Digital IR Language Distribution System

Installation and Operating Manual

V1-201410

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Important Safety Instructions

1. Please read this safety instruction carefully before installing and using the apparatus.
2. Please keep these safety instructions for future reference.
3. Please strictly heed all warnings in the user's guide.
4. Please follow all the operation instructions in the user's guide.
5. To prevent from any hazard, do not use this apparatus near water.
6. Equipment cleaning: Make sure to turn off the power supply and disconnect the units before cleaning. Clean only with a dry soft cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacture's instructions.
8. Do not install near any heat sources such as radiators. Heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Grounding: 3-wire grounding plug, and do not defeat the safety purpose of this plug. A grounding type plug has two blades and a third grounding prong, 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.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. To prevent from any hazard, only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lighting storms or when unused fro long periods of time.
14. Refer all servicing to nearest qualified service centre. 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.
15. 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.
16. The quantity if connected IR radiators in one system should not exceed prescribed quantity. For service, please contact the nearest service center.
17. All products are guaranteed for 1 year 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.
18. Use only specified connection cable to connect the system equipment.

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

	Caution!
⚠	The equipment or the property can be damaged, or persons can be lightly injured if the alert is not observed.
	Warning!
⚠	The equipment or the property can be seriously damaged, or persons can be severely injured if the alert is not observed.
	Danger!
⚡	Not observing the alert can lead to severe injuries or death.

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

1. Overview

The digital IR language distribution system is a system for wireless distribution of audio signals via infrared radiation. It can be used in a simultaneous interpretation system for international conferences where multiple languages are used. To enable all participants to understand the discussion, interpreters simultaneously translate the speaker's language as required. These interpretations are distributed throughout the conference venue, and delegates select the language of their choice and listen to it through headphones. The system can also be used for music distribution.

This digital language distribution system comprises one or more of the following:

Infrared transmitter

The transmitter is the core of the system. Four types are available:
- Inputs for 4 audio channels
- Inputs for 8 audio channels
- Inputs for 12 audio channels
- Inputs for 16 audio channels

Infrared radiator

The radiators can be mounted on walls, ceilings or floor stands.
- The raidator support up to 32 channels audio transmission

Infrared receivers

Five multi-channel infrared receivers are available:
- 4 audio channels
- 8 audio channels
- 12 audio channels
- 16 audio channels
- 32 audio channels

The receivers can operate with rechargeable NiMH batteries or with disposable batteries. Charging circuitry is incorporated in the receiver.

Interpreter consoles

Five Interpreter consoles are available:
- 4 audio channels
- 8 audio channels
- 12 audio channels
- 16 audio channels
- 32 audio channels

Charging equipment

- The charging unit is for charging and storing 24 infrared receivers.

Repeater

-The repeater for boost the transmission signals of interpreter consoles

1.1 Digital Infrared transmitter

1.1.1 Picture of the actual object

1.1.2 Features of digital infrared transmitter

a. Fully digital wireless transmission technology. System conforms to IEC61603, party 7.

b. 2-8MHz frequency band eliminates disturbance from all types of lighting systems.

c. The system provides multi-channel 4/8/12/16 for option

d. High security, prevent external interference.

e. Elegant configuration in accordance to ergonomics.

f. 160x32 dot matrix LCD display system information

g. Installation: 19-inch frame

1.1.3 Schematic diagram of digital Infrared transmitter
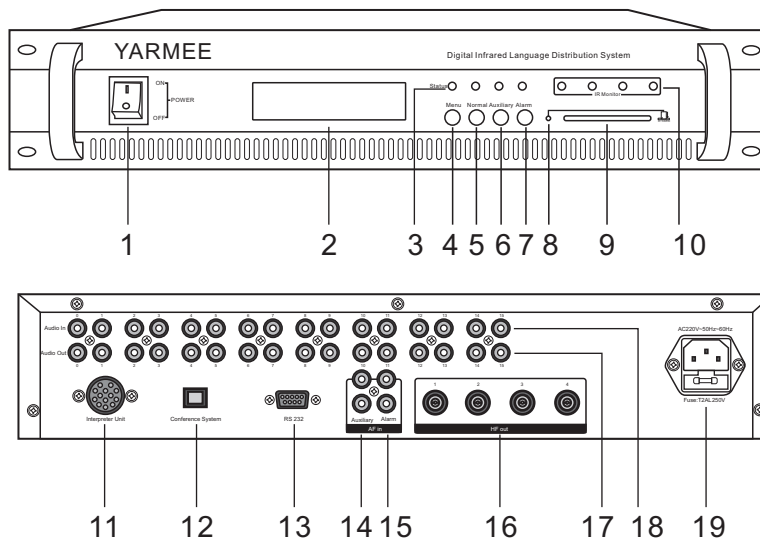
1) Power on/off switch: Power switch (Press I to turn on the power, power indicator is lighting, press O to turn off the power)

2) Menu display LCD: The LCD-display gives information about the transmitter status,. It also use as an interactive display for configuring the system)

3) Transmitter communication LED: This LED is used for display the system communication status, if the communication properly, the LED will flashing rhythmically, if the LED stop flashing during working, the transmitter may has problem.

4) Menu button: To operate the configuration system inputs/languages/safety settings, etc.

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5) Normal button: To setting the normal working status—interpretation, the corresponding LED is green one.

6) Auxiliary button: To setting the auxiliary working status—music, the corresponding LED is orange one.

7) Alarm button: To setting the alarm working status—emergency time, the corresponding LED is red one.

8) Management card LED: the LED will lighting when management card correctly insert.

9) Management card interface: User must insert the correct card during setting

10) Mini IR-radiator: Four IREDs, transmitting the same infrared signal as the radiator output. This can be used for monitoring purposes.

11) Interpreter connector: Use for connection interpreter consoles

12) Conference connector: Use for connect compatible conference system

13) RS232 interface: Use for connect computer.

14) Auxiliary audio inputs: Female RCA connector for external audio inputs to connect auxiliary audio signals such as music, floor language or emergency audio signal

15) Emergency audio inputs: Female RCA connector for emergency audio signal, when this function available, system will distribute the emergency audio signal to all output channels and overriding all other audio inputs.

16) HF signal output: Four HF BNC connectors, used to connect the radiators. Up to 30 Radiators can be loop-through connected to each output.

17) Audio signal output: 4/8/12/16 audio connectors to connect other audio equipments. The number of connectors depends on the transmitter type

18) Audio signal input: 4/8/12/16 audio connectors to connect external unbalanced audio input signals. The number of connectors depends on the transmitter type.

19) Power supply: The transmitter has automatic voltage selection. A power cable is provided.

1.1.4 Parameter of infrared transmitter

Items	Parameter
Modulation frequency	Carriers 0 ro5: 2 to 6 MHz, according to IEC 61603 part 7, Carriers 6 and 7: up to 8MHz
Protocol and modulation	DQPSK, according to IEC technique 61603 part 7
Audio frequency response	20Hz-10kHz (-3dB) at standard quality
Total harmonic distortion at 1 kHz	＜0.05%
Crosstalk attenuation at 1 kHz	＞80dB
Dynamic range	＞80dB
Weighted signal-to noise ratio	＞80dB(A)
Power consumption	Operating:100W; Standby: 25W
Asymmetrical audio inputs	+3 dBV nominal, +6dBV maximum(±6dB)
HF output	1 Vpp, 6VDC, 50Ohm
Interpreter console connector interface	12P-DIN
Audio input	RCA x16

| Items	Parameter
Audio output	RCA x16
HF output connector interface	BNC x 4
Operating temperature range	0-40 degree
Power supply	AC110V-200V ~ 50Hz-60Hz
Dimensions	485×355×90mm
Mounting	19" rack mounting
N.W	8kg

1.2 Digital Infrared radiator

1.2.1 Picture of the actual object

1.2.2 Features of digital infrared transmitter

a. Fully digital wireless transmission technology. System conforms to IEC61603, party 7

b. Radiates & distributes up to 32 channels of digital audio signal

c. Digitized audio ensures very high audio quality

d. Powerful compression techniques enable efficient, low-loss transmission.

e. Mounted on ceiling, wall, floor stand or optional tripod

f. Easily daisy-chained together to expand coverage

g. Angle of half intensity: ±22°

1.2.3 Schematic diagram of digital infrared radiator
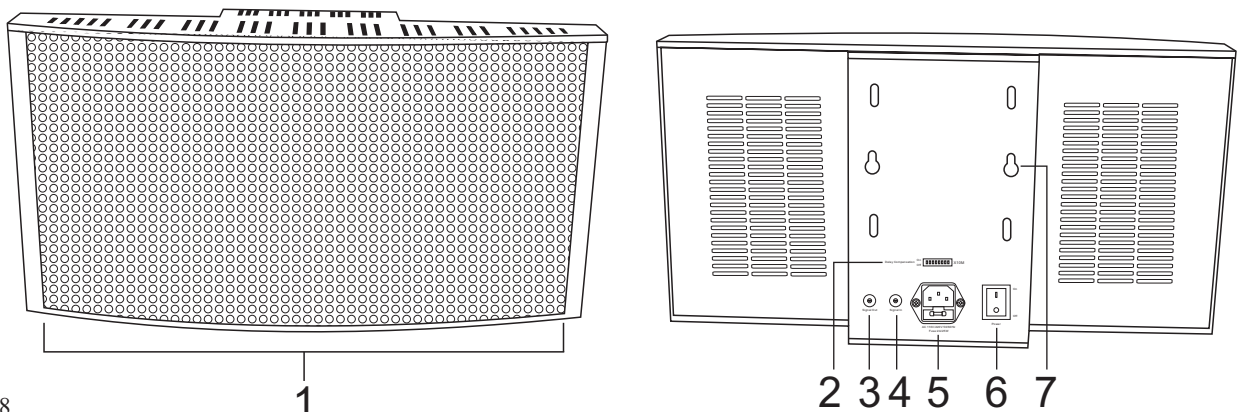
1) Infrared Leds and IR lens.

2) Delay compensation switches:8-position switches to compensate for differences in cable lengths to the radiators.

3-4) Channel selector: An up/down switch to select an audio channel. The channel number is shown on the LCD display

5) Power input: Male power plug connector. The radiators have automatic voltage selection.

6) Radiator power on/off switch

7) Bracket hole: Tapped hole to mount the suspension bracket.

