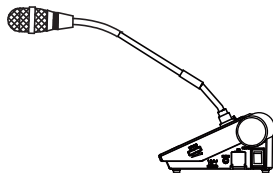


Instruction Manual

ATCS-60

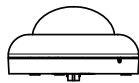
Infrared Wireless Conference Microphone System



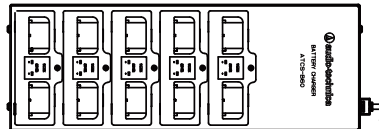
Conference microphone unit
ATCS-M60
Dedicated microphone
ATCS-60MIC



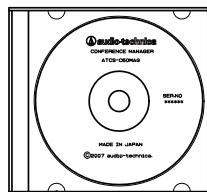
Master control unit
ATCS-C60



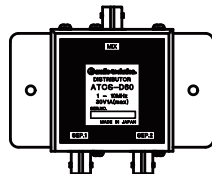
IR transmitter/receiver unit
ATCS-A60



Battery charger
ATCS-B60



Conference manager
(extended system)
ATCS-C60MAG



Distributor
ATCS-D60

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Installation and Operation

Warning

To prevent fire or shock hazard, do not expose the unit to rain or moisture. To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Caution

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK) NO USER-SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL		
	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.	
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.	

Safety Cautions

Prior to use of this product, review all safety markings and instructions.

Warning: This apparatus must be grounded.

This product is a safety class 1 product. There must be an uninterruptible safety earth ground from the main power source to the product's AC input. Whenever it is likely that the protection has been impaired, disconnect the power cord until the ground has been restored. An apparatus with class 1 construction shall be connected to an AC outlet with a protective grounding connection.

Installation place

Do not install this apparatus in a confined space such as a bookcase or similar unit. Please install this model in the place where ventilation is good. The apparatus should be located close enough to the AC outlet so that you can easily grasp the power cord plug at any time.

Caution for FCC (USA only)

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Warning for FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IC statement (Canada only)


This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.


Important Safety Instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer'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) Do not defeat the safety purpose of the polarized or grounding-type plug.
A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or 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 it exits from the apparatus.
- 11) 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 lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel.
Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

**Notice**

The apparatus shall not be exposed to dripping or splashing, and no objects filled with liquids, such as vases, shall be placed on the apparatus.

 CAUTION on handling of the microphone unit	
	<ul style="list-style-type: none"> ○ 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 LI-240 lithium-ion battery should be used. ○ Do not cover the infrared transmitting/receiving 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 on. ○ If the microphone unit has been left with the power switch ON for many hours, the battery may become over-discharged, causing damage.

 CAUTION on installation	
	<ul style="list-style-type: none"> ○ After mounting the IR transmitter/receiver units, be certain that they are securely fastened. ○ Do not install the IR transmitter/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 transmitter/receiver unit and the microphone unit; in this case, move transmitter/ receiver unit away from infrared-emitting objects. ○ Do not place any obstructions around the microphone units.




 **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.

 **CAUTION on battery handling (LI-240, optional)**

- The newly purchased battery is not charged. If the battery is installed on the microphone unit and left with the power switch ON for a long period, the battery may become over-discharged. In such cases, charging the battery one time may be insufficient, so please charge it again.
- The battery is dedicated to the microphone unit (ATCS-M60). Do not use it for other applications.
- Use only the designated battery charger (ATCS-B60).
- 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 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 other problems, do not use the battery.
- Dispose of used batteries properly as industrial waste, or contact our business office in your area.



 CAUTION on handling the AC adapter (optional)	
 	<ul style="list-style-type: none"> ○ 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 not use the units for long periods of time, disconnect the power plugs from the outlet.

 CAUTION on handling the conference manager (ATCS-C60MAG)	
	<ul style="list-style-type: none"> ○ Do not place the unit in a location subject to direct sunlight, high temperatures, or high humidity. ○ Handle with care to keep fingerprints, dust, or water (or oil) drops off the recording surface (blue side). ○ Be careful to avoid scratching the recording surface (blue side). ○ Use a felt pen to write on the label. Do not use a hard-tip pen such as a ballpoint pen.

2. Overview of System Operation

2.1. Features

2.1.1. Using an infrared wireless system

There is no need to wire the microphone units, which allows for easy layout changes in conference rooms. In addition, interference or eavesdropping is not a concern since the system is infrared wireless.

2.1.2. High reliability

The conference unit hardware has a self-diagnostic function. In addition, it is possible to recover from service interruptions due to battery replacement or PC problems. This is a highly reliable system.

2.1.3. Simple operation and intuitive display

Graphic display of conference conditions on optional PC and optional touch panel operation allow for easy organization of conferences.

2.1.4. Well-developed functions (multimedia function version)

When the system is connected to a PC, the following functions are available: video and sound recording, camera control, and switcher control. Display of remaining speech time and current time are also available.

2.1.5. Automatic operation

You do not need to push the TALK (speech) button on the microphone unit. Just begin speaking.

2.1.6. Simultaneous interpretation mode (multimedia function version)

The system can be connected with a simultaneous interpretation system.

2.2. Functions

2.2.1. Speech function

Speech

Two modes are available for speeches during a conference: manual and automatic.

- Manual mode : Push the TALK (speech) button to switch Speech ON/OFF.
- Automatic mode : Speaking toward the microphone automatically turns it ON. Speech is automatically turned OFF if no sound is input for a given period of time.
(The length of the Speech ON time can be set in the master control unit)

Speech mode

The number of people who can simultaneously speak is set from 1 to 5. Up to five people can speak simultaneously. You can set the priority number from 0 to 4. In manual mode, the priority can be set to either FIFO (First In First Out) or LIFO (Last In First Out).

- FIFO : Speech is allowed until the number of speakers reaches the set value. When it exceeds the set value, later speakers will wait to talk.
- LIFO : When the number of speech requests exceeds the set value, the first person turns Speech OFF and the later person can speak.

2.2.2. Display function

Remaining battery capacity indicator (Microphone unit)

When the remaining battery capacity decreases, the light ring LED and the power LED flash on and off as notification of low battery capacity.

Speech request (Microphone unit)

When the microphone unit is in Speech Request mode, the light ring LED and TALK LED flash on and off.

Audio level meter (Master control unit)

This indicates the audio level on the master control unit.

Transmitting /receiving indicator (Master control unit)

This indicates the infrared transmitting/receiving condition.

Graphic display (extended system)

Conference condition is shown on a PC monitor, which displays a number of states, including: speech in progress; speech request; speech time (duration); speech request order; and low battery warning.

3. System Components and Connection Diagram

3.1. System components

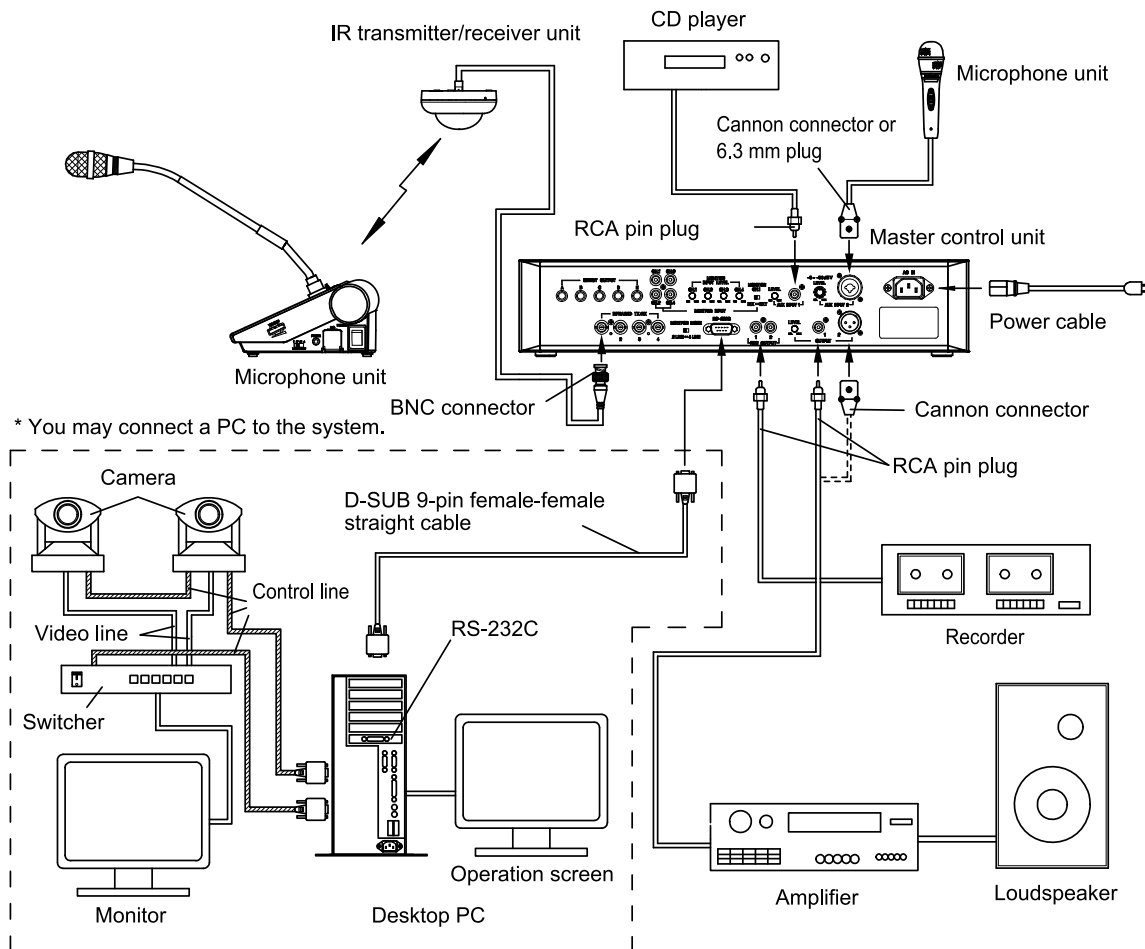
The components of this system are described below.

- Microphone unit
 - ▪ ▪ To pick up and monitor speech.
- Master control unit
 - ▪ ▪ For integrated management of the microphone units.

The master control unit can be connected with external devices such a microphones, loudspeakers, and recording devices.

- IR transmitter/receiver unit
 - ▪ ▪ To transmit and receive infrared signals.
- Battery charger
 - ▪ ▪ To charge batteries for the microphone units.
- Conference manager
 - ▪ ▪ To manage speech on the PC.

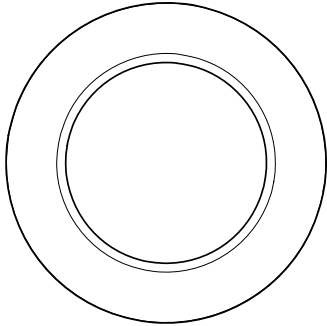
3.2. System connection diagram



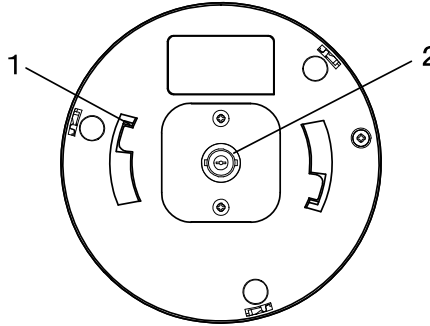
4. IR Transmitter/Receiver Unit

4.1. Part names and functions of the IR transmitter/receiver unit

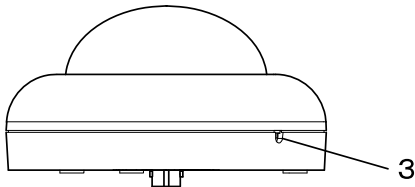
<Top view of IR transmitter/receiver unit>



<Bottom view of IR transmitter/receiver unit>



<Side view of IR transmitter/receiver unit>



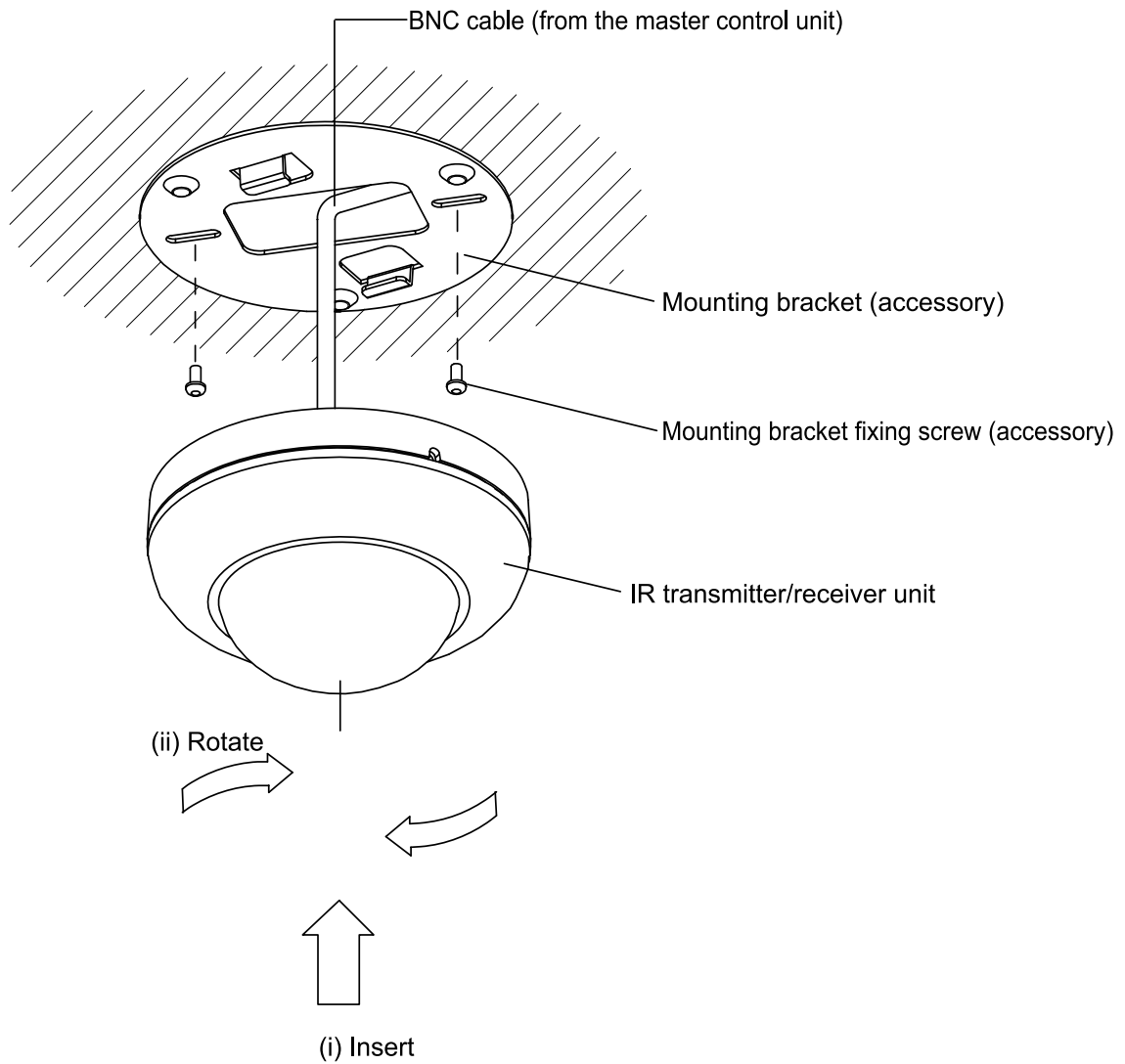
1. Mounting hook · · · This is used to mount the unit on the mounting bracket (accessory).
2. BNC connector · · · For wiring, refer to page 12 (section 4.2 “Installation of IR transmitter/receiver unit”) and pages 29 to 34 (sections 8.2 “Wiring between IR transmitter/receiver units and master control unit when using distributors” and 8.3 “Checking the wiring design”).

