SONODYNE®

SyNC 1001

IP enabled Digital Conference System Controller
Installation & Operating Manual

www.sonodyne.com

IMPORTANT SAFETY INSTRUCTIONS

Thank you for choosing SyNC IP enabled digital conference system. Please read this manual carefully as it contains important and helpful information to get the most out of your new product.

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION: To reduce the risk of electric shock, DO NOT open covers. No user serviceable parts inside. Refer servicing to qualified service personnel only.

CAUTION: DO NOT use alcohol, ammonia or petroleum solvents or abrasive cleaners to clean the devices.

The lightning flash with an arrowhead symbol, with 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 human beings

The exclamation mark 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

IMPORTANT SAFETY INSTRUCTIONS

1. Read and follow these instructions.
2. Heed all warnings.
3. Do not stack objects on the equipment
4. Do not use this apparatus near water.
5. Do not switch power on or off rapidly
6. Install in accordance with the manufacturer's instructions.
7. When cleaning the case, first turn off the power plug. Wipe it with a dry cloth, and do not scrub with any corrosive solvent.
8. Use a fixed power outlet with correct capacity to supply power
9. Do not expose to water or fluids. Do not place any fluid containers on the unit.
10. Do not install near any heat sources such as radiators, stoves, or other apparatus (including amplifiers) that produce heat.
11. Do not defeat the safety purpose of the polarized or grounding-type plug.. A grounding type plug has two poles and a third grounding pole. The thick pole or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the outlet.
12. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
13. Only use attachments/accessories specified by the manufacturer.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled into it or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

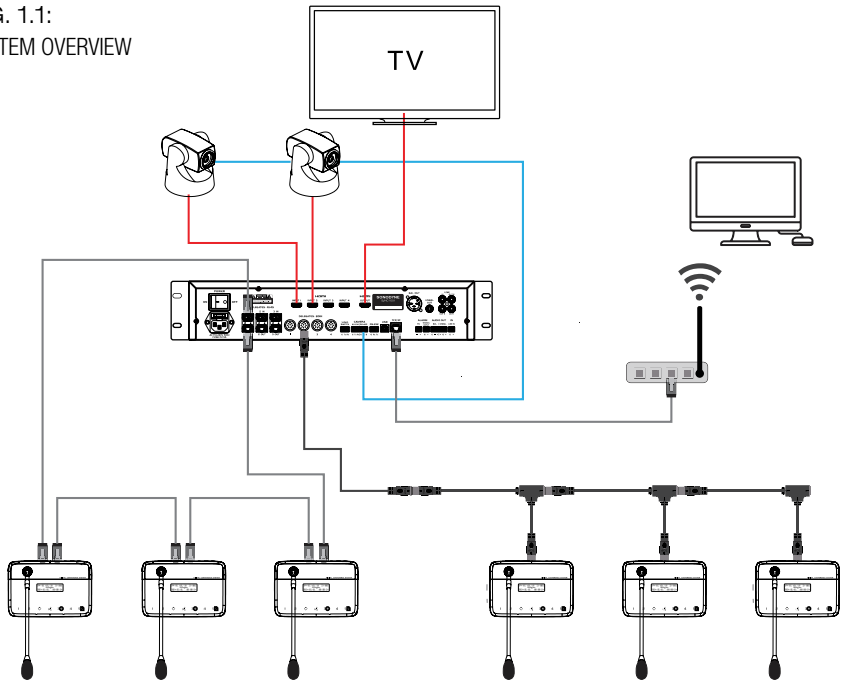
CONTENTS

1.1 SUMMARY

The IP enabled Digital Conference System is an intelligent full-function digital conference system, which combines advanced digital technology, network technology and audio technology. It can be seamlessly connected with central control systems, video conferencing systems, and monitoring and fire protection systems, providing a complete solution for efficient modern conference system engineering.

The connection technology between the conference units in the system is simple to install and supports cascading functions. The system supports 48kHz audio sampling frequency, with a flat frequency response from 20Hz ~ 20kHz. The system is composed of controller unit, conference unit and application software. Among them, the conference unit has a chairman unit and a delegate unit, and the application software is composed of multiple application software modules.

FIG. 1.1:
SYSTEM OVERVIEW



1.2 SYSTEM TECHNOLOGY

1. CONFERENCE SYSTEM CONTROLLER

The conference system controller is the core equipment of the digital conference system. It supplies power to all conference units and is also the connection and control bridge between the system hardware and the system application software.

The conference system controller can operate independently to realize basic conference control functions. In conjunction with the system software, it can realize more powerful management and control. The system controller can set the IP address, has a TCP/IP network interface, can connect to a wireless router, and use computers in the same LAN to operate and set the controller. It supports Microsoft Windows systems

The distance between the conference system controller and the computer can be kept quite large, which removes the limitation faced with RS-232 based systems where the distance between the conference system controller and the computer cannot exceed approximately 15 meters. The introduction of network technology makes the conference system integrate with the rapidly developing internet technology, communication technology, so that it can fully enjoy the convenience brought by modern technology, for example, using wireless local area network technology to wirelessly manage and control the conference system.

The conference system allows use of either an 8-core cable or CAT6 network cable. A single cable can carry high-quality audio signals and control data at the same time, and can adapt to the wiring requirements of various venue environments. The professional 8-core cable with T-shaped connector or CAT6 network cable facilitates installation and dismantling of the system. The "hand in hand" wiring design of the conference unit allows it to be connected at any node of the system, which facilitates the expansion and movement of the system.

2. CONFERENCE UNIT

The system controller can connect to a large number of conference units, which consists of a Chairman unit and several Delegate units. These are equipped with touch type controls and are easy to operate. The microphone unit, or the gooseneck, is removable and can be screwed on to the base of the conference unit.

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The connection technology between the conference units in the system is simple to install and supports cascading functions. The system supports 48kHz audio sampling frequency, with a flat frequency response from 20Hz ~ 20kHz. The system is composed of controller unit, conference unit and application software. Among them, the conference unit has a chairman unit and a delegate unit, and the application software is composed of multiple application software modules.