1.2.4 Parameter of digital Infrared radiator

Items	Parameter
HF input	Nominal 1 Vpp, minimum 10mVpp
Angle of half intensity	±22°
Total optical peak intensity	24 W/sr
Power consumption	Operating: 30W; Standby:25 W
Transmission distance	＜30 meters/16 CH
Number of IREDs	312
Power supply	AC110V-220V ~ 50Hz-60Hz
Dimensions	445×235×113mm
Operating temperature range	0-40 degree
Mounting	Standard: Bracket, Option: tripod
N.W	4.2kg

1.3 Digital interpreter console
1.3.1 Picture of the actual object

1.3.2 Features of interpreter console

a. Digital audio processing and transmitting technology.

b. Up to 32 Channel audio signals transmitted on a dedicated 12P-DIN cable.

c. Interpreter consoles powered by the transmitter.

d. Voice adjustable and with prevention on feedback

e. Ensure that every channel is correspondent to the RELAY func tion respectively.

f. Delegates speak too fast; give a request for slow the speed.

g.   Automatic numbering on system units

h.   Prevention on interpreter's cough

i.   LCD can display input and output channel

1.3.3 Schematic diagram of interpreter console
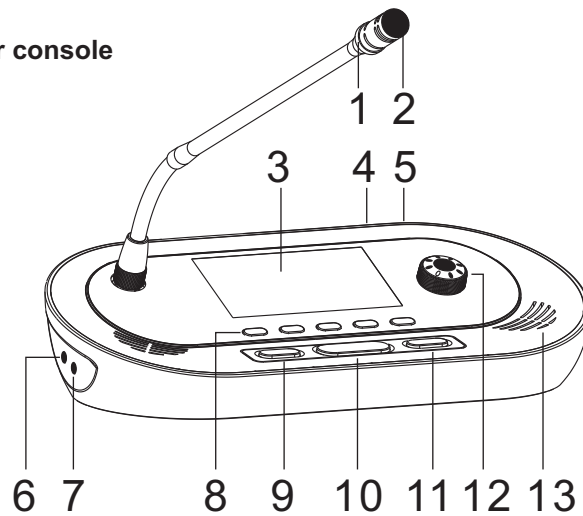
1)   Microphone red indicator to show mic state (on/off)

2)   Unidirectional electret MIC

3)   Microphone TFT display to show interpreter console's status

4-5) Interpreter input/loop-through (output): two 12P-DIN connectors for connecting the interpreter console to the transmitter and for loop-through connection to other interpreter consoles.

6)   Earphone jack (ø 3.5mm)

7)   Menu key

8)   Slow key (SLOW): When the delegate is speaking too fast, press this button (microphone of the interpreter unit must be active) to remind him/her to slow down)

9)   Microphone on/off switch (Micro): Press this button to turn on the microphone and the red indicating light will be activated, press this button again to turn off the microphone.

10) Microphone mute key (Mute): Push and hold the "Mute" button to temporarily disable the microphone. Release this button on voice recovery.

11) Volume control and interpreter's function set knob

12) Built-in Hi-Fi loudspeaker

1.3.4 Parameter of digital Infrared radiator

| Items	Parameter
Frequency response	50Hz – 20kHz
Sensitivity	-42 ± 2dB
Interpreter connector interface	12P-DIN
Length of gooseneck	410mm
Dimensions	300×150×70mm
Operating temperature range	0-40 degree
N.W	1.7kg

1.4 Digital infrared receiver

1.4.1 Picture of the actual object

1.4.2 Features of digital infrared receiver

a. Fully digital wireless transmission technology. Receiver conforms to IEC61603, party 7

b. Pocket size wireless handheld unit

c. Accommodates up to 32 different languages

d. Channel selector and headphone connector

e. Power on/off switch and volume level control

f. Powered by (2 x AA) rechargeable batteries

g. No power used when headphone is disconnected

h. Aluminum carrying cases provided for receivers

i. 2-digit LCD display with battery and reception status indication

1.4.3 Schematic diagram of digital infrared receiver
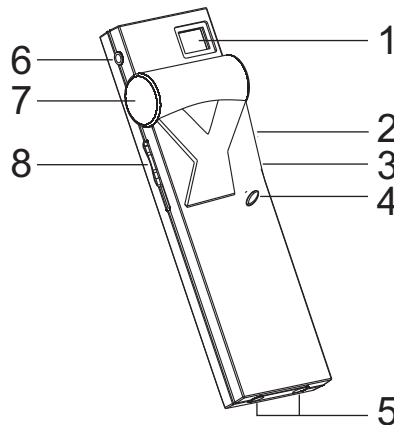
1) LCD display: A two digit display showing the selected channel. An antenna symbol is visible when the receiver picks up an infrared signal of adequate quality. A battery symbol is visible when the batteries are almost empty.

2-3) Channel selector: An up/down switch to select an audio channel. The channel number is shown on the LCD display

4) On/Off button: When headphone is connected, the receiver switches to stand-by state. Pressing the On/Off button switches the receiver from stand-by to on. To switch back to stand-by, press and hold the button approx. 2 seconds. When the headphone is removed, the receiver switches automatically to the off-state.

5) Charging contacts: Used in combination with the charging equipment to recharge the batteries

6) Headphone connector: A 3.5mm (0.14 inch) stereo jack output socket for the headphone.

7) IR lens: To receive infrared signals from IR radiators.

8) Volume control: A slider to adjust the volume +/-

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1.4.4 Parameter of digital Infrared receiver

Items	Parameter
Receiving sensitivity	-101dBM
Angle of half sensitivity	± 50°
Headphone output level at 2.4V	450 mVrms (Speech at maximum volume, 32 ohm headphone)
Headphone output frequency range	20 Hz to 10 kHz
Headphone output impedance	32 ohm
Max. signal-to-noise ratio	78 dB(A)
Supply voltage	1.8 to 3.6 V, nominal 2.4 V
Power consumption at 2.4V (battery voltage)	60 mA (speech at maximum volume, 32 ohm headphone)
Power consumption (standby)	60 mA
Dimensions	157×49×25mm
Operating temperature range	0-40 degree
N.W	150g without battery

1.5 Charging unit
1.5.1 Picture of the actual object

1.5.2 Features of charging unit
a. The charging unit can recharge up to 24 pieces receivers at once.
b. The charging unit contains the power supply with automatic input voltage selection.
c. The charging electronics and a charging indicator LED are integrated in each receiver.
d. The charging circuitry checks if a batteries is present and controls the charging process receivers per charging

1.5.3 Schematic diagram of digital infrared receiver
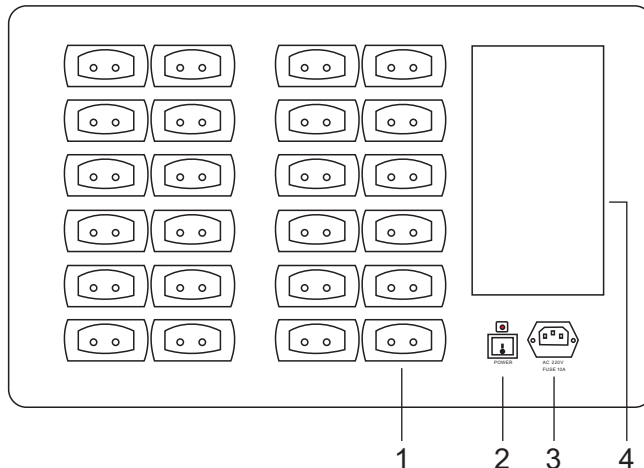
1) Receiver positions: One charging unit can charge up to 24 receivers simultaneously.
2) Power input: Male power input socket. The charging unit has automatic input voltage selection. A power cable is provided.
3) Power on/off switch
4) Power cable and batteries storage position

1.5.4 Parameter of charging unit

Items	Parameter
Power supply	AC110V-220V ~ 50Hz-60Hz
Consumption Rating	66W
Maximum charging current of each unit	220mA
Charge quantity	24
Charging time	About 2 to 2.5 hours
Charging status	Red LED flashing –Charging, Green LED –Full Charged
Operating temperature range	0-40 degree
Dimension	630x370x290mm
N.W	10.5kg

1.6 Repeater unit
1.6.1 Picture of the actual object

1.6.2 Features of repeater unit

The standard interpreter cable length from transmitter to the first interpreter console is 10 meters, if the cable length more than 10 meters, the system should use repeater unit to boost the signals, each repeater unit can support 10 meters length.

1.6.3 Parameter of repeater unit

Items	Parameter
Consumption Rating	1.5W
Support cable length	10 meters
Operating temperature range	0-40 degree
Dimension	120x40x50mm
N.W	211g

