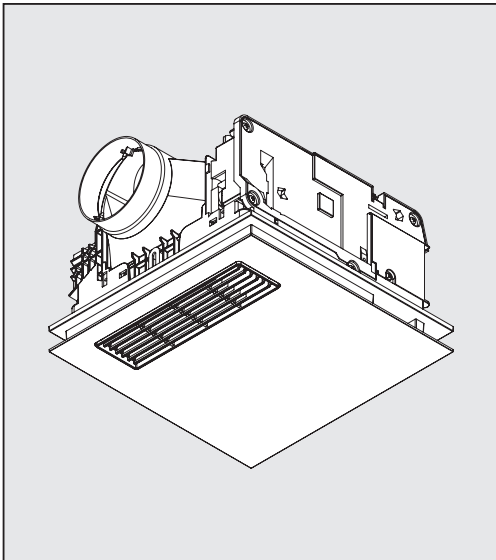


INSTALLATION AND OPERATING INSTRUCTIONS

Thermo Ventilator

Model No.: FV-30BZ1



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Warranty card attached

Thank you for purchasing this Panasonic product.

Please read these instructions carefully before attempting to install, operate or service the Panasonic product. Please carefully read "INSTALLATION INSTRUCTIONS" (P.2~3) of this instructions before installation. Failure to comply with instructions could result in personal injury or property damage. Please explain to users how to operate and maintain the product after installation, and this booklet should be presented to users. Please carefully read "USE AND MAINTENANCE INSTRUCTIONS" (P.12) of this instructions before operation. Please retain this booklet for future reference. Make sure that the correct information is written on the warranty card, including the date of purchase and the name of the distributor. Keep the warranty card in a safe place along with the instructions for future reference.

SAFETY INSTRUCTIONS

Please observe strictly

- Disconnect power supply before maintenance.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the product by a person responsible for the safety. Children should be supervised to ensure that they do not play with the product.

The following instructions should be strictly observed in order to prevent injury to the users and other people, or damage to property.

- The degrees of injury or damage that can occur when the instructions are ignored and if the product is not used properly have been classified and described by the following indications.



WARNING

This indication means: Must be treated seriously that this may result in death or serious injury.



CAUTION

This indication means: Must be treated seriously that this may result in injury or physical damage.

- Types of instructions that should be observed have been classified and described by the following pictorial symbols.



This symbol indicates the item is "PROHIBITED" to do.



This symbol indicates the "COMPULSORY" item that must be followed without failure.

INSTALLATION INSTRUCTIONS




WARNING

- Disconnect power source before working on the product.
 - ⚠ Otherwise, an electric shock may be caused.
- Make sure the power cord is installed firmly.
 - ⚠ Otherwise, a fire may be caused.
- Do avoid the back-flow of gas into the room from the open flue of flammable gas or other open-fire appliances.
 - ⚠ Otherwise, a fire may be caused.
- To avoid electric shock or fire, do not remove the PCB cover.
 - ⚠ Otherwise, an electric shock or a fire may be caused.
- Please select 60227 IEC 53(RVV) ordinary polyvinyl chloride sheathed cord. Nominal cross-sectional area of conductors is $2 \times 1.5 \text{ mm}^2$.
 - ⚠ Otherwise, it may be on fire.
- The product is installed so that switches and other controls cannot be touched by a person in the bath or shower.
 - ⚠ Otherwise, an electric shock may be caused.
- The product can not be located just below a power outlet socket.
 - ⚠ Otherwise, a fire may be caused.


INSTALLATION INSTRUCTIONS

WARNING


- The product must be installed by professionals or trained personnel with equivalent expertise and skills according to the national wiring rules.

 Otherwise, electric leakage, electric shock or a fire may be caused due to wrong wiring, twisted wiring or wire clamping.


- Do not operate the product other than the rated voltage (220 V~, 50 Hz).

 Otherwise, it may cause damages to the product or a fire.

- Do not install the product as the method which is not approved in the instruction.

 Otherwise, unreliable installation may be caused and thus the product may fall off, resulting in injuries.


- To avoid danger arising from wrong resetting of the thermal circuit breaker, the product can not be powered by using an external switch. For example, by a timer or connecting to a circuit that is connected/disconnected through timing of a universal part.

 Otherwise, a fire may be caused.

- Do not close to curtains and other flammable materials when install the product.


 Otherwise, combustibles may be inflamed.

- Please install a suitable all-pole switch which the contact separation is more than 3 mm. Please install the all-pole switch out of the bathroom where it is easily controlled.

 Otherwise, it may cause a short circuit, thus resulting a fire.

CAUTION


- Please ensure two persons perform the installation of the product.

 Otherwise, it may fall off to cause personal injury.


- Components must be installed tightly.

  Otherwise, it may fall off to cause personal injury.


- Do fix this product tightly.