1.3 APPLICATION SOFTWARE

There are 2 types of application software module– one is a remote control software which can remotely control the various functions of the controller in place of the touch-screen interface. The second is a conference system software for preparing and conducting the meeting.This software of the system is rich and exhaustive, and has the characteristics of simple operation, safety and reliability, and easy maintenance. The connection line of the system is integrated with all conference system equipment as a whole, and the operator can centrally check the conference system. The system implements all-round control, which simplifies operation and improves efficiency. Both software are available upon request.

The conference system software adopts modular design, including:

1. Unit detection module
2. Proposal management module
3. Conference venue management module
4. Personnel management module
5. Sign-in management module
6. Conference control module
7. Proposal control module
8. Report statistics module
9. Data module
10. System control module
11. User management module

1.4 FUNCTIONS & FEATURES

1. Microphone "speaking modes" settings
   - 5 "speaking modes" can be set:
   - ◊ “FIFO”: If the maximal number (1-8) of active delegate microphones has been reached and if another delegate unit is activated, the delegate unit switched on first will be switched off first automatically
   - ◊ “LIMIT”: If the maximal number of active microphones, previously fixed, has been reached, delegates requesting to speak join a request-to-speak list. The first unit joining the list will become active when the active unit gets off.
   - ◊ “FREE”: Allows up to 20 delegate speech units to be turned on at the same time, and is not limited by the “Speak Number”
   - ◊ “APPLY”: When the delegate presses the microphone ON/OFF button to request to speak, the chairman unit can approve or reject his/her request.
   - ◊ “VOICE”: The delegate's microphone is activated when spoken into.

- The number of speakers can be set from "1-8".

- Two "speaking time modes" can be set:
  - ◊ "Timer mode". Can be set to any value between"0-999" seconds. The microphone will automatically turn off when the set time is reached.
  - ◊ "Auto mode". Can be set to any value between "0-999" seconds. After the set time, if the microphone is not spoken into within the set time, the microphone will automatically shut down.

2. The number of chairman units is not limited and supports extended functions
   The number of chairman units is unlimited. The main unit supports extended functions and supports up to 1000 microphones at the same time, with the help of separate Data Extender units

3 . Automatic Camera tracking function
   Equipped with "SONY VISCA, PELCO P, PELCO D" communication protocol cameras, it can realize automatic tracking function and can display the panorama of the venue and speakers.

4. 4. Efficient voting and sign-in function(latter is via the application software)
   - As long as it is equipped with a chairman unit with a display screen, the voting function can be realized without a computer ("yes/abstain/no"), and the voting result is displayed on the LCD screen of the conference unit
   - The software can support various forms of voting:
     - ◊ Voting method: yes/abstain/no
     - ◊ Election method: 1/2/3/4/5

5. Conference sign-in function
   Sign-in function (key-press sign-in)

6. Full remote control, remote diagnosis and remote upgrade
   - The system controller can set the IP address, has a TCP/IP network interface, can be connected to a router, and use Windows based computers, in the same LAN

7. Seamless connection with conference sign-in system and central control system
   The conference system is seamlessly connected with most Intelligent central control systems, thus forming a complete conference system solution.

8. Effective RFI (radio frequency interference) supression such as from mobile phones

1.5 UNPACKING

To unpack the unit, open the carton by cutting along the edge of the flaps. Push the flaps wide open. Hold the unit along front and back and lift it along with its EPE buffer. Remove the EPE buffer and the PE bag and store them in the carton. Keep the carton and packing materials handy in case you have to transport the unit in future.

1.5 IN THE BOX

Inside the carton you will find the following

1. Conference System Controller
2. Power cable
3. 10m long cable with 8 pin DIN connector
4. Operating manual

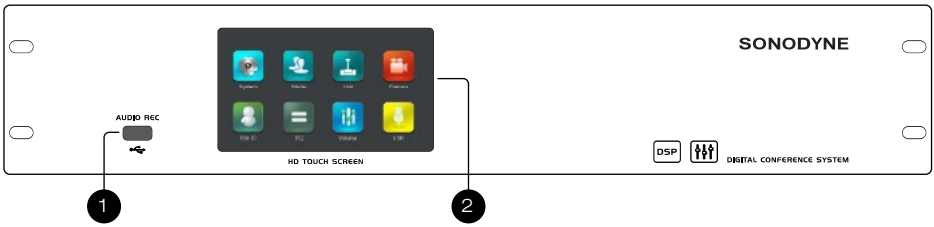
1.5 MOUNTING

The unit is designed for rack-mounting. It occupies 2RU rack space. Details of rack mounting are given under Section 5.2.1.1, on page 29

2.1. CONFERENCE SYSTEM CONTROLLER

2.1.1 FUNCTION AND INDICATION

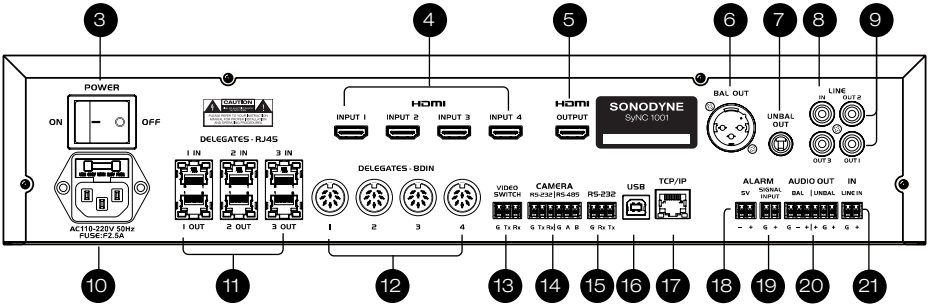
FIG. 2.1a:
FRONT PANEL



2.1.1.1 FRONT PANEL

1. USB RECORDING OUTPUT PORT: Connect a USB flash drive or external hard disk to this socket for recording audio. The file format is WMA
2. HD 5" TOUCH SCREEN: This is an interactive display cum touch screen. Details in Chapter 2

