

1.9GHz Wireless Receiver

K-SRC14

FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful

Compliance with FCC requirement 15.407(c)

Data transmission is always initiated by software, which is then passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinues transmission in case of either absence of information to transmit or operational failure.

Radio Frequency (RF) Exposure Warning

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).

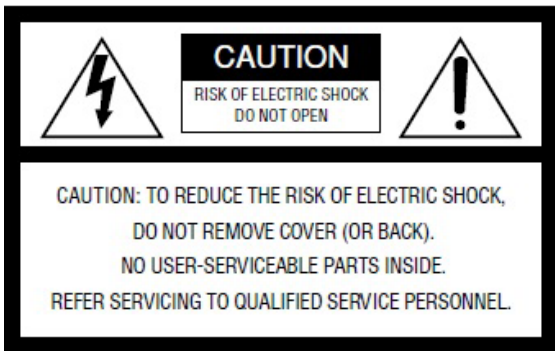
MEDICAL:

Consult the manufacturer of any personal medical devices, such as pacemakers, to determine if they are adequately shielded from external RF (radio frequency) energy. The unit operates in the frequency range of 1.92 GHz to 1.93 GHz.

Do not use the unit in health care facilities if any regulations posted in the area instruct you not to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF (radio frequency) energy.

Notice

FCC ID can be found on the bottom of the units.



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 appliance.

WARNING:

- The mains plug or an appliance coupler shall remain readily operable.
- To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.
- The connections should comply with local electrical code.
- The installation shall be carried out in accordance with all applicable installation rules.
- To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
- The apparatus should not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, should be placed on the apparatus.
- All work related to the installation of this product should be made by qualified service personnel or system installers.
- This product has no power switch. When turning off the power, disconnect the power supply from the PoE device.

CAUTION:

Before attempting to connect or operate this product, please read the label on the bottom.

The model number and serial number of this product may be found on the surface of the unit. You should note the model number and serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____

Serial No. _____

Important safety instructions

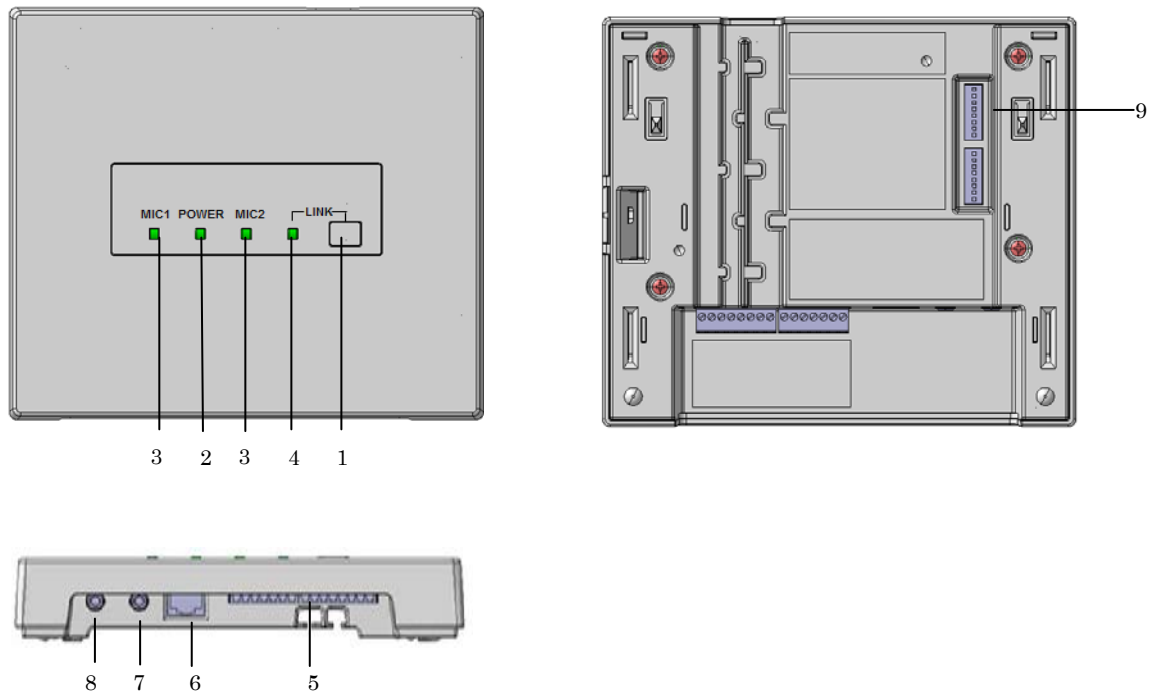
- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 10) Only use attachments/accessories specified by the manufacturer.
- 11) 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.



- 12) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 13) 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.
- 14) Make sure that the wall that the shelf will be attached to is strong enough to support the shelf. If not, it is necessary for the wall to be reinforced.
- 15) For safety reasons, do not physically modify the product or any optional equipment.
- 16) To prevent possible fire or electric shock, do not expose this product to rain or moisture.
- 17) Follow all warnings and instructions marked on this product.
- 18) To reduce the risk of electric shock, do not disassemble this product. Only qualified personnel should service this product. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock.
- 19) Unplug the AC adaptor from the AC outlet and have the product serviced by qualified service personnel in the following cases:
 - A. When the power supply cord or plug is damaged or frayed.
 - B. If liquid has been spilled into this product.

- C. If the product has been exposed to rain or water.
 - D. If the product does not operate according to this manual. Adjust only the controls that are explained in this manual. Improper adjustment of other controls may result in damage and may require service by a qualified technician to restore the product to normal operation.
 - E. If the product has been dropped or damaged.
 - F. If product performance deteriorates.
- 20) The product should never be placed near or over a radiator or other heat source.
- 21) Do not use a microwave oven to dry this product.
- 22) The product may only be installed and serviced by qualified service personnel.

Major operating controls and their functions



[1][LINK] button

Pressing this button will become register mode with a microphone.
 (Linkup connection is established or progress of 20 seconds will cancel this mode.)
 Refer to Operating procedures.

[2] POWER indicator [POWER]

(Green/Yellow/Red)

This LED lights green when the power is on and this unit is receivable under normal conditions.

This LED lights as follows to indicate other states:

E2 signal output provided: lighting red (Lighting green at Power OFF)

Page mute signal received: lighting yellow

[3]MIC1/MIC2 indicator [MIC1/MIC2]

This LED lights green when this unit is receiving signals from each microphone under normal conditions.

This LED lights as follows to indicate other states:

E2 signal output provided: lighting red. (Lighting green at E2 ACK input provided)

Page mute signal received: lighting yellow

E1 signal output provided: lighting (300ms) red

Feedback blocker in operation: lighting(5sec) yellow

[4] LINK indicator [LINK]

This LED lights yellow(500ms) when this unit is during ID registration(Pairing)

This LED lights red when this unit is system error

[5]Control terminals

8-pin and 7-pin Euro blocks are used.

The following terminals are equipped.

E1 CNT: provides E1 signal * output controlled by K-STD14.

E2 CNT: provides E2 signal * output controlled by K-STD14.

* Those are available when K-STD14 is used. Settings of E1 and E2 are performed with K-STD14.

E2 ACK: connects acknowledge signals responding to E2 output.

PAGE MUTE: provides make signal inputs externally when the paging function is used.

RS-232C: is used to control this unit via communication from an external device.

LINK button: provides make signal inputs externally when the external link button is used.

Alert notification button; provides make signal inputs externally when the external Alert notification button is used.

[6] Amplifier interface connector

This connector is used to connect the cable to the amplifier.

A standard CAT5 or CAT5e cable is used to connect to the amplifier.

[7] MIX OUT (unbalanced) connector

This connector provides the audio output of LINE IN of the main unit. Setting the No. 4 of the DIP switch1 to ON allows the audio outputs of the microphone CH1 and CH2 received by this unit to be provided after mixing with LINE IN. This is an unbalanced output. A stereo mini plug (ϕ 3.5 mm) is used.

[8] LINE IN connector

This connector is used to provide an audio input from external sources such as a projector or CD. This is a stereo, line level input, and is internally mixed to a monaural signal. A stereo mini plug (ϕ 3.5 mm) is used.

[9]DIP Switches

Two DIP switches are used.

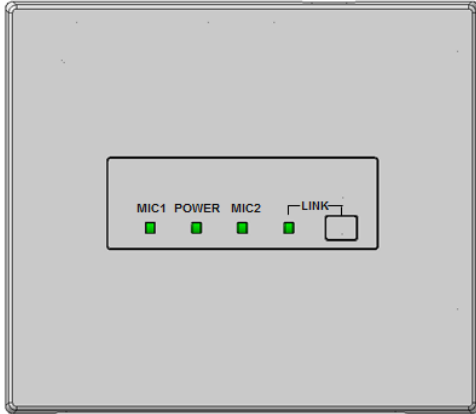
The settings of this switch are updated at the time of turning on the power.

