

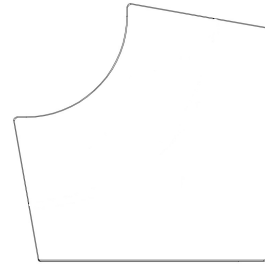


This manual is prepared exclusively for motion sensor

Instruction Manual for Motion Sensor

Please confirm the model numbers of your air conditioner and motion sensor

Applicable Models Mini Four-way Cassette Type	Model No. of Motion Sensor Model: SPHNS-MACN
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Model: SPHNS-MACN
For the Mini Four-way Cassette Type

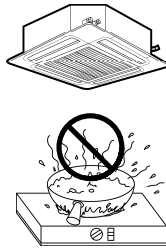
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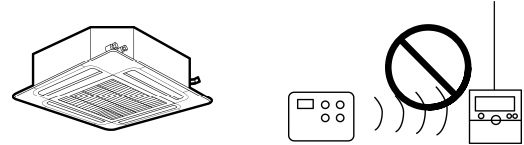


Introduction

- This product shall be mounted in the indoor unit and used with wired control.
- Please don't install this product in the following places where air conditioners may frequently break down.
 - Places with much oil (including machinery oil) spatter and vapor;
 - Hot springs and other places with high contents of sulfuretted gases;
 - Places that may produce or get filled with flammable gases;
 - Coastal areas with high contents of salts;



- When using medical appliances and other equipment that generates electromagnetic wave, DO NOT point the electromagnetic wave emitting surface to the electric box, the remote control cable and the remote control, since this helps to prevent false operation of air conditioner.
- In addition, to prevent the electromagnetic wave in the air affects air conditioner, please put any appliance and radio transmitting device, etc. that generate electromagnetic wave at least **9.84ft.** (3m) away from this remote control.



Connotation of Symbol

	WARNING: False operation may cause serious injury or death.		: Indicate mandatory issues. Give instructions for non-professional general users.
	CAUTION: False operation may cause injury or damage to articles.		: Indicate reference page.
	NOTE Precautions, i.e. other precautions than warnings and cautions.		: Help you for easier operation.
	: Indicate prohibitions.		




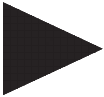
Safety Precautions

- Please use this product properly after carefully reading the [Safety Precautions].
- Matters needing attention itemized here fall into two categories, i.e. ⚠ WARNING and ⚠ CAUTION. The [WARNING] column shows the serious consequences that may arise from faulty operation.

The items listed in the [CAUTION] column, however, may well result in serious consequences in particular cases. Be sure to observe the material items listed since they are associated with safety!

- Please keep this manual in good order after reading it for convenient reference at any time.

Installation ● Electrical Construction	
 WARNING	<ul style="list-style-type: none"> ● The attached instruction manuals for indoor and outdoor units contain safety-related key precautions. Please observe them by all means!
	<ul style="list-style-type: none"> ● Please entrust dealers or professional installation personnel for installation. Improper installation by yourself may bring about injury accidents such as electric shock, fire, and unit fall, etc.
	<ul style="list-style-type: none"> ● Electrical constructors have to obtain construction qualification. Please entrust qualified dealers. The construction by yourself may involve improper installation that is likely to result in electric shock and other accidents.



Safety Precautions (Cont.)

Repair and Remove

 WARNING

- For the repair and remove of unit, please consult your dealer or our designated service center.
- Improper repair and installation is likely to result in electric shock, fire, and other accidents.

Other Warnings and Precautions

 WARNING

- Please keep water away from the interior during maintenance and servicing. Electric parts exposure to water may cause electric shock.
- Please don't modify electric wiring, since this may lead to heavy accidents.
- Please use sturdy scaffolds for maintenance and servicing, or turnover may occur and cause injury.
- Please don't spray water or spray-type detergent into the unit during maintenance and servicing, since the resulting electric short circuit may result in fire and electric shock accident.
- Never fail to maintain the electric parts and connectors during maintenance and servicing, and be sure to keep water away. Otherwise, short circuit may cause fire and electric shock.





