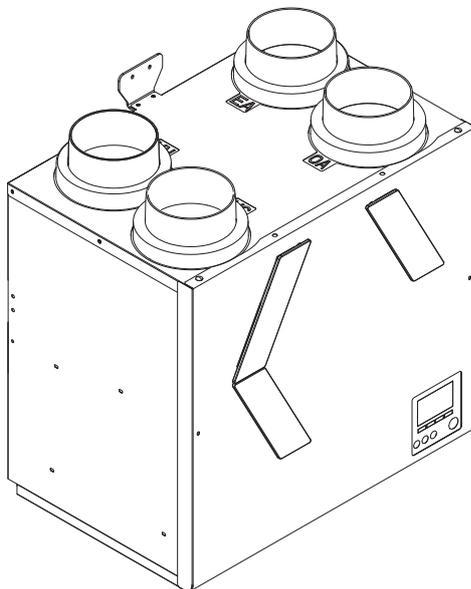**LOSSNAY HEAT RECOVERY VENTILATOR (RESIDENTIAL USE)**

**MODEL**

# VL-250CZPVU-R-E
# VL-250CZPVU-L-E
# VL-350CZPVU-R-E
# VL-350CZPVU-L-E

**Installation Manual** | **For dealer/contractor**

* The figure shows VL-350CZPVU-R-E

## Contents

■ This product is for residential use.

■ This product must be correctly installed to ensure that its performance and functions are properly demonstrated and to ensure its safe use and operation. Before installation, please read this installation manual thoroughly. Before using exclusive system components, read the installation manual for the system components thoroughly.

■ For installation parts, be sure to use accessories and designated parts. Use of non-designated parts may be a cause of malfunction.

■ Installation must be performed by dealers and electrical contractors. Incorrect installation by the customer may be a cause of equipment malfunction or an accident.

■ Electrical work must be performed by a properly qualified electrician of the dealer or electrical contractor.

■ Please note that enough working space (remove the cover, replace the filter, etc.) is required around the product for maintenance.

■ Install the unit indoor.

# 1. Safety Precautions

The following symbols indicate the degree of danger caused by incorrect handling of the product.

| ⚠ **WARNING** | ⚠ **CAUTION** |
|---|---|
| Incorrect handling of the product may result in serious injury or death. | Incorrect handling may result in minor injury or physical damage to the house or household goods. |

Symbols used in the text and on the main unit have the following meanings.

| 🚫 | Prohibited | 🚫 | Do not install in bathroom |
|---|---|---|---|
| 🚫 | Do not disassemble | ⏚ | Be sure to ground |
| 🚫 | Do not wet | ❗ | Follow instructions |

| ⚠ **WARNING** | |
|---|---|
| 🚫 Prohibited | **Do not install the product in hot places, in the direct sunlight and in smoky places.**<br>Failure to heed this warning may result in fire. |
| 🚫 Do not disassemble | **Do not modify or disassemble the product beyond that is necessary.**<br>Failure to heed this warning may result in fire, electric shock or injury. |
| 🚫 Do not wet | **Refrain from immersing in water or splashing the product with water.**<br>Failure to heed this warning could result in short circuit or electric shock. |
| 🚫 Do not install in bathroom | **Do not install the Lossnay unit or the remote controller in a bathroom or other humid location.**<br>Failure to heed this warning may result in electric shock or electric leakage. |
| ⏚ Be sure to ground | **Be sure to install the ground wire.**<br>Device failure and electric leakage may cause electric shock. |
| ❗ Follow instructions | **Use 220 to 240 V AC power.**<br>Failure to head this warning may result in fire, electric shock or damage to the circuit boards.<br>**For the outside air intake vent, choose a position where combustion gas or other similar exhaust air is not sucked in and the vent is not buried by snow.**<br>Inability to bring in fresh air may result in lack of oxygen in the room.<br>**Select a place which is strong enough to support the product, and install the product securely.**<br>Injury could result if parts fall.<br>**Electrical work must be carried out safely and reliably by a professional electrical contractor (properly qualified electrician) in accordance with internal wiring provisions and electrical-equipment technical standards.**<br>Poor connection and faulty electrical work could result in electric shock or fire.<br>**Install an all-pole power supply isolator at the power supply side as per local electrical regulations. All supply circuits must be disconnected before obtaining access to the terminal devices. Use the specified cable size and connect the cables securely to prevent disconnection when they are pulled.**<br>If there is a defect in the connection, there is a possibility of fire.<br>**Use the designated electric wires, and connect them securely so that they do not come loose.**<br>Defective connections may result in fire.<br>**When metal ducts penetrate through metal-sheeted wooden buildings or structures, install the product so that there is no electrical contact between the metal ducts and the metal sheeting.**<br>Electric leakage may cause ignition.<br>**Be sure to cover with the terminal block cover after electrical work.**<br>Failure to heed this warning may cause dust, humidity, etc. to enter, resulting in electric leakage or fire.<br>**Secure duct piping with commercially available fixing bands, aluminum tape, etc. to prevent piping from coming loose. Install outdoor piping from the product so that it is tilted at a downward pitch of at least 1/30 towards the outside.**<br>Failure to heed this warning may cause rain penetration, resulting in electric shock/fire or water damage to household property.<br>**If the product will not be operated for a long period of time after installation, be sure to turn off the circuit breaker.**<br>It could cause electrical shock by deteriorated insulation or fire by the electric leakage.<br>**For installation work parts, be sure to use only accessories and designated parts**<br>Use of non-designated parts may result in equipment damage or accidents. |

# ⚠WARNING

| | |
|---|---|
| ⛔<br>Follow<br>instructions | **When using duct heaters (supply air preheaters, supply air after-heaters), make sure to use safety devices that do not have self-return functions. Do not supply the duct heaters with electricity directly from the product.**<br>Failure to heed this warning may result in fire.<br>**When using duct heaters (supply air preheaters, supply air after-heaters) that do not have temperature control functions, select duct heaters that have the appropriate capacity according to the airflow passing through the heaters.**<br>Failure to heed this warning may result in fire because the heaters will overheat if the airflow is too little compared to the capacity of heaters. |

