

OWNER'S MANUAL

INFRARED WIRELESS CONFERENCE SYSTEM



H-8500 SERIES

Version: REV2.0 (2010)

[Table of Contents]

Overview

1.	System Configuration and description-----	3
1.1	System features-----	3
1.2	Infrared conference system main unit -----	3
1.2.1	Picture of the actual object -----	3
1.2.2	Features of infrared conference system main unit -----	3
1.2.3	Schematic diagram of infrared conference system main unit -----	4
1.2.4	Parameter of infrared conference system main unit-----	5
1.3	Infrared conference system microphone unit -----	5
1.3.1	Picture of the actual object -----	5
1.3.2	Features of infrared delegate microphone -----	6
1.3.3	Features of infrared chairman microphone -----	6
1.3.4	Schematic diagram of infrared microphone -----	6
1.3.5	Parameter of infrared microphone unit -----	7
1.4	Distributor -----	8
1.4.1	Picture of the actual object -----	8
1.4.2	Features of distributor -----	8
1.4.3	Schematic diagram of distributor -----	8
1.4.4	Parameter of distributor -----	8
1.5	Infrared receiver unit -----	9
1.5.1	Picture of the actual object-----	9
1.5.2	Features of receiver unit-----	9
1.5.3	Schematic diagram of receiver unit-----	9
1.5.4	Parameter of receiver unit-----	9
1.6	Battery charger -----	10
1.6.1	Picture of the actual object-----	10
1.6.2	Features of battery charger-----	10
1.6.3	Schematic diagram of battery charger-----	10
1.6.4	Parameter of battery charger-----	11
1.7	Infrared conference system external antenna -----	11
1.7.1	Picture of the actual object-----	11
1.7.2	Schematic diagram of external antenna-----	11
1.7.3	Parameter of external antenna-----	12
1.8	Infrared conference system LIP battery -----	12
1.8.1	Picture of the actual object-----	12
1.8.2	Features of LIP battery-----	12
1.8.3	Schematic diagram of LIP battery-----	12
1.8.4	Parameter of LIP battery-----	12
1.9	AC power adapter -----	13
1.9.1	Picture of the actual object-----	13
1.9.2	Schematic diagram of AC power adapter-----	13
1.9.3	Parameter of AC power adapter-----	13
2.	System installation-----	14
2.1	System connection diagram-----	14
2.2	Warning-----	15

2.2.1	CAUTION on handling of the microphone unit-----	15
2.2.2	CAUTION on installation-----	16
2.2.3	CAUTION on battery charger handling-----	16
2.2.4	CAUTION on battery handling-----	16
2.2.5	CAUTION on handling the AC adapter-----	16
2.3	Identify room layout-----	17
2.3.1	Check coverage area-----	17
2.3.2	The relationship between ceiling height and infrared emitting and receiving coverage area-----	17
2.3.3	Check quantity of receiver unit-----	17
2.3.4	System configuration-----	18
2.4	Installation and connection of IR main unit-----	18
2.4.1	IR main unit installation-----	18
2.4.2	IR main unit to IR receiver unit-----	18
2.4.3	IR main unit to sound system-----	19
2.4.4	IR main unit to video processor-----	19
2.4.5	IR main unit to external antenna-----	20
2.5	Installation of IR receiver unit-----	20
2.5.1	IR Receiver operating range-----	20
2.5.2	Installation diagram of IR receiver unit-----	22
2.5.3	Wiring between IR receiver unit and main unit when using distributors-----	22
2.5.4	Caution item-----	24
2.6	Installation of IR microphone unit-----	24
2.6.1	Mounting and dismounting the battery-----	24
2.6.2	Mounting and dismounting the microphone-----	24
2.6.3	Microphone operating range and distance-----	25
2.6.4	Examples of square arrangements-----	25
2.7	System setting-----	26
2.7.1	Main unit setting-----	26
2.7.2	Microphone setting-----	27
2.8	System LCD-----	27
2.8.1	Schematic diagram of main unit LCD-----	27
2.8.2	Schematic diagram of microphone LCD-----	28
3.	Troubleshooting-----	30

Overview

The infrared conference system has all the advantages of infrared communication complete with wireless receiver microphone units. Wireless infrared technology provides the user with greater flexible whilst configuring the system and freedom of choice when placing microphones, it guarantees conference privacy and protects the system from wiretapping and radio interference. It's the best wireless conference solutions for small-scale conferences.

1. System Configuration and description

Infrared conference system main unit, infrared receiver unit, infrared chairman microphone, infrared delegate microphone, distributor, battery charger, etc.

1.1 System features

- a. Infra-red transmission technology guarantees privacy.
- b. Perfect sound quality as CD from the microphone.
- c. IR communication system eliminates the need of connecting the conference units. Installation can be done quick and smart without cumbersome arrangements.
- d. Fully functions (Discuss & Video tracing), support FIFO (1/2/3), Limit (1/2/3) and chairman only mode, microphones in one system up to 128 units.
- e. Microphones can be operated on either their built-in rechargeable lithium-ion batteries or AC power supply. Battery life approx. 8 hours during speech and approx. 30 hours when standby.
- f. Microphone LCD can display system and conference information.
- g. Excellent immunity to RF interference from mobile phones and RF devices.

1.2 Infrared conference system main unit H-8500M

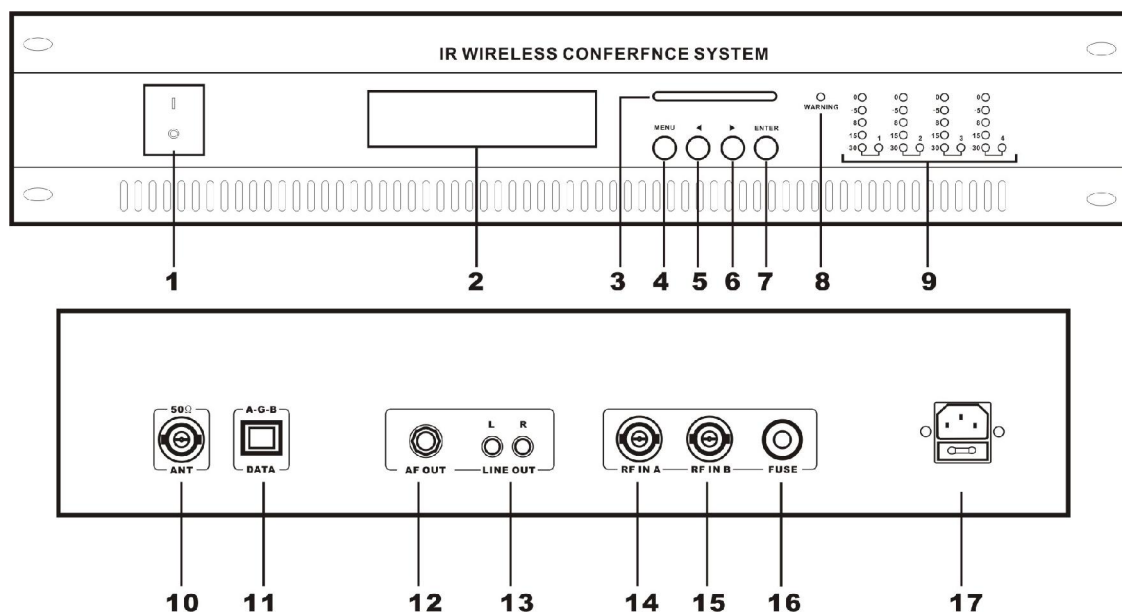
1.2.1 Picture of the actual object



1.2.2 Features of infrared conference system main unit

- a. Support Mode: Limit (1/2/3), FIFO (1/2/3), Chairman Only
- b. Support video camera auto-track with video processor
- c. 160x32 dot matrix LCD display system information
- d. Two group audio output interface to support external audio system
- e. Installation: 19-inch frame
- f. Designed accordance to UL and CE standards
- g. If main unit turn off power, microphone will shut off the power within 60 seconds.

1.2.3 Schematic diagram of Infrared conference system main unit



- 1) Power switch (Press I to turn on the power, power indicator is lighting, press O to turn off the power)
- 2) LCD (Display current mode, online microphone number, activity microphone number and ID)
- 3) Admin card interface
- 4) Menu: system volume/LCD contrast/project setting
- 5) Mode choose/setting key ◀
- 6) Mode choose/setting key ▶
- 7) Enter: To confirm the setting
- 8) Data Communication: Data communication indicator, if main unit data communication properly, the blue LED will flashing rhythmically.
- 9) Audio Level indicator
- 10) Antenna interface
- 11) Data: External video processor connection interface
- 12) Audio out interface
- 13) System line out interface
- 14) AF IN A: Receiver connection interface
- 15) AF IN B: Receiver connection interface
- 16) Fuse (0.5A)
- 17) AC Power input (AC110~220V 50~60Hz)

1.2.4 Parameter of infrared conference system main unit

	Items	Parameter
Audio channel	Transmission method	Wireless infrared
	Audio channel	4
	Carrier frequency band	6MHz-8MHz
	Modulation method	FM
	Receiving sensitivity	-85dBm
	Output level	0dB
	Infrared operating distance	>10M
	Frequency response	100Hz-10KHz
	S/N Ratio	>70dB
	T.H.D.	<0.5%
Data control channel	Transmission method	Wireless
	Data channel	14
	Frequency Range	901MHz-927MHz
	Modulation method	FSK
	Receiving sensitivity	-80dBm
	Transmission consumption	10dBm
	Communication rate	100KBPS
	Signal covering range	Radius 100M
System	Power supply	AC110V-240V/50Hz~60Hz
	Consumption Rating	10W
	Operating temperature range	0-40 degree
	Dimensions	484×377×85mm
	N.W	6.81kg