 CAUTION

- When opening/closing the intake grille and installing/removing the filter screen, please hold them by hand; otherwise, the grille and screen may fall to cause injury accident.







Precautions

For Installation

 WARNING	<ul style="list-style-type: none"> ● Be sure to completely turn off the power supply before installing the motion sensor, or electric shock may happen. 
	<ul style="list-style-type: none"> ● Please install and use the product in strict accordance with this manual. Improper installation may lead to the fall of motion sensor, which may cause crushing accident. 
	<ul style="list-style-type: none"> ● Please don't install this product in places that may produce or get filled with flammable gases. Failure to do so may cause fire. 
CAUTION	<ul style="list-style-type: none"> ● The mounting position of motion sensor shall be properly chosen, since it may fail to receive signals when disturbed by external light of fluorescent lamp (variable frequency fluorescent lamp), etc.

For Wiring

 WARNING	<ul style="list-style-type: none"> ● Wiring connection shall be established securely. Loose connection may cause wires to generate heat, which may bring about fire or electric shock. 
	<ul style="list-style-type: none"> ● The wiring shall be fixed completely by external force. Poor fixation may generate high temperature that is likely to cause fire or electric shock. 
	<ul style="list-style-type: none"> ● Please turn off the power supply completely before wiring operation; otherwise, electric shock may arise. 
CAUTION	<ul style="list-style-type: none"> ● Do not arrange the wire of motion sensor alongside the 220V power cord. Otherwise, the resulting disturbance may lead to false operation.




Precautions (Cont.)





For Use



WARNING

● Please don't activate motion detection in rooms where infants & young children or physically disabled persons stay alone. If a person in a room furnished with motion sensor hardly moves, the motion sensor will consider the room to be "vacant" and cease to function even if that person stays long in the room. 

● It is possible that the heat source in detection area is not detected provided that its temperature remains unchanged and stationary or that it moves fast. 

● Please turn off the power supply completely before wiring operation; otherwise, electric shock may arise. 


● Since the operation under the following circumstances may result in false operation, operation failure or changes in characteristics, please use the detector after adequate confirmation.

- Uninterrupted operation at high humidity;
- Operation under severe impact;
- Operation in prolonged state of vibration;
- Used in places with static electricity and strong electromagnetic wave;
- Used in places with sharp fluctuation of ambient temperature;
- Used in places exposed to the air from air heater;
- Used in places exposed to sunlight or the rays from head light of motor vehicle;
- Used in places where the lateral surface of lens is immediately exposed to weather;
- Used in environments with liquids, corrosive gases and moist wind;
- Used in places where the motion sensor assembly and lens may come under severe impact and vibration;
- Used in places where there are obstacles (glass or fog) that can't be penetrated by infrared ray within the detection range of motion sensor assembly.



Precautions (Cont.)



 CAUTION	<p>● Since the motion sensor functions in response to human motion, even occupied rooms may be determined to be "vacant".</p>
	<p>● Where an object that is hotter or colder than ambient temperature is mounted in a movable position, the room may be judged to be "occupied". (For example, the head motion of electrical heater, etc.)□</p>
	<p>● In the case of operation with dual wired controls, the motion detection can only be configured with the master wired control.</p>
	<p>● The indoor unit operation can only be stopped by controlling the motion sensor. (Note) Where a multi-purpose wired control is connected to a machine with motion sensor and a machine without motion sensor, the machine without motion sensor will get out of service if operation is stopped through motion sensor.</p>
	<p>● If the machine is in ECO or stopped state under the control of motion sensor, the wired control interface shows "BEING CONTROLLED BY MOTION DETECTOR".</p>
	<p>● Where the centralized controller prohibits the operation of wired control, please choose "CONTINUE TO FUNCTION" or "STANDBY" for the motion sensor-controlled "OPERATION IN VACANT ROOM". No selection can be made under the following circumstances in stopped state.</p> <ul style="list-style-type: none">○ Provided that "STOP" is chosen through motion detection control and that "wired control prohibition" (complete prohibition) is set through centralized controller, the machine can't be stopped even if the conditions for motion detector-controlled stop are met.○ Provided that "STOP" is chosen through motion detection control and that "wired control prohibition" (partial prohibition) is set through centralized controller, the machine may be stopped if the conditions for motion sensor- controlled stop are met; however, the indoor unit can't be started again through centralized controller.