# ⚠ **CAUTION**

| | |
|---|---|
| ⃠<br><br>Prohibited | **Do not install the product at regions or locations that exceed the following operating conditions.**<br>If these operating conditions are exceeded, dew condensation water might drip.<br>   Outdoor air temperature: -15 to 40 ºC<br>   Area around the product and ambient temperature and humidity:0 to 40 ºC 80%RH or less and at absolute<br>   humidity or less where the dew point temperature of 12 ºC (20 ºC 60%RH or equivalent) is reached under the<br>   above minimum outdoor air temperature conditions<br>**When installing the product, do not drop or throw the product, or subject the product to impact.**<br>Damage to structures inside the product may result in air or water leakage.<br>**Do not carry with a pipe guide.**<br>Failure to heed this warning may result in damage to pipe guide.<br>**Do not place the unit directly on the floor.**<br>Failure to heed this warning may result in damage to the drain pipe and the circuit case. |
| ❗<br><br>Follow<br>instructions | **\<Lossnay unit\>**<br>**The unit is exclusively vertical mounting type.**<br>**If the unit is used horizontally, household belongings can get wet by drained water or condensation.**<br>**Install the product and the duct piping on the indoor side of the insulation layer/airtight layer.**<br>The temperature of the air after heat is collected on the indoor side of the insulation layer may drop, or drain or dew condensation might result in the ceiling getting wet.<br>**Install the product (on the wall) in the direction of the duct connecting flange so that it is horizontal (within ± 1°).**<br>Water leakage may result in water damage to the floor.<br>**Wear gloves when installing.**<br>Failure to heed this warning may result in injury.<br>**Securely install parts so that they are not twisted or deformed.**<br>Injury could result if parts fall.<br>**Install the product by two persons.**<br>Failure to heed this warning may result in product damage or injury if the product falls.<br><br>**\<Duct piping\>**<br>**Make sure to insulate ducts down to the base of the duct connecting flanges.**<br>Exposed parts get cold in winter, which may result in dew condensation forming due to moisture in the room.<br>**Do not allow duct piping to contact the inspection opening,ceiling hanging bolts, beams, pillars, and other duct piping.**<br>Failure to heed this warning may result in abnormal noise and vibration.<br>**Use an outdoor hood, that makes it less likely for rain water,snow or small animals (e.g. bats) from entering the ends of the supply air and exhaust air ducts.**<br>To prevent the entry of small animals, install an outdoor hood having louvers 2 cm or less wide.<br>**When the Lossnay unit is anticipated not to be operated continuously, insulate the RA (Return Air) side ducts. Indoor humidity can cause condensation because exposed parts can become cold in winter.**<br>**Place the duct heaters (supply air preheaters, supply air after-heaters) at least 2 m from the product.**<br>Failure to heed this warning may cause damage on the product due to the preheating from the heaters.<br><br>**\<Drain piping\>**<br>**Make sure to connect drain piping by the following procedure to prevent freezing and dew condensation forming on the surface of the piping**<br>- Connect the drain piping on the indoor side of the insulation layer<br>- Insulate the drain piping up to the end of the piping<br>- Do not let the end of drain piping be immersed in the rain gutter, etc.<br>   (At times of  heavy snow, the rain gutter freezes and drain water is not discharged, which results in water leaking<br>   from the Lossnay unit.)<br><br>**This appliance 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 appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance. (This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.)** |

## Note

- Do not install the product at locations where toxic gas or gas containing corrosive components such as acids, alkaline, organic solvents, or paints is generated. (Failure to heed this warning may result in malfunction.)
  Do not install the product near bedrooms. (Failure to heed this warning may cause complaints about noise.)

- For living rooms (e.g. bed rooms) where it is anticipated that building ambient noise will be below 30 dB(A), use commercially available ducts that have sound deadening qualities on the supply air side. (Sound from the product resonatesin inside the ducts and may result abnormal noise being emitted from the air vent.)

- Install supply air and exhaust air grills at locations where they are less likely to reverberate. (Failure to heed this warning may cause complaints about noise.)

- In cold regions or regions with strong winds, wind outside sometimes gets inside when operation of the product is stopped. So, we recommend providing a motorized shutter midway along the supply air and exhaust air ducts.

- Install the product so that discharged gas or exhaust air from burning appliances and equipment does not flow back inside the product.

- At regions where salt damage is a concern, use an exclusive outdoor hood.

- At regions where salt damage is a concern, parts may have to be replaced sooner because of the deterioration of materials that are used.

- At the outdoor hood installation position, allow at least 3x the diameter of the duct through holes between the outdoor hood and the ducts so that exhaust air is not mixed in with supply air. (Preferably a distance of 450 mm or more should be ensured between the outdoor hood and the ducts.)