* The BCN cable is not included.

3. Power LED · · · · · This LED will light when the master control unit turns ON after wiring.

4.2. Installation of IR transmitter/receiver unit

Installation of IR transmitter/receiver unit (when the mounting bracket is used)

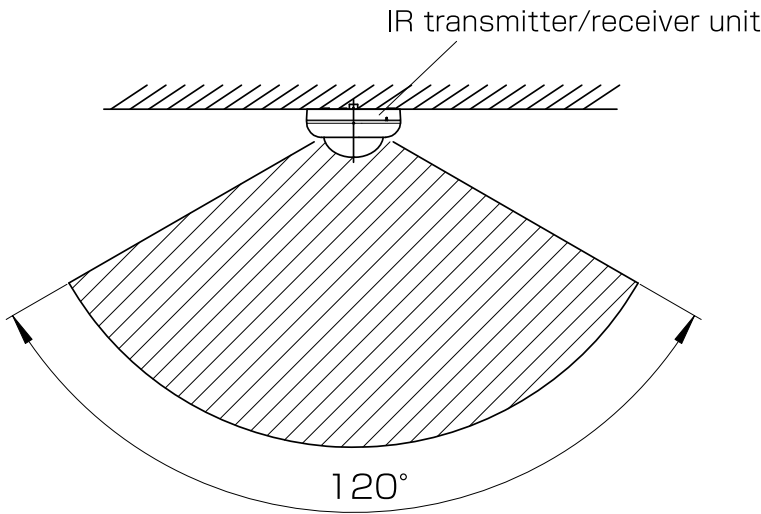


(i) Checking the mounting hook position, mount the IR transmitter/receiver unit on the mounting bracket.

(ii) Then, rotate the IR transmitter/receiver unit clockwise to fasten it securely.

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

4.3. Infrared operating range of the IR transmitter/receiver unit (image)



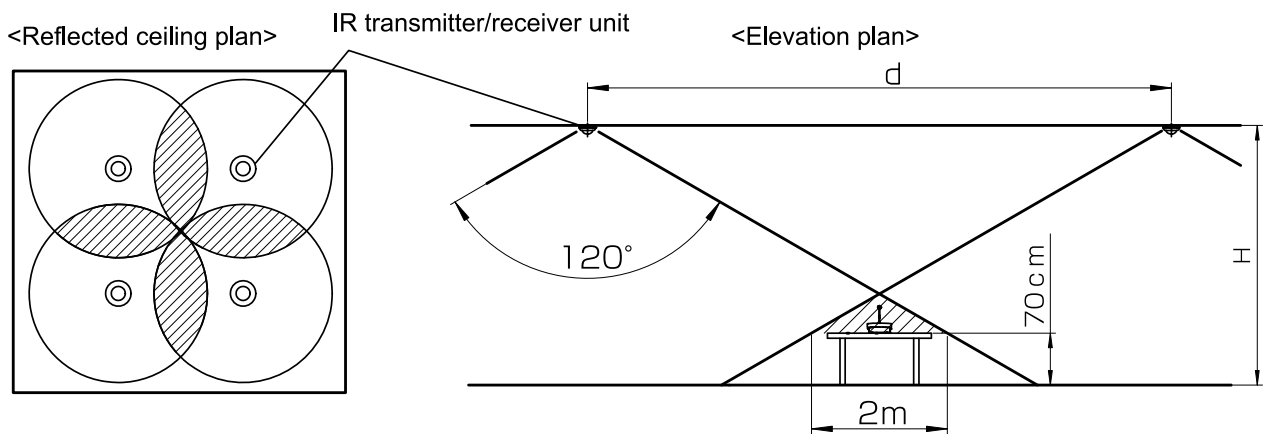
* Infrared operating distance is approximately 5 m and the transmitting/receiving range is approximately 120 degrees.

CAUTION

- Infrared does not reach the IR transmitter/receiver unit when blocked by users or objects. Install the IR transmitter/receiver units so that each microphone unit can see several IR transmitter/receiver units.
- Do not cover the infrared transmitting/receiving sensor with your hands.

4.4. Installation diagram of IR transmitter/receiver units and microphone units

a) When the IR transmitter/receiver units are installed on the ceiling



H = the height of the ceiling (m)
 d = the distance between IR transmitter/receiver units (m)

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

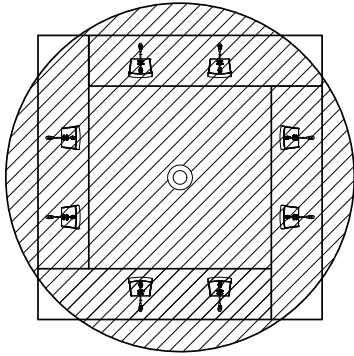
Example

Height of the ceiling, H	Interval, d
2.7m	Within 4.9 m
3.0m	Within 6.0 m
3.5m	Within 6.3 m
5.5m	Within 5.5 m

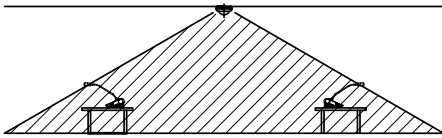
Examples of square arrangements

In a little room

<Reflected ceiling plan>

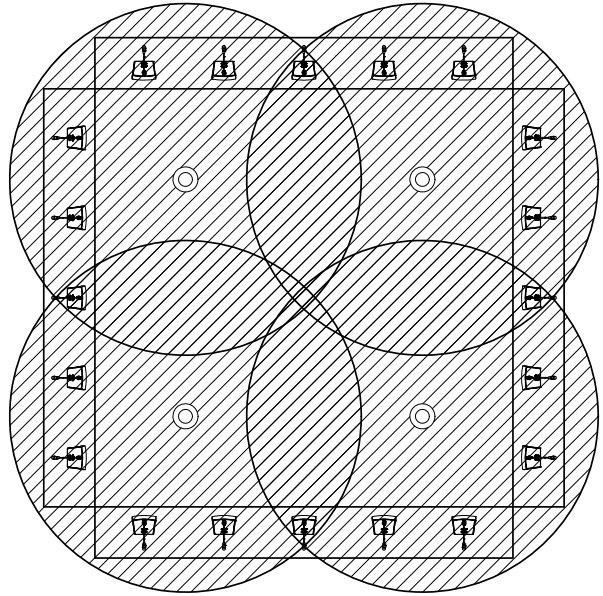


<Elevation plan>

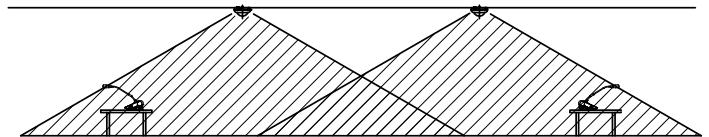


In a large room

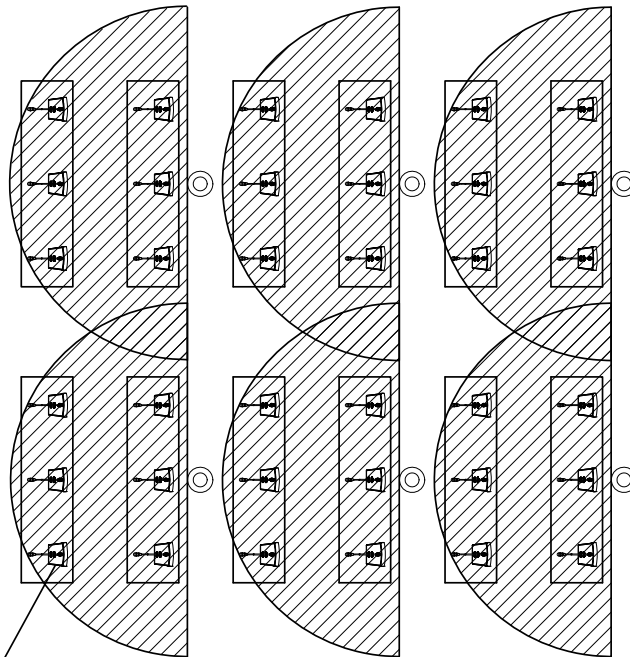
<Reflected ceiling plan>



<Elevation plan>



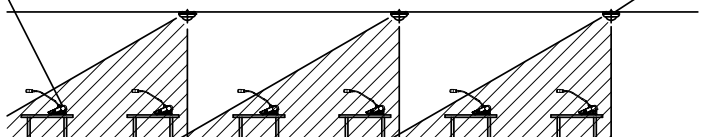
Example of school type arrangement <Reflected ceiling plan>



Microphone unit

IR transmitter/receiver unit

<Elevation plan>



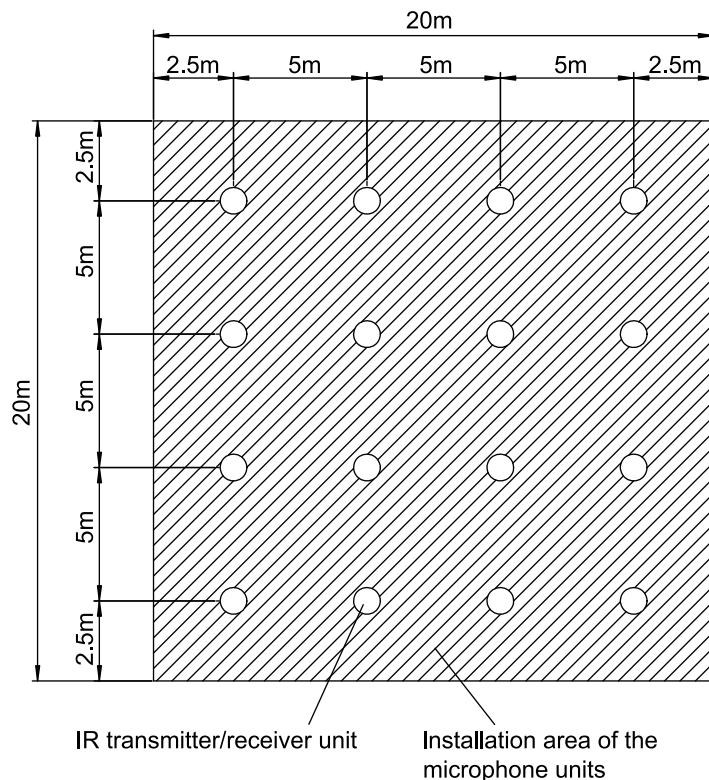
Arrange the IR transmitter/receiver units (up to 16 units) so that all the microphone units are within the covered areas.

Example :

【20m square conference room】

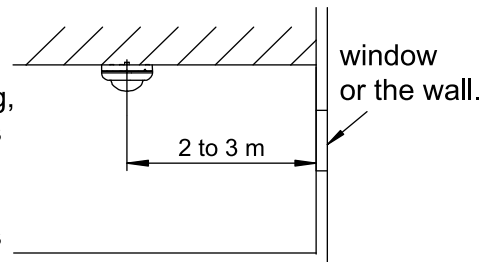
If the ceiling height is 3m or less, install the IR transmitter/receiver units at 5m intervals as shown in the schematic so that the 20m square conference room is completely covered.

Note that under certain conditions, such as a glass room, the covered area becomes smaller.



Installation precautions

- Infrared operating distance varies depending on the color of the ceiling and walls.
- Noise may be generated by interference regardless of the operating distance between the IR transmitter/receiver unit and the microphone unit; in this case, move transmitter/receiver unit away from infrared-emitting objects.
- Do not place any obstructions around the microphone units.
- Block direct sunlight from the units using curtains or blinds.
- When installing the IR transmitter/receiver units on the ceiling, install the units at least 2 to 3 meters away from the windows or the wall. (Refer to the diagram on the right.)
- When installing the IR transmitter/receiver units on the wall, install the units at least 2 to 3 meters away from the windows and the ceiling.



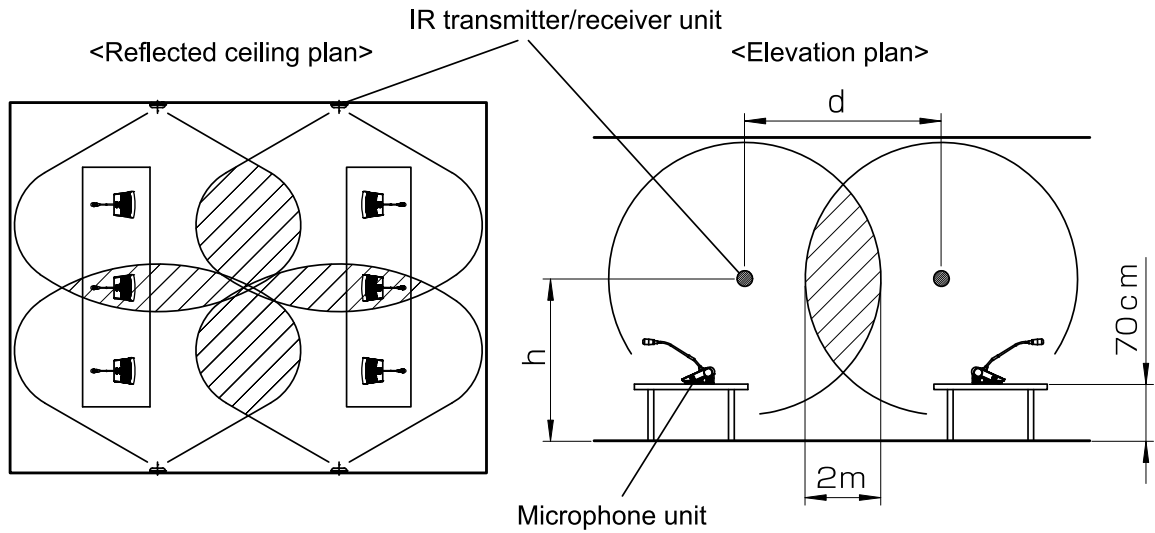
- Install the IR transmitter/receiver units more than 50cm from fluorescent lamps.
- In addition, if the IR transmitter/receiver units are installed near the infrared-emitting sources listed below, the system may malfunction or noise may be generated. When installing the IR transmitter/receiver units, 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 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)



b) When the IR transmitter/receiver units are installed on walls or stands

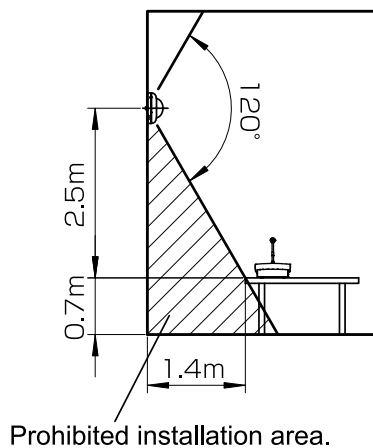


h = the height of the IR transmitter/receiver unit from the floor (m)

d = the distance between IR transmitter/receiver units (m)

- * Infrared operating distance is approximately 5 m and transmitting/receiving range is approximately 120 degrees.
- * Be sure to overlap the infrared operating areas by approximately 2 m.
- * Be careful not to place the units behind users or objects.
- * When the IR transmitter/receiver units are installed on side walls, take care not to install the microphone units near the side walls.