Settings changed while powered up are not updated until the power is turned off and then back on. (Excluding No.7 of DIP Switch 1)

Operating procedures

1. A standard CAT5 or CAT5e cable is used to connect to the amplifier,. After that, turned on amplifier.

The POWER LED of the receiver lights green.



2. Power ON of the microphone .

[K-STD14] : Turn on the [PWR/MUTE] button.

[K-SHH14] : Turn on the [PWR LINK] button. And Push [TALK push]button.

The MIC1 or MIC2 LED indicator of the lights green (depending on a channel to be received.)

3 .Adjust the volume of external devices such as an amplifier.

The overall volume is adjusted with the external amplifier or the like. Use of the volume button of K-STD14 allows the volume of itself to be adjusted. In addition, selection of the target with the selection button of K-STD14 allows the volume of the other microphone received by this unit and the volume of LINE IN of this unit to be adjusted.

4. The LED of the POWER/MIC1/MIC2 indicates the operating state of this unit during operation.

	LED	
	POWER indicator	MIC1/MIC2 indicator
E2 signal output provided*	Lighting red	Lighting red (lighting green at E2 ACK input provided)
E1 signal output provided*	Lighting green	Lighting red (for 300 ms)
Page mute signal input provided	Lighting yellow	Lighting yellow
Microphone volume operated*	Lighting green	No lighting (for 300 ms)
Feedback blocker operated	Lighting green	Lighting yellow (for 5 s)
Audio link establishment	Lighting green	Lighting green

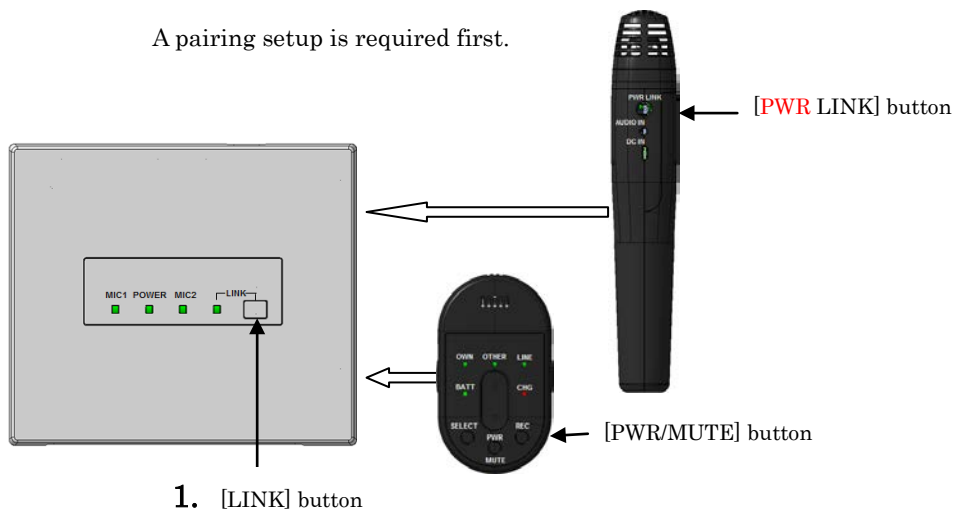
* Applicable when K-STD14 is used

5. The LED of the LINK indicates the operating state of this unit during operation.

Audio link establishment with the DECT AP	Lighting Green
During ID registration/pairing	Blink yellow at 500ms period
System error	Lighting Red

Connection registration of the microphone to a receiver

When connecting it with the receiver which has not connected once, pairing registration is needed first.
Please perform pairing registration according to the following procedure.
(Only the alert operates without registration work.)



1. Press a receiver's [LINK] button, and a receiver is made into register mode.
2. (a) Pendant microphone:
Press [PWR/MUTE] button and [REC] button will register for receiver.

Pendant microphone [BATT] indicator is green light.

- (b) Handheld microphone:
Microphone LINK switch (inside the battery cover) is ON. (Different receiver connection)
(Please read the operating instructions of the Handheld Microphone (K-SHH14).)
Press [PWR LINK] button will register for receiver.

Handheld microphone [BATT] indicator is blinking (green).

Classroom Audio

Pendant Microphone [K-STD14]

1. Press [PWR/MUTE] button will start a microphone.
A microphone can be used in a classroom. (MIC1 or MIC2 LED indicator lighting green)

Note:

- Also read the operating instructions of the Pendant Microphone (K-STD14).

Handheld Microphone [K-SHH14]

1. Press [PWR LINK] button will start a microphone.
2. Press [TALK push] button will start a microphone.
A microphone can be used in a classroom. (MIC2 or MIC1 LED indicator lighting green)

Note:

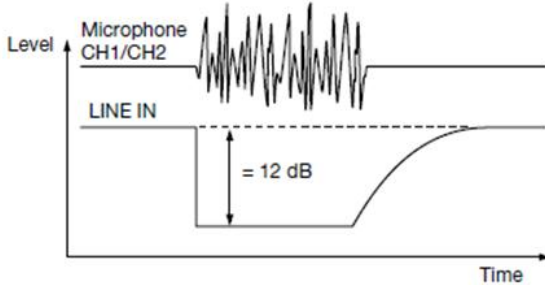
- Also read the operating instructions of the Handheld Microphone (K-SHH14).

Functions

● Microphone override function

This is a function where the audio level of LINE IN is automatically adjusted to lower when the audio input of the microphone MIC1 or microphone MIC2 is provided. The attenuation of the audio level is -12 dB.

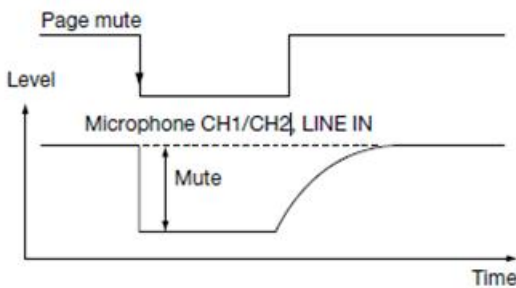
When the audio input of the microphone 1 or microphone2 is not provided any more, the volume of LINE IN automatically returns to the previous level.



● Paging mute function

This is a function where the audio outputs of the microphone MIC1, microphone MIC2, and mixing output of this unit are muted by closing the PAGE MUTE terminal.

This function is specified with the **Control terminal or RS-232C**. This function is set to OFF at default settings.



● Tone function

This is a function where the operation sound output is provided from the MIX OUT connector when the volume button is operated with the optional microphone, K-STD14. The operation sound is generated twice at the maximum and minimum volumes.

The level of the operation sound can be selected to HIGH or LOW with the DIP switch. The level is set to LOW at default settings.

The level is set to LOW at default settings.

This function is specified with the DIP switch. This function is set to OFF at default settings.

● Microphone/line mixing function

This function is designed to assign the microphones MIC1 and MIC2 to the mixing out, and two signals will be mixed with the mixing out.

This function is specified with the DIP switch. No mixing is provided at default settings.

● Remote volume function

This is a function where the volume of this unit cannot be adjusted with the volume button of the optional microphone, K-STD14.

This function is used when external devices are controlled with the volume button through the use of the communication control function of this unit.

This function is specified with the DIP switch. The volume can be controlled with the microphone at default settings.

● Mixing output attenuator function

Setting the mixing output attenuator to ON provides attenuation in the mixing output by 10 dB.

This function is useful when a device with high input sensitivity is connected.

This function is specified with the DIP switch. The output is set to -10 dB at default settings.

■ About the feedback blocker

This is a function where the feedback loop generated when the microphone and speaker approach each other is reduced.

An integrated filter is automatically selected according to the generated audio frequency, and reduces the uncomfortable feedback loop.

This function is specified with the DIP switch. This function is set to OFF at default settings.

Note:

· This function is simplified, and cannot fully remove the feedback loop. When the feedback loop is extremely large, this function will work to mute all the audio outputs of this unit.

