

1.9GHz Wireless Access Point

K-SAP14

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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 interference in which case the user will be required to correct the interference at his own expense.

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.

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. _____

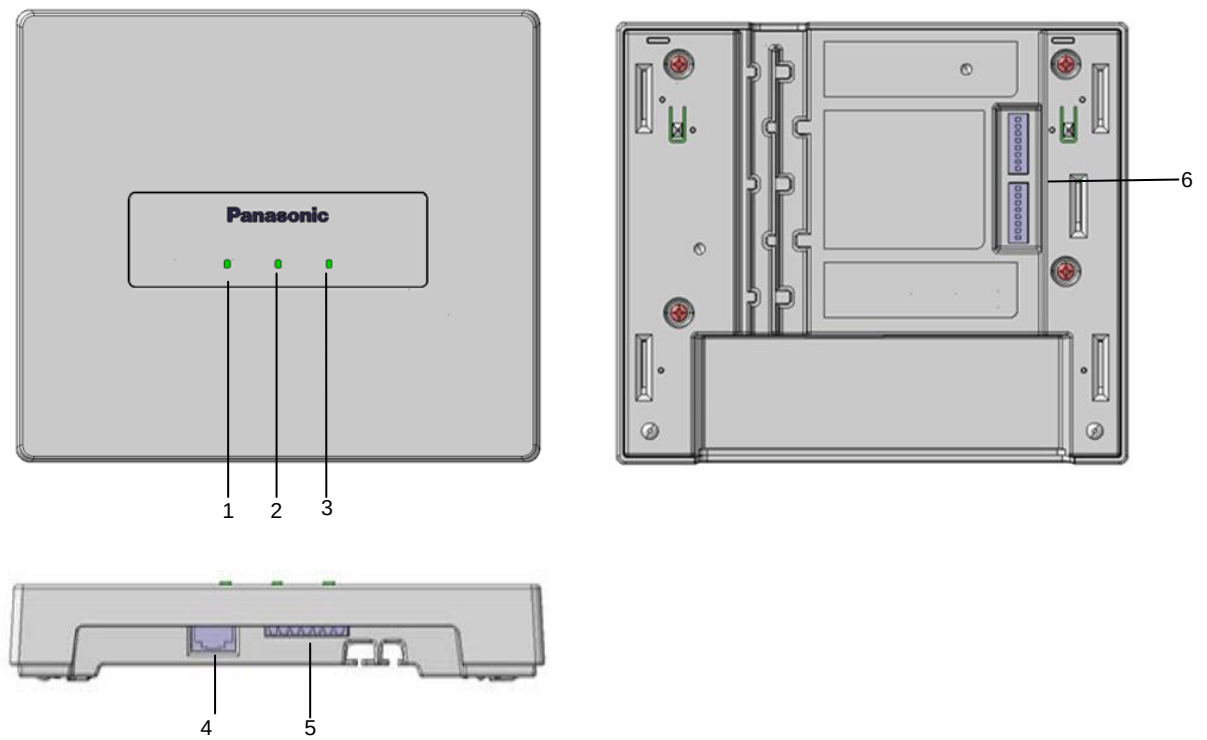
Serial No. _____

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.



Major operating controls and their functions



[1]POWER indicator
(Green/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 (For ONLR Alert)

[2]LINK indicator [OPERATE]
(Green/Red)

This LED lights green when connecting with a receiver.

This LED lights as follows to indicate other states:

E2 signal output provided: lighting red (For ONLR Alert)

[3]MODE indicator
(Green/Yellow/Red)

This LED lights green when select for sound broadcast state

This LED lights yellow when select for ONLY alert state.

(This LED lights yellow when system error)

[4] Ethernet connector

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).

[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-SAP14.

E2 CNT: provides E2 signal * output controlled by K-SAP14.

* Those are available when K-SAP14 is used. Settings of E1 and E2 are performed with K-SAP14.

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]DIP Switches

Two DIP switches are used.

DIP switch 1 can select the operation mode of each function equipped in this unit.