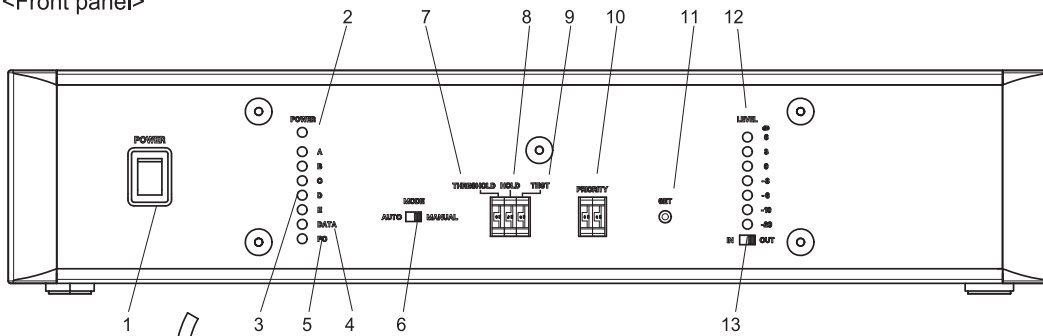
Example: If the IR transmitter/receiver units are installed 2.5 m above the microphone units, keep the microphone units approximately more than 1.4 m away from the side wall. (Receiving angle: 120 degrees)



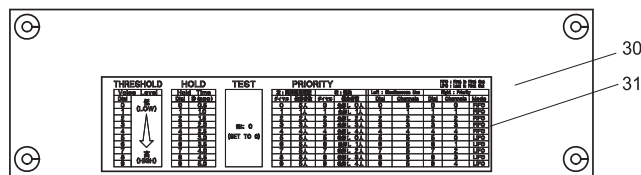
5. Master Control Unit

5.1. Part names and functions of the master control unit

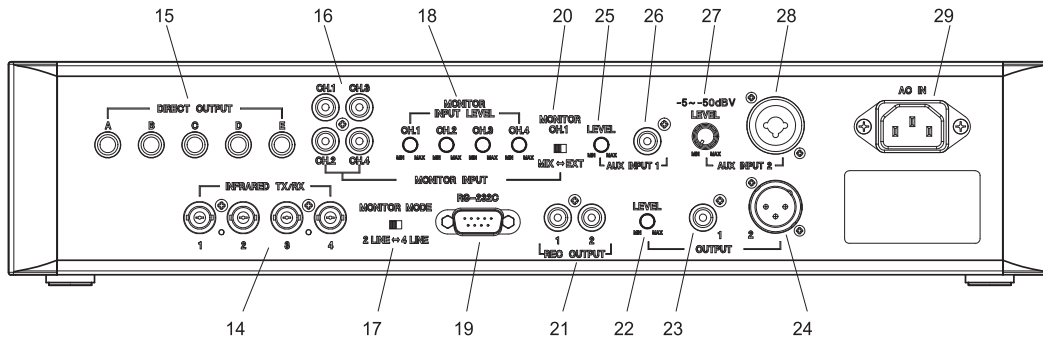
<Front panel>



<Inside of the front panel>



<Rear panel>



1. POWER (power switch) To turn on/off the master control unit.
 Press the upper side to turn ON, and lower side to turn OFF.
 The unit can be separated from the AC receptacle by turning off this switch. In case of emergency, turn off this switch or unplug the power cable from the AC receptacle.
 * Be sure to turn on the microphone units before turning on the master control unit. If the microphone units have not been turned on, they cannot receive the configuration information from the master control unit. The light ring LED will stay flashing and the microphone unit will not work. When a microphone unit is turned on after the master control unit, turn the master control unit off and then on again. Alternatively, you may hold down the SET button on the master control unit for 2 seconds to make the system ready for operation. If you wait for approximately 1 minute, the system will automatically become ready for operation.
2. POWER (power LED) This LED lights when the master control unit turns on.
3. Active audio channel Indicates the active audio channels (CH. A to E) used by a microphone unit.
 indicator LEDs

4. DATA signal LED Turns on when data is received from the microphone units.
5. PC signal LED Turns on when a PC is connected.
6. Mode selector switch Switches between automatic operation and manual operation.
(Refer to page 35.)
7. THRESHOLD switch Sets voice detection level. (Refer to page 36.) (Default value: 5)
8. HOLD switch Some applications may require that a microphone unit remain ON for a longer Period after a person stops speaking. In the Automatic Mode , you can accomplish this by adjusting the HOLD switch in half-second steps .
(Refer to page 37.) (Default value: 2)
9. TEST switch Not used for system setup. (Default value: 0)
10. PRIORITY switch Sets maximum number of simultaneous speakers (from 1 to 5; default value is 5).
Right switch: The priority number (number of priority people) is set from 0 to 4. (Default value: 0)
(For the setting, refer to page 35 to 37 “Setting the master control unit” .)
11. SET button Used to set the THRESHOLD, HOLD, TEST, and PRIORITY switches (7 through 10 above). (Refer to pages 35-36.)
12. Level meter LEDs Indicates monitor input/output level.
13. Input/output level change-over switch
. Switches the indication on section 12 “Level meter LED” between input level (Monitor CH.1 only) and output level (OUT1, 2).
14. INFRARED TX/RX Terminals for the IR transmitter/receiver unit connection.
(the IR transmitter/receiver unit TX/RX terminals)
15. DIRECT OUTPUT Outputs the sound of CH. A to E.
(the monitor sound input terminals) When using a 6.3 mm mono plug, you can obtain direct output from CH. A through E. In this configuration the direct output will not feed into the mix bus. When using a 6.3 mm stereo plug with the tip and ring wired together, you can also obtain direct output from CH. A through E. In this configuration the direct output signal will feed into the mix bus. When using a 6.3 mm stereo plug with the tip and ring individually wired, you can obtain a direct output from the tip and a return input to the ring.
16. MONITOR INPUT Inputs the sound to CH. 1 to 4.
(the monitor sound input terminals) Choose between four monitor input signals by using the monitor channel selector switch. This sound is ouput through the earphone terminal on the microphone unit.

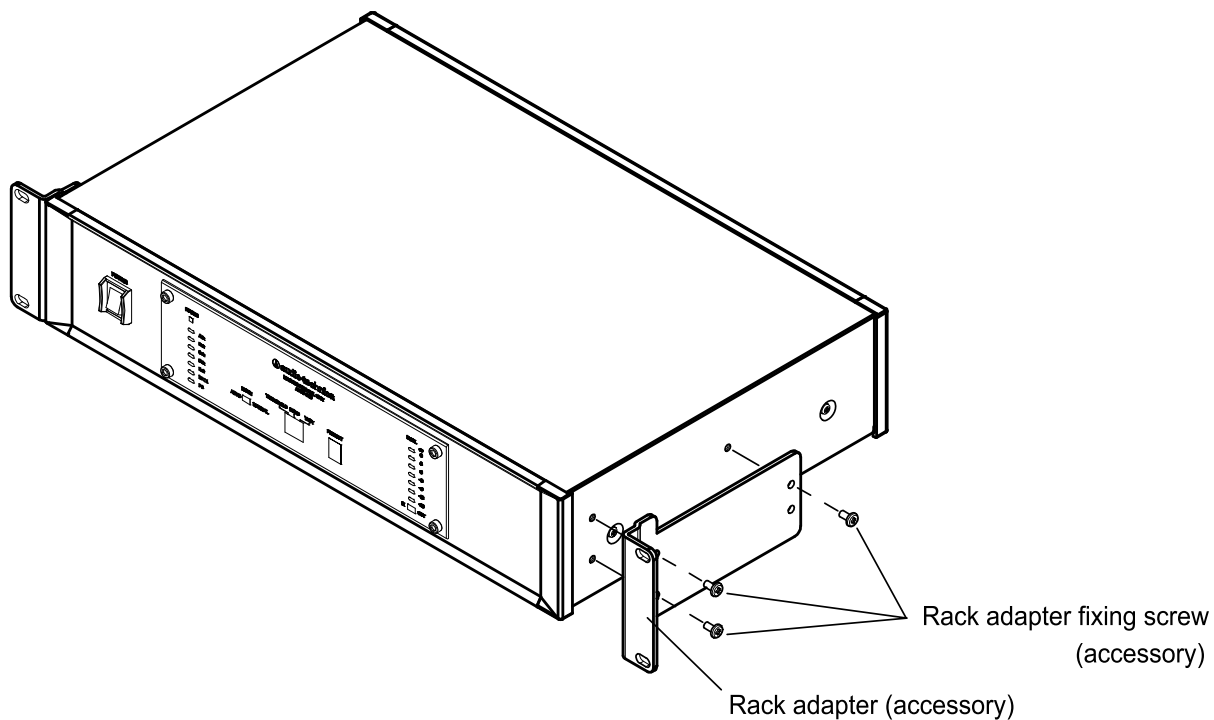
- 17. MONITOR MODE Switches the monitor mode between 2 LINE (monitor CH. 1 and 2 are used) and 4 LINE (CH. 1 to 4 are used) inside the master control unit.
Ordinarily select 2 LINE.
- 18. MONITOR INPUT LEVEL Volume control for input level adjustment of item #16, the (the monitor input volume) four monitor input terminals.
- 19. RS-232C Connection terminal for a PC. (for the extended system) (PC connection terminal) Use a straight cable to connect with PC.
- 20. MONITOR CH. 1 When set to MIX, the sound output from REC OUTPUT (Monitor CH1 input selector switch) (terminals for sound recording) is sent to MONITOR CH. 1. When it is set to EXT, the external sound input to “16. MONITOR INPUT (the monitor sound input terminals)” CH. 1 is sent to MONITOR CH. 1.
- 21. REC OUTPUT Output terminals for recorders. (the output terminals for sound recording)
- 22. OUTPUT LEVEL Volume control for sound output level adjustment of “23 (the output volume) and 24. OUTPUT (the output terminals)” .
- 23. OUTPUT 1 Output terminal (unbalanced). (the output terminal 1, pin jack)
- 24. OUTPUT 2 Output terminal (balanced). (the output terminal 2, cannon connector)
- 25. AUX INPUT 1 LEVEL Volume control for AUX input terminal 1 level adjustment.
- 26. AUX INPUT 1 AUX input terminal (unbalanced). (the AUX input terminal 1, pin jack)
- 27. AUX INPUT 2 LEVEL Volume control for AUX input 2 level adjustment.
- 28. AUX INPUT 2 AUX input terminal (balanced/unbalanced common use). (the AUX input terminal 2, cannon connector/microphone jack common use)
- 29. AC IN (AC inlet) Connection terminals for the power cable. Make sure to connect the ground.
- 30. Panel Removed to change the settings.
- 31. Setting chart Settings are summarized (below).
For details, refer to “Setting the master control unit” (in page 35 to 37).

THRESHOLD		HOLD		TEST	PRIORITY				FIFO : First In First Out LIFO : Last In First Out					
Voice Level		Hold Time			左 : 同時使用者数		右 : 優先		Left : Simultaneous Use		Right : Priority			
Dial		Dial	秒 (sec)	ダイヤル	発言者数	ダイヤル	優先者数	Dial	Channels	Dial	Channels	Mode		
0	<div style="display: flex; flex-direction: column; align-items: center;"> <div>低 (LOW)</div> <div style="margin: 10px 0;">↓</div> <div>高 (HIGH)</div> </div>	0	0.5	常に 0 (SET TO 0)	0	5人	0	先押し 0人	0	5	0	0	FIFO	
1		1	1.0		1	1人	1	先押し 1人	1	1	1	1	1	FIFO
2		2	1.5		2	2人	2	先押し 2人	2	2	2	2	2	FIFO
3		3	2.0		3	3人	3	先押し 3人	3	3	3	3	3	FIFO
4		4	2.5		4	4人	4	先押し 4人	4	4	4	4	4	FIFO
5		5	3.0		5	5人	5	後押し 0人	5	5	5	5	0	LIFO
6		6	3.5		6	5人	6	後押し 1人	6	5	6	6	1	LIFO
7		7	4.0		7	5人	7	後押し 2人	7	5	7	7	2	LIFO
8		8	4.5		8	5人	8	後押し 3人	8	5	8	8	3	LIFO
9		9	5.0		9	5人	9	後押し 4人	9	5	9	9	4	LIFO

5.2. Mounting the master control unit

Attach the rack adapters (accessory) to place the master control unit on a rack.

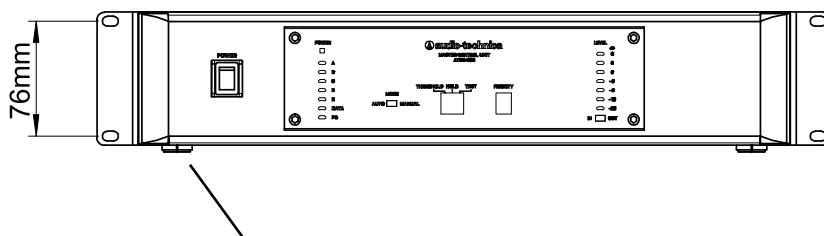
<How to attach the rack adapters>



1. Attach a rack adapter using the rack adapter screws.
2. Attach a rack adapter on the opposite side in the same way.

* Screws to mount the unit on a rack are not included.

Use the specified screws for the rack.



When the unit is placed on the rack, remove the four pads.

15. Transmitter power selector switch.

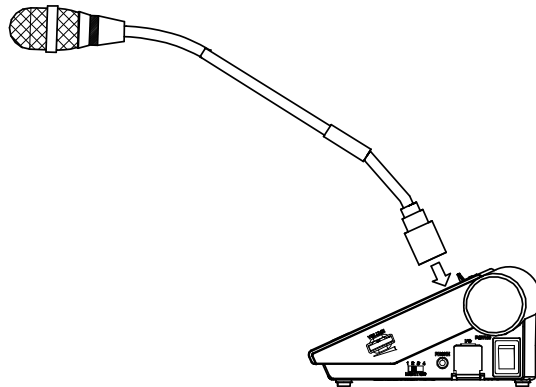
- • • • • Switches the infrared transmitting power. (LO / NORMAL)
Ordinarily set to NORMAL. If the system is used in a small room, set the switch to LO to prolong the operating time.

16. ID setting switches Sets the ID number.
(For ID switch setting, refer to page 25.)

17. Battery detaching button Used to remove the battery.
(For the removal procedures, refer to page 23.)

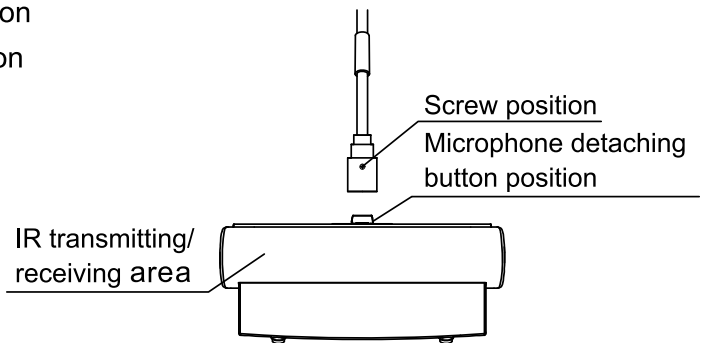
6.2. Mounting and dismounting the master control unit

<How to mount the microphone>

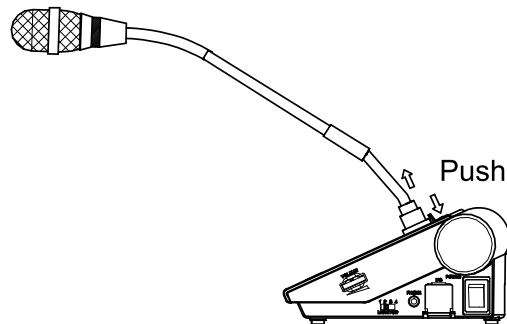


1. Insert the microphone into the microphone mounting socket in a straight line.
2. When an audible click is heard, the microphone is fastened.

* Match the microphone screw position with the microphone dismount button position to insert the microphone (drawing at right).



