CS3
CONFERENCE SYSTEM

AKG®
by **HARMAN**

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The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the equipment.	⚠ **WARNING**
The exclamation point in an equilateral triangle on the equipment indicates that it is necessary for the user to refer to the User Manual. In the User Manual, this symbol marks instructions that the user must follow to ensure safe operation of the equipment.	⚠ **CAUTION**
The " ⓘ " symbol marks important notes, hints, or explanations that make it easier to use the equipment.	ⓘ **NOTE**
When the product reaches the end of its life, separate the housing, electronics and cables and dispose of all components in accordance with local waste disposal regulations.	🗑
The packaging can be recycled. Dispose of the packaging in a suitable collection system.	♻

Disclosure table for poisonous and harmful substances or elements of the name and content in Product:

China-RoHS Declaration

PARTS	HAZARDOUS SUBSTANCE					
	Pb	Hg	Cd	Cr^{6+}	PBB	PBDE
METAL PARTS	X	O	O	O	O	O
CABLES	X	O	O	O	O	O

"O": Indicates that the concentration of the hazardous substance in homogeneous materials in the parts is below the relevant threshold of the SJ/T11363-2006 standard.

"X": Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T11363-2006 standard.

Important Safety Information

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Safety

Information technology equipment - Safety -- Part 1: General requirements	IEC 60950-1:2005 Edition 2
Information technology equipment - Safety -- Part 1: General requirements	CAN/CSA-C22.2 No 60950-1-07 Incl. AM1 (2011)
Information technology equipment - Safety -- Part 1: General requirements	ANSI/UL Std No 60950-1, 2nd Ed. Incl. AM1 (2011)

FCC COMPLIANCE NOTICE

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

COMPLIANCE TO EUROPEAN DIRECTIVES

This product conforms to the standards listed in the related Declaration of Conformity. To order a free copy of the declaration of Conformity for this product, visit http://www.akg.com or contact sales@akg.com.

1 CS3 System

General

The CS3 System is a modular and flexible conference system for small and medium size applications. The CS3 components can be easily set up, wired, and expanded. A CS3 system can support up to 128 microphone units (Delegate Units and Chairman Units).

CAUTION

- Make sure the grounding cable should be connected to the earth before connecting the input and output of this system, avoiding any risk of electric shock.

- To avoid data loss or corruption, malfunctioning, or damage to the system, never make any changes to the wiring or operate any control on any system component, or disconnect the system from power while a software update is in progress.

- To avoid damage to any system component, do not lay, connect, or disconnect any cables while power to the system is on. Always disconnect the entire system from power before making any changes to the wiring.

- Note that the CS3 BU will not function with no microphone units connected to it. Therefore, make sure to always connect at least one microphone unit to the base unit to set up a functional CS3 system.

- Custom wiring should only be performed by qualified personnel.

1 CS3 System

System Examples

Example 1: Simple discussion system
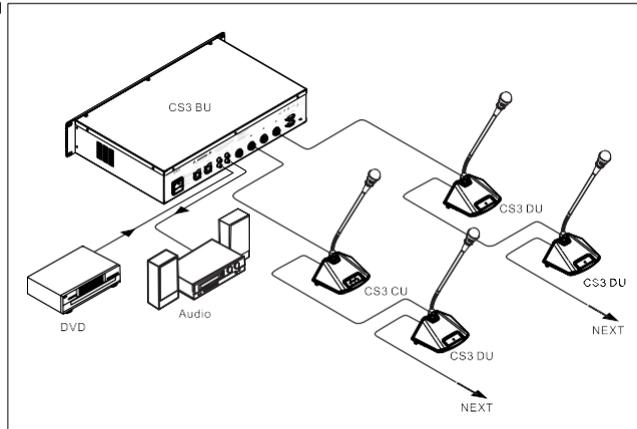
Fig.1: Example 1.

Refer to Fig.1.

Example 1 above shows the wiring diagram for a simple discussion system. A system of this kind may be comprised of a CS3 BU, a CS3 CU and several sets of CS3 DU.

Example 2: Larger discussion system with computer control and video tracing

Fig.2: Example 2.
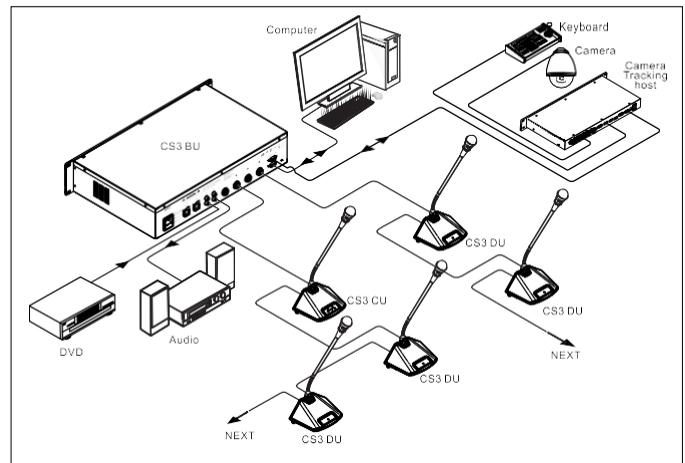
Refer to Fig.2.