FIG. 2.1b:
REAR PANEL



2.1.1.1 REAR PANEL

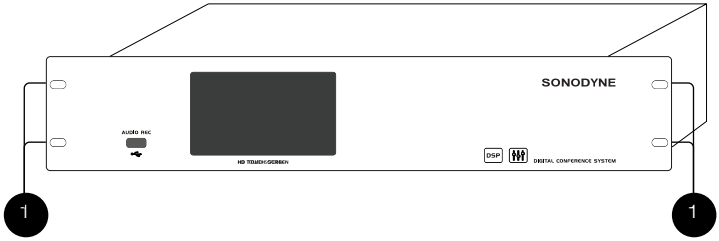
3. POWER SWITCH: This is a rocker type power switch to switch power on or off.
4. HDMI INPUT 1-4: Connect the HDMI video output of your cameras to these sockets. The switched output depending upon the camera in use, is available from the HDMI output. You can connect the output of 4 cameras. If you have more cameras, you have to use a video switcher, and control the switcher through HD video RS232 switcher interface
5. HDMI OUTPUT: The video output of the camera in use is available from this socket.
6. BALANCED LINE OUTPUT: This is a balanced line level audio output through XLR socket, which you can connect to amplifier or other audio reproduction equipment
7. UNBALANCED LINE OUTPUT : This is an unbalanced line level audio output via a 6.3 mm phones socket which you can connect to amplifier or other audio reproduction equipment
8. UNBALANCED LINE INPUT: This is an unbalanced line level audio input through RCA socket
9. UNBALANCED LINE OUTPUT: There are 3 line level unbalanced audio outputs via RCA sockets
10. IEC AC SOCKET: This is a fused 3-pin IEC AC receptacle for connecting to a wall outlet with the cable supplied. Ensure that the wall outlet is properly earthed, that is, the earth must be connected to a earth bus-bar which connects to other audio equipment and is not shared by noisy equipment like computers, air-conditioners, lighting appliances etc. The earth connection is also required in the interests of your own safety, should any fault occur. Please check that the wall outlet is capable of providing the current requirement of the product, printed on the back panel near the IEC AC socket
11. DELEGATES- RJ45: There are 3 groups of RJ45 sockets, each group consisting of input and output. If your conference unit (chairman or delegate unit) is equipped with RJ45 interface, connect the first unit to the output and the last one to the input. The conference units are equipped with dual RJ-45 sockets to connect them in a daisy-chain fashion. Each group can connect to a maximum of 20 units, hence total of 60 units can be connected.
12. DELEGATES – 8 PIN DIN: These are dedicated 8 pin sockets which can be used instead of the RJ-45 interface. There are 4 such groups. The advantage of this interface is that it can carry a higher current since the conference controller supplies power to the conference units. However, the cable

is custom-made. If your conference unit is equipped with 8 pin DIN, use one end of the supplied 10m long 8 pin male to 8 pin male cable to connect to the controller, and the other end to the T-junction cable which has a female connector. The T-junction cable allows conference units to be connected in tandem. Each group can connect to a maximum of 30 units, hence total of 120 units can be connected.

13. VIDEO SWITCH: This is a 3 pin Phoenix plug interface meant to connect to the control input of video switcher. If there are more than 4 cameras, the built-in camera output switcher cannot be used. In this case, a video switcher is required to switch the video output of cameras. The control is via an RS-232 interface following the NVN. protocol.
14. CAMERA CONTROL: This consists of 2 groups of 3 pin Phoenix plug interface for connecting to the control terminal of PTZ cameras. One group is for communication via RS-232, and the other via RS-485. The control protocols supported are VISCA, PELCO-D and PELCO-P. Details are given under 2.1.4.4. If using an RS-232 connection, connect the Rx pin to Tx pin of camera, and the Tx pin to Rx pin of camera, and connect the GND pins of both. Connection details will be provided by the camera manufacturer in the accompanying manual, along with the control protocol and the parameters for serial communication like Baud rate, etc. Note that RS-232 supports data rates up to 3 Mbps and RS-485 supports data rates up to 40 Mbps. Also RS-485 cables can be used for distances upto 4,000 foot, whereas RS-232 cables can be used only upto 50 foot.
15. CENTRAL CONTROL SYSTEM RS232 INTERFACE: This is a 3 pin Phoenix plug interface. The functions of the controller can be remotely controlled by a computer via this interface following RS-232 serial communication protocol. There are 22 control codes which can fully take over the control of the controller. These control codes are available upon request.
16. USB CONNECTION INTERFACE: This socket can be connected to the USB port of a computer using a USB-B to USB-A cable, for remotely controlling the main functions of the controller, using a Windows app supplied upon request.
17. ETHERNET INTERFACE: The function of this is same as above, except that the computer uses TCP/IP protocol to communicate with the controller through the Ethernet interface. To connect to the controller via the computer, connect both to the same LAN, and enter the IP address displayed on the remote IP of the controller as shown in Fig 2.6.5 under Chapter 2
18. FIRE ALARM TRIGGER INTERFACE: This is a 2 pin Phoenix plug interface. When +5V is applied to the ALARM input, all the microphones of the conference unit are turned off, and “ALARM” is displayed on the LCD screen of the conference unit. When this interface is disconnected, it returns to the working state.
19. FIRE ALARM AUDIO SIGNAL INPUT: This is a 2 pin Phoenix plug interface for applying the alarm signal. When +5V is applied to the ALARM input, the alarm signal is sounded through audio reproduction equipment connected to the output of the controller.
20. LINE OUTPUT: This comprises a pair of balanced and unbalanced line outputs.
21. UNBALANCED LINE INPUT: This is an unbalanced line input for playing background music when the conference units are not in use. If any conference unit is spoken into, the background music stops.