<How to dismount the microphone>

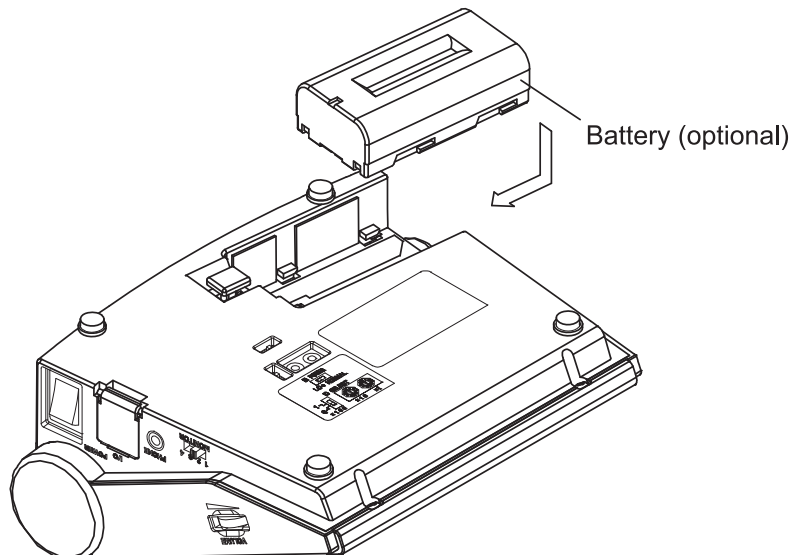


1. Pull the microphone upward with the microphone dismount button pushed.
Be sure to hold the base of the microphone connector.

6.3. Mounting and dismounting the battery and the battery cover

* When mounting or dismounting the battery, be careful not to drop it.

<How to mount the battery>

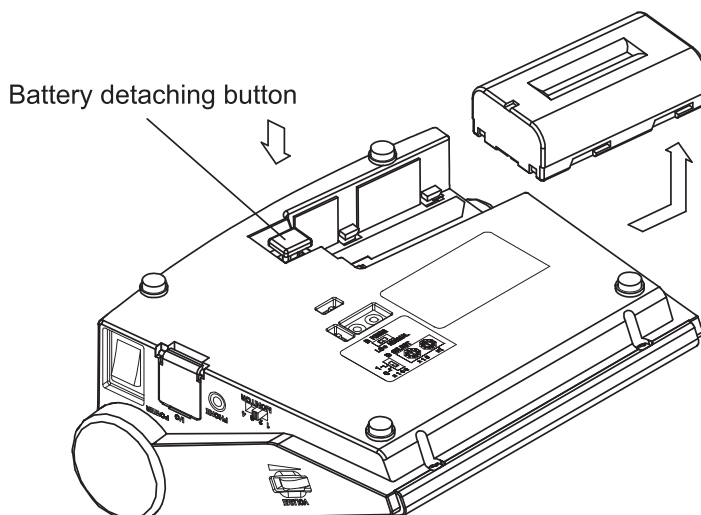


1. Put the battery on the bottom side of the microphone unit.

2. 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.

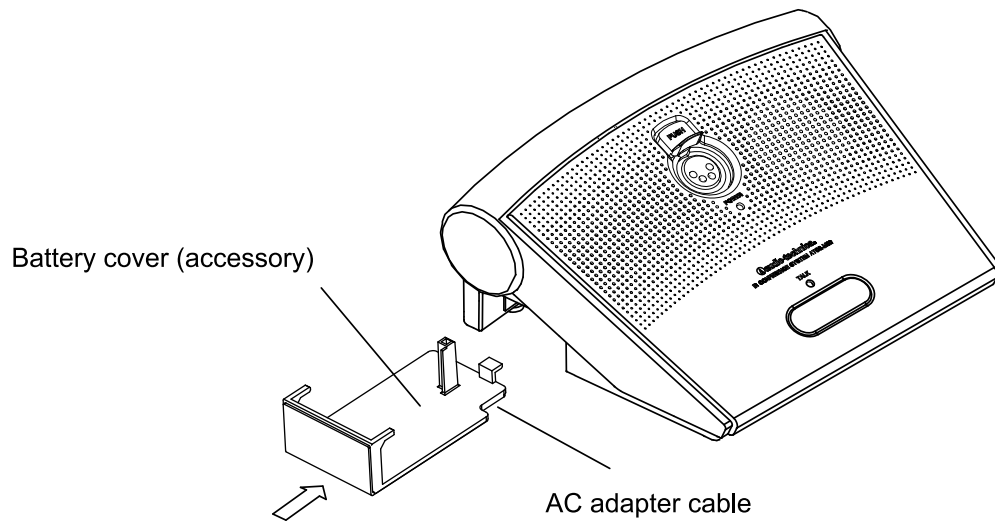
<How to dismount the battery>



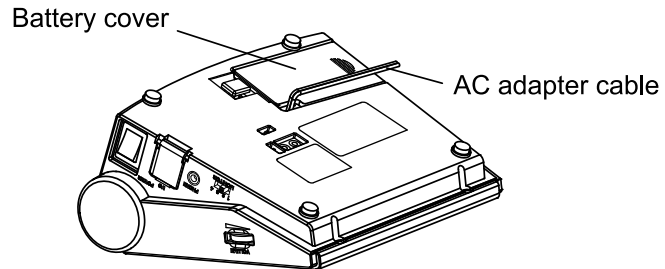
1. Slide the battery in the direction of the arrow and pull it out by pushing the battery removal button.

When the AC adapter (optional) is used, attach the battery cover (accessory).

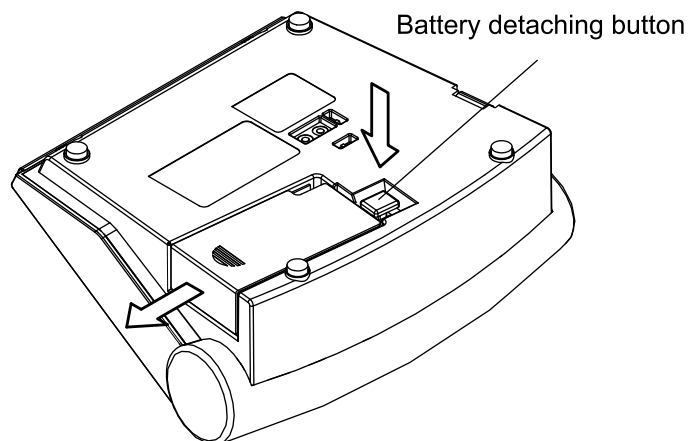
<How to attach the battery cover>



1. Slide the battery cover in the direction of the arrow.
 - * Pull the AC adapter cable through the cable outlet.
 - * Be careful not to pinch the cable when attaching the battery cover. It may break.

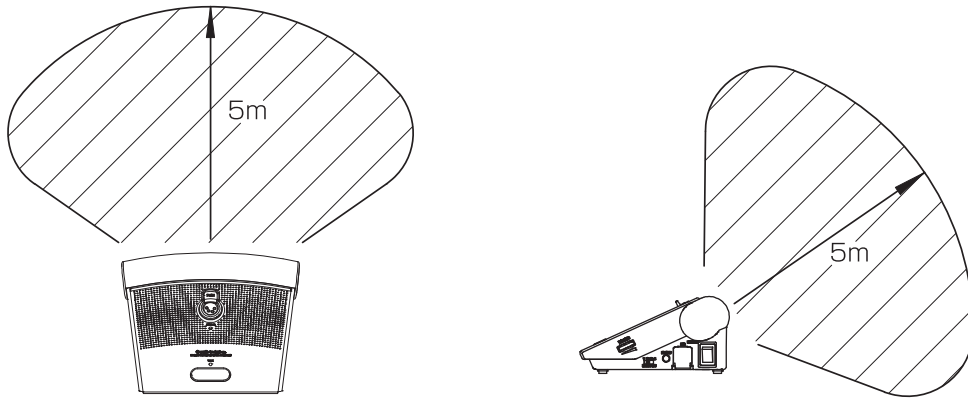


<How to detach the battery cover>



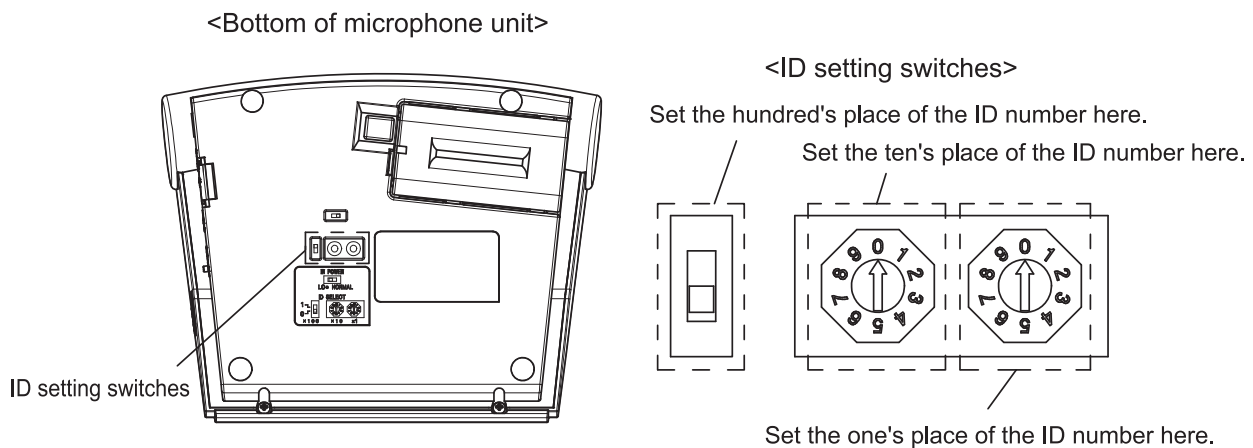
1. Pull the battery cover in the direction of the arrow.

6.4. Infrared operating range of the microphone unit (image)



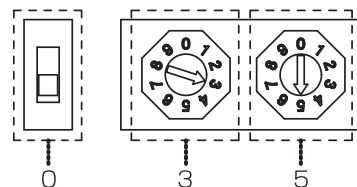
6.5. Setting the ID switches

- * Turn off the microphone unit when the ID number is set.
- * ID number should be set from [001] to [150].
 [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.
- * Use the precision screwdriver (supplied with the master control unit) to set the ID switches.



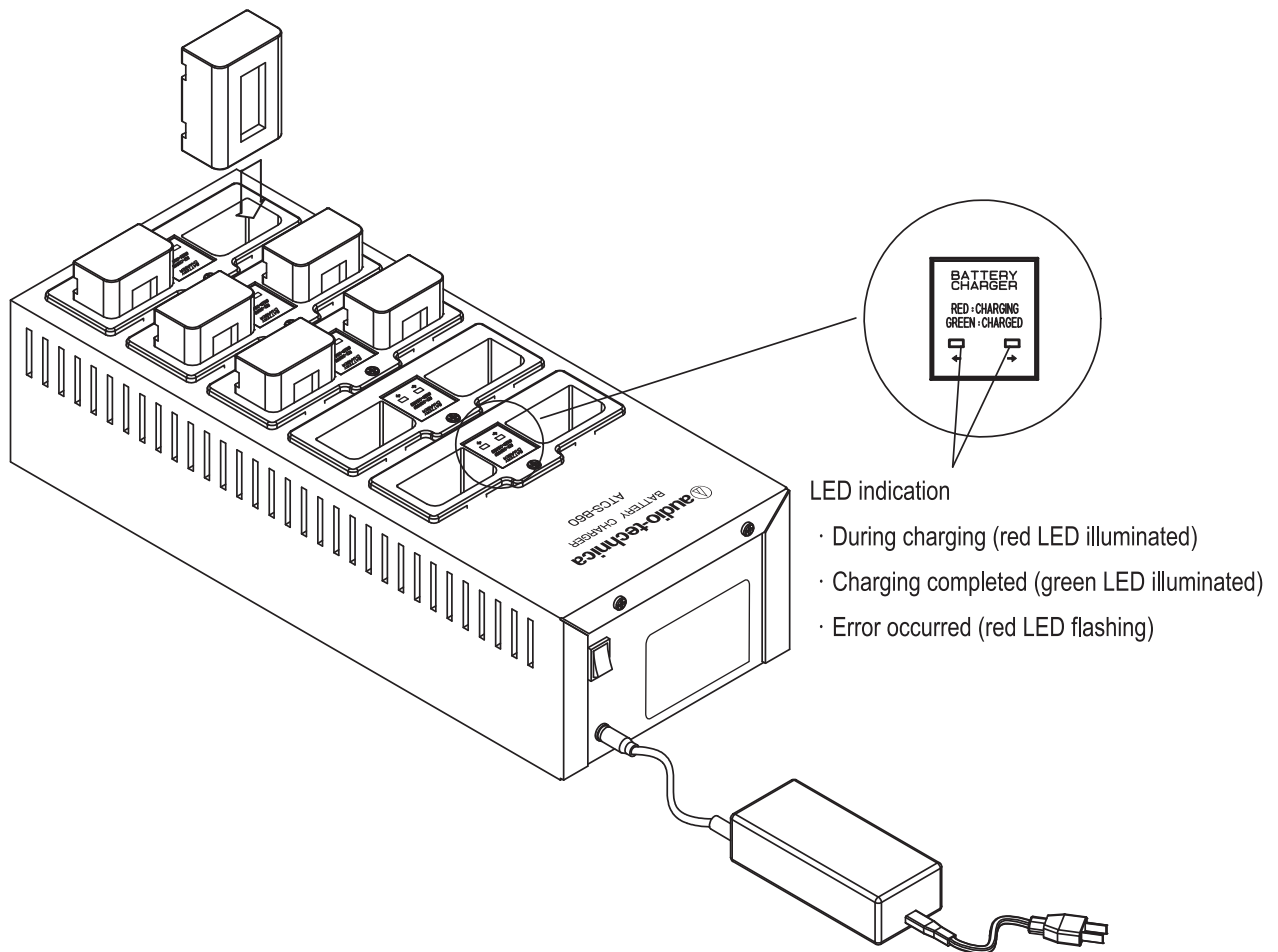
1. The ID setting switches are on the bottom surface of the microphone unit.
2. Set the ID number using the precision screwdriver. (Refer to [Setting example] below.)
 - Hundred's place ▪▪▪ Push up the slide switch of the far left ID setting switch to 1; push it down to set to 0 (zero).
 - Ten's place ▪▪▪▪ Turn the arrow in the center of the rotary switch using the precision screwdriver. Adjust the setting by pointing the arrow to a number (0 to 9).
 - One's place ▪▪▪▪ Turn the arrow in the center of the rotary switch using the precision screwdriver. Adjust the setting by pointing the arrow to a number (0 to 9).

[Setting example] When the seat ID is set to [035], the setting switches should be as shown in the right schematic.



7.2. Battery charging

<How to charge the battery>



1. Insert the batteries into the charging ports.
 - * If the battery is upside down, the LED will not light.
2. The charging status indicator LED turns red.
 - * If a charging error occurs, the LED flashes red. Insert the battery again.
If the error continues to occur, refer to page 51 (Troubleshooting).
3. When the charging status indicator LED turns green, charging is completed.
 - * It takes approximately 5.5 hours to fully charge an empty battery.
 - * Charging time varies depending on the remaining battery capacity.

7.3. For longer battery life

1. Charge the batteries at an ambient temperature of 10° C to 30° C (50° F to 86° F) and store them in temperatures of 0°C to 20°C (32°F to 68°F).
2. When not in use for extended periods, remove the batteries from the battery charger (ATCS-B60) and store under the temperature conditions listed above. If the battery charger has been turned off and the batteries have been left in it for many hours, the batteries will become fully discharged, which may seriously reduce battery life or disable recharging. In addition, long-term storage in the fully (100%) charged condition may decrease battery capacity. Do not charge batteries that will not be used for a long time. Store them as they are and charge them before the next use.