1.3 Infrared conference system microphone unit H-8500c,d

1.3.1 Picture of the actual object



1.3.2 Features of infrared delegate microphone

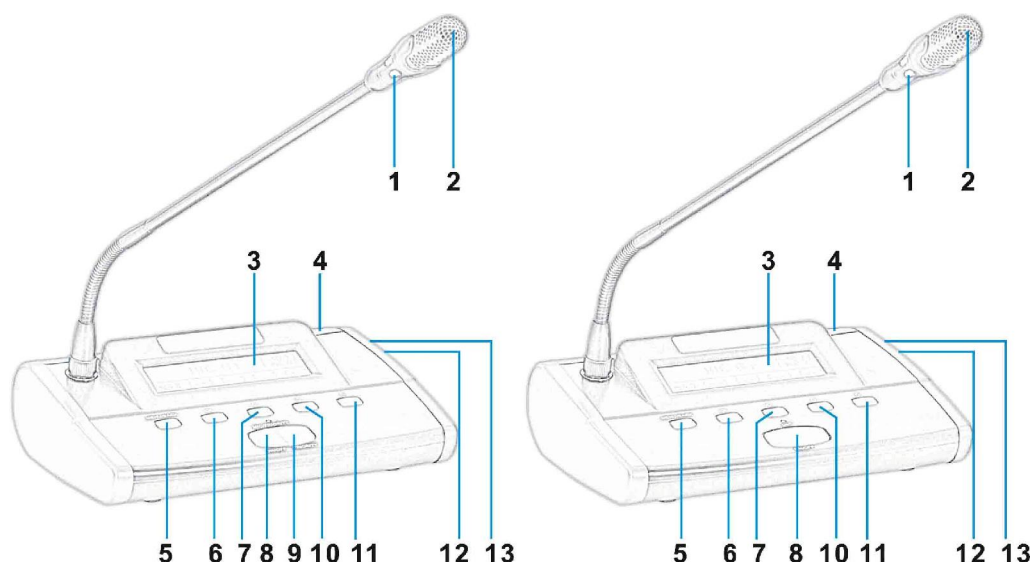
- a. Newly digital design
- b. Portable table moving and microphone pipe can be pull out. Extended pipe optional.
- c. Electric capacity type microphone, equipped with windshield cover
- d. LCD color red/blue (option)
- e. LCD display microphone ID, signal level, battery level, microphone state, control channel, etc.
- f. Equipped with microphone on/off key and indicator.
- g. Equipped with 5 function keys to set microphone id, control channel, LCD contrast and light time.
- h. Auto-Close: Microphone will turn off automatically if there is no action of this microphone in 99 seconds. (option)
- i. Microphone will shut off the power in 60 seconds to save battery power if system communication is error.
- j. LCD will display "IR Signal Weak" if the IR signal is weak when microphone working.

1.3.3 Features of infrared chairman microphone

Including the functions of the delegate unit, chairman unit has other following functions:

- a. Chairman microphone can turn on any time.
- b. In one system microphones just support one chairman microphone and the ID number should be 1.
- c. Priority function: chairman can turn off delegate microphones any time.
- d. Chairman only mode: Delegate microphone can not be turned on again after chairman microphone press priority button. The chairman need quit this mode first, and then delegate microphone can be turned on again.

1.3.4 Schematic diagram of infrared microphone



- 1) Annular red indicator lamp to show the microphone state.
- 2) Unidirectional electret MIC
- 3) LCD
- 4) IR sensor
- 5) Menu/Back key: Press this key to enter menu setting or back after setting
- 6) Left key
- 7) Right key
- 8) MIC ON/OFF key
- 9) Chairman Priority
- 10) Up key
- 11) Down key
- 12) Microphone power switch
- 13) DC power input

1.3.5 Parameter of infrared conference system microphone unit

	Items	Parameter
Audio channel	Transmission method	Wireless infrared
	Audio channel	4
	Carrier frequency band	6MHz-8MHz
	Modulation method	FM
	Infrared radiator consumption	+10dBm
	Mic sensitivity	-44dB±2dB
	Frequency response	100Hz-10KHz
	S/N Ratio	> 70dB
	T.H.D.	<0.5%
	Reference sound receiving	10-30cm
Data control channel	Transmission method	Wireless
	Data channel	14
	Frequency Range	901MHz-927MHz
	Modulation method	FSK
	Receiving sensitivity	-85dBm
	Transmission consumption	10dBm
	Communication rate	100KBPS
Microphone	Battery	LIP battery12V/4000MAH
	Consumption Rating	8W
	Operating temperature range	0-40 degree
	Length of gooseneck	400mm (optional)
	Dimensions	220×155×69mm
	N.W	815g (with battery)

1.4 Distributor H-8500T

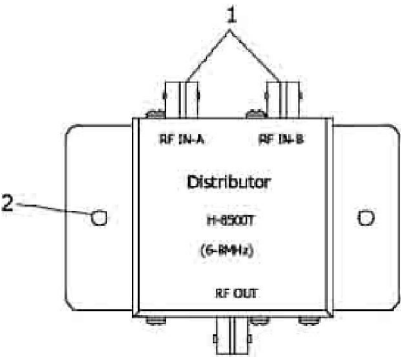
1.4.1 Picture of the actual object



1.4.2 Features of distributor

- a. Adopt impedance balancing branch connector (2 input, 1output)
- b. Low insertion loss computation
- c. Perfect plating surface treatment with excellent shielded function

1.4.3 Schematic diagram of distributor



- 1) BNC terminal: Connector for the BNC coaxial cable connection
- 2) Mounting and fixing holes: Holes for mounting distributor body

1.4.4 Parameter of distributor

Items	Parameter
Carrier frequency band	6MHz-8MHz
Insertion loss computation	<1dBm
Input/Output Impedance	50Ω
Input terminal	2
Output terminal	1
Terminal type	BNC
Dimensions	80×65×20mm
N.W	90g

1.5 Infrared receiver unit H-8500R

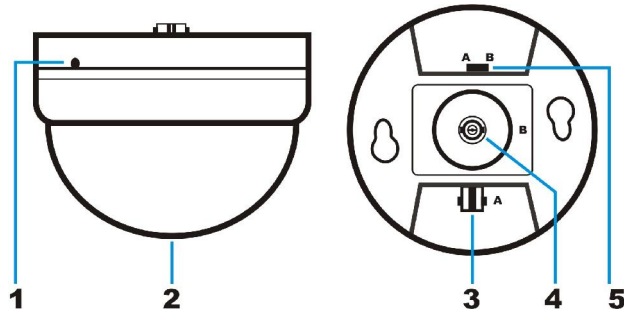
1.5.1 Picture of the actual object



1.5.2 Features of receiver unit

- a. Adopt mounting hook installation, easy to install.
- b. Wide-angle, receiving range is approximately 150 degrees.
- c. Signal gain more than 35dBm
- d. Adopt low consumption electro circuit
- e. Wall/ceiling installation option.

1.5.3 Schematic diagram of receiver unit



- 1) Power LED: This Led will light when the main unit turns on after wiring.
- 2) IR lens
- 3) BNC connector A (for wall installation)
- 4) BNC connector B (for ceiling installation)
- 5) BNC connector switch A/B (Please select correct position according to the installation)

1.5.4 Parameter of infrared conference system receiver unit

Items	Parameter
Carrier frequency band	6MHz-8MHz
Power supply	DC12V from Main unit
Rated current	25mA
Receiving sensitivity	-85dBm
Gain	40dBm
Output Impedance	50Ω
Terminal type	BNC
Dimensions	φ98×74mm
N.W	440g (with bracket)

1.6 Battery charger H-8500CG

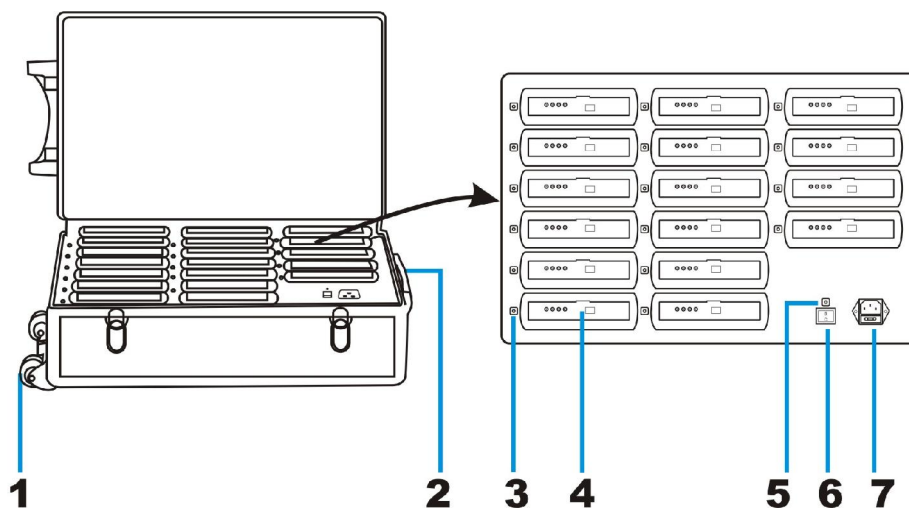
1.6.1 Picture of the actual object



1.6.2 Features of battery charger

- a. Input Voltage: AC 110V~220V
- b. Charges 16 PCS of LIP battery per charging
- c. Intelligent charging management electro circuit to protect the LIP battery
- d. Equipped with extendible handle and pulley, easy for moving.