2. System installation

2.1 System connection diagram

Audio In

Audio Out

Interpreter Unit Conference System RS 232 Auxiliary Alarm AF in HF out

AC220V~50Hz-60Hz

Fuse:T2AL 250V

Auxiliary audio inputs

Emergency audio inputs

---15 Pieces

22°
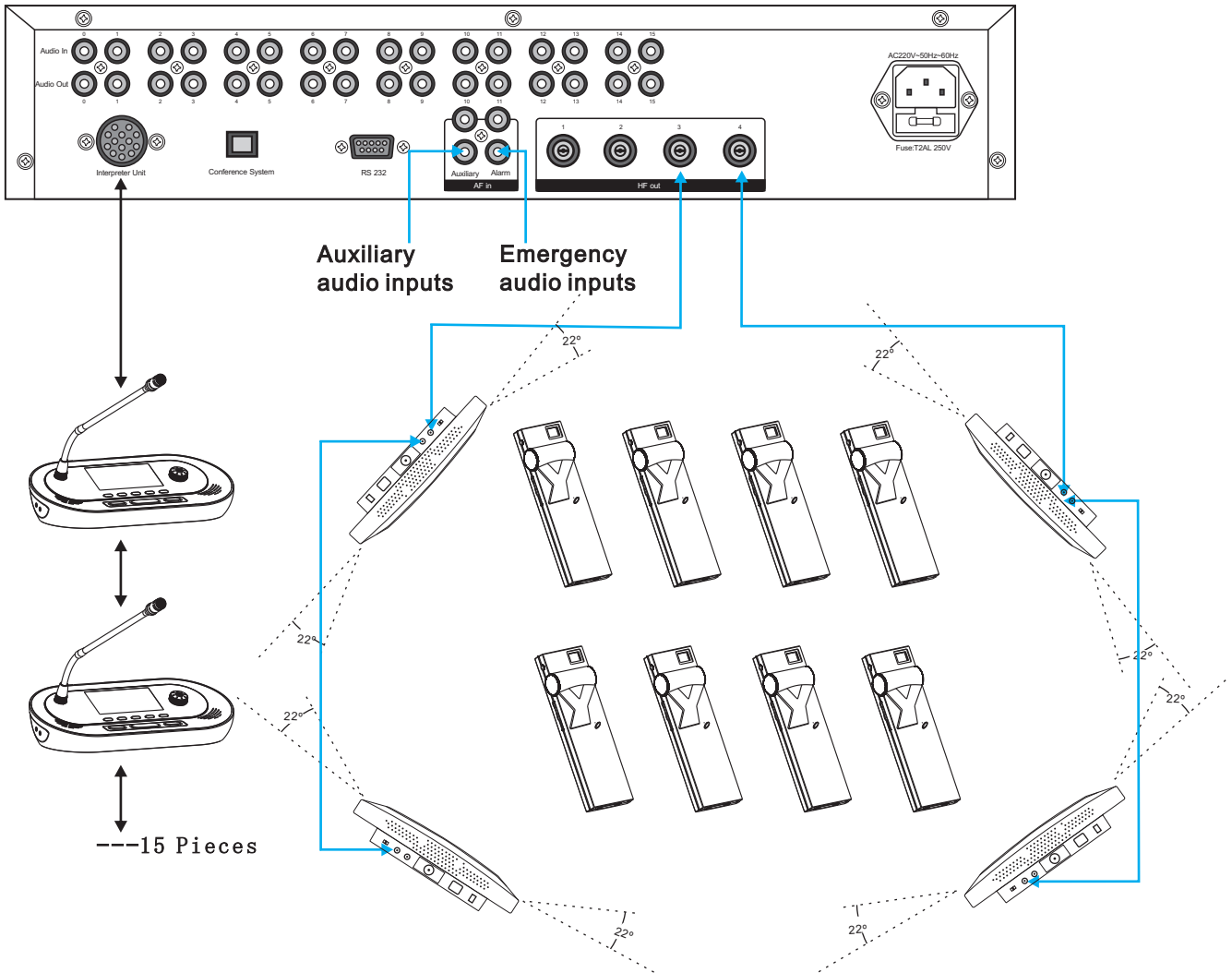
2.2 Warning

- If the units demonstrate any problems, such as abnormal sound, smoke, heat from or damage to power cables, disconnect the power plug from the outlet and contact your sales representative.
  If the power plug blades are distorted or discolored, do not use the unit. (Transmitter, IR radiator, Battery charger)
- Uncoil the power cables before use, Do not bundle the cables during use, or fie with nails. (Transmitter, IR radiator, Battery charger)
- Do not pull on the cable. Hold the plug section and insert/remove it in a straight line, damaged cables may result in electric shock, malfunction, or fire. (Transmitter, IR radiator, Battery charger)
- Do not place anything on the power cables. Do not route them under a rug or furniture. (Transmitter, IR radiator, Battery charger)
- Do not cover the units with cloth or place them in locations with poor ventilation.
  Doing so traps heat, and may result in electric shock or fire
- If you do not use the units for long periods of time, disconnect the power plugs from the outlet. (Transmitter, IR radiator, Battery charger)
- Do not disassemble the units. Touching the inside of the units may result in electric shock
- Do not expose the units to any strong shock
- Do not expose the units to direct sunlight, heat from heating appliances, high temperatures, or dust
- Do not expose the units to high humidity or moisture
  Water that accidentally enters the inside of the units may result in electric shock, malfunction, or fire
- Do not touch the power cables or plugs with wet hand.(Transmitter, IR radiator, Battery charger)
- Transmitter, IR radiator, Battery charger is a class I device. Be certain to connect to an AC outlet with a protective grounding connection
- Transmitter, IR radiator, Battery charger can be separated from the AC receptacle by turning off the unit by the power switch. In case of emergency, turn off this switch or unplug the power cable from the AC receptacle

2.2.1 CAUTION on handling of the receiver unit

- Do not drop the unit
- If you do not use the unit for a long periods of time, remove the battery
- The dedicated battery should be used
- Do not cover the infrared section

2.2.2. CAUTION on installation radiator

- After mounting the IR radiator, be certain that they are securely fastened
- Do not install the IR radiator near infrared-emitting objects such as direct sunlight, incandescent lamps, halogen lamps, inverter fluorescent lamps, or plasma displays
- Noise may be generated by interference regardless of the operating distance between the IR radiator away from infrared-emitting objects
- Do not place any obstructions around the radiator

2.2.3 CAUTION on battery charger handling

- If the charging terminal is dirty, poor contact will prevent the battery from being charged properly. Periodically clean the charging terminals
- The battery charger may become hot during charging. Use it in a well-ventilated area
- After the battery is fully charged, turn off the battery charger or remove the receivers

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2.3 Planning

The system is based on transmission by modulated infrared radiation. Infrared radiation forms part of the electromagnetic spectrum, which is composed of visible light, radio waves and other types of radiation. It has a wavelength just above that of visible light. Like visible light, it is reflected from hard surfaces, yet passes through translucent materials such as glass. The infrared radiation spectrum in relation to other relevant spectra is shown in the next figure.
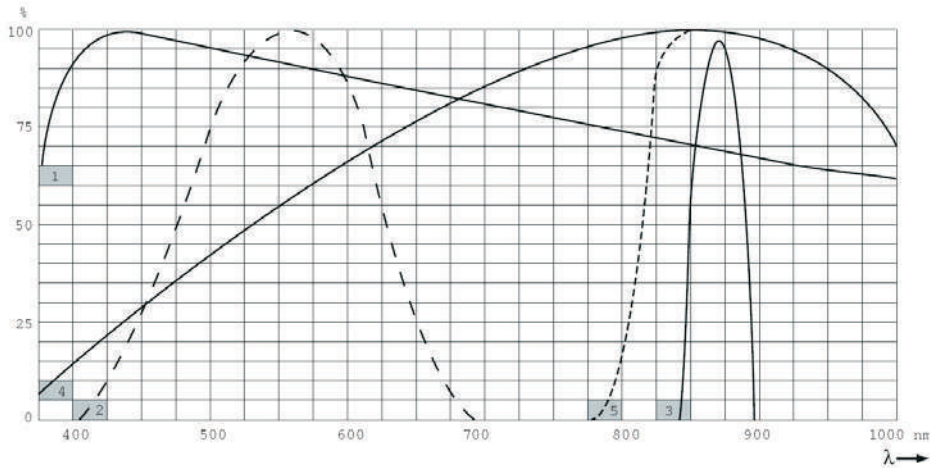

2.3.1 Aspects of infrared distribution systems

A good infrared distribution system ensures that all delegates in a conference venue receive the distributed signals without disturbance. This is achieved by us ing enough radiators, placed at well planned positions, so that the conference venue is covered with uniform IR-radiation of adequate strength. There are several aspects that influence the uniformity and quality of the infrared signal, which must be considered when planning an infrared radiation distribution system. These are discussed in the next sections.

### 2.3.2 Directional sensitivity of the receiver

The sensitivity of a receiver is at its best when it is aimed directly towards a radiator. The axis of maximum sensitivity is tilted upwards at an angle of 45 degrees (see the next figure). Rotating the receiver will decrease the sensitivity. For rotations of less than +/- 45 degrees this effect is not large, but for larger rotations the sensitivity will decrease rapidly.
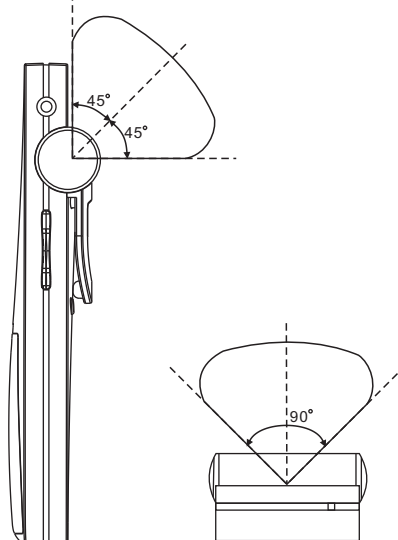

Directional characteristics of the receivers

2.3.3 The footprint of the radiator

The cross section of the 3-deimensional radiation pattern with the floor of the conference venue is known as the footprint (the white area in the following three figures). This is the floor area in which the direct signal is strong enough to ensure proper reception, when the receiver is directed towards the radiator. As shown, the size and position of the footprint depends on the mounting height and angle of the radiator.
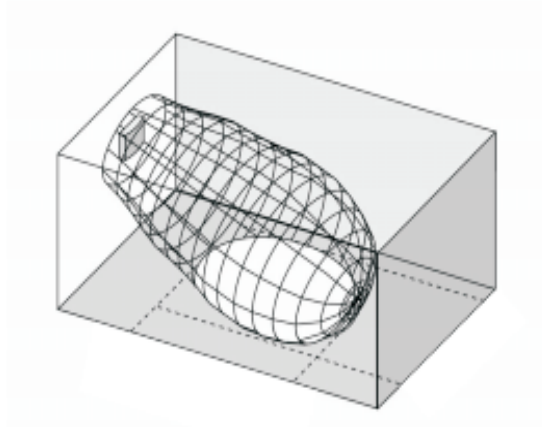

Radiator mounted at 15° to the ceiling
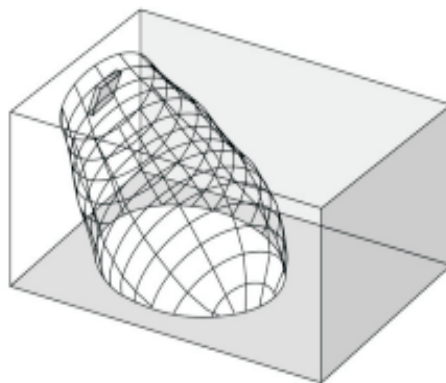

Radiator mounted at 45° to the ceiling
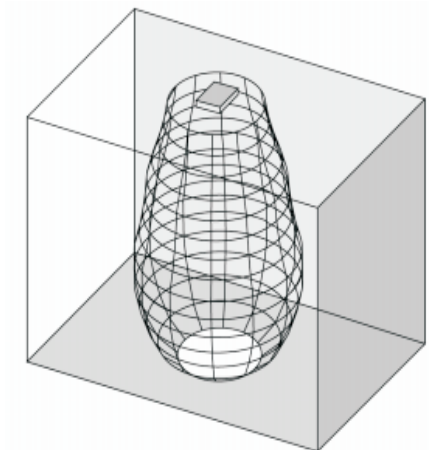
Radiator mounted perpendicular (at 90°) to the ceiling