- Do not connect duct pipes in the ways shown below. (Failure to heed this warning may cause the air flow to decrease or result in abnormal noise.)
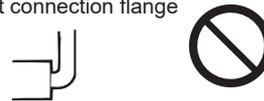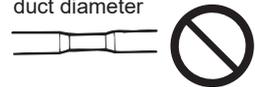
  - Extremely sharp bends
  - Many bends
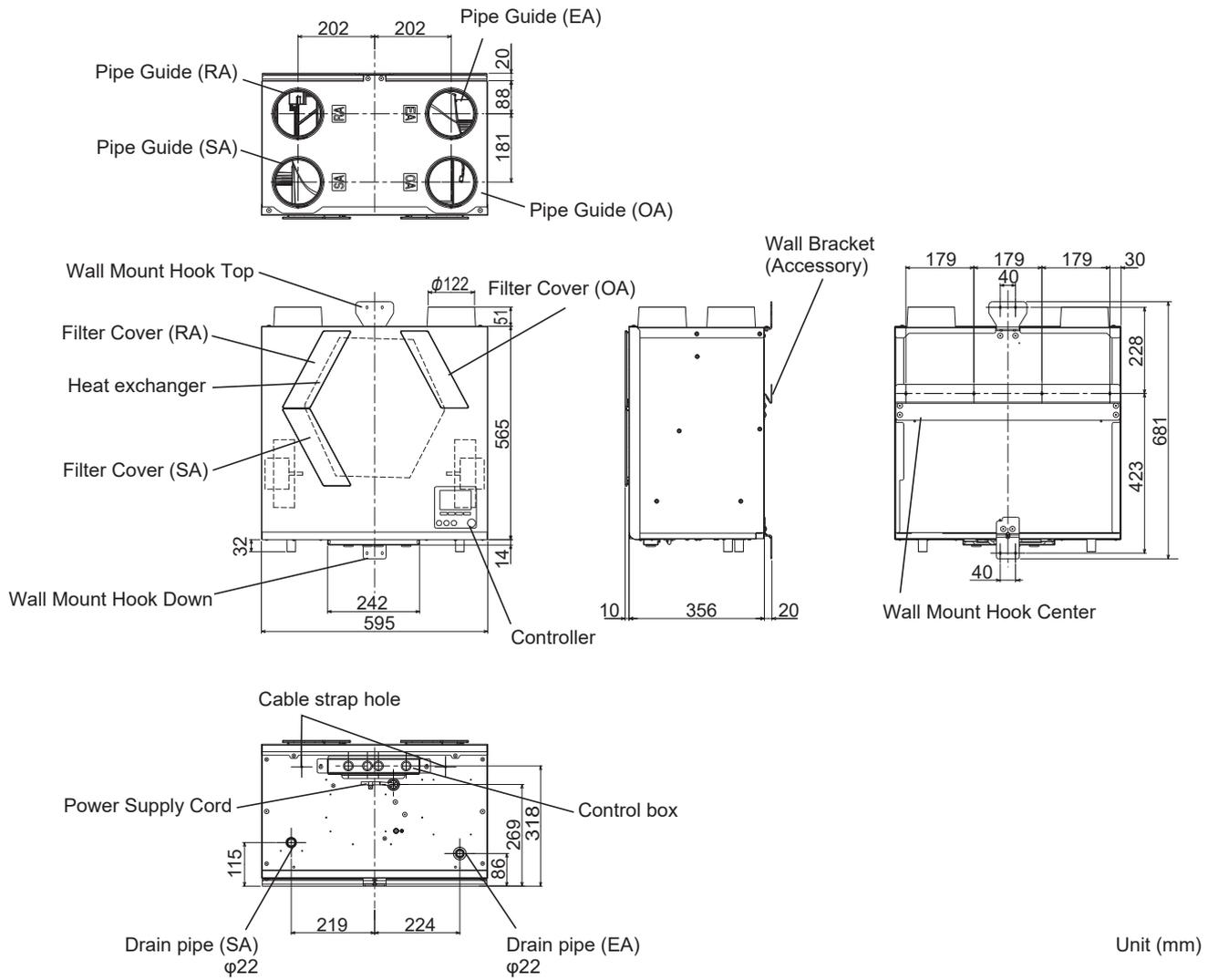  - Bending right next to the duct connection flange
  - Extreme narrowing of the duct diameter

- **Use an exhaust air filter that has a non-woven fabric type filter.**

- **To reduce the noise of drain discharge, make sure to connect commercially available check valves to the drain piping. Use check valves in line with their instructions.**

- **The opening face of the drain piping edge must have a vertical downward lack of water. Make the opening at the end of the drain piping face down so that water drains well.**
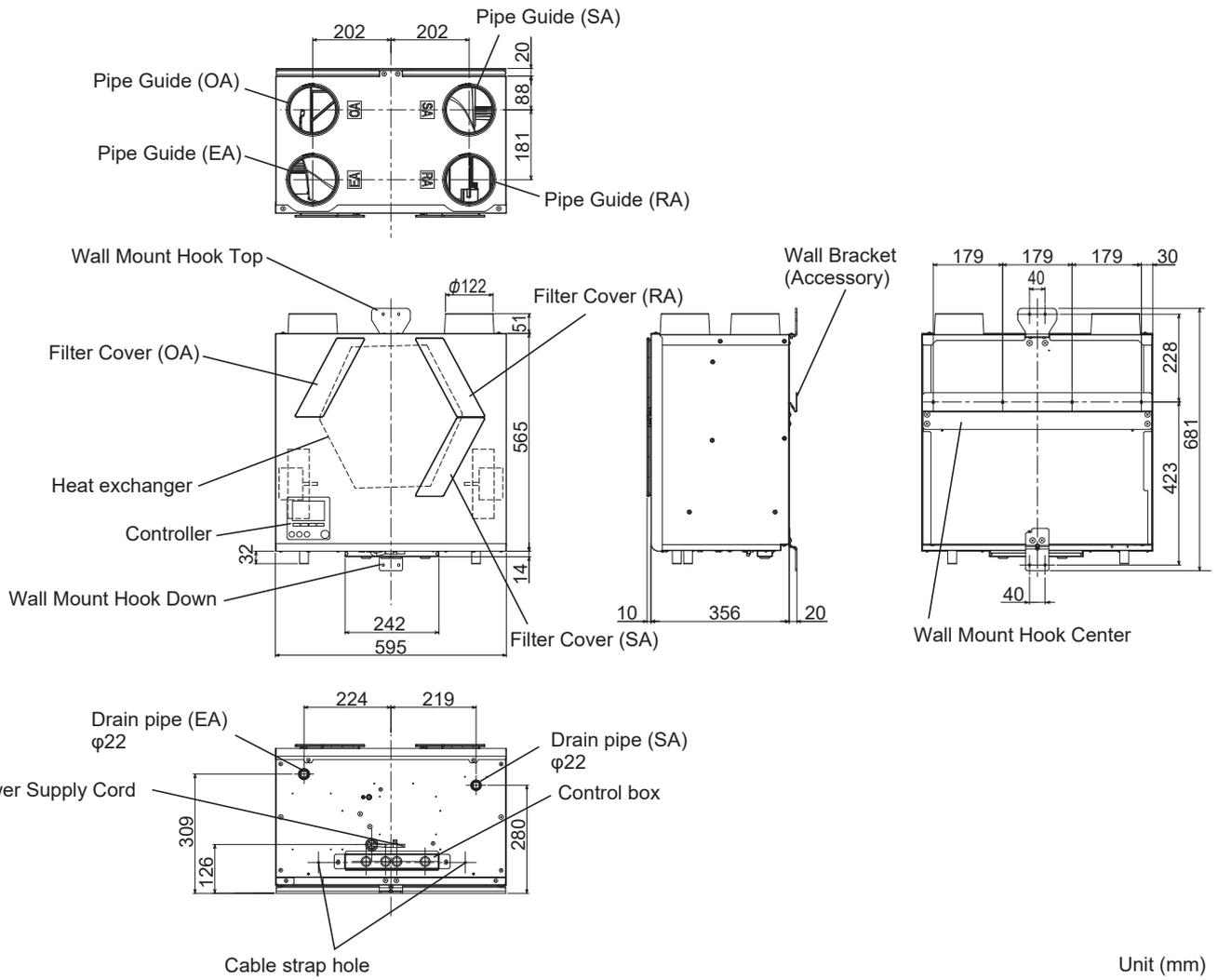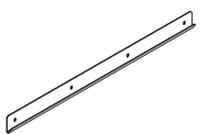
# 2. Outside Dimensions