 Otherwise, it may fall off to cause personal injury.


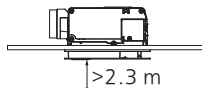
- The special-purpose or dedicated parts, such as mounting fixtures, must be used if such parts are provided.

 Otherwise, it may fall off to cause personal injury.

- The building structure and suspender which are used to installed product must have sufficient installation strength and support more than 5 times weight of the product. They must be reinforced if their strength can not be sure.


 Otherwise, it may fall off to cause personal injury.

- Install this product over 2.3 m above the floor.

Avoiding any accidents

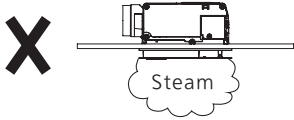
- Do not reconstruct this product.

 Otherwise, it may cause damage to the product or personal injury.

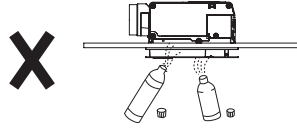
INSTALLATION REQUIREMENTS

Please observe the following installation requirements. Failure to do so may cause aging or failure of the product.

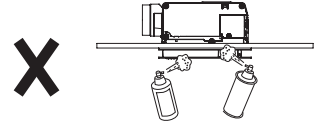
- Do not install the product in steam sauna bathroom.



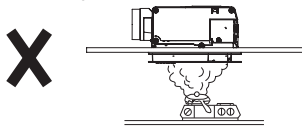
- Do not install the product in the places where the organic solvent is used.



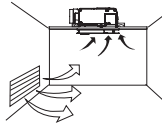
- Do not install the product in the places where the sprayer is used.



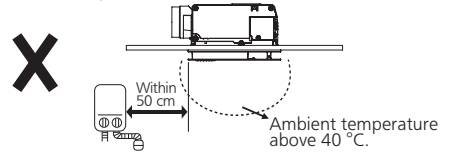
- Do not install the product where it is exposed to oil mist.



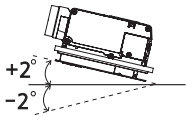
- Please set ventilation holes.



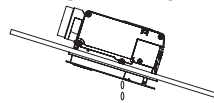
- Do not install the product in places with high temperature.



- Please make sure the product is installed horizontally and the deviation angle within the range as below figure.

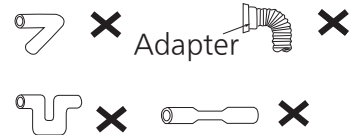


- Do not install onto slanting ceiling board.

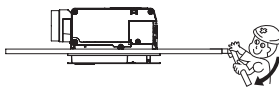


Prevent the water condensed in the duct pipe flow back into the body.

- Do not form the duct as shown below:



- When the ceiling board is unable to dismantle, please set a square inspection hole of at least 45 cm. (Please set the inspection hole near the pipeline and power cord, not directly under the duct pipe.)












- Do not install the product above the shower area. Please install it above the dry area of the bathroom. Failure to do so may affect bathing experience.

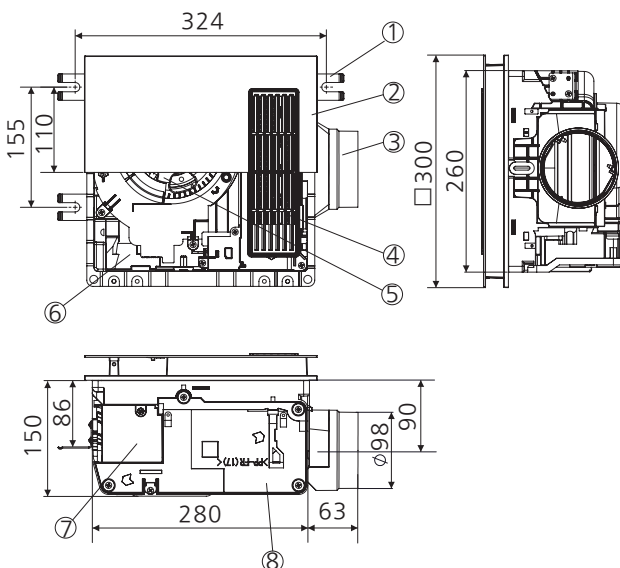
Convenience for installation and maintenance.

- The product is not provided with power cord, all-pole switch and leakage protection switch. Please purchase them in market.
- When you install plastic part, do not exert too much strength to fixing the screw otherwise, the product would be damaged.