2.3.4 Position the radiator

Since infrared radiation can reach a receiver directly and/or via diffused reflections, it is important to take this into account when considering the positioning of the radiators. Though it is best if receivers pick up direct path infrared radiation, reflections improve the signal reception and should therefore not be minimized. Radiators should be positioned high enough not to be blocked by people in the hall (see the next two figures).
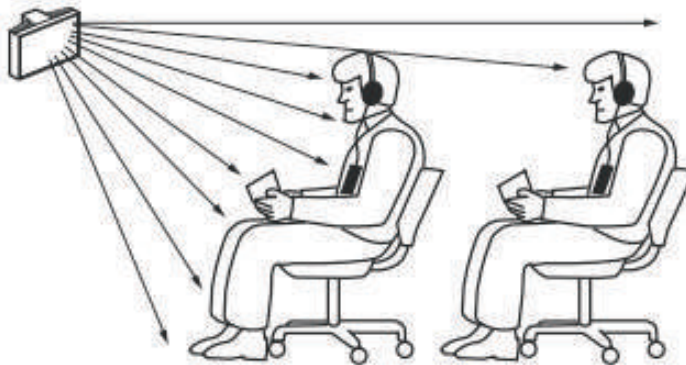
Infrared signal blocked by a person in front of the participant
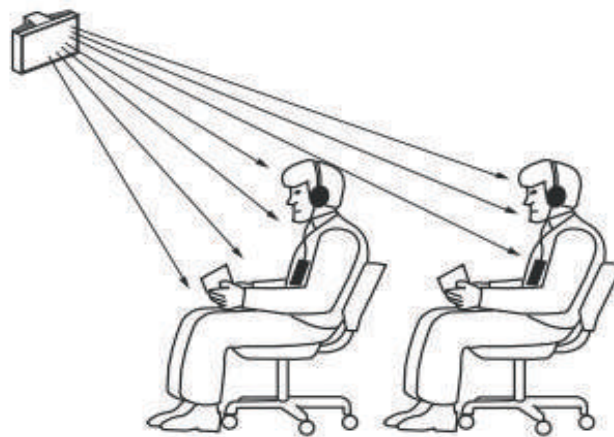
Infrared signal not blocked by a person in front of the participant

The figures below illustrate how infrared radiation can be directed to conference participants. In left figure, the participant is situated clear from obstacles and walls, so a combination of direct and diffused radiation can be received. Right figure shows the signal being reflected from a number of surfaces to the participant.
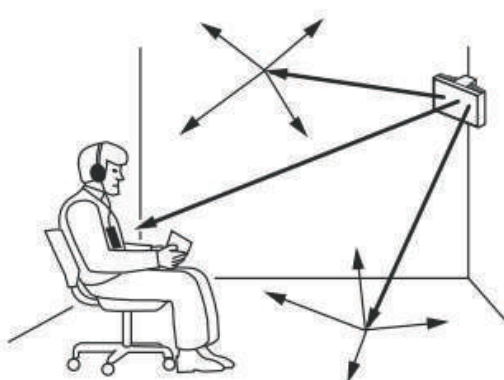
Combination of direct and reflected radiation   Combination of several reflected signals
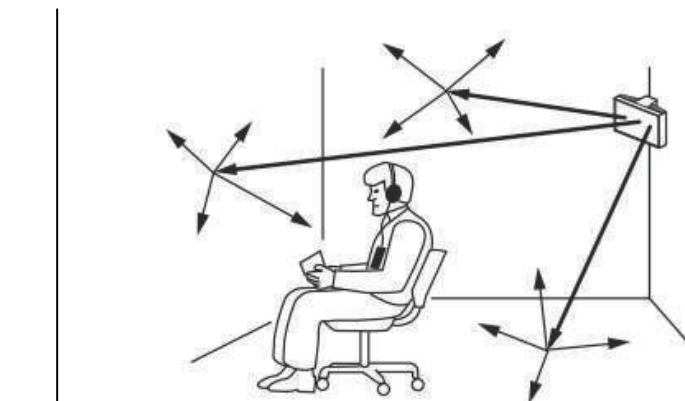
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For concentrically arranged conference rooms, centrally placed angled radiators located high up can cover the area very efficiently. In rooms with few or no reflecting surfaces, such as a darkened film-projection room, the audience should be covered by direct path infrared radiation from radiators positioned in front.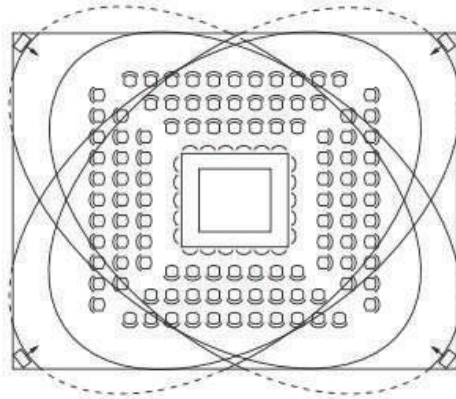 When the direction of the receiver changes, e.g. with varying seat arrangements, mount the radiators in the corners of the room (see the next figure)

Radiator position for covering seats in a square arrangement

If the audience is always directed towards the radiators, you do not need radiators at the back (see the next figure)
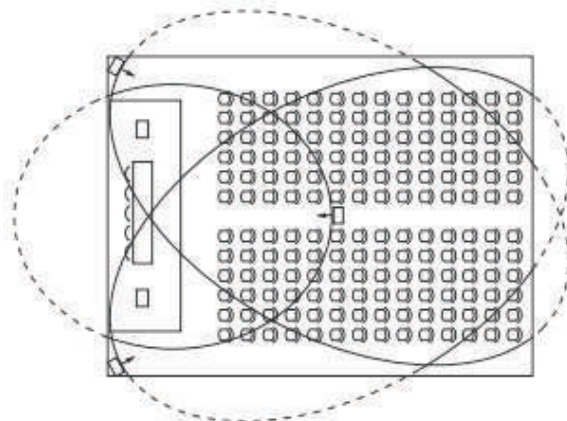
Radiator positioning in a conference hall with auditorium seating and podium

If the path of the infrared signals is partially blocked, e.g. under balconies, you should cover the 'shaded' area with an additional radiator (see the next figure)
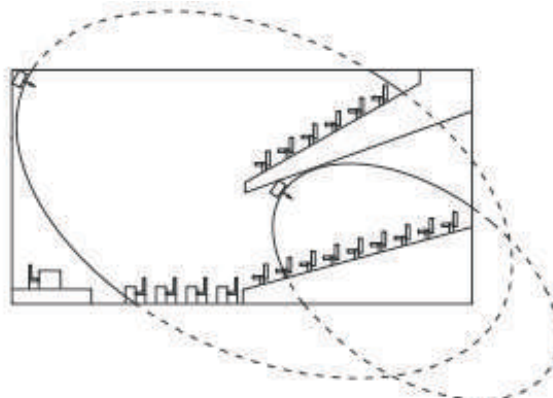
Radiator for covering seats beneath a balcony

2.3.5 Cabling

Signal delay differences can occur due to differences in the cable length from the transmitter to each radiator. In order to minimize the risk of black spots, use equal cable length from transmitter to radiator if possible (see the next figure)
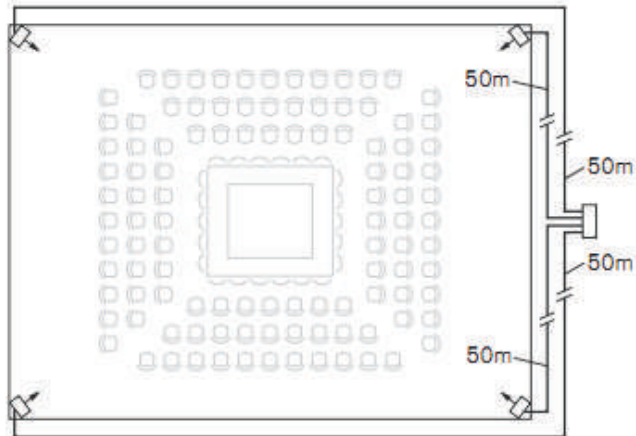
Radiators with equal cable length

When radiators are loop-through connected, the cabling between each radiator and the transmitter should be as symmetrical as possible (see the next two figures). The differences in cable signal delays can be compensated with the signal delay compensation switches on the radiators.
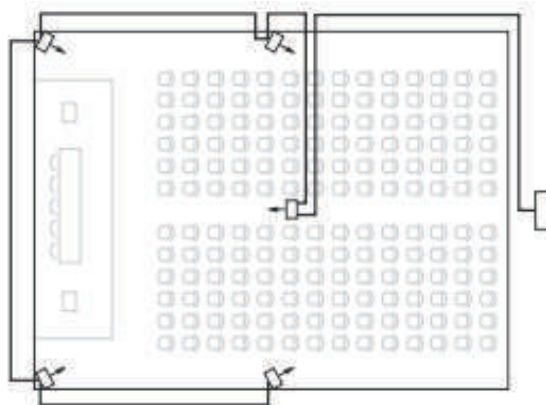
Asymmetrical arrangement of radiator cabling (to be avoided)

Symmetrical arrangement of radiator cabling (recommended)

2.3.6 Set the delay switches

As described in section footprints and black spots, differences in the delays of the signals picked up by the receiver from two or more radiators can cause black spots as a result of the multi path effect.

To compensate the signal delay differences, the delay of each radiator can be increased. These signal delays can be set with the delay switches at the back of the radiator.