## ■VL-250CZPVU-R-E

Pipe Guide (EA)
Pipe Guide (RA)
Pipe Guide (SA)
Pipe Guide (OA)

202 | 202
20 | 88 | 181

Wall Mount Hook Top
Filter Cover (RA)
Heat exchanger
Filter Cover (SA)
Wall Mount Hook Down

φ122
Filter Cover (OA)
51
565
32 | 14
242
595
Controller

Wall Bracket (Accessory)

10 | 356 | 20

179 | 179 | 179 | 30
40
228
681
423
40
Wall Mount Hook Center

Cable strap hole
Power Supply Cord
Control box
318 | 269 | 86
115
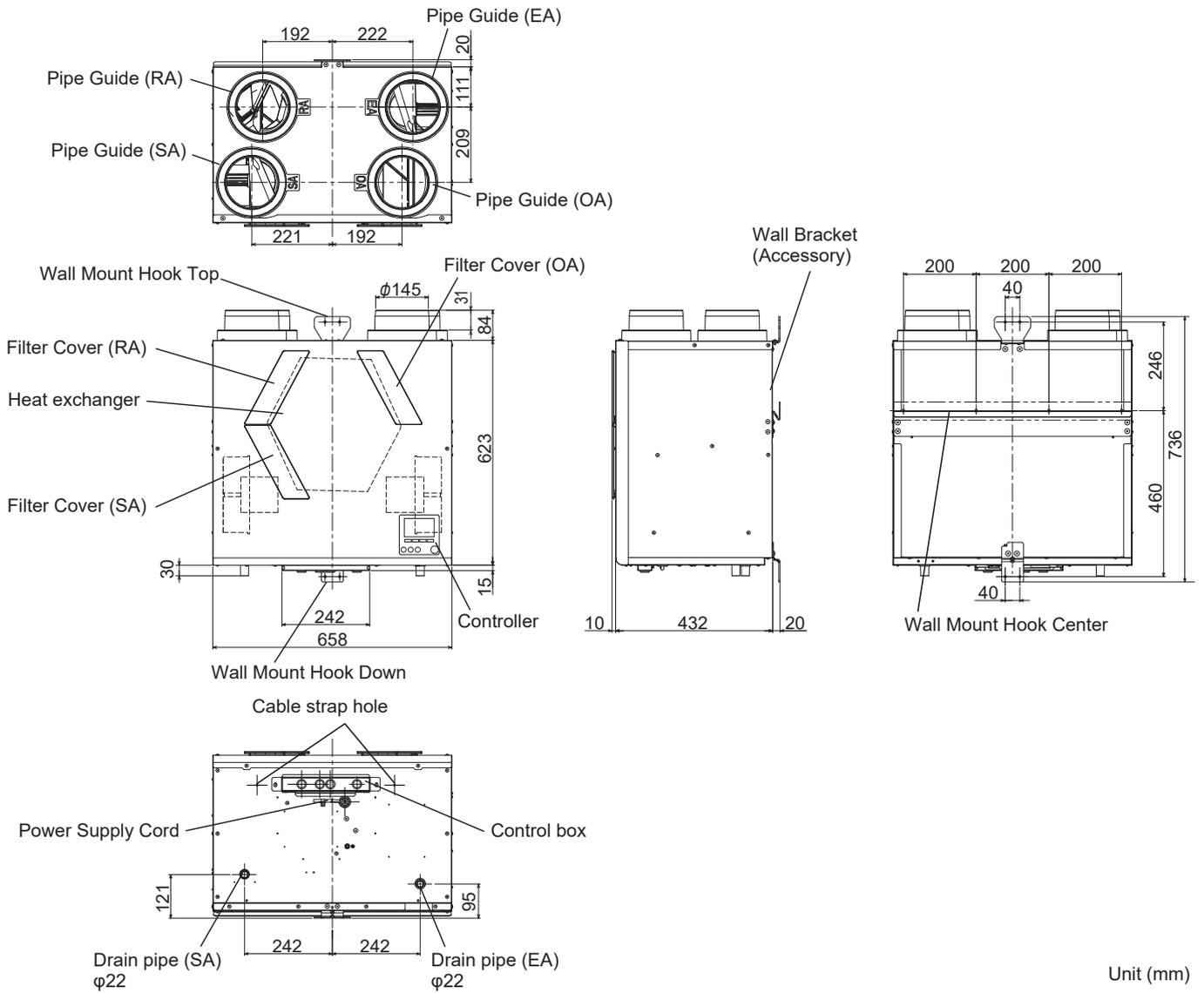219 | 224
Drain pipe (SA) φ22
Drain pipe (EA) φ22

Unit (mm)

## Accessories

| Wall Bracket: 1 | Slim-Lossnay connection cable: 1 (100 mm) | Drain hose fixture: 2 | Washer: 8 | Drain hose: 1 (250 mm) | Cable strap: 1 |
|---|---|---|---|---|---|

# ■VL-250CZPVU-L-E



Pipe Guide (SA)

Pipe Guide (OA)

Pipe Guide (EA)

Pipe Guide (RA)

202    202

20

88

181

Wall Mount Hook Top

φ122

Filter Cover (RA)

Wall Bracket (Accessory)

179    179    179    30

40

Filter Cover (OA)

51

228

565

681

Heat exchanger

423

Controller

32

Wall Mount Hook Down

14

40

242

595

Filter Cover (SA)