● E1 CNT, E2 CNT function

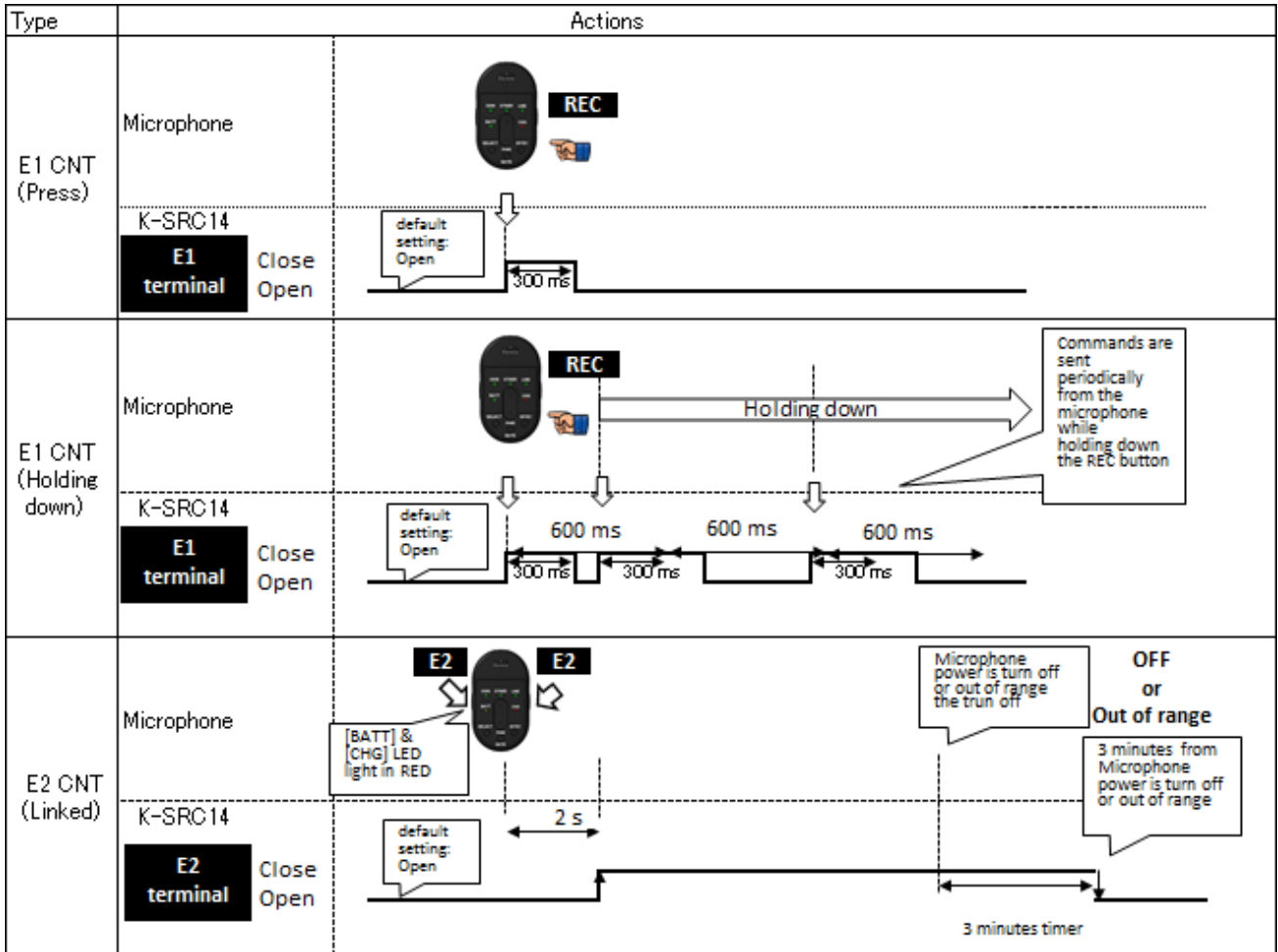
These functions are available when K-STD14 is used. When E1 or E2 is controlled with the microphone, control signals are provided from the E1 CNT or E2 CNT terminal of this unit. Selection between E1 and E2 is made at the microphone side.

E1: Default setting is Open.

Press the button [REC] of the microphone to select the close state of 300 ms.

E2: Default setting is Open.

Press the both sides [E2] button simultaneously of the microphone for 2 seconds or more or press the alert button to select the close state.



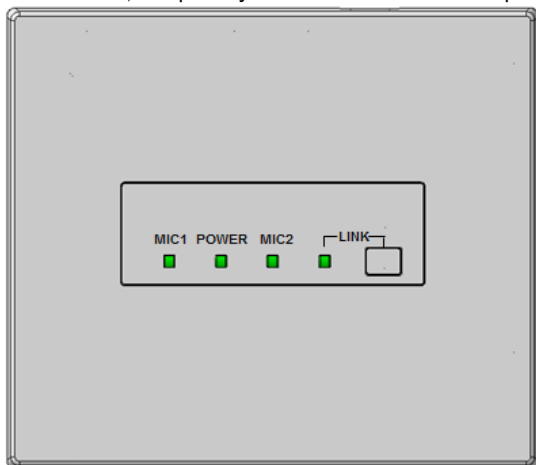
● E2 ACK function

When make signal inputs are provided to E2 ACK of the control terminals during E2 operation, the MIC1 or MIC2 LED indicator of this unit, MIC1 or MIC2 turns from red to green to indicate that the E2 ACK signal is received.

When the E2 control input has not been provided from the microphone for 3 minutes after turning off the power of the microphone, the E2 state ends, the MIC1 or MIC2 LED indicator indicates the receiving state, and the operation LED turns from red to green to indicate the operating state.

LED lighting indication1[POWER/MIC1/MIC2]

Three LEDs of this unit operate as an operation indicator indicating the state in operation and as a reception indicator indicating the receiving state of the microphone under normal conditions. In addition to those above, the LEDs operate as an indication LED indicating the operating state of this unit. Those LEDs indicate operating states as shown in the table. Furthermore, the priority order of indications is dependent on operating states.



Indication priority	Operating state	LED indication		
		MIC1	POWER	MIC2
1 (highest)	E2 signal output provided*1	Red (Lighting green at E2 ACK input provided)	Red *2 (Lighting green at Power OFF)	Red (Lighting green at E2 ACK input provided)
2	Paging mute signal input	Yellow	Yellow	Yellow
3	E1 signal output provided*1	Red (Lighting for 300 ms)	Green	Red (Lighting for 300 ms)
4	Microphone volume button operated*1	No lighting (No lighting for 300 ms at operating volume button)	Green	No lighting (No lighting for 300 ms at operating volume button)
5	Feedback blocker operated	Yellow (Lighting for 5s)	Green	Yellow (Lighting for 5s)
6	Audio link establishment	Green	Green	Green
7 (lowest)	Power ON	No lighting	Green	No lighting

*1 E1 and E2 signal outputs and operating the volume button are available only with the microphone, K-STD14.

*2 The indicator lights green again 3 minutes after the E2 signal is turned off with the microphone, K-STD14

LED Indication 2 [LINK LED]

LINK LED is normally off.

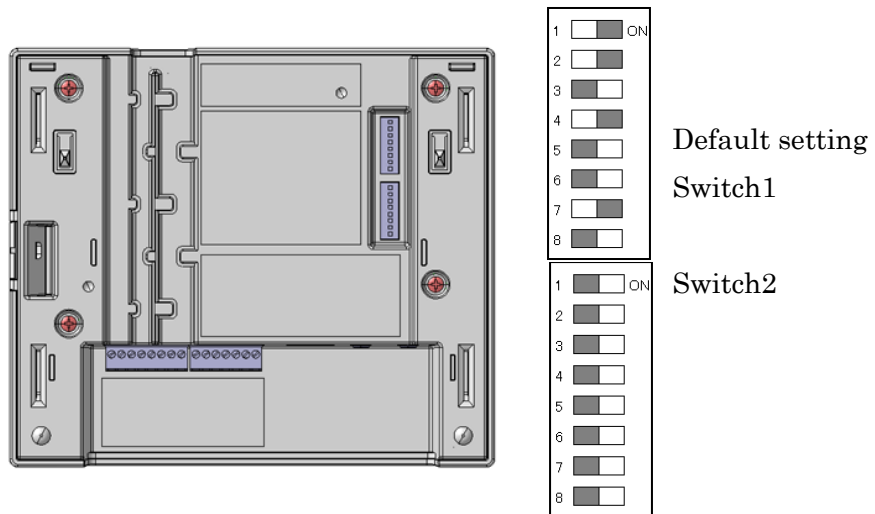
When an LINK key is pressed, the LINK LED blinks yellow at 20s.(ID registration/pairing mode)

·LED color will change according to priority. Show in below

Status	LED indication
	LINK
System error	Red
During ID registration/ pairing	Blink yellow at 20s period
Audio link establishment with the DECT AP	Green
Power ON	No lighting

* If there is no special mention, when a function is completed or time passed, the LED state is restored to before changing.

