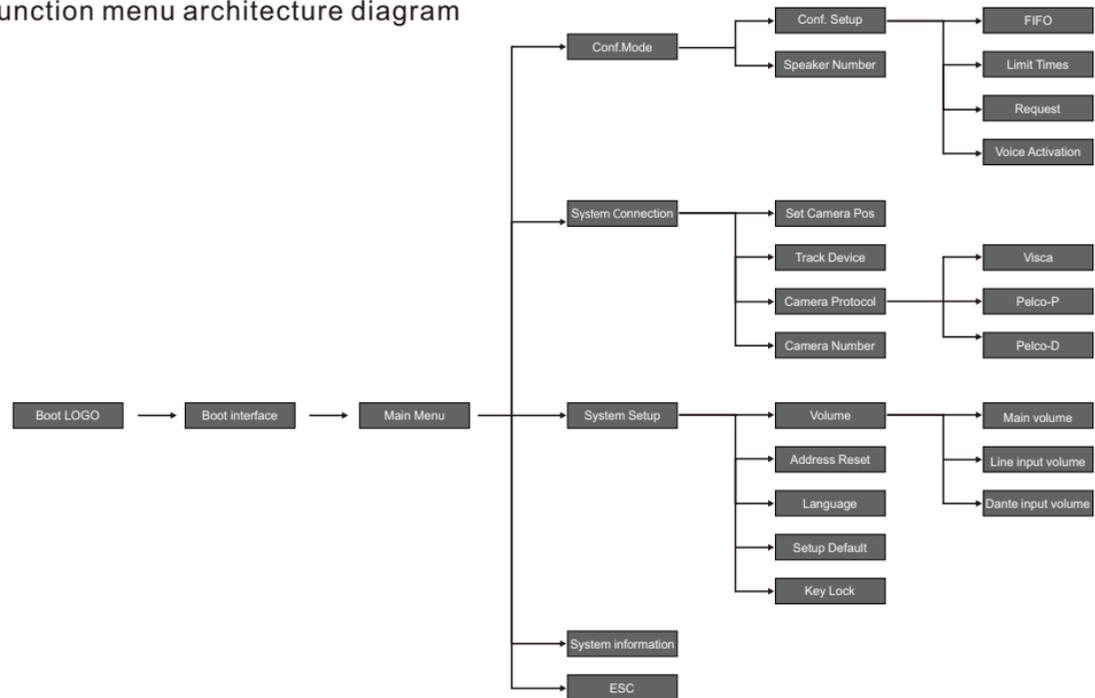




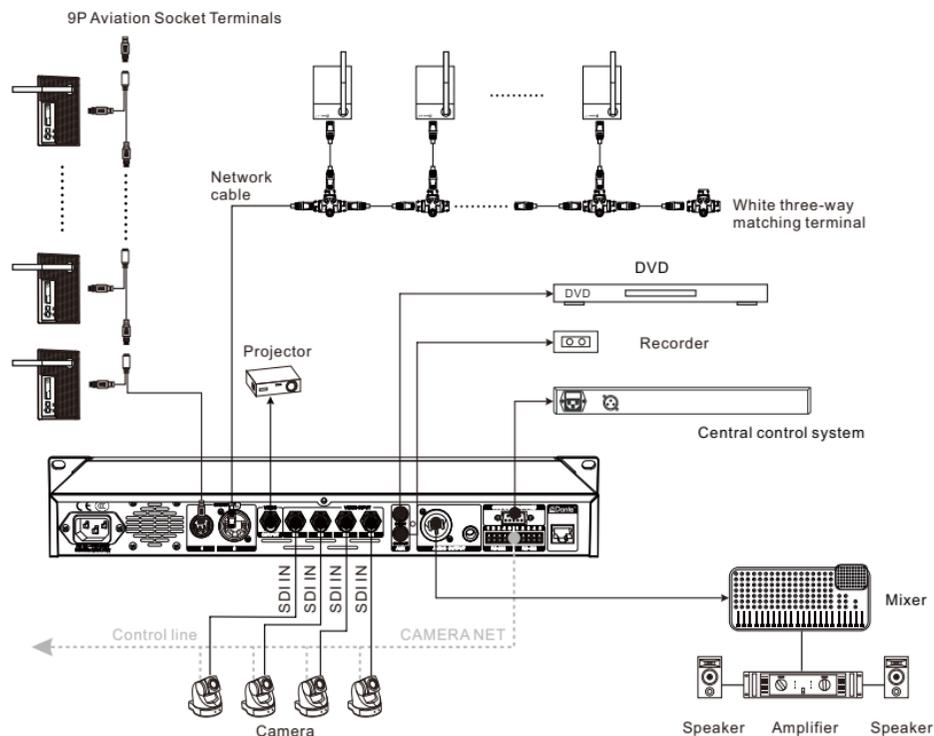
3. Address "000" is the default preset position. After confirming that each conference unit completes the video tracking setting, you can freely press the speech key of one unit to test. At this moment, the camera will automatically track the speaking unit and display on the video.