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

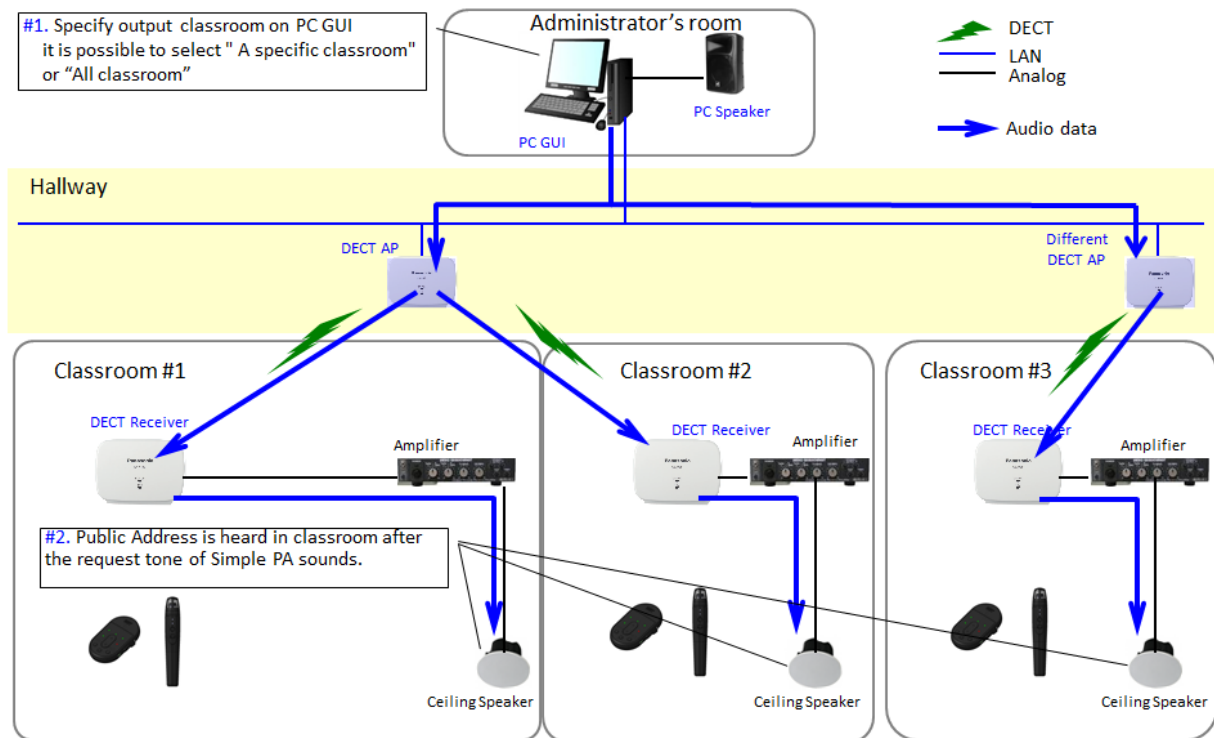
From No.1 to No7 of DIP switch 2 are used for selection of group ID.

(It is used at the time of installation of DECT-AP and a receiver.)

Operating procedures

Operation of Simple PA.

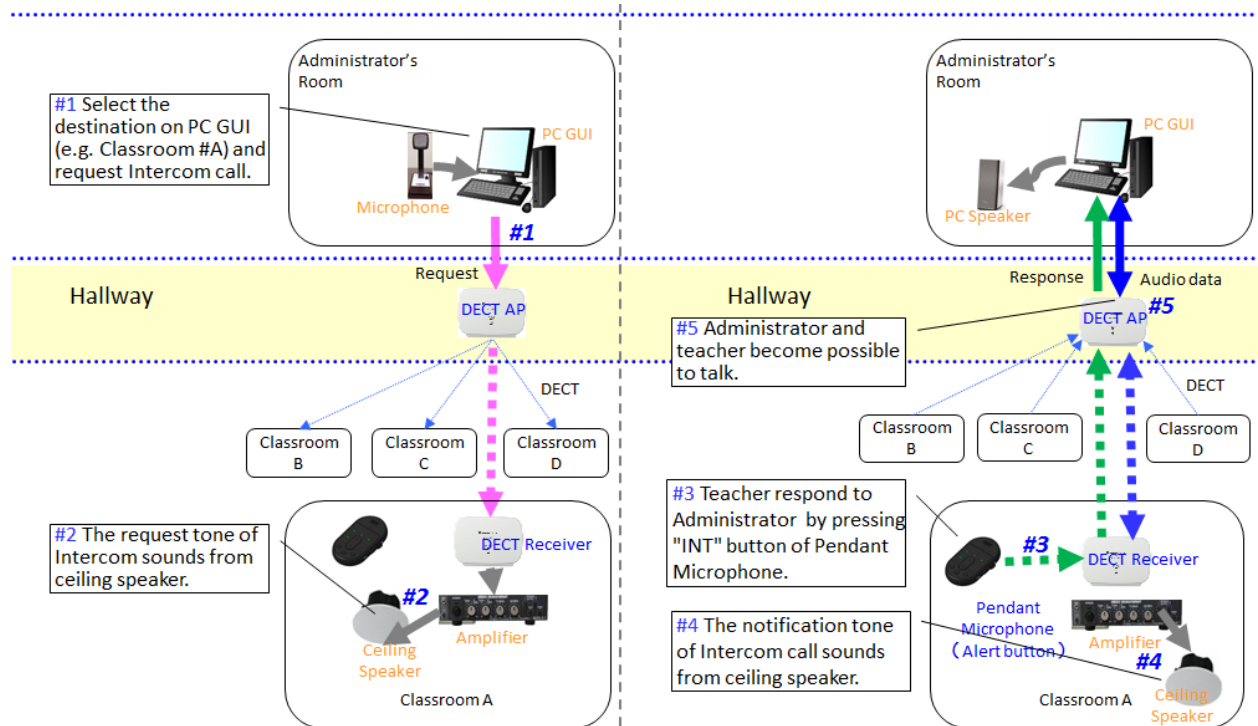
1. Specify output classroom on PC GUI it is possible to select "A specific classroom" or "All classroom"
2. Public Address is heard in classroom after the request tone of Simple PA sounds.