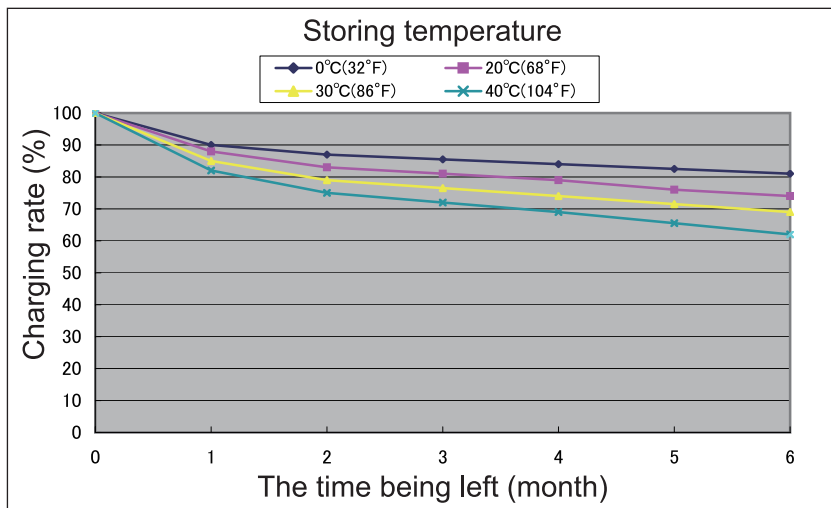
[Note]

1. Charging rate

The charging rate decreases during long-term storage or high temperature exposure.

Figure ① below indicates changes in the charging rate due to long-term storage.

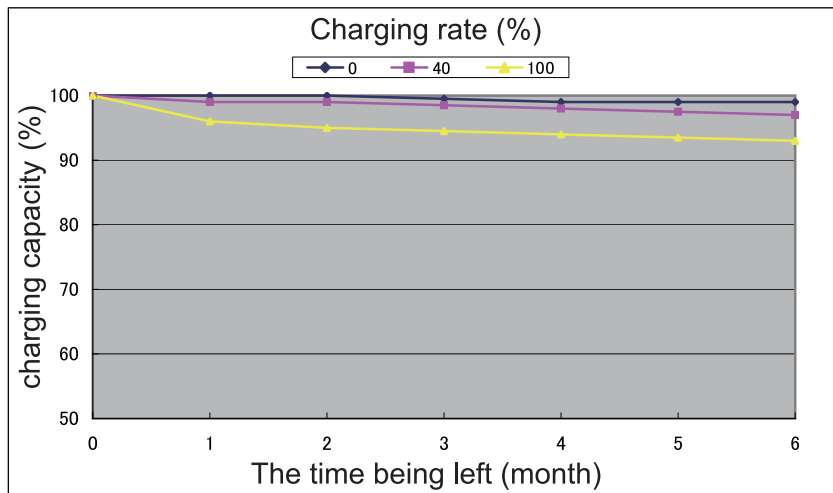
(However, batteries left in the charger for an extended period of time (not recommended) will have a greater charge rate decrease.)



2. Rate of battery capacity change

Battery capacity decreases as a result of long-term storage in a fully charged state.

Figure ② below indicates the rate of change in battery capacity at 20 degrees C (68 degrees F).



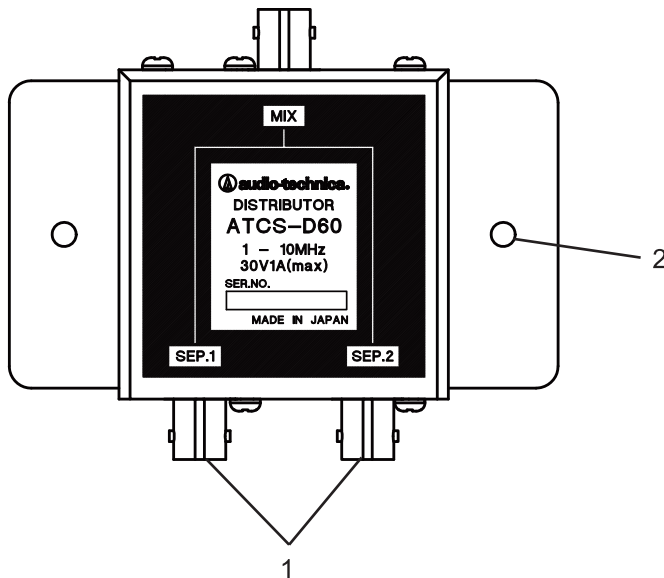
※Once battery capacity has been reduced, it cannot be recovered.

3. Discharge and charge cycle

The discharge and charge cycle life is approximately 300 times.

8. Distributor

8.1. Part names of the distributor



1. BNC connector Connector for the BNC cable connection

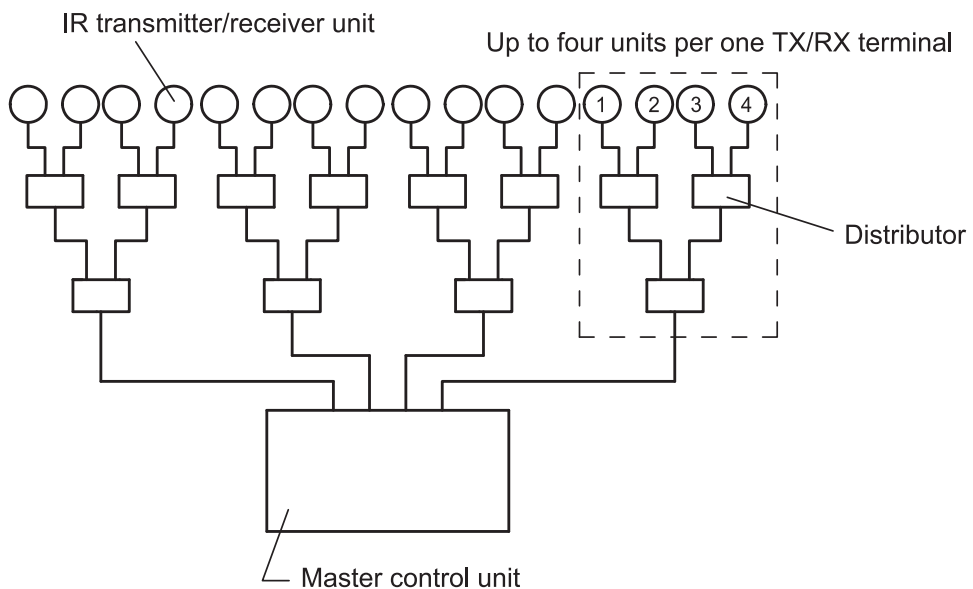
2. Mounting and fixing holes Holes for mounting distributor body.

* The BNC cable is not included.

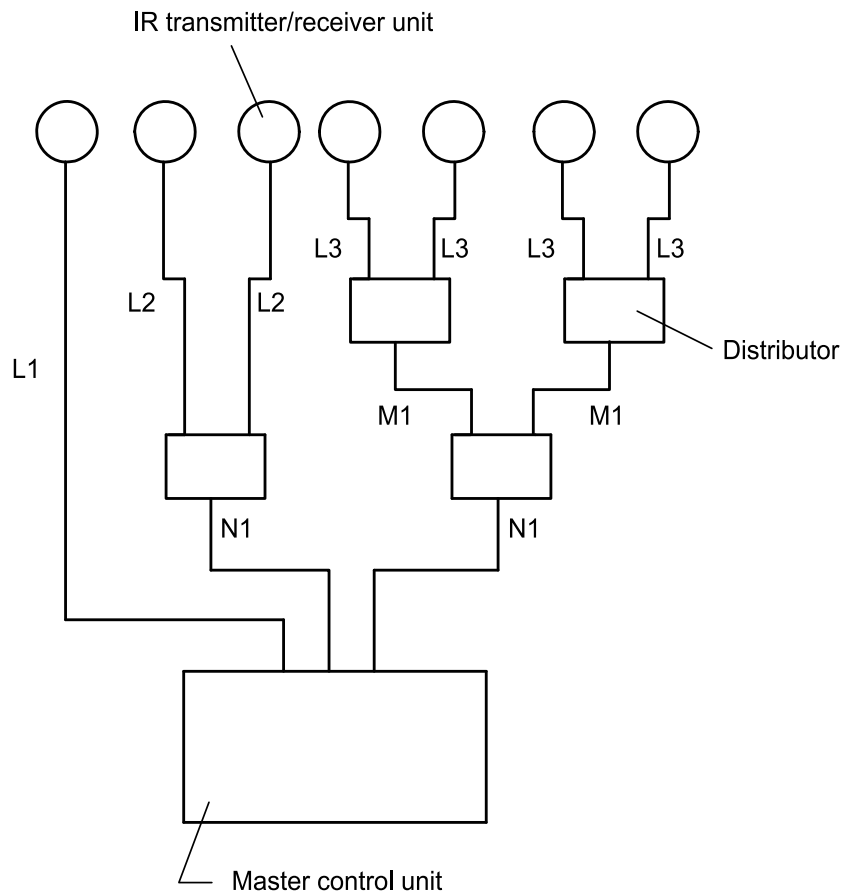
8.2. Wiring between IR transmitter/receiver units and master control unit when using distributors

Up to four IR transmitter/receiver units can be connected to one TX/RX terminal of the master control unit.

Using the distributors, up to sixteen IR transmitter/receiver units can be installed.



If the input signals of each IR transmitter/receiver unit are not in the same phase, the receiving level may decrease. To match the signal phase, the length of the corresponding cables should be the same.



Cable length to the IR transmitter/receiver unit $L1 = L2 + N1 = L3 + M1 + N1$

Difference in length among $L1, L2+N1, L3+M1+N1$ should be within +/- 3 meters (9.8 feet).

8.3. Checking the wiring design

The wiring between the IR transmitter/receiver units and the master control unit must satisfy the following two conditions.

- (i) Maximum power dissipation of wiring path: 15 dB (the total dissipation including the cables and the distributors)
- (ii) Maximum DC voltage drop: 3 V

Wire so that actual values are less than the values above.

The values needed for the calculation are shown below.

- Values to calculate the dissipation

- (i) Dissipation of the distributor: 4 dB
- (ii) Attenuation per 100 m of the coaxial cable: Shown in the following table

3C-2V	4.2dB	RG-59U	3.0dB
5C-2V	2.7dB	RG-6U	2.3dB
7C-2V	2.2dB	RG-11U	1.3dB

- Values to calculate the voltage drop

- (i) Operating current per one IR transmitter/receiver unit: 0.15 A
- (ii) Resistance of the distributor: 0.5 Ω
- (iii) Loop resistance per 100 m (328.1 ft.) of the coaxial cable (at 20°C (68°F)): Shown in the following table

3C-2V	9.14 Ω	RG-59U	4.5 Ω
5C-2V	3.59 Ω	RG-6U	3.0 Ω
7C-2V	2.07 Ω	RG-11U	1.3 Ω

* Attenuation and loop resistance values of the coaxial cable are for reference. Check the values of the cables used for the actual installation.

■ Calculating expressions

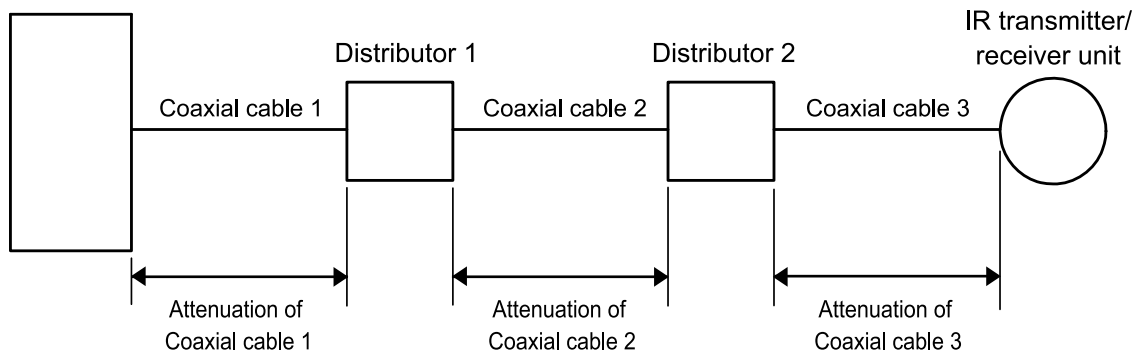
● Calculation for dissipation of wiring path:

Conditions: Total attenuation ≤ 15 dB

Attenuation of a cable = (Length / 100) x (Attenuation per 100 m)

Total attenuation = Attenuation of Cable 1 + Attenuation of Cable 2 + Attenuation of Distributor 3 + Attenuation of Distributor 1 + Attenuation of Distributor 2

Master control unit



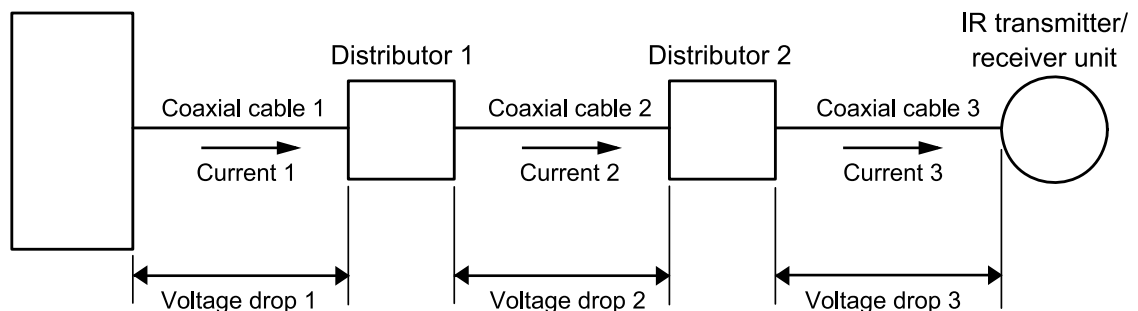
Conditions: Total voltage drop ≤ 3 V

Voltage drop of a cable = (Length / 100) x (Loop resistance per 100 m of cable) x current

Current through a cable = (The number of IR transmitter/receiver units connected to one TX/RX terminal) x 0.15 A

Total voltage drop = Voltage drop 1 + Voltage drop 2 + Voltage drop 3

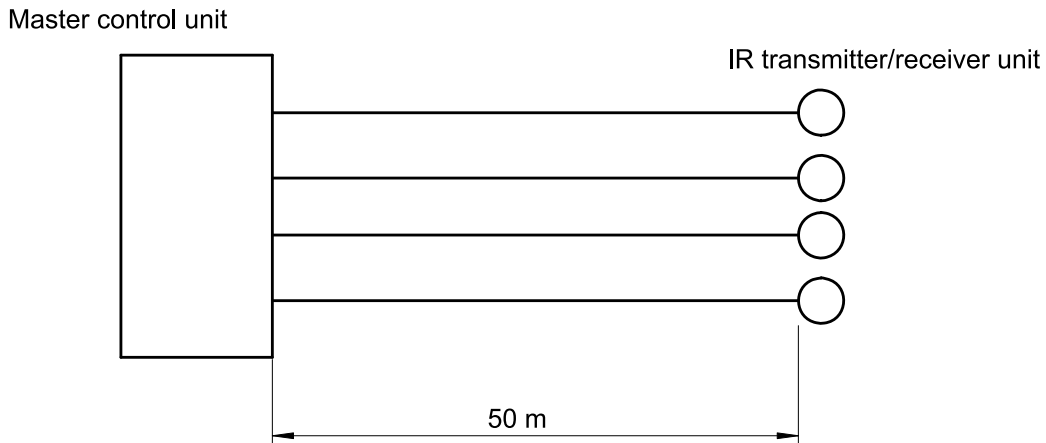
Master control unit



● Example 1: For 4 IR transmitter/receiver units

Conditions: The distance between the master control unit and the IR transmitter/receiver units is assumed to be 50 m (164 ft.).

The coaxial cables are 5C-2V.