1.6.3 Schematic diagram of battery charger



- 1) Pulley
- 2) Extendible handle
- 3) Charging status indicator LED
- 4) Battery holder
- 5) Power indicator
- 6) Power on/off switch
- 7) AC adapter jack (AC110V-220V~ 50Hz-60Hz)

10.3. Parameter of battery charger

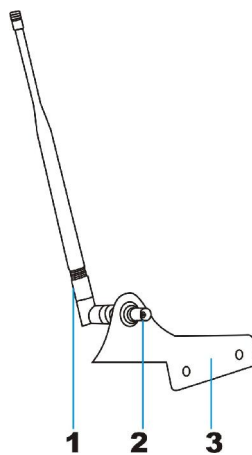
Items	Parameter
Power supply	110V-240V/50Hz~60Hz
Consumption Rating	200W
Charge quantity	16
MAX charging current of each	700mA
Charging time	About 8~10 hours
Charging status	Red LED flashing –Charging, Green LED –Full
Operating temperature range	0-40 degree
Dimensions	620×370×260mm
N.W	10.74kg

1.7 Infrared conference system external antenna H-8500AT

1.7.1 Picture of the actual object



1.7.2 Schematic diagram of external antenna



- 1) Antenna
- 2) Signal BNC connector
- 3) Mounting bracket

1.7.3 Parameter of external antenna

Items	Parameter
Carrier frequency band	915MHz-925MHz
Impedance	50Ω
MAX cable length	20m
Terminal type	BNC
Dimensions	345×80mm(with bracket)
N.W	100g (with bracket)

1.8 Infrared conference system LIP battery H-8500B

1.8.1 Picture of the actual object

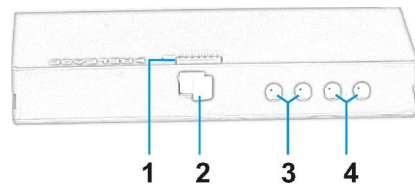


1.8.2 Features of LIP battery

- Excellent safety performance, light weight & High capacity ratio.
- Improved safety: more resistant to overcharge; less change for electrolyte leakage.
- High Capability: Have nearly double the capacity with half the weight of NiCad or NiMH battery packs
- Easy to install

1.8.3 Schematic diagram of LIP battery

- 1) Battery removal button (RELEASE)
- 2) Battery detach button
- 3) Negative
- 4) Positive



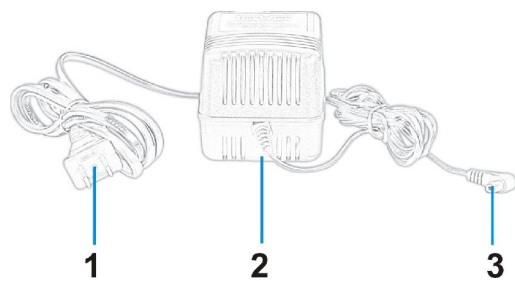
1.8.4 Parameter of LIP battery

Items	Parameter
Rated voltage	DC12V
Discharge current	<500mA
Charging current	<700mA
Time of speaking	>8 hours
Time of standby	>25 hours
Charging voltage	DC15V
Dimensions	130×75×20mm
N.W	250g

1.9 AC power adapter H-8500A
1.9.1 Picture of the actual object



1.9.2 Schematic diagram of AC power adapter



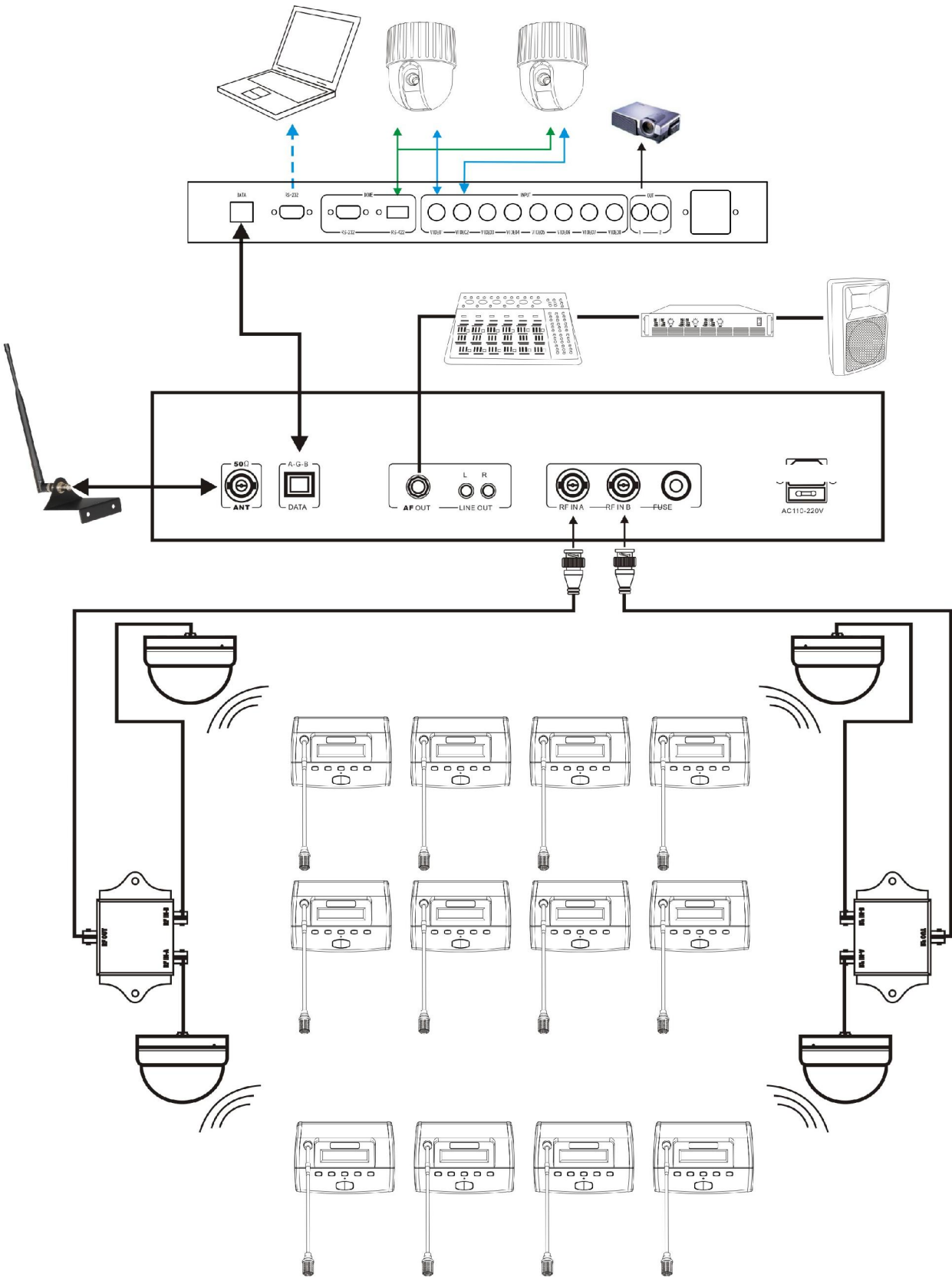
- 1) AC Power plug
- 2) Transformer
- 3) DC plug

1.9.3 Parameter of AC power adapter

Items	Parameter
Input voltage	AC110V/220V 50Hz~60Hz
Output voltage	DC 18V 600mA
Dimensions	98×70×55mm (only transformer)
N.W	750g

2. System installation

2.1 System connection diagram



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
(Main unit, Battery charger)
- Uncoil the power cables before use, Do not bundle the cables during use, or tie with nails. (Main unit, 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.
(Main unit, Battery charger)
- Do not place anything on the power cables. Do not route them under a rug or furniture.
(Main unit, 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
(Main unit, 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
(Main unit, Battery charger)
- Main unit is a class I device. Be certain to connect to an AC outlet with a protective grounding connection
- Main unit can be separated from the AC receptacle by turning off the unit by the front 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 microphone unit

- Do not grasp the microphone to lift or pull on the microphone unit: pick up the unit by its base
- Slowly bend and straighten the flexible part of the microphone. Do not bend it with excessive force
- Do not drop the unit
- If you do not use the unit for long periods of time, remove the battery
- The dedicated lithium-ion battery should be used
- Do not cover the infrared section
- When the microphone units are too close together, high sound volume may cause acoustic feedback, In this case, increase the space between the conference units or

turn down the volume

- After the battery has been removed and replaced, confirm that the power LED turns off

2.2.2. CAUTION on installation

- After mounting the IR receiver units, be certain that they are securely fastened
- Do not install the IR receiver units or the microphone units 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 receiver unit away from infrared-emitting objects
- Do not place any obstructions around the microphone units

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 batteries

2.2.4 CAUTION on battery handling (optional)

- The battery is dedicated to the microphone unit. Do not use it for other applications
- Use only the designated battery charger
- If the battery leaks and the liquid contacts your skin or clothing, immediately flush with clean water
- If the battery leaks and the liquid contacts your eyes, immediately wash thoroughly with clean water and seek medical assistance
- Do not throw the battery into fire or overheat it, Doing so may result in a fire
- Do not disassemble or modify the battery
- Do not short-circuit the + and – terminals with any metal or wire. Do not carry or store the battery with metal products such as a necklace.
- If you discover battery leaks, discoloration, distortion, or the other problems, do not use the battery
- Dispose of used batteries properly as industrial waste or contact our business office in your neighborhood