DIP switch setting



switch	No	Name	Function	On	Off
Switch1	1	Microphone Override	Selection of microphone override function	Activated*	Deactivated
	2	Tone On/Off	Selection of tone signal from this unit at operating volume button of K-STD14	Tone ON*	Tone OFF
	3	Tone Level High/Low	Selection of tone signal (2 levels) at operating volume button	High level	Low level*
	4	Microphone/Line Mixing	Selection of whether to mix the microphones MIC1 and MIC2 to the mixing output (Line Out)	Mixing activated*	Mixing deactivated
	5	Feedback Blocker setting	Selection of feedback blocker function	Feedback blocker activated	Feedback blocker deactivated*
	6	Remote Volume setting	Selection of remote volume function, normal mic buttons or reassigned. When this switch is set to ON, the volume control of this unit using the volume button of K-STD14 will be deactivated. This setting is intended for the control of an external device using the volume button of K-STD14 through the serial communication command.	Mic buttons reassigned	Mic buttons normal* (as labeled)
	7	Mix Out Attenuator setting	Attenuation of audio output of the mixing output (-10 dB)	ATT effective*	ATT deactivated
	8	Transmission output control	Selection of transmission output control	HIGH	Normal*
Switch2	1	unused	-	-	
	2				
	3				
	4				
	5				
	6				
	7				
	8	It must needs "OFF"	-	on	Off*

*default setting

Note:

The settings of this switch are updated at the time of turning on the power.

Settings changed while powered up are not updated until the power is turned off and then back on. (Excluding No.7 of DIP Switch 1)

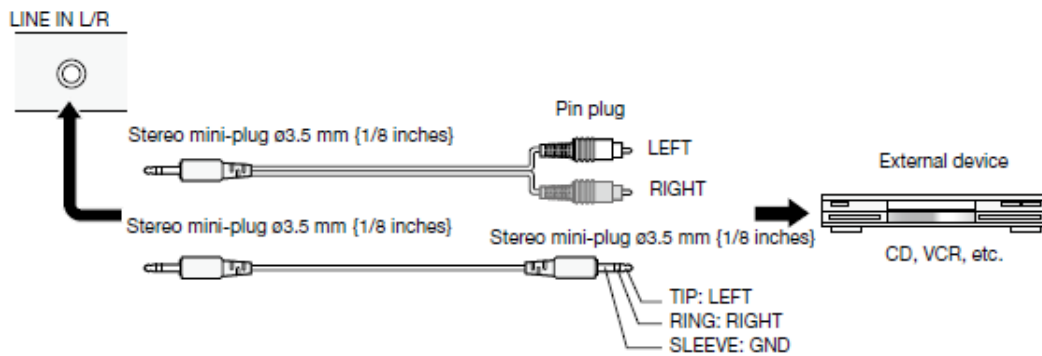
Connections

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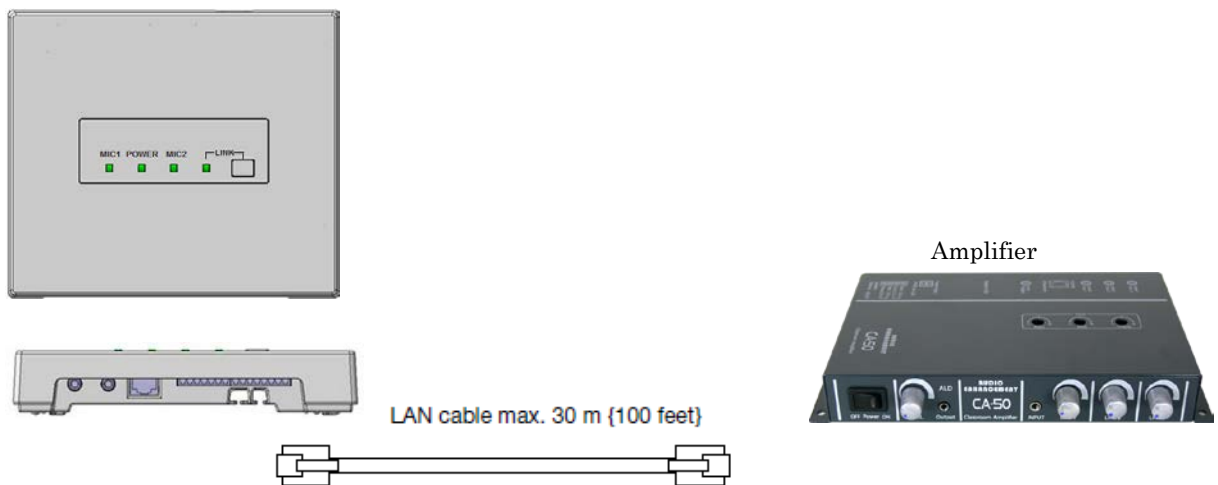
■ Connection of receiver

● LINE IN connection

Connect the audio output of a projector, CD player or DVD/VCR or similar line level output to the LINE IN connector of this unit. The line input of this terminal is a stereo input. Audio signals are mixed to monaural signals internally. Cables should be selected depending on the connector types of devices to be connected and follow the description below to connect external devices.



● INTERFACE CONNECTOR connection



Note:

· An RJ-45 type connector of this unit is based on our original system and electrical specifications. Never connect this terminal to a LAN connector that is compatible with Ethernet and PoE (Power over Ethernet).

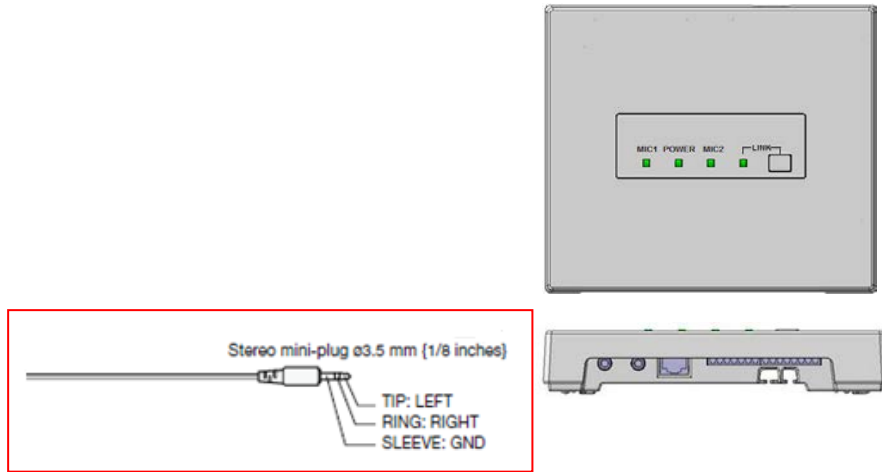
Never connect this connector to a LAN connector that is compatible with Ethernet and PoE (Power over Ether).

Be sure to make a connection when the power of this unit is set to OFF (No AC adaptor is allowed to be connected to the amplifier).

· If making an unbalanced connection for an audio output of this unit, use a STP (Shield Twisted Pair) LAN cable to prevent exogenous noise.

● AUDIO OUT connection

Connect the audio input of a network camera or similar level input to the AUDIO OUT connector of this unit. The line output of this terminal is a mono output. Cables should be selected depending on the connector types of devices to be connected and follow the description below to connect external devices.



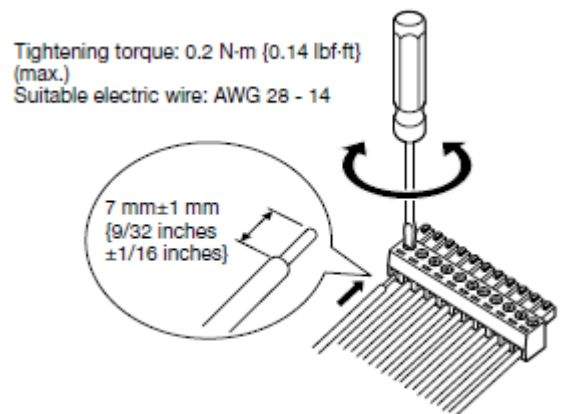
■ Connection to control terminal

● Cable processing

Before connection, prepare the cable as shown in the drawing at right.

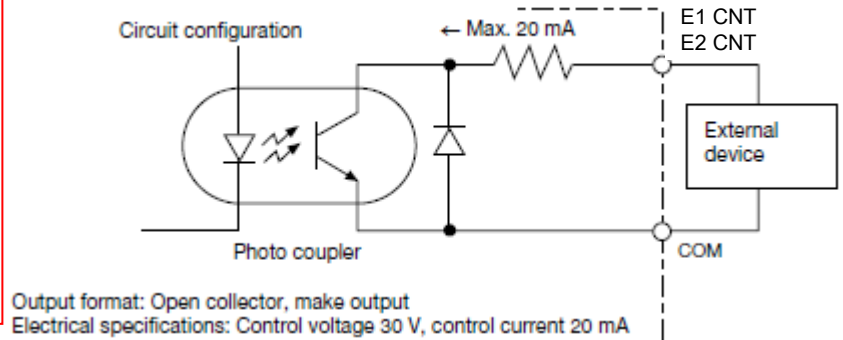
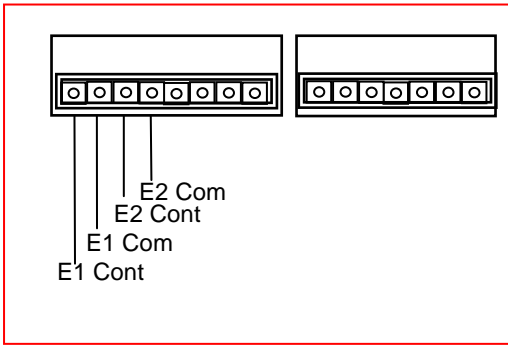
Note:

- Stranded wire is highly recommended.
- Wire insulation must be removed.
- Do not use solder to tin the wire.
- The recommended maximum cable length is 15 m {49feet}.