The cable signal delays can be determined in the following ways:

Calculate formula:

A: The farthest radiator cable length (from transmitter to the last radiator)

B: The radiator cable length (from transmitter to the radiator which need to set up)

C: The number of delay switch
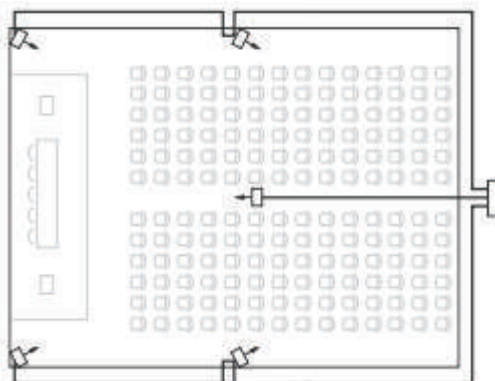
C= (A-B)/10

For example:
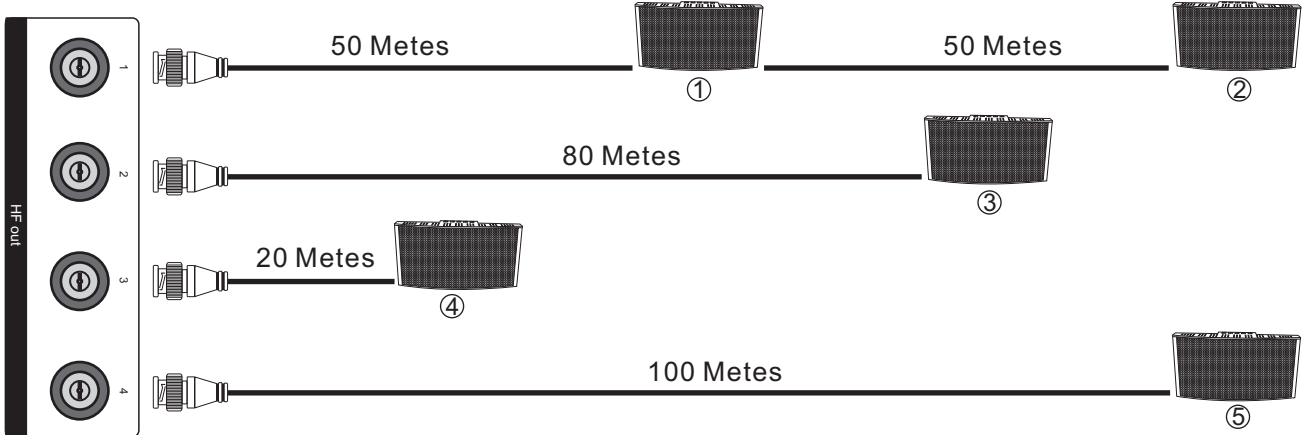
The farthest radiator cable length (from transmitter to the last radiator) is 100 maters.

Cable length of radiator 1 is 50 meters, calculate formula is (100-50)/10=5, the delay switch number is 5

Cable length of radiator 2 and 5 is 100 meters, calculate formula is (100-100)/10=0, the delay switch number is 0

Cable length of radiator 3 is 80 meters, calculate formula is (100-80)/10=2, the delay switch number is 2

Cable length of radiator 4 is 20 meters, calculate formula is (100-20)/10=8, the delay switch number is 8

➢ There are four HF BNC connectors, used to connect the radiators, please use the farthest radiator cable length (from transmitter to the last radiator) as the base.

➢ The radiator cable length in this system should be 10 meters integer times

2.3.7 Determine the radiator delay switch positions

There are 8 dial radiator delay switch for set up, each dial switch represents (1-8), please set the dial switch according to the calculate formula, you also can set the number with the sum of 2 or more dial switch numbers.

For example, on above figure, the delay switch number is 8 for radiator 4, you can set the dial switch as following:

set up with 1 dial switch   set up with 2 dial switch   set up with 3 dial switch

2.4 System configuration.

Description	Model No.	Max Qty	Marks
IR transmitter	/	1	
IR radiator	/	≤30	Depend on room layout
Interpreter console	/	≤15	
IR receiver	/	/	
Charging unit	/	/	
Management card	/	2	
Repeater	/	/	

2.5 Transmitter installation

2.5.1 Transmitter installation

a. Put on the table or install in 19 inch frame

b. Please keep away from high-power and strong radiation equipments, or it may influence the equipment performance.

c. Use it in a well-ventilated area

2.5.2 BNC connector installation method

Because the interconnection coaxial cable (50Ω) of IR radiator is used for transmit IR signal, please make sure the circuit not shorted between IR signals and shielding net when install the IR radiator.
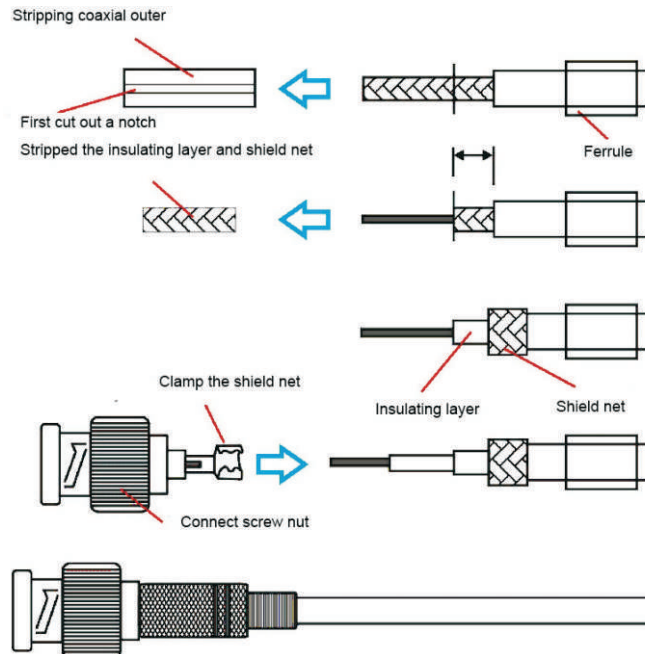
a.   Please stripping the coaxial cable (50Ω) outer, shield net and insulating layer with above sketch map

b.   Insert the wire and connect to the center pin, soldering it

c.   Insert the shield net and insulating layer to screw nut connector.

d.   Connect ferrule to the screw nut connector's anti-shedding position

e.   Fasten it with plier

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2.5.3 Connect radiators

The transmitter has four BNC HF output connectors labeled 1, 2, 3 and 4 on the rear panel. All four outputs are functionally identical. They can each drive up to 30 radiators in a loop-th rough configuration. The radiators are connected with 50 ohm coaxial shielded.
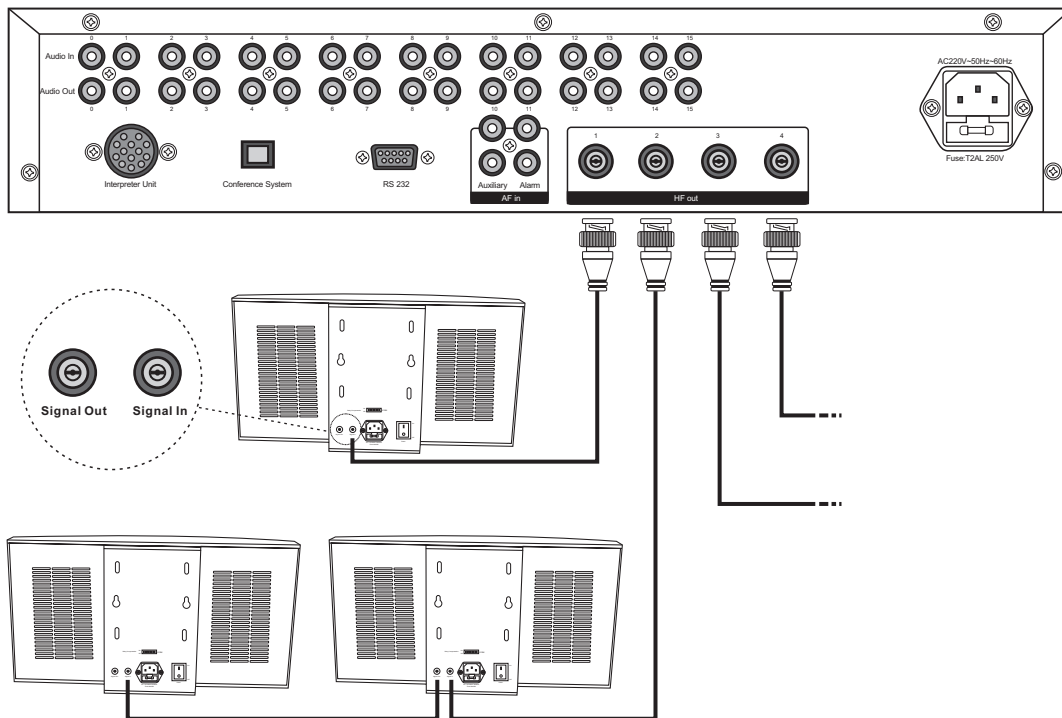
2.5.4 Connect interpreter console

There are two 12P-DIN connectors (IN & OUT) for connecting the interpreter console to the transmitter and loop-through connection to other interpreter consoles, the first one is from transmitter 12P-DIN connector labeled interpreter unit to the interpreter console 12P-DIN connector labeled IN.

The standard interpreter cable length from transmitter to the first interpreter console is 10 meters, and cable length for each interpreter console is 3 maters, if the cable length more than 10 meters, the system should use repeater unit to boost the signals, each repeater unit can support 10 meters length.
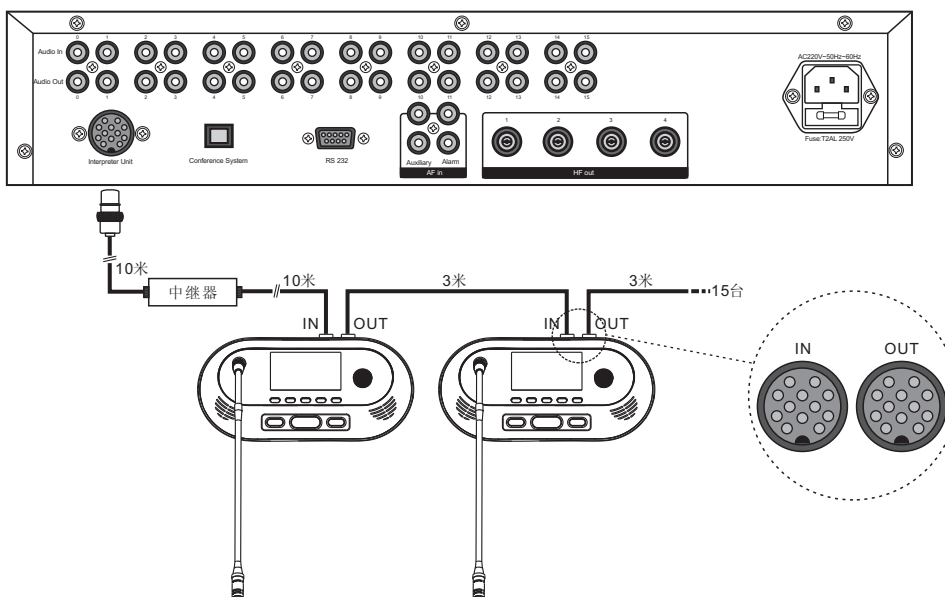
➢   The transmitter can detect and diplay the system interpreter consoles' quantity and status

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2.5.5 Connect other external audio sources

The transmitter has up to 16 audio inputs/outputs (depend on the transmitter type) to interface with external asymmetrical audio sources, such as congress system, music distribution. The audio signals are connected to the audio input RCA connectors