SUPPLIED ACCESSORIES

No.	Drawing	Name and Purpose	Qty
①		Machine screw (M4×10, used to install the louver assembly)	1
②		Flat head self-tapping screws (ø4×20, used to fixed installation of the main body and adapter)	6
③		Installation and operating instructions	1
④		Louver assembly	1
⑤		Suspension bracket	3
⑥		Self-tapping screw (ø4 x12, used to install the main body and the suspension bracket)	8
⑦		Warranty card	1
⑧		Switch label	1
⑨		Digital label (Used by the paste of switch cord)(3 groups)	1

PART NAMES AND DIMENSIONS



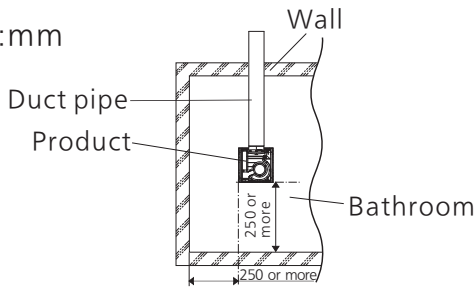
Unit:mm

No.	Part name	No.	Part name
①	Suspension bracket	⑤	Fan
②	Louver assembly	⑥	Main body
③	Adapter	⑦	Cord cover
④	Heater assembly	⑧	PCB cover

WORK BEFORE INSTALLATION

1. Confirmation before installation

Unit:mm



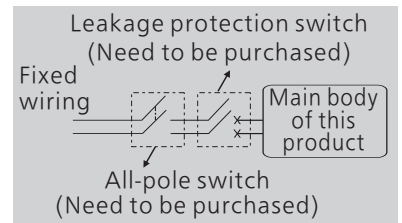
The bathroom size may affect the heating performance of this product.

Notice

- ① Install this product over 200 mm apart from curtains or other flammable materials. (When the mounting hole is adjacent to curtains or other flammable materials, ensure that more than 250 mm gap is required between the hole edge and wall.)
- ② The distance between ceiling board where the product is mounted and ceiling shall be over 170 mm.
- ③ Install this product over 250 mm apart from walls.
- ④ Please reserve a sufficient length of the power cord for easy installation.
- ⑤ When duct pipe is connected to outside of the room, a vent that diameter is $\varnothing 110$ mm should be opened. (Duct pipe, pipe hood or vent cap are not supply.)

2. Preparation before installation

Install an all-pole switch with the contact separation not less than 3 mm and specifications not lower than 250 V~15 A and a leakage protection switch (with the leakage current lower than 30 mA) between the fixed wiring and the main body of this product.



HOW TO INSTALL

1. Connecting power cord

⚠ WARNING

- ⚠ Please select 60227 IEC 53(RVV) ordinary polyvinyl chloride sheathed cord. Nominal cross-sectional area of conductors is $2 \times 1.5 \text{ mm}^2$.
- ⚠ For the stripping length, please prepare according to the wiring sketch (refer to figure 1). If the stripping length is too long, a short circuit or fire may be caused.
- ⚠ Do not damage the sheath of the power cord, otherwise an electric shock or short circuit may be caused.
- ⚠ Strand the core wire together after stripping, then insert them into about 8 mm deep position of the terminal block, ensuring that the part is under the spring slice, and no copper core cord is exposed outside. Make sure that the copper core cords are fixed by screws reliably (the recommended screw fixing torque is $0.49 \text{ N} \cdot \text{m}$) (See Figure 2). Otherwise an electric shock may be caused.

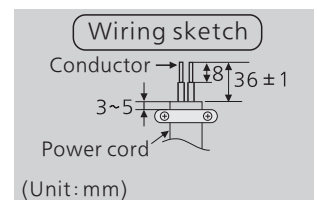


Figure 1

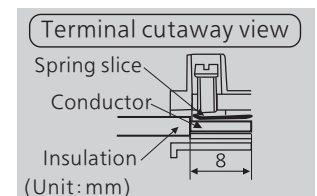
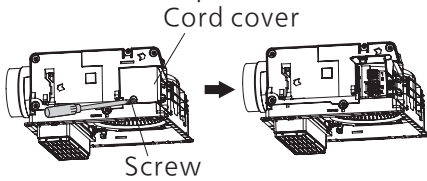


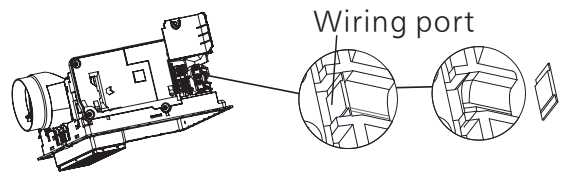
Figure 2

HOW TO INSTALL

- ① Remove the screw (1 pcs) on the cord cover, then open the cord cover.



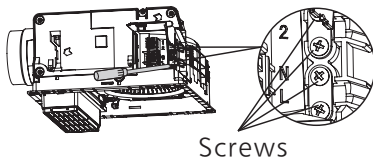
- ② There is a wiring port on the wiring side of the switch, which can be cut out according to the shape of the wiring port using tools such as pointed pliers.