Operation of Intercom

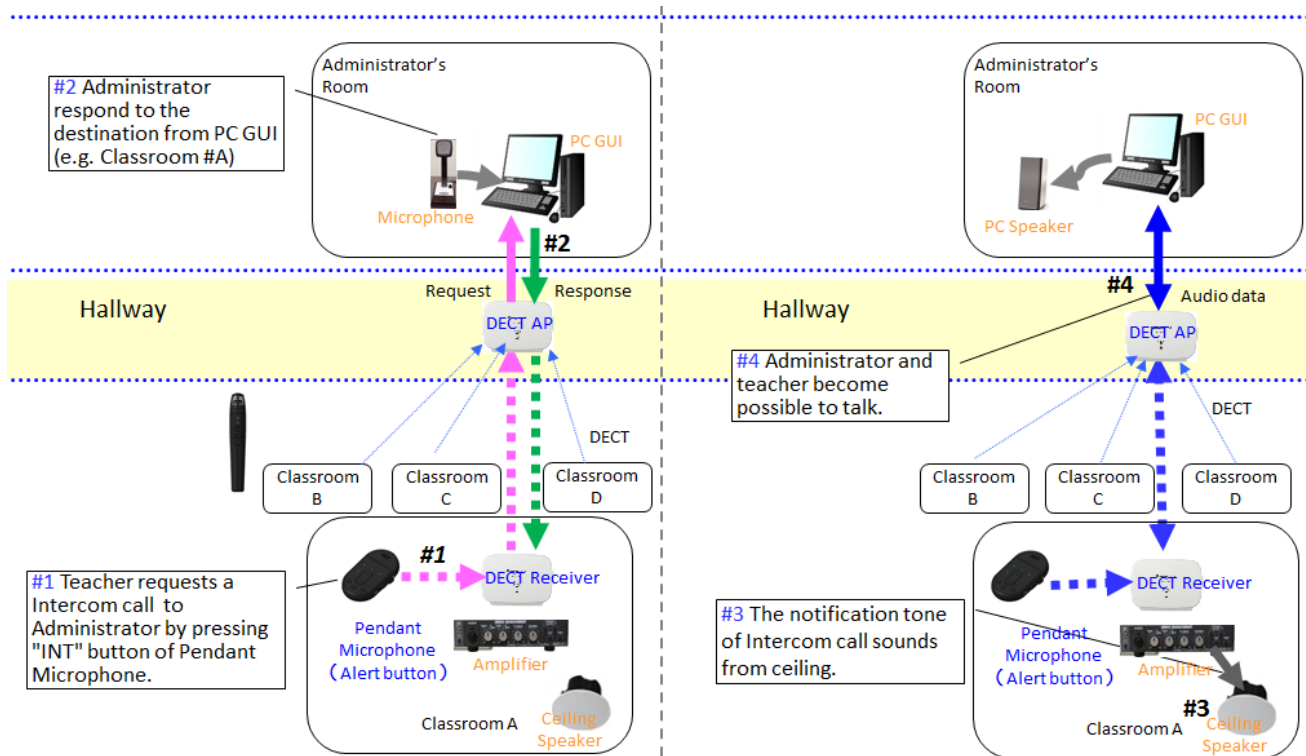
(1) Intercom requested form Administrator's room to Classroom

1. Select the destination on PC GUI and request Intercom call.
2. The request tone of Intercom sounds from ceiling speaker.
3. Teacher respond to Administrator by pressing "INT/E1" button of Pendant microphone.
4. The notification tone of Intercom call sounds from ceiling speaker after a call was established.
5. Administrator and teacher becomes possible to talk.



(2) Intercom requested form Classroom to Administrator's room

1. Teacher requests a Intercom call to Administrator by pressing "INT/E1" button of Pendant microphone.
2. Administrator respond to the destination from PC GUI.
3. The notification tone of Intercom call sounds from ceiling speaker after a call was established.
4. Administrator and teacher becomes possible to talk.



-Audio path number of the intercom is only one in the DECT Microphone System. When intercom have already being used at the time of the start of it, a tone of BUSY sounds from the ceiling speaker.

Activate E2

Press the both sides [E2] button of the Pendant microphone for 2 seconds or more will activate E2 output and transmit location information of Pendant microphone.

The voice of Pendant Microphone monitoring

The voice of Pendant Microphone sends to Administrator's room in case of requested from server PC.

Number of audio voice that can send is 1 path per DECT AP.

Please select one, monitoring Pendant microphone

The Microphone is not linked to any receiver.

The Microphone send the Alert message of the Receiver's of the strong signal level to up to five via the most strong signal's Receiver, and the audio voice monitoring function became available via DECT AP.

When a Microphone move:

When Pendant Microphone moves to the out of range, it search nearest receiver or DECT AP (for Alert) and it try to connect to them.

And Pendant Microphone switches the connection to other receiver, it send Alert notification via the receiver automatically.

Release of an E2 state

The administrator can release the E2 state from administrator PC.

(An individual pendant microphone or the whole system specification can be chosen.)

If Pendant Microphone is power OFF (and charging or out of range), E2 activation operation is done

PC operation

PC GUI

The screenshot shows the 'Incom1' application window. It is divided into several sections: 'Request' with fields for Address (10.75.67.162), Port (600), and MAC; 'Authenticate' with fields for User (Admin), Password (12345), and Timeout (500); 'Receive' with a 'Receive CGI' button and an Address dropdown; 'Response' (empty); 'Operation' with radio buttons for RCV1 (selected), RCV2, RCV3, RCV4, and an 'Intercom Start' button; and 'Status' with a 'Clear' button and status indicators for PC-AP Sound, Mic Response, and AP-PC Sound.

reference display (intercom)

The example of operation

Intercom:

1. Input DECT-AP-IP address/ user name / password.
2. Select the receiver of a classroom which wants to pass intercom.
3. Push "Intercom start" button.