External audio sources(0-15)

Audio output

Auxiliary audio inputs

Emergency audio inputs
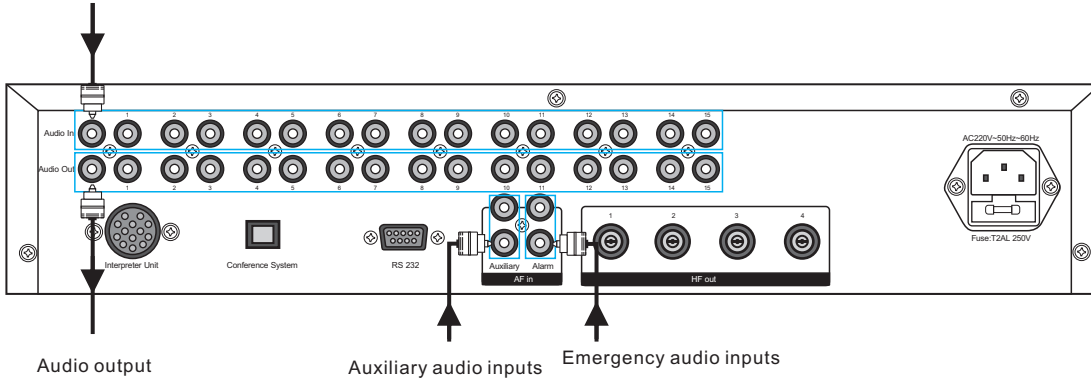
2.6 Installation of radiator

2.6.1 Installation of radiator with bracket
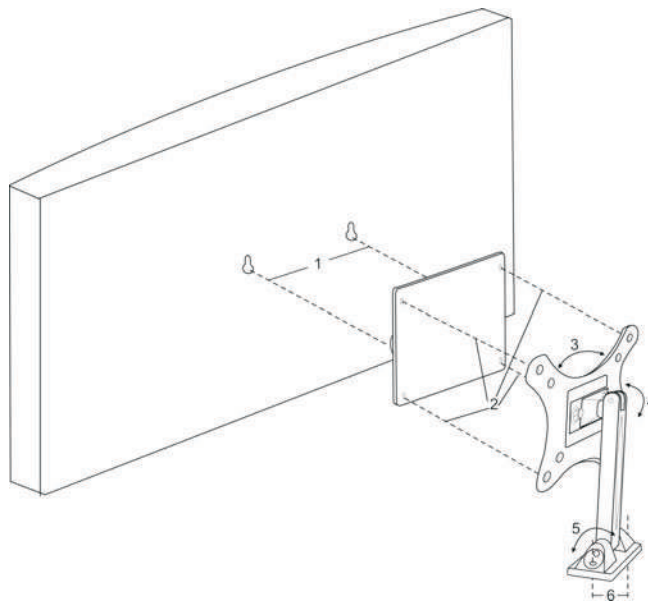
For wall mounting, an extra wall bracket is required. This bracket is attached to the wall by means of 2 bolts.

    a. Fix the bracket on the wall (Figure 6)

    b. Fix the bracket with shim (Figure 2)

    c. Fix the shim to radiator (Figure 1)

◆ Way to debug angle

    a. Debug with figure 3: 120°

    b. Debug with figure 4: 360°

    c. Debug with figure 5: 120°

➢ After mounting and debug the IR radiator, be certain that they are securely fastened

2.6.2 Caution item

a. Infrared operating distance varies depending on the color of the ceiling and walls.

b. Noise may be generated by interference regardless of the operating distance between the IR receiver and radiator; in this case, move radiator away from infrared-emitting objects.

c. Block direct sunlight from the unit using curtains or blinds.

d. Install the radiator more than 50cm from fluorescent lamps.

e. In addition, if the IR radiator units are installed near the infrared-emitting sources list below, the system may malfunction or noise may be generated. When installing the IR radiators, take care to avoid placing them near the following infrared-emitting and noise sources:

● Lighting equipment

● Projector (liquid crystal, DLP), OHP, incandescent bulbs

● Mercury lamp, halogen lamps, and inverter fluorescent lamps

● Plasma displays

● Infrared devices such as the remote control, infrared microphones and infrared LAN

● Dimmer controls

● Digital equipment like the digital power amplifier and cable wiring to this.(such as speaker output wiring of the digital power amplifier)

2.7 Installation of interpreter console

2.7.1 Mounting and dismounting the microphone
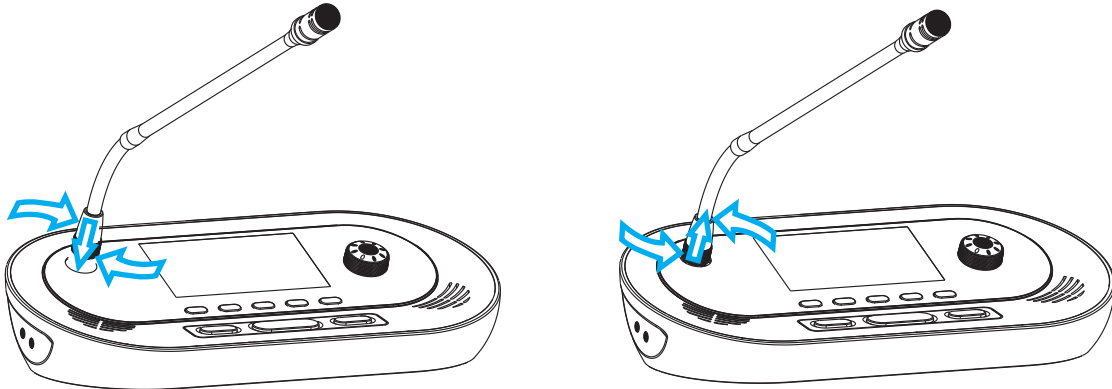
a. Mounting microphone: Insert the microphone into the microphone mounting socket in a straight line, and then rotate the microphone clockwise to fasten it securely.

b. Dismounting microphone: Rotate the microphone counterclockwise, then pull the microphone upward to dismounting

2.7.2 Connect headset to interpreter console
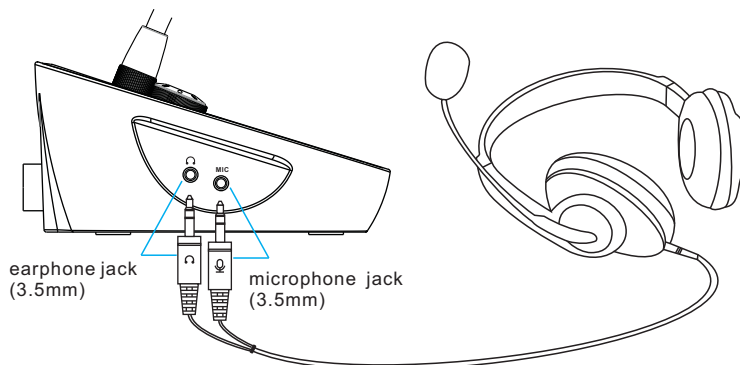
earphone jack
(3.5mm)

microphone jack
(3.5mm)

◆ Earphone jack (ø 3.5mm): Insert 3.5mm earphone plug to this jack, when this plug connect, interpreter console's microphone will be in mute status automatically.

◆ Microphone jack (ø 3.5mm): Insert 3.5mm microphone plug to this jack, when this plug connect, interpreter console's inner speaker will be in mute status automatically.

2.8 Installation of infrared receiver

2.8.1 Battery install

1. Please loosen the screw with cross screwdriver
2. Remove the battery cover
3. Put two AA 1.2V NI-MH batteries into the case, but please make sure the battery polar is correct

   Note: Please don't make the battery polar wrong, it would be damaged electronic component inside the receiver
4. Fix the cover and tighten the screw with cross screwdriver
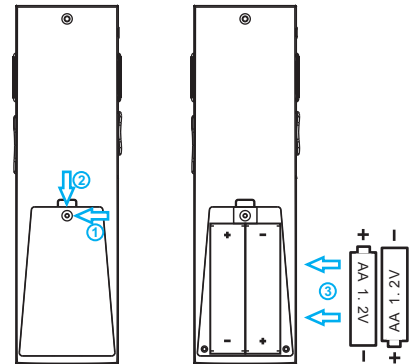
2.8.2 Connect earphone to receiver

Earphone jack (ø 3.5mm): Insert 3.5mm earphone plug to this jack directly.
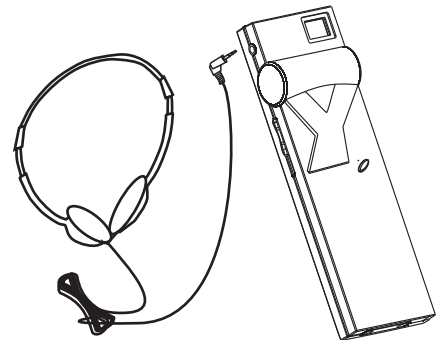
2.9 System setting

2.9.1 Transmitter setting

Please insert management card to the transmitter before setting, or user can not change the setting of the system.

➢ User can set the management card valid or invalid with menu setting (MENU-SAFETY SETTING-IC CARD/UNLIMITED)
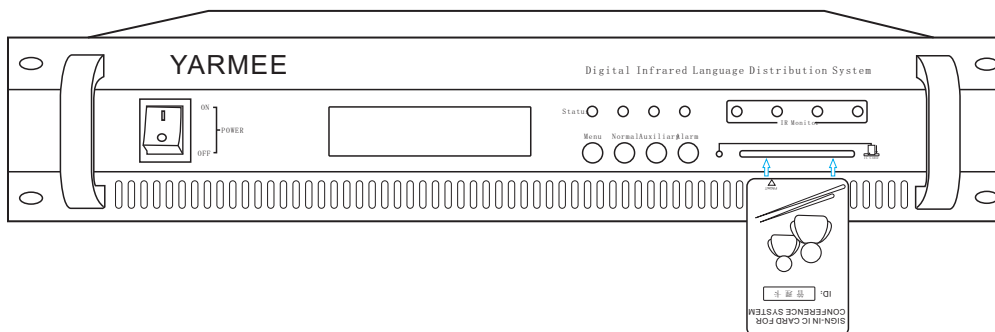
A. System mode

There are 3 system mode buttons on the front panel of transmitter; use can set the mode with these buttons (In here we called main interface when system LCD display one of the mode)

✓ **Normal Mode**

```
NORMAL      |
```

Please set Normal mode for language distribution, user can defined the external and interpreter audio inputs of each channel. Participants can listen with different audio channel.