10    356    20

Wall Mount Hook Center

Drain pipe (EA) φ22

224    219

Drain pipe (SA) φ22

Power Supply Cord

Control box

309

280

126

Cable strap hole

Unit (mm)

## Accessories

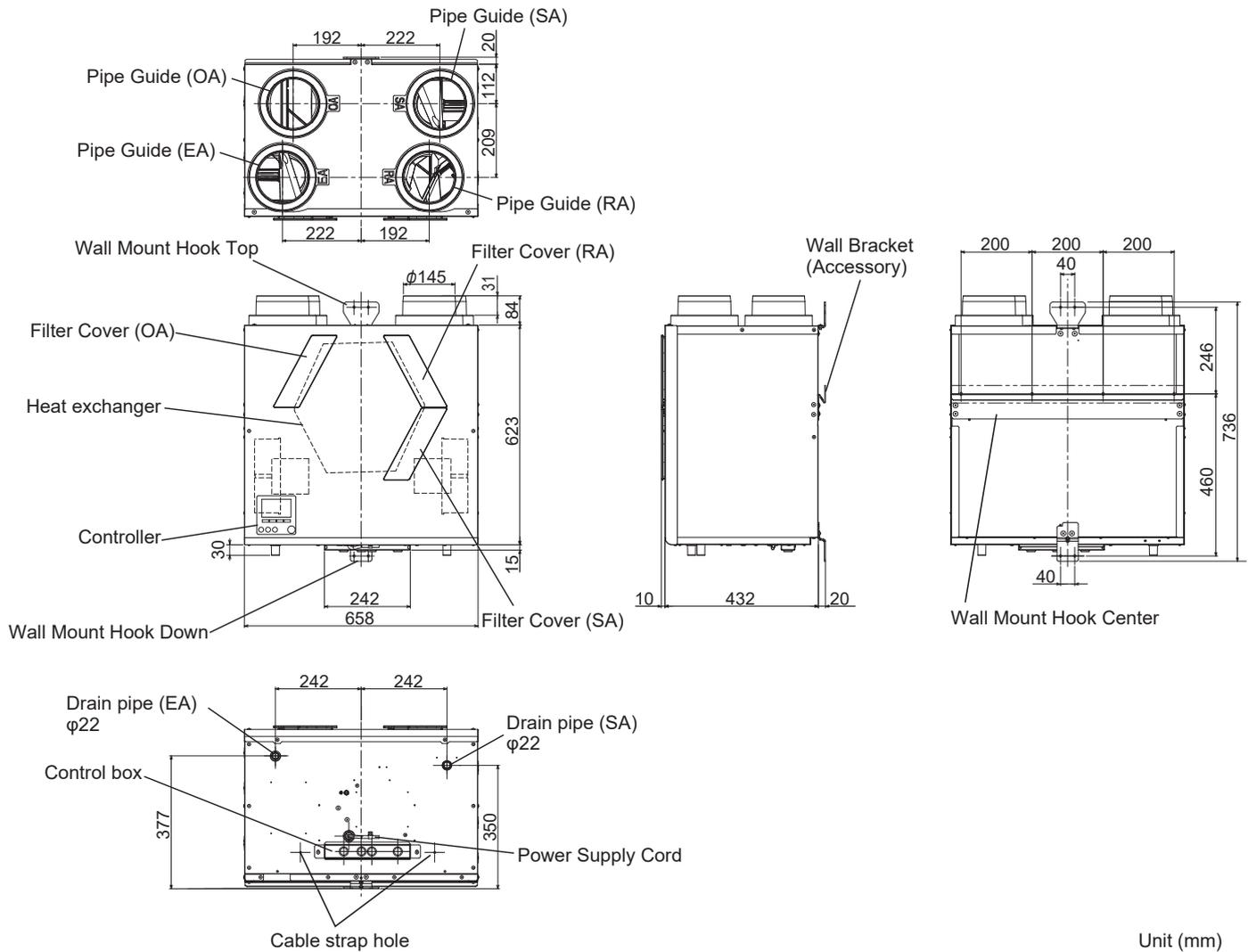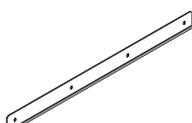| Wall Bracket: 1 | Slim-Lossnay connection cable: 1 (100 mm) | Drain hose fixture: 2 | Washer: 8 | Drain hose: 1 (250 mm) | Cable strap: 1 |
|---|---|---|---|---|---|

# ■VL-350CZPVU-R-E

Pipe Guide (EA)

Pipe Guide (RA)

Pipe Guide (SA)

Pipe Guide (OA)

192   222   20

111

209

221   192

Wall Mount Hook Top

Filter Cover (OA)

Filter Cover (RA)

Heat exchanger

Filter Cover (SA)

φ145   31

84

623

30

15

242

658

Controller

Wall Mount Hook Down

Wall Bracket
(Accessory)