Applicable Models



Indoor unit models for which this motion sensor applies


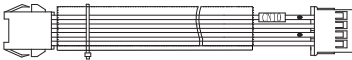
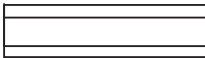
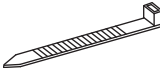
Model No. of Motion Sensor	Applicable Indoor Unit Model
SPHNS-MACN	Mini Four-way Cassette Type



Part Check Before Installation



Please check if the following components are in the package before installation.

Part name	Q'ty	Remarks
Signal receiver 	1	With wire
Relay wire 	1	For wiring
Protective cover for wiring 	1	For protection of relay connector
Wire tie 	3	For fixation of the protective cover for wiring and the relay connector
Manual	1	—

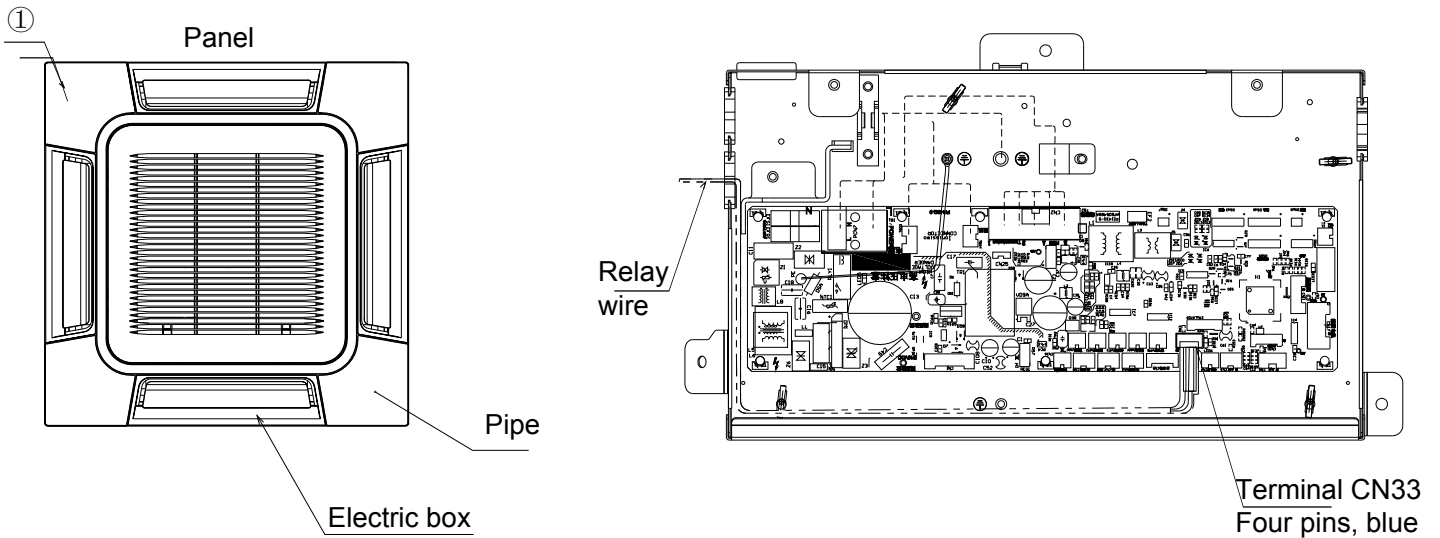
In the case of lack of part in package, please contact your dealer or our service center.