Set: Press **Normal** button directly when transmitter LCD in main interface the corresponding green LED is lighting.

✓ **Auxiliary Mode**

```
┌──────────────────────────────┐
│  AUXILIARY    |  ▢▢:▢         │
│               |  ▢▢:▢         │
├──────────────────────────────┤
│  ▱▱:1 ⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠        │
└──────────────────────────────┘
```

Please set Auxiliary mode before/after conference, user can connect music or other audio source to the auxiliary interface of transmitter rear panel. Participants can listen the same audio from different channel.
Set: Press **Auxiliary** button directly when transmitter LCD in main interface, the corresponding orange LED is lighting.

✓ **Emergency Mode**

```
┌──────────────────────────────┐
│  EMERGENCY    |  ▢▢:▢         │
│               |  ▢▢:▢         │
├──────────────────────────────┤
│  ▱▱:1 ⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠        │
└──────────────────────────────┘
```

When this function available, system will distribute the emergency audio signal to all output channels and overriding all other audio inputs.
Set: Press **Emergency** button directly when transmitter LCD in main interface, the corresponding red LED is lighting.
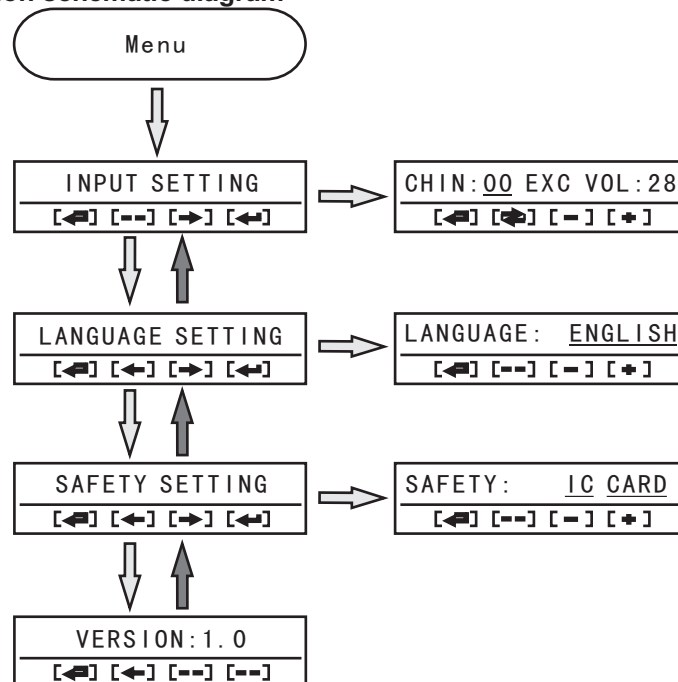
B. System parameter setting

The corresponding four function key on the front panel of transmitter is: [⬅▭] [⬅] [➡] [⬅⎯] when system in menu setting interface

✓ **The menu operation schematic diagram**

```
              ╭──────────────╮
              │    Menu       │
              ╰──────────────╯
                     ⬇
         ┌──────────────────┐      ┌──────────────────────┐
         │ INPUT SETTING     │ ⇒   │ CHIN:00 EXC VOL:28    │
         │ [⬅▭][⬅─][─➡][⬅⎯]│      │ [⬅▭][⬅▭][─][+]       │
         └──────────────────┘      └──────────────────────┘
              ⬇   ⬆
         ┌──────────────────┐      ┌──────────────────────┐
         │ LANGUAGE SETTING  │ ⇒   │ LANGUAGE:   ENGLISH   │
         │ [⬅▭][⬅][─➡][⬅⎯] │      │ [⬅▭][⬅─][─][+]       │
         └──────────────────┘      └──────────────────────┘
              ⬇   ⬆
         ┌──────────────────┐      ┌──────────────────────┐
         │ SAFETY SETTING    │ ⇒   │ SAFETY:    IC CARD    │
         │ [⬅▭][⬅][─➡][⬅⎯] │      │ [⬅▭][⬅─][─][+]       │
         └──────────────────┘      └──────────────────────┘
              ⬇   ⬆
         ┌──────────────────┐
         │ VERSION:1.0       │
         │ [⬅▭][⬅][⬅─][⬅─] │
         └──────────────────┘
```

✓ **Input setting**

User can set the transmitter input channel (external audio & interpreter audio); channel number from 00 to 15, channel 00 only for external audio source, channel 01 to 15 can be set as external or interpreter audio. User also can set the volume level of each channel (31 levels).
When channel 01 to 15 used as interpreter audio input, the corresponding output channel of interpreter

and interpreter ID is same as transmitter input channel number

Set: Press "Menu" key one time to enter the input setting interface, and press "【←】" to enter the setting, press "【⇄】" to select the setting items (selected item is underlined), and then setting the parameters withkey " 【－】 and 【＋】", transmitter will save the setting and back to main interface automatically after press key "【←】

✓ **Language setting**

User can set the language displayed on the LCD; option language is English and Chinese.

Set: Press "Menu" key one time and press "【→】" to enter language setting interface, then press "【←】" to enter the setting, use can select language with key "【－】 and 【＋】", transmitter will save the setting and back to main interface automatically after press key "【←】.

✓ **Safety setting**

User can set the management card valid or invalid with menu setting. When set management IC card function valid, user must user must insert the card before change the setting of transmitter, or transmitter setting is invalid and LCD will display "Please insert IC card". If set IC card function invalid, user can set the transmitter without limit.

Set: Press "Menu" key one time and press "【→】" two times to enter safety setting interface, then press "【←】" to enter the setting, use can select the function with key "【－】 and 【＋】", transmitter will save the setting and back to main interface automatically after press key "【←】.
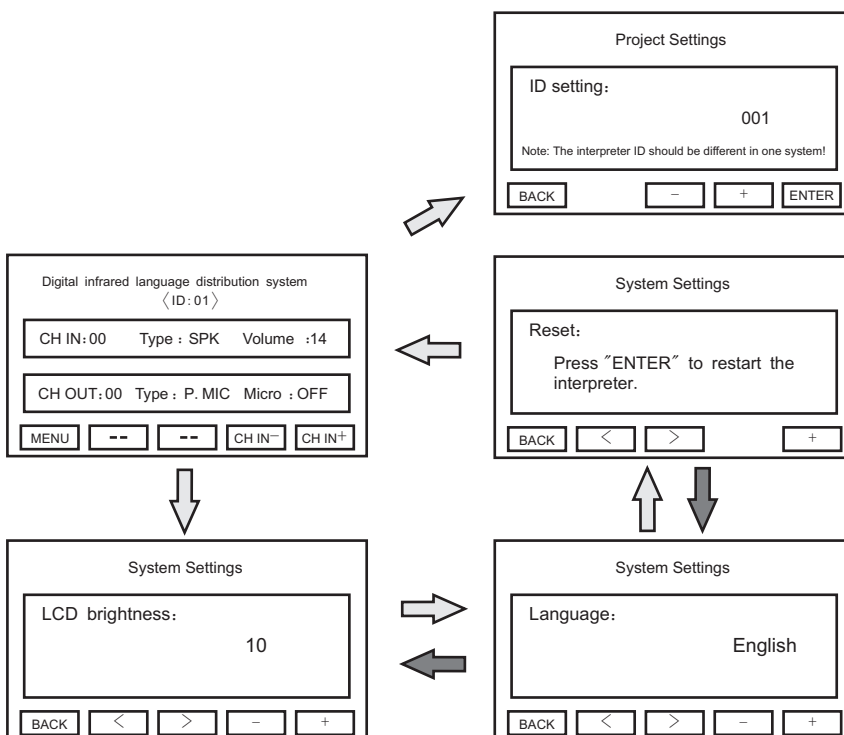
✓ **Version**

To check the version of current programmed system

Check: Press "Menu" key one time and press "【→】" three times to enter version interface.

2.9.2 Interpreter setting

Please connect interpreter consoles to transmitter and turn on the power before setting.

A.The menu operation schematic diagram

B. LCD configuration and setting

✓ **Monitor channel setting**

Input channel (Interpreter monitor channel, display **CH IN**) is from 00 to 15. There are two options for monitor type: Interpreter inner speaker and earphone, if earphone disconnected, main interface will display **SPK** (Speaker), if earphone connected, and main interface will display **PHON.** Monitor volume can be adjusted by volume knob on the interpreter (31 levels)

Set: To select monitor channel, please press button "**CH IN +**" or "**CH IN -**", and adjusted the volume by volume knob.

✓ **Output channel setting**

Output channel (Interpreter translate channel, display **CH Out**) is from 01 to 15. There are two options for output type: Interpreter microphone and external microphone, if external disconnected, main interface will display **MIC** (Interpreter microphone), if external microphone connected, and main interface will display **P. MIC. "Micro"** button control the on/off status no matter it's the interpreter microphone or external microphone; transmitter can monitor the interpreter console's status.

Set: Press and hold "**MENU**" button 5 seconds to enter project mode, interpreter's ID is the output channel (Note: the interpreter ID should be different in one system!), to select the ID/output channel, press button "**+**" or "**-**", and press "**ENTER**" to save the setting.

✓ **LCD contrast setting**

Press "**Menu**" button to enter the LCD contrast setting, user can set the brightness with button "**+**" or "**-**".

✓ **Language setting**

User can set the language displayed on the LCD; option language is English and Chinese

Set: Press "**Menu**" button one time, and them press button ">" one time to enter the language setting interface, user can select language with button "**+**" or "**-**"

✓ **Interpreter console reset**

If errors occurred during the operation, user can reset the interpreter to restart it.

Set: Press "**Menu**" button one time, and them press button ">" two times to enter the reset interface, press "**ENTER**" to restart the interpreter console.

➢ When press the volume knob, interpreter console also can enter the menu setting interface.

3. System operation and function

3.1 Digital Infrared transmitter

3.1.1 On/Off the transmitter

Turn on the transmitter: Please connect the power cable and turn on the transmitter with power switch, transmitter LCD will lighting, system will self-detect and enter the main interface in 10 seconds
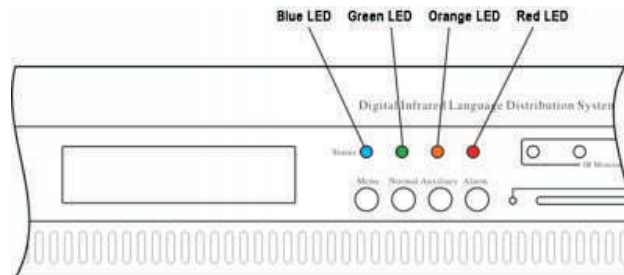
Turn off the transmitter: Please turn off the transmitter with power switch, transmitter LCD will off.