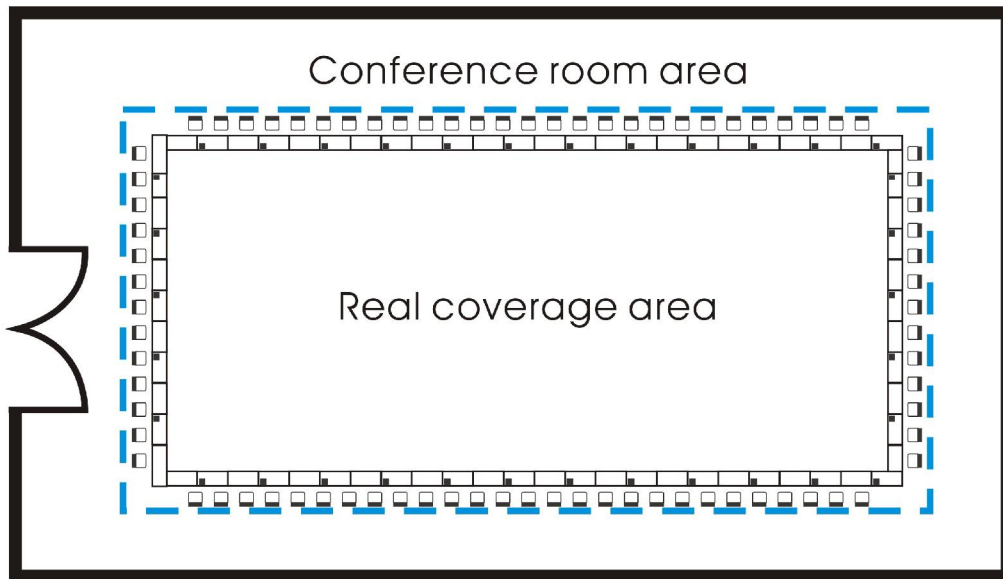
2.2.5 CAUTION on handling the AC adapter (option)

- If the unit exhibits any problems, such as abnormal sounds and smoke, pull the power plug from the outlet and contact your sales representative
- Do not pull on the cable. Hold the plug and insert/remove it in a straight line. Damaged cables may result in electric shock, malfunction, or fire
- Do not cover the units with cloth. Doing so traps heat and may result in electric shock or fire
- Do not handle the adapter with wet hands
- If you do you use the units for long periods of time, disconnect the power plugs from the outlet

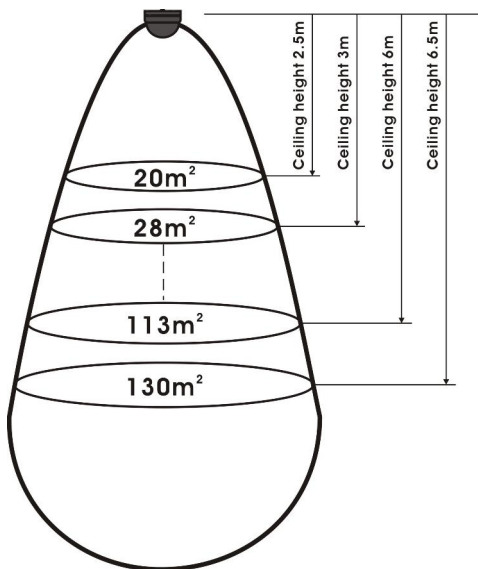
2.3 Identify room layout

2.3.1 Check coverage area

Real coverage area of conference room (usually coverage area of conference room is smaller than the conference room area)



2.3.2 The relationship between ceiling height and infrared emitting and receiving coverage area.



Ceiling height	Coverage area/receiver unit
2.5 m	20 m ²
3 m	28 m ²
3.5 m	38 m ²
4 m	50 m ²
4.5 m	63 m ²
5 m	78 m ²
5.5 m	95 m ²
6 m	113 m ²
6.5 m	130 m ²

Note: The height mentioned about is the distance from ceiling to desk.

2.3.3 Check quantity of receiver unit

Please check the ceiling height and coverage area of one receiver unit with above information (2.3.2), to make sure real coverage area can receive the signal well.

Calculate formula: (A: Receiver quantity, B: Real coverage area, C: Coverage area of one receiver unit)

$$A \geq B/C$$

Note: IR receiver unit quantity may increase according to the actual installation place

2.3.4 System configuration.

Description	Model No.	Max Qty	Marks
IR Main Unit	H-8500M	1	
Chairman Microphone	H-8500c	1	
Delegate Microphone	H-8500d	≤127	
IR Receiver	H-8500R	≤24	
Distributor	H-8500T		
External Antenna	H-8500AT	1	
Battery Charger	H-8500CG		
LIP Battery	H-8500B		
AC adaptor	H-8500A		
Admin Card			

2.4 Installation and connection of IR main unit

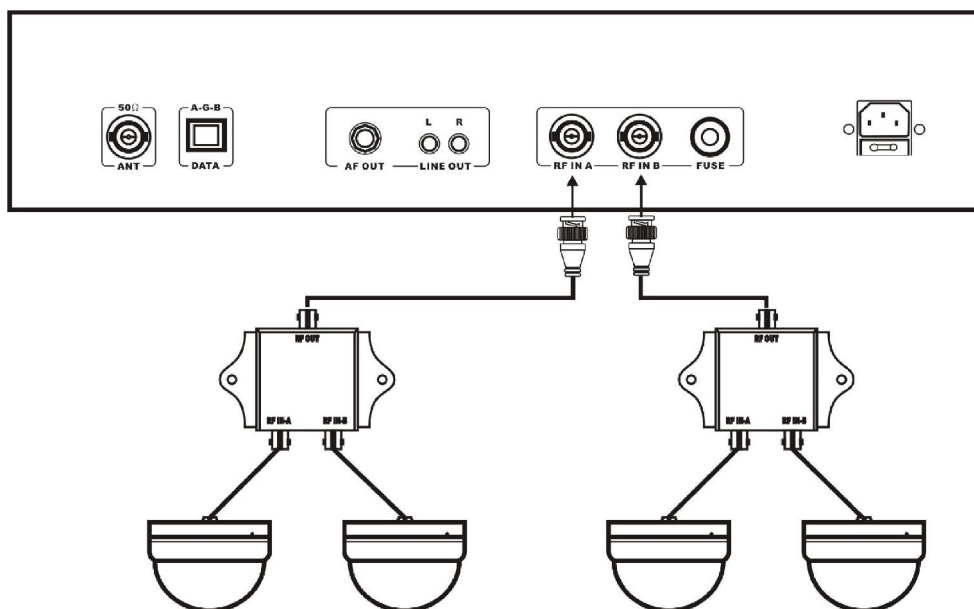
2.4.1 IR main unit installation

- Put on the table or install in 19 inch frame
- Please keep away from high-power and strong radiation equipments, or it may influence the equipment performance.
- Use it in a well-ventilated area

2.4.2 IR main unit to IR receiver unit

Connect one side of coaxial cable to the BNC terminal (RF A/B) of IR main unit; the other side connects to the BNC terminal of IR receiver unit. If system install more than 2pcs IR receiver unit, the other side should connect to BNC terminal (RF OUT) of the distributor first, then connect the IR receiver unit to the BNC terminal (RF IN A/B).

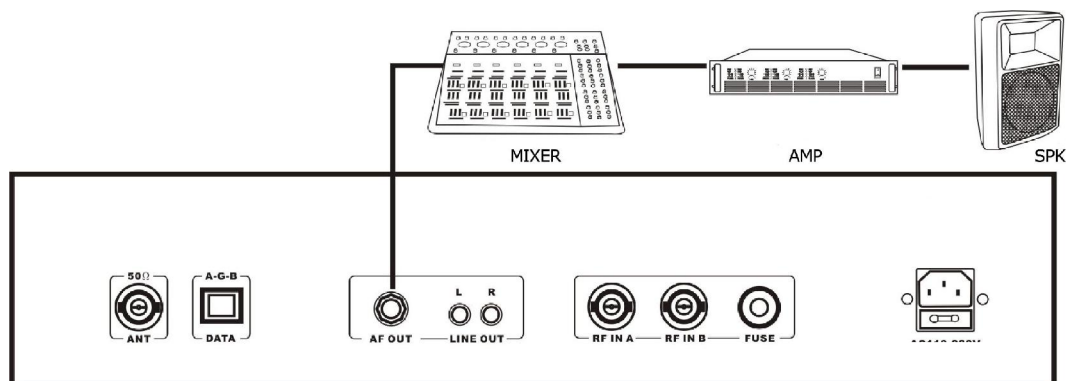
Please note: coaxial cable should be 50Ω.