Installation Gist

● Installation

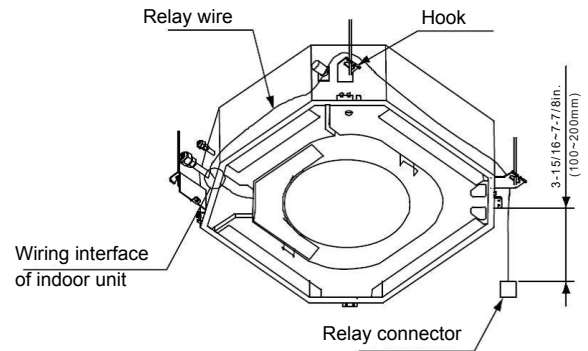
- 1) Please install the motion sensor when installing the indoor unit and chosen panel.
- 2) Where the motion is to be installed after the installation of indoor unit and panel, the motion sensor shall not be installed before power-off and the removal of panel.
- 3) This sensor can only be installed at the corner ①. In the case of multi-unit configuration, the orientation and location of installation shall be determined through consultation with user.



4) Take off the electric box cover of indoor unit, and connect the terminal CN33 on base plate of the electric box for indoor unit at the point indicated on the upper right figure to the attached relay connector.

5) After the proper connection of the attached relay wire to terminal CN33, the relay wire shall be led out of the indoor unit wiring inlet into the ceiling or to the outer side of indoor unit, and then to the mounting position of detector; refer to the instruction manual for indoor unit. The relay wire shall be connected by passing it through the indoor unit hanger to the mounting position of motion sensor. A 3-15/16~7-7/8in.(100~200mm) long space shall be reserved at the connection point of relay connector.

Note) For the connection of relay wire, wire ties shall be used to tie the surplus part of wire into the ceiling or onto the indoor unit.

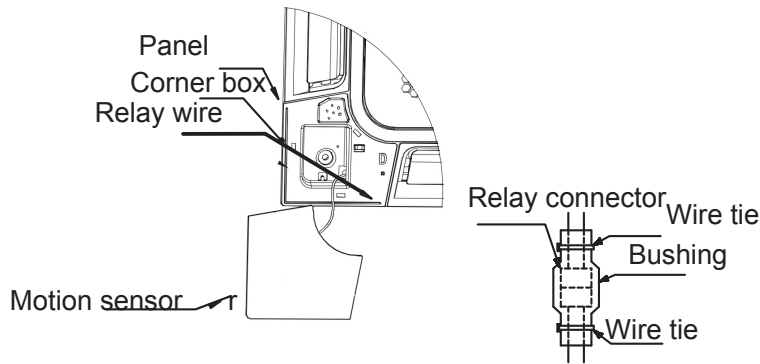


6) Installation of chosen panel

Please refer to the instruction for installation of the panel for the method of installation.

7) Install the motion sensor after the panel is in place.

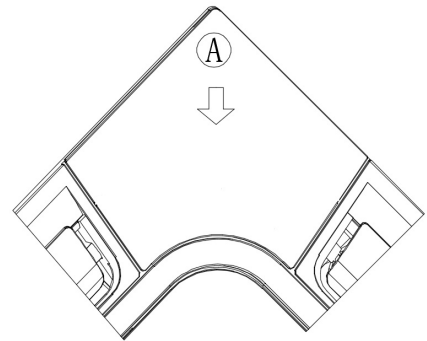
Lead the relay wire out of the corner box of panel, as shown in the figure below, and connect the wire of motion sensor to the connector of relay wire. Upon completion of the connection with connector, the connector shall be tightly wrapped with the attached bushing and fastened with wire ties.