Example 2 above shows a larger discussion system with more than six microphone units and computer control. The computer controlling system is connected to RS-232 port on CS3 BU.

> **NOTE**
>
> For the connection of CS3 System with external devices such as DVD player, speaker system, and camera, please use the specified interface as mentioned in "Rear Panel" on page 8.

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2 CS3 Base Unit

Description

CS3 BU (Base Unit) is a Base Unit required for any CS3 system configuration. It synchronizes all system components and generates the floor audio channel. The CS3 BU can be connected to external audio sources, an external amplifier, and an audio recording device.

CS3 BU provides the following basic control functions:

- NOM limitation: The number of microphones which are activated simultaneously, selectable as 1, 2, 4 or 6.
- Four selectable conference modes: Override, Normal, Free and Request.
- Adjustable bass, treble, and master volume.

For more control functions you can use through the CS3 ConferControl software, please refer to the *CS3 ConferControl Software Manual* that comes with your software.

Features

- Capable of supporting 60 microphone units.

CAUTION
The number of connecting microphones must be adjusted in accordance with the system load and connecting distance in practical applications.

- Specific 8-pin DIN plug
- Bus connection mode
- 2-channel mono audio inputs
- 2-channel mono original audio outputs
- Adjustable maximum number of active microphones (applied to delegate units only), with 1, 2, 4, and 6 options. No limitation to CS3 CU
- Four conference modes: Override, Normal, Free and Request
- Adjustable bass, treble, and master volume
- Video tracing function through the "central control" output
- Remote telephone conference along with telephone coupler
- Suitable for 19-inch standard rack installation

CAUTION
When using an equipment rack, DO NOT block front or rear air vents. Do allow at least 1.0cm clearance above the equipment and at least 1.0cm clearance of both sides of the equipment for proper heat dissipation.

Connectors and Controls
Front Panel

Fig.3: CS3 BU Front Panel.
Refer to fig.3.
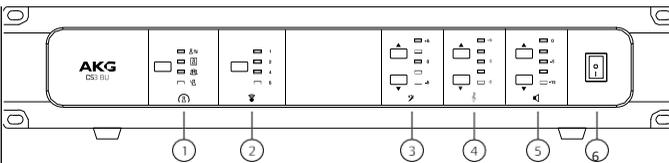
1. Conference Mode:

Override Mode⚠⇄: In Override mode, if the number of active microphones is at maximum, the earliest activated microphone will be muted when the additional microphone is activated by pressing the Speak Button.

Normal Mode🔲: In normal mode, the CS3 DU microphones which are over the active number will automatically queue up.

Free Mode👥: This mode allows up to 20 CS3 DU microphones to be activated simultaneously. This is not limited by the maximum number of active microphones. When there are 20 active DU microphones, pressing the Speak Button of additional CS3 DU will not activate the microphone.

Request Mode🙋: In request mode, chairman can press Approve Button🙋 of CS3 CU to approve the speaking request from CS3 DU in turn. The maximum number of request is 6 and not limited by the NOM. The request over 6 will be invalid. Please refer to "Approving Speaking Request" on page 15 for the operating instructions.

2. **NOM** 📶: The number of microphones of CS3 DU which is allowed to be activated simultaneously, with 1, 2, 4 and 6 options.

3. **Bass** 𝄢: Adjusts the output bass volume with -6dB, -2dB, 0dB, +2dB, and +6dB options.

4. **Treble** 🎵: Adjusts the output treble volume with -6dB, -2dB, 0dB, +2dB, and +6dB options.

5. **Master Volume** 🔊: Adjusts the output master volume with -15dB, -10dB, -5dB, -3dB, and 0dB options.

6. **Power Switch**: Switches ON or OFF of both CS3 BU and the CS3 system.

NOTE

Pressing the button ▭ every time in the conference mode 🔲 or NOM 📶 section will switch between options. The LED besides the corresponding option will light on which indicates the option is selected.

Rear Panel
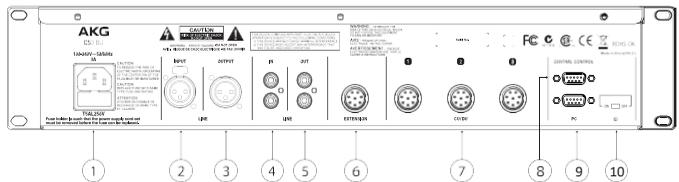
Fig.4: Rear Panel.
Refer to fig.4.

1. **Power Input**: Supports AC100V-240V 50Hz/60Hz.

2. **XLR Input**: Balanced XLR input, such as background music or remote telephone conference output.