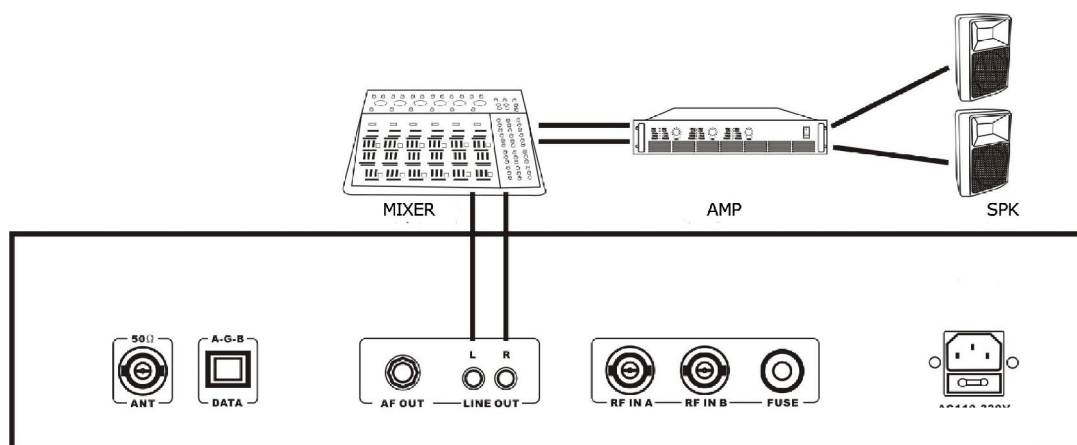
Please read 2.5 to get detailed information of IR receiver unit installation method.

2.4.3 IR main unit to sound system

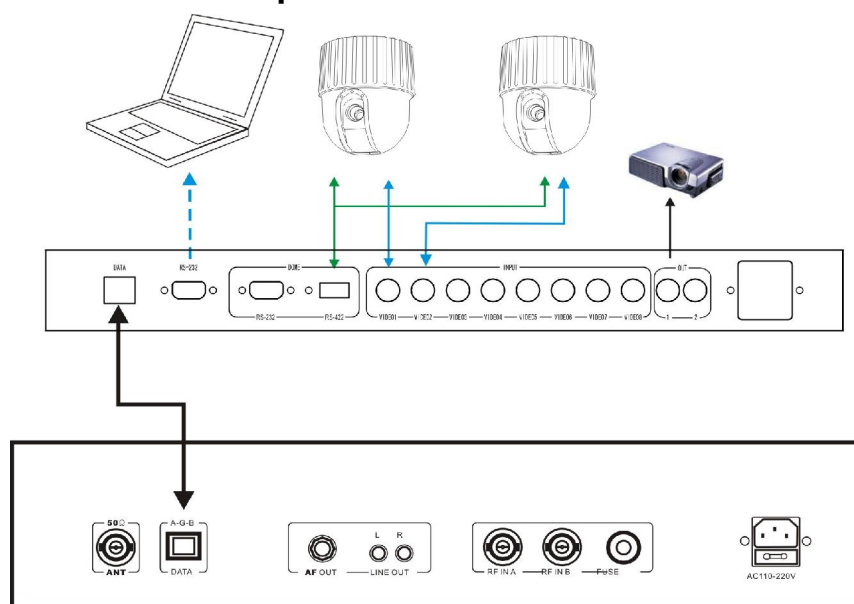
- a. Mono output: Please connect AF OUT interface of IR main unit to input interface of sound equipment by $\Phi 6.3$ audio cable



- b. Dual track: Please connect LINE OUT-L/R interface of IR main unit to input interface of sound equipment by RCA audio cable



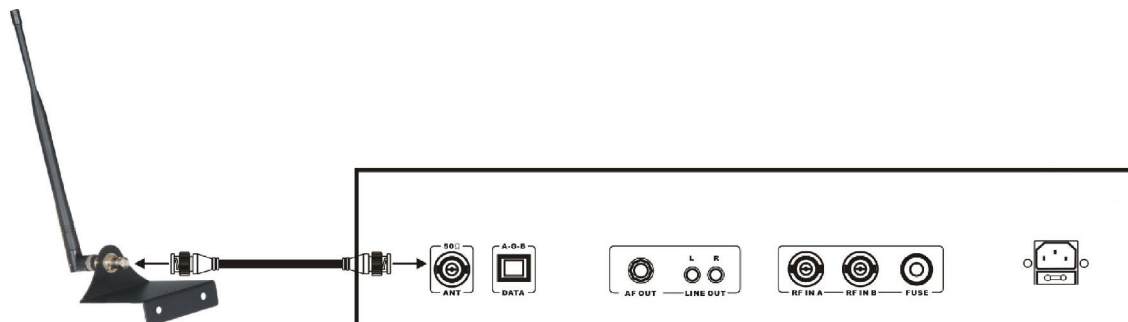
2.4.4 IR main unit to video processor



Please connect DATA (A-G-B) interface of IR main unit to DATA interface of video processor by RJ45 network cable. Please read the user manual of video processor.

2.4.5 IR main unit to external antenna

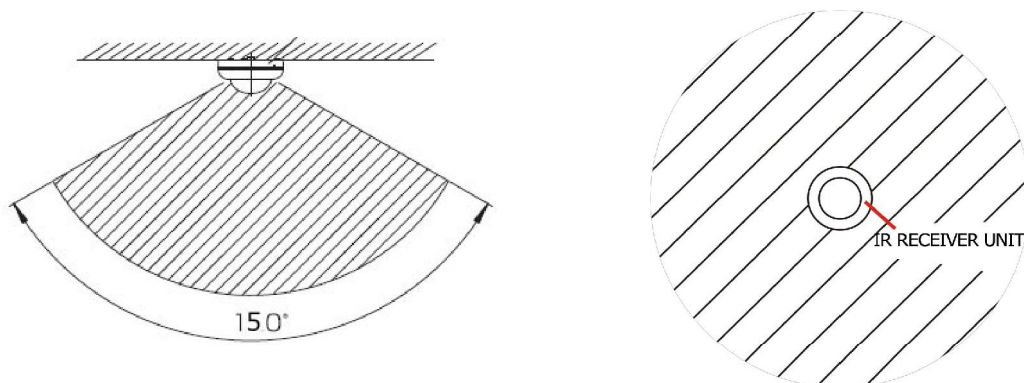
If the distance between IR main unit and microphone is not far, and there does not have any obstruct, antenna can be connect to the "ANT" interface of IR main unit rear panel directly. If the distance is far or have some obstruct between them, please connect external antenna to IR main unit.



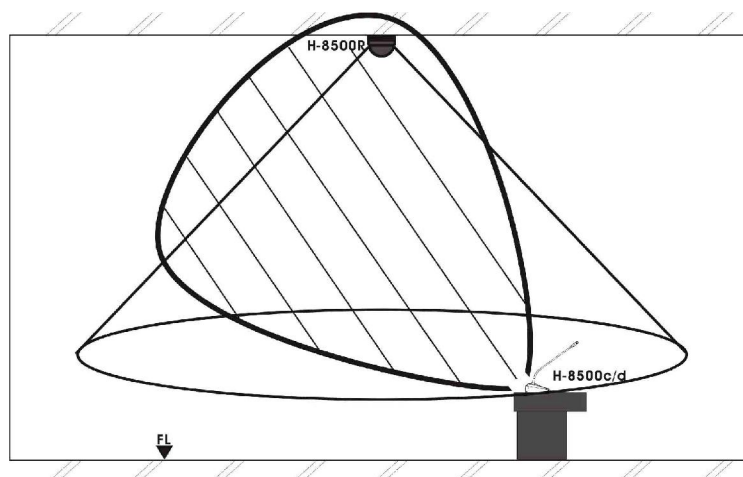
2.5 Installation of IR receiver unit

2.5.1 IR receiver operating range

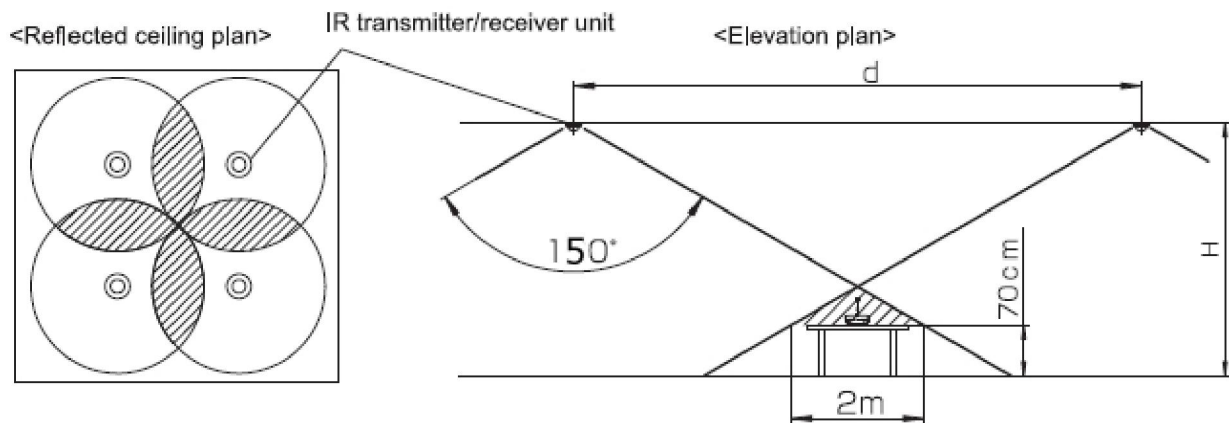
- Infrared operating distance is approximately 10 m and the receiving range is approximately 150 degrees.