(Operation of Intercom/ Simple PA / Alert monitor can be directed.)

A following CGI command is used for operation.

CGI command list

Command	Content	Type	Parameter1	Parameter2	Parameter3	Parameter4	Parameter5
regist_start	ID registration start	setting	1:AP	-	-	-	-
regist_end	ID registration end	setting	1:AP	-	-	-	-
rcv_delete	Delete Receiver registration	setting	1:AP	RCV1(ON:Delete)	RCV2(ON:Delete)	RCV3(ON:Delete)	RCV4(ON:Delete)
Mic_delete	Delete Microphone registration	setting	1:AP,2:RCV	MIC-ID	-	-	-
pa_start	Simple PA start	Application control	2:RCV	RCV1 (ON:broadcast) (OFF:NO)	RCV2 (ON:broadcast) (OFF:NO)	RCV3 (ON:broadcast) (OFF:NO)	RCV4 (ON:broadcast) (OFF:NO)
pa_end	Simple PA end	Application control	2:RCV	RCVNo(1-4)	-	-	-
incom_start	Intercom start	Application control	4:Microphone	MIC-ID	RCVNo(1-4)	DECTAP MacAddress	-
incom_end	Intercom end	Application control	2:RCV	RCVNo(1-4)	-	-	-
incom_res	Intercom response	Application control	4:Microphone	MIC-ID	RCVNo(1-4)	-	-
alert_end	Alert end	Application control	1:AP,2:RCV, 3:AP&RCV	RCVNo(1-4)	-	-	-
monitor_mic	monitor start	Application control	1:AP,2:RCV, 3:AP&RCV	MIC-ID	RCVNo(1-4)	-	-
monitor_mic	monitor end	Application control	1:AP,2:RCV, 3:AP&RCV	0	RCVNo(1-4)	-	-

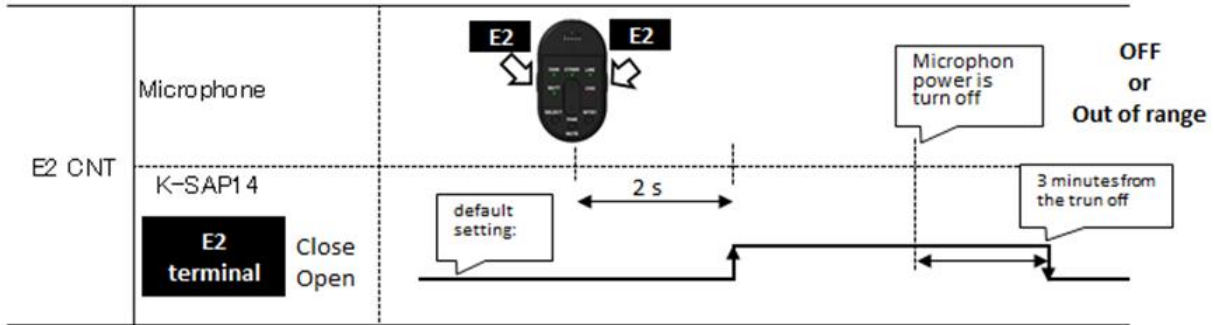
Functions and settings

- E2 CNT function

These functions are available when K-SAP14 is used. When E2 is controlled with the microphone, control signals are provided from the E2 CNT terminal of this unit. Selection between E2 is made at the microphone side.

E2: Default setting is Open.

Press the both sides [E2] button 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/LINK]

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.



Operating state	LED indication	
	POWER	LINK(receiver)
E2 signal output provided*1	Red (Lighting green at E2 ACK input provided)	Red (Lighting green at E2 ACK input provided)
Linkup	Green	Green
Power ON	• During startup Blink green at 500ms period • After startup Green	No lighting

*1 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 [MODE LED]

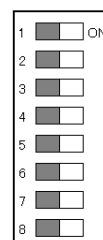
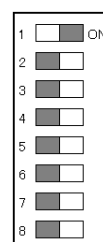
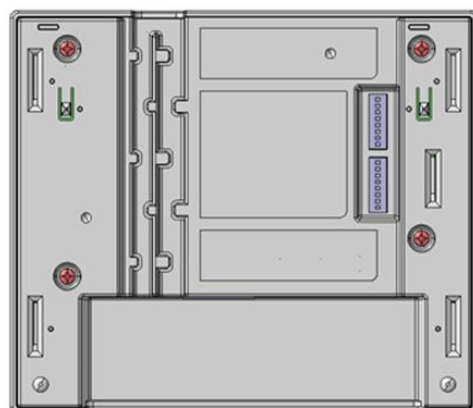
LINK LED is normally off.

When an LINK key is pressed, the LINK LED blinks green.