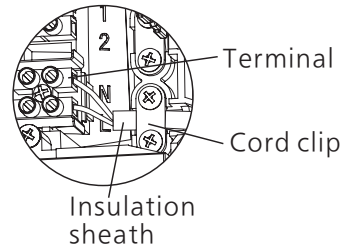
Notice

Please handle the burrs of the outlet before leading, otherwise the burrs may cut the switch cord.

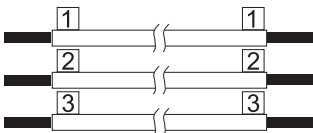
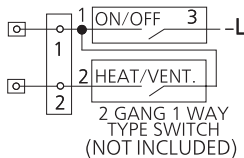
- ③ Loosen the screws of the cord clip and the switch cord. (4 pcs)



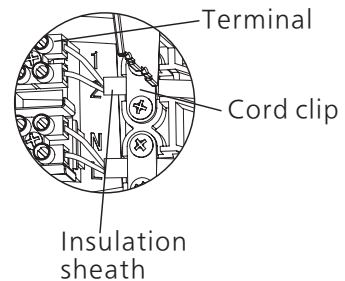
- ④ Loosen the screws of the terminal, insert the indoor power cord (not supplied) into the terminal, then tighten the screws. Fix the power cord with the cord clip. (The cord clip must pin the insulation sheath of power cord.)



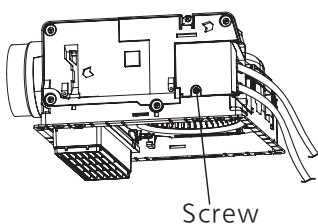
- ⑤ Take out the 3 groups of digital label, paste the digital of the same group at the both ends of the same switch cord.



- ⑥ Loosen the screws of the terminal, insert the indoor switch cord (not supplied) into the terminal, then tighten the screws. Fix the switch cord with the cord clip. (The cord clip must pin the insulation sheath of switch cord.)



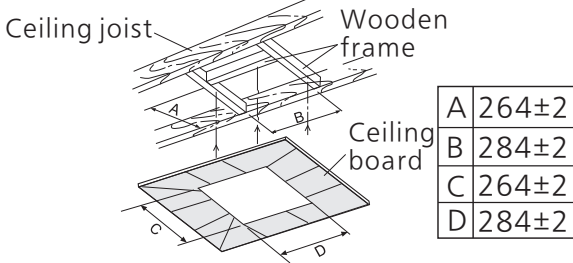
- ⑦ Fix the cord cover by the screw which removed by step ①.



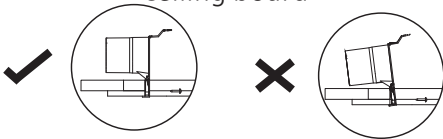
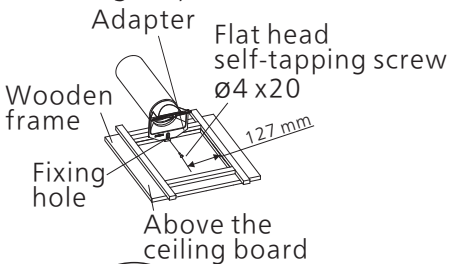
HOW TO INSTALL

2. Main body installation Method 1 ordinary ceiling

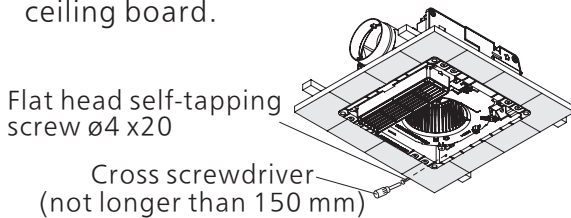
- ① Make a wooden frame and install it onto the ceiling joist. Ensure that the total thickness of the wooden frame and ceiling board should be 25 mm~30 mm. Meanwhile, open a mounting hole in the ceiling board with dimensions as shown in the table below: (unit: mm)



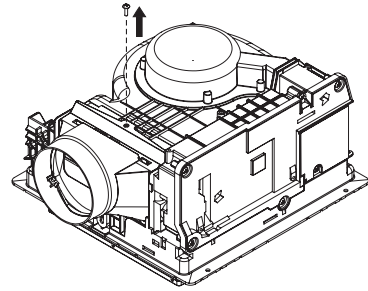
- ③ Use one $\varnothing 4 \times 20$ flat head self-tapping screw in the supplied accessories to fix the adapter on the ceiling board (please install the screw fixing hole according to the size requirements in the figure).



- ⑥ Use one $\varnothing 4 \times 20$ flat head self-tapping screw to fix the main body. Be sure to fix this screw because it can prevent the main body from falling off the ceiling board.