● Method of removal

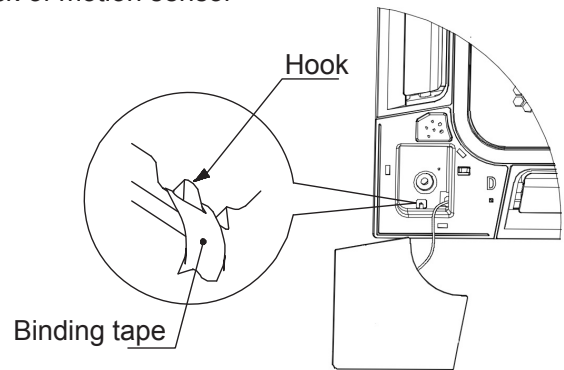
The general corner box protection cover shall be removed in the same way as the corner box protection cover designed with motion sensor. The method is described below with a corner box protection cover as example.

- ① Insert a slotted screwdriver or a finger into part A of corner box protection cover, apply force gently in the direction of arrow, when the corner box protection cover springs up.



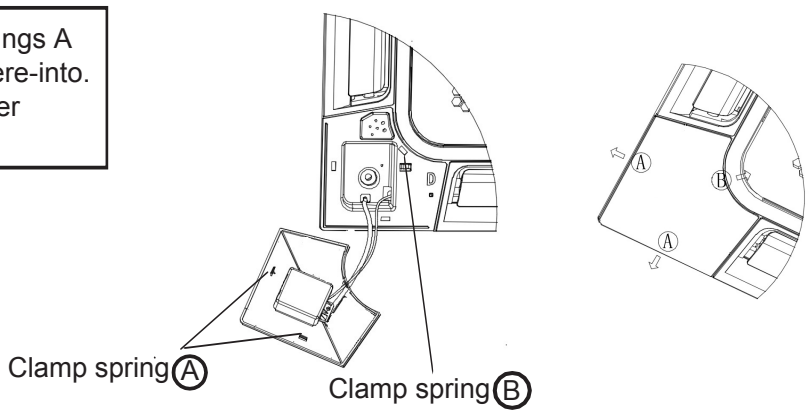
- ② As shown in the figure below, the binding tape on the back of motion sensor shall be hanged to the panel hook.

Note) Make sure the binding tape has been hanged onto the hook. Otherwise, the detector being removed may fall and cause injury.



③ Hold the wire down while pressing the 3 clamp springs of motion sensor into the corner box in the direction of arrow; gently force clamp spring (A) into corner box, and then force clamp spring (B) into corner box gently.

Note) Be sure to press the two clamp springs A into box before forcing clamp spring B there-into. Reverse order may cause damage to other clamp springs.



8) Mount other protective covers (3 left) of panel corner box after the proper installation of motion sensor. Refer to the Installation Manual for Panel for further information about installation procedure.

Note) After the detector is properly mounted, there should be one corner box left unused.



Possible Detection Area of Motion Sensor



Mini Four-way Type

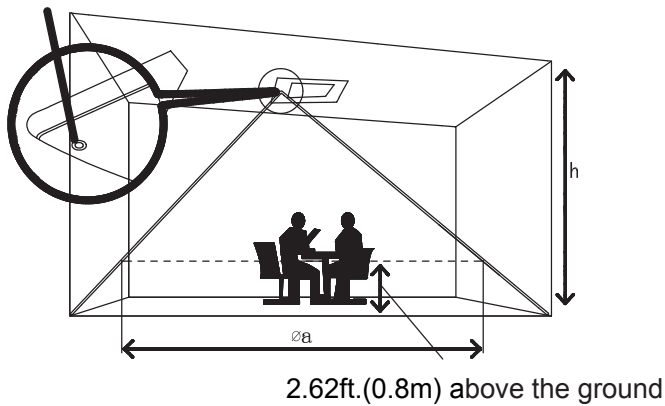
● The figure on the right shows the sensing area of motion sensor when the motion sensor in panel is in service.