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

Status	LED indication
	LINK
System error	Red
During ID registration	Blink yellow at 500ms period
For sound broadcast	Green
For ONLY Alert	Yellow

DIP switch setting



Switch	No	Name	Function	On	Off
Switch1	1	Setting	Selecting "For ONLY Alert" or "For sound broadcast".	For ONLY Alert*	For sound broadcast
	2	Version display	To display the software version by LED lighting pattern as the power is turned on.	Activated	Deactivated *
	3	Initialize Factory setting	Initialize all internal setting to the factory-shipments State	Activated	Deactivated *
	4	Transmission output control	It allows adjusting the RF power output at installation by command input via RS232	High(mode2)	Low(mode1)*
	5	Unused	—	-	-
	6	Unused	—	-	-
	7	Unused	—	-	-
	8	Unused	—	-	-
Switch2	1	DECT AP Group number setting	Selection of Group ID between Receiver and DECT AP.	0-127 of Group ID	
	2				
	3				
	4				
	5				
	6				
	7				
	8	Unused	-	-	-

*default setting

Note:

DIP switch 1 can select the operation mode of each function equipped in this unit.

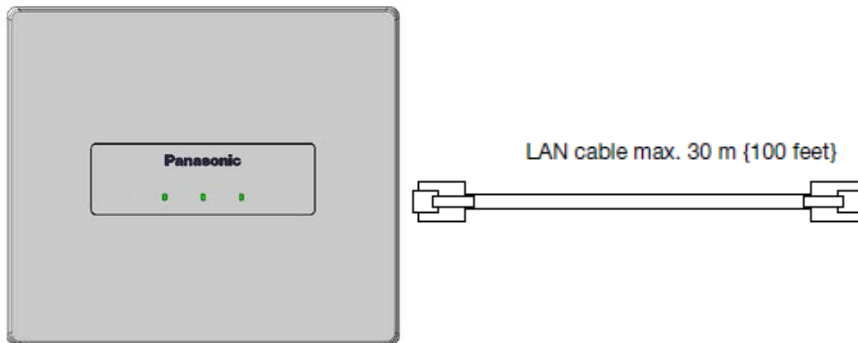
The settings of this switch are updated at the time of turning on the power.

From No.1 to No7 of DIP switch 2 are used for selection of group ID.

(It is used at the time of installation of DECT-AP and a receiver.)

Connections

- LAN (PoE) connection



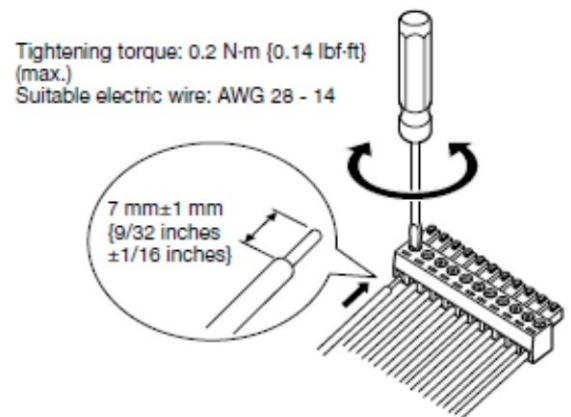
- Connection to control terminal

- Cable processing

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

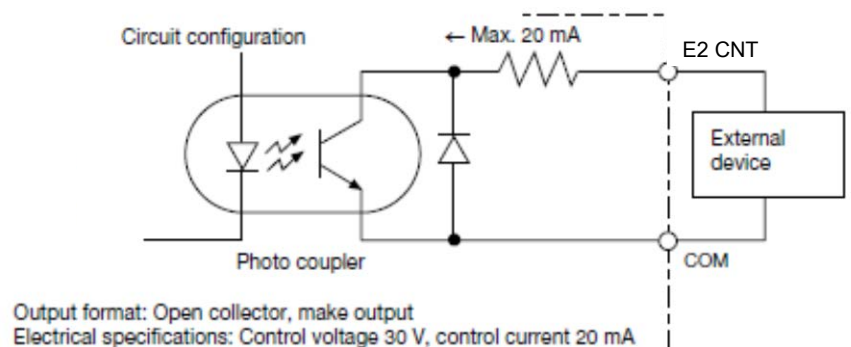
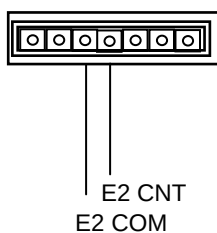
Note:

- 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}.



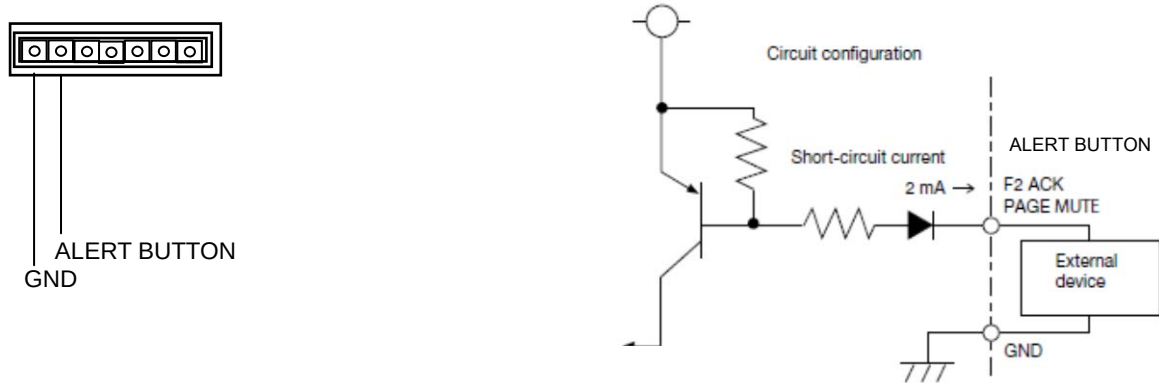
- Connection of E2 CNT terminals

An external device is connected between E2 CNT and COM. These terminals are isolated from the internal circuit by a photo coupler.