- Infrared operating range of the IR receiver unit and the microphone unit



c. When install IR receiver units on ceiling

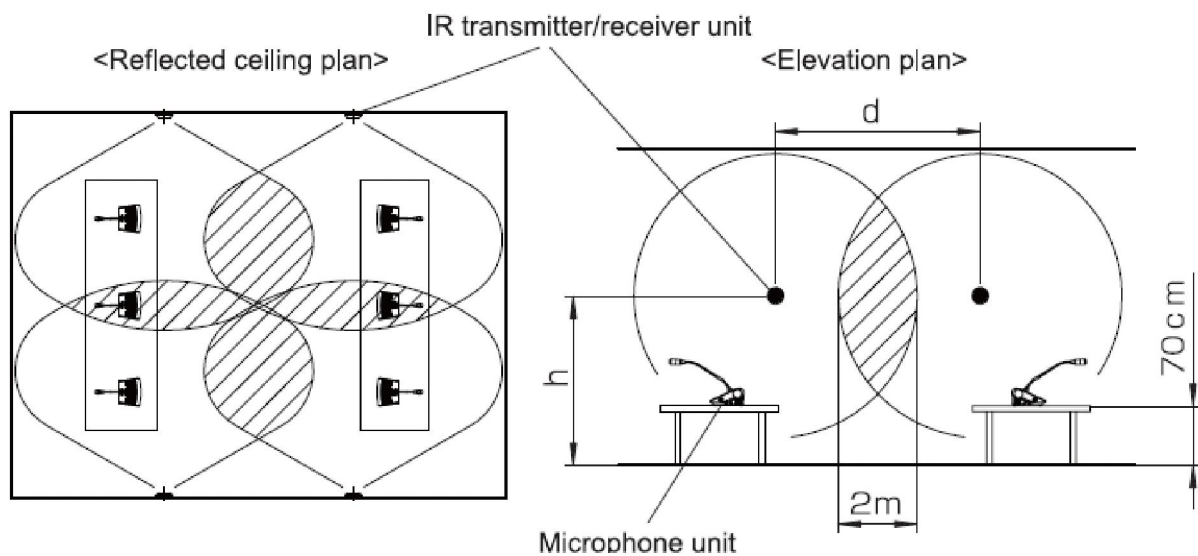


H= the height of the ceiling (M)

D= the distance between IR receiver units (M)

Be sure to overlap the infrared operating areas by approximately 2M.

d. When install IR receiver units on walls



H=the height of the IR receiver unit from the floor (M)

D= the distance between IR receiver unit (M)

Infrared operating distance is approximately 10 m and the receiving range is approximately 150 degrees.

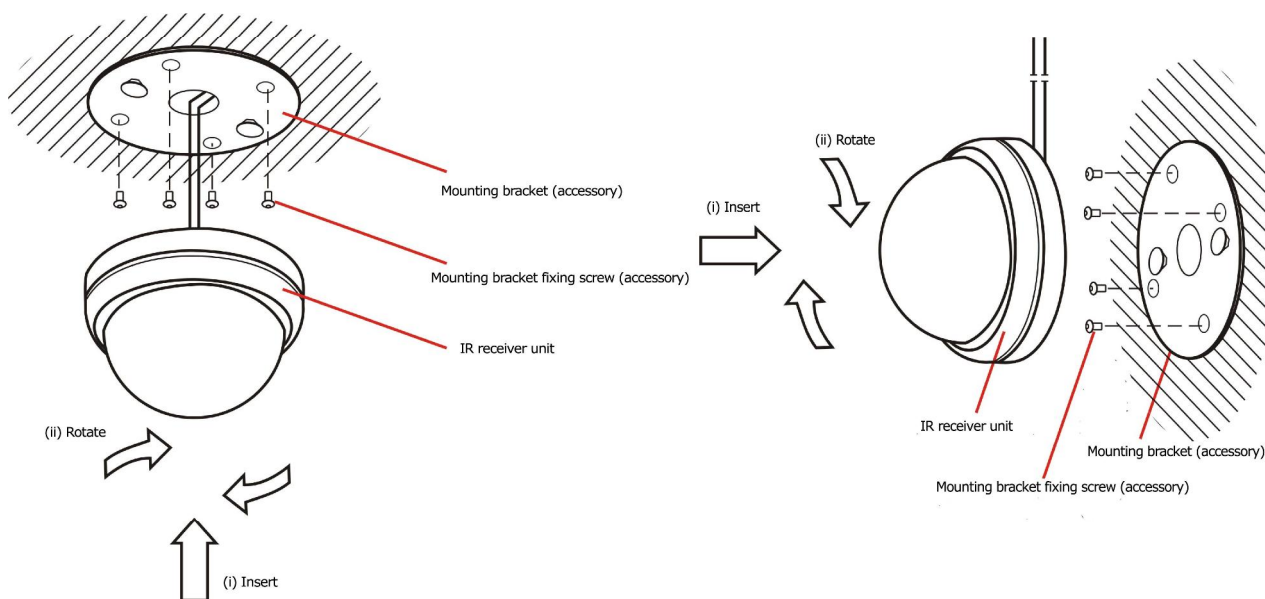
Be sure to overlap the infrared operating areas by approximately 2M.

Be careful not to place the units behind users or objects

When IR receiver units are installed on the side walls, take care not to install the microphone units near the side walls

2.5.2 Installation diagram of IR receiver unit

- Install IR receiver units on ceiling; please connect the BNC connector to B interface and switcher should be on position B.
- Install IR receiver units on walls or tables; please connect the BNC connector to A interface and switcher should be on position A.

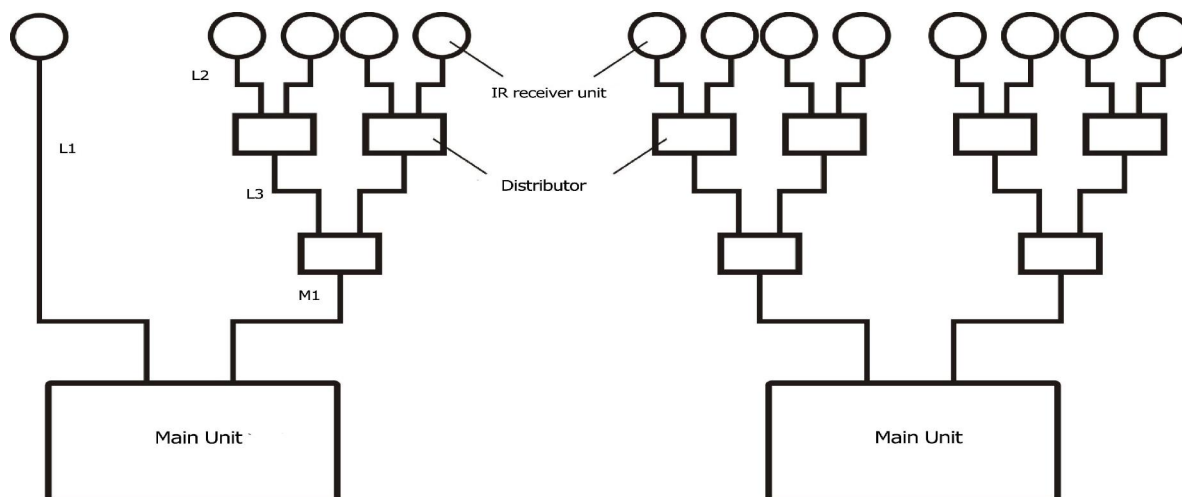


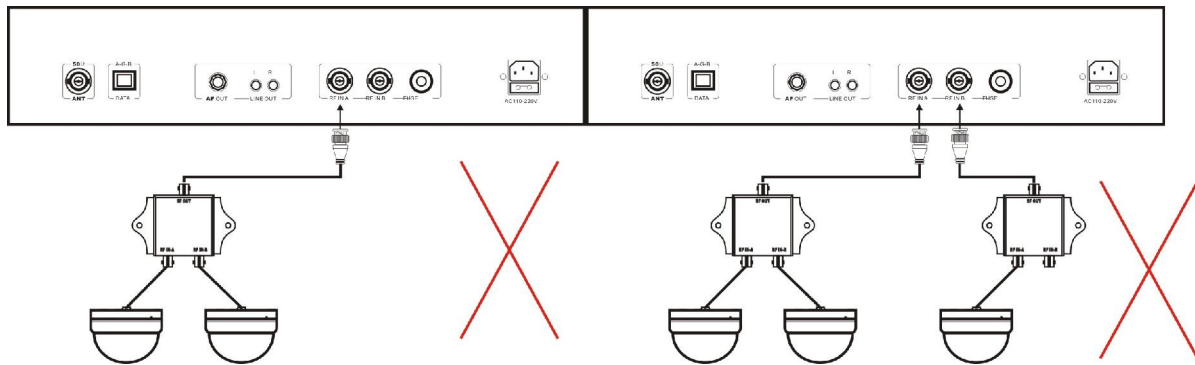
- Checking the mounting hook position, mount the IR receiver unit on the mounting bracket.
- Then, rotate the IR receiver unit clockwise to fasten it securely.

* Be sure that the IR receiver unit is securely fastened.

2.5.3 Wiring between IR receiver unit and main unit when using distributors

If the input signals of each IR receiver unit are not in the same phase, the receiving level may decrease. To match the signal phase, the length of the corresponding cables and should be the same; main unit and distributor RF terminals can not be vacant.