Mounting height h of indoor unit ft.(m)	Approx. 8.2(2.5m)
Sensing area Φa of motion sensor ft.(m)	Approx. 26.25(8m)
Sensing area Φb of motion sensor ft.(m)	Approx. 13.78(4.2m)

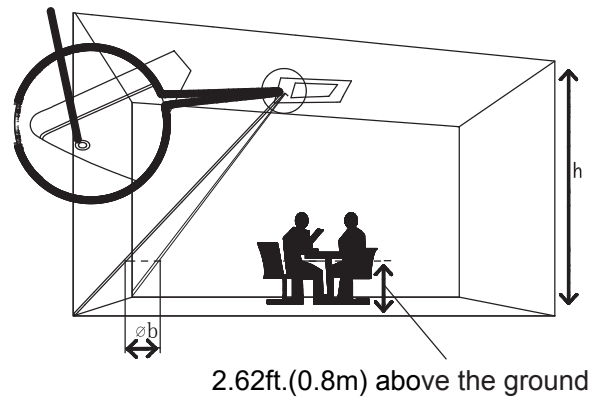


The longer side of motion detection board shall correspond to that of the room, while the operation shall be performed as per instruction label.

Motion sensor



Motion sensor



Possible Detection Area of Motion Sensor (Cont.)

- Choose an appropriate position based on the output air distribution of indoor unit in order that the indoor unit offers consistent temperature at each point.
The indoor unit is recommended to be mounted 7.87-8.86ft.(9.51*-10.5ft.) above the ground. If the mounting height of indoor unit is more than 8.86ft.(10.5ft.), uniform air flow distribution is attainable by increasing the fan speed or setting the operation mode to "three-side air output".
- Choose an appropriate position based on the output air distribution of indoor unit in order that the indoor unit offers consistent temperature at each point.
- Keep the air vent free of obstacles that may impair air flow.

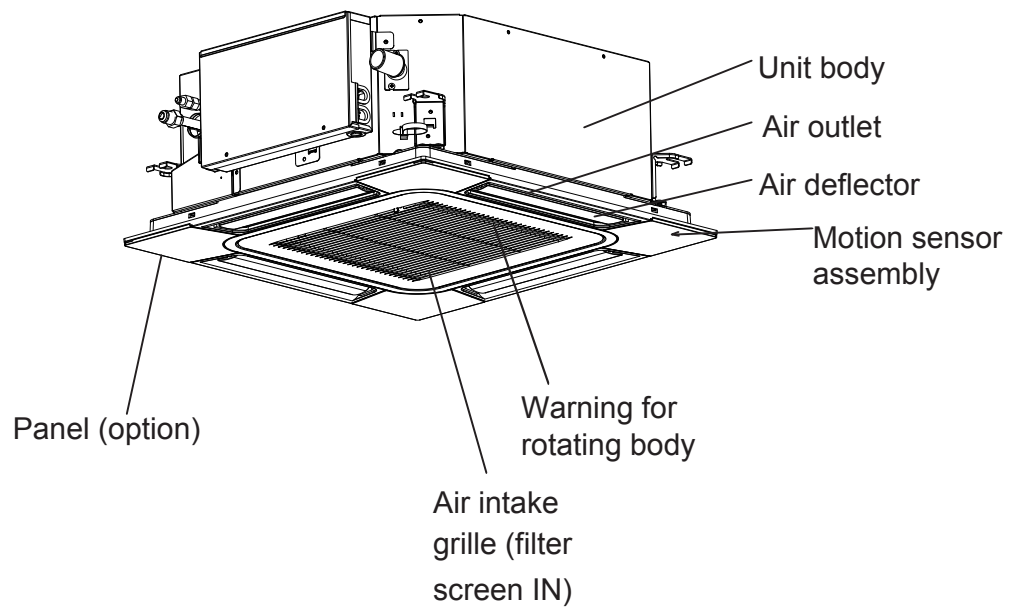
Part Names and Safety Precautions

- For safety's sake, the body of air conditioner indicates the safety notice. Please follow the precautions when using and servicing the machine.

WARNING

Do not insert a finger or stick into the fan unit.
It could cause a person's injury.