- Connection of ALERT BUTTON terminals

An external device is connected between ALERT BUTTON 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.

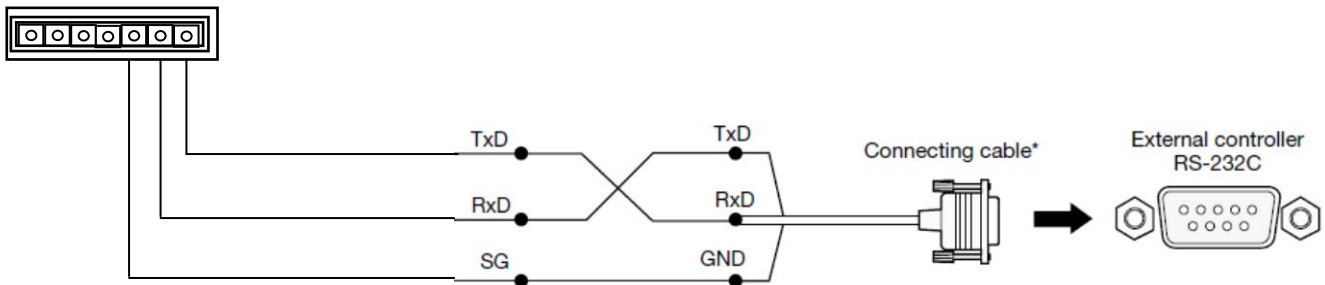


Input format: transistor input

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.**

Please change the user ID/password periodically for security strengthening.

When user authentication goes wrong 8 times or more in 30 seconds from PC of the same IP address (attestation error), it becomes impossible to access between for a while and this machine.

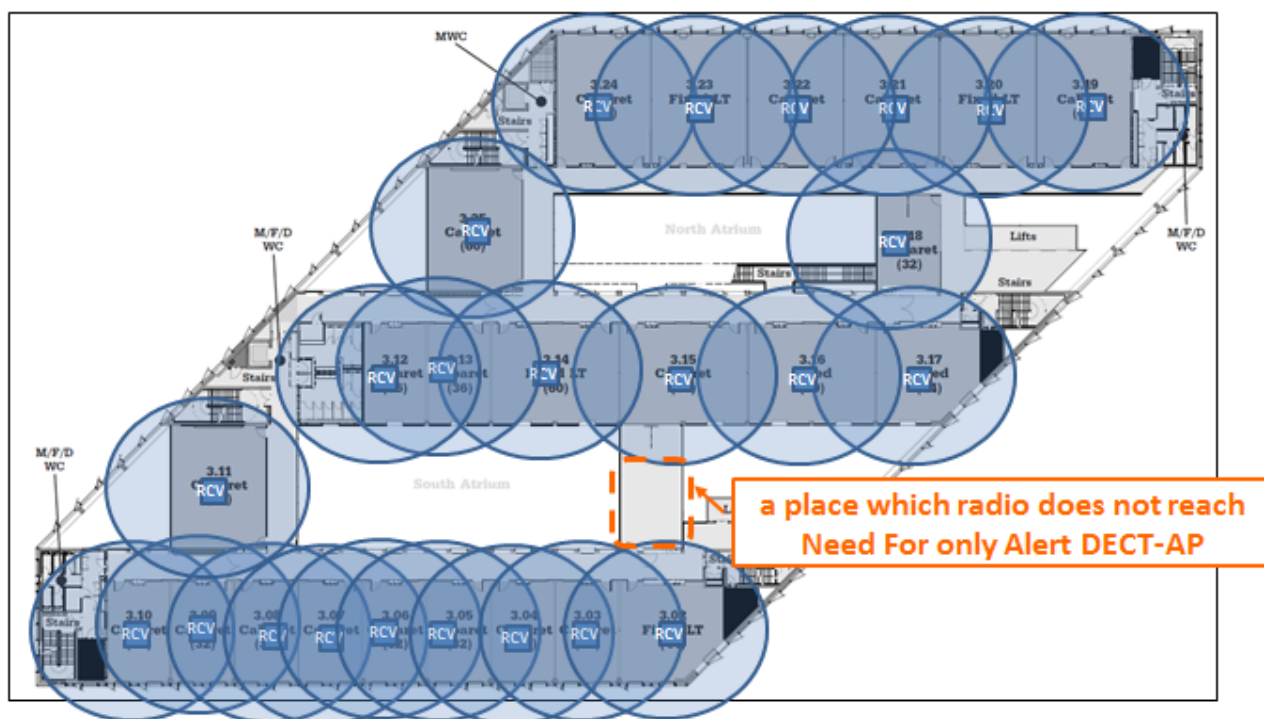
Preparation Installation

System Setting

The planning of equipment layout

First: Arrangement of apparatus is planned using a planning tool.

1. The classroom in which a receiver is installed is decided.
2. DECT-AP is arranged in the position where radio reaches a receiver.
(They are a maximum of four receivers which can connect with one DECT-AP.)
3. When there is a place which radio does not reach, the installation for only Alert DECT-AP is considered.



*The measure against misconnection of a DECT-AP and a receiver

Since the pair connection (misconnection) which is not meant by a case may be made, please perform the grouping by Dip SW attached to a DECT-AP and a receiver.