3. **XLR Output**: Balanced XLR connector connects to loudspeaker system or recording devices, including conference audio (CU/DU input) and audio input (LINE IN).

4. **LINE IN**: 2-channel audio input, such as CD Player or remote telephone conference output.

5. **LINE OUT**: 2-channel audio output, connects to loudspeaker system or recording devices, including conference audio (CU/DU input) and audio input (LINE IN).

6. **EXTENSION**: Provides connection to extension units.

7. **CU/DU**: Provides connection to CS3 CU or CS3 DU.

8. **CENTRAL CONTROL**: Provides connection to camera for external video tracing. Please see "Appendix II: Protocol Between CS3 BU and Camera" on page 18.
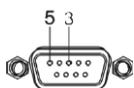
Control System	Pin	Signal	Description
	3	TXD	Send data
	5	GND	Signal Grounding

9. **PC Connector**: Provides connection to computer, allowing conference management by the third party software or system. Please see "Appendix I: Protocol Between CS3 BU and PC" on page 16.
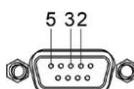
Control System	Pin	Signal	Description
	2	TXD	Send data
	3	RXD	Receive data
	5	GND	Signal Grounding

10. **ID Switch**: Enables to set ID numbers for microphone units. For more detailed operating instructions, please refer to "Using the ID Switch to Set ID for Each Microphone Unit" on page 14.

Specification

CS3 BU (Base Unit)	
Power Supply	SMPS 100-240V (50Hz / 60Hz) 3A
Static Consumption	13W
Nominal Power Consumption	320W
Output Power	≤90W / 24V each way
Mode	Balanced / Unbalanced
Frequency Response	50Hz ~ 20kHz
S/N	>80dB
Harmonic Distortion	<0.5%
Harmonic Distortion at Overload	<1%
Crosstalk Attenuation (1kHz)	>50dB
Dimension	482L x 281W x 88.4H (mm)
Weight	About 5.2kg
Operating Temperature	0°C to 40 °C at 95% relative humidity (non-condensing)

3 CS3 Chairman Unit

Description

CS3 CU (Chairman Unit) is a basic microphone unit for CS3 system. It contains a Speak Button ⬤, a Priority Button ◇, an Approve Button ⬤, a built-in loudspeaker, and two headphone jacks as well as a connector to other microphone units.

CS3 CU can approve the speaking request from CS3 DU. The maximum number of active microphone, conference modes and connection position of CS3 CU are not limited. And it also has the privilege of muting all other delegate units in CS3 system as well.

Features

- Capable of driving 30 microphone units for a single channel. Cannot drive to more than 60 microphone units for three channels totally.

⚠ **CAUTION** — The number of connecting microphones must be adjusted in accordance with the system load and connecting distance in practical applications.

- Adopts specific 8-pin high-quality DIN connector to ensure the secure connection and stable system operation
- Packaged with 2-meter connecting cable
- With 2W built-in speaker
- With 2 ports of 3.5mm headphone jacks and a master volume adjustment knob
- Powered by CS3 BU
- Mutes built-in speaker automatically when microphone is activated for speaking to avoid feedback
- Connects in bus connection mode which is simple and convenient
- Provides approve function to activate CS3 DU microphone after sending speaking request
- No limitation on the connection number of microphone units
- Provides priority function for whole control of the discussion
- No limitation on the connection position of CS3 CU

Connectors and Controls
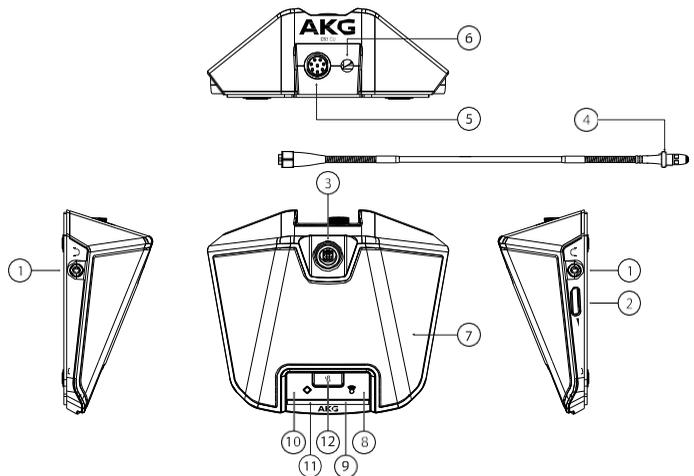
Fig.5: CS3 CU Controls.

Refer to fig.5.

1. **3.5mm Headphone Jack**: Provides connection to headphone for listening to the conference speech and background music in real-time.