2.1.2 INSTALLATION

FIG. 2.2: INSTALLATION



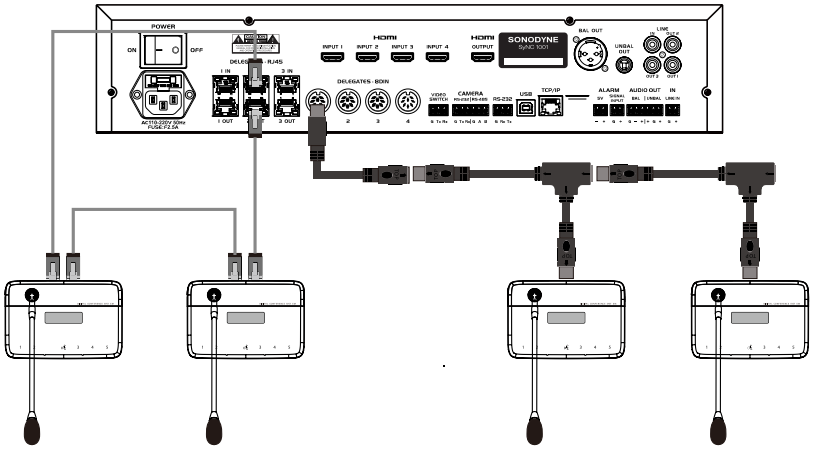
The conference system controller can be installed on a standard 19" cabinet in a 2RU rack space. There are 4 mounting holes, 2 on each side, for fitting to the rack with screws.

2.1.3 CONNECTION

2.1.3.1 CONNECTION WITH CONFERENCE UNIT

The conference system controller has four groups of 8P-DIN conference unit output interfaces. You can connect the Sonodyne SyNC 3001 and SyNC 3002 to these sockets through standard 8 pin cables supplied with the conference units. There are also 3 groups of 6 RJ45 microphone unit interfaces for connecting conference units equipped with RJ-45 interface. These are not standard units, but can be supplied on special request. The controller is shipped with a standard 10m cable with 8 pin DIN male connectors on both ends. When the main unit is far away from the conference unit, it is recommended to use an 8P-DIN extension cable. One end of the cable has an 8P-DIN male and the other end an 8P-DIN female. Connect the 8P-DIN female end of the extension cable to the standard 8P-DIN male end cable or T shaped connecting wire that comes with the conference unit. Then connect the 8P-DIN male end of the extension cable to the output interface of the controller.

FIG. 2.3: THE CONNECTION BETWEEN CONTROLLER AND CONFERENCE UNIT



2.1.3.2 CONNECTION WITH AUXILIARY EQUIPMENT

The system controller has different types of output and input – both balanced and unbalanced, via different type of interfaces – Phoenix connector, RCA and 6.3 mm phone jack that allows it to be connected to different auxiliary equipment.

2.1.4 SETTING & OPERATION

After completing the system installation and connection, you need to set up the conference system controller before the conference starts. The controller menu structure is shown in the figure below:

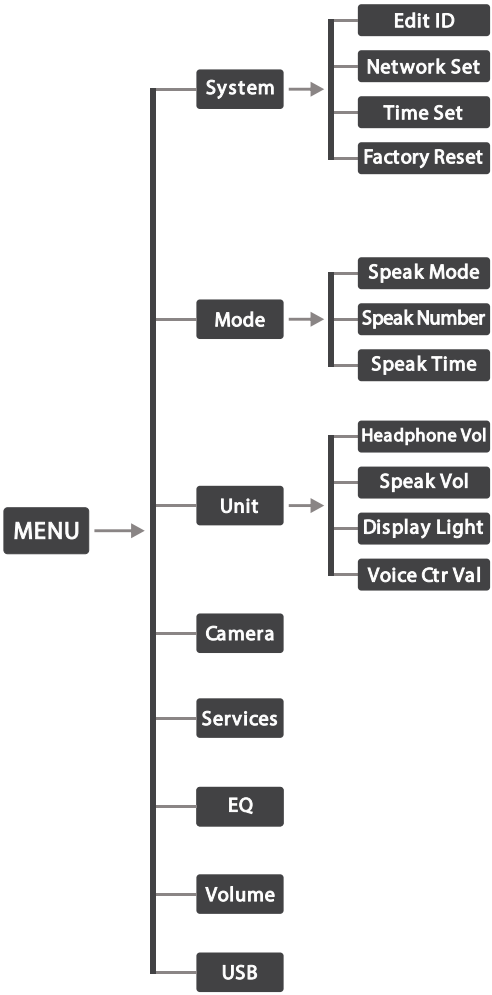


FIG. 2.5: MENU OF CONTROLLER

A. POWER ON INITIALIZATION

After connecting, press the power switch and the controller will enter the boot screen, as shown in Fig 2.6.1

FIG. 2.6.1

After 2 seconds, it will automatically enter the standby mode. Swipe the screen to enter the main interface, as shown in Fig. 2.6.2

FIG. 2.6.2

2.1.4.1 SYSTEM SETTINGS

Press the "System Setting" icon to enter the system settings menu, as shown in Fig. 2.6.3

FIG. 2.6.3

1. EDIT ID

Press the "Edit ID" icon to enter the edit unit ID menu, as shown in Fig 2.6.4

FIG. 2.6.4

When the controller is connected to the speaking unit, you need to edit the ID for the first time. Press"Start", and then press the microphone speak button of all the units one by one. As soon as you press the microphone button of the first unit, the number 001 will show up on the screen. Next 002 will show up when you press the second, and so on. After the editing is over, the current ID of all connected units will be displayed. You need to edit the ID once only. ID number is automatically saved in the unit. Once editing is over, press STOP to save and exit.

2. NETWORK SETTINGS

Set the Local IP, Remote IP, Netmask and Gateway corresponding to your network settings, for static configuration mode. If the network connection is through a DHCP router, these values will be automatically set. Fig. 2.6.5 shows the network settings.

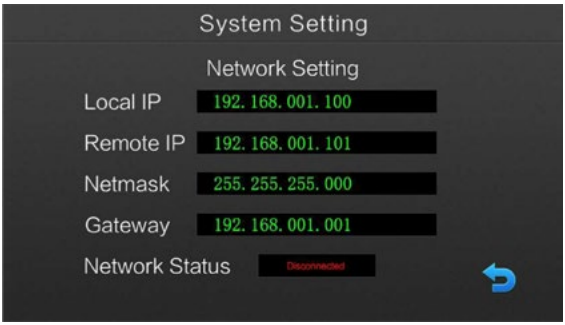


FIG. 2.6.5

"Local IP":	It is a unified address format provided by the IP protocol. It assigns a logical address to each network and each host on the Internet to shield the difference in physical addresses of each device. The IP address of the login interface must be consistent with the host setting before you can log in and use it.
"Remote IP":	Refers to the IP of the communication control equipment in the same local area network, such as the IP of a computer.
"Netmask":	Indicates which bits of an IP address identify the subnet where the controller is located and which bits identify the bit mask of the host. The subnet mask cannot exist alone, it must be used in conjunction with the IP address. The subnet mask has only one function, which is to divide an IP address into two parts, the network address and the host address.
"Gateway":	This refers to a distributed database on the Internet that maps domain names and IP addresses to each other, enabling users to access the Internet more conveniently. Through the host name, the process of finally obtaining the IP address corresponding to the host name is called domain name resolution.
"Network Status":	Displays the current connection status between the device and the network