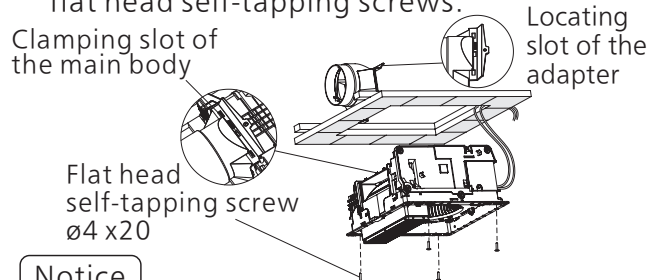


- ② Remove one screw from the adapter.



- ④ Connecting the duct pipe → Refer to Section 4. Connecting Duct Pipe on P. 10.

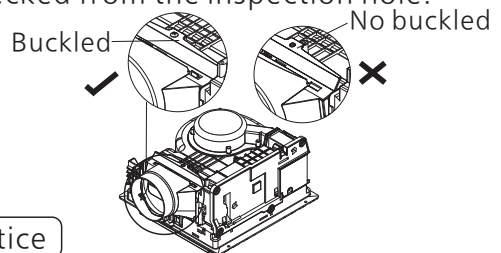
- ⑤ Push the main body upward against the adapter into the ceiling board and wooden frame, snap the locating slot of the adapter into the clamping position of the main body (to avoid air leakage), and firmly fix the main body with four $\varnothing 4 \times 20$ flat head self-tapping screws.



Notice

Please be careful not to damage the power cord when pushing the main body into the wooden frame.

- ⑦ After completion of the installation work, be sure the condition between the main body and the adapter is proper. It can be checked from the inspection hole.



Notice

If adapter fails to cling to the main body, it may cause air leakage.

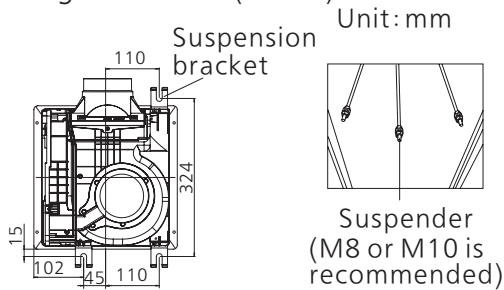
HOW TO INSTALL

2. Main body installation Method 2 Ceiling board has not been installed

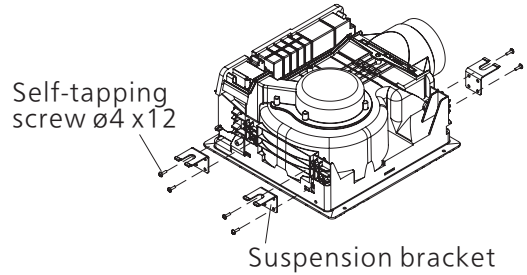
You need to purchase three sets of suspenders separately. M8 or M10 suspenders are recommended.

- ① Positioning and installing the suspenders.

Fix the purchased suspenders in the corresponding positions on the cement board by referring to the installation dimensions of the three suspension brackets in the figure below. (3 sets)

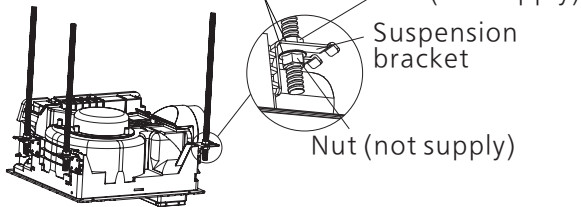


- ② Take out the suspension brackets from the packing box and fix them on the main body with $\varnothing 4 \times 12$ self-tapping screws in the supplied accessories.



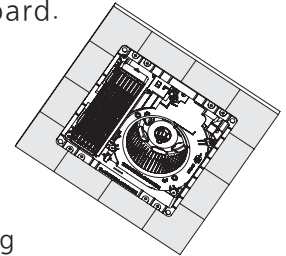
- ③ Fix the main body to the suspenders.

Washer (not supply) Nut (not supply)



- ④ Connecting the duct pipe → Refer to Section 4. Connecting Duct Pipe on P.10.

- ⑤ Install the ceiling board.

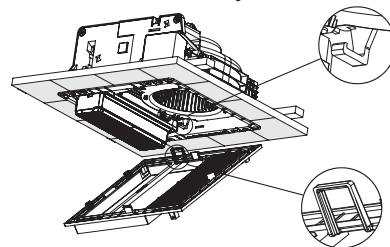
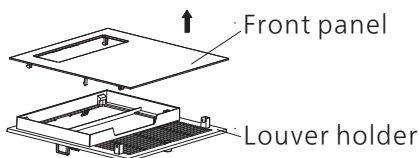


Notice

Please install the ceiling board on the upper side of the main body flange. Otherwise, the louver assembly may not be installed correctly.