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2. **Volume Adjustment Knob**: Adjusts the master volume of speaker and headphone
3. **Microphone Connector**: Provides connection to microphone.
4. **Microphone Indicator**: It lights red when microphone is activated. It turns off when deactivated.
5. **8-Pin DIN Connector**: Provides the connection of microphones in bus connection mode (series connection).
6. **2-meter Cable with Connector**: Connects CS3 CU to base unit or previous microphone unit within bus connection.
7. **Built-in Speaker**: Play back mixing-audio like conference speech or background music in real-time.
8. **Speak Button** : Press to activate the microphone and press again to deactivate.
9. **Speak Indicator**: It lights blue when microphone unit is connected to the power supply. It lights red when microphone is activated by user.
10. **Priority Button** : Briefly press to mute the active microphone of Delegate Unit (the microphone indicator of these delegate unit flashes) and activate the microphone of Chairman Unit. Briefly press again to reactivate the delegate units which are muted. Press and hold for 3 seconds to cancel all operations of the delegate units (including speaking, requesting and waiting) and activate the microphone of Chairman Unit.
11. **Priority Indicator**: It lights blue when microphone unit is connected to the power supply. It lights red when priority function is activated by user.
12. **Approve Button & Approve Indicator**: In request mode, the approve indicator blinks when there is an incoming speaking request from CS3 DU. Press Approve Button to approve the speaking request. As a result, the microphone of the requesting CS3 DU will be activated. Please refer to "Approving Speaking Request" on page 15 for more detailed operating instructions.

Specification

CS3 DU (Delegate Unit)	
Power Supply	DC24V Supplied by the Base Unit
Power Consumption	3W
Loud Speaker	2W
SNR	>80dB
Frequency Response	50Hz ~ 20kHz
Performance Rating	Grade A, Class 1, Mode 1
Intercommunication	DIN 8-pole
Headphone Output	9dBU, 8-32ohm, 3.5mm
Crosstalk Attenuation	>80dB
Harmonic Distortion	<0.1%
Dimension	170L x 143W x 63H(mm)
Weight	About 1kg
Operating Temperature	0ºC to 40ºC at 95% relative humidity (non-condensing)

4 CS3 Delegate Unit

Description

CS3 DU (Delegate Unit) is a basic microphone units for CS3 conference system. It contains a Speak Button ⏻, a built-in loudspeaker, and two headphone jacks as well as a connector to other microphone unit. User can listen to conference speech through built-in speaker or headphone.

Features

- Capable of driving 30 microphone units for a single channel. Cannot drive to more than 60 microphone units for three channels totally.

> ⚠️ **CAUTION**
>
> The number of connecting microphones must be adjusted in accordance with the system load and connecting distance in practical applications.

- Adopts specific 8-pin DIN connector to ensure the secure connection and stable system operation.
- Packaged with 2-meter connecting cable.
- With 2W built-in speaker.
- With 2 ports of 3.5mm headphone jacks and a master volume adjustment knob.
- Powered by CS3 BU.
- Mutes built-in speaker automatically when microphone is activated for speaking to avoid whistle.
- Connects in simple and convenient bus connection mode.

Connectors and Controls
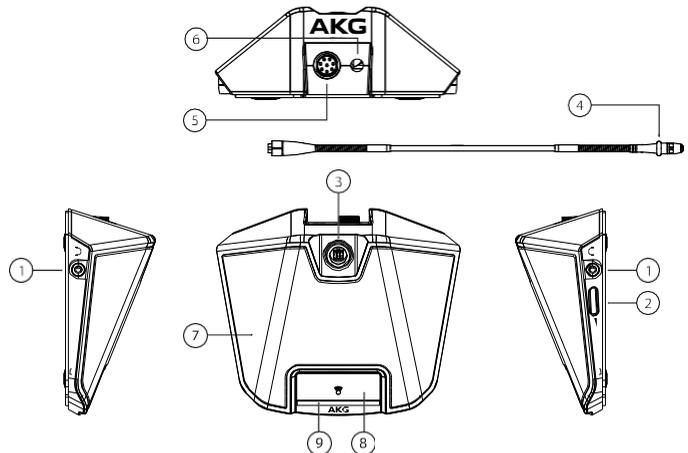
Fig.6: CS3 DU Controls.

Refer to fig.6.

1. **3.5mm Headphone Jack**: Connects headphone to listen to the conference speech and background music in real-time.
2. **Volume Adjustment Knob**: Adjusts the master volume of speaker and headphone.
3. **Microphone Connector**: Provides connections to microphone.
4. **Microphone indicator**: Lights red when microphone is activated, turns off when deactivated, and blinks when sending speaking request.

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5. **8-Pin DIN Connector**: Provides the connection of microphones in bus connection mode (series connection).

6. **2-meter Cable with Connector**: Connects CS3 DU to base unit or previous microphone unit within bus connection.

7. **Built-in Speaker**: Play back mixing-audio like conference speech or background music in real-time.

8. **Speak Button** ⬚ : Press to activate the microphone and press again to deactivate.

9. **Speak Indicator**: It lights blue when microphone unit is connected to the power supply. It blinks when microphone unit is sending a speaking request. It lights red when microphone is activated by user.

Specification

CS3 DU (Delegate Unit)	
Power Supply	DC24V Supplied by the Base Unit
Power Consumption	3W
Loud Speaker	2W
SNR	>80dB
Frequency Response	50Hz ~ 20kHz
Performance Rating	Grade A, Class 1, Mode 1
Intercommunication	DIN 8-pole
Headphone Output	9dBU, 8-32ohm, 3.5mm
Crosstalk Attenuation	>80dB
Harmonic Distortion	<0.1%
Dimension	170L x 143W x 63H(mm)
Weight	About 1kg
Operating Temperature	0ºC to 40ºC at 95% relative humidity (non-condensing)

NOTE
Please correctly connect units to CS3 BU and set their ID before operating on CS3 system.

Using the ID Switch to Set ID for Each Microphone Unit

Unique ID must be set for each microphone unit in CS3 system so that CS3 BU can identify each of them. Follow the steps below to set ID:

1. Power on CS3 BU after correctly connecting with units.

2. Set ID switch on the rear panel of CS3 BU to "ON" position.

3. Press Speak Button of corresponding unit. ID is set when speak indicator lights red.

4. Repeat Step 3 to set ID for the rest of the units.

5. Set ID switch to "OFF" position after ID of all microphone units are set, and then speak indicators of all set microphone units light blue. The system is ready to use.

Setting Maximum Number of Active Microphones

The way of setting maximum number of microphones varies upon the conference modes enabled. This setting is invalid in free mode. Please read "Connectors and Controls" on page 7 for more details.

NOTE
It is suggested to estimate the number of microphones which will be activated simultaneously before using CS3 system. Set the maximum number of active microphones and then select the desired conference mode.

For example, to set the maximum number of active microphones which is estimated to be 2 in Request Mode, follow the steps below:

1. In CS3 system, press the button in NOM section on the front panel of CS3 BU several times to select "2". The LED besides "2" will light on.

2. Press the button in conference mode section on the front panel of CS3 BU several times until the LED besides lights on to select the request mode.

3. The NOM is set as 2 for Request mode.

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Once the maximum number of active microphones is set in request mode, the additional CS3 DU can send the speaking request to CS3 CU.

To send a speaking request, follow the steps below:

1. Press Speak Button ⊖ and the microphone indicator blinks.
2. Once the speaking request is approved by CS3 CU, the microphone indicator and speak indicator lights on and microphone is activated at the same time. If CS3 CU does not approved in 15 seconds, both indicators turn off and the request is cancelled automatically.

Requesting to Speak

If there are more than one CS3 DU requesting to speak simultaneously, they will queue up automatically. The maximum number of request is 6. The additional request will be invalid and its microphone indicator will not blink by pressing the Speak Button ⊖.

ⓘ
NOTE

Once the maximum number of active microphones is set in request mode, the CS3 CU can approve the speaking request from CS3 DU.

To approve a speaking request, follow the steps below:

1. The approve indicator of CS3 CU blinks when a speaking request is received.
2. Press the Approve Button ⟁ to approve the request which activate the CS3 DU microphone.

Approving Speaking Request

If there are more than one CS3 DU requesting to speak simultaneously, they will queue up automatically. The maximum number of request is 6. The additional request will be invalid and pressing the Speak Button ⊖ of the additional microphone units will not make the approve indicator of CS3 CU blink.

The CS3 CU approves the speaking request one by one by pressing the Approve Button ⟁ and the approve indicator will turn off after all requests are approved.

ⓘ
NOTE

If needed, CS3 CU can use priority function.

To mute the active microphone of delegate units:

1. Press the Priority Button ◇ of CS3 CU (the microphone and priority indicators light red). The active microphone of delegate units will be muted (their microphone indicators flash) and the microphone of CS3 CU is activated.
2. Press the Priority Button ◇ of CS3 CU again. The delegate units which are muted will be reactivated and the priority function of CS3 CU will be turned off (the priority indicator lights blue).

To cancel all operations of the delegate units:

1. Press and hold the Priority Button ◇ of CS3 CU for about 3 seconds (the microphone and priority indicators light red). The operation of all delegate units (including speaking, requesting and waiting) will be cancelled and the microphone indicators of all delegate units will turn off. The microphone of CS3 CU is activated.
2. Press the Speak Button ⊖ of CS3 CU to turn off its microphone (CS3 CU speak indicator lights blue). Press the Priority Button ◇ of CS3 CU, the priority function of CS3 CU will be turned off (the priority indicator lights blue).

Using Priority Function

Appendix I: Protocol Between CS3 BU and PC

Remark
1. Baud rate: 38400 bps, 8 data bit, 1 stop bit and no parity bit
2. The data mentioned below is in hexadecimal if no additional remark,.

Protocol Format
Header 0xFE (1 Byte) + message (1) + parameter 1 (1) + parameter 2 (1) + ending frame 0xFC (1) + other parameters (......)

PC to CS3 BU			
Operation	PC Input Command	Description	Code return from CS3 BU
Connect CS3 BU to PC for the first time	FE 00 03 00 FC		1.FE 00 00 01 FC 2.Conference Mode and NOM (see Setting the Conference Mode and NOM) 3.Master Volume, Treble and Bass (see Setting the Master Volume, Treble and Bass)
Lock the front panel of BU	FE 00 04 00 FC		FE 00 04 00 FC
Unlock the front panel of BU	FE 00 05 00 FC		FE 00 05 00 FC
Setting the Conference Mode and NOM	FE 01 00 XY FC	X stands for conference mode, and the Override/Normal/Free/Request correspond to 0/1/2/3. Y stands for NOM, and the 1/2/4/6 correspond to 0/1/2/3.	FE 01 00 XY FC
Setting the Master Volume, Treble and Bass	FE 01 X1 YZ FC	X stands for Master Volume, and the -15db/-10db/-5db/-2.5db/0db correspond to 0/1/2/3/4. Y stands for Treble, and the -6db/-2db/0db/2db/6db correspond to 0/1/2/3/4. Z stands for Bass, and the -6db/-2db/0db/2db/6db correspond to 0/1/2/3/4.	FE 01 X1 YZ FC
Activate a microphone	FE 11 X0 YY FC	XYY: ID	FE 11 X0 YY FC
Deactivate a microphone	FE 11 X1 YY FC	XYY: ID	FE 11 X1 YY FC
Deactivate all microphones	FE 11 FB D2 FC		FE 11 FB D2 FC
Set a DU to the waiting queue (if the queue is not full, DU's microphone will be activated)	FE 11 X2 YY FC	XYY: ID	FE 11 X2 YY FC
Remove a DU from waiting queue	FE 11 X3 YY FC	XYY: ID	FE 11 X3 YY FC
Mute all DU's microphones	FE 11 FA D2 FC		FE 11 FA D2 FC
Unmute all DU's microphones	FE 11 FB D2 FC		FE 11 FB D2 FC
Reset all DU	FE 11 FE D2 FC		FE 11 FE D2 FC
Unreset all DU	FE 11 FD D2 FC		FE 11 FD D2 FC

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CS3 BU to PC		
Operation	PC Input Command	Description
ID Switch ON	FE 00 00 04 FC	
CS3 BU ON	FE 00 00 01 FC	
Setting the Conference Mode and NOM	FE 01 00 XY FC	X stands for conference mode, and the Override/Normal/Free/Request correspond to 0/1/2/3. Y stands for NOM, and the 1/2/4/6 correspond to 0/1/2/3.
Setting the Master Volume, Treble and Bass	FE 01 X1 YZ FC	X stands for Master Volume, and the -15db/-10db/-5db/-2.5db/0db correspond to 0/1/2/3/4. Y stands for Treble, and the -6db/-2db/0db/2db/6db correspond to 0/1/2/3/4. Z stands for Bass, and the -6db/-2db/0db/2db/6db correspond to 0/1/2/3/4.
Activate a DU's microphone	FE 11 X0 YY FC	XYY: ID
Deactivate a DU's microphone	FE 11 X1YY FC	XYY: ID
Activate a CU's microphone	FE 11 X7 YY FC	XYY: ID
Deactivate a CU's microphone	FE 11 X8 YY FC	XYY: ID
DU enters waiting queue	FE 11 X2 YY FC	XYY: ID
DU exits waiting queue	FE 11 X3 YY FC	XYY: ID
CU deactivates all microphones	FE 11 XB YY FC	XYY: ID
CU mutes all DU's microphones	FE 11 XA YY FC	XYY: ID
CU unmutes all DU's microphones	FE 11 XB YY FC	XYY: ID
CU resets all DU	FE 11 XE YY FC	XYY: ID
CU unresets all DU	FE 11 XD YY FC	XYY: ID

Setting ID

1. After building up the conference system (including conference base unit, conference microphone units and interpretation units), set the "ID switch" to "OFF" position on the rear panel of the conference base unit.
2. Turn on the conference base unit and set the "ID switch" to "ON" position.
3. Set the ID for the conference microphone unit (see page 14). If there is a interpretation system, the ID of interpretation unit must be set before that of conference units. The indicator of the unit which ID has been set will light on. Set the "ID switch" to "OFF" position when setting ID is finished.
4. Turn on the conference unit and a code will be shown in PC through a serial port test software.

Format and Introduction of Code

1. Camera Control

Communication protocol: RS-485
Baud rate:9600
Parity Bit: N/A
Data Bit: 8
Stop Bit:1

Format(HEX)
[STX] [RECEIVER ADDRESS] [SENDER ADDRESS] [COMMAND1] [COMMAND2] [DATA1] [DATA2] [DATA3] [DATA4] [ETX] [CHECK SUM]

NOTE:
[RECEIVER ADDRESS]:00—3F
[SENDER ADDRESS]:00—3F
[CHECKSUM]=FFFF-([RECEIVERADDRESS]+[SENDERADDRESS]+[COMMAND1]+[COMMAND2]+[DATA1]+[DATA2]+[DATA3]+[DATA4])

CODE SAMPLE:
[RECEIVER ADDRESS]=10
[SENDER ADDRESS]=10

P(PAN)/T(TILT)/Z(ZOOM) CONTROL
CAMERA-ZOOM-TELE   A0 10 10 00 40 10 00 00 FF AF 90
CAMERA-ZOOM-WIDE   A0 10 10 00 20 10 00 00 FF AF B0
CAMERA-FOC-FAR   A0 10 10 01 00 10 00 00 FF AF CF
CAMERA-FOC-NEAR   A0 10 10 02 00 10 00 00 FF AF CE
CAMERA-TILT-UP   A0 10 10 00 08 00 10 00 FF AF C8
CAMERA-TILT-DOWN   A0 10 10 00 10 00 10 00 FF AF C0
CAMERA-PAN-LEFT   A0 10 10 00 04 10 00 00 FF AF CC
CAMERA-PAN-RIGHT   A0 10 10 00 02 10 00 00 FF AF CE
CAMERA-STOP   A0 10 10 00 00 00 00 00 FF AF E0

PRESET CONTROL
SAVE-PRESET:
01   A0 10 10 00 03 00 FF FF FF AF DF
02   A0 10 10 00 03 01 FF FF FF AF DE
03   A0 10 10 00 03 02 FF FF FF AF DD
04   A0 10 10 00 03 03 FF FF FF AF DC
05   A0 10 10 00 03 04 FF FF FF AF DB
06   A0 10 10 00 03 05 FF FF FF AF DA
07   A0 10 10 00 03 06 FF FF FF AF D9
08   A0 10 10 00 03 07 FF FF FF AF D8
09   A0 10 10 00 03 08 FF FF FF AF D7
10   A0 10 10 00 03 09 FF FF FF AF D6
11   A0 10 10 00 03 0A FF FF FF AF D5
12   A0 10 10 00 03 0B FF FF FF AF D4

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13    A0 10 10 00 03 0C FF FF FF AF D3
14    A0 10 10 00 03 0D FF FF FF AF D2
15    A0 10 10 00 03 0E FF FF FF AF D1
16    A0 10 10 00 03 0F FF FF FF AF D0
```

CALL-PRESET:
```
01    A0 10 10 00 07 00 FF FF FF AF DB
02    A0 10 10 00 07 01 FF FF FF AF DA
03    A0 10 10 00 07 02 FF FF FF AF D9
04    A0 10 10 00 07 03 FF FF FF AF D8
05    A0 10 10 00 07 04 FF FF FF AF D7
06    A0 10 10 00 07 05 FF FF FF AF D6
07    A0 10 10 00 07 06 FF FF FF AF D5
08    A0 10 10 00 07 07 FF FF FF AF D4
09    A0 10 10 00 07 08 FF FF FF AF D3
10    A0 10 10 00 07 09 FF FF FF AF D2
11    A0 10 10 00 07 0A FF FF FF AF D1
12    A0 10 10 00 07 0B FF FF FF AF D0
13    A0 10 10 00 07 0C FF FF FF AF CF
14    A0 10 10 00 07 0D FF FF FF AF CE
15    A0 10 10 00 07 0E FF FF FF AF CD
16    A0 10 10 00 07 0F FF FF FF AF CC
```

Communication protocol: RS-232
Baud rate:9600
Parity Bit: N/A
Data Bit: 8
Stop Bit:1

2. Conference Microphone Station Feedback

1. [XX], [YY] and [ZZ] are Hex format, and [YY] represent ID code.
2. Arithmetic: [ZZ]=FFFF-([XX]+10+00+07+[YY]+FF+FF+FF), only take the low bits.
3. Serial numbers of conference units begin from 2 and increase, as the list below.
4. ID code begins from 1 and increases as the list below.
5. It adopts "128 system" arithmetic, which means when serial numbers of conference units increase 128, namely ID increases 7F, ID code of [YY]'s high bit and [XX] will increase 1. After that, the serial numbers of conference units go on increasing and [YY] restarts from 0. The value of [ZZ] obeys the arithmetic as just mentioned. It is shown as below.

Conference unit NO. (Decimal System)	ID code (Hex)	Serial feedback code (Hex)
0002	1	A0 10 10 00 07 01 FF FF FF AF DA
0003	2	A0 10 10 00 07 02 FF FF FF AF D9
0004	3	A0 10 10 00 07 03 FF FF FF AF D8
0005	4	A0 10 10 00 07 04 FF FF FF AF D7
…	…	…
0128	7F	A0 10 10 00 07 7F FF FF FF AF 5C
0129	100	A0 11 10 00 07 00 FF FF FF AF DA
0130	101	A0 11 10 00 07 01 FF FF FF AF D9
0131	102	A0 11 10 00 07 02 FF FF FF AF D8

0132	103	A0 11 10 00 07 03 FF FF FF AF D7
0133	104	A0 11 10 00 07 04 FF FF FF AF D6
…	…	…
0256	17F	A0 11 10 00 07 FF FF FF FF AF 5B
0257	200	A0 12 10 00 07 00 FF FF FF AF D9
0258	201	A0 12 10 00 07 01 FF FF FF AF D8
0259	202	A0 12 10 00 07 02 FF FF FF AF D7
0260	203	A0 12 10 00 07 03 FF FF FF AF D6
0261	204	A0 12 10 00 07 04 FF FF FF AF D5
…	…	…
0384	27F	A0 12 10 00 07 7F FF FF FF AF 5A
0385	300	A0 13 10 00 07 00 FF FF FF AF D8
0386	301	A0 13 10 00 07 01 FF FF FF AF D7
0387	302	A0 13 10 00 07 02 FF FF FF AF D6
0388	303	A0 13 10 00 07 03 FF FF FF AF D5
0389	304	A0 13 10 00 07 04 FF FF FF AF D4
…	…	…
0512	37F	A0 13 10 00 07 FF FF FF FF AF 59
…	…	…

Above is a sample list for ID setting, which shows the correspondence of conference unit serial number, ID code and serial port feedback code.

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Control system builder program sample

OR
- i1
- i2
- i3
- i4
- i5
- i6
- i7
- i8
- out

Camera_stop_not

Not
- in
- out

Camera_stop

ST-6500C

press1
press2
press3
press4
press5
press6
press7
press8
press9
press10
press11
press12
press13
press14
press15
press16
press17
press18
press19
press20
press21

Camera_tilt_up
Camera_tilt_dn
Camera_pan_left
Camera_pan_right
Camera_zoom_wide
Camera_zoom_tele
Camera_foucs_far
Camera_fouce_near
Camera_save_preset1
Camera_save_preset2
Camera_save_preset3
Camera_save_preset4
Camera_call_preset1
Camera_call_preset2
Camera_call_preset3
Camera_call_preset4

Camera_stop

Port-05:Com
- [txS]
- [enable]
- [break]
- [rts]
- [rtS]
- [cts]

	str
\xA0\x10\x10\x00\x08\x00\x10\x00\xFF\xAF\xC8	str1
\xA0\x10\x10\x00\x10\x00\x10\x00\xFF\xAF\xC0	str2
\xA0\x10\x10\x00\x04\x10\x00\x00\xFF\xAF\xCC	str3
\xA0\x10\x10\x00\x02\x10\x00\x00\xFF\xAF\xCE	str4
\xA0\x10\x10\x00\x20\x10\x00\x00\xFF\xAF\xB0	str5
\xA0\x10\x10\x00\x40\x10\x00\x00\xFF\xAF\x90	str6
\xA0\x10\x10\x01\x00\x10\x00\x00\xFF\xAF\xCF	str7
\xA0\x10\x10\x02\x00\x10\x00\x00\xFF\xAF\xCE	str8
\xA0\x10\x10\x00\x00\x00\x00\x00\xFF\xAF\xE0	str9
\xA0\x10\x10\x00\x03\x01\xFF\xFF\xFF\xAF\xDE	str10
\xA0\x10\x10\x00\x03\x02\xFF\xFF\xFF\xAF\xDD	str11
\xA0\x10\x10\x00\x03\x03\xFF\xFF\xFF\xAF\xDC	str12
\xA0\x10\x10\x00\x03\x04\xFF\xFF\xFF\xAF\xDB	str13
\xA0\x10\x10\x00\x07\x01\xFF\xFF\xFF\xAF\xDA	str14
\xA0\x10\x10\x00\x07\x02\xFF\xFF\xFF\xAF\xD9	str15
\xA0\x10\x10\x00\x07\x03\xFF\xFF\xFF\xAF\xD8	str16
\xA0\x10\x10\x00\x07\x04\xFF\xFF\xFF\xAF\xD7	str17

str1
delimiter

Port-04:Com
- [txS]
- [enable]
- [break]
- [rts]
- [rtS]
- [cts]

	str1
\xA0\x10\x10\x00\x07\x01\xFF\xFF\xFF\xAF\xDA	Camera_call_preset1
\xA0\x10\x10\x00\x07\x02\xFF\xFF\xFF\xAF\xD9	Camera_call_preset2
\xA0\x10\x10\x00\x07\x03\xFF\xFF\xFF\xAF\xD8	Camera_call_preset3
\xA0\x10\x10\x00\x07\x04\xFF\xFF\xFF\xAF\xD7	Camera_call_preset4

delimiter

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