10   432   20

200   200   200

40

246

736

460

40

Wall Mount Hook Center

Cable strap hole

Power Supply Cord

Control box

121   95

242   242

Drain pipe (SA)
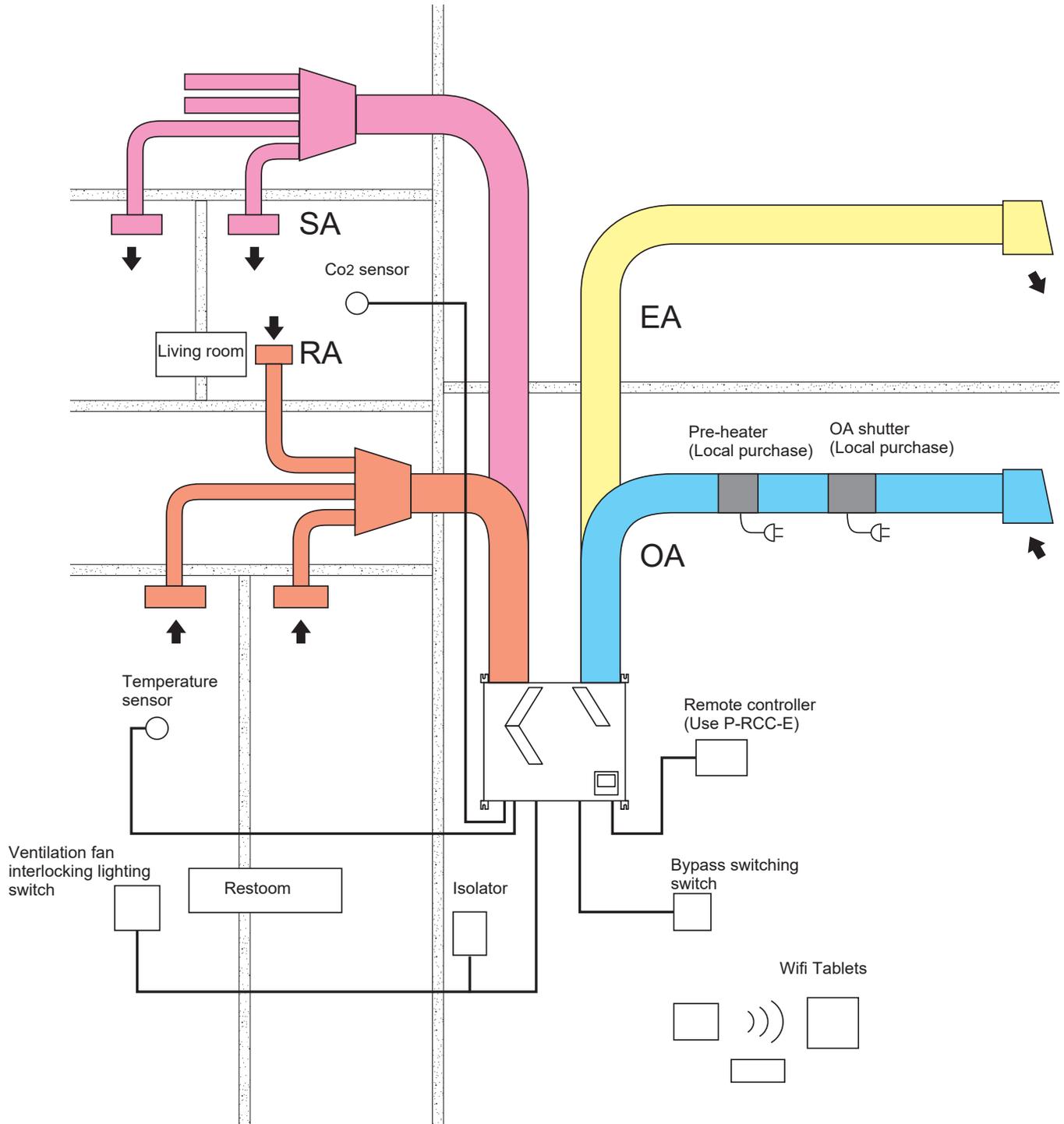φ22

Drain pipe (EA)
φ22

Unit (mm)

## Accessories

| Wall Bracket: 1 | Slim-Lossnay connection cable: 1 (100 mm) | Drain hose fixture: 2 | Washer: 8 | Drain hose: 1 (250 mm) | Cable strap: 1 |
|---|---|---|---|---|---|

## ■VL-350CZPVU-L-E

Pipe Guide (SA)

Pipe Guide (OA)

Pipe Guide (EA)

192    222    20

112

209

Pipe Guide (RA)

222    192

Wall Mount Hook Top

Filter Cover (RA)

Filter Cover (OA)

φ145    31

84

Heat exchanger

623

Wall Bracket
(Accessory)

200    200    200

40

246

736

460

Controller

30

242

658

15

Filter Cover (SA)

Wall Mount Hook Down

10    432    20

40

Wall Mount Hook Center

Drain pipe (EA)
φ22

242    242

Drain pipe (SA)
φ22

Control box

377

350

Power Supply Cord

Cable strap hole

Unit (mm)

### Accessories

| Wall Bracket: 1 | Slim-Lossnay connection cable: 1 (100 mm) | Drain hose fixture: 2 | Washer: 8 | Drain hose: 1 (250 mm) | Cable strap: 1 |
|---|---|---|---|---|---|

# 3. Standard Installation Example
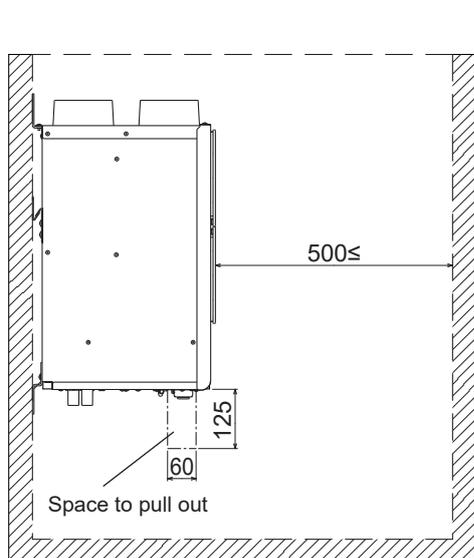
## 3.1 Installation example

### Note
- **Be sure that the exhaust air connection has two or more confluence points with the piping from the bathroom.**
- **Preheaters and electric dampers may be required in your region.**
- **Read the instructions carefully in advance when using optional components and commercially available components.**

SA

Co2 sensor

Living room

RA

EA

Pre-heater
(Local purchase)

OA shutter
(Local purchase)

OA

Temperature
sensor

Remote controller
(Use P-RCC-E)

Ventilation fan
interlocking lighting
switch

Restoom

Isolator

Bypass switching
switch

Wifi Tablets

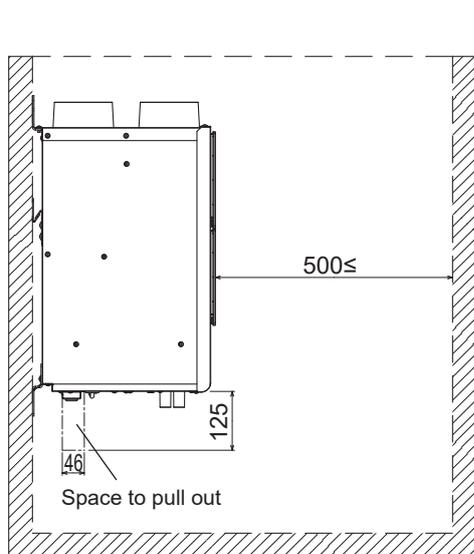## 3.2 Working space (required space around the product)