3.1.2 Transmitter LCD
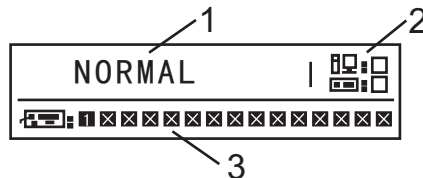
- ✓ 1 to display current system working mode
- ✓ 2 to display the status of PC and central control system connection
- ✓ 3 to display current interpreter console quantity and status

3.1.3 Transmitter LED

- ✓ Blue LED: This LED is used for display the system communication status, if the communication properly, the LED will flashing rhythmically, if the LED stop flashing during working, the transmitter may has problem.
- ✓ Green LED: The green LED will light when system in normal mode
- ✓ Orange LED: The orange LED will light when system in auxiliary mode
- ✓ Red LED: The blue LED will light when system in emergency mode

3.1.4 Mini IR-radiator
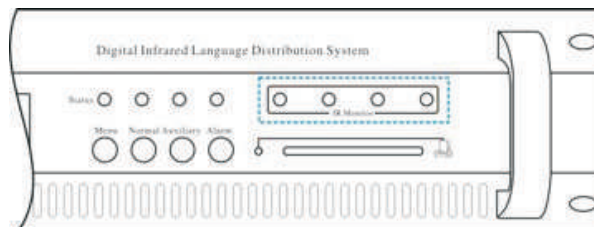
Mini IR-radiator: Four IREDs, transmitting the same infrared signal as the radiator output. This can be used for monitoring purposes. User can test each channel with receiver within 2 meters.

3.2 Interpreter console

3.2.1 On/Off the interpreter

Turn on the transmitter: There are two 12P-DIN connectors (IN & OUT) for connecting the interpreter console to the transmitter and loop-through connection to other interpreter consoles, turn on the transmitter power, the interpreter LCD is lighting and interpreter will finish self-detect in five seconds.

Turn off the interpreter: Please turn off the transmitter with power switch; the interpreter console will be off.

3.2.2 Monitor (Input channel)

Input channel (Interpreter monitor channel, display **CH IN**) is from 00 to 15. Channel 00 is for floor language, channel 01 to 15 is for monitor other interpreter's output audio. There are two options for monitor type: Interpreter inner speaker and earphone, the console's inner speaker will be in mute status automatically when earphone connected. Monitor volume can be adjusted by volume knob on the interpreter (31 levels)

3.2.3 Interpreter microphone on/off

Turn on the microphone by press the button (MICRO), the red indicator is on, interpreter can make a speech. Press the button again, the red indicator is off, interpreter microphone is off. There are two options for output type: Interpreter microphone and external microphone, if external disconnected, main interface will display **MIC** (Interpreter microphone), if external microphone connected, and main interface will display **P. MIC.**

3.2.4 Mute function

This button is used for prevention on interpreter's cough. When interpreter press and hold this button, microphone will be off, and microphone will be on again after release this button.

3.2.5 Slow function

When the delegate is speaking too fast, press this button (microphone of the interpreter unit must be active) to remind him/her to slow down), interpreter LCD will display "Send request successful!"

3.3 Digital Infrared receiver
3.3.1 On/Off the receiver
Turn on the receiver: Put two AA 1.2V NI-MH batteries into the receiver, but please make sure the batteries are full charged and the polar is correct. When headp hone is connected, the receiver switches to stand-by state. Pressing the On/Off button switches the receiver from stand-by to on, LCD will display channel, and an antenna symbol is visible when the receiver picks up an infrared signal of adequate quality

Turn off the receiver: When the headphone is removed, the receiver switches automatically to the off-state (the last channel setting will be cleared)
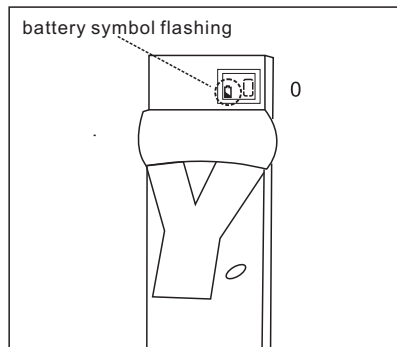
3.3.2 Channel/volume debug
Select channel: An up/down switch to select an audio channel. The channel number is shown on the LCD display (0-15 channels), a volume slider to adjust the volume +/-
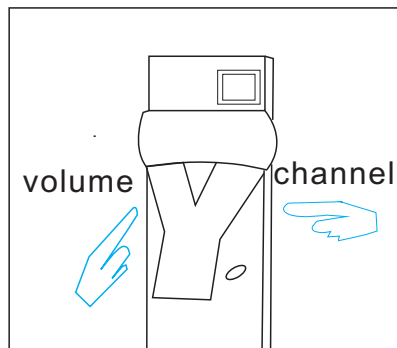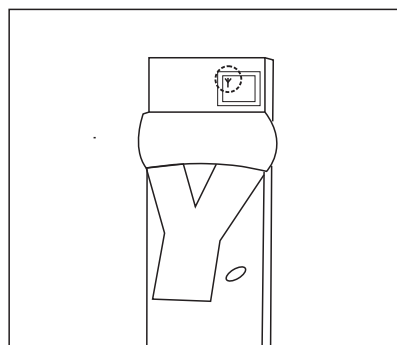

3.3.3 Battery capacity warning
A battery symbol is visible when the batteries are almost empty on the LCD, please change or change the battery.

3.3.4 Automatically off
If there is no infrared signals from radiator, LCD will display Symbol "Y", and receiver will switch off automatically in 60 seconds.
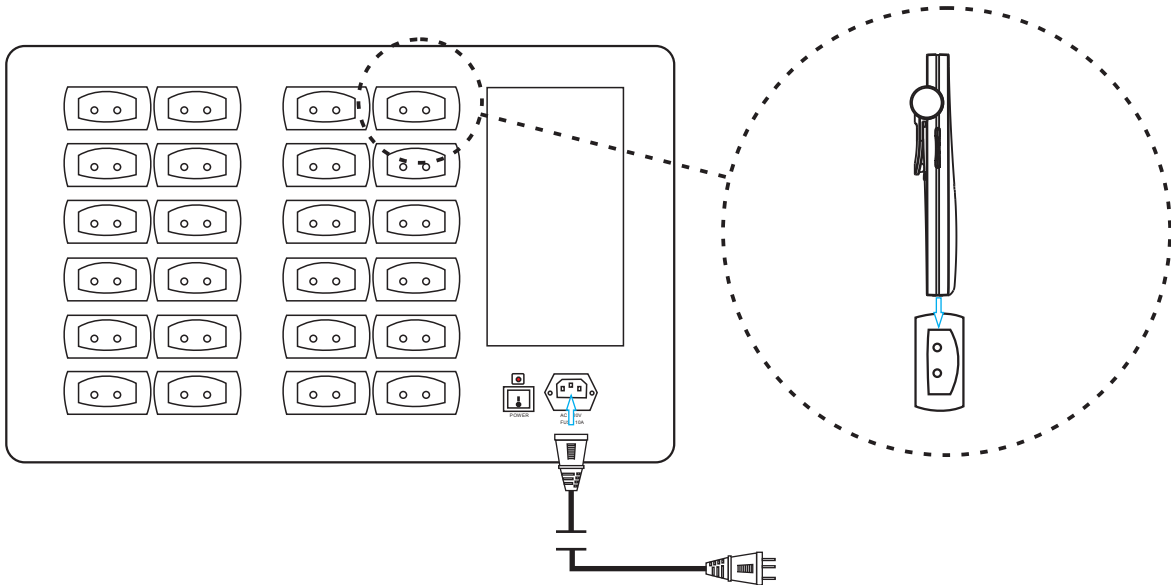
3.4 Charging unit

The charging units can recharge up to 24 receivers at one. The charging unit contains the power supply with automatic voltage selection. The charging electronics and a charging indicator LED are integrated in each receiver. The charging circuitry checks if a battery pack ispresentandcontrolsthecharging process.

Ensure that the charging unit is connected to the power and that it is switched on. Place the receivers firmly in the charging compartments. The charging indicator should illuminate. The indicator show the charging status of each receiver:

Red LED flashing –Charging in progress; Green LED –Full Charged

Notice!

➢ It is preferred to switch on the charging unit before inserting the receivers. Receivers can be inserted or removed without damage while the charging unit is switched on.

➢ Charge the batteries to full capacity before using them for the first time.

➢ The charger always applies fast charge during the first 10 minutes after inserting a receiver. Inserting the receiver multiple times with fully charged batteries should therefore be avoided, as this will damage the batteries.

➢ Continuously charging the racier will not damage the receiver or batteries. Receivers can therefore safely be left in their charging positions when they are not used.

4. Troubleshooting

In this section a simple fault-finding guide is given. This is intended to be used to remedy the consequences of incorrect installation. If more series faults or problem arise the installer should contact a qualified technician

Problem	Actions
Transmitter display does not light up:	♣ Check that the power supply to the transmitter is connected and that the transmitter is switched on.
No IR signals:	♣ Ensure that connections to all radiators have been made correctly and that each radiator's power supply is connected and switched on ♣ Examine the Radiator LEDs.
Infrared receiver fails to function properly:	♣ If disposable batteries are used, check whether the batteries have sufficient capacity and whether they are inserted with the correct polarity. ♣ If batteries are used, ensure that the batteries are fully charged. ♣ Ensure that the headphone is connected properly. ♣ Switch the receiver on and check whether the display indicates a channel. ♣ Ensure that the receiver picks up sufficient IR signal and check whether the antenna symbol becomes visible. ♣ Ensure that the volume control is turned up.
Receiver discharges very quickly:	♣ Replace the batteries pack and check whether the problem is resolved
Interpreter can not select the defined Channel:	♣ Ensure that the transmitter is in "Normal" mode ♣ Check the transmitter input channels are for interpreter or not ♣ Ensure that the interpreter console's ID is correct.

Caution:

Please prevent the equipment dripping by water, do not put the liquid articles such as vase on the equipment.

The power switch of the equipments is monopole; please pullout the plug if the will not be used for a long time. The switch has already been turn on when the power indicator lamp is on, and the switch has already been turn off when the power indicator lamp is off.

This machine has no maintain part, for preventing electric shoc k from being dangerous, do not turn on the machine cover without permission. If need to maintain, please contact sale agent.

The appearance of the products is subject to material object; we remain the right to modify any issue without notice in advance.

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