EN

1) Calculation for maximum power dissipation of cables

The attenuation between the master control unit and the IR transmitter/receiver units

$$= 2.7 \text{ dB} \times (50 \text{ m}/100 \text{ m}) = 1.35 \text{ dB}$$

It becomes less than the maximum power dissipation (15 dB).

2) Calculation for maximum voltage drop

The voltage drop between the master control unit and the IR transmitter/receiver units

$$= 3.59 \Omega \times (50 \text{ m}/100 \text{ m}) \times 0.15 \text{ A}$$

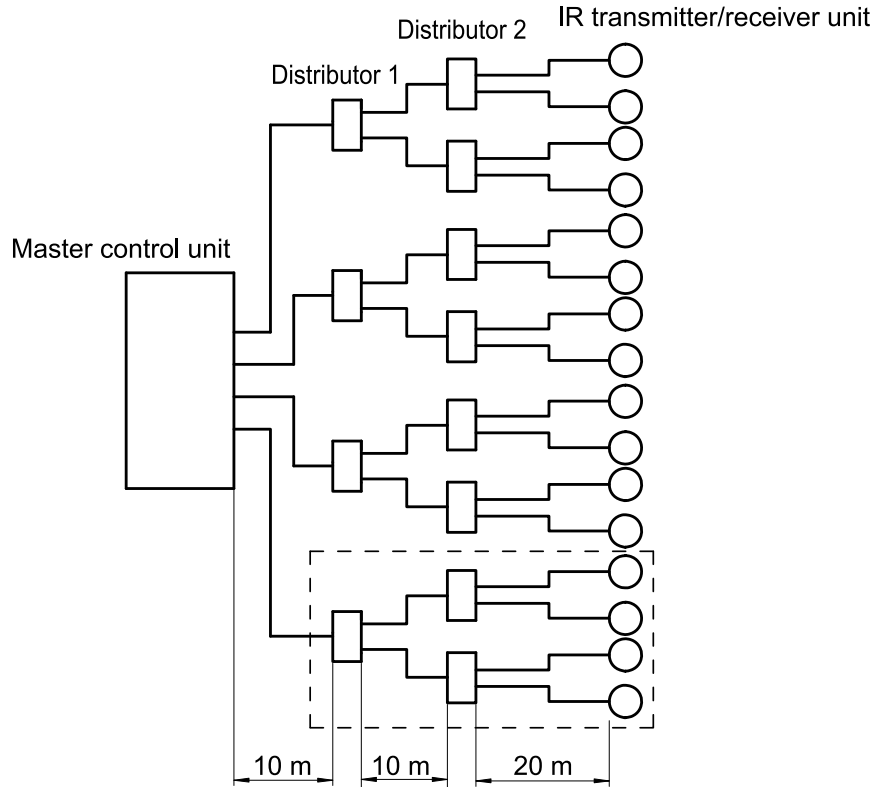
$$= 0.27 \text{ V}$$

It becomes less than the maximum voltage drop (3V).

As shown in the example above, determine the cable length so that the calculated values are equal to or less than the maximum power dissipation and the maximum voltage drop.

● Example 2: For 16 IR transmitter/receiver units

Conditions: It is assumed that the distance between the master control unit and the Distributor 1 is 10 m (32.8 ft.), that between the Distributors 1 and 2 is 10 m (32.8 ft.), and that between the Distributor 2 and the IR transmitter/receiver units is 20 m (65.8 ft.). The coaxial cables are 5C-2V.



1) Calculation for maximum power dissipation

- (i) The attenuation between the master control unit and the Distributor 1
 $= 2.7 \text{ dB} \times (10 \text{ m}/100 \text{ m}) = 0.27 \text{ dB}$
- (ii) The attenuation between the Distributors 1 and 2 $= 2.7 \text{ dB} \times (10 \text{ m}/100 \text{ m}) = 0.27 \text{ dB}$
- (iii) The attenuation between the Distributor 2 and the IR transmitter/receiver units
 $= 2.7 \text{ dB} \times (20 \text{ m}/100 \text{ m}) = 0.54 \text{ dB}$
- (iv) The dissipation of the Distributors 1 and 2 $= 4 \text{ dB} + 4 \text{ dB} = 8 \text{ dB}$

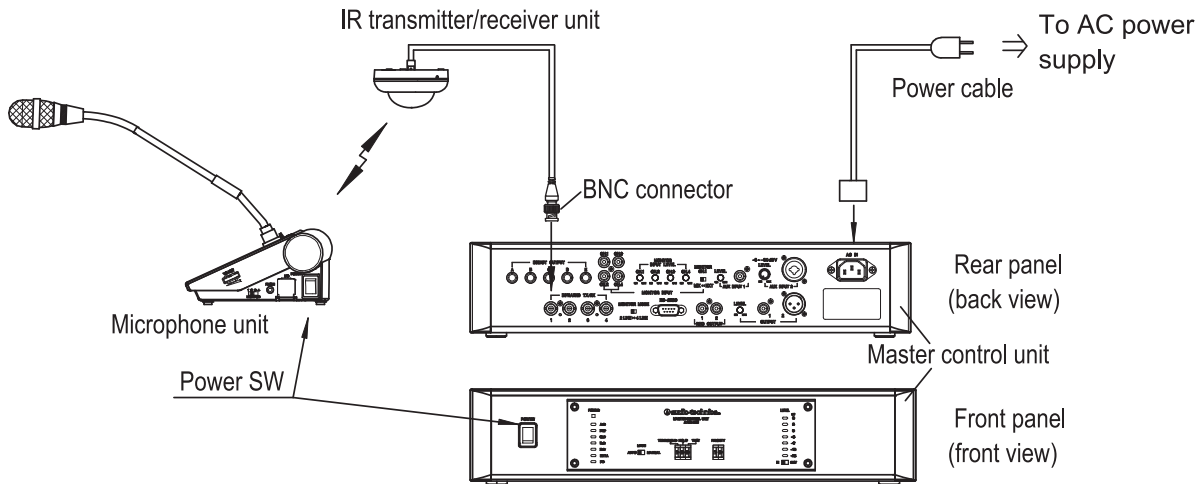
Summation of the above cable attenuation and distributor dissipation is 9.08 dB (0.27 dB + 0.27 dB + 0.54 dB + 8 dB), which is the less than the maximum power dissipation (15 dB).

2) Calculation for maximum voltage drop

- (i) The voltage drop between the master control unit and the Distributor 1
 $= 3.59 \Omega \times (10 \text{ m}/100 \text{ m}) \times 0.15 \text{ A} \times 4 = 0.215 \text{ V}$
- (ii) The dissipation of the Distributor 1 $= 0.5 \Omega \times 0.15 \text{ A} \times 4 = 0.3 \text{ V}$
- (iii) The dissipation between the Distributors 1 and 2 $= 3.59 \Omega \times (10 \text{ m}/100 \text{ m}) \times 0.15 \text{ A} \times 2 = 0.108 \text{ V}$
- (iv) The dissipation of the Distributor 2 $= 0.5 \Omega \times 0.3 \text{ A} = 0.15 \text{ V}$
- (v) The dissipation between the Distributor 2 and the IR transmitter/receiver unit $= 3.59 \Omega \times (20 \text{ m}/100 \text{ m}) \times 0.15 \text{ A} = 0.108 \text{ V}$

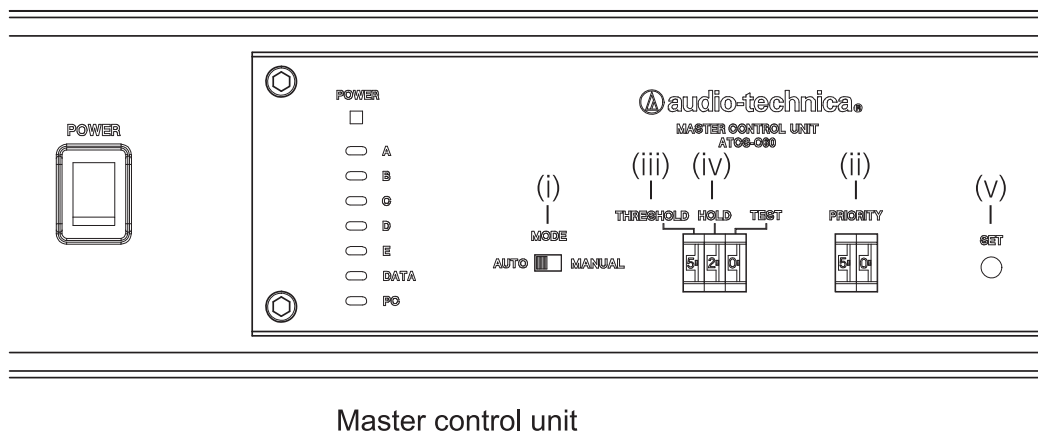
The total voltage drop is 0.881 V (0.215 V + 0.3 V + 0.108 V + 0.15 V + 0.108 V), which is the less than the maximum voltage drop (3V).

9. How to Operate the Basic System



(Settings) Turn on the microphone units. Then, turn on the master control unit.

(The microphone units are operational after the light ring LED on the microphone unit turns off.)



Master control unit

[Setting the master control unit]

(Settings) Set either the automatic operation (AUTO) or manual operation (MANUAL) using the MODE changeover switch (i).

1. Manual operation

Push the TALK (speech) button for Speech ON/OFF operation.

(Settings) Set the number of people who can simultaneously speak and the priority number using the PRIORITY switch (ii).

Left switch: The number of speakers is set from 1 to 5. (If the switch is set to 0 (zero) or 6 to 9, the number of speakers is set to 5.)

Right switch: The priority number and the number of FIFO/LIFO operation people are set. (Refer to Table 1 on the next page.)

The priority number should not exceed the number of speakers.

- * When the priority is set, one channel is reserved for exclusive use and the person can always speak.

Table 1.

Left SW	Number of speakers	Right SW	Mode	Priority number	IDs and using channels of the priority microphones
0	5	0	FIFO	0	
1	1	1		1	ID001=A.CH
2	2	2		2	ID001=A.CH, ID002=B.CH
3	3	3		3	ID001=A.CH, ID002=B.CH, ID003=C.CH
4	4	4		4	ID001=A.CH, ID002=B.CH, ID003=C.CH, ID004=D.CH
5	5	5	LIFO	0	
6	5	6		1	ID001=A.CH
7	5	7		2	ID001=A.CH, ID002=B.CH
8	5	8		3	ID001=A.CH, ID002=B.CH, ID003=C.CH
9	5	9		4	ID001=A.CH, ID002=B.CH, ID003=C.CH, ID004=D.CH

○When FIFO is set, speech is allowed until the number of speakers reaches the set value. When it exceeds the set value, later people will be waiting to speak. After using the prior microphone, the next microphone is activated for the speaker in the order of the request. Up to 10 people can make a speech request.

○When LIFO is set, if the number of speech requests exceeds the set value, and the person who was allowed to speak first finishes, then a person who submitted a request later can speak.

(Settings) Hold down the SET button (v) for more than two seconds to complete the setting.
(The LED on the microphone unit flashes.)

2. Automatic operation

Speaking toward the microphone automatically turns it on.

(TALK (speech) button is invalid. FIFO and LIFO modes are also invalid.)

(Settings) Set the numbers of speakers and the priority people using the PRIORITY switch (ii).

Left switch: Maximum number of simultaneous speakers.

1 to 5, factory setting is "5" .

Right switch: Priority number

0 to 4, factory setting is "0" .

* Refer to Table 1.

(Settings) Set the voice detection level of speakers using the THRESHOLD switch (iii).

0  9 Factory setting is "5" .

A low voice is detected.

A loud voice is detected.

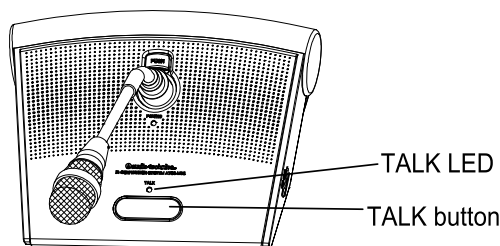
(Settings) Some applications may require that a microphone unit remain ON for a longer period after a person stops speaking. To accomplish this, the HOLD switch can be adjusted in half-second steps. For instance, if the HOLD switch is set to "2", the microphone unit will shut off after 1.5 seconds of silence.

Switch	0	1	2	3	4	5	6	7	8	9
Time (second)	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0

(Settings) Hold down the SET button (v) for more than two seconds to complete the setting.
(The light ring LED mounted on microphone unit blinks indicating a new setting.)

[Basic operation of the microphone unit]

1. Manual operation



1. Push the TALK (speech) button to speak.
2. The light ring LED on microphone and the TALK (speech) LED flashes and you can speak.
3. Push the TALK (speech) button to finish.
 - * When FIFO is set, speech is allowed until the number of speakers reaches the set value. When it exceeds the set value, later people will be waiting to talk.
 - * Speech is allowed in the order of the speech request. The LED flashes during the wait state for speech.
 - * When LIFO is set, if the number of speech requests exceeds the set value, the person who was allowed to speak first finishes talking.

2. Automatic operation

1. Speaking toward the microphone automatically turns it on.
2. The light ring LED on microphone and the TALK (speech) LED flashes and you can talk.
3. If you have not talked (silence) during the time set by the ④ HOLD switch on the master control unit, your turn will finish.

3. All finish from the chairperson microphone

In the conference where the priority number is set, if the TALK (speech) button on the chairperson (ID001) microphone unit is held down (for more than two seconds), all speech and speech requests except the chairperson's microphone unit will finish.

1. All finish and speech forbiddance
 - 1.1. Hold down the TALK (speech) button on the chairperson microphone unit.
 - 1.2. The chairperson microphone unit becomes the active speech state.
 - 1.3. All the speech and speech requests except the chairperson's microphone unit are finished.
 - 1.4. The chairperson can forbid speech of other microphone units by holding down the TALK (speech) button.
2. Release of speech prohibition
 - 2.1. Release the TALK (speech) button on the chairperson microphone unit.
 - 2.2. Speech prohibition is canceled.

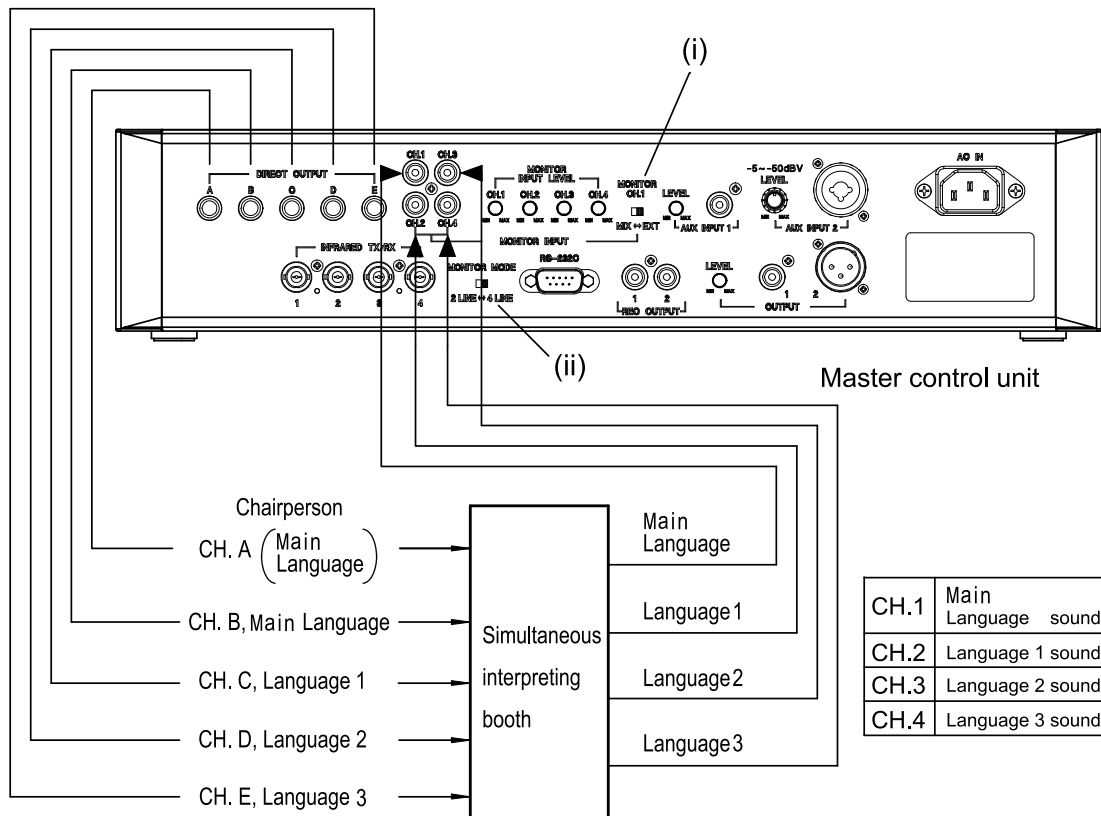
10. Simultaneous Interpretation Mode

The system is used as a simultaneous interpretation system in a certain combination of language output and the monitor CH on the microphone units.
 For details about the settings, refer to ATCS-C60MAG online help.