**This product requires regular maintenance (filter cleaning, parts replacement). Place the product from any other obstacles for maintenance.**
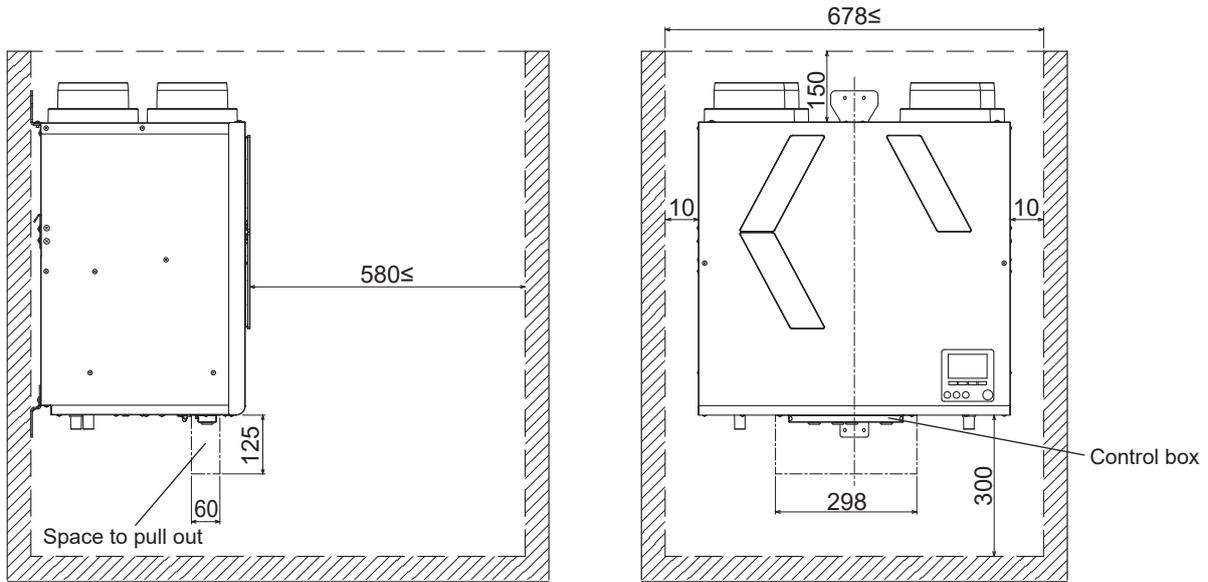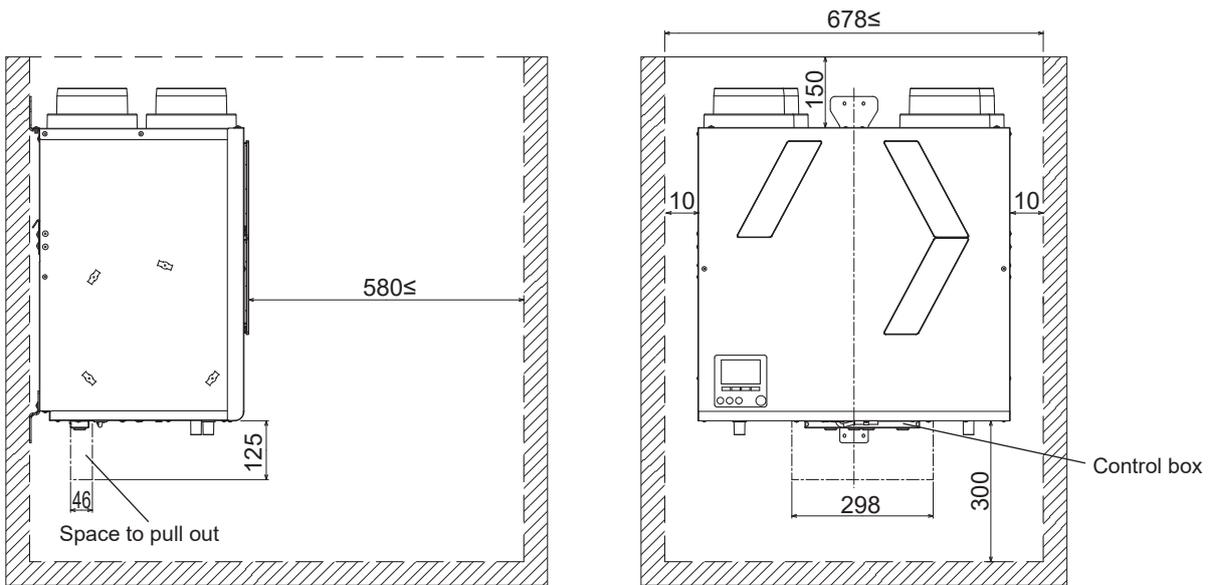
■**VL-250CZPVU-R**



500≤

125

60

Space to pull out

600≤

150

298

300

Control box

Unit (mm)

■**VL-250CZPVU-L**



500≤

125

46

Space to pull out

600≤

150

298

300

Control box

Unit (mm)

**Note**

- **Secure about 2 mm of clearance from the side faces of the product to any other obstacles. (If not enough clearance is secured, maintenance cannot be performed. Plus, vibration can result.)**
- **Secure space below the product for withdrawing the control box.) (If not enough space is secured, maintenance cannot be performed.)**

## ■VL-350CZPVU-R

678≤

150

10    10

580≤

125

60

Space to pull out

298    300

Control box

## ■VL-350CZPVU-L

678≤

150

10    10

580≤

125

46

Space to pull out

298    300

Control box

Unit (mm)

## Note

- **Secure about 10 mm of clearance from the side faces of the product to any other obstacles. (If not enough clearance is secured, maintenance cannot be performed. Otherwise, vibration can result.)**
- **Secure space for withdrawing the control box below the product.) (If not enough space is secured, maintenance cannot be performed.)**

# 4. Installation Procedure

## ⚠ WARNING

**Select a place which is strong enough to support the product, and install the product securely.**
Injury could result if parts fall.

## ⚠ CAUTION

**Install the unit in the indoor side of the insulation layer/airtight layer.**
When installed on the outdoor side of the heat insulating layer, the temperature of the heat-recovered air will drop and condensation will form, which will cause the floor to get wet.