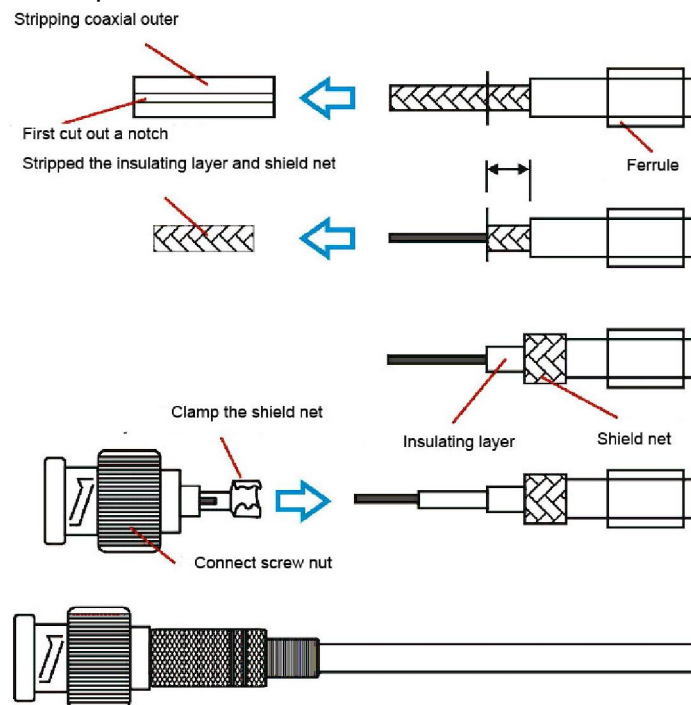
Cable length to the IR receiver unit $L1=L2+L3+M1$

Difference in length among $L1$, $L2+L3+M1$ should be within ± 3 meters

Distance from IR receiver unit to IR main unit should be less than 100 meters or more than 2 meters $L1=L2+L3+L4 \leq 100M$ $L1=L2+L3+L4 \geq 2M$

* BNC connector installation method

Because the interconnection coaxial cable (50Ω) of IR receiver unit is used for transmit IR signal and IR receiver power (DC12V), please make sure the circuit not shorted between IR signal and power when install the IR receiver, or it will burned out the fuse (0.5A) of IR receiver unit on the rear panel of IR main unit.



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

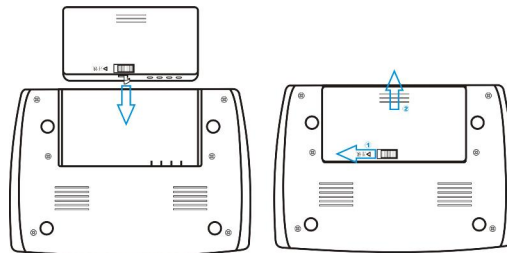
e. Fasten it with plier

2.5.4 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 unit and the microphone unit; in this case, move receiver unit away from infrared-emitting objects.
- c. Do not place any obstructions around the microphone units.
- d. Block direct sunlight from the unit using curtains or blinds.
- e. When installing the IR receiver units on the ceiling, install the units at least 2 to 3 meters away from the windows or the wall.
- f. Install the IR receiver units more than 50cm from fluorescent lamps.
- g. In addition, if the IR receiver units are installed near the infrared-emitting sources list below, the system may malfunction or noise may be generated. When installing the IR receiver units, and the microphone units, 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)
 - Up to 12 IR receiver units can be installed of each channel (total 2 channels)

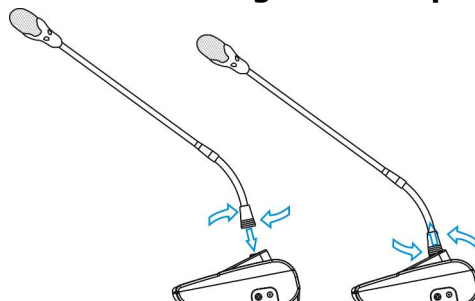
2.6 Installation of IR microphone unit

2.6.1 Mounting and dismounting the battery



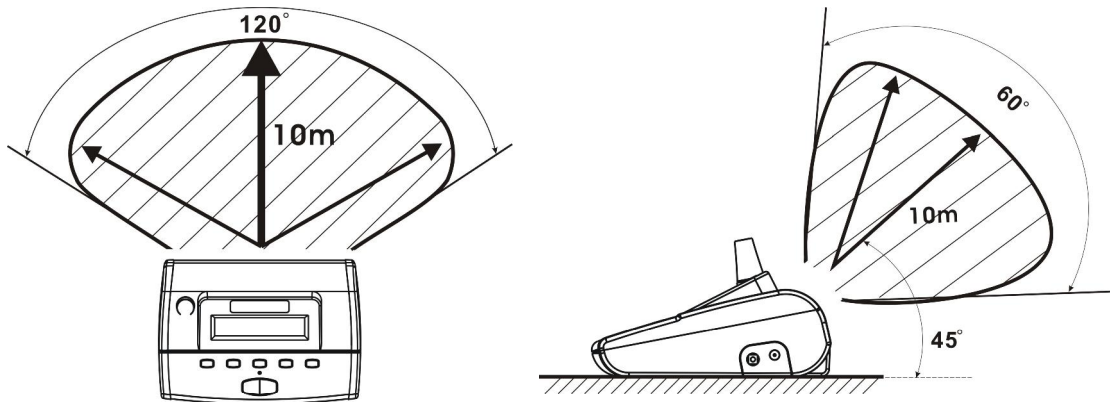
- a. Mounting battery: Put the battery on the bottom side of the microphone unit; slide the battery in the direction of the arrow to fasten it.
*Listen for the click sound and make sure the battery is securely inserted.
- b. Dismount battery: Slide the battery in the direction of the arrow and pull it out by pushing the battery removal button.

2.6.2 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

2.6.3 Microphone operating range and distance



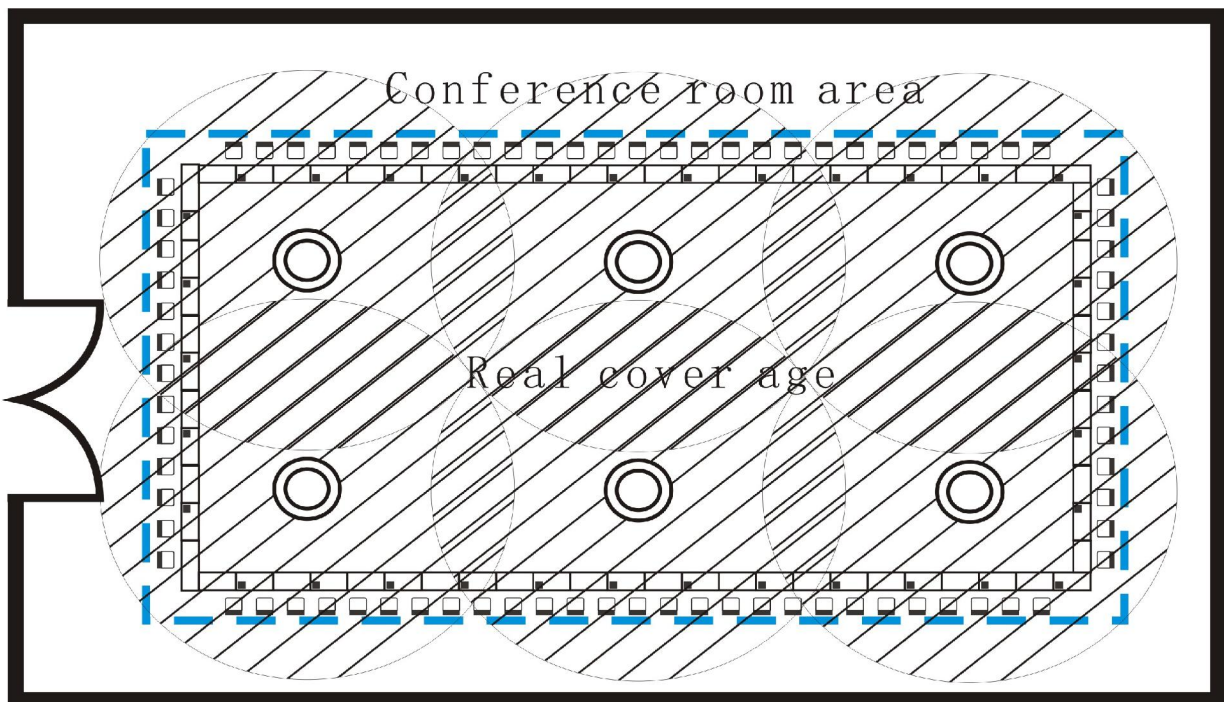
2.6.4 Examples of square arrangements

Example:

Conference room area: 286 m²

Real coverage area: $18 \times 10 = 180$ m²

Height of the ceiling: 3m

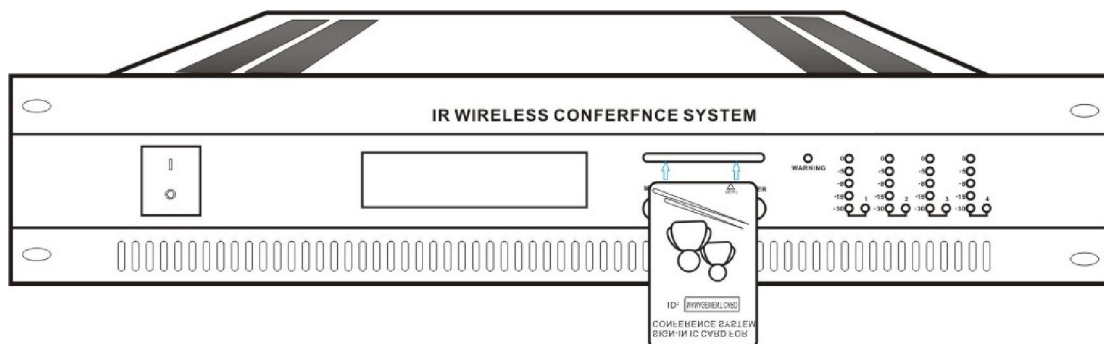


* Please contact us if you need more detailed information during your installation.