Example of four languages simultaneous interpreting

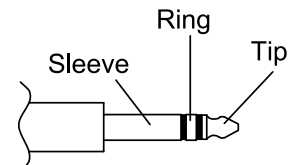
Chairperson (Main Language)	ID1	CH. A
Main Language	ID2 to ID20	CH. B
Language 1	ID21 to ID40	CH. C
Language 2	ID41 to ID60	CH. D
Language 3	ID61 to ID80	CH. E

- (i) MONITOR CH1.OUT selector switch -----EXT
- (ii) MONITOR MODE selector switch -----4LINE



* When a 6.3 mm microphone plug (mono) is connected to DIRECT OUTPUT, no sound is output except from DIRECT OUTPUT.

If you want to output sound from other OUTPUT terminals, short-circuit the tip and the ring (see the right schematic).



11. Conference Manager

To use the conference manager function of this conference system, set up the optional conference manager (ATCS-C60MAG) on the operation PC using the DVD-ROM.

Connect the master control unit with the operation PC via the RS-232C communication board. (Refer to section 3.2 “System connection example”)

For details including software operation, refer to ATCS-C60MAG online help.

(To start the online help, install ATCS-C60MAG and select Start > All programs > ATCS-C60MAG > Online help.)

11.1. Setting up

[Required environment]

Hardware (for Microsoft Windows XP)

Item	Recommended
CPU	Intel Pentium 4 with HT, 2.4 GHz and above Intel Core 2 Duo E4300 / T5600 and above
RAM	512 MB and above
Available hard-disk space	40 GB and above
Monitor resolution	Monitor with 1024 x 768 (SXGA) resolution and above
Sub monitor (if the sub screen is to be used) and above	Monitor/projector with 1024 x 768 (SXGA) resolution
RS-232C port	1 port and above
Video input (if video recording is required)	Microsoft DirectShow compliant video input
Sound input (if sound recording is required)	SoundBlaster compatible

Hardware (for Microsoft Windows Vista)

Item	Recommended
CPU	Intel Core 2 Duo E4400 / T7300 and above
RAM	2 GB and above
Available hard-disk space	40 GB and above
Monitor resolution	Monitor with 1024 x 768 (SXGA) resolution and above
Sub monitor (if the sub screen is to be used) and above	Monitor/projector with 1024 x 768 (SXGA) resolution
RS-232C port	1 port and above
Video input (if video recording is required)	Microsoft DirectShow compliant video input
Sound input (if sound recording is required)	SoundBlaster compatible

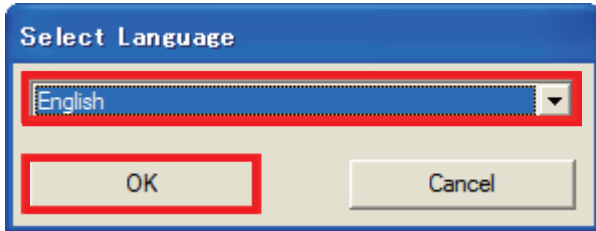
Software

Item	Mandatory
Operating system	Microsoft Windows XP SP2 and above * Microsoft Windows Vista
Internet Explorer	Internet Explorer 5.5 SP2 and above *

* SP is an abbreviation of Service Pack

[Install the dedicated conference system software, ATCS-C60MAG]

Insert the DVD-ROM of the dedicated conference system software, ATCS-C60MAG.
The conference system installation automatically starts.



When the installer starts, the dialog box on the left is displayed. Select your language. Click [OK].



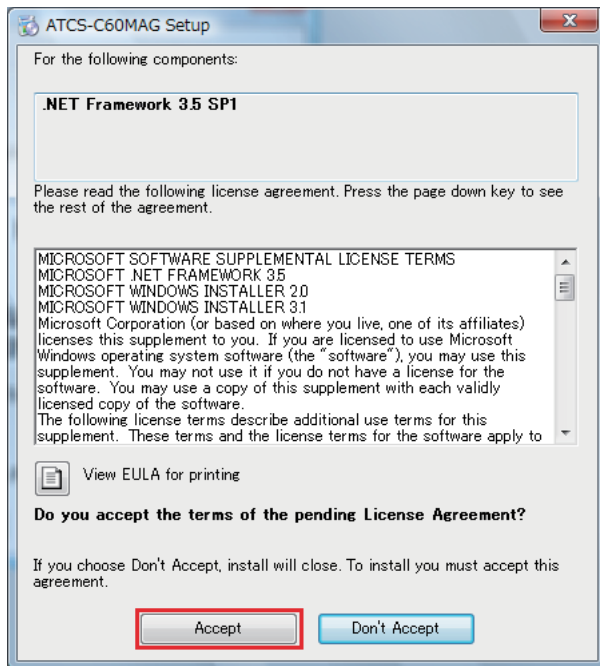
If Autorun is disabled, run Setup. exe from the DVD-ROM .

* When anti-virus software is activate, the installation may fail. Be sure to turn off anti-virus protection.

To turn off the protection, refer to the instruction manual of corresponding software.

[Installation of .NET Framework 3.5]

* This dialog box does not appear when .NET Framework 3.5 is already installed.

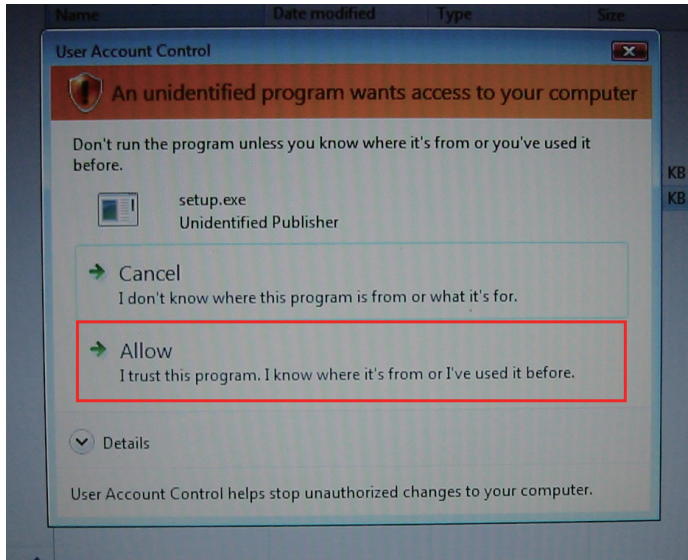


Click [Accept].

E
N

[Installation procedures for Windows Vista , Windows 7]

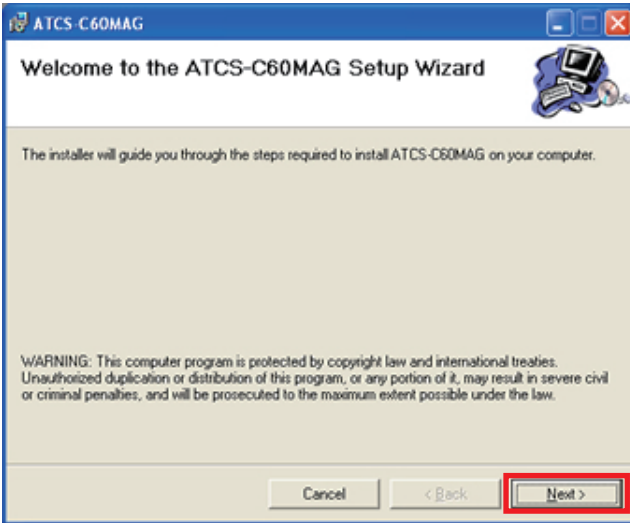
* When the ATCS-C60MAG installation begins, the confirmation dialog box shown below is displayed.



Click [Allow].

[Installation of ATCS-C60MAG]

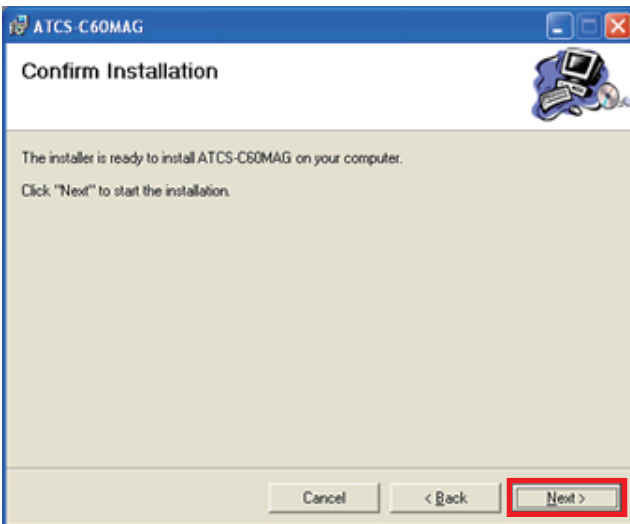
* Screenshots of Windows XP are used here.



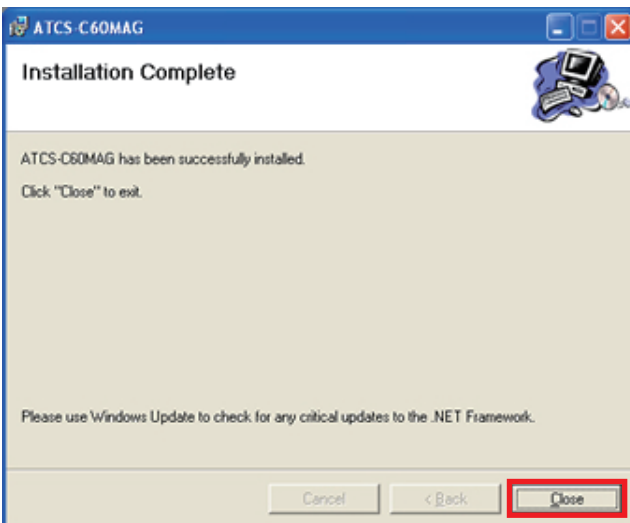
After the required system requirements are met, the ATCS-C60MAG installer starts and the dialog box on the left is displayed.

Click [Next >].

E
N



Click [Next >].



Click [Close].

Now the installation is complete.

Restart Windows.

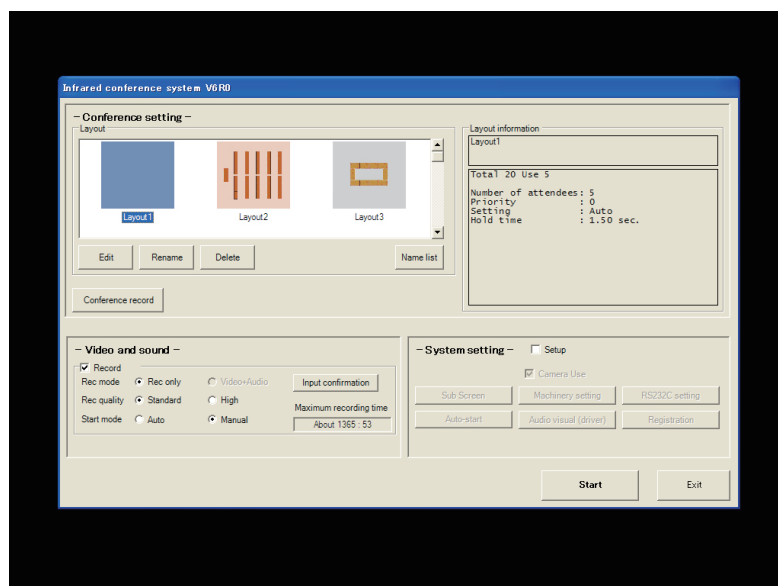
On the desktop, the icon to the right is displayed.
Double-click it to run the conference manager.



The startup window of the conference manager (ATCS-C60MAG) is shown below.



Starting



Settings

11.2. Setting the communication port

Set the COM port for RS-232C communication. If the COM port is not properly set, the PC will not communicate with the ATCS-C60 master control unit.

1. Set up the RS-232C communication board as follows.

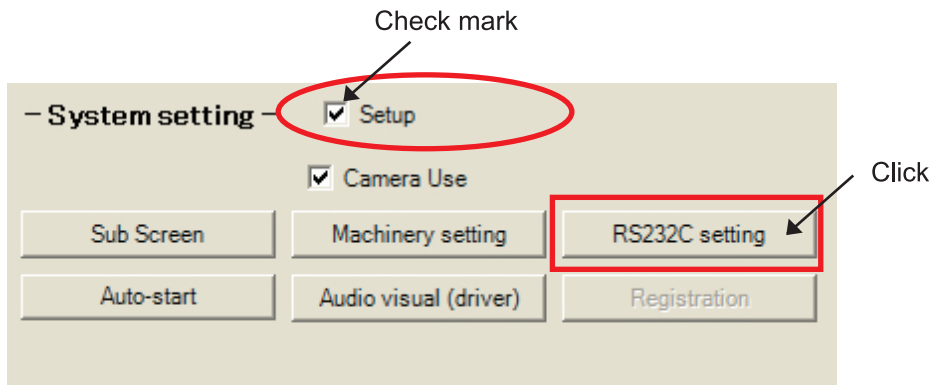
Transmission method	Asynchronous serial transmission
Baud rate	9600 bps

* For details about the setting, refer to the instruction manual for the communication board.

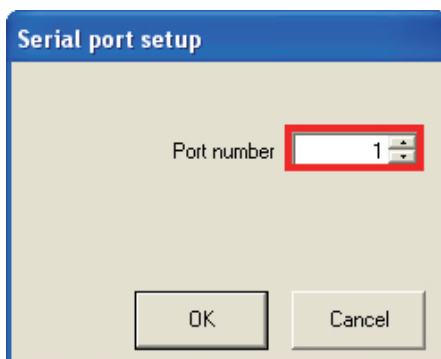
2. Connect the serial connector of the RS-232C communication board with the master control unit using a cable.

D-SUB (9-pin female-female) straight cable is used.