Refer to DIP switch setting for a setup of Dip SW.

*Memo

The factory setting of a DECT-AP is "FOR ONLY Alert."

To use it as a DECT AP FOR broadcast, a change is required for the DECT AP operation FOR broadcast at a DIP switch.

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.

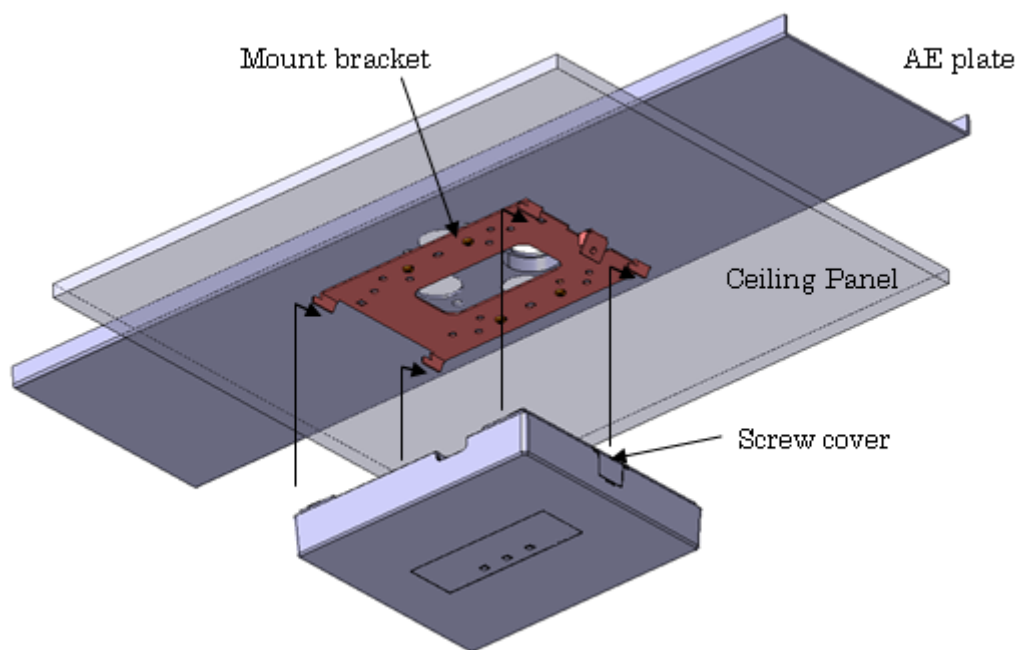
Note:

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

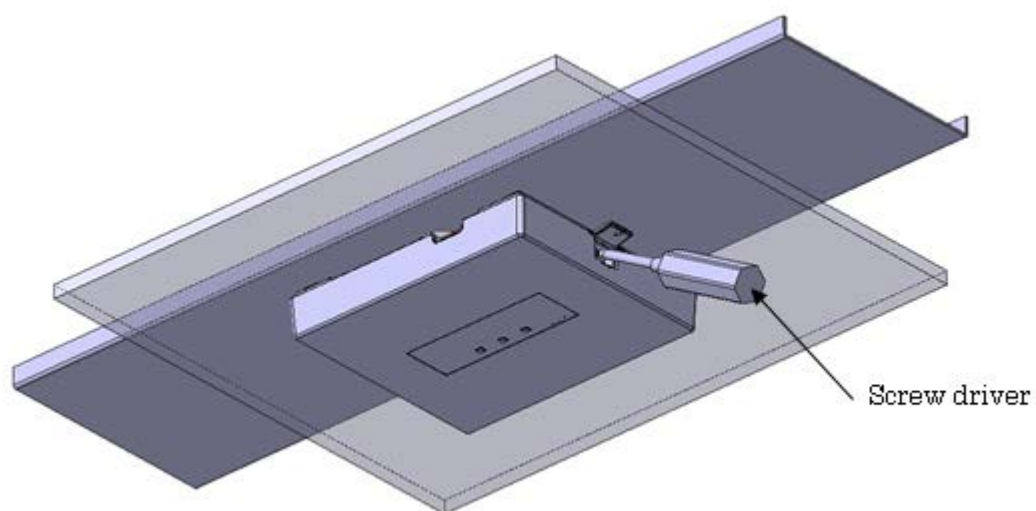
5 After installation, check that all parts are firmly installed.

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:

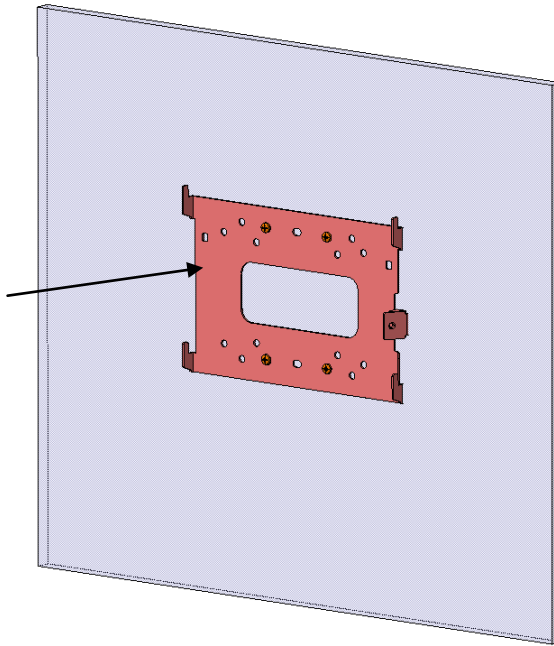
- Fix this unit firmly with specified torque with a tool such as a torque driver.

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

Check visually for loose parts and connections.

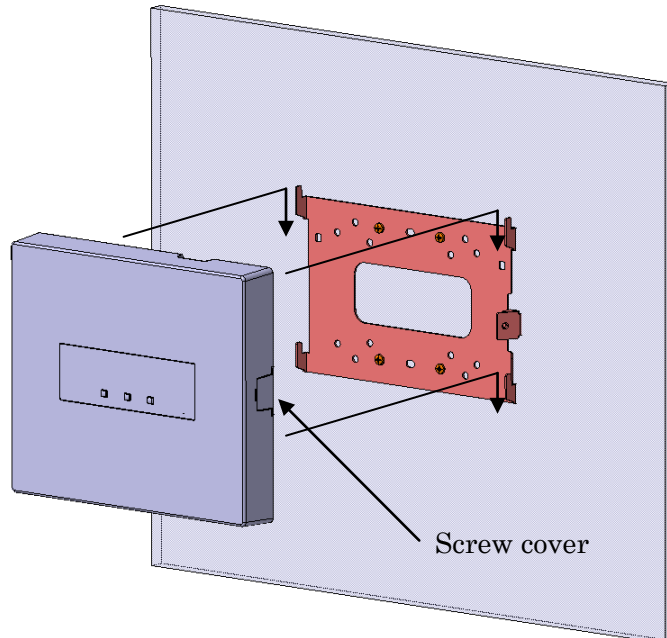
Step 1

Mount bracket



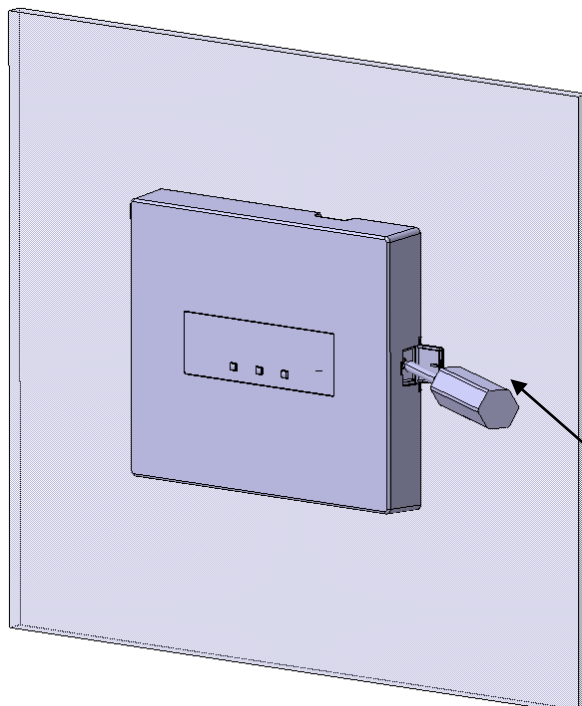
Step 2

Screw cover



Step 3

Screw driver



Setting of the Units

(a)[For sound broadcast] DECT-AP

Pairing registration of the receiver of a DECT-AP

Please supply a power supply to a receiver.

(A receiver will be in a pairing registration state automatically, if a power supply is switched on in the state of factory shipments.)

After that, DECT-AP is turned on.

Pair registration of a DECT-AP and the receiver is carried out automatically.

Setting of the [For sound broadcast] DECT-AP

Please perform an IP address setup of a DECT-AP by DHCP.

(Since it is necessary to make it not receive the alert from Pendant microphone, the DECT-AP for broadcast should change system ID from a factory-shipments value.)

Pairing registration of the receiver of a microphone

Pair registration of a microphone and a receiver is performed.

Push the LINK button of a receiver, and push the PWR button of a microphone, after that, pair registration will be performed automatically.

System Operation Start

When registration of all the receivers, a DECT-AP, and a microphone is completed, a beginning of operation becomes possible.

Thereby, all the functions become usable.

Extend unit

When you extend a microphone, a receiver, and a DECT-AP, please do the same work as various above-mentioned setup.

*Pairing registration of a receiver and a DECT-AP should work, after stopping the whole system.

Reduced unit

In order to reduce a receiver, the receiver information registered into the access point needs to be deleted.

Although the receiver registration information to four is registered into an a DECT-AP, since it may become impossible for a new receiver to register if the eliminated receiver information is left behind, please delete.

(b)[For ONLY Alert] DECT-AP

Please install for only Alert DECT-AP in the planned installation position correctly, and switch on a power supply.

Specifications

General

Power	PoE (IEEE 802.3af)
Class	Class1
Operating temperature range	0°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 32(D)) (excluding projections)
Mass	
Finish	ABS resin white color

RF communication

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

Control terminal

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

LAN Interface

Connectors	RJ-45 (Type for LAN)
Recommended Cable	LAN(Cat5e or more)
Network Protocol	IPv4 100BASE-TX, 10BASE-T(Auto/Full/Half)

Accessories.

Mounting bracket : 1

Tie for cable : 2

Unattached:

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

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