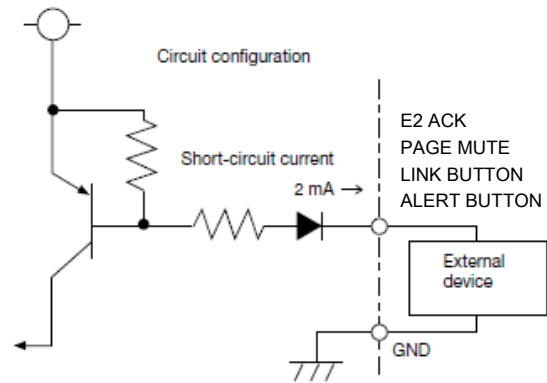
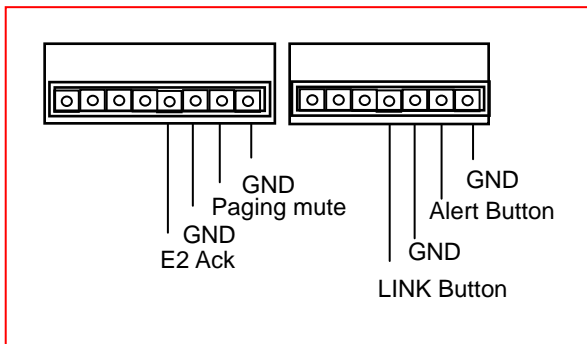
● Connection of E1 CNT and E2 CNT terminals

An external device is connected between CNT and COM. These terminals are isolated from the internal circuit by a photo coupler.



● Connection of E2 ACK, PAGE MUTE, LINK BUTTON and ALERT BUTTON terminals

An external device is connected between each terminal and GND. These terminals operate by closing their circuits. The GND terminal is connected to GND in this unit. A set of "dry relay" contacts are recommended to activate these features.

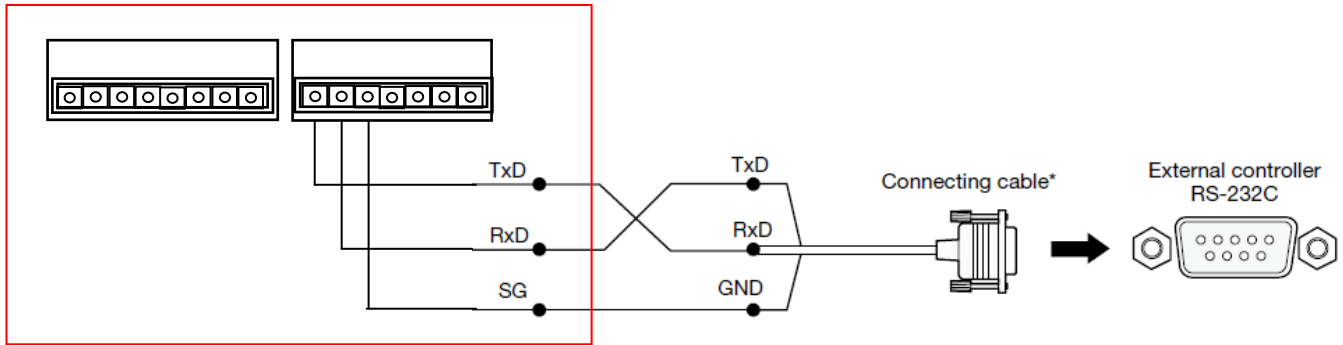


Input format: transistor input

Electrical specifications: Open voltage 5 V DC, short-circuit current 2 mA

■ Connection of RS-232C

The K-SRC14 can send and receive commands and status information via RS-232C to external devices. The external device is connected with a 3 wire cable. The cable should be cross-connected, in other words, the transmitting signal (TxD) of this unit is connected to the receiving signal (RxD) of the external device, and the receiving signal (RxD) of this unit is connected to the transmitting signal (TxD) of the external device. The ground signal of each device should be connected one another.



Cables to be connected should be selected depending on the external devices to be connected. The above illustrates that the external device has a D-sub 9-pin connector.

Interface	RS-232C
Communication system	Asynchronous
Baud rate	9600 bps
Data length	8 bits
Parity	None
Stop bit	1 bit
Flow control	None
Communication code	ASCII character code

Precautions for installation

The installation should be carried out following local standards for electric products.

Warning

· Be sure to contact your dealer for installation.

Before installing, turn off the power of the connecting product. In addition, be sure to read "Precautions" carefully and follow the instructions. Moreover, be sure to read operating instructions of the connecting product as well.

● Power

Connect the power plug of the AC adaptor by using a circuit breaker in any of the following ways:

Install this product near the power outlet.

Connect this product with the breaker of a distribution board which has a contact point of not less than 3.0 mm [3/32 inches].

Use a breaker that can block all the poles except for protective earth conductors.

Connect this product via the outlets of devices that can block power such as a power control unit.

● Static Electricity

Discharge any static electricity charged in your body by touching a metallic area before installing in order to prevent damage caused by static electricity.

● **Install the receiver within a range that the microphone can reach and in a location that can be seen in moving range.**

● **Avoid installing near a warm air flow path. In addition, if the product is installed in locations with a lot of moisture, dust or vibration, there is a risk of damage.**

● **Do not install and use in following locations:**

- 1) Locations directly affected by rain or water (including spaces under the eaves).
- 2) Locations such as pool where medical agents are used.
- 3) Locations such as kitchen or factory workshop where there is a lot of vapor or oil and special environments such as in flammable atmospheres.
- 4) Locations where radiation or X-rays and strong electric fields or magnetism arise.
- 5) At sea or along the coast, and locations such as hot springs where corrosive gases arise.
- 6) Locations with a lot of vibrations caused by vehicle or ships (this is not a product for vehicles).
- 7) Locations where water drops made by condensation will splash.

● **If there are any devices releasing strong noises, product may sometimes be impossible to use. In that case, install the product farther away until it can be used.**

● **For tightening bolts and screws, pay attention to following points:**

- 1) Torque control is necessary for tightening the bolts and screws.
- 2) Torque wrench and torque driver are necessary for controlling the torque.
- 3) Never use any impact driver or electric drill because torque control is difficult even if they have a clutch. Their use may result in damage to the mounting part.

● **After mounting, confirm visually that the product is firmly and stably fixed. If the product is properly installed, it will not wobble or make noise.**

● **In installing this receiver, be aware of the following:**

- 1) Be sure that the installation is carried out by a qualified personnel when installing at high locations.
- 2) Before installation, confirm that there is nobody around.
- 3) In order to carry out the installation safely and surely, pay close attention to the safety control.

● **Do not apply strong impact on this unit. Failure to observe this may damage this unit.**

Installation.

Warning

- Before installing, be sure to turn off the power of the receiver.

There is a risk of electric shock.

■ Installation of the receiver

● When using a ceiling panel

When installing the receiver and cables in a removable ceiling, follow the instructions shown below.

1 Make a hole in the ceiling panel

Remove the ceiling panel, drill a hole of approx. $\phi 35$ mm [$\phi 1\frac{1}{3}$ inches] through the panel, and run the cables to be connected through the hole.

2 The ceiling panel is inserted on mount bracket and a plate, and it fixes with a screw and a nut.

Note:

- Fix this unit firmly with specified torque with a tool such as a torque driver.

3 Connect the necessary cables to the receiver.

Connect the cables refer to Connections.

4 Install the receiver.

A receiver is hooked on the hook of the mount bracket. (Four places)

Open the screw cover.

A receiver is fixed to mount bracket with a driver using an attached screw.

Close the screw cover.