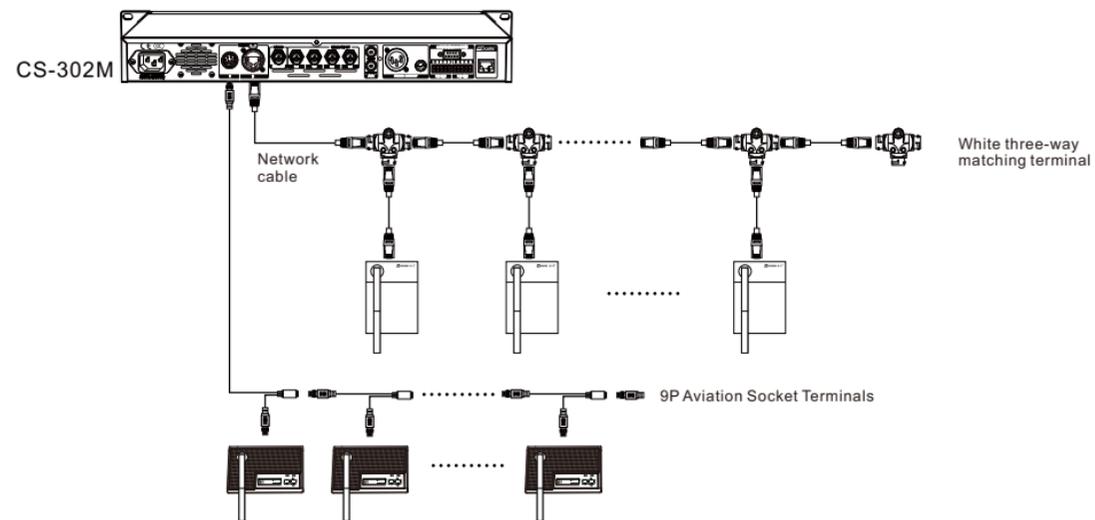
Function menu architecture diagram



11 System application connection diagram



CS-302 Conference System Microphone Unit Connection Guide



Note: After the main unit of the CS-302 conference system and the microphone are all connected, please connect the 9P aviation female terminal or white three-way network matching terminal on the extension line connecting the CS-302 system to the last microphone. Otherwise, the individual microphones of the system may fail to communicate and cause the work indicator to flash continuously.

12 Technical Specifications

CS-302 System Technical Specifications

Frequency response: 50Hz-22KHz

Total Harmonic Distortion: <0.1% (f=1KHz)

Dynamic range: >100dB

Connecting cable: Anti-detached 9 core shielded cable/Cat5 type B network cable

Connection Mode: Hand in hand

The maximum number of conference units: 110

The number of simultaneous opening microphone: 2/3/4

Operating condition: Fixed, stationary or moving

CS-302M Technical Specifications

Chassis specifications: EIA Standard 1U

Supply voltage: 110-240V AC, 50/60Hz

Static power consumption: 9.25W

Rated power: 75W/24V

Maximum power: 100W/24V

XLR balances maximum output level: -10.2dBu

Maximum output level of the 6.35mm balance socket: -10.2dBu

RCA lotus socket maximum output level: -10.35dBu

RCA lotus socket maximum input level: 4.32 dBu

Conference unit extension: Anti drop 9P aviation plug x 1, Network port (female) x 1

Video input port: BNC x 4

Video output port: BNC x 1

Video interface impedance: 75Ω

9 pin serial port control interface: DB9 Female plug x 1

Rs-232 control protocol interface: 5P Phoenix terminal X 1

Rs-422 control protocol interface: 5P Phoenix terminal X 1

Dante interface: RJ45x1

Audio output: XLRM x 1, 6.35mm jack x 1, RCA Lotus x 1

Audio input: RCA Lotus x 1

Screen type: OLED

Key mode: touch style

Weight: about 2.3kg

Dimension (mm): 410 (W) x43 (H) x206 (D)

CS-302C/D Technical Specifications

Polar pattern: Cardioid Condenser
Frequency response: 50Hz-22KHz
Sensitivity: -25dB +/-3dB (0dB=1V/Pa, f=1Kz)
Maximum input sound pressure level: 98dB SPL
Distortion: <0.1%
Power supply: 24V DC (supplied by the receiver)
Maximum power of speakers: 1.5W
Power consumption: 0.8W-2.5W
Phone connector: 3.5mm jack
Screen type: OLED
Unit interface: Anti drop 9P aviation plug
Weight: 950g
Microphone length: 340mm/420mm(default)/480mm
Base size(mm):182mm(W) x 51mm(H) x 110mm(D)
Color: nickel black

CS-501C/D Technical Specifications

Polar pattern: Cardioid Condenser
Frequency response: 50Hz-22KHz
Sensitivity:-28dB +/-3dB(0dB=1V/Pa, f=1Kz)
Maximum input sound pressure level: 98dB SPL
Distortion: < 0.1%
Power supply: 24V DC(supplied by the receiver)
Power consumption: 0.72W
Unit interface: RJ45 network port
Weight: about 825g
Dimension (mm): 170 (L) x 43 (W) x 206 (H)
Color: metallic gray

RS-361C/D Technical Specifications

Polar pattern: Cardioid Condenser
Frequency response: 50Hz-22KHz
Sensitivity: -25dB +/-3dB(0dB=1V/Pa, f=1Kz)
Maximum input sound pressure level: 98dB SPL
Distortion: <0.1%
Power supply: 24V DC(supplied by the receiver)
Power consumption: 0.72W
Unit interface: Wired network port
Weight: about 680g
Dimension (mm): 147 (L) x 115 (W) x 240 (H)
Color: nickel black

EXP-124 Technical Specifications

Model: EXP-124
Power supply(AC): 110-240V, 50/60Hz
Output voltage: 24V
Maximum power output: 72W
Input/Output interface: Anti drop 9P aviation plug
Dimension (mm): 220 (L) x 140 (W) x 48 (H)
Weight: about 950g

EXP-124W Technical Specifications

Model: EXP-124W
Power supply(AC): 110-240V, 50/60Hz
Output voltage: 24V
Maximum power output: 72W
Input/Output interface: Network cable port
Dimension (mm): 220 (L) x 140 (W) x 48 (H)
Weight: about 950g