2.7 System setting

2.7.1 Main unit setting

Please insert Admin card to the main unit before setting, or user can not change the setting of main unit.



There are four function keys on main unit:

MENU, ◀ (LEFT), ▶ (RIGHT), ENTER

a. System mode setting:

System support six modes setting by main unit (FIFO 1, FIFO 2, FIFO 3, LIMIT 1, LIMIT 2, LIMIT 3), user can set these mode by **LEFT & RIGHT**. System will save and keep the last setting mode automatically.

- * Chairman only: When chairman microphone priority button is put on, the chairman microphone is turn on while the delegate microphone being turn off until the priority button is released.

b. System parameter setting

Press **MENU** to enter "SYSTEM VOLUME" (30 Levels) setting interface, and press **MENU** again to enter "LCD CONTRAST" (43-63 Levels) setting interface. User can set the levels by **LEFT & RIGHT**. System will save and keep the last setting automatically. Press **MENU** again to enter project setting.

c. Project setting:

- 1) SYSTEM MIC: [1~128], we strongly commend set the system number same as real number. (Microphone responding time will influenced by system number setting). User can set the system microphone number by **LEFT & RIGHT**
- 2) DCH (Data Channel): [1~14], default setting is CHANNEL 1. Microphone data channel must same as main unit data channel. Please set different data channels of each system if two or more system installed at the same place or building, in order to avoid influence. User can set DCH by **LEFT & RIGHT**
- 4) DTX (Data Transmit Consumption): [MAX/MID/MIN], default setting is MAX. Please set the DTX according to the room size. Microphone DTX must same as main unit DTX. User can set DTX by **LEFT & RIGHT**

* Above project setting will save automatically after **ENTER** to confirm, user can check the system version after press "**MENU**" key six times.

2.7.2. Microphone setting

There are five function keys on microphone unit:

MENU/BACK,  (**LEFT**),  (**RIGHT**),  (**UP**),  (**DOWN**).

Press **MENU/BACK** to enter setting, and then select the setting items by **LEFT** & **RIGHT**

a. LCD CONTRAST: 43-63 Levels, default setting is 55.

b. LIGHT TIME: 1-5 Seconds, default setting is 3 seconds

c. Microphone ID setting:

1) Turn off the microphone first before setting ID.

2) ID number should be set from [001] to [128]

[Example] If you have 50 units, their ID numbers should be set from [001] to [050], if any units have the same ID number, the system will not work properly.

3) ID number of chairman microphone should be [001], one system only allowed one piece chairman microphone

4) Setting method:

Press **MENU/BACK**, and turn on the microphone with POWER key at the same time, microphone LCD will display ID setting interface. User can set the microphone ID number by **UP** & **DOWN**, please press **MENU/BACK** after setting the ID number, microphone will save the setting and restart again.



d. Microphone DCH (Data Channel) setting:

1) Turn off the microphone first before setting DCH

2) DCH should be same as main unit DCH.

3) Microphone default setting is CHANNEL 1

4) Setting method:

Press **MENU/BACK**, and turn on the microphone with POWER key at the same time, microphone LCD will display ID setting interface, press **RIGHT** key to enter DATA CHANNEL setting interface. User can set the microphone data channel by **UP** & **DOWN** key, please press **MENU/BACK** after setting the data channel, microphone will save the setting and restart again.



e. DTX (Data Transmit Consumption): [MAX/MID/MIN]

- 1) Turn off the microphone first before setting DTX
- 2) DTX should be same as main unit DTX.
- 3) Microphone default setting is MAX
- 4) Setting method:

Press **MENU/BACK**, and turn on the microphone with POWER key at the same time, microphone LCD will display ID setting interface, press **RIGHT** key two times to enter DTX POWER setting interface. User can set the microphone DTX by **UP** & **DOWN** key , please press **MENU/BACK** after setting the DTX, microphone will save the setting and restart again.



f. Microphone Auto Close setting

- 1) Turn off the microphone first before setting
- 2) Setting method:

Press **MENU/BACK**, and turn on the microphone with POWER key at the same time, microphone LCD will display ID setting interface, press **RIGHT** key three times to enter auto close setting interface. User can set microphone auto close function by **UP** & **DOWN** key , please press **MENU/BACK** after setting, microphone will save the setting and restart again.

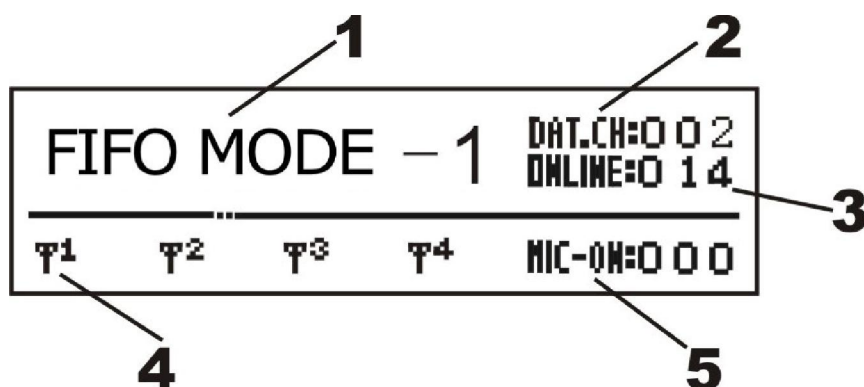
g. Microphone Version

- 1) Turn off the microphone first before checking
- 2) Setting method:

Press **MENU/BACK**, and turn on the microphone with POWER key at the same time, Microphone LCD will display ID setting interface, press **RIGHT** key four times, user can check the microphone version.

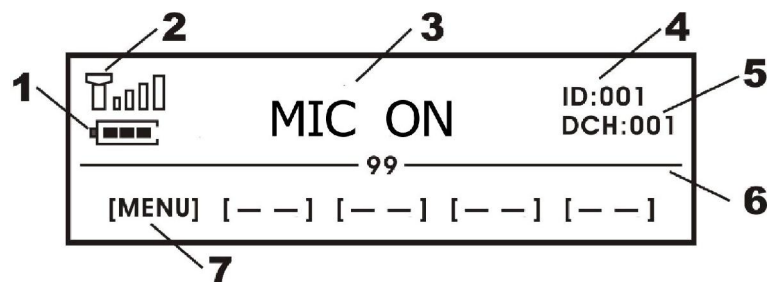
2.8 System LCD

2.8.1 Schematic diagram of main unit LCD



- 1) Display current system working mode
- 2) Display current system data channel
- 3) System microphone online number, if the number change constantly, it means the signal of receiving is not good.
- 4) IR audio signal for channel 1~4
 -  = Signal disconnect
 -  = Signal very weak
 -  = Signal weak
 -  = Signal good
 -  = Signal strong
- 5) Current active microphone number

2.8.2 Schematic diagram of microphone LCD



- 1) Battery capacity

 = Battery capacity full.

 = Battery capacity about 60%

 = Battery capacity about 30%

 = Battery capacity less than 10%

 = Battery charged by DC power and microphone was powered by external DC power

 = Battery full, microphone was powered by external DC power.

- 2) Signal level.

 = Signal disconnect

 = Signal very weak

 = Signal weak

 = Signal good

 = Signal strong

- 3) Microphone ON/OFF state

- 4) Current microphone ID number

- 5) Current microphone data channel (data channel must same as main unit channel)

- 6) Microphone will auto-close in 99 seconds if there is no pick-up sound after turn on (option)

- 7) Menu of microphone setting (set LCD contrast, light time etc)

Part 3 Troubleshooting

Situation	Check	Solutions
The microphone unit will not turn on.	★ Is power plug inserted into the outlet?	★ The batteries must be charged before initial use ★ Charge before use
The main unit is not turn on.	★ Is power plug inserted into the outlet? ★ Fuse burned out	★ Insert power plug into the outlet ★ Change fuse
Microphone LCD display“ SIGNAL WEAK”; the button on the microphone unit do not work.	★ Is the correct ID number set ★ Is the unit exposed to sunlight or spot lights ★ Is there any obstruction between the microphone unit and the IR receiver unit? ★ Is the power LED illuminated on receiver unit?	★ Set the ID number from [001] to [128] ★ Install it and avoid exposure to sunlight or spotlights. ★ Install them so that they can see each other directly. ★ Refer to the installation diagram. Use them within the operating range. ★ Connect the cable between the main unit and the IR receiver units properly.
Operating time of the microphone unit battery is short.		★ The battery is dying (*1) ★ Purchase a new battery
The microphone unit battery can not be charged. ★ The charging lamp does not light ★ The charging lamp is flashing ★ Charging does not complete after 12 hours	★ Are the charging terminals dirty? ★ Has the battery been left for a long time after charging? ★ Can other batteries be charged?	★ Clean the charging terminals ★ Use the battery and then charge it again. (*2) ★ Replace it with new one

*1. The battery life is usually approximately 300 charge cycles.

*2. If the battery power supply less than 7V, the charge function of battery will not active with the charge box, please charge the battery with microphone directly by AC power adapter about 5 minutes in order to active the battery again, then the battery can charge with charging box again.

*3. If system warning that battery capacity is low, user should turn off that mic and charge the battery.

*4. Take out the battery if the microphone will not use for a long time.