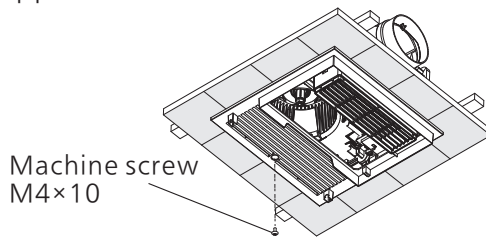
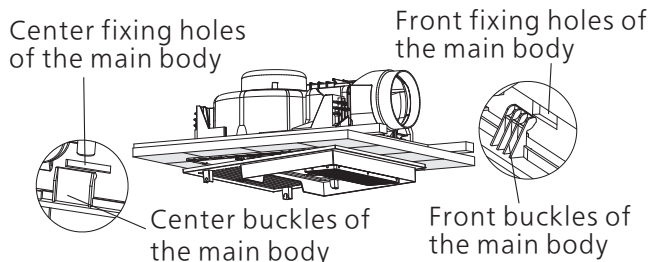
3. Installing louver assembly

- ① Separate the front panel from the louver holder. ② Hang the louver holder into the hook on the main body.

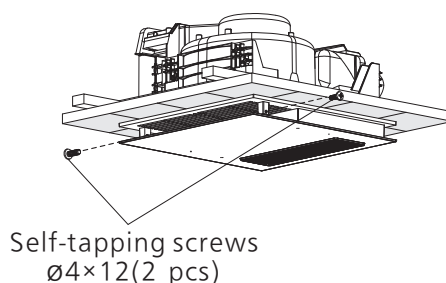
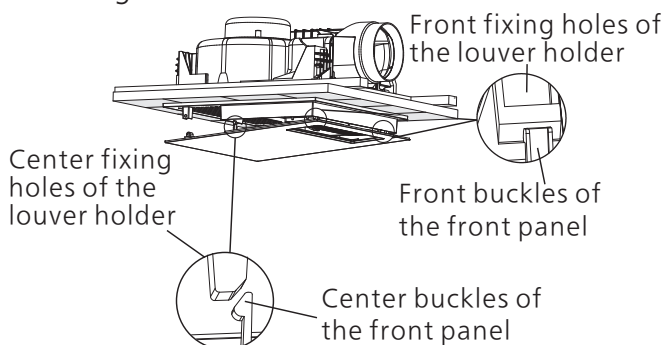


HOW TO INSTALL

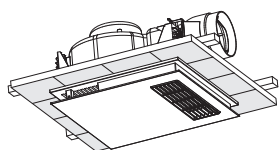
- ③ Snap the two front buckles of the louver holder into the front fixing holes of the main body, then snap the two center buckles of the louver holder into the center fixing holes of the main body.
- ④ Fix the louver holder and the main body with one M4 x 10 machine screw in the supplied accessories.



- ⑤ Snap the two front buckles of the front panel into the front fixing holes of the louver holder, then snap the two center buckles of the front panel into the center fixing holes of the louver holder.
- ⑥ Install the front panel (Be sure the buckles of the front panel is proper). Fix the front panel and the louver holder with two $\varnothing 4 \times 12$ self-tapping screws in the supplied accessories.

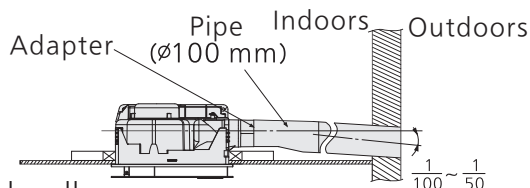


- ⑦ Finish installing.



4. Connecting duct pipe (Not supply)

- ① Install the duct pipe onto the adapter, and then bind them tightly with adhesive tape. Suspend the duct pipe from the ceiling board to prevent external force exerted on the unit body.
- ② Install the pipe cap or pipe cover on the external wall. (Please purchase a pipe cap or pipe cover separately according to the pipe size.)



Notice

1. The minimum diameter of the hole: $\varnothing 110 \text{ mm}$.
2. The duct pipe connected to outside of the room must be slanted to prevent rain or condensed water from flowing backwards.
3. This duct pipe length should be as moderate as possible. It will affect product performance if it is too long.
4. Failure to install a pipe hood or vent cap may result in the entry of birds, insects, rats, etc.

HOW TO INSTALL

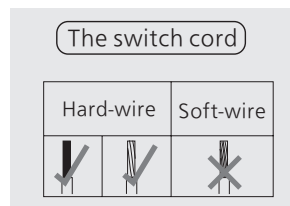
5. Installation of switch



WARNING

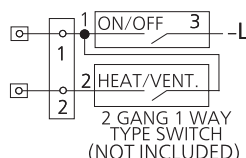
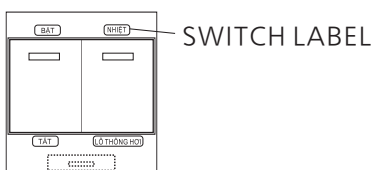


Please select 60227 IEC 01 single-cord non-sheathed cable for control lead wire, nominal cross-sectional area of conductors is 1.5 mm².



① Please use 2 gang 1 way type switch.

② Stick the switch label (placed in the accessories) to the switch (Not supply) as the method shown below.



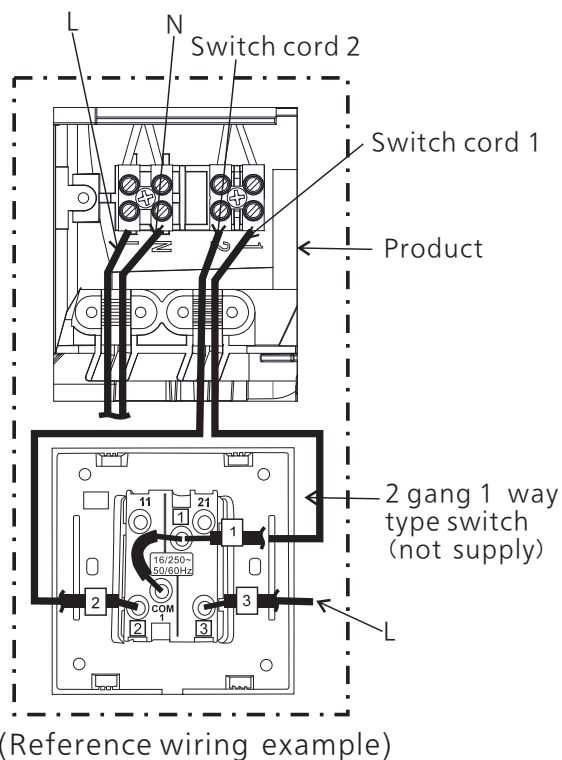
Notice

1. The current through the switch is less than 1 A, so can use ordinary switch 250 V ~ 15 A, which can be buy in the market.
2. Please refer to the wiring diagram (P. 14) when connecting the wire. Be sure to confirm the function of the product after installation, and mark the position of the function ("ON", "OFF", "VENT", "HEAT") on the switch for easy control the product.
3. The installed switch must not be connected to other products. (Such as lights, etc.)



CAUTION

In order to prevent touching the switch cord, please install the switch cord inside the wall.

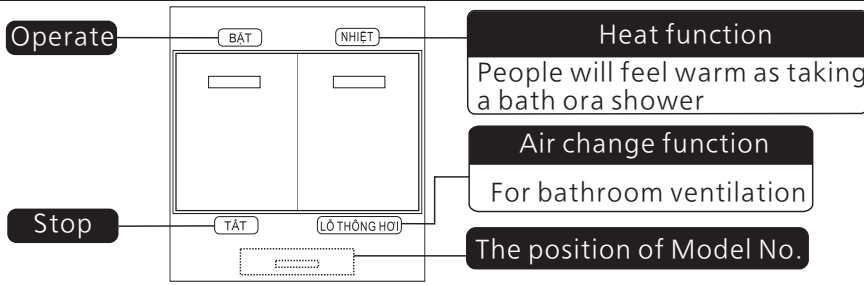


(Reference wiring example)

TEST RUN

- After the installation, turn on the power supply, and then press functional buttons of the switch to check the following items:
 - Does the fan revolve normally?
 - Does it have abnormal vibration or noise?
 - Does it blow out hot air?
 - Is each button on switch perform its right function?
 - Is there a beeping tone when switching on and off and when switching functions?

OPERATION



- ※ 1. The maximum running time of the heating is 3 hours, it will turn off automatically after 3 hours, but the switch shows the heating status, which is normal, if you need to continue heating, just turn it off and then turn it on again.
- 2. In the heating mode running for 30 seconds above, press the "STOP" button or "Air change" button, the fan will stop running after a delay of about 20 seconds.

USE AND MAINTENANCE INSTRUCTIONS

⚠ WARNING

- Before touching the main body of this product or cleaning this product, make sure that the "all-pole switch" connected to this product is disconnected.
 - ⚠ Otherwise, may lead to electric shock.
- If you will not use this product any more, remove the product.
 - ⚠ This product may cause injuries once it falls off.
- If the product will not be in use for a long time, please use the "all-pole power switch" to disconnect the power supply.
 - ⚠ Otherwise, may lead to electric shock.
- Do not disassemble this product for repair or reconstruction.
 - ⚠ Doing this may lead to fire and electric shock.
- Once flammable gas leaks, do not start any function of this product.
 - ⚠ Doing this may generate spark and thus lead to explosion.
- To avoid low-temperature scalding, do not directly blow the same part of the body with hot wind for a long time (2 hours or above).
 - ⚠ Doing this may lead to low-temperature scald.
- Do not directly spray this product with water and other liquids.
 - ⚠ Doing this may lead to short circuit or electric shock.
- Do not clean the heating part or let water flow into the electric motor or electrical parts.
 - ⚠ Otherwise, may lead to electric shock.