3. Run the conference manager. Check Setup in the System setting window and click RS232C setting.

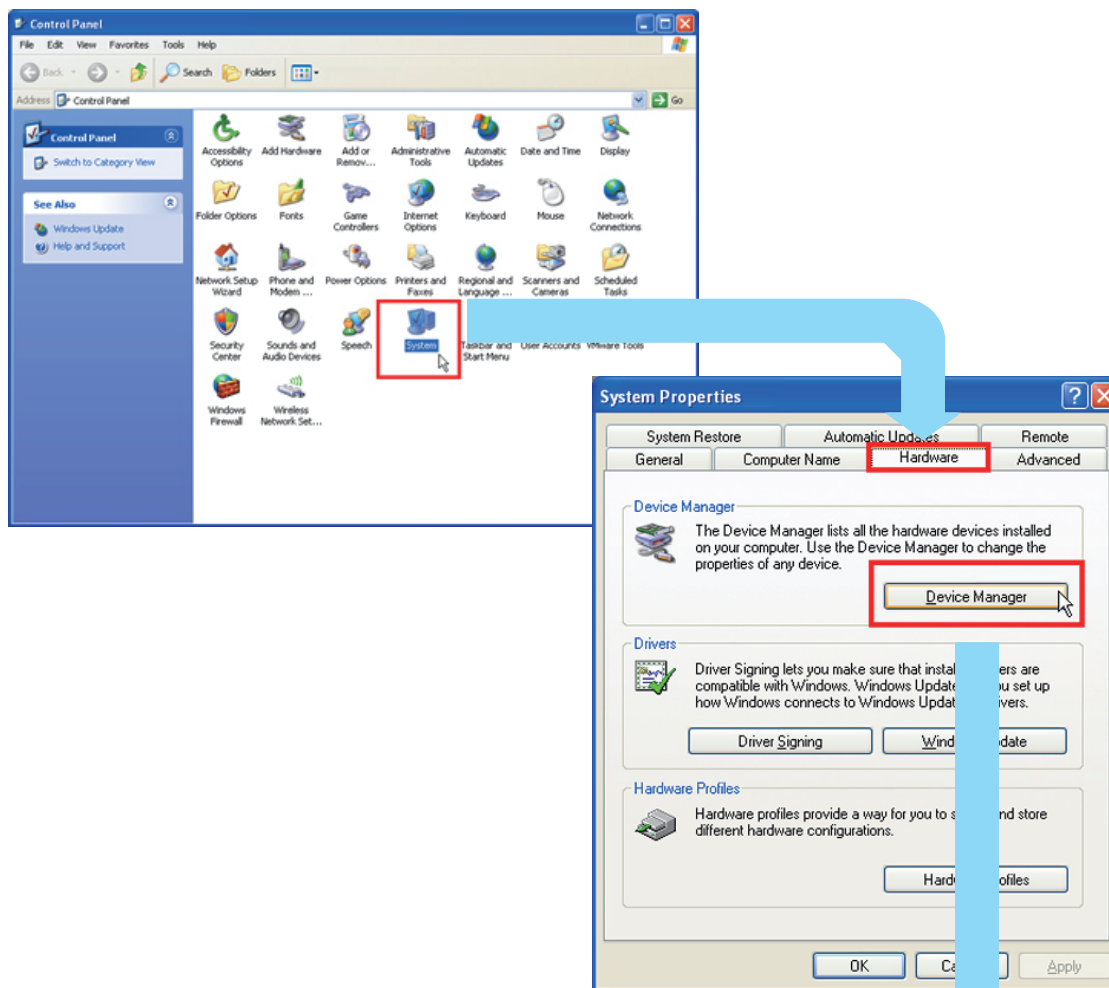


4. Set up the connection with the master control unit.



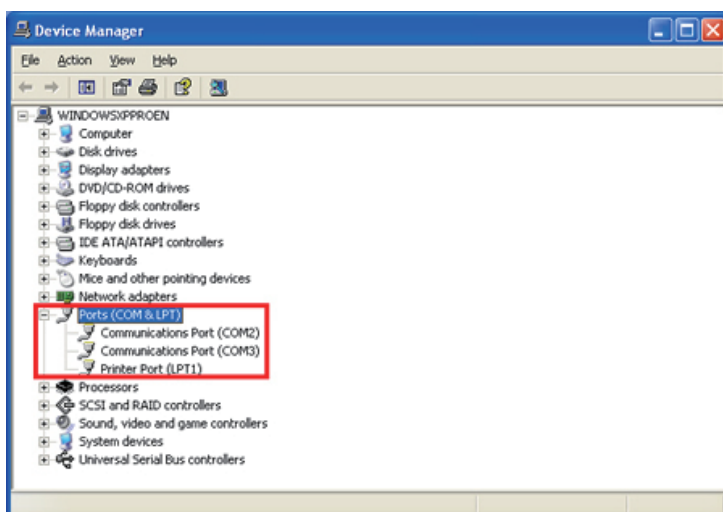
Select the port number for the connection with the master control unit.

* For checking the communication port number, click System in Control Panel and then click **Device Manager** in the **Hardware** tab.



See Ports (COM & LPT).

<Checking the communication port>



11.3. Conference manager function

The main functions of the conference manager are listed below.

Basic functions

1. Microphone ON/OFF
2. Sound volume setting (entire / individual)
3. Lump finish
4. Speech mode
 - Automatic
 - Manual [FIFO, LIFO and Chairperson Priority]
5. Layout editing

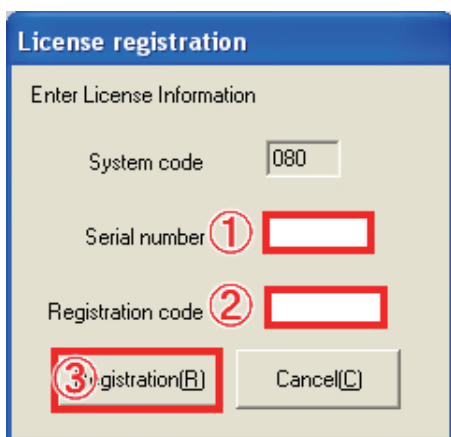
The basic functions are available just after completing the procedures described in “Installation of conference manager” and “Setting the communication port.”

Multimedia system function (basic functions and the following functions)

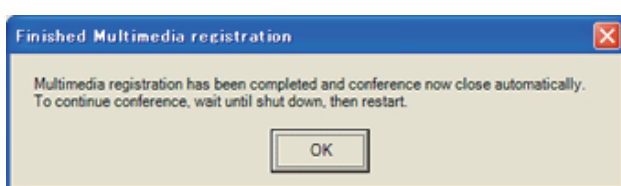
1. Display of speech time left and current time
2. Camera control
3. Video and sound recording and playback
4. Speech mode
 - Simultaneous interpreting mode

* In order to use the multimedia functions, “Multimedia system registration” is required.

11.4. Multimedia system registration



- (i) Input the serial number found on the product CD.
 - (ii) For the registration code, please contact the local Audio-Technica or local distributor of Audio-Technica.
 - * The system code and serial number are required when requesting the registration code.
 - * Contact information is listed on the last page.
- (iii) Click [Registration].



Input the correct code to complete multimedia system registration.

Click [OK] and restart the conference system.

12. Technical Data

12.1. IR transmitter/receiver unit (ATCS-A60)

- a. Transmission method : Infrared Wireless system
- b. Carrier frequency band : 1 to 10 MHz
- c. Infrared wave length : 870 nm
- d. Modulation method : Frequency modulation
- e. Operating distance : Approximately 5 m (when the Transmitter power selector switch on ATCS-M60 is set to NORMAL)
: Approximately 4 m (when the Transmitter power selector switch on ATCS-M60 is set to LO)
- f. Operating temperature range : 0°C to +40°C
- g. Connection terminal : BNC jack
- h. Power supply : Supplied from the master control unit (24 VDC)
- i. Dimensions : Dia. 108 x H 55.5 mm
- j. Weight : 151 g
- k. Accessories : Mounting bracket x 1, mounting bracket fixing screw x 2

12.2. Master control unit (ATCS-C60)

- a. Transmission method : Infrared Wireless system
- b. Carrier frequency band : 1 to 10 MHz
- c. Modulation method : Frequency modulation
- d. Infrared data communication method : 9600 bps GMSK system
- e. Input MONITOR INPUT CH. 1 to 4 : -10dBV, unbalanced, pin jack
AUX INPUT 1 : -10dBV, unbalanced, pin jack
AUX INPUT 2 : -10dBV, balanced, SLR-3P/-50dBV,
unbalanced, 6.3 mm standard jack
- f. Output DIRECT OUTPUT A to E : -10dBV, unbalanced, 6.3 mm standard jack
OUTPUT 1 : -10dBV, unbalanced, pin jack
OUTPUT 2 : -10dBV, balanced, XLR-3P(male)
REC OUTPUT 1 and 2 : -10dBV, unbalanced, pin jack
- g. Number of connected IR transmitter/receiver units : 4 units (up to 16 units when ATCS-D60 is used.)
- h. External control connection terminal : D-SUB connector (9-pin, male) RS-232C (straight cable)
- i. Input volume : Monitor CH. 1 to 4 (GAIN +6 dB to -∞)
: AUX INPUT 1 (GAIN +40 dB to -5 dB)
: AUX INPUT 2 (GAIN +6 dB to -∞)
- j. Output volume : OUTPUT 1 (GAIN +6 dB to -∞)
: OUTPUT 2 (GAIN +6 dB to -∞)
- k. Monitor CH. 1 input switch : MIX (OUTPUT) ? EXT (INPUT)
- l. Monitor mode switch : 2 LINE (Monitor CH. 1 and 2 are used) ? 4 LINE
(Monitor CH. 1 to 4 are used)
- m. Operating temperature range : 0°C to +40°C

- n. Power supply : 100 to 240 VAC, 50/60 Hz, 75W
- o. Dimensions : W431 x D274 x H88 (except protrusion)
- p. Weight : 4.2 kg (main body only)
- q. Accessories : Instruction Manual x 1
: Warranty card x 1
: Rack adapter x 2
: Rack adapter fixing screw x 6
: Precision screwdriver x 5
: Power cable x 1

12.3. Microphone unit (ATCS-M60)

- a. Transmission method : Infrared Wireless system
- b. Carrier frequency band : 1 to 10 MHz
- c. Modulation method : Frequency modulation
- d. Infrared wave length : 870 nm
- e. Operating distance : Approximately 5 m (when the Transmitter power selector switch is set to NORMAL)
: Approximately 4 m (when the Transmitter power selector switch is set to LO)
- f. Input Microphone connection terminal : XLR-4P (female)
- g. Output Monitor loudspeaker : Maximum level 2W8Ω
Headphone output : φ3.5 monaural mini jack
- h. External control connection terminal : MIN-DIN connector 9P (female)
- i. Operating temperature range : 0°C to +40°C
- j. Power supply : Dedicated lithium ion battery with 7.4 VDC, 2400 mAh (LI-240, optional) or AC adaptor with 12 VDC, 1A (optional)
- k. Battery life : Approx. 8 hours when the operation ratio of NORMAL
(Using an attached battery) transmitting to receiving is 1 : 4
Approx. 9 hours when the operation ratio of LO transmitting to receiving is 1 : 4
(Can be varied according to sound volume of the loudspeaker and operating time and charge condition of the battery.)
- l. Dimensions : W187 x D149 x H75.5 mm
- m. Weight : 600 g (excluding microphone or battery)
- n. Accessories : Battery cover x 1

12.4. Battery Charger (ATCS-B60)

- a. Power supply : 100 to 240 VAC, 50/60 Hz
(Using AC adaptor with 10 V, 7.2 A)
- b. Rated capacity : 60 VA (10 V, 6 A)
- c. Charging current : 550 mA
- d. Charging time : Approximately 5.5 hours (when charging LI-240)
- e. Dimensions : W 130 x D 340 x H 86.7 mm (except protrusion)
- f. Weight : 2 kg (excluding AC adaptor or power cable)
- g. Accessories : AC adaptor x 1, Power cable x 1

12.5. Distributor (ATCS-D60)

- a. Number of distribution : 2
- b. Frequency band : 1 to 10 MHz
- c. Mixing and distributing loss : 5 dB or less
- d. Input and output impedance : 75 Ω
- e. Connection terminal : BNC jack
(DC bypass: 30V 1A or less)
- f. Operating temperature range : -10°C to +50°C
- g. Dimensions : W 100 x D 82.6 x H 30 mm
- h. Weight : 167 g

12.6. Dedicated battery (optional)

Lithium ion battery LI-240 (7.4 VDC, 2400 mAh)

12.7. Dedicated AC adaptor (optional)

12V 1000mA

12.8. Dedicated microphones (optional)

ATCS-60MIC

- Entire length : 430 mm
- Dimensions : Dia. 24 mm
- Weight : 115 g
- Polar Pattern : Hypercardioid

12.9. Voting module(ATCS-V60)

- a. External control connection terminal : MIN-DIN connector 9P (male)
- b. Power supply : Supplied from the Microphone unit (5VDC)
- c. Operating temperature range : 0°C to + 40°C
- d. Dimensions : W 150 x D 67 x H 20 mm
- e. Cable length : 480 mm
- f. Weight : 110 g (including the cable)

13. Troubleshooting

13.1. Basic checklist

Situation	Check	Solutions
The microphone unit will not turn on.	<ul style="list-style-type: none"> Is the battery charged? 	<ul style="list-style-type: none"> The batteries must be charged before initial use. Charge before use.
The master control unit is not turned on.	<ul style="list-style-type: none"> Is the power plug inserted into the outlet? 	<ul style="list-style-type: none"> Insert the power plug into the outlet.
No sound is output from the loudspeaker or the earphone terminal. (ATCS-M60)	<ul style="list-style-type: none"> Is the monitor selector number on the microphone unit correct? Is the volume turned down on the connected equipment? Is the earphone jack securely inserted? 	<ul style="list-style-type: none"> Switch the monitor number. (Match it with the input terminal number for the master control unit.) Turn up the volume. Insert the earphone jack securely.
The buttons on the microphone unit do not work.	<ul style="list-style-type: none"> Is the correct ID number set? Is the unit exposed to sunlight or spotlights? Is there any obstruction between the microphone unit and the IR transmitter/receiver unit? Is the distance over 5 m? * The distance depends on the room condition. Is the power LED illuminated on transmitter/receiver unit? 	<p>Set the ID number from [001] to [150].</p> <ul style="list-style-type: none"> 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 master control unit and the IR transmitter/receiver units properly.
Operating time of the microphone unit battery is short.	_____	<p>The battery is dying. (*1) Purchase a new battery.</p>
<p>The microphone unit battery cannot be charged.</p> <ul style="list-style-type: none"> The charging lamp does not light. The charging lamp is flashing. Charging does not complete after 7 hours. 	<ul style="list-style-type: none"> Are the charging terminals dirty? Has the battery been left for a long time after charging? Can other batteries be charged? 	<ul style="list-style-type: none"> Clean the charging terminals. Use the battery and then charge it again. Replace it with new one.

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

13.2. Checking transmission and reception of infrared signals.

Set the microphone unit ID numbers as shown in the table to check receiving condition of the master control unit.

Set ID of the microphone unit	Condition of the master control unit
191	The IR receiving LED [A] on the master control unit front panel turns on and the microphone sound is output.
192	The IR receiving LED [B] on the master control unit front panel turns on and the microphone sound is output.
193	The IR receiving LED [C] on the master control unit front panel turns on and the microphone sound is output.
194	The IR receiving LED [D] on the master control unit front panel turns on and the microphone sound is output.
195	The IR receiving LED [E] on the master control unit front panel turns on and the microphone sound is output.
196	The IR receiving LED [DATA] on the master control unit front panel turns on.

1. Set the THRESHOLD switch to 0, HOLD switch to 0, and TEST switch to 2. Then turn on the master control unit again. Set the microphone unit ID number to [191] and turn the unit on. Check whether the IR receiving LED [A] lights and microphone sound is output.
 2. Next, turn off the microphone unit temporarily to set the microphone unit ID number to [192] to [196] and turn it on again. Check whether the IR receiving LED [B] to [E] corresponding to the ID number on the master control unit front panel lights and microphone sound is output. (Refer to the table above.) Note that when the ID number is [196], only [DATA] lights and no sound is output.
- * If the sound is not output or the indicator LEDs on the master control unit front panel blink or do not light, the system may be defective.

For the product warranty and repairs, contact your sales representative or our business office.

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