3. TIME SETTINGS

Set the date and time of the current system. After setting, it will automatically synchronize the date and time of the speaking unit, as shown in Fig 2.6.6

FIG. 2.6.6

4. FACTORY RESET

If the system cannot be used normally due to some problem, the data can be cleared by restoring the factory settings, as shown in Fig. 2.6.7

FIG. 2.6.7

2.1.4.2 MEETING MODE

Press the "Mode" icon to enter the conference mode setting menu, as shown in Fig. 2.7.0

FIG. 2.7.0

1. SPEAK MODE

This allows selection between one of 5 modes as follows

- "FIFO": If the maximal number (1-8) of active delegate microphones has been reached and if another delegate unit is activated, the delegate unit switched on first will be switched off first automatically
- "LIMIT": If the maximal number of active microphones, previously fixed, has been reached, delegates requesting to speak join a request-to-speak list. The first unit joining the list will become active when the active unit gets off.
- "FREE": Allows up to 20 delegate speech units to be turned on at the same time, and is not limited by the "Speak Number"
- "APPLY": When the delegate presses the microphone ON/OFF button to request to speak, the chairman unit can approve or reject his/her request.
- "VOICE": The delegate's microphone is activated when spoken into.

FIG. 2.7.1

2. SPEAK NUMBER

Selects the maximal number of delegate units that can be turned on at the same time: 1-8. Chairman unit is not limited by the "Speak Number".

FIG. 2.7.2

3. SPEAK TIME

This sets the speaking time of the microphone unit, which is further divided into timing mode and automatic mode. The speak time feature can disabled also.

- "Limit Time": Any value between"0-999" seconds can be set, and the microphone will automatically turn off after the set time is reached.
- "Auto Time" :Any value between"0-999" seconds can be set. After the set time, if the microphone is not spoken into, it will automatically turn off

2.1.4.3 UNIT SETTINGS

Press the "Unit " icon to enter the unit setting menu, as shown in Fig. 2.7.3 and 2.7.4

FIG. 2.7.3

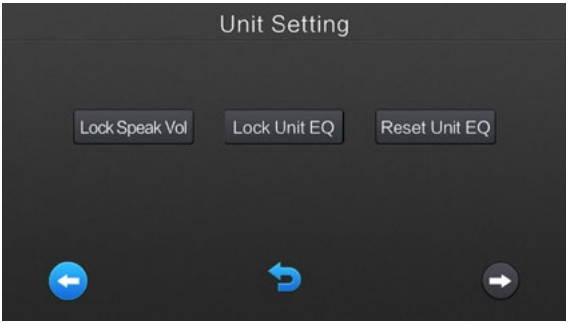


FIG. 2.7.4

"Headphone Vol" :	Adjust the volume of the headphone or speaker of the speaking unit. The setting range is 0-20.
"Speak Vol":	Adjust the volume of the microphone of the speaking unit. The setting range is 0-20.
"Display Light":	Adjust the brightness of the display screen of the speaking unit. The setting range is 0-20.
"Voice Ctrl Vol":	In the voice control mode, adjust the sensitivity of the microphone that activates the speaking unit. The setting range is 0-20.
"Lock Speak Vol":	Press this key to lock the speaking volume of the speaking unit microphone.
"Lock Unit EQ":	Press this key to lock the balance setting of the speaking unit microphone.
"Reset Unit EQ":	Press this key to restore the balance of the speaking unit microphone to the default setting.

2.1.4.4 CAMERA SETTINGS

Press the "Camera" icon to enter the camera tracking menu, as shown in Fig. 2.7.5

FIG. 2.7.5

1. PARAMETER SETTING

Set the video tracking parameters of the controller, such as protocol and baud rate, etc.

"Camera Mode" : This sets the communication mode between the controller and the camera.
A. "Call Position": In this mode, turn on the unit microphone. The ID of the unit will be displayed in the current unit ID edit box of the host (the unit with ID 1 corresponds to the camera's no. 1 preset position) and the camera address called by the unit.
B."Set Position": In this mode, the up and down functions of the camera can be controlled to set the preset position.
(Note: Camera must be in this mode to set camera tracking and save presets)

"Camera Protocol": This sets the communication protocol between the host and the camera. There are three protocols: VISCA, PELCO-D, and PELCO-D.
(Note: The protocol selected must be the same as that of the camera)

"Camera Baud": This sets the communication baud rate between the host and the camera. There are three baud rates 9600, 4800, 2400.
(Note: the baud rate must be the same as that of the camera)

Switch Baud": This sets the communication baud rate of the host and the HD matrix. There are four baud rates of 38400, 19200, 9600, and 4800.

"Camera addr": This sets the ID of the camera currently to be controlled. When using multiple cameras, the camera itself needs to be set with different addresses.

"Max Position": This sets the maximum preset number of camera positions, the default value is 128. As long as the preset position of the whole project does not exceed 128, this value does not need to be modified.