**The products should be attached to a vertical surface.**
The products may not be properly mounted and may cause deformation of the product.

**Transportation and installation of the product is carried out by two or more people.**
Cause of damage or injury of the product due to product fall.
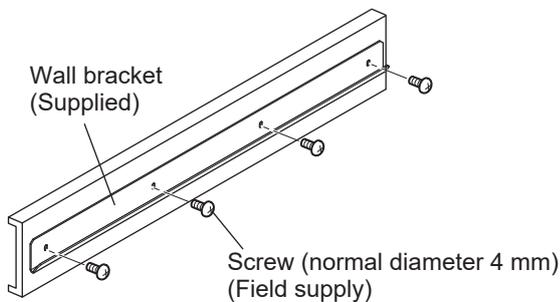
**Wear gloves when installing.**
Failure to heed this warning may result in injury.

**Note**

- **The unit is designed for wall mounting, only on a solid wall. (Wall strength is needed more than 250 kg/m$^2$.)**
- **A gypsum block or stud/plasterboard wall will not suffice.**

## 4.1 Wall bracket

One pat of the wall bracket (supplied) should be offered up to the wall, ensuring it's located horizontally. Make the fixing points through the pre drilled holes in the bracket and install with screws (normal diameter 4 mm), whilst ensuring the interlock side is at the top.



Wall bracket (Supplied)

Screw (normal diameter 4 mm) (Field supply)

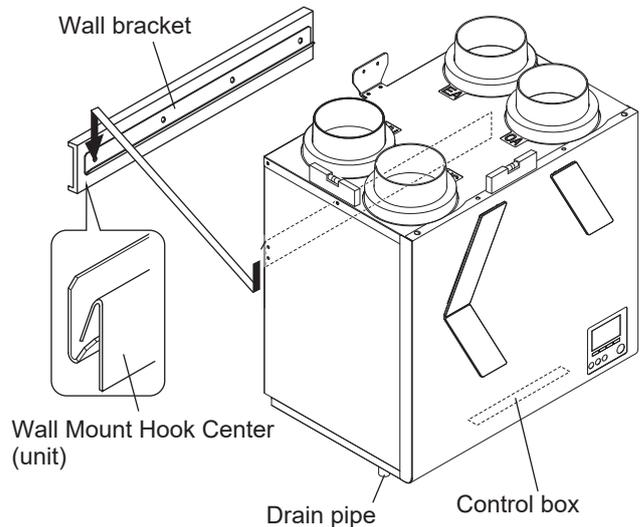## 4.2 Mounting the Unit

## ⚠ CAUTION

**Do not carry with a pipe guide.**
Failure to heed this warning may result in damage to pipe guide.

**Do not place the product directly on the floor.**
Failure to heed this warning may result in damage to the drain pipe and the control box.
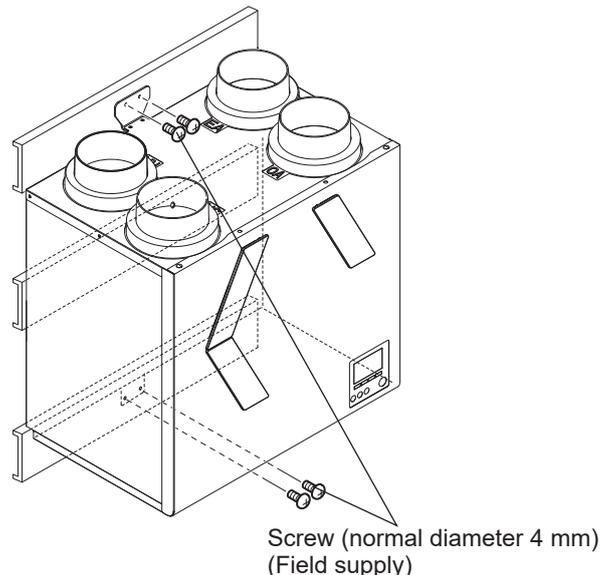


Wall bracket

Wall Mount Hook Center (unit)

Drain pipe

Control box

## 4.3 Fixing the Unit

## ⚠ CAUTION

**Install the product on the wall horizontally. (within ±1°)**
Water leakage from the product may result in water damage to the floor.



Screw (normal diameter 4 mm) (Field supply)

**Note**

- **Use a washer(supplied), when there is a gap between the attached surface and the hooks.**

## 4.4 Connecting pipe

### 4.4.1 Duct Piping

⚠️ **WARNING**

**Install the ducts in the indoor side of the insulation layer/ airtight layer.**

When installed on the outdoor side of the heat insulating layer, the temperature of the heat-recovered air will drop and condensation will form, which will cause the floor to get wet.

**Secure duct piping with commercially available fixing bands, aluminum tape, etc. to prevent piping from loose. Install outdoor piping from the unit so that it is tilted at a downward pitch of at least 1/30 towards the outside.**
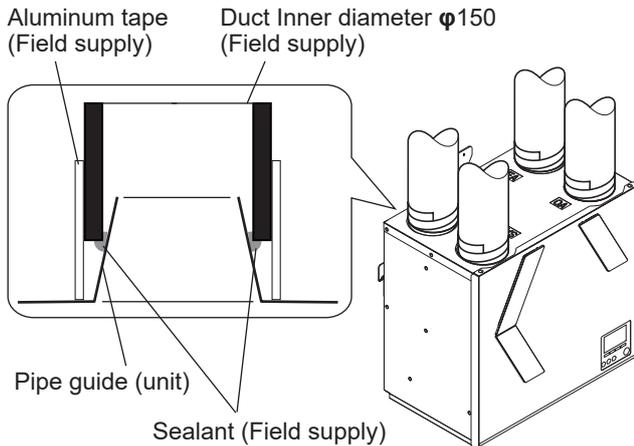
Failure to heed this warning may cause rain penetration, resulting in electric shock/fire or water damage to household property.

**Note**

- **When discharging the air from a bathroom, use ducts made of a material that does not allow water to leak.**

- **When using PCV ducts or metal ducts for the SA side ducts, be sure to connect ducts having silencer before the grill.**

- **The duct for exhaust from the bathroom and the pipe guide should be sealed with caulking material.**

- **When using calking compound, take care to prevent it from oozing from the ducