Remark:

- All rights reserved for translation, reprint or reproduction
- Contents may change without prior announcement
- All technical specifications are guideline data and not guaranteed features
- We are not responsible for any damage caused by improper use of this manual
- The equipment must be connected to earth!
- This product conforms to the rules of the European directive 2004/108/EC.
- To protect your hearing avoid high pressure level on earphones. Adjust to a lower and convenient level.
- If any detailed information needed, please contact your local agent or TAIDEN service center in your region.
  
  Any feedback, advice and suggestion about the products is appreciated.
- In order to extend the life time of whole system, we strongly recommend that the conference system be scheduled to shut down every day in the evening when not in use.
- TAIDEN is the registered trademark of TAIDEN Co., Ltd.
Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
6. The MAINS plug serving as a disconnection device should be easy to operate.
7. The apparatus should be connected to the MAINS socket-outlet with protective earth.
8. Clean only with dry cloth.
9. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
10. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
11. Do not bypass the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade and the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete 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. Do not leave the battery near the fire or under an environment over 60 ºC (such as under direct sunlight in the car), otherwise it may damage the protection circuit of the battery and cause fire, explosion, leakage or heat generation.
15. Unplug this apparatus during lightning storms or when unused for long periods of time.
16. 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 or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
17. Do not place the equipment on any uneven or unstable stand; original product package or appropriate package should be used to avoid damage caused by strong impacts during transportation.
18. Power supply cords:
   - AC 100 V-120 V 60 Hz or AC 220 V-240 V 50 Hz
19. The quantity of connected transceivers in one system should not exceed prescribed quantity. For service, please contact the nearest TAIDEN Service Center.
20. All TAIDEN products are guaranteed for definite time (see the WARRANTY CARD for details) excluding the following cases:
   A. All damage or malfunction caused by human negligence;
   B. Damage or malfunction caused by improper operating by operator;
   C. Parts damage or loss caused by disassembling the product by non-authorized personnel.
21. Use ONLY specified connection cable to connect the system equipment.
22. Upon receipt of the product, please fill out the Warranty Card enclosed and post it to TAIDEN Service Center nearby in your region.

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

This label appears on the rear of the unit due to space limitations

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 products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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.

WARNING: These apparatuses shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases shall be placed on the apparatus.
Important Safety Instructions

**WARNING:** To reduce the risk of electric shock, DO NOT expose units to rain or moisture.

Attention: Installation should be performed by qualified service personnel only in accordance with the National Electrical or applicable local codes.

Power Disconnect: Units with or without ON – OFF switch have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON – OFF switch is in the ON position. The power cord is the main power disconnect for all units.

**WARNING:** The apparatus should be connected to a mains socket outlet with a protective earthing connection.
Lithium battery safety precautions

- To change battery please power off and take off the battery immediately.
- Keep the battery away from heat sources to prevent fire or explosion.
- Do not use a battery that is leaking, deformed, discolored or overheats.
- Take extra precautions to keep a leaking battery from fire.
- Do not use a battery that emits odor or smoke.
- Do not solder, disassemble, puncture or deform the battery, otherwise, it may damage the protection circuit of the battery and cause fire, leakage or explosion.
- Do not short-circuit the positive and negative electrode with wire or other metal objects, otherwise it may cause fire, explosion, leakage or heat generation.
- Do not store or transport the battery with metal objects (such as necklace or hair grip), otherwise it may cause fire, explosion, leakage or heat generation.
- Do not heat the battery or throw it into fire, otherwise it may damage the safety valve or the protection circuit of the battery and may cause fire or explosion.
- Do not put the battery in the water or moisten the electrode of the battery, otherwise it may corrode the battery and cause fire, explosion, leakage or heat generation.
- Be careful to put the battery into the charging case with correct electrode position, otherwise it may cause fire, explosion, leakage or heat generation.
- Do not leave the battery near the fire or under an environment over 60 ºC (such as in the car from direct sunlight), otherwise it may damage the protection circuit of the battery and cause fire, explosion, leakage or heat generation.
- Please charge the battery with the dedicated base plate, using other charging unit may cause fire, explosion, leakage or heat generation.
- Please use the battery in assigned unit, otherwise it may cause fire, explosion, leakage or heat generation.
- Do not drop or shock the battery, otherwise it may damage the protection circuit of the battery and cause fire, explosion, leakage or heat generation.
- If battery contents get into eyes it may cause blurred vision. DO NOT rub. Rinse with clear water immediately and consult a doctor.
- If the battery leaks onto skin or clothing, wash the area immediately with clean water to avoid skin injury and fabric damage.
- It will result in low battery and may damage the battery if the battery is not used for a long time. Please take off the battery, and fully charge the battery for every three months.
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About this manual

This manual is a comprehensive guide to the installation and operation of TAIDEN HCS-5300/80 new generation digital infrared wireless conference system. It includes the detailed description of the function and interface of the HCS-5300/80 system components, system connection and installation, system set-up and operation.

The manual is divided into the following chapters:

Chapter 1: Introduction

Introduction to the HCS-5300/80 system, as well as introducing the user into structure, technical principle, and aspects of system planning.

Chapter 2: Digital infrared wireless conference main unit

Detailed description of functions, connection, configuration and operation of new generation digital infrared wireless conference main unit.

Chapter 3: Digital infrared transceiver and receiver

Detailed description of functions, position planning, installation and connection of digital infrared transceiver and receiver.

Chapter 4: Digital infrared wireless unit

Detailed description of functions and operation of new generation digital infrared wireless conference unit.

Chapter 5: Web server

Descriptions in detail of the function and operation of Web control of HCS-5300/80 New Generation Digital IR Wireless Conference System

Chapter 6: Peripheral equipment and accessories

Detailed description of peripheral equipment and accessories for Digital IR Conference Room Switcher, batteries, charging devices, power adapter and earphones.

Chapter 7: Fault diagnosis

Trouble-shooting guide for simple faults.

Chapter 8: Technical data

Mechanical and electrical details of the complete HCS-5300/80 equipment.
This manual is applicable to:

- **Digital IR Wireless Conference System Main Unit**
  
  **HCS-5300MA/80**  
  Digital IR Wireless Conference System Main Unit  
  (discussion, voting, 1+7 CHs, with interface for HCS-4100/50 series Wired Congress Unit and Interpreter Unit, Dante interface)

  **HCS-5300MA/WS/80**  
  Digital IR Wireless Conference System Main Unit  
  (discussion, voting, 1+7 CHs, with interface for HCS-4100/50 series Wired Congress Unit and Interpreter Unit, Dante interface, built-in Web Server)

  **HCS-5300MB/80**  
  Digital IR Wireless Conference System Main Unit  
  (discussion, 1+7 CHs, with interface for HCS-4100/50 series Wired Congress Unit and Interpreter Unit)

  **HCS-5300MB/WS/80**  
  Digital IR Wireless Conference System Main Unit  
  (discussion, 1+7 CHs, with interface for HCS-4100/50 series Wired Congress Unit and Interpreter Unit, built-in Web Server)

  **HCS-5300MC/80**  
  Digital IR Wireless Conference System Main Unit  
  (discussion)

  **HCS-5300MC/WS/80**  
  Digital IR Wireless Conference System Main Unit  
  (discussion, built-in Web Server)

- **Digital Infrared Transceiver and Receiver**
  
  **HCS-5300TD/80**  
  Digital Infrared Transceiver (ceiling, wall or tripod-mounted, suitable for less than 6 m height)

  **HCS-5300TDS/80**  
  Digital Infrared Transceiver (suspension)

  **HCS-5300TH/80**  
  Digital Infrared Transceiver (ceiling, wall or tripod-mounted, powered from HCS-5300M or power adapter, suitable for higher than 6 m)

  **HCS-5300TW/80**  
  Digital Infrared Transceiver (wall mounted, powered from HCS-5300M or power adapter)

  **HCS-5300RA/80**  
  Digital Infrared Receiver (suspension, tabletop)

- **Digital IR Wireless Conference Unit**
  
  **HCS-5300CE/80**  
  Digital IR Wireless Chairman Unit (5 voting keys, 1+7 CHs, English panel)

  **HCS-5300DE/80**  
  Digital IR Wireless Delegate Unit (5 voting keys, 1+7 CHs, English panel)

  **HCS-5301D/80**  
  Digital IR Wireless Delegate Unit (1+7 CHs, 2 channel selectors, dual predefined positions)

  **HCS-5302C/80**  
  Digital IR Wireless Chairman Unit (discussion)

  **HCS-5302D/80**  
  Digital IR Wireless Delegate Unit (discussion)

- **Mounting Suspension**
  
  **HCS-5300TDP-05**  
  Mounting Suspension for Digital Infrared Transceiver (0.5 m)

  **HCS-5300TDP-10**  
  Mounting Suspension for Digital Infrared Transceiver (1.0 m)

  **HCS-5300TDP-20**  
  Mounting Suspension for Digital Infrared Transceiver (2.0 m)

- **Digital IR Conference Room Switcher**
  
  **HCS-5300MX**  
  Digital IR Conference Room Switcher

- **Distributor**
  
  **HCS-5352**  
  Cable Splitter  
  (1 input & 4 outputs)

- **Lithium Rechargeable Battery Pack**
  
  **HCS-5300BAT**  
  Lithium Rechargeable Battery Pack (for HCS-5300 series conference unit)

- **Charging Device**
  
  **HCS-5300CHG/08**  
  Charging Unit (8 pcs/case)
## Power Adapter

- **HCS-ADP15V**  
  Power Adapter (DC 15 V, 2.4 A)

- **HCS-ADP24V**  
  Power Adapter (DC 24 V, 1.5 A, for HCS-5300TW Digital Infrared Transceiver)

## Dedicated Cable

<table>
<thead>
<tr>
<th>Cable Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBL5300-05</td>
<td>5 m Dedicated Transceiver Cable</td>
</tr>
<tr>
<td>CBL5300-10</td>
<td>10 m Dedicated Transceiver Cable</td>
</tr>
<tr>
<td>CBL5300-20</td>
<td>20 m Dedicated Transceiver Cable</td>
</tr>
<tr>
<td>CBL5300-30</td>
<td>30 m Dedicated Transceiver Cable</td>
</tr>
<tr>
<td>CBL5300-40</td>
<td>40 m Dedicated Transceiver Cable</td>
</tr>
<tr>
<td>CBL5300-50</td>
<td>50 m Dedicated Transceiver Cable</td>
</tr>
<tr>
<td>CBL5300-05CMP</td>
<td>5 m Dedicated Transceiver Cable (CMP)</td>
</tr>
<tr>
<td>CBL5300-10CMP</td>
<td>10 m Dedicated Transceiver Cable (CMP)</td>
</tr>
<tr>
<td>CBL5300-20CMP</td>
<td>20 m Dedicated Transceiver Cable (CMP)</td>
</tr>
<tr>
<td>CBL5300-30CMP</td>
<td>30 m Dedicated Transceiver Cable (CMP)</td>
</tr>
<tr>
<td>CBL5300-40CMP</td>
<td>40 m Dedicated Transceiver Cable (CMP)</td>
</tr>
<tr>
<td>CBL5300-50CMP</td>
<td>50 m Dedicated Transceiver Cable (CMP)</td>
</tr>
</tbody>
</table>

## Tripod

- **HCS-5300TZJ2**  
  Transceiver stand

## Pedestal

- **HCS-5300RA-BKT**  
  Digital Infrared Receiver Pedestal

## Earphones

- **EP-820AS**  
  Single Earphone (TRS connector, Ring: NC)

- **EP-829**  
  Single Earphone (earpads can be stripped, TRS connector, Ring: NC)

- **EP-829SW**  
  Single Earphone (Built-in magnetic control switch, TRS connector, Ring: NC)

- **HCS-5100PA**  
  Headphone

- **EP-960BH**  
  Headphone
Chapter 1 System introduction

1.1 Overview

TAIDEN HCS-5300/80 series product is a digital infrared wireless conference system convenient for mobile use as well as for permanent installations. The flexibility of the wireless chairman and delegate units allows easy arrangements of various conferences.

The system consists of one digital infrared wireless conference main unit, one or more digital infrared transceivers and up to 1000 digital infrared wireless conference units.

Figure 1.1 System overview
The system is composed of one or more of the following:

- **Digital IR Wireless Conference System Main Unit**
  - HCS-5300MA/80
    - Digital IR Wireless Conference System Main Unit (discussion, voting, 1+7 CHs, with interface for HCS-4100/50 series Wired Congress Unit and Interpreter Unit, Dante interface)
  - HCS-5300MA/WS/80
    - Digital IR Wireless Conference System Main Unit (discussion, voting, 1+7 CHs, with interface for HCS-4100/50 series Wired Congress Unit and Interpreter Unit, built-in Web Server)
  - HCS-5300MB/80
    - Digital IR Wireless Conference System Main Unit (discussion, 1+7 CHs, with interface for HCS-4100/50 series Wired Congress Unit and Interpreter Unit)
  - HCS-5300MB/WS/80
    - Digital IR Wireless Conference System Main Unit (discussion, 1+7 CHs, with interface for HCS-4100/50 series Wired Congress Unit and Interpreter Unit, built-in Web Server)
  - HCS-5300MC/80
    - Digital IR Wireless Conference System Main Unit (discussion)
  - HCS-5300MC/WS/80
    - Digital IR Wireless Conference System Main Unit (discussion, built-in Web Server)

- **Digital Infrared Transceiver and Receiver**
  - HCS-5300TD/80
    - Digital Infrared Transceiver (ceiling, wall or tripod-mounted, suitable for less than 6 m height)
  - HCS-5300TDS/80
    - Digital Infrared Transceiver (suspension)
  - HCS-5300TH/80
    - Digital Infrared Transceiver (ceiling, wall or tripod-mounted, powered from HCS-5300M or power adapter, suitable for higher than 6 m)
  - HCS-5300TW/80
    - Digital Infrared Transceiver (wall mounted, powered from HCS-5300M or power adapter)
  - HCS-5300RA/80
    - Digital Infrared Receiver (suspension, tabletop)

- **Digital IR Wireless Conference unit**
  - HCS-5300CE/80
    - Digital IR Wireless Chairman Unit (5 voting keys, 1+7 CHs, English panel)
  - HCS-5300DE/80
    - Digital IR Wireless Delegate Unit (5 voting keys, 1+7 CHs, English panel)
  - HCS-5301D/80
    - Digital IR Wireless Delegate Unit (1+7 CHs, 2 channel selectors, dual predefined positions)
  - HCS-5302C/80
    - Digital IR Wireless Chairman Unit (discussion)
  - HCS-5302D/80
    - Digital IR Wireless Delegate Unit (discussion)

- **Mounting Suspension**
  - HCS-5300TDP-05
    - Mounting Suspension for Digital Infrared Transceiver (0.5 m)
  - HCS-5300TDP-10
    - Mounting Suspension for Digital Infrared Transceiver (1.0 m)
  - HCS-5300TDP-20
    - Mounting Suspension for Digital Infrared Transceiver (2.0 m)

- **Digital IR Conference Room Switcher**
  - HCS-5300MX
    - Digital IR Conference Room Switcher

- **Distributor**
  - HCS-5352
    - Cable Splitter (1 input & 4 outputs)

- **Lithium Rechargeable Battery Pack**
  - HCS-5300BAT
    - Lithium Rechargeable Battery Pack (for HCS-5300 series conference unit)

- **Charging Device**
  - HCS-5300CHG/08
    - Charging Unit (8 pcs/case)
■ Power Adapter

HCS-ADP15V  Power Adapter (DC 15 V, 2.4 A)
HCS-ADP24V  Power Adapter (DC 24 V, 1.5 A, for HCS-5300TW Digital Infrared Transceiver)