"Camera Speed": This sets the rotation speed of the camera. The default value is 100

2. TRACKING SETTING

Set and save the preset position of the camera, as shown in Fig. 2.7.6

FIG. 2.7.6

The operation method is as follows:
To control the camera, the Camera Mode must be in “Set position”. Set the unit ID corresponding to the preset position of the camera

a. First, set the correct camera protocol, camera serial port baud rate, camera address, camera maximum preset position, and camera rotation speed in the parameters.
b. Modify the preset address, "0" is the camera panoramic bit address code, "1" is the address code of the speaking unit with ID "001", and so on.
c. If the value of "1" is selected for the preset address, the Mic ON indicator of the speaking unit with the particular ID will flash. Control the up, down, left, right, focus, zoom in/out of the camera according to the position of the speaking unit. You can also adjust the camera focal length. Click "Save Position" to save the preset position corresponding to the speaking unit of the current ID. After saving, the value of the preset address will automatically increase by 1 and become "2". At this time, the Mic ON indicator of the speaking unit of the particular ID will flash. Repeat the above procedure. Do this for all the speaking units that require camera tracking.
d. After the camera setting is completed, the Camera Mode has to be set in “Call position” for normal operation

2.1.4.5 SERVICE

Press the "Service" icon to enter the service menu, as shown in Fig. 2.7.7

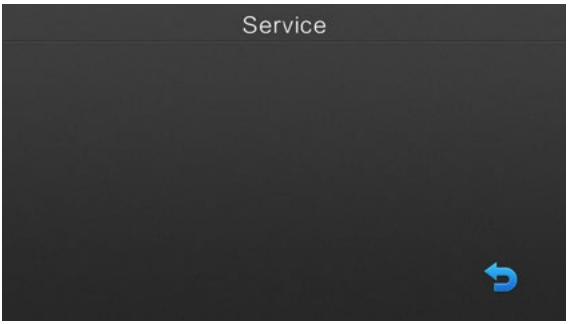


FIG. 2.7.7

If there is a speaking unit applying for service, this interface will pop up and prompt the service requirements of the applying unit, as shown in Fig. 2.7.8

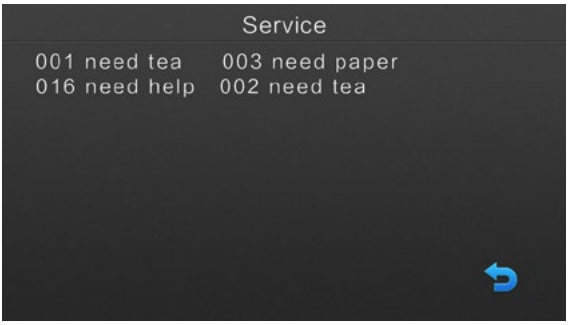


FIG. 2.7.8

If the requested unit cancels the service, the above request will automatically disappear

2.1.4.6 EQ

Press the "EQ" icon to enter the setting menu, as shown in Fig. 2.7.9

FIG. 2.7.9

1. INTRODUCTION TO PARAMETERS

There are a total of 32 parametric equalisers available to the user. The 32 equalisers are divided into 4 pages, each page containing 8 equalisers. The equalisers can be configured by setting the center frequency, Q of the equaliser and the amount of cut/boost. These are shown at the bottom of the page – the “dB” indicating amount of cut/boost (cut is denoted with a minus sign), the Hz indicating the frequency, and the Q. Numerical values can be entered by touching the corresponding boxes, whereupon a keypad pops up. Each equaliser can be instantly bypassed by touching the BYP1 – BYP 8 buttons on the left

"EQ Channel”:	Each page displays 8 equalisers. There are 4 pages with equalisers numbered as 1-8, 9-16, 17-24 and 25-32
"BYP1-8":	Corresponding to each equaliser, there is a bypass switch. There are 4 pages with the equalisers numbered as BYP1- 8, BYP9- 16, BYP17-24 and BYP25-32. With the BYP engaged, the signal passes through without equalisation.
"Disable":	This disables or mutes the audio signal. It is a global switch, affecting all equalisers equally.
"Pass All":	This is a global bypass switch, affecting all equalisers equally.
"Reset":	This restores the EQ to factory settings.

1. OPERATION

a. Slide the bar to set the gain of the corresponding EQ segment, slide the fader to modify this parameter, or click the edit box to modify, the parameter unit is dB
b. Click the center frequency edit box to modify the center frequency, the unit is Hz.
c. Click the Q value edit box to modify the Q value parameter, the unit is Q.
d. Click the corresponding bypass button on the right to bypass the parameter setting of the corresponding segment.

2.1.4.7 VOLUME

Press the "Volume Setting" icon to enter the volume setting menu, as shown in Fig. 2.8.0

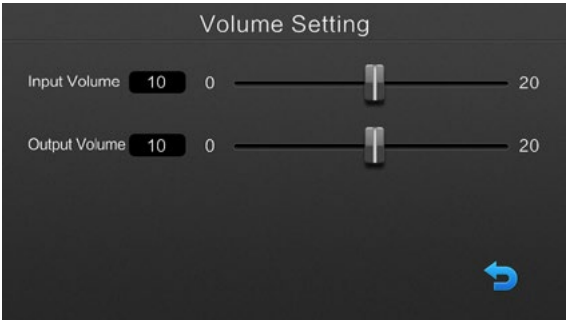


FIG. 2.8.0

"Input Volume": Set the input volume of the audio input interface of the controller, the adjustment range is 0-20.

"Output volume": Set the output volume of the controller' s audio output interface, the adjustment range is 0-20.

2.1.4.8 USB RECORDING

Press the "USB" icon to enter the USB recording menu, as shown in Fig. 2.8.1

FIG. 2.8.1

1. OPERATION

a. Insert the USB flash disk into the USB-A type socket on the front panel of the controller
b. Click the "START" button in the USB recording menu, and the original red stop button will turn into a recording state icon
c. After the meeting is over, press the "STOP" button to stop recording. The system will automatically save the recording file on the U disk. The audio file format is WMA

3.1 SUMMARY

This conference system has a simple and reasonable structure with high extendibility in hardware. The system installation is simple and quick and does not need special training. Hand-in-hand connection is adopted between conference units as well as to controller via dedicated 8PIN cable or RJ45 cable.

TCP/IP protocol is adopted for Ethernet connection between the controller and the PC. As a result remote control, remote diagnosis and remote update can be achieved. Application software for client and server can run on one computer or on different computers in the same LAN. The operator is able to control the progress of the meeting flexibly.

In this chapter, the connections are introduced by diagrams and examples.