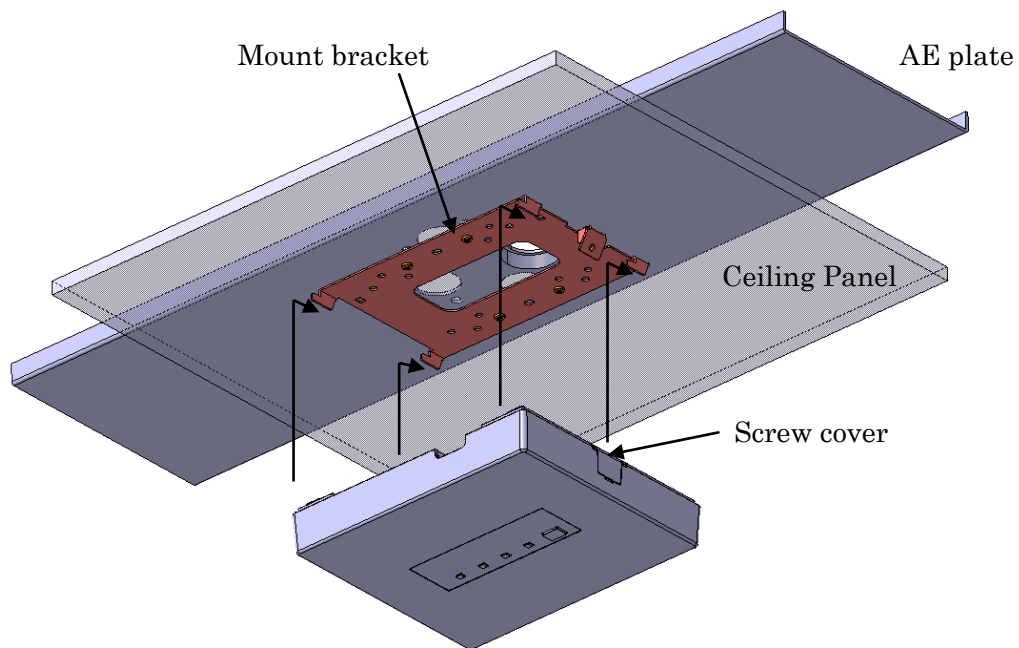
Note:

- Fix this unit firmly with specified torque with a tool such as a torque driver.

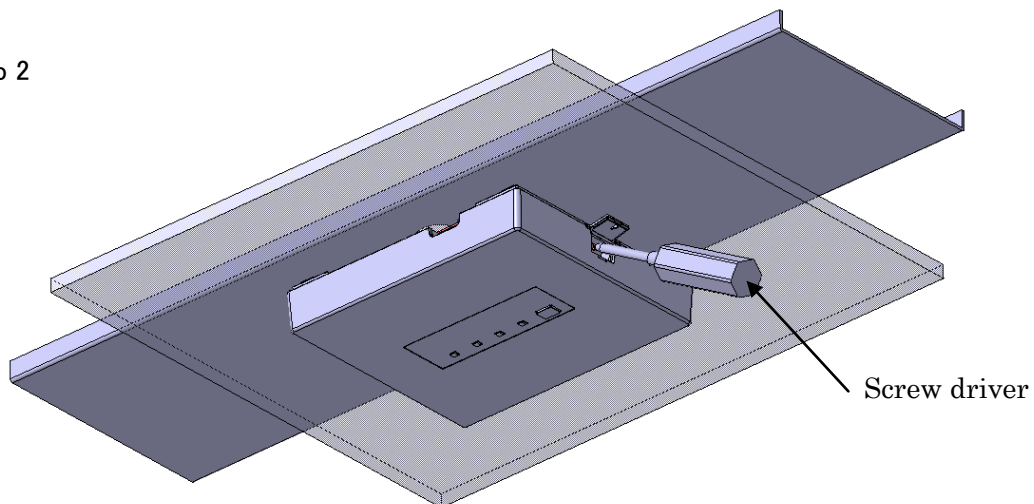
5 After installation, check that all parts are firmly installed.

Check visually for loose parts and connections.

Step 1



Step 2



● When using a wall

When installing the receiver and cables in a removable wall, follow the instructions shown below.

1 The mount bracket is fixed to a wall with a driver using a screw.

Note:

- Fix this unit firmly with specified torque with a tool such as a torque driver.

2 Connect the necessary cables to the receiver.

Connect the cables refer to Connections.

3 Install the receiver.

A receiver is hooked on the hook of the mount bracket. (Four places)

Open the screw cover.

A receiver is fixed to mount bracket with a driver using an attached screw.

Close the screw cover.

Note:

- Fix this unit firmly with specified torque with a tool such as a torque driver.

4 After installation, check that all parts are firmly installed.

Check visually for loose parts and connections.

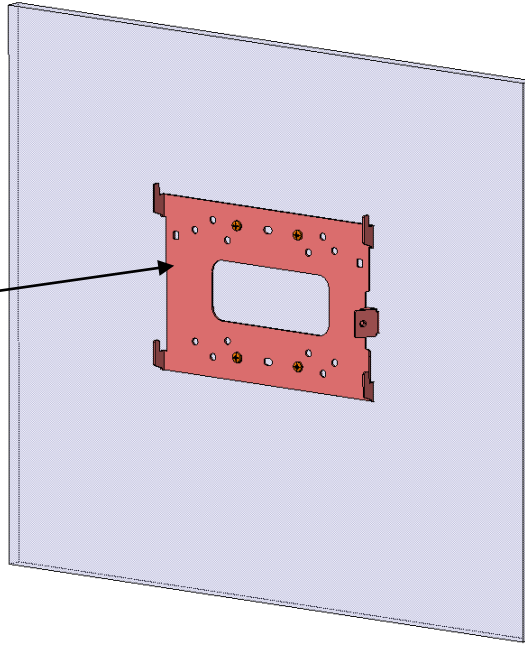
IMPORTANT:

- Procure 4 screws (M4) to secure the receiver attachment (accessory) to a ceiling or a wall according to the material of the installation area. In this case, wood screws and nails should not be used. For mounting a receiver on a concrete wall, use an anchor bolt (M4) or an AY plug bolt (M4) for securing. (Recommended tightening torque: 1.6 N· m {1.18 lbf· ft})
- Mount the receiver attachment (accessory) in consideration of the camera angle in accordance with the instructions
- Required pull-out capacity of a single screw/bolt is 196 N {44 lbf} or more.
- If a ceiling board such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced.
- Install the receiver mount bracket (locally procured) in the foundation area of the architecture or where sufficient strength is assured.
- To prevent the mounting strength from becoming lower, do not use wooden screws to secure the receiver mount bracket (locally procured).

Installation place	Applicable mount bracket	Recommended screw	Number of screw	Minimum pull-out strength (per 1 pc.)
Wall	Mounting plate (Accessory)	M4	4 pcs.	196 N {44 lbf}

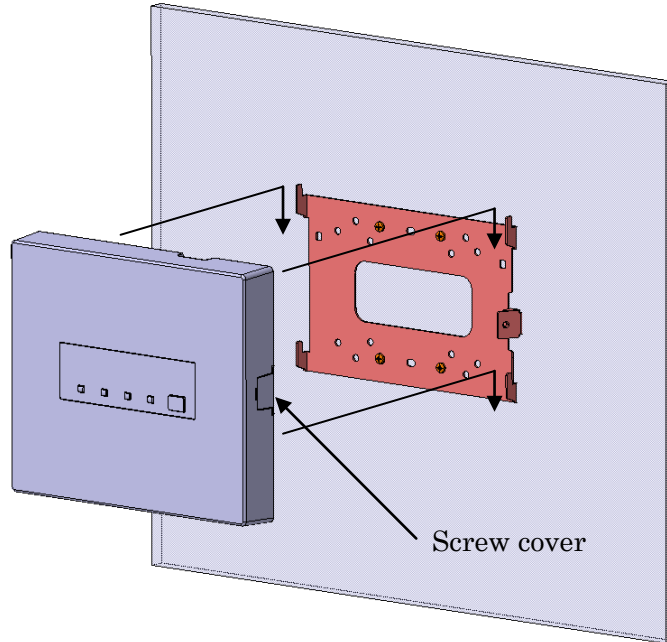
Step 1

Mount bracket



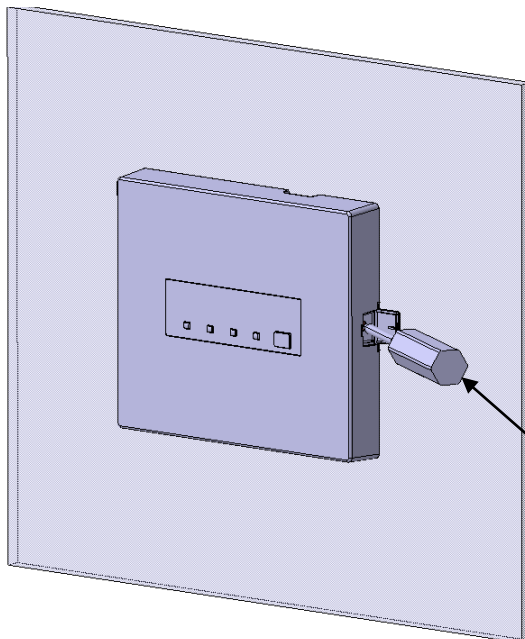
Step 2

Screw cover



Step 3

Screw driver



Serial communication command

Serial communication command

■ Preface

Use of the serial command allows the volume of this unit and settings of functions (page 13) with the DIP switch to be an external device remotely controlled.