⚠ CAUTION

- When you clean this product, please wear gloves.
 - ⚠ Otherwise, may lead to injury.

Notice

- The applicable ambient temperature of this product is in the range of $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$, using it out of this range may cause a fault.

HOW TO MAINTENANCE

Cleaning Precautions

Cleaning the louver assembly

1. To prevent color change and accelerated aging of the panel, do not use any type of diluent, alkaline cleaner, benzene, alcohol, antiseptic, or steel ball as shown below.
2. To use a chemical cloth, clean this product by following the instructions.



Cleaning the heater assembly

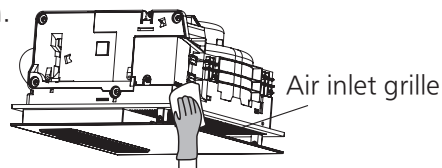
1. It is recommended that clean the heater assembly when the accumulated heating running duration reaches about 2,200 hours. (recommended cleaning period of the heater assembly is about 2.5 years.)
2. The cleaning period of heater assembly is different according the actual operating environment and using condition.
3. Please contact the dealer when you need to clean the heater assembly. (Self-funded)

Cleaning the louver assembly

① Shut off the all-pole switch.

② Wipe the surface of the panel and the air inlet grille of the louver assembly with a soft cloth.

③ Turn on the all-pole switch.

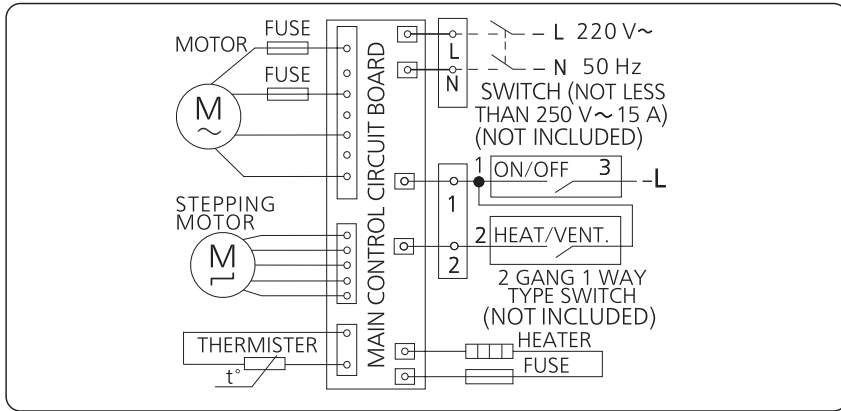


TROUBLESHOOTING

Check the product according to the table below if a fault occurs. If an error still occurs, check that the all-pole switch connected to this product is disconnected, and contact the dealer.

	Symptom	Cause	Troubleshooting
Air	No hot wind blow out	The heater may fail	Contact the dealer
	Air volume reduced	The air inlet grille of the louver assembly may be blocked	Clean the air inlet grille of the louver assembly
		The heater may be blocked	Contact the dealer
Sound	When the switch is operated, the buzzer generates a short prompt tone	The temperature sensor may fail	Contact the dealer
	When stopping the product, the buzzer does not sound a tone	The wiring may wrong	Ensure the wiring is right
	An abnormal sound is heard.	The main body may not be firmly installed.	Check that the product is fixed by following the steps in the instructions
		The fan blades may be deformed.	Contact the dealer
		The stepping motor may be stuck.	Contact the dealer
	The duct pipe or ventilation is obstructed.	Contact the dealer	

WIRING DIAGRAM



SPECIFICATIONS

Model No.	Rated voltage [V]	Rated frequency [Hz]	Power consumption [W]	Rated current [A]	Air volume [m ³ /h]	Weight [kg]
FV-30BZ1	220	50	1380(23 °C)	6.2	2.17	4.1
			1250(40 °C)			

Power Consumption [W]		Noise [dB(A)]	
Heat	Vent	Heat	Vent
1380(23 °C)	23	45	41
1250(40 °C)			

- Power consumption and rated current are obtained in the factory default state and the test ambient temperature is 40 °C.
- Air volume, electric specification and noise value are measured when static pressure is 0 Pa.
- Noise value is the weighted sound pressure grade A, which is the central value measured by this company, its tolerance range is from +3 dB to -7 dB. The method to measure is as follows: in an anechoic chamber, measure noise value first 1 m away from the left, right and beneath of the sample, then get the averaged value.
- This product comply with the IPX2 requirement against the water drop test.
- Insulation class E

The above specification may be changed without further notice.

Panasonic Corporation

Web Site: <http://www.panasonic.com>

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