3.1.1 CONNECTION PRINCIPLES

The system power is provided by controller for all the conference units. Thus, the total number of system units in any installation is limited by the maximum power handling capacity and control capacity of the controller. The controller has 3 groups of 2-channel RJ45 microphone unit interfaces, adopts closed-loop Ethernet link mode, supports bilateral power supply of microphone units, and supports hot-swappable microphone units. Each channel supports 20 network port units, which can connect in total 60 units. In addition, the host computer has 4 channels of 8-core microphone unit interfaces, each channel supports 30 units, and 120 units can be connected.

A single controller can connect up to 180 conference units through the extended power supply by using 8 Pin Din cable and 135 conference units through the extended power supply by using Cat-6 cable. A conference system can connect up to 1000 conference units using a separate Data Extender. The system can connect up to 16 chairman units, and the chairman unit is not limited by the speaking mode and the number of speakers.

3.1.2 CONNECTING CABLE OF CONFERENCE UNIT

The connecting cable of conference units is a T-junction cable. This is a junction or meeting point of 2 cables, and one socket, hence the name T-junction. Both cables terminate into an 8 -pin male DIN connector on the other end. One is shorter and the other is longer in length. The shorter cable plugs into the conference unit and the longer end plugs into the conference unit which is before this. The socket in the T-junction is an 8 pin DIN socket. It is used to connect to the longer cable of the second T-junction cable for the unit after this.

3.1.3 EXTENSION CABLE OF CONFERENCE UNIT

If the distance between the conference unit and the main controller or between the conference units exceeds the length of the standard cable, an extension cable needs to be added between the unit and the main controller or between the units. Since the extension cable consumes power, adding an extension cable will reduce the number of conference units that the controller can connect to. The relationship between the number of conference units that can be connected to the output port of each conference unit and the length of the extension cable is shown in Table 3.1.

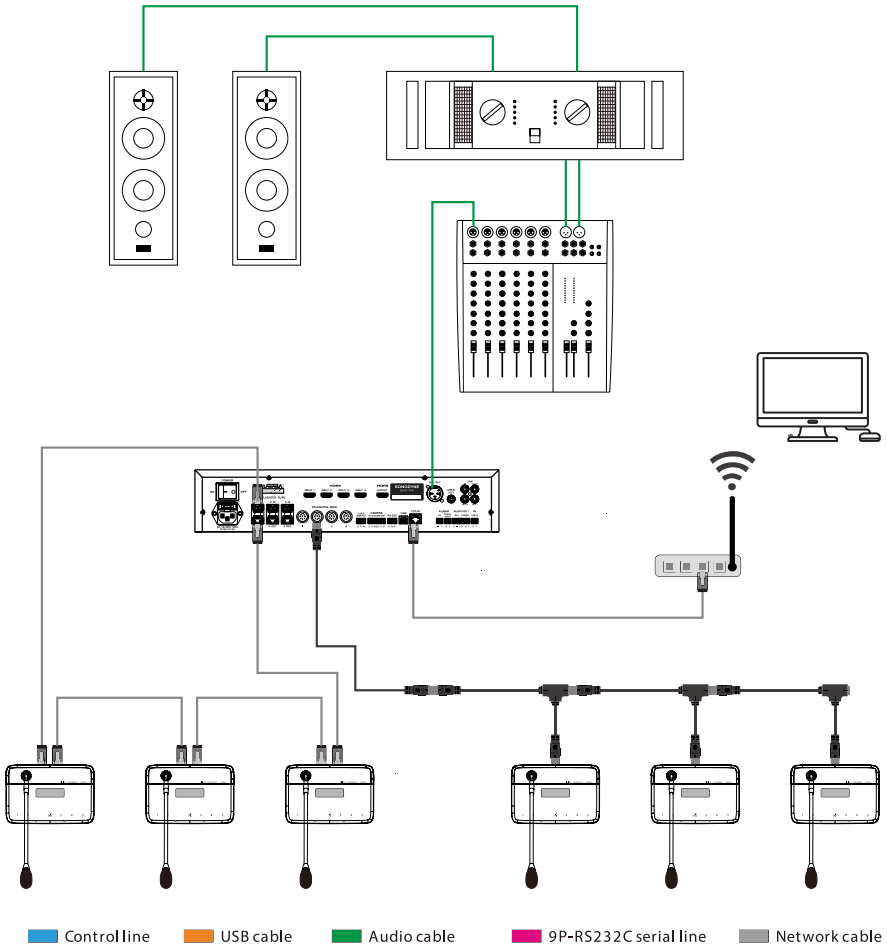
The extension cable between the conference system controller and the first conference unit consumes the largest current and has the greatest impact on the host's load capacity. On the other hand, the extension cable between the last two conference units hardly affects the host's load capacity. For example, you can add an 80-meter extension cable between the 28th and 29th conference units, and it will not affect the number of conference units that the host can connect to.

TABLE 3.1: QUICK LOOKUP TABLE OF CONTROLLER LOAD CAPABILITY (EACH OUTLET)

The extension cable length between the controller and the first conference unit connected to the socket	The number of speaking units that can be connected to the output port of each unit of the controller	
	8-PIN interface-numbers of conference speaking units	RJ45 interface-number of conference speaking units
20m	30	20
40m	28	15
60m	25	10
80m	20	5
100m	15	/