Note:

- The settings of the functions that can be set with the DIP switch can be overwritten by sending a serial command. The serial command has the higher priority and will override the DIP switch settings. The unit will default back to the DIP switch settings when the power is cycled. (Excluding No. 7 of DIP switch1)

■ Basic format

The serial command employs a common format to the commands of both from a control device to this unit and from this unit to a control device, and the format is categorized into 3 patterns as follows:

When no parameter:

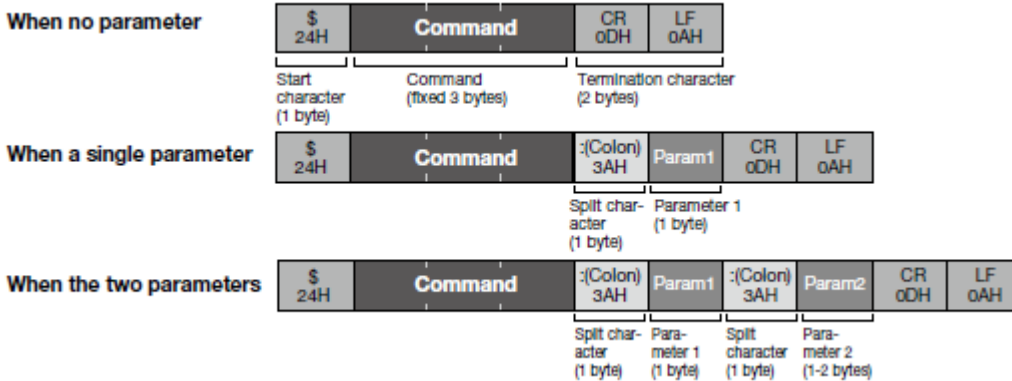
“\$” as a starting character, command, the control code, “CR” and “LF”, as the termination character.

When a single parameter:

“\$” as a starting character, command, colon, 1st parameter, the control code, “CR” and “LF”, as the termination character.

When the two parameters:

“\$” as a starting character, command, colon, 1st parameter, colon, 2nd param



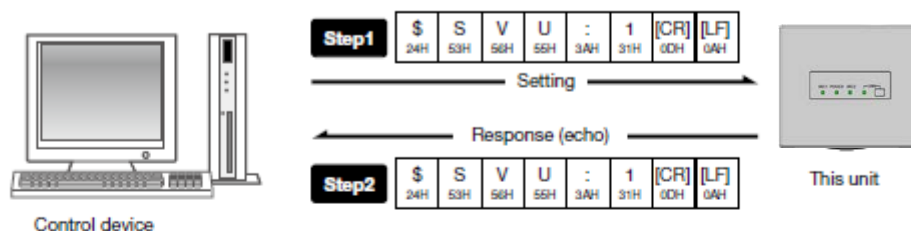
- All of \$, CR, LF, : (colon) are fixed single byte, and the command part is fixed 3 bytes.
- The length of the parameter part is basically single byte. As an exception, only the 2nd parameter is 2 bytes for the volume setting command.
- If a command containing a failure in the command part or format is transmitted to this unit, \$ER1[CR][LF] is returned from this unit.
- If a command containing a failure in the parameter part is transmitted to this unit, \$ER2[CR][LF] is returned from this unit.
- When a timeout error occurs on the receiving timer (30 seconds) between each byte, \$ER3[CR][LF] is returned.

Note:

- When commands are successively transmitted, keep 300 ms or more between successive commands that are transmitted to this unit.

■ Examples of sequence

- Examples are shown below. Refer to the next page or later for further information on command.
- For a setting command (a command starting with S): an echo is returned.



Command List

Command	Content	Type	1st parameter	2nd parameter	Command example
QPW	Query about this unit power state	Query	None	None	\$QPW[CR][LF]
		Response	1: POWER ON	None	\$QPW:1[CR][LF]
CCS	Notification of microphone power state	Change notification	1: MIC1 input 2: MIC2 input	0: MIC OFF 1: MIC ON	\$CCS:1:1[CR][LF]
QCS	Query about microphone power state	Query	1: MIC1 input 2: MIC2 input	None	\$QCS:1[CR][LF]
		Response	Same as above	0: MIC OFF 1: MIC ON	\$QCS:1:0[CR][LF]
SVL	Volume setting	Setting	1: MIC1 input 2: MIC2 input L: LINE input	* Refer to "Volume list" (page 32).	\$SVL:L:00[CR][LF]
		Response	Same as above	Same as above	\$SVL:L:00[CR][LF]
SVU	Volume 1-step up	Setting	1: MIC1 input 2: MIC2 input L: LINE input	None	\$SVU:1[CR][LF]
		Response	Same as above	None	\$SVU:1[CR][LF]
SVD	Volume 1-step down	Setting	1: MIC1 input 2: MIC2 input L: LINE input	None	\$SVD:2[CR][LF]
		Response	Same as above	None	\$SVD:2[CR][LF]
QVL	Volume query	Query	1: MIC1 input 2: MIC2 input L: LINE input	None	\$QVL:1[CR][LF]
		Response	Same as above	* Refer to "Volume list" (page 32).	\$QVL:1:01[CR][LF]
SMT	Mute individual setting	Setting	1: MIC1 output 2: MIC2 output M: MIX output	0: MUTE OFF 1: MUTE ON	\$SMT:1:0[CR][LF]
		Response	Same as above	Same as above	\$SMT:1:0[CR][LF]
QMT	Mute state query	Query	1: MIC1 output 2: MIC2 output M: MIX output	Same as above	\$QMT:M[CR][LF]
		Response	Same as above	0: MUTE OFF 1: MUTE ON	\$QMT:M:0[CR][LF]
SAM	Mute collective setting	Setting	0: MUTE OFF 1: MUTE ON	None	\$SAM:1[CR][LF]
		Response	Same as above	None	\$SAM:1[CR][LF]
CPM	Notification of page mute state	Change notification	0:PAGE MUTE OFF 1:PAGE MUTE ON	None	\$CPM:1[CR][LF]
QPM	Query about page mute state	Query	None	None	\$QPM[CR][LF]
		Response	0:PAGE MUTE OFF 1:PAGE MUTE ON		\$QPM:0[CR][LF]
CF1	Notification of E1sta	Change notification	None	None	\$CF1[CR][LF]
CF2	Notification of E2 state * 3-time transmission at 1 sec. interval	Change notification	0: Non E2 status 1: E2 status & E2 ACK signal not received 2: E2 status & E2 ACK signal received	None	\$CF2:1[CR][LF]
CF2	Query about E2 state	Query	None	None	\$QF2[CR][LF]
		Response	0: Non E2 status 1: E2 status & E2 ACK signal not received 2: E2 status & E2 ACK signal received	None	\$QF2:2[CR][LF]
SDS	Microphone Override setting	Setting	1: Microphone Override	0: Disable 1: Enable	\$SDS:1:0[CR][LF]
		Response	Same as above	Same as above	\$SDS:1:0[CR][LF]