■ Dedicated Cable

| CBL5300-05      | 5 m Dedicated Transceiver Cable |
| CBL5300-10      | 10 m Dedicated Transceiver Cable |
| CBL5300-20      | 20 m Dedicated Transceiver Cable |
| CBL5300-30      | 30 m Dedicated Transceiver Cable |
| CBL5300-40      | 40 m Dedicated Transceiver Cable |
| CBL5300-50      | 50 m Dedicated Transceiver Cable |
| CBL5300-05CMP   | 5 m Dedicated Transceiver Cable (CMP) |
| CBL5300-10CMP   | 10 m Dedicated Transceiver Cable (CMP) |
| CBL5300-20CMP   | 20 m Dedicated Transceiver Cable (CMP) |
| CBL5300-30CMP   | 30 m Dedicated Transceiver Cable (CMP) |
| CBL5300-40CMP   | 40 m Dedicated Transceiver Cable (CMP) |
| CBL5300-50CMP   | 50 m Dedicated Transceiver Cable (CMP) |

■ Tripod

HCS-5300TZJ2  Transceiver stand

■ Pedestal

HCS-5300BKT  Digital Infrared Receiver Pedestal

■ Earphones

EP-820AS  Single Earphone (TRS connector, Ring: NC)
EP-829  Single Earphone (earpads can be stripped, TRS connector, Ring: NC)
EP-829SW  Single Earphone (Built-in magnetic control switch, TRS connector, Ring: NC)
HCS-5100PA  Headphone
EP-960BH  Headphone
1.2 Functions and features

1. Digital infrared wireless conference system operating TAI DEN dirATC technology - digital infrared Audio Transmission and Control technology

2. Wireless conference system
   - Quick set up and removal, free from troubles resulting from cable breaks and cable deteriorations
   - Easy to set up a system within limited time
   - No impact on furniture, interior equipment or building structure

3. Infrared transmission technology
   - Conference privacy is guaranteed as infrared signals do not pass through opaque walls or ceilings
   - Opaque partitions between conference rooms, allow to operate a system in each room
   - Any quantity of infrared wireless conference systems can be installed within a building
   - The infrared communication frees users from worries about eavesdropping and radio interference inherent to radio wave-based wireless communications
   - No radio radiation
   - No radio frequency license needed for operating an infrared system all over the world
   - Adapts 1 to 8 MHz transmission frequency, undisturbed by HF driven light sources and mobile phones
   - Work without errors, even in bright sunlight

4. Digital infrared audio transmission technology
   Digital infrared audio processing and transmission technologies ensure sound quality:
   - Frequency response: 20 Hz-20 kHz
   - SNR: > 85 dBA
   - Total harmonic distortion: < 0.06 %

5. Full functions
   - Discussion
   - Vote (5 keys)
   - Simultaneous interpretation (1+7 channels)
   - Isolated audio recording function for simultaneous interpretation (1+7 channels)
   - Automatic video tracking
   - USB interface realizing quality-lossless sound recording on PC and intact input of streaming audio into the system
   - Web control function
   - Compatible with HCS-5100Plus new generation digital infrared language distribution system
   - Powerful application software modules
1.3 System technology

1.3.1 Basic system concept

The system composition of HCS-5300/80 new generation digital infrared wireless conference system is shown in figure 1.2. It is composed of:

- New Generation Digital infrared wireless conference units for participators
- New Generation Digital infrared wireless conference main unit for system control
- Digital infrared transceiver(s) for connection to main unit

The digital infrared wireless conference main unit converts audio and/or control signals into carrier outputs which are transmitted to the digital infrared transceiver(s). In the digital infrared transceiver(s) the carriers are converted into modulated infrared light, sent to all digital infrared wireless conference units. The digital infrared transceiver(s) also receive infrared signals from every digital infrared wireless conference unit and convert the signals into audio or control signals which are transmitted to the main unit.

1.3.2 IR radiation

Audio and control signals of HCS-5300/80 are transmitted as modulated infrared light. Infrared radiation is part of the electro-magnetic spectrum, which is composed of visible light, radio waves and other types of radiation. Its wavelength is longer in comparison with the wavelength of visible light. Infrared light cannot pass through opaque walls and ceilings and guarantees privacy of the meeting by avoiding of being intercepted or disturbed. In addition, infrared light has no radio radiation and a license is not required when operating infrared light systems.

1.3.3 Carriers and channels

TAIDEN HCS-5300/80 new generation digital infrared wireless conference system adopts 1~8 MHz wave band (IEC 61603 BAND III, IV, V), shown as figure 1.3. This wave band is suitable for the transmission of wide band audio and corresponding signals. Please refer to table 1.1.

![Diagram](image1)

**Figure 1.3** Standard wave band in HCS-5300/80 system

<table>
<thead>
<tr>
<th>Route</th>
<th>Channel</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>From conference unit(s) to main unit via transceiver</td>
<td>Audio channel 1</td>
<td>4.3 MHz</td>
</tr>
<tr>
<td></td>
<td>Audio channel 2</td>
<td>4.8 MHz</td>
</tr>
<tr>
<td></td>
<td>Audio channel 3</td>
<td>5.8 MHz</td>
</tr>
<tr>
<td></td>
<td>Audio channel 4</td>
<td>6.3 MHz</td>
</tr>
<tr>
<td></td>
<td>Control channel</td>
<td>3.8 MHz</td>
</tr>
<tr>
<td>From main unit to conference unit(s) via transceiver</td>
<td>Floor audio + interpretation audio (0-3) + Control signal</td>
<td>2.333 MHz</td>
</tr>
<tr>
<td></td>
<td>Floor audio + interpretation audio (4-7) + Control signal</td>
<td>1.666 MHz</td>
</tr>
</tbody>
</table>

**Table 1.1** Channels and corresponding frequencies in HCS-5300/80 system
1.4 Aspects of infrared signal transmission

To benefit from the advantages of a digital infrared wireless conference system the signals should be transmitted undisturbed. This is achieved by using digital infrared transceivers well positioned and sufficient in quantity to ensure uniform and adequate infrared radiation for all conference units.

When planning a digital infrared wireless conference system, several aspects influencing the uniformity and quality of the infrared signal should be considered. These are discussed in the next sections.

1.4.1 Ambient lighting

HCS-5300/80 system adopts 1~8 MHz wave band, and has very good anti-interference performance (see figure 1.4, figure 1.5).

![Figure 1.4](image)

Figure 1.4  High frequency lights disturbance from HF driven light sources (energy-saving lamps)

![Figure 1.5](image)

Figure 1.5  New generation digital infrared conference system with 1-8 MHz wave band can avoid high frequency lights disturbance

For meeting rooms with large, unscreened windows, multi-transceiver operation should be considered. For outdoor using, a site test will be required to determine the needed amount of transceivers. With sufficient transceivers, perfect signal transmission can be fulfilled even in bright sunlight.

1.4.2 Objects, surfaces and reflections

Just like visible light, infrared radiation is reflected from hard surfaces and refracted by hyaloid (glassy or transparent appearance) items. Objects in the conference venue as well as structure of the walls and ceilings will influence the distribution of infrared light. Infrared radiation is reflected from almost all hard surfaces. Smooth, bright or shiny surfaces reflect well. Dark or rough surfaces absorb a large part of the infrared energy. Usually, surfaces opaque to visible light are also opaque to infrared radiation. Shadows from walls and furniture will influence the transmission of infrared light. This can be solved by using a sufficient quantity of transceivers. They should be positioned in a manner to provide an infrared field strong enough to cover the whole conference area.

Make sure that each infrared wireless conference unit can communicate simultaneously with at least two transceivers to guarantee stable adequate infrared signal transmission.
1.4.3 Infrared service area of digital infrared wireless conference unit

Infrared light is directional invisible light. Infrared wireless conference unit gets best sensitivity when it directly faces a transceiver. Every HCS-5300/80 series new generation digital infrared wireless conference unit is equipped with infrared glass at its frontage to guarantee maximum receiving angle.

Figure 1.6 Coverage area of new generation digital infrared wireless conference unit
1.4.4 Infrared service area of digital infrared transceiver

The type of the digital infrared transceiver determines the covering area. More transceivers can enlarge the covered area. The coverage area is determined by the intersection of the infrared working area of the digital infrared transceivers with the receiving plane determined by the position of the infrared wireless conference unit. The size and the position of the coverage area are related to the height chosen for mounting the transceiver. If infrared signals between the transceiver(s) and the conference unit can get directly to each other, their intensity guarantees normal communication.

**Figure 1.7 Coverage area of digital infrared transceiver**

- a. cutaway view of coverage area of HCS-5300TD/80
- b. cutaway view of coverage area of HCS-5300TH/80
- c. footprint of HCS-5300TW /80
- d. cutaway view of coverage area of HCS-5300RA/80
1.4.5 Overlap and multipath effects

If footprints of two transceivers overlap, its total coverage area may be larger than the sum of the two separate footprints. In an area with overlap effect, the individual radiation signals of two transceivers are added, resulting in an increase of the radiation intensity, larger than the required intensity.

![Figure 1.8 Increased coverage area caused by added radiation power](image)

However, due to the differences in the delays of the signals from two or more transceivers, the signals may cancel out each other (multipath effect). In a worst-case situation, loss of reception at some positions (black spots) may be the consequence. The distance between the main unit and each transceiver must be equivalent to avoid multipath effect.

![Figure 1.9 Reduced coverage area caused by differences in cable signal delay](image)
Chapter 2 Digital IR Wireless Conference System Main Unit

2.1 Overview

HCS-5300M/80 digital infrared wireless conference system main unit is the heart of the HCS-5300/80 wireless conference system. The main unit can be connected to digital infrared transceivers and recording devices and:
- display system function configuration
- display system status
- fulfill automatic conference controlling

It can be directly connected to a HCS-5100 Plus new generation digital infrared language distribution system. If PC software is operated, additional powerful functions are available.

Each HCS-5300MA/MB/80 main unit can be connected to 10 transceivers and each HCS-5300MC/80 main unit can be connected to 6 transceivers at most. The maximal number of wireless conference units is 1000.

With connecting to the HCS-8300MES extension unit, the maximal number of wired conference units is 200.

Four microphones of digital infrared wireless conference units can be switched on at the same time.

HCS-5300MA/MB/80 can manage seven interpretation channels if interpreter units are connected.

The maximal number of wired units that can be directly connected to the HCS-5300MA/MB/80 is shown in table 2.1.

HCS-5300M/80 is suitable for either tabletop or 19-inch rack mounting using. Four feet (for tabletop) and two brackets (for rack mounting) are supplied.

| Types: |
| HCS-5300MA/80 |
| Digital IR Wireless Conference System Main Unit |
| (discussion, voting, 1+7 CHs, Dante interface) |
| HCS-5300MA/WS/80 |
| Digital IR Wireless Conference System Main Unit |
| (discussion, voting, 1+7 CHs, Dante interface, built-in Web Server) |
| HCS-5300MB/80 |
| Digital IR Wireless Conference System Main Unit |
| (discussion, 1+7 CHs) |
| HCS-5300MB/WS/80 |
| Digital IR Wireless Conference System Main Unit |
| (discussion, 1+7 CHs, built-in Web Server) |
| HCS-5300MC/80 |
| Digital IR Wireless Conference System Main Unit |
| (discussion) |
| HCS-5300MC/WS/80 |
| Digital IR Wireless Conference System Main Unit |
| (discussion, built-in Web Server) |

### Table 2.1 Quick lookup table for the max. number of wired units (unit: pcs)

<table>
<thead>
<tr>
<th>System status</th>
<th>Type No.</th>
<th>The extension cable length between the CMU and the first wired unit connected to the socket</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS-5300MA/MB/80+ HCS-5300T/80 × 10</td>
<td>HCS-4338N/50</td>
<td>20 m: 18, 40 m: 17, 60 m: 16</td>
</tr>
<tr>
<td></td>
<td>HCS-4385U/50</td>
<td>20 m: 14, 40 m: 13, 60 m: 12</td>
</tr>
</tbody>
</table>
2.2 Functions and indications

Figure 2.1  New generation digital infrared wireless conference system main unit
Front panel:
1. “STANDBY” button
2. “MENU” button
   - The LCD displays the initial user interface: press this button to enter the LCD set-up menu;
   - The LCD displays the set-up user interface: press this button to select the highlighted item or enter the submenu;
   - The LCD displays the network configuration: press this button to select/deselect the numeric value.
3. “<” (Left) button
   - In the set-up interface of the LCD menu, press this button to cursor to the left.
4. “>” (Right) button
   - In standby state, press this button to select the number of maximum active microphones;
   - In the set-up interface of the LCD menu, press this button to cursor to the right.
5. “Exit” button
   - In standby state, press this button to select the operation mode of the microphones;
   - In the set-up interface of the LCD menu, press this button to exit the current menu.
6. LINE IN 1 electric level adjustment knob
7. A type USB interface
   - To plug-in a USB stick.
8. Mini USB interface
   - For connecting to PC.
9. “MASTER VOLUME”
   - Knob to adjust the master volume of the floor audio channel for the conference units.
10. Microphone operation mode indicators (“OPEN”/“OVERRIDE”/“VOICE”/“APPLY”)
    - Corresponding indicator lights up according to selected mode;
    - All indicators are turned off in APPLY mode.
11. Indicators of maximum active microphone number (1/2/3/4)
12. Menu display
    - 256×32 LCD, displays main unit status and configuration menu.
13. Monitoring earphone interface
    - Earphone jack (Ø 3.5 mm).

Backside:
14. Ethernet
    - For communication between the conference main unit and the PC under TCP/IP protocol to realize remote controlling; furthermore, it enables remote controlling by wireless touch panel through central control system.
15. Interpreter Unit interface
    - For connecting to interpreter unit.
16. Transceiver interfaces (1-6)
17. Video switch interface
    - When cooperating with video switch and dome camera, auto video tracking can be realized.
18. Fire alarm linked trigger interface
    - When the Alarm Setting in main menu is on:
      - Connected: all conference units will be switched off and display “ALARM”;
      - Unconnected: conference units will return to the status preceding “ALARM”.
19. HF out (BNC socket)
    - For connecting to HCS-5100T digital infrared radiator.
20. Power supply
21. Mains switch
22. “LINE OUT 1” (3 cord XLR balanced output)
23. “LINE IN 1” (3 cord XLR balanced input)
24. “LINE OUT 2” (RCA)
25. “LINE IN 2” (RCA)
26. RS-232C port
    - “COM” port is used for connecting to a central control system for central controlling, as well as for system diagnosis.
27. Simultaneous interpretation outputs (0-7)
    - For recording.
28. Dante interface
    - Connecting the conference main unit to the Dante network to transmit input audio signals.
2.3 Installation

HCS-5300M/80 series new generation digital infrared wireless conference system main unit can be fixed in a standard 19-inch cabinet. The main unit is equipped with a pair of fixing brackets ①. First unscrew the lateral screws ② from the housing. Then fasten the brackets with these screws and put the main unit in the cabinet. Finally fix the four holes ③ up with screws (see Figure 2.2).

![Figure 2.2  Installation of new generation digital infrared wireless conference system main unit](image)

In addition, 1U metal stripes are included as decoration to be installed between the main units in the cabinet. It is also good for the ventilation and cooling off. Fix up the four holes ③ with screws (see Figure 2.3).

![Figure 2.3  Decoration of cabinet](image)
2.4 Connection

Several typical system connections of HCS-5300M/80 series main unit will be introduced in this section, including connection:

- To interpretation devices
- To other auxiliary devices
- To HCS-8300MI series
- System connection [Wired/wireless discussion + (1+7) CHs digital simultaneous interpretation + voting + video tracking]
- System connection [Wired/wireless discussion + (1+7) CHs digital simultaneous interpretation + video tracking + central control]
- System connection [Wireless discussion + video tracking + central control]

2.4.1 To interpretation devices

HCS-5300MA/MB/80 main unit has embedded 1+7 channels simultaneous interpretation and can be connected to interpretation devices (please refer to 2.6.2). TAIDEN interpreter units can be connected directly to HCS-5300M/80 from interpreter’s unit interface and fulfill eight channels simultaneous interpretation (including floor audio).

2.4.2 To other auxiliary devices

2.4.2.1 To external audio device

New generation digital infrared wireless conference main unit can be connected to an external audio device through LINE IN 1 or LINE IN 2 interface. The external audio signal is now available at the floor audio channel.

2.4.2.2 To recording device

HCS-5300M/80 series new generation digital infrared wireless conference main unit has 2 audio outputs and 8 individual audio simultaneous interpretation outputs which can be connected to recording devices. Simultaneous interpretation signals can be recorded or the meeting can be recorded as a sum of all audio signals.
2.4.2.3 To PA

HCS-5300M/80 series new generation digital infrared wireless conference system main unit has audio output interfaces which can be connected to a PA system. Use an audio cable to connect “LINE OUT 1” or “LINE OUT 2” of HCS-5300M/80 to the input interface of PA.

![Diagram of HCS-5300M/80 connecting to PA](image)

Figure 2.7 Digital infrared wireless conference main unit connecting to PA

2.4.3 To HCS-8300MI series

HCS-5300M main unit connects with HCS-8300MI series 8 Channels Audio Input Interface to realize the following function:

a) Transmits 7 digital (AES/EBU)/analog audio channels to the interpretation channels of the Congress System, for example for remote interpretation purposes or for transmission to floor channel

b) All inputs can be mixed with arbitrary ratio, and outputted to any channel;

![Diagram of HCS-5300M+HCS-8300MI+HCS-8300MO multi-channel digital audio transmission solution](image)

Figure 2.8 HCS-5300M+HCS-8300MI+HCS-8300MO multi-channel digital audio transmission solution
HCS-5300MA/80 has the functions for discussion, vote and 1+7 CHs digital simultaneous interpretation. The system can be connected to an automatic video tracking system. For video tracking purposes, the application software is used to make camera presets for every conference unit. If the conference unit is switched on, the video tracking system will automatically find the appropriate preset and focus on the speaker. The view of the speaker will be displayed on large screen or other display devices. The automatic video tracking system is compatible with several kinds of video signals and operates automatic video switching. The video tracking system is composed of video switcher, camera control board and high-speed dome camera.

Use a RS-485 cable and connect the HCS-5300M/80 main unit (port “TO VIDEO SWITCHER”) to the corresponding port at the rear panel of the video switcher (port “TAINET”).

Multiform functions can be realized with the following system configuration:

- Digital infrared wireless conference;
- Wired/wireless discussion
- 8 CHs digital infrared language distribution system;
- Voting;
- Video tracking.

Figure 2.9  System connection [Wired/wireless discussion + (1+7) CHs digital simultaneous interpretation + voting + video tracking]
2.4.5 System connection 2

- [Wired/wireless discussion + (1+7) CHs digital simultaneous interpretation + video tracking + central control]

HCS-5300MB/80 has the functions for discussion and 1+7 CHs digital simultaneous interpretation. The system can be connected to an automatic video tracking system. For video tracking purposes, the application software is used to make camera presets for every conference unit. If the conference unit is switched on, the video tracking system will automatically find the appropriate preset and focus on the speaker. The view of the speaker will be displayed on large screen or other display devices. The automatic video tracking system is compatible with several kinds of video signals and operates automatic video switching. The video tracking system is composed of video switcher, camera control board and high-speed dome camera.

Use a RS-485 cable and connect HCS-5300M/80 Main unit (port “TO VIDEO SWITCHER”) to the corresponding port at the rear panel of the video switcher (port “TAINET”).

Also, TAIDEN HCS-5300 digital infrared wireless conference system and TAIDEN HCS-6100 network central control system can be joined together seamlessly. It can link together various devices, hardware and environment equipment from different manufacturers. The central control system can operate the conferencing devices through wired Ethernet or wireless bidirectional communication by wired/wireless touch panel. Features include power controlling, environment light adjustment and on-off, electric curtain or projector screen open-close and on-off, system PA volume controlling and controlling various electric devices, such as DVD, VCR, TV, projector, etc. RS-232C or RS-485 interfaces are available. Remote controlling, even from distant places, can be achieved through LAN or internet.

If using TAIDEN network central control system touch panel to control conference units, the ID of each conference unit should be known (have been set up before leaving factory, ID will be displayed on LCD on startup).

Multiform functions can be realized with the following system configuration:
- Digital infrared wireless conference;
- Wired/wireless discussion
- Switch on/off microphone of conference unit;
- 8 CHs digital infrared language distribution system;
- Video tracking, and cameras can be remote controlled;
- Central controlling to currently connected devices.
Figure 2.10  System connection [Wired/wireless discussion + (1+7) CHs digital simultaneous interpretation + video tracking + central control]
2.4.6 System connection 3

- [Wireless discussion + video tracking + central control]

HCS-5300MC/80 has the functions for discussion. The system can be connected to an automatic video tracking system. For video tracking purposes, the application software is used to make camera presets for every conference unit. If the conference unit is switched on, the video tracking system will automatically find the appropriate preset and focus on the speaker. The view of the speaker will be displayed on large screen or other display devices. The automatic video tracking system is compatible with several kinds of video signals and operates automatic video switching. The video tracking system is composed of video switcher, camera control board and high-speed dome camera.

Use a RS-485 cable and connect HCS-5300M/80 Main unit (port “TO VIDEO SWITCHER”) to the corresponding port at the rear panel of the video switcher (port “TAINET”).

Also, TAIDEN HCS-5300/80 new generation digital infrared wireless conference system and TAIDEN HCS-6100 network central control system can be joined together seamlessly. It can link together various devices, hardware and environment equipment from different manufacturers. The central control system can operate the conferencing devices through wired Ethernet or wireless bidirectional communication by wired/wireless touch panel. Features include power controlling, environment light adjustment and on-off, electric curtain or projector screen open-close and on-off, system PA volume controlling and controlling various electric devices, such as DVD, VCR, TV, projector, etc. RS-232C or RS-485 interfaces are available. Remote controlling, even from distant places, can be achieved through LAN or internet.

If using TAIDEN intelligent central control system touch panel to control conference units, the ID of each conference unit should be known (have been set up before leaving factory, ID will be displayed on LCD on startup).

Multiform functions can be realized with the following system configuration:
- Digital infrared wireless conference;
- Switch on/off microphone of conference unit;
- Video tracking, and cameras can be remote controlled;
- Central controlling to currently connected devices.
Figure 2.11 System connection [Wireless discussion + video tracking + central control]
2.5 Menu structure

Figure 2.12 Digital infrared wireless conference system main unit menu structure


2.6 Configuration and operation

Digital infrared wireless conference system main unit can be configured and set up through menu operation with four buttons. All menu items operation will be introduced one by one in this section.

A) Starting initialization

Switch on and press the “STANDBY” button, the HCS-5300M/80 digital infrared wireless conference system main unit will start initialization:

B) Initial interface on LCD

The initial interface on the LCD includes:

“Menu”
“Mic’s”
“Mode”

Select and press the corresponding button which is below the item and go to the next operation:

- Press the “Menu” button to go to the main menu;
- Press the “≥” button to switch the maximal number of microphones that can be turned on at the same time: 1, 2, 3 or 4.
- Press the “EXIT” button to switch microphone mode among “Open”, “Override” and “Voice”:
  - “Open”: If the maximal number of active microphones (including chairman unit), previously fixed, has been reached, a further delegate unit cannot be activated; and the chairman unit still can be activated when the total number of active microphone is less than 4 in the system.
  - “Override”: If the maximal number of active microphones has been reached and if another delegate unit is activated, the delegate unit switched on first will be switched off first automatically (first in / first out). If the total number of active microphone is less than 4 in the system, the chairman unit can be activated till the number reaches 4 and then if another chairman unit is activated, the unit switched on first will be switched off first automatically (primarily switched off the delegate units and then the chairman units).
  - “Voice”: When delegates speak into the microphones at a short distance, the microphones will be activated. If the maximal number of active microphones, previously fixed, has been reached, other delegate units cannot be activated; and the chairman unit still can be activated when the total number of active microphone is less than 4 in the system.

C) Access main menu

Pressing the “Menu” button under initial interface will go to main menu, which includes the following items:

“System Status”
“SI Channel and Booth Setting”
“Line In 2 Setting”
“Downlink Audio Bass Setting”
“Downlink Audio Treble Setting”
“Monitor Setting”
“Headphone Auto Att. Setting”
“Ring Setting”
“Set Chairman Priority Mode”
“Microphone Parameters Setting”
“Microphone Auto Off Setting”
“Carrier Use Sequence Setting”
“Language”
“Network Setting”
“Time Setting”
“Video Tracking Setting”
“SI Channel Parameters Setting”
“Headphone Mute Speaker”
“Alarm Setting”
“Parameters Backup/Restore”
“Voice Mode Setting”
“WiredMic Function Setting”
“Number”
“Mic. IR Automatic Adjusting”
“Audio Mode Setting”
“USB Audio Setting”
“License”
“About”
About Dante

Press the "MENU" button to go to the corresponding submenus;

To switch from term to term use the "<-/->" button;

To exit the current menu and to return to the upper level menu use the "EXIT" button.

2.6.1 System Status

"System Status" submenu includes:

- "Carrier Using Status"
- "Microphone Battery Status"
- "Carrier Using Sequence"

a) Carrier Using Status

Use the "<-/->" button to select "Carrier Using Status" and use the "MENU" button to confirm.

The status of every channel and the status of the active microphone(s) will be displayed.

The example figures unit with ID “2” and “4” on channel 1 and channel 3, and their signal intensities are “M” (middle) and “H” (high). "L" means the signal is low and “X” means there is no signal received. Two more channels are available. The signal will be null when “Mic. IR Automatic Adjusting” is set “Yes”.

b) Microphone Battery Status

Use the "<-/->" button to select “Microphone Battery Status” and use the "MENU" button to confirm.

The ID, voltage and residual time of the active microphone(s) will be displayed.

The example figures that unit with ID “39” is activated. Its voltage is 12.36 V and its residual time is 13 hours.

c) Carrier Using Sequence

Use the "<-/->" button to select “Carrier Using Sequence” and use the "MENU" button to confirm.

The sequence of the carriers will be displayed.

2.6.2 SI Channel and Booth Setting

In “SI Channel and Booth Setting” submenu, the following parameters need to be set up:

- “Number of Channel(s)"
- “Language for Channel"
- “Number of Booth(s)"
- “Language for Booth"
- “Auto-Relay Booth Setting"
- “Distribute Floor to Used SI Channel"
- “Interpreter Units Display Real Time"

a) Select Number of Channel(s)

Use the "<-/->" button to switch between 0-7;

Note:

- If there are wired conference units connected, the maximal number of channels is 3.

- If "0" is selected, it stands for no SI function, use the "MENU" button to save and return to the main menu;
- If other values are selected, it stands for the number of interpretation channels, use the "MENU" button to go to step b).
b) Select Language of Channel

1. Set up channel 1 first, use the “⇄/⇒” button to switch among languages;
2. Use the “MENU” button to confirm and go to the next channel;
3. Repeat 1)-2) to set up the language for every channel, and go to step c).

c) Select Number of Booth(s)

Use the “⇄/⇒” button to switch between 0-7. Usually, one language will take one booth.
- If “0” is selected, it stands for no interpreter booth, use the “MENU” button to save and return to the main menu;
- If other values are selected, it stands for the quantity of interpreter booths, use the “MENU” button to go to step d).

d) Select Language for Booth

To distribute interpretation languages separately, A/B/C channels are provided in each Interpreter unit. The language setting of A/B/C channels for all Interpreter units in one booth is uniform. After setup of booth numbers, the user interface to set up output channel A/B/C language will show for each booth.
1. Set up channel A language for booth 1: press the “⇄/⇒” button to select a language from those languages that have been selected in step b) and press the “MENU” button to confirm;
2. Select channel C language for booth 1: “None” or “All”;
- If “All” is selected for C then press the “⇄/⇒” button to select a language for B from those languages that have been selected in step b) and press the “MENU” button to confirm;
- If “None” is selected for C then select channel B language from “None” or “All”;

“None” stands for no language output from channel B;
- “All” stands for the language of channel B which can be any of the selected languages.
Press the “MENU” button to confirm and go to configuration for the next booth;
3. Repeat 1)-2) to set up output channel A/B/C language for all booths and then go to step e).

e). Auto-Relay booth Setting

Setup Auto-Relay booth.

1. Press the “⇄/⇒” button to select yes or no
- If select “No”, press the menu button to confirm;
- If select “Yes”, press the “MENU” button to confirm and go to next step;
2. Press the “⇄/⇒” button to select auto-relay booth quantity and press the “MENU” button to go to the next step;
3. Press the “⇄/⇒” button to select auto-relay booth
and press the “MENU” button to confirm, then the corresponding booth number will be highlighted and set as auto-relay booth. Press the “MENU” button again in the highlighted item to cancel the setting;

4). Press the “=" button to select next auto-relay booth until all auto-relay booths have been set;

5). Repeat step 2) to 4) to setup auto-relay for all other booths and then go to step f).

Note:
If channel B and C of a booth have no output, this booth cannot be set as auto-relay booth.

f) Distribute Floor to Used SI Channel
Enable/disable switch to floor channel automatically when no interpretation channel is available.

1). Press the “=" button to select “Yes” or “No”;
2). Press the “MENU” to save and then go to step g).

g) Interpreter Units Display Real Time
Select to display real time or not on the LCD screen of interpreter units.

1). Press the “=" button to select “Yes” or “No”;
2). Press the “MENU” to save and then go to the upper level menu.

2.6.3 Line in 2 Setting
Adjust LINE IN 2 volume, range: -30 dB (mute) - 0 dB.

a). Press the “=" button to adjust volume;
b). Press the “MENU” button to save and return to the upper level menu.

2.6.4 Downlink Audio Bass Setting
Adjust downlink bass of the floor, range: -15dB - +15 dB.

a). Press the “=" button to adjust;
b). Press the “MENU” button to save and return to the upper level menu.

2.6.5 Downlink Audio Treble Setting
Adjust downlink treble of the floor, range: -15dB - +15 dB.

a). Press the “=" button to adjust;
b). Press the “MENU” button to save and return to the upper level menu.

2.6.6 Monitor Setting
The audio input and output can be monitored with a headphone at the monitor jack on the front panel of the CMU.

“Monitor Setting” includes two submenus:
“Monitor Ch.”
“Monitor Vol.”

a). Press the “=" button to select “Monitor Ch.” or “Monitor Vol.”;
b). Press the “MENU” button to go to the next step;

“Monitor Ch.”
Select the audio channel to monitor, including: Line Out 1, Line Out 2, Interp CH:1 to Interp CH:7.
a). Press the “<~/>” button to select the audio channel;
b). Press the “MENU” button to save and return to the upper level menu.

- “Monitor Vol.”

Adjust the monitor volume between -30 dB and 0 dB.

![ volume adjustment](image)

a). Press the “<~/>” button to adjust (press and hold the “<~/>” button will adjust the value quickly);
b). Press the “MENU” button to save and return to the upper level menu.

2.6.7 Headphone Auto Att. (Attenuation) Setting

If a headphone is plugged, howling may happen when the microphone is activated. “Headphone auto att.” function is used to suppress howling for floor language channel. If enabled, the headphone audio signal will decrease automatically by 12 dB.

a). Press the “<~/>” button to select “Yes” or “No”; b). Press the “MENU” button to save and return to the upper level menu.

2.6.8 Ring Setting

Select ring tone on/off on request to speak, when chairman priority button is pressed or when timing speech.

![ ring setting](image)

a). Press the “<~/>” button to select ring on/off; b). Press the “MENU” button to save and return to the upper level menu.

2.6.9 Set Chairman Priority Mode

Priority includes two priority modes.
“All mute”
“All off”

![ priority selection](image)

a). Press the “<~/>” button to select priority mode between “All Mute” and “All Off”; b). Press the “MENU” button to save and return to the upper level menu.

- “All Mute”: when the chairman presses and holds the “Priority” button, all active microphones will mute temporarily; when the chairman releases the “Priority” button, all temporarily muted microphones will resume.
- “All Off”: when the chairman presses the “Priority” button, all active microphones will be deactivated.

2.6.10 Microphone Parameters Setting

1. “Microphone Gain Setting”

![ gain setting](image)

a). Press the “<~/>” button to select “Set All Mics” or “Set Active Mic(s)”; b). Press the “MENU” button to go to the next step.

c). Press the “<~/>” button to select “Specified Value” or “Step Adjustment”;

- “Specified Value

![ gain adjustment](image)

a). Press the “MENU” button to go to setup, then press the “<~/>” button to adjust the gain of all/active microphones, range: -12 dB - 12 dB;
b). Press the “MENU” button to save.
2.6.11 Microphone Auto Off Setting

Use the “</>” button to enable/disable to turn off the microphone automatically after a period of silence.

- “Yes”: the microphone will automatically switch off after a period of silence and the period shall be set up as below:

  a). Set up the period in minutes with the “</>” button, range from 1-59 minute(s);
  b). Press the “MENU” button to save and return to the upper level menu.

- “No”: do not switch off the microphone after a period of silence, and return to the upper level menu.

Note:
Microphone Auto Off Setting is invalid for wired microphones.

2.6.12 Carrier Use Sequence Setting

a). Press the “</>” button to adjust the carrier use sequence, range: 1-4;

b). Press the “MENU” button to save and return to the next carrier setting interface;

c). After all carriers are set, press the “MENU” button to save and return to the upper level menu.

2.6.13 Language

a). Use the “</>” button to switch language from “中_简”, “中_繁”, “English”;

b). Use the “MENU” button to confirm and return to the upper level menu.

2.6.14 Network Setting

“Network Setting” includes three submenus:

- “IP address”
- “Subnet mask”
- “Gateway”
a) Setting up unique “IP Address” for the main unit:

1. Select the “IP address” and press the “MENU” button to go to set up the IP address interface:

2. Use the “←/→” button to switch between the four numbers;
3. Use the “MENU” button to edit the selected number;
4. Use the “←/→” button to decrease/increase the number (press and hold the “←/→” button will adjust numeric value quickly);
5. Use the “EXIT” button to return to the high level menu.

b) Setup “Subnet Mask” and “Gateway”

The same chronological order as for the “IP address” set up.

Note:

- “IP address”, “Subnet Mask” and “Gateway” of the system software must correspond with the above main unit settings, otherwise connection error will occur.
- All menu setup except “Network”, use the “MENU” button to exit saving changes, and use the “EXIT” to exit discarding changes.

2.6.15 Time Setting

Set system clock.

a) Press the “MENU” button to go to “Year”, “Month”, “Day”, “Hour”, “Minute” in turn;
b) Press the “←/→” button to set time (press and hold the “←/→” button will adjust numeric value quickly) and the “MENU” button to confirm;
c) Press the “MENU” button to save and return to the upper level menu.

2.6.16 Video Tracking Setting

Enable/disable video tracking function.

a) Press the “←/→” button to select “Yes” or “No”;
   - If “No” is selected, the video tracking function is disabled;
   - If “Yes” is selected, the video tracking function is enabled;
b) Press the “MENU” button to save and return to the upper level menu.

2.6.17 SI Channel Parameters Setting

Set the parameters of the SI channel.

a). Press the “MENU” button to view the channel state.

   - If a channel hasn’t been fed with language output temporarily, the LED displays “Not Engaged”, and if the microphone of the Interpreter unit in the booth is active, the audio parameters of the Interpreter unit will be displayed on the LED and can be adjusted;
b). Press “MENU” button to select the channel number or parameter and press “←/→” button to change the channel number or parameter.

Note:

- If a HCS-8300MI is connected to the system and is working in SI mode, the LCD displays “SI Ch Engaged by 8300MI”.

2.6.18 Headphone Mute Speaker

Set the work mode between loudspeaker and headphone.

a) Press the “←/→” button to select “Yes” or “No”;

Note:

If a HCS-8300MI is connected to the system and is working in SI mode, the LCD displays “SI Ch Engaged by 8300MI”.

28
• If “Yes” is selected, the loudspeaker is muted when the headphone is plugged;
• If “No” is selected, the loudspeaker and the headphone can work at the same time, the loudspeaker sends out the floor channel only and the headphone sends out the floor channel and SI channels;

**Note:**
The loudspeaker will be muted when plugging all the two headphones of HCS-5301/80 or HCS-4338NDDS/50 even if selected “No”.

b) Press the “MENU” button to save and return to the upper level menu.

### 2.6.19 Alarm Setting

Enable/disable alarm function.

EnableAlarm Function:  

```
[Menu]  [Back]  [Exit]
```

a) Press the “<>/=” button to select “Yes” or “No”;

b) Press the “MENU” button to save and return to the upper level menu.

### 2.6.20 Parameters Backup/Restore

The system parameters can be backed up or restored through the front panel USB port. Make sure that the USB disk is properly connected, otherwise it will prompt “Please insert the USB disk.”

```
Backup  Restore

[Menu]  [Back]  [Exit]
```

a). Press the “<>/=” button to select “Backup” or “Restore”;  
• If “Backup” is selected, system parameters can be backed up;
• If “Restore” is selected, system parameters can be restored;
  b). Press the “MENU” button to confirm and to go to selected menu item;
  c). Return to the upper level menu after backup or restart the main unit after recovery to save the parameters.

### 2.6.21 Voice Mode Setting

“Voice Mode Setting” includes two submenus: “Voice Sensitivity” “Auto Off Time”

#### “Voice Sensitivity”

a). Press the “<>/=” button to select “Voice Sensitivity” and press the “MENU” button to enter the setup interface. Press the “<>/=” button to select the “High”, “Middle” or “Low”, shown as in the following figure:

```
Voice Sensitivity

[Menu]  [Back]  [Exit]
```

b). Press the “MENU” button to save and return to the upper level menu.

#### “Auto Turn Off Time”

a). Press the “<>/=” button to select “Auto Turn Off Time” and press the “MENU” button to enter the setup interface. Press the “<>/=” button to select for “3s”, “5s” or “10s”, shown in the following figure:

```
Auto Turn Off Time

[Menu]  [Back]  [Exit]
```

b). Press the “MENU” button to save and return to the upper level menu.

### 2.6.22 WiredMic Function Setting

Enable/disable WiredMic function.

Enable WiredMic Function:  

```
[Menu]  [Back]  [Exit]
```

a) Press the “<>/=” button to select “Yes” or “No”;

b) Press the “MENU” button to save and reboot the main unit to enable.
2.6.23 Number

All wired units must be numbered when the system is used for first time or when adding or replacing wired conference units.

- **WiredMic(s)**
  a). Enter “WiredMic(s)”, the LED indicators on the wired units connected will blink;
  b). Press the keys on the wired units one by one to number each unit, the button indicating light will be deactivated;
  c). Once all units are numbered, restart the CMU to update the number information.

- **Interpreter Units**
  a). Enter “Interp'”, all the interpreter units enter numbering status, and the ‘B’ indicator light was turned on, the LCD of the main unit is shown as following:
  b). Turn the primary knob to select a number (1-7), and press the ‘B’ button to confirm;
  c). Press the “EXIT” button to stop numbering and return to upper level menu.

2.6.24 Mic. IR Automatic Adjusting

When more speakers give speech at the same time, the audio signals the main unit received may be intermittent because of the different distances between the microphones and the receiver may lead to interference between channels. Now enable “Mic. IR Automatic adjusting”, the interference can be reduced obviously.

- Press the “<>/” button to select “Yes” or “No”;
- Press the “MENU” button to save.

2.6.25 Audio Mode Setting

“Audio Mode” includes three submenus:

- “Normal”
- “Remote Conferencing”
- “External Process”

- **Normal**: LineOut1, LineOut2 and floor audio output feature each the sum signal of LineIn1 + LineIn2 + active microphones; as shown in figure 2.13;
- **Remote Conferencing**: If selecting the audio port 1 for far end: A) LineOut1 output features the sum signal of LineIn2 + active microphones; B) LineOut2 and floor audio output feature each the sum signal of LineIn1 + LineIn2 + active microphone signals; as shown in figure 2.14.
  If selecting the audio port 2 for far end, C) LineOut2 output feature the sum signal of LineIn1 + active microphones; D) LineOut1 and floor audio output feature each the sum signal of LineIn1 + LineIn2 + active microphones; as shown in figure 2.15;
- **External Process**: If selecting audio port 1 for external processor, LineOut1 and LineOut2 output feature each the sum signal of LineIn2 + active microphones; floor audio output features the audio signal of LineIn1, as shown in figure 2.16.
  If selecting audio port 2 for external processor, LineOut1 and LineOut2 output feature each the sum signal of LineIn1 + active microphones; floor audio output featured the audio signal of LineIn2, as shown in figure 2.17.
When selecting “Normal” mode: Press the “MENU” button to save and return to the upper level menu.

When selecting “Remote Conferencing” mode or “External Process” mode: Press the “MENU” button to enter the audio port selection interface:

![Audio Port Selection Interface](image)

1. Press the “<”/”>” button to select an audio port;
2. Press the “MENU” button to save and return to the upper level menu.

2.6.26 USB Audio Setting

Enable/disable USB audio function. The USB audio will engage one SI channel.

![USB Audio Setting](image)

a) Press the “<”/”>” button to select “Yes” or “No”;
b) Press the “MENU” button to.

2.6.27 License

Install the Web Server process and see the licenses list of the main unit.

![License](image)

- **When selecting “Install”**:  
  
  a) Insert the U-disk and the Web Server process will be installed automatically. “Success” will be displayed on the LCD if the installation successful.
  
  b) Reboot the main unit to enable Web Server.

  - **When selecting “List”**: see the licenses list.

2.6.28 About

CMU information includes: firmware version, corporation information and series number, as shown in the following figure - press any button to return to the upper level menu.

![About](image)

2.6.29 About Dante

Dante information includes: Dante version, device version and device name, as shown in the following figure - press any button to return to the upper level menu.

![About Dante](image)

2.6.30 Volume Control

The volume can be adjusted by the volume knob on the CMU front panel - LINE IN 1 VOL. adjust knob and MASTER VOLUME adjust knob. Meanwhile, the corresponding volume indicator will be displayed on the LCD, as shown in the following figure:

![Volume Control](image)

2.6.31 Connecting to PC

When connecting the CMU to the PC, its front panel will be locked and setup operation cannot be accessed, as shown in the following figure:

![Connecting to PC](image)
Figure 2.13  Audio mode setting – Normal Mode

Figure 2.14  Audio mode setting – Remote Conferencing Mode1

Figure 2.15  Audio mode setting – Remote Conferencing Mode2
Figure 2.16  Audio mode setting – External Process Mode1

Figure 2.17  Audio mode setting – External Process Mode2
HCS-5300M has a built-in USB Audio (1 channel, 16bit, 32kHz) which can be connected to the computer through USB cable (software requirement: WindowsXP or higher) for digital audio input/output. We take Win7 system as an example to introduce the function and operation of the USB Audio.

### 2.7.1 Installation of USB Audio

Once the HCS-5300M main unit connects to the computer, the HCS-5300M USB Audio will be detected and activated automatically instead of the default audio device. User can check the information of HCS-5300M USB Audio from “Device Manager- Sound, video and game controllers”, as shown in the following figure:

![Information of USB sound card](image)
2.7.2 Digital audio input

When the HCS-5300M main unit is connected to the computer, the conference units connected in the system are the microphone for digital audio input. Using the recording software or the third party communication software, such as recorder, Skype or QQ and so on, functions like recording, remote instruction, remote communication can be implemented.

Please adjust and test the HCS-5300M USB Audio to a suitable volume when first using. Adjust method: open the control panel-sound (or right click the volume icon on the taskbar and select sound), and select the Microphone (HCS-5300M USB Audio) and modify its setting on the Recording dialog box. Shown as in the following figure:

![Adjusting microphone volume](image)

**Note:**

- To avoid feedback, only the output floor audio (except audio of PC) of the main unit will be recorded;
- Too high volume may lead to distortion, so user can confirm a suitable volume through recording and playback when necessary;
- When recording under compressed format such as MP3, the audio quality may be affected if unsuitable sampling rate or resolution is selected, so we suggest you to select 32 kHz or its multiple for the sampling rate and 16 bit for the resolution;
- Please select the HCS-5300M USB Audio as the current device on recording or communication. Usually, HCS-5300M UBS Audio will be activated instead of the default audio device after connecting to the computer. If there is something wrong in recording, may be the audio device selection made a mistake, please select the HCS-5300M USB Audio manually.
2.7.3 Digital audio output

The HCS-5300M main unit can be connected to the computer for digital audio output. Please adjust and test the HCS-5300M UBS Audio to a suitable volume when first using. Adjust method: open the control panel-sound (or right click the volume icon on the taskbar and select sound), and select the speakers (HCS-5300M UBS Audio) and modify its setting in the Playback dialog box, as shown in the following figure:

![Figurer2.20: Adjusting playback volume](image)

**Note:**
Please select the HCS-5300M USB Audio as the current device on playback. Usually, HCS-5300M UBS Audio will be activated instead of the default audio device after connecting to the computer. If there is something wrong about playback, may be the audio devices selection made a mistake, please select the HCS-5300M USB Audio manually. Take the Media Player as an example to show the sound card selection:

![Figurer2.21: Audio device selection](image)
Chapter 3 Digital infrared transceiver and receiver

3.1 Overview

The digital infrared transceiver manages the communication between the main unit and the conference units. It can be mounted onto the ceiling or the wall for optional coverage or fixed onto a tripod at any appropriate spot.

The digital infrared receiver receives the infrared signals from the digital infrared transmitter, and sends the signals to the main unit. It can be hanged on the ceiling by a suspension or put on desk with a pedestal.

Types:

HCS-5300TD/80
Digital Infrared Transceiver (ceiling, wall or tripod-mounted, suitable for less than 6 m height)

HCS-5300TDS/80
Digital Infrared Transceiver (suspension)

HCS-5300TH/80
Digital Infrared Transceiver (ceiling, wall or tripod-mounted, powered from HCS-5300M or power adapter, suitable for higher than 6 m)

HCS-5300TW/80
Digital Infrared Transceiver (wall mounted, powered from HCS-5300M or power adapter)

HCS-5300RA/80
Digital Infrared Receiver (suspension, tabletop)
3.2 Functions and indications

3.2.1 Digital infrared transceiver

Figure 3.1:
1. 2-meter 6 PIN cable CBL-5300
2. Power indicating light
3. Switchers for radiation area selection
4. Power adapter port (connect to HCS-ADP24V)

Note:
The HCS-5300TDS/80 digital infrared transceiver has four built-in switchers and the HCS-5300TH/80 has one built-in switcher to select the radiation area, they were switched to "ON" in the factory. If necessary in the practical application, please remove the top cover and switch off one or more radiated areas by selecting the corresponding switcher(s).
3.2.2 Digital infrared receiver

Figure 3.2: HCS-5300RA/80 digital infrared receiver

1. 2-meter 6 PIN cable CBL-5300
2. Power indicating light
3. Two mounting holes

3.2.3 Digital infrared cable splitter

HCS-5352 digital infrared cable splitter with one input and four outputs that can be used to connect four transceivers/ receivers at most.

Figure 3.3: HCS-5352 cable splitter

1. To the transceiver interface of the main unit
2. Four transceiver/ receiver interfaces
3.3 Infrared service area

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Mounting height (H)</th>
<th>Coverage area radius (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS-5300TD/80</td>
<td>2.5 ~ 3.0 m</td>
<td>13 m</td>
</tr>
<tr>
<td>HCS-5300TDS/80</td>
<td>3.5 ~ 4.5 m</td>
<td>11 m</td>
</tr>
<tr>
<td></td>
<td>5.0 ~ 7.0 m</td>
<td>9 m</td>
</tr>
<tr>
<td>HCS-5300TH/80</td>
<td>6.0 m</td>
<td>9 m</td>
</tr>
<tr>
<td></td>
<td>9.0 m</td>
<td>11 m</td>
</tr>
<tr>
<td></td>
<td>12 m</td>
<td>9 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Mounting height (H)</th>
<th>Coverage area length (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS-5300RA/80</td>
<td>6.0 m</td>
<td>9 m</td>
</tr>
<tr>
<td></td>
<td>9.0 m</td>
<td>11 m</td>
</tr>
<tr>
<td></td>
<td>12 m</td>
<td>9 m</td>
</tr>
</tbody>
</table>

* The table above is the coverage area of a single transceiver; but the actual coverage area will be affected by the number of the transceivers and the length of the cable connected in the system.

Figure 3.4  Service area of HCS-5300/80 digital infrared transceivers and receiver
3.4 Position planning

3.4.1 Precautions in planning the digital infrared transceiver/receiver

Due to strict demands on intensity and stability of infrared signals in an infrared wireless conference system, please read section 1.4 carefully and take all aspects of infrared signal transmission into consideration before planning the mounting position.

3.4.1.1 Avoid direct sunshine

Exposing the transceiver/receiver to sunshine or an infrared illuminant may cause system failure or noise. To guarantee adequate intensity and stability of infrared signals avoid mounting the transceiver/receiver near to an infrared illuminant, as shown in the following figure:

- Cover the window with a curtain to protect the transceiver/receiver from direct solar radiation;
- The distance between the transceiver/receiver and the window nearby must be more than 2 meters.

3.4.1.2 Stay away from lighting equipment

Although HCS-5300 system has good anti-interference performance to ambient light, the distance of the transceiver/receiver from lighting equipment must be at least 50 cm to guarantee adequate intensity and stability of infrared signals.

Note:
- If the position of lighting equipment is higher than the position of the transceiver/receiver, its disturbance can be ignored.

3.4.1.3 Stay away from wall, pillar and other obstacle

Because objects in a meeting room may cause infrared light reflection (see section 1.4.2), the transceiver/receiver should not be mounted near a wall, pillar or other obstacle; otherwise, the transceiver/receiver could feature malfunctions by detecting the reflected own infrared signals.

The distance of the transceiver/receiver to the obstacle should be at least 30 cm.

Note:
- A distance of 30 cm will be adequate to make the transceiver/receiver unaffected. However, if highly reflective surfaces exist in the meeting room, e.g. mirror, the disturbance still exists.
- Especially reflections caused by pillars in large halls may cause disturbance.
3.4.1.4 Make each conference unit communicating with more than one transceiver

As shown in the following figure: when the speaker in the front row speaks in an upright position, the infrared signal will be blocked. In conference rooms with conference units in rows, each conference unit should communicate with more than one transceiver to avoid blocking.

![Infrared signals blocking](image)

Figure 3.8 Infrared signals blocking

So, each transmitter should communicate with more than one receiver to avoid blocking.

3.4.1.5 Stay away from plasma displays

When planning an infrared wireless discussion system, plasma displays are not appropriate to be used in the venue. If you want to use plasma displays, infrared wireless conference units and infrared wireless transceivers/receivers should not be used closer than 3 meters to the plasma, or the plasma display should be equipped with an infrared filter.

![Digital infrared transceiver/receiver position](image)

Figure 3.9 Digital infrared transceiver/receiver position (near plasma display)
3.4.2 Planning digital infrared transceiver

The coverage area of the digital infrared transceiver is defined by the distance between the transceiver and the conference unit. Select suitable transceiver type according to the height of the conference room, locate them at reasonable positions and place all conference units within the coverage area.

3.4.2.1 Steps to plan the transceiver

1. Determine the current operating area, e.g. the area where the conference units are used;

2. Select suitable transceiver type according to the height of the conference room and determine the coverage area of a single transceiver (see figure 3.4).

3. Plan adequate transceivers according to the coverage area of a single transceiver and make sure that they can cover the system operating area;

4. Determine the position of the main unit and distributors (if used). Plan the paths between the transceivers and the main unit according to section 3.4.3. Proceed to cable connection.

Note:

- In most applications, the coverage area of infrared signals is smaller than the area of the whole meeting room. Therefore, first of all, determine the current operating area and the position of the conference units.

- The distances between the main unit and every transceiver must be equivalent to avoid multipath effect.

Note:

- Apparently, only two transceivers cannot cover the system operating area completely.

- Therefore, we select four transceivers and position them evenly in the meeting room. The overlap effect on the border of every transceiver will cover all blind areas (see section 1.4.5).
3.4.2.2 Example for planning the transceiver

【Square table arrangement】

If the transceivers are arranged as shown in the following figure, the coverage area of infrared signals will cover the entire meeting room.

Figure 3.13 Planning the transceiver (square conference room)

【Round table arrangement】

Apparantly, only one transceiver will cover all conference units if these are within the circular coverage area of one single transceiver.

However, to avoid blocking communication, two or more transceivers are indicated.

Figure 3.14  Planning the transceiver (round table arrangement)

【Rectangular table arrangement】

Generally: In conference rooms with identical dimensions, the position of the transceivers is determined by the arrangement of the conference units (Figure 3.15 and 3.17)

The following figures show the ideal position planning of the transceivers for a

A) conference style arrangement (circulatory seating)

B) parliamentary arrangement
A) Conference style seating (circulatory seating)

Within the circulatory seating operating area of the conference units, the transceivers must be placed evenly. Make sure that all conference units communicate with at least two transceivers.

The following figure shows the position planning for conference style seating if the conference rooms have distinct areas.

Figure 3.15  Arrangement according to the seating style (conference style seating)

B) Parliamentary seating

If the transceivers for parliamentary seating would be placed evenly as shown in Figure 3.15, transceiver No. 1 could only communicate with the few conference units in the last row (= left row in Figure 3.17), compared to the transceiver placed over the front row. The reason is that the infrared receiving glass is at the frontage of the conference unit and is orientated to the podium. Therefore the transceivers are now placed according to Figure 3.17. Transceiver No. 1 was moved to the right compared to Figure 3.15. The transceiver in the front row can effectively enlarge the coverage area.

The following figure shows the position planning for parliamentary style seating if the conference rooms have distinct areas.

Figure 3.16  Planning the transceiver (conference style seating)

Figure 3.17  Arrangement according to the seating style (parliamentary seating)

Figure 3.18  Planning the transceiver (parliamentary seating)
To get a wider and farther coverage area within 5 meters height, HCS-5300TW/80 digital infrared transceiver is strongly recommended for the meeting place where the height is lower than 5 meters, such as chairman platform.

Figure 3.19  Planning the transceiver (chairman platform)

In a balcony venue, with a higher ceiling and the shielding from the gallery, the transceiver planning must depend on the height of the ceiling and the style of seating. For example, HCS-5300TH/80 can be used to communicate with the units on the chairman platform and the ground floor for the area not shaded by the balcony.

Figure 3.20  Planning the transceiver (balcony venue)

3.4.3 Planning the path from main unit to transceiver

3.4.3.1 Cautions for cable connecting

- The distances between main unit and every transceiver must be equal

If the footprints of two transceivers overlap, the conference unit can receive infrared signals from more than one transceiver. As described in section 1.4.5, overlap effect or multipath effect will occur: the intensity of the receiving signals is enhanced if the two signals have the same phase; but the intensity of the receiving signals will weaken if the two signals have the reverse phase. To avoid multipath effect, the distance between the main unit and all transceivers must be equal. As shown in the following figure, all cables for "A" must be identical in length when the transceivers are installed in the same space.

Figure 3.21  Without distributors, all the cable lengths must be equal

- Cable length between main unit and transceiver should not exceed 60 m

Cable length A should not exceed 60 meters in the previous figure.

- Avoid parallel cabling of high voltage (power) cables and the cables between the infrared transceivers and the main unit

Communication between infrared transceivers and the main unit may be interfered by high voltage. To reduce the risk of interference, avoid parallel cabling with high voltage cables (includes mains voltage). If this cannot be avoided, please shield the cable with iron pipe.
3.4.3.2 Using distributor

If using distributors, do not use more than one distributor in one branch, or it will increase high frequency signal loss and may cause system fault.

Connections to transceivers with and without distributors in the branch, cannot work together in one system. When installed in several rooms, the cable splitter must be connected to the main unit directly and the cable lengths to different rooms do not need to be equal, as shown in figure 3.22.

- All cable lengths B1 must be equal;
- All cable lengths B2 must be equal;
- B1 and B2 are used for different rooms, and do not need to be equal;

![Diagram showing path planning with distributor for several rooms](image)

**Figure 3.22** Plan the path from main unit to transceiver with distributor for several rooms

**Note:**

- The same rule is also applicable for two systems installed in one room but have enough distance that they will not interfere to each other.
3.5 Installation

3.5.1 Installation of HCS-5300TD/80

3.5.1.1 Ceiling mounted

Mounting steps:

Step 1: Install the ceiling mounting kit at the top of the HCS-5300TD/80 Transceiver;

Step 2: Drill a hole with 98 mm diameter into the ceiling (for mounting and heat elimination during operation);

WARNING:
Do not cover the venting to keep good ventilation for the equipment.

Step 3: Insert the cable into the mounting hole;

Step 4: Hold the spring straightly and vertically, insert it into the mounting hole until the base of the HCS-5300TD/80 transceiver can fit with the ceiling.

Figure 3.23  HCS-5300TD/80 digital infrared transceiver ceiling mounted

1. HCS-5300TD/80 digital infrared transceiver
2. HCS-5300TD/80 digital infrared transceiver ceiling-mounting kit
3. Mounting hole (drilled on the ceiling)
4. Ceiling
3.5.1.2 Ceiling mounted 2

![Diagram of HCS-5300TD/80 digital infrared transceiver ceiling mounted](image)

**Mounting steps:**

**Step 1:** Position the mounting bracket on the ceiling according to the installation location of the HCS-5300TD/80 and mark the positions of the drilling holes. Drill two holes (5 mm diameter, 30 mm depth) into the ceiling.

**Step 2:** Put the included rubber plugs into the mounting holes on the ceiling;

**Step 3:** Fix the mounting bracket on the ceiling with M3 screws;

**Step 4:** Put the slots of HCS-5300TD/80 digital infrared transceiver into hard ceiling mounting bracket and fix it with clockwise rotation.

**WARNING:**

- This installation method is applicable when the ceiling thickness is greater than the length of the rubber plug.
3.5.1.3 Tripod mounted (Adjustable angle)

Mounting steps:
Step 1: Fix the HCS-5300TD/80 digital infrared transceiver onto the wall-mounted bracket with M3 screws;
Step 2: Fix the tripod-mounted stator onto the other end of the wall-mounted bracket with M3 screws;
Step 3: Aim the mounting hole at the bottom of the tripod-mounted stator to the screw on the tripod;
Step 4: Fix it with clockwise rotation.
3.5.1.4 Tripod mounted

![Diagram showing tripod mounting steps]

**Figure 3.26  HCS-5300TD/80 digital infrared transceiver tripod mounted**

1. Hard ceiling mounting bracket
2. HCS-5300TD/80 digital infrared transceiver
3. HCS-5300TZJ2 (should be ordered separately)

**Mounting steps:**

**Step 1:** Put the bracket on the bottom of the transceiver and fix it with rotation;

**Step 2:** Aim the mounting hole at the bottom of HCS-5300TD/80 digital infrared transceiver to the screw on the tripod;

**Step 3:** Fix it with clockwise rotation.

**WARNING:**

This installation method is applicable when the ceiling is white and lower than 4 m.
3.5.1.5 Wall mounted (Adjustable angle)

Mounting steps:

Step 1: Fix the HCS-5300TD/80 digital infrared transceiver onto the wall-mounted bracket with M3 screws;

Step 2: Position the wall-mounted bracket on the wall according to the installation location of the HCS-5300TD/80 and mark the positions of the drilling holes. Drill four holes (5 mm diameter, 30 mm depth) on the wall;

Step 3: Put the included rubber plugs into the mounting holes on the wall;

Step 4: Fix the wall-mounted bracket onto the wall with M3 screws.

WARNING:

- This installation method is applicable when the wall thickness is greater than the length of the rubber plug.
3.5.2 Installation of HCS-5300TDS/80

Mounting steps:
Step 1: Fix M6×60 hook up riveting bolt onto the hard ceiling (such as concrete ceiling);
Step 2: Fix HCS-5300TDS/80 digital infrared transceiver onto the suspension with M3×12 screws;
Step 3: Pull the M4 screw over the mounting hole at the top of the suspension and fix it with M4 nut;
Step 4: Hang the suspension on M6 hook up riveting bolt.

WARNING:
This installation method is applicable to hard ceiling (such as concrete ceiling), and when the thickness of the ceiling is greater than the length of M6 screw.
Figure 3.29 Requirements of user customized suspension

Material: stainless steel
Unit: mm, tolerance: ±0.1
3.5.3 Installation of HCS-5300TH/80

3.5.3.1 Ceiling mounted

Mounting steps:

Step 1: Install the ceiling mounting kit at the top of the HCS-5300TH/80 Transceiver;

Step 2: Drill a hole with 98 mm diameter into the ceiling (for mounting and heat elimination during operation);

Step 3: Insert the cable into the mounting hole;

Step 4: Hold the spring straightly and vertically, insert it into the mounting hole until the base of the HCS-5300TH/80 transceiver can fit with the ceiling.

WARNING:

Do not cover the venting to keep good ventilation for the equipment.

Figure 3.30  HCS-5300TH/80 digital infrared transceiver ceiling mounted
### 3.5.3.2 Tripod mounted (Adjustable angle)

**Mounting steps:**

**Step 1:** Fix the HCS-5300TH/80 digital infrared transceiver onto the wall-mounted bracket with M3 screws;

**Step 2:** Fix the tripod-mounted stator onto the other end of the wall-mounted bracket with M3 screws;

**Step 3:** Aim the mounting hole at the bottom of the tripod-mounted stator to the screw on the tripod;

**Step 4:** Fix it with clockwise rotation.
3.5.3.3 Wall mounted (Adjustable angle)

Mounting steps:

Step 1: Fix the HCS-5300TH/80 digital infrared transceiver onto the wall-mounted bracket with M3 screws;

Step 2: Position the wall-mounted bracket on the wall according to the installation location of the HCS-5300TH/80 and mark the positions of the drilling holes. Drill four holes (5 mm diameter, 30 mm depth) on the wall;

Step 3: Put the included rubber plugs into the mounting holes on the wall;

Step 4: Fix the wall-mounted bracket onto the wall with M3 screws.

WARNING:

This installation method is applicable when the wall thickness is greater than the length of the rubber plug.
Mounting steps:

**Step 1:** Drill two holes (5 mm diameter, 30 mm depth and 100.6 mm interval) into the wall;

**Step 2:** Put the included rubber plugs and the M3 screws into the mounting holes on the wall;

**Step 3:** Hang the HCS-5300TW/80 digital infrared transceiver on the screws.
3.5.5 Installation of HCS-5300RA/80

Mounting steps:
Step 1: Put the cable through the line hole of the pedestal;
Step 2: Aim the mounting holes at both sides of the HCS-5300RA/80 digital infrared receiver to the mounting posts of the pedestal and fit in;
Step 3: Wedge the cable into the line groove;
Step 4: Put the pedestal on a horizontal surface such as desk.

WARNING:
The installation method is applicable when the ceiling is white and lower than 4 m.
3.6 Connecting to main unit

Connect the transceiver to the main unit with designated 6-pin 100 Mbps high speed cable (see figure 3.35).

Note:

The correctness of the cable connection can be ascertained if the indicating light on the transceiver is lighting up. If the indicating light is not on, cable connection failure or short circuit should be considered.
4.1 Overview

HCS-5300/80 series digital infrared wireless conference units are the basic devices for the participants, divided into delegate unit and chairman unit with priority features. Different functions are available, depending on the conference unit type used. Functions include: listen, speak, LCD display, key press sign-in, vote, simultaneous interpretation, etc.

Types:

**HCS-5300CE/80**
Digital IR Wireless Chairman Unit (5 voting keys, 1+7 CHs, English panel)

**HCS-5300DE/80**
Digital IR Wireless Delegate Unit (5 voting keys, 1+7 CHs, English panel)

**HCS-5301D/80**
Digital IR Wireless Delegate Unit (1+7 CHs, 2 channel selectors, dual predefined positions)

**HCS-5302C/80**
Digital IR Wireless Chairman Unit (discussion)

**HCS-5302D/80**
Digital IR Wireless Delegate Unit (discussion)
4.2 Functions and indicating

HCS-5300CE/80

HCS-5300DE/80

HCS-5302D/80

HCS-5302C/80

HCS-5301D/80

Bottom side

Left side (functions for 5301D/80 only)

Right side

Figure 4.1  HCS-5300/80 series new generation digital infrared wireless conference unit
Figure 4.1:

1. **Infrared transmitting/receiving glass** – at the frontage of the conference unit for transmitting/receiving infrared signals.

**Note:**
- Please let no object block infrared signals from reaching the glass.

2. **Charging indicator**
3. **Fully charged indicator**
4. **LCD** – display for channel number, language name, signal icon, battery capacity and emission angle.
5. **Channel selector** (note: operable only if earphone is plugged)
6. **Built-in loudspeaker** – outputs floor audio; the volume is adjusted by the main unit or by PC application software. Mutes automatically when its microphone is switched on.
7. **Mic. On/Off button** (with indicating light around)
   - **Chairman unit:** turn on/off mic if the number of active mic is less than 4
   - **Delegate unit:**
     a. Turn on/off mic in “Override” mode;
     b. Turn on/off mic in “Open” mode if mic active limit number is not yet reached;
     c. Turn off mic in “Voice” mode if mic is activated;
     d. Request to speak/tur off mic in “Apply” mode.
8. **Priority button** (for chairman unit only)
   - If configured as “All mute”, all active microphones will be muted temporarily when the priority button is pressed and they will resume when the priority button is released;
   - If configured as “All off”, all active microphones will be turned off automatically when the priority button is pressed;
   - If the chairman microphone is not active, pressing the priority button to activate it;
   - If “Ring” mode was set as “On” in the main unit configuration, pressing this button will emit a ring tone.
9. **5 Multifunctional buttons** (with indicator around)
   - **Sign-in /Candidate 1/Response-- (“ATTEND/1/- - “):**
     a. In sign-in mode, sign-in indicating light will blink, press this button to sign-in;
     b. In questionnaire/opinion poll state of voting mode, voting indicating light will blink, press this button to give a response “0” of “100” (“- -”).
   - **Yes/ Candidate 2/Response- (“YES/2/- “):**
     a. In parliamentary state of voting mode, voting indicating light will blink, press this button to approve;
     b. In questionnaire/opinion poll state of voting mode, voting indicating light will blink, press this button to vote for candidate 2;
     c. In audience response/rating state of voting mode, voting indicating light will blink, press this button to give a response “25” of “100” (“-”).
   - **No/ Candidate 3/Response 0 (“NO/3/0”):**
     a. In parliamentary state of voting mode, voting indicating light will blink, press this button to oppose;
     b. In questionnaire/opinion poll state of voting mode, voting indicating light will blink, press this button to vote for candidate 3;
     c. In audience response/rating state of voting mode, voting indicating light will blink, press this button to give a response “50” of “100” (“0”).
   - **Abstain/ Candidate 4/Response+ (“ABSTAIN/4/+ “):**
     a. In parliamentary state of voting mode, voting indicating light will blink, press this button to abstain;
     b. In questionnaire/opinion poll state of voting mode, voting indicating light will blink, press this button to vote for candidate 4;
     c. In audience response/rating state of voting mode, voting indicating light will blink, press this button to give a response “75” of “100” (“+”).
   - **Start/Stop/Candidate5/Response++ (“START/STOP/5/++ “):**
     a. In questionnaire/opinion poll state of voting mode, voting indicating light will blink, press this button to vote for candidate 5;
     b. In audience response/rating state of voting mode, voting indicating light will blink, press this button to give a response “100” of “100” (“++”).
10. **Dismountable microphone socket**
11. **Position for Lithium battery**
12. **Power adapter interface**
13. **Earphone volume control**
14. **Earphone jack** – Ø 3.5 mm stereo earphone jack
15. **Power switch**
4.3 Infrared service area

Infrared light is directional invisible light. Infrared wireless conference unit gets best sensitivity when it directly faces a transceiver. Every HCS-5300/80 series new generation digital infrared wireless conference unit is equipped with infrared glass at its frontage to guarantee maximum receiving angle. In the vertical direction, the emission angle is $125^\circ$, and in the horizontal, the emission angle is $120^\circ$.

![Coverage area of new generation digital infrared wireless conference unit](image)

Figure 4.2 Coverage area of new generation digital infrared wireless conference unit
4.4 Precautions in using

- Avoid direct sunshine when using, otherwise it may cause signal blocking.

- The distance between adjacent conference units must be at least 0.5 meter; the distance between opposite conference units must be at least 0.8 meter.

- The distance between the conference unit and the nearest transceiver must be at least 2 meters or more.
4.5 Operation

The operation of the chairman unit and the delegate unit will be introduced in detail in this section.

4.5.1 The operation of delegate unit

HCS-5300D/80 is taken as reference to introduce the operation of the digital infrared wireless delegate unit. HCS-5300D/80 delegate unit combines speaking, voting, channel selection with LED channel display all in one. Other types of delegate units feature all or part of the functions.

![Image of HCS-5300/80 series conference unit with microphone]

1. Mic. On/Off button

- In “Open” and “Override” mode, press the “Mic. On/Off” button to turn the microphone on. The speaking indicating lamp ring turns green and then turns and keeps red. The built-in loudspeaker mutes automatically, and the delegate can speak.
- In “Voice” mode, the “Mic. On/Off” button lamp ring keeps green, when the delegate speaks into the microphone at a short distance, the speaking indicating lamp ring and the “Mic. On/Off” button lamp rings on the panel will turn and keep read. The built-in loudspeaker mutes automatically.
- In “Apply” mode (application software needed), press the “Mic. On/Off” button to request to speak. The speaking indicating lamp ring turns green, and it will turn and keep red after the request is approved. The built-in loudspeaker mutes automatically, and the delegate can speak.
- Press (keep press in “Voice” mode) the “Mic. On/Off” button again to turn the microphone off. The speaking indicating lamp ring turns off. The built-in loudspeaker is turned back automatically to the mode before speaking.
- The camera of a video tracking system will aim at the speaker automatically.

2. Mic. active mode

The Mic. active mode can be set by the main unit configuration (refer to section 2.6).

- “Open”
  - If the Mic. active limit (1/2/3/4) has not been reached, pressing the “Mic. On/Off” button will turn on the microphone;
  - If the Mic. active limit has been reached, a further delegate microphone cannot be activated; the chairman microphones still can be activated when the total number of active microphone is less than 4 in the system.

- “Override”
  - If the Mic. active limit (1/2/3/4) has not been reached, pressing the “Mic. On/Off” button will turn on the microphone;
  - If the Mic. active limit has been reached, the delegate microphone switched on first will be switched off first automatically (first in / first out) when another delegate microphone is activated. If the total number of active microphone is less than 4 in the system, the chairman microphones can be activated till the number reaches 4, and then if another chairman microphone is activated, the unit switched on first will be switched off first automatically (primarily switched off the delegate units and then the chairman units).

- “Voice”
  - If the Mic. active limit (1/2/3/4) has not been reached, the microphone will be activated when
the delegate speaks into at a short distance. If the delegate does not speak in a set time, the microphone will be deactivated automatically.

- If the Mic. active limit has been reached, all other microphones cannot be activated unless one of the active microphones is turned off. The chairman microphones still can be activated when the total number of active microphone is less than 4 in the system.

- "Apply" (application software needed)
  - If the Mic. request limit (set up by PC) has not been reached, pressing the “Mic. On/Off” button can request to speak;
  - If the Mic. active limit (1/2/3/4) has been reached, all other requests cannot be approved. The chairman unit still can be activated when the total number of active microphone is less than 4 in the system.

3. Vote (application software needed)

HCS-5300 application software can start voting.

- The voting button indicating lights of the conference unit start to blink, the delegate can press the voting button to vote;
- For “First key-press valid” voting, the delegate can vote only once, and his/her voting indicating lights will be deactivated after his/her voting;
- For “Last key-press valid” voting, the delegate can change his/her vote. When the delegate voted, the indicating light of his voted key will be activated and all other indicating lights will be deactivated. About 1 second later, all indicating lights will blink again, and the delegate may change his/her vote. His/her last voted key will be valid.

4. Channel select

- When the main unit is connected to an interpreter unit or when external audio and simultaneous interpretation function is operated, the channel selection function will be activated. To use the channel selection function, the earphone must be plugged in. When the earphone is plugged in, the interpretation languages can be selected by channel selector.
- When the earphone is pulled out, the conference unit will switch to floor audio channel automatically.

5. LCD display

- Startup interface

The startup interface will be displayed on the LCD on startup, including:

```
<table>
<thead>
<tr>
<th>Type</th>
<th>HCS-5300D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>3.00.01.14</td>
</tr>
<tr>
<td>ID</td>
<td>00001</td>
</tr>
</tbody>
</table>
```

- Channel number and language name display interface

After startup display, the floor audio channel is displayed, including:

<table>
<thead>
<tr>
<th>Channel number</th>
<th>Language name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Signal strength</td>
</tr>
<tr>
<td></td>
<td>Emission angle</td>
</tr>
</tbody>
</table>

- If simultaneous interpretation function is operated and the earphone plugged in, simultaneous interpretation channels can be selected by the channel selector on the delegate unit. The channel number and the language name will be displayed.

6. Key press sign-in (application software needed)

In sign-in mode, sign-in indicating light will blink. Press the “Attend” button to sign-in; the light extinguishes.

7. Volume control

- The built-in loudspeaker of the delegate unit can be adjusted by the main unit speaker volume adjust knob;
- The earphone volume can be adjusted by the volume control button on the delegate unit.
4.5.2 The operation of chairman unit

The chairman unit features the functions of a delegate unit and in addition priority function:

- If the priority mode is set as “All mute” in the main unit configuration, all active conference units will be muted when the priority button on the chairman unit is pressed and return active when the priority button on the chairman unit is released;
- If the priority mode is set as “All off” in the main unit configuration, all active conference units will be turned off automatically when the priority button on the chairman unit is pressed.

**Note:**
- When there is more than one chairman unit in a system and if one chairman is pressing the priority key, the priority keys of the remaining chairman units will be inoperable temporarily.
Chapter 5 Web server


Running environment: browser for Firefox29.0, Google25.0, IE10 or higher.

5.1 Login and exit

The user inputs the IP address of the CMU into the Web browser to login. The default UserName is “admin” and the default password is “123456”, the password can be changed after login. The default username is administrators that cannot be deleted. The login interface is shown in the following figure:

![Login Interface]

Figure 5.1  Login

Note:

Please make sure the main unit has the authorization to access the Web Server, or a note interface will be shown as the following figure:
Input the UserName and password, then click the “Login” button and it will enter the conference management system interface automatically.

![Conference Management System Interface](image)

**Figure 5.2  Conference Management System**

There are two buttons in the right top of the interface:

- **Password Change**: click this button and the below dialog box is shown:

  ![Password Change Dialog Box](image)

  Input the Old Password, New Password and Password Confirm, and then click the “OK” button to change the password.

  **Note:**

  *Password only supports a sequence of numbers or letters (case sensitive) with maximal 20 characters.*

- **Exit**: exit the conference management system.
5.2 Conference management

5.2.1 Assign Unit ID to Delegate

It will list all ID of connective units in the system. User can assign them to delegates, open microphones, set up the camera predefined position, etc. The interface is shown in the following figure:

![Conf Conference Management System](image)

**Figure 5.3  Assign Unit ID to Delegate**

- **ID**: IDs of all microphones, can be listed in ascending or descending order by clicking the triangle icon;
- **Delegate Name**: double click and input a name (at most 128 characters) to assign the unit to the delegate;
- **Operation**: turn on the microphones:
  - “Turn On”: click this button to open the microphone;
- **Panorama Setup**: set up the Panorama (refer to 5.2.5);
- **Add**: wireless conference units must be added to the “Wireless Unit List” manually when being connected into the system first or after being deleted. Click this button and the below dialog box is shown:

![Add wireless conference units](image)

Select “Single” or “From…To…”, then input the ID number and click the “Add” button. A maximum of 200 conference units can be added and their information will be displayed on the list automatically.

“Delete All”: delete all wireless units in the list.

**Note:**
*Wired conference unit will be added into the list automatically once it is connected into the main unit.*

- **Delete**: delete the selected wireless conference unit.

**Note:**
*Wired conference unit will be deleted automatically when the “WiredMic Function Setting” in main unit menu is “No”.*
5.2.2 Speaking and Request List

Speaking and Request List displays the information of the active and requested microphones, includes Mic. ID, delegate name, camera control and unit type.

- **Turn Off All Mic.**: turn off all the microphones on the speaking list;
- **Turn Off**: turn off the selected microphone;
- **Camera Ctrl**: click this button and set up the camera predefine position on the right side (refer to 5.2.5);
- **Type**: display the type of the conference unit, including wired conference unit and wireless conference unit;
- **Reject All Apply**: reject all the requests on the list;
- **Approve**: accept the selected unit’s request, after clicking, the microphone is active and its information will be displayed on the speaking list;
- **Reject**: reject the selected unit’s request.
5.2.3 CMU Setting

CMU Setting includes Operation Mode, Active Microphones and Loudspeaker Volume. The CMU Setting interface as shown in the following figure:

![CMU Setting Interface](image)

**Operation Mode:** set up the speaking mode, include Open/ Override/ Voice/ Apply;
- **“Open”:** if the number of active microphones reaches the limit, the rest of the delegate microphones could not be activated; the chairman microphones still can be activated when the total number of active microphone is less than 4 in the system;
- **“Override”:** if the number of active delegate microphone reaches the limit (1/2/3/4), turning on another delegate microphone will switch off the delegate microphone turned on first: delegates speak in FIFO mode. If the total number of active microphone is less than 4 in the system, the chairman microphones can be activated till the number reaches 4, turning on another chairman microphone will switch off the unit switched on first automatically (primarily switched off the delegate units and then the chairman units);
- **“Voice”:** voice control mode, the microphone On/Off is controlled by voice: participator speaks towards the microphone and turns it on. In case of a speech pause, the microphone will turn off automatically. If the number of active microphones reaches the limit, the rest of the delegate microphones cannot be activated; the chairman microphones still can be activated when the total number of active microphone is less than 4 in the system;
- **“Apply”:** apply mode, the delegate applies to speak and the chairman speaks directly by pressing the microphone ON/OFF key. The delegate can only speak when the operator approved his application. If the number of active microphones reaches the limit, all other requests cannot be approved. The chairman unit still can be activated if the total number of active microphone is less than 4 in the system.

- **Active Microphones:** the number of maximum active microphones (1/2/3/4 pcs);
- **Volume:** adjust the volume (-30 dB to 0 dB) of the loudspeakers.
5.2.4 Video Matrix

It includes Video Matrix and Video Switch. The matrix, TMX-0804, is a high definition video matrix which includes one 8x4 video matrix.

5.2.4.1 Video Matrix

The setup of the Video Matrix interface is shown in the following figure:

- **Select Video Input**: includes Dome Camera, Fixed Camera, PC and Other Video Input;
- **Output Type**: includes Normal and Video Track;
- **Save and send to CMU**

**TMX-0804 matrix setup:**
1. Assign video input type according to the actual situation;
2. Assign video output type;
3. Assign output channel for “normal” video output by clicking on the cross point of input and output;
4. Click “Save and Send to CMU” button to save current video matrix.

Figure 5.6  Video Matrix
5.2.4.2 Video Switch

The interface of the Video Switch is shown in the following figure:

![Video Switch Interface](image)

**Figure 5.7  Video Switch**

**TMX-0804 matrix switch:**

1. According to the setup of the video matrix, the video input type will be displayed automatically;
2. Assign corresponding output channel by clicking on the cross point of input and output;
3. Select “Video Track” under video 1~4 output line doublers, the selected output channel will be switched to the video track.
5.2.5 Predefined Position

If the conference system is equipped with cameras, the system can carry out automatic video tracking, i.e. display the image of the speaking participator to the display devices (large screen, TV, and so on). Predefine Position is to set the predefined position of each microphone.

![Predefine Position](image)

**Figure 5.8  Predefine Position**

- **Microphone predefined position setup:**
  1. Select a microphone on the speaking list, then click the “Camera Ctrl” button to open the “Predefine Position” interface;
  2. Select the proper camera in the Select Camera combo box (since each conference can be equipped with multiple cameras, the operator shall select the proper camera to give the best image of each participator);
  3. Select the predefine position number (each camera can accommodate 64 positions);
  4. Adjust the camera angle by the four direction buttons, and click zoom in/out button to adjust the size of the video image;
  5. Click the “Send to CMU” button to send the current predefined position to the CMU if the adjustment is done;
  6. Repeat the above steps to set the predefined position for other seats/microphones;

During the conference, if all microphones are configured with predefined positions, the camera will aim at the speaking participator automatically (when video tracking setting in menu of main unit is “turn on”), i.e. automatic video tracking.

**Note:**
*If the camera features auto iris, you can select “Auto Iris” to be applied for all predefined positions. If “Auto Iris” option is checked, then all predefined positions will use auto iris; if not checked, the iris for each predefined position can be adjusted and saved respectively.*

- **Panorama setup:** select proper camera and predefined position number, then adjust the camera angle by the four direction buttons, and click zoom in/out button to adjust the size of the video image, at last, click the “Send to CMU” button to save the panorama if the adjustment is done.
5.2.6 S.I. Setup

It includes channels, booths and language setting. The interface of S.I. setup is shown in the following figure:

Figure 5.9  S.I. setup

- **Channels**: supports 7 S.I. channels at most. If there are wired conference units connected, the maximal number of channels is 3;

The system supports 7 S.I. channels, and distributes as well an output language for each channel. To set up the S.I. channels, the user should first select the number of channels, according to the conference requirement. If there are 3 different languages applied in the conference, the operator shall set the channel number to 3 and click the “OK” button to confirm. Assign now a specific language for each channel. After completion, click the “Send to CMU” button to save the settings and to update the conference main unit.

- **Booth**: supports 7 booths at most.

The system supports 7 Interpreter Booths. Each booth should set the outgoing A channel, and whether outgoing B and C channel is needed. If the outgoing C channel is checked, the outgoing language of B channel should be set. All settings shall be configured according to the actual conference requirements. When the setup is completed, click the “Send to CMU” button to save the settings and to update the conference main unit.

- **Language**: languages can be added or deleted conveniently, a maximum of 40 user-defined languages are supported. However, the languages listed by the system cannot be modified or deleted, as shown in the figure below:
**Note:**

The user-defined language only supports a sequence of numbers or letters (case sensitive) with a maximum of 8 characters, the abbreviation supports a maximum of 3 characters.
Chapter 6 Accessories

6.1 Digital IR conference room switcher

6.1.1 Functions and indications

1. Mains switch
2. 16×2 segment LCD
3. “MENU” button
   - The LCD displays firmware version.
4. “EXIT” button
   - The LCD displays the corresponding state of input channels and output groups
5. Input channel selectors with indicators (1-4)
6. Output group selectors with indicators (1-4)
7. Input channels (1-4)
   - For connecting to HCS-5300M Digital IR Wireless Conference System Main Unit.
8. Output groups (1-4 group, 5 outputs per group)
   - Up to 16 transceivers can be connected.
9. RS-232 port
   - "COM" port is used for connecting to a central control system for central controlling.
10. Power supply

Figure 6.1  HCS-5300MX Digital IR Conference Room Switcher

Front panel of HCS-5300MX

Rear panel of HCS-5300MX
6.1.2 Connection

6.1.2.1 Splitting/Combining several meeting rooms
Several meeting rooms can be split/combined at leisure through the HCS-5300MX Digital IR Conference Room Switcher with CBL6PS cable. One HCS-5300MX can combine up to four meeting rooms.

Figure 6.2  Splitting/Combining several meeting rooms 1
6.1.2.2 Splitting/Combining several meeting rooms

Several meeting rooms can be split/combined at leisure through the HCS-5300MX with CBL6PS cable to connect the transceivers and the HCS-8300MX with 6PIN to RJ45 cable to connect the interpreter units. Four meeting rooms can be combined up at most to realize discussion, 1+7CHs simultaneous interpretation, central control, etc..

Figure 6.3 Splitting/Combining several meeting rooms 2
6.1.3 Configuration and operation

Switch on HCS-5300MX Digital IR Conference Room Switcher, it will start initialization:

[Image: Initializing: Please wait]

When the initialization is finished, the corresponding state of input channels and output groups will be displayed on the LCD:

[Image: Out: 1 2 3 4  In: 1 2 3 4]

Press the button at the front panel and go to the next operation:

- Press the “Menu” button to go to the main menu which includes “Enable Update” and “About”.
  - “Enable Update”
    
    ![Enable Update](image)
    
    a). Press the “×/Ø” button to switch to “Enable Update” and press “MENU” to turn to next step;
    b). Press the “×/Ø” button to select “Enable” or “Disable”;
    c). Press the “MENU” button to save and press “EXIT” to turn to the upper level menu.

  - “About”
    
    Press the “×/Ø” button to switch to “About” and press the “MENU” button, the firmware version of the switcher will be displayed on the LCD.

    HCS:5300MX  1.02
    11:55:26 Dec 6

- Channel switch operation:
  - Press the “INPUT 1…4” button to select the input channel, the corresponding indicator lights up;
  - Press the “OUTPUT 1…4” button to select the output group(s), the corresponding indicator lights up, then the signal of the selected input channel will be switched to the selected output group(s). Press the selected “OUTPUT 1…4” button again to deselect the selected output group(s). If the input channel displays “X”, the output group is closed and the corresponding indicator is off.
6.2 Accessories

HCS-5300 can be power supplied by specific Lithium battery or power adapter.

![HCS-5300BAT Lithium battery](image)

**Assemble procedure:**
1. Assemble the battery into the slot on the bottom of the conference unit with the buckles on the right and left side of the battery aiming to the slot;
2. Push the battery into the slot tightly according to the arrow direction on the conference unit.

![Assemble HCS-5300BAT battery](image)

**Disassemble procedure:**
1. Press and hold the buckles on the right and left side of the battery;
2. Plug the battery out according to the arrow direction on the battery.

![Disassemble HCS-5300BAT battery](image)
6.3 Charging device

The charging unit can recharge up to 8 HCS-5300BAT batteries at one time by using universal power supply with automatic voltage matching. A charging indicator and a fully charged indicator on the charging unit are displaying the battery status. The charging circuit will check if the battery is connected and control the charging process.

![Figure 6.7 HCS-5300CHG/08 charging unit](image)

**Figure 6.7:**
1. Charging indicating light
2. Fully charged indicating light
3. Power input
4. Power output
5. Power switch
6. Charging lattice - can charge up to 8 HCS-5300BAT batteries at one time

**Charging procedure:**
1. Connect power core;
2. Switch on;
3. Insert batteries;
4. Battery charging indicator lights up:

<table>
<thead>
<tr>
<th>LED Status</th>
<th>Charging Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Fully charged or battery not inserted</td>
</tr>
<tr>
<td>Red</td>
<td>Charging</td>
</tr>
<tr>
<td>LED off</td>
<td>Charging unit power off</td>
</tr>
</tbody>
</table>

**Note:**
- The charging unit is only used to charge HCS-5300BAT. Neither charge other battery types with HCS-5300CHG/08 nor charge HCS-5300BAT with other charging unit.

6.4 Power adapter

- **HCS-ADP15V power adapter**
  Connect the HCS-ADP15V to the power adapter interface at the bottom of the HCS-5300/80 series new generation digital infrared wireless conference unit.

![Figure 6.8 HCS-ADP15V power adapter](image)

- **HCS-ADP24V power adapter**
  Connect the HCS-ADP24V to the power adapter interface at the top of the HCS-5300TW/80 or 5300TH/80 digital infrared transceiver.

![Figure 6.9 HCS-ADP24V power adapter](image)
6.5 Dedicated extension cable for digital infrared transceiver

CBL5300 dedicated cable is used to connect the digital infrared transceiver and the digital infrared wireless conference main unit. It features one male 6P-DIN connector at one end and one female 6P-DIN connector at the opposite end. Available lengths: 5, 10, 20, 30, 40 or 50 meters.

Figure 6.10  CBL5300 dedicated extension cable for digital infrared transceiver

6.6 HCS-5300TZJ2 transceiver stand

HCS-5300TZJ2 transceiver stand is used to mount the HCS-5300TD/80, its height can be adjusted from 1.1 m to 2.7 m, for the installation method please refer to section 3.5.

Figure 6.11  HCS-5300TZJ2

6.7 Pedestal

HCS-5300RA-BKT is used to mount the HCS-5300RA, for the installation method please refers to section 3.5.

Figure 6.12  HCS-5300RA-BKT pedestal
6.8 Earphones

The earphones are connected to the conference units via an Ø 3.5 mm stereo jack. Suitable earphone types include:

- EP-820AS single earphone
- EP-829 single earphone
- EP-829SW single earphone
- HCS-5100PA headphone
- EP-960BH headphone
- Any other compatible type (see chapter 8, Technical Data).
Chapter 7 Fault diagnosis

Some simple trouble-shooting instructions are provided in this chapter. If more serious faults arise, please contact a qualified technician.

### 7.1 Digital infrared wireless conference unit

<table>
<thead>
<tr>
<th>Fault</th>
<th>Analysis</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot startup.</td>
<td>The battery is not charged (When using the lithium-ion battery)</td>
<td>The battery is not charged when leaving the factory, please fully charge the battery before using.</td>
</tr>
<tr>
<td></td>
<td>No power supply (when using the power adapter).</td>
<td>Please connect the power supply correctly and check the DC socket.</td>
</tr>
<tr>
<td>No audio output from the speaker or earphone.</td>
<td>Improper volume control.</td>
<td>Adjust the volume to proper position.</td>
</tr>
<tr>
<td></td>
<td>The earphone is not plugged-in completely</td>
<td>Insert the earphone completely.</td>
</tr>
<tr>
<td>Cannot speak.</td>
<td>Transceiver working indicating light is off or not.</td>
<td>Check the I/O cable connecting the transceiver with the main unit.</td>
</tr>
<tr>
<td></td>
<td>Infrared transceiver is directly under sunshine or spotlight.</td>
<td>Reposition it and avoid direct sunshine or spotlight.</td>
</tr>
<tr>
<td></td>
<td>Is there any obstacle between the transceiver and the conference unit?</td>
<td>Select suitable transceiver type according to height and mount them in that way not to block the direct view.</td>
</tr>
<tr>
<td></td>
<td>Is the transceiver type suitable for the height and are all conference units in the coverage area? (If the power indicating light and Mic. active light blink at the same time, it stands for the conference unit is out of coverage area)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The cable between the transceiver and the main unit is not connected.</td>
<td>Connect the cable.</td>
</tr>
<tr>
<td></td>
<td>In priority mode.</td>
<td>Please operate this button when priority mode is finished.</td>
</tr>
<tr>
<td>Battery working time is short.</td>
<td>Not fully charged.</td>
<td>Charging for 6 hours can fully charge the battery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note: fully charged battery can work over 10 hours (the microphone is continuously on).</td>
</tr>
<tr>
<td></td>
<td>Out of battery service life.</td>
<td>Use new batteries (complete set).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note: every new battery can be charged about 300 times.</td>
</tr>
</tbody>
</table>
### 7.2 Digital infrared wireless main unit

<table>
<thead>
<tr>
<th>Fault</th>
<th>Analysis</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot startup.</td>
<td>No power supply or no power cord connected to main unit.</td>
<td>Connect the power supply with the power cord.</td>
</tr>
</tbody>
</table>

### 7.3 Charging Unit

<table>
<thead>
<tr>
<th>Fault</th>
<th>Analysis</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The power indicating light is not on when the unit is powered on.</td>
<td>The power cord is not plugged into the power socket.</td>
<td>Plug the power cord into the power socket and supply power to the charging unit.</td>
</tr>
<tr>
<td></td>
<td>The fuse has blown.</td>
<td>Change the fuse. Please contact the local TAIDEN service center.</td>
</tr>
<tr>
<td>The charging indicating light of the charging lattice is not lighting up though the battery is plugged-in.</td>
<td>The battery is not properly plugged-in.</td>
<td>Plug-in the battery properly into the charging lattice.</td>
</tr>
<tr>
<td></td>
<td>The charging contact is covered by dust.</td>
<td>Please clean the charging contact with dry cotton swab.</td>
</tr>
<tr>
<td>Battery working time is short.</td>
<td>Lithium-Ion battery deteriorated.</td>
<td>Please replace with new HCS-5300BAT Lithium-Ion battery.</td>
</tr>
</tbody>
</table>
Chapter 8 Technical data

8.1 System specification

System performance
Conforms to IEC 60914, the international standard for conference systems
The carrier frequency (0~3) transmitted by the main unit conforms to IEC 61603-7, the international standard for digital infra-red transmission of audio signals for conference and similar applications.

Transmission characteristics
IR transmission wavelength: 870 nm
Modulation frequency: 1 to 8 MHz, carrier frequency (0~3) transmitted by main unit according to IEC 61603-7
Protocol and modulation: DQPSK, carrier frequency (0~3) transmitted by main unit according to IEC 61603-7

Cabling and system limits
Transceiver/ receiver cable type: Specific 6PIN cable (HCS-5352 is optional)
Maximum number of transceivers/receivers:
4 per output, 10 in total (HCS-5300MA/MB/80)
4 per output, 6 in total (HCS-5300MC/80)
Maximum number of interpreter units:
14 in total (HCS-5300MA/MB/80)
Maximum cable length: 60 m per output

System environmental conditions
Working conditions fixed/stationary/transportable
Temperature range:
- Transport: -40 °C to +70 °C
- Operating: 0 °C to +45 °C
Max. Relative humidity: < 95% (not condensing)
Safety: Compliant with EN 60065
EMC emission: Compliant with EN 55022
EMC immunity: Compliant with EN 55024
EMC approvals: CE, FCC
Power harmonics: Compliant with EN 61000-3-2
Voltage fluctuations and flicker: Compliant with EN 61000-3-3
8.2 New Generation Digital infrared wireless main unit

<table>
<thead>
<tr>
<th>Type</th>
<th>HCS-5300MA/80</th>
<th>HCS-5300MB/80</th>
<th>HCS-5300MC/80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Voting</td>
<td>√</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Simultaneous interpretation</td>
<td>1+7 channels</td>
<td>1+7 channels</td>
<td>-</td>
</tr>
<tr>
<td>Mains voltage</td>
<td>AC 100 V-120 V 60 Hz or AC 220 V-240 V 50 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>Max. 160 W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio inputs</td>
<td>LINE IN 1: +10 dBu, balanced, XLR socket</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LINE IN 2: +15 dBu, unbalanced, RCA jack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio outputs</td>
<td>LINE OUT 1: +20 dBu, balanced, XLR socket</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LINE OUT 2: +20 dBu, unbalanced, RCA jack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI. INPUT (CH 0-7): +10 dBu, unbalanced, RCA jack</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximal number of conference units</td>
<td>≤1000 units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transceivers I/O terminal</td>
<td>6P-DIN sockets x 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External control terminal</td>
<td>RS-232C D-sub (9 P, female), USB interface, RJ45 (ETHERNET, Dante)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td>256×32 LCD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpreter’s unit terminal</td>
<td>1 6P-DIN socket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HF OUT (Radiator terminal)</td>
<td>1 BNC connector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alarm terminal</td>
<td>3.81 mm Phoenix connectors, 2 pole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video switcher terminal</td>
<td>3.81 mm Phoenix connectors, 4 pole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weighted signal-to-noise ratio</td>
<td>&gt;85 dBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamic range</td>
<td>&gt;90 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio frequency response</td>
<td>20-20000 Hz (-3 dB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total harmonic distortion at 1 kHz</td>
<td>&lt;0.06 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosstalk attenuation at 1 kHz</td>
<td>&gt;80 dB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dimensions

| Weight | 10.5 kg | 10.5 kg | 8 kg |
| Color  | White   |         |      |
## 8.3 Digital infrared transceiver

<table>
<thead>
<tr>
<th>Type</th>
<th>HCS-5300TD/80</th>
<th>HCS-5300TDS/80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>33 V DC (supplied from HCS-5300)</td>
<td></td>
</tr>
<tr>
<td>Current consumption</td>
<td>Max. 550 mA</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>Tripod, wall or ceiling mounted</td>
<td>Suspension</td>
</tr>
<tr>
<td>Wavelength</td>
<td>870 nm</td>
<td></td>
</tr>
<tr>
<td>Modulation method</td>
<td>DQPSK</td>
<td></td>
</tr>
<tr>
<td>Carrier frequency</td>
<td>1 ~ 8 MHz</td>
<td></td>
</tr>
<tr>
<td>Communication area</td>
<td>Area radius from the point underneath the unit</td>
<td>Area radius from the point underneath the unit</td>
</tr>
<tr>
<td></td>
<td>Approx. 13 m in radius (ceiling height: 2.5 - 3 m)</td>
<td>Approx. 11 m in radius (ceiling height: 3.5 – 4.5 m)</td>
</tr>
<tr>
<td></td>
<td>Approx. 9 m in radius (ceiling height: 5 - 7 m)</td>
<td></td>
</tr>
<tr>
<td>Connection terminal</td>
<td>6P-DIN</td>
<td></td>
</tr>
<tr>
<td>Cable</td>
<td>2 m specific cable with 6P-DIN male plug</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td><img src="image1.png" alt="Dimensions" /></td>
<td><img src="image2.png" alt="Dimensions" /></td>
</tr>
<tr>
<td>Weight</td>
<td>0.5 kg</td>
<td>0.6 kg</td>
</tr>
<tr>
<td>Color</td>
<td>Silver/Charcoal gray/White</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>HCS-5300TH/80</td>
<td>HCS-5300TW/80</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>33 V DC (supplied from HCS-5300M)</td>
<td>24 V DC (supplied from HCS-ADP24V)</td>
</tr>
<tr>
<td><strong>Current consumption</strong></td>
<td>Max. 550 mA</td>
<td></td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>Tripod, wall or ceiling mounted</td>
<td>Wall mounted</td>
</tr>
<tr>
<td><strong>Wavelength</strong></td>
<td>870 nm</td>
<td></td>
</tr>
<tr>
<td><strong>Modulation method</strong></td>
<td>DQPSK</td>
<td></td>
</tr>
<tr>
<td><strong>Carrier frequency</strong></td>
<td>1 ~ 8 MHz</td>
<td></td>
</tr>
<tr>
<td><strong>Communication area</strong></td>
<td>Area radius from the point underneath the unit</td>
<td>Approx. 1 ~15 m length from the wall (height: less than 5 m)</td>
</tr>
<tr>
<td></td>
<td>Approx. 9 m in radius (ceiling height: 6 m)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approx. 11 m in radius (ceiling height: 9 m)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approx. 9 m in radius (ceiling height: 12 m)</td>
<td></td>
</tr>
<tr>
<td><strong>Connection terminal</strong></td>
<td>6P-DIN, power adapter interface</td>
<td>6P-DIN, power adapter interface</td>
</tr>
<tr>
<td><strong>Cable</strong></td>
<td>2 m specific cable with 6P-DIN male plug</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>0.6 kg</td>
<td>0.6 kg</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Silver/Charcoal gray/White</td>
<td>Dark red</td>
</tr>
<tr>
<td>Type</td>
<td>HCS-5300RA/80</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>33 V DC (supplied from HCS-5300M)</td>
<td></td>
</tr>
<tr>
<td>Current consumption</td>
<td>Max. 50 mA</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>Suspension or tabletop</td>
<td></td>
</tr>
<tr>
<td>Wavelength</td>
<td>870 nm</td>
<td></td>
</tr>
<tr>
<td>Modulation method</td>
<td>DQPSK</td>
<td></td>
</tr>
<tr>
<td>Carrier frequency</td>
<td>1 ~ 8 MHz</td>
<td></td>
</tr>
<tr>
<td>Infrared emitter/detector</td>
<td>Area radius from the point underneath the unit</td>
<td></td>
</tr>
<tr>
<td>Communication area</td>
<td>Approx. 9 m in radius (ceiling height: 6 m)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approx. 11 m in radius (ceiling height: 9 m)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approx. 9 m in radius (ceiling height: 12 m)</td>
<td></td>
</tr>
<tr>
<td>Connection terminal</td>
<td>6P-DIN</td>
<td></td>
</tr>
<tr>
<td>Cable</td>
<td>2 m specific cable with 6P-DIN male plug</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.1 kg</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Dark red</td>
<td></td>
</tr>
</tbody>
</table>
### 8.4 New Generation Digital infrared wireless conference unit

<table>
<thead>
<tr>
<th>Type</th>
<th>HCS-5300CE/80</th>
<th>HCS-5300DE/80</th>
<th>HCS-5301D/80</th>
<th>HCS-5302D/80</th>
<th>HCS-5302C/80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Voting</td>
<td></td>
<td>5 keys</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simultaneous interpretation</td>
<td>1+7 channels</td>
<td>1+7 channels</td>
<td>2x (1+7) channels</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Priority key</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Voltage</td>
<td>11.1 V DC (HCS-5300BAT battery); 15 V DC (HCS-ADP15V power adapter)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current consumption</th>
<th>When Mic on: 320 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>When Mic off: 65 mA</td>
</tr>
</tbody>
</table>

#### Infrared emitter/receiver

<table>
<thead>
<tr>
<th>Modulation method</th>
<th>DQPSK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>870 nm (AM: Brightness modulation)</td>
</tr>
<tr>
<td>Carrier frequency</td>
<td>Transmission: Control channel: 3.8 MHz</td>
</tr>
<tr>
<td></td>
<td>Audio channel 1: 4.3 MHz</td>
</tr>
<tr>
<td></td>
<td>Audio channel 2: 4.8 MHz</td>
</tr>
<tr>
<td></td>
<td>Audio channel 3: 5.8 MHz</td>
</tr>
<tr>
<td></td>
<td>Audio channel 4: 6.3 MHz</td>
</tr>
<tr>
<td>Acceptance/emission angle</td>
<td>Vertical: angle selectable, range: 125°; Horizontal: 120°</td>
</tr>
<tr>
<td>Output</td>
<td>Built-in louderspeaker: 4 Ω, 1 W</td>
</tr>
<tr>
<td></td>
<td>Earphone: Ø 3.5 mm</td>
</tr>
<tr>
<td>Display</td>
<td>64×48 LCD display</td>
</tr>
<tr>
<td>Operation time of battery</td>
<td>When Mic on: approx. 14.4 hours</td>
</tr>
<tr>
<td></td>
<td>When Mic off: approx. 48 hours</td>
</tr>
<tr>
<td>SNR</td>
<td>&gt; 85 dB(A)</td>
</tr>
<tr>
<td>Frequency response</td>
<td>20-20000 Hz (-3 dB)</td>
</tr>
<tr>
<td>Dynamic range</td>
<td>&lt; 85 dB</td>
</tr>
<tr>
<td>Total harmonic distortion at 1 kHz</td>
<td>&lt; 0.06 %</td>
</tr>
<tr>
<td>Crosstalk attenuation at 1 kHz</td>
<td>&gt; 80 dB</td>
</tr>
<tr>
<td>Microphone input impedance</td>
<td>680 Ω</td>
</tr>
<tr>
<td>Earphone load</td>
<td>≥ 16 Ω x 2</td>
</tr>
<tr>
<td>Earphone volume</td>
<td>10 mW</td>
</tr>
<tr>
<td>Mic. gain adjustable range</td>
<td>-12 dB - +12 dB</td>
</tr>
<tr>
<td>Mic. treble/bass adjustable range</td>
<td>-12 dB - +12 dB</td>
</tr>
</tbody>
</table>

#### Dimensions

![Dimensions Diagram](image)
<table>
<thead>
<tr>
<th>Type</th>
<th>HCS-5300CE/80</th>
<th>HCS-5300DE/80</th>
<th>HCS-5301D/80</th>
<th>HCS-5302D/80</th>
<th>HCS-5302C/80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (excl. battery)</td>
<td>0.5 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (incl. battery)</td>
<td>0.8 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Silver/Charcoal gray</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Microphone</th>
<th>Type</th>
<th>Uni-directional electret condenser microphone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sensitivity</td>
<td>-46 dBV/Pa</td>
</tr>
<tr>
<td></td>
<td>Frequency response</td>
<td>30-20000 Hz</td>
</tr>
<tr>
<td></td>
<td>Directivity 0°/180°</td>
<td>&gt;20 dB (1kHz)</td>
</tr>
<tr>
<td></td>
<td>Equivalent noise</td>
<td>20 dBA (SPL)</td>
</tr>
<tr>
<td></td>
<td>Maximum sound pressure level</td>
<td>125 dB (THD&lt;3%)</td>
</tr>
<tr>
<td></td>
<td>Standard stem microphone</td>
<td>MS33EMF1G/S</td>
</tr>
</tbody>
</table>
### 8.5 Digital IR Conference Room Switcher

<table>
<thead>
<tr>
<th>Type</th>
<th>HCS-5300MX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains voltage</td>
<td>AC 100 V - 120 V 60 Hz or AC 220 V - 240 V 50 Hz</td>
</tr>
<tr>
<td>Power consumption</td>
<td>15 W</td>
</tr>
<tr>
<td>Input interfaces</td>
<td>4 6P-DIN sockets</td>
</tr>
<tr>
<td>Output interfaces</td>
<td>20 6P-DIN sockets in 4 groups, 5 sockets per group</td>
</tr>
</tbody>
</table>

**Dimensions**

```
Dimensions

478 mm x 430 mm x 324 mm
```

| Weight                  | 10.6 kg                                        |
| Color                   | White                                          |

### 8.6 Lithium battery

<table>
<thead>
<tr>
<th>Type</th>
<th>HCS-5300BAT</th>
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<tbody>
<tr>
<td>Nominal voltage</td>
<td>11.1 V DC</td>
</tr>
<tr>
<td>Nominal capacity</td>
<td>4400 mAh</td>
</tr>
<tr>
<td>Dimensions</td>
<td>140 (w) x 28 (h) x 58 (d) mm</td>
</tr>
<tr>
<td>Weight</td>
<td>0.3 kg</td>
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<tr>
<td>Color</td>
<td>Black</td>
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### 8.7 Charging Device

<table>
<thead>
<tr>
<th>Type</th>
<th>HCS-5300CHG/08</th>
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<tbody>
<tr>
<td>Mains voltage</td>
<td>AC 100 V - 240 V 50/60 Hz</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Max. 380 W</td>
</tr>
<tr>
<td>Charging Time</td>
<td>Approx. 6 hours</td>
</tr>
<tr>
<td>Charging Capacity</td>
<td>8 HCS-5300BAT batteries</td>
</tr>
<tr>
<td>LED indicator</td>
<td>Power indicator</td>
</tr>
<tr>
<td></td>
<td>Charging status (Green: Full charge or battery not inserted, Red: On charge)</td>
</tr>
</tbody>
</table>

**Dimensions**

- Width: 288 mm
- Height: 107 mm
- Depth: 62 mm

- Weight: 4.5 kg
- Color: White

### 8.8 Power adapter

<table>
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<tr>
<th>Type</th>
<th>HCS-ADP15V</th>
<th>HCS-ADP24V</th>
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<tbody>
<tr>
<td>Mains voltage</td>
<td>AC 100-240 V 50 Hz/60 Hz</td>
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<tr>
<td>Output</td>
<td>15 V DC, 2.4 A</td>
<td>24 V DC, 1.5 A</td>
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<tr>
<td>Cable Length</td>
<td>3 m</td>
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<tr>
<td>Dimensions</td>
<td>95 (w) x 28 (h) x 45 (d) mm</td>
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<tr>
<td>Weight</td>
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<td></td>
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<tr>
<td>Color</td>
<td>Black</td>
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### 8.9 Distributor

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<th>Type</th>
<th>HCS-5352</th>
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<tr>
<td>Voltage</td>
<td>33 V DC (supplied from HCS-5300M)</td>
</tr>
<tr>
<td>Number of I/O terminals</td>
<td>1 In / 4 Out</td>
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<tr>
<td>Connector</td>
<td>4 x 6P-DIN socket + 2.1 m cable with 6P-DIN plug</td>
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<tr>
<td>Dimensions</td>
<td>149 (w) x 35 (h) x 90 (d) mm</td>
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<tr>
<td>Weight</td>
<td>0.3 kg</td>
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<tr>
<td>Color</td>
<td>Charcoal gray</td>
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### 8.10 CBL-5300 Dedicated extension cable

- HCS-5300TD/TDS/80 dedicated extension cable
- With one male 6P-DIN connector at one end and one female 6P-DIN connector at opposite end
- Available lengths: 5, 10, 20, 30, 40 or 50 meters
- Diameter: Ø 6 mm
- Color: Black

### 8.11 HCS-5300ZJ2 transceiver stand

- Used to install HCS-5300TD/TH/80
- Maximum height: 2.7 meters
- Weight: 3.9 kg

### 8.12 Pedestal

- Used to install HCS-5300RA/80
- Weight: 0.4 Kg
- Color: Black
- Dimensions: in the figure below
8.13 Earphones

- **EP-820AS Single Earphone**
  - Used with the receiver/conference unit
  - Hi-Fi sound quality
  - Ø 3.5 mm stereo plug
  - 32 Ω (Tip and Sleeve, Ring: NC)
  - Frequency response: 50 Hz to 20 kHz
  - Sensitivity: ≥102 dBA/1 mW
  - Weight: 20 g

- **EP-829 Single Earphone**
  - Used with the receiver/conference unit
  - Hi-Fi sound quality
  - Ø 3.5 mm stereo plug
  - 32 Ω (Tip and Sleeve, Ring: NC)
  - Frequency response: 20 Hz to 20 kHz
  - Sensitivity: ≥108 dBA/1 mW
  - Weight: 35 g

- **EP-829SW Single Earphone**
  - Used with the receiver/conference unit
  - Hi-Fi sound quality
  - Ø 3.5 mm stereo plug
  - 32 Ω (Tip and Sleeve, Ring: NC)
  - Frequency response: 20 Hz to 20 kHz
  - Sensitivity: ≥108 dBA/1 mW
  - Built-in magnetic control switch
  - Weight: 35 g

- **HCS-5100PA headphone**
  - Used with the receiver/conference unit
  - Hi-Fi sound quality
  - 32 Ohm×2, Ø 3.5 mm stereo jack
  - Frequency response: 20 Hz to 20 kHz
  - Sensitivity: ≥108 dBA/1 mW
  - Weight: 70 g

- **EP-960BH headphone**
  - Used with the receiver/conference unit
  - Hi-Fi sound quality
  - 150 Ohm×2, Ø 3.5 mm stereo jack
  - Frequency response: 20 Hz to 20 kHz
  - Sensitivity: ≥108 dBA/1 mW
  - One sided wire
  - Weight: 90 g
8.14 Connection details

- **Mains cables**
  - Blue Neutral
  - Brown Live
  - Green/Yellow Earth/Ground

- **Audio cables**

  **Chinch connector (male)**
  - Pin 1: Signal +
  - Pin 2: GND

- **Earphones**

  **3.5 mm Jack plug**
  - Tip 1: Signal left
  - Ring 2: Signal Right
  - Sleeve 3: Electrical earth/screen

- **Emergency switch**

  **Terminal block**
  - Connect the emergency switch to +, -.
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