3.2 CONNECTION BETWEEN THE CONTROLLER AND THE CONFERENCE UNIT

FIG. 3.2



3.3 CONNECTION WITH CAMERA

FIG. 3.3

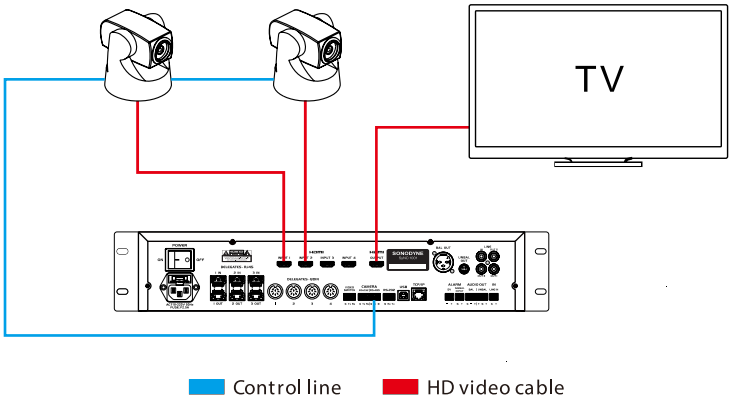
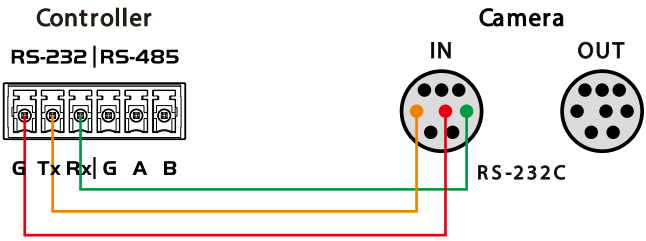
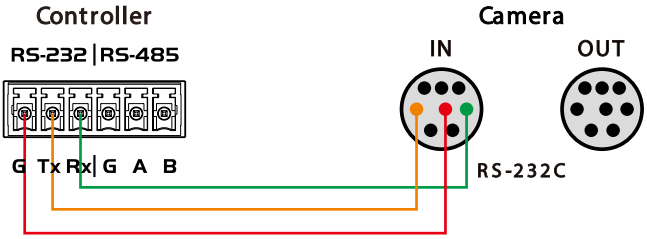


FIG. 3.4: COMMUNICATION CONNECTION BETWEEN THE CONTROLLER AND THE CAMERA

CONNECTION METHOD	DRAWING
232	
485	

CHAPTER 4: WORKING ENVIRONMENT AND MAINTENANCE

Suitable working environment and proper maintenance methods can extend service life of the equipment effectively. For maintenance please read the contents of this section carefully.

4.1 PUBLIC AREAS

In public areas ensure that the cables attached to the system units, including extension cables, are run and laid out in a neat and tidy manner where they do not interfere and hinder public walk ways.
It is recommended that the chairman unit and the interpreter units are connected at the beginning of a trunk line and not at the end. In public areas where connectors and cables could be trampled on, it is strongly suggested to use protective covers according to the existing protection specifications.
Due to the directivity of the microphone used in the discussion units, every speaker should face the microphone at a convenient distance when speaking, to achieve both best audibility and intelligibility.

4.2 TECHNICAL ROOM

1. Ensure that the area is a dust-free environment.
2. Ensure adequate ventilation.
3. Ensure adequate lighting. But be sure that the lighting does not impede the operator in the control room and the normal system operation.
4. Do not place objects on the top of units. They could fall into vents or could cover them and thus prevent proper cooling of electronic components inside the units. By falling into a unit, objects could cause trouble such as fire and electric shock.
5. To avoid the risk of shock or permanent damage to the system units, do not expose units to rain or moisture.
6. Do not attempt to remove the top cover of the system main units as you will be exposed to a shock hazard. The covers should only be removed by qualified service personnel. If any repair or maintenance is required, contact the service center in your region.
7. Equipment is only for indoor use. Do not expose it to sunlight.
8. WARNING: Damage to the power cable may cause fire or a shock hazard!

4.3 SYSTEM OPERATOR ROOM

In a PC based system, the operator needs a dedicated room to operate the PC and to manage the conference proceedings. Generally, the demands on the operator room are the same as on the interpreter booth. By means of a microphone system, the operator should also be connected to a public - address system to remind the participants of operations, such as voting, signing-in, etc. longer end to the T- junction of the second unit. This enables cascading of multiple units.

5.1 SYSTEM SPECIFICATIONS

SYSTEM PERFORMANCE

Conforms to IEC 60914, the international standard for congress systems

SYSTEM ENVIRONMENTAL CONDITIONS

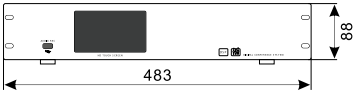
WORKING CONDITIONS TRANSPORT OPERATING	fixed/stationary/transportable temperature range: -40°C to +70°C 0°C to +45°C
MAX. RELATIVE HUMIDITY	< 95% (not condensing)
SAFETY	Compliant to EN 60065
EMC EMISSION	Compliant with EN 55022
EMC IMMUNITY	Compliant with EN 55024
EMC APPROVALS	CE, FCC
POWER HARMONIC	Compliant with EN 61000-3-2
VOLTAGE FLUCTUATIONS AND FLICKER	Compliant with EN 61000-3-3

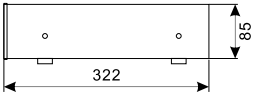
NOTE: Due to continuous improvements, all specifications are subject to change

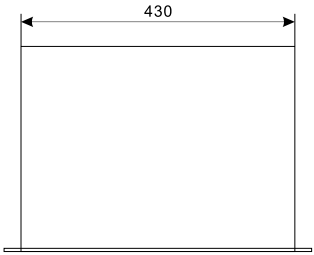
5.2 CONFERENCE SYSTEM CONTROLLER

5.2.1.1 PHYSICAL CHARACTERISTICS

CONTROLLER	
INSTALLATION	Tabletop / standard 19-inch rackmount
DIMENSIONS (HxWxD)	88mm x 483mm x 322mm
COLOUR	Black
WEIGHT	5.8kg







5.2.1.2 ELECTRICAL CHARACTERISTICS

CONTROLLER	
POWER SUPPLY	AC110V-220V/50Hz
FREQUENCY	20Hz ~ 20kHz
S/N RATIO	>96dBA
T.H.D.	<0.05%
RECORDING	USB
INPUT CONNECTOR	DIN-8 x4 , RJ45 x3 (group)
CENTRAL CONTROLLER INTERFACE	RS-232 (3P connector) x 1
CAMERA SWITCH INTERFACE	RS-232 (3P connector) x 1
VIDEO INTERFACE (OPTIONAL)	HDMI 4 x 1 (optional)
CAMERA CONTROL INTERFACE	6P connector
COMPUTER INTERFACE	USB x1 RJ45 x 1
AUDIO INPUT	2P connector (unbal) x 1, RCA (unbal) x 1 2P connector (unbal) x 1 (alarm device)
AUDIO OUTPUT	3P connector(bal) x1, 3P connector (unbal) x 1 XLR (bal) x 1, 6.35mm (unbal) x 1, RCA (unbal) x 3

NOTE: Due to continuous improvements, all specifications are subject to change

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