Part Names and Safety Precautions (Cont.)

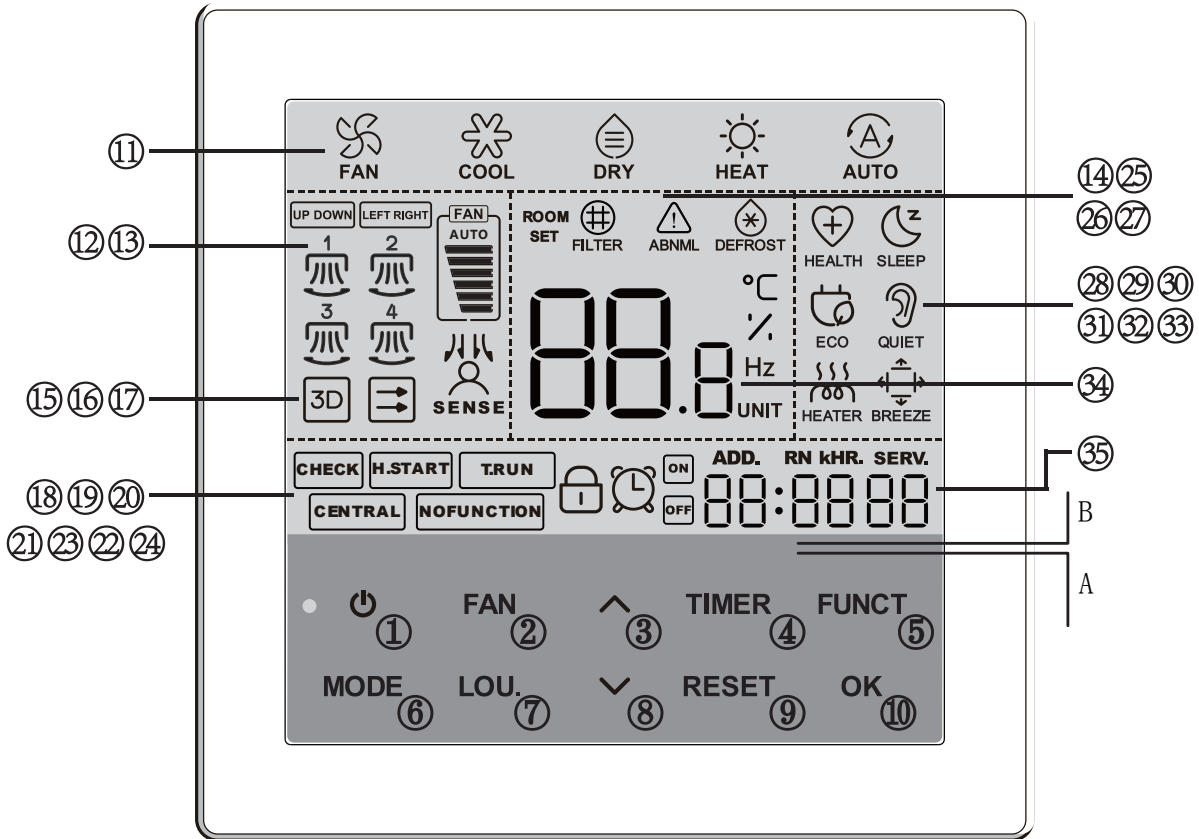




Names of Wired Control Parts

DISPLAY

(For the sake of description below, all display items are enumerated. Note that it's impossible to display all items in practice.)