Command	Content	Type	1st parameter	2nd parameter	Command example	
SDS	Tone setting	Setting	2: Tone	0: Disable 1: Enable	\$SDS:2:1[CR][LF]	
		Response	Same as above	Same as above	\$SDS:2:1[CR][LF]	
	Tone Level setting	Setting	3: Tone Level	0: Low, 1: High	\$SDS:3:0[CR][LF]	
		Response	Same as above	Same as above	\$SDS:3:0[CR][LF]	
	Microphone/Line Mixing setting	Setting	4: Microphone/Line Mixing	0: Disable 1: Enable	\$SDS:4:1[CR][LF]	
		Response	Same as above	Same as above	\$SDS:4:1[CR][LF]	
	Feedback Blocker setting	Setting	5: Feedback Blocker	0: Disable 1: Enable	\$SDS:5:0[CR][LF]	
		Response	Same as above	Same as above	\$SDS:5:0[CR][LF]	
	Remote Volume setting	Setting	6: Remote Volume	0: Disable 1: Enable	\$SDS:6:1[CR][LF]	
		Response	Same as above	Same as above	\$SDS:6:1[CR][LF]	
	QDS*	State query of Microphone Override setting	Query	1: Microphone Override	None	\$QDS:1[CR][LF]
			Response	Same as above	0: Disable 1: Enable	\$QDS:1:0[CR][LF]
State query of Tone setting		Query	2: Tone	None	\$QDS:2[CR][LF]	
		Response	Same as above	0: Disable 1: Enable	\$QDS:2:1[CR][LF]	
State query of Tone Level setting		Query	3: Tone Level	None	\$QDS:3[CR][LF]	
		Response	Same as above	0: Low, 1: High	\$QDS:3:0[CR][LF]	
State query of Microphone/Line Mixing setting		Query	4: Microphone/Line Mixing	None	\$QDS:4[CR][LF]	
		Response	Same as above	0: Disable 1: Enable	\$QDS:4:1[CR][LF]	
State query of Feedback Blocker setting		Query	5: Feedback Blocker	None	\$QDS:5[CR][LF]	
		Response	Same as above	0: Disable 1: Enable	\$QDS:5:0[CR][LF]	
State query of Remote Volume setting		Query	6: Remote Volume	None	\$QDS:6[CR][LF]	
		Response	Same as above	0: Disable 1: Enable	\$QDS:6:1[CR][LF]	
CVU		Notification of volume up operation from microphone	Change notification	1: MIC1 input volume up 2: MIC2 input volume up L: LINE input volume up	None	\$CVU:1[CR][LF]
CVD		Notification of volume down operation from microphone	Change notification	1: MIC1 input volume down 2: MIC2 input volume down L: LINE input volume down	None	\$CVD:L[CR][LF]
SRS	Reset volume and E1/E2 states	Setting	None	None	\$SRS[CR][LF]	
		Response	None	None	\$SRS[CR][LF]	
CMI	Change notification of microphone ID registration	Change notification	Microphone (DECT ID) DECT ID (20 bits) is specified by the character string (5 bytes) of a hexadecimal form.	Receiver (DECT ID) DECT ID (20 bits) is specified by the character string (5 bytes) of a	\$CMI:12345:23456[CR][LF]	

				hexadecimal form.	
		Response	None	None	\$CM:11H,22H,33H,44H,55H: 12H,23H,34H,56H, 78H [CR][LF]
ALM	Alert	Change notification	Refer to (*1)	Refer to (*1)	\$ALM: 11H,22H,33H,44H,55H: 12H,23H,34H,56H, 78H:1:63[CR][LF]
ALB	Alert message from alert Button	Change notification	Microphone (DECT ID) DECT ID (20 bits) is specified by the character string (5 bytes) of a hexadecimal form.	None	\$ALB:23456[CR][LF]
RAL	Release Alert	Setting	None	None	\$RAL[CR][LF]
		Response	None	None	\$RAL[CR][LF]
ALL	Alert message Location	Change notification	The number of alert messages N (N=1-5)	(Parameter 2 -6) RF signal strength: 0-63 is specified by the character string (2 bytes) of a hexadecimal form.	\$ALL:2:12345:23456:1:34:12345:78910:0:20[CR][LF]
CAA	Change Microphone's transmission area for audio	Setting	The threshold level of the signal strength of RCV for making a microphone mute 0:Default 1: Area1 2: Area2 3: Area3	-	\$SAA:1[CR][LF] *An area of default setting is same as an area of "RF Tx power setting" of DIP SWITCHES. Default > Area1 > Area2 > Area3

Each QDS response command returns not the physical ON/OFF status of the DIP switch but the current setting status

(*1) Parameter of ALM command.

Parameter	Content	Comment
Parameter1	Alert information	Microphone (DECT ID) DECT ID (20 bits) is specified by the character string (5 bytes) of a hexadecimal form.
Parameter2		Receiver /DECT AP (DECT ID) DECT ID (20 bits) is specified by the character string (5 bytes) of a hexadecimal form.
Parameter3		Pairing status bit: 0 = not paired, 1 = paired
Parameter4		RF signal strength: 0-63 is specified by the character string (2 bytes) of a hexadecimal form.

Parameter	Volume	Parameter	Volume	Parameter	Volume
00	0dB	08	-16dB	16	-32dB
01	-2dB	09	-18dB	17	-36dB
02	-4dB	10	-20dB	18	-40dB
03	-6dB	11	-22dB	19	-44dB
04	-8dB	12	-24dB	20	-48dB
05	-10dB	13	-26dB	21	-60dB
06	-12dB	14	-28dB	22	-70dB
07	-14dB	15	-30dB		

Troubleshooting

Symptom	Cause/solution
No reception	Does the POWER LED light? >> Check the connection between the receiver and the amplifier. Check the power of the amplifier is turned on
	Is the power of the microphone turned on (Is a battery loaded)? >> Turn on the power of the microphone (load a battery) to put it into the transmissible state.
No sound generated	Does the reception LED indicator MIC1 or MIC2 light? >> If the microphone is not normally receivable, the reception LED indicator does not light.
	The audio output of LINE IN is not provided. >> Is audio output of the device connected to LINE IN ready to be provided?
	No audio output of the microphone or LINE IN is provided. >> Is n't the page mute signal input provided to this unit? If the page mute signal input is provided, the audio output from this unit is muted. The 3 LEDs of this unit light yellow while the page mute function is activated.
	Is the volume setting equipped in this unit set to the lowest level? >> The volume of the microphones MIC1 and MIC2 and LINE IN equipped in this unit can be adjusted by K-STD14 and through external communication control.
	The volume of the mixing output fluctuates. >> When the microphone override function is active, an audio input to the microphone (MIC1 or MIC2) attenuates the audio level provided to LINE IN.
Audio interrupted	Is n't the feedback blocker activated? Adjust the speaker output to the lower level so as to avoid the feedback.
LINK indicator (red)	System Error >>Please ask an administrator.
LINK indicator (yellow blink)	The receiver is maintenance mode. >>Please ask an administrator.

Specifications

General

Power (DC IN)	24VDC (minimum 21.6VDC~maximum 26.4VDC) input by Amplifier.
Input current	130mA
Operating temperature range	°C - 40 °C {32 °F - 104 °F}
Dimensions	7.28"(W) x 6.3"(H) x 1.26"(D) (185mm(W)x 160mm(H) x 32mm(D))
Mass	0.72 lbs. (325 g)
Finish	ABS resin white color

Receiver

Radio Standard	DECT
Frequency Range	1,920.0~1,930.0MHz
Coverage	20m (NORMAL) / 30m (Hi POWER)

Audio

General	85dB or more (Receiver to Mix/MIC output)
Signal to noise ratio	By auto level control function in Microphone
Frequency response	100Hz to 8 kHz (From Microphone to receiver)
LINE IN	-10 dBV input impedance 10 k Ω or more Unbalanced, stereo (monaural mixing), ϕ 3.5 mm (ϕ 1/8 inches) stereo mini jack (Tip: Left, Ring: Right, Sleeve: GND)
CH1/CH2(Microphone output)	-5 dBV Balanced, Adaptive impedance 10 k Ω or more, ϕ 3.5 mm (ϕ 1/8 inches) stereo mini jack (Tip: Hot, Ring: Cold, Sleeve: GND)
MIX OUT	0 dBV Balanced, Adaptive impedance 10 k Ω or more, ϕ 3.5 mm (ϕ 1/8 inches) stereo mini jack (Tip: Hot, Ring: Cold, Sleeve: GND)
AUDIO OUT(MIX OUT)	-10 dBV Unbalanced, Adaptive impedance 10 k Ω or more, ϕ 3.5 mm (ϕ 1/8 inches) stereo mini jack (Tip, Ring: Hot, Sleeve: GND)

Control terminal

F1 CNT, COM	Output format: open collector, make output
F2 CNT, COM	Electrical specifications: control voltage; 30 V, control current; 20 mA
F2 ACK, GND	Input format: transistor input
PAGE MUTE, GND	Electrical specifications: open voltage; 5 V DC, short-circuit current; 2 mA
LINK BUTTON	
ALERT BUTTON	
RS-232C	TxD
	RxD
	SG
Compliant with RS-232C, asynchronous, 9600 bps	

Interface

TO Amplifier	RJ-45 (LAN type connector), * original format Note: Never make a connection to a LAN connector that is compatible with Ethernet and PoE.
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Other function

Volume control	Configurable when the microphone, K-STD14 , is used or by control through RS-232C Controlled object: Microphone CH1, CH2, Line in Setting range: 0 dB - -32 dB/2 dB step , -36 dB - -48 dB/4 dB step, -60 dB, -70dB
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Accessories

Mounting bracket : 1

Tie for cable : 2

Screw : 1

Unattached:

Operating Instructions : None. Total operating instructions are prepared by Audio Enhancement.

Warranty Card : None, the warranty period is described in the contract.