A Operation Button Section

- ① ON & OFF Button
- ② Fan Speed Button
- ③ Temperature Button " ^ "
- ④ Timer Button
- ⑤ Function Button
- ⑥ Mode Button
- ⑦ Louver Button
- ⑧ Temperature Button " v "
- ⑨ Reset Button
- ⑩ OK Button

B LCD Display Section

- ⑪ "FAN", "COOL", "DRY"
"HEAT", "AUTO" Run Modes
- ⑫ Louver Icon Display
- ⑬ Fan Speed Icon Display
- ⑭ Set/Room Temperature Select
- ⑮ 3D Louver Icon Display
- ⑯ Distant Louver Icon Display
- ⑰ Human Icon Display
- ⑱ Check Icon Display
- ⑲ Hot Start Icon Display
- ⑳ Test Run Icon Display
- ㉑ Centralized Control Icon Display
- ㉒ NO FUNCTION Display
- ㉓ Lock Icon Display
- ㉔ Timer ON/OFF Icon Display
- ㉕ Filter Icon Display
- ㉖ Abnormal Icon Display
- ㉗ Defrost Icon Display
- ㉘ Health Icon Display
- ㉙ Sleep Icon Display
- ㉚ Energy Saving Icon Display
- ㉛ Quiet Icon Display
- ㉜ Electric heater Icon Display
- ㉝ Breeze Icon Display
- ㉞ Set/Room Temperature Icon Display
- ㉟ System Address Code Display
Service Code Display



How to Use Features of the Motion Sensor

- How to Set the Motion Sensor
(Applicable only to panels with motion sensors.)

Function and Operation

- Human motion is detected using a motion sensor (based on the variation of infrared light). This function enables auto ECO setup (correction of set temperature, air volume, and air direction) depending on practical situation. When a room is found to be vacant for a certain period of time according to multi-purpose wired control settings, it's possible to automatically get b into original ECO, standby or stopped state.

Control Content

- The following items will be automatically stopped depending upon practical situation under motion detection control.
Design temperature: Adjustment by 33.8°F(1°C) or 35.6°F(2°C) towards ECO.
Air volume: Set to be lower than the set air volume or gentle air output. (Except dehumidification)
Air direction: Set to "horizontal".

Setup Items Description

● Motion Sensor Setup

Valid: Set motion sensor control to be valid.

Invalid: Set motion sensor control to be invalid.

("Valid" by default.)

● Operation in Vacant Room

Vacancy judgment time: Based on the "vacancy judgment time" settings, the indoor unit can be set to "continue to function", "stand by" or "stop" if no man is detected within the set time. ("CONTINUE TO FUNCTION" by default.)

Continue to function: Continue to work in ECO mode. Normal operation will be resumed if the room is found to be occupied within a certain period of time.

STANDBY: Standby state (gentle air output). Normal operation will be resumed if the room is found to be occupied within a certain period of time.


STOP: Stop the operation of indoor unit.

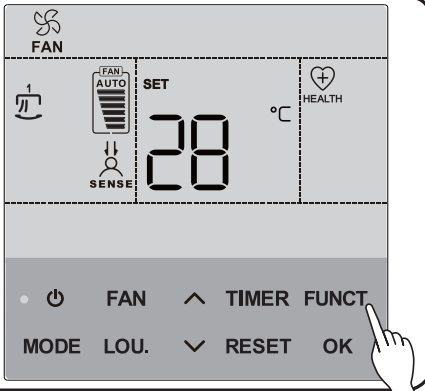
When all indoor units that are designed with motion sensors and connected to the same multi-purpose wired control meet the prior conditions for stop (the room found to be vacant within a certain period of time), the multi-purpose wired control brings the units out of service. Normal operation will be resumed if the room is found to be occupied before shutdown.

● Vacancy Judgment Time




When the room is found to be vacant for a certain period of time, the "OPERATION IN VACANT ROOM" is resumed. The time could be chosen from "30 min.", "60 min.", "90 min.", "120 min.", and "180 min.". ("30 min." by default.)

1

Under run mode, short press button 『 **FUNCT** 』 to switch over to the human induction setting status and the icon  will flash.



2

 (Blow)
 ↓ 『 **FUNCT** 』
 (Avoid)
 ↓ 『 **FUNCT** 』
 (Vacant run)

Then press button 『 **OK** 』 to select the human mode, press button 『 **RESET** 』 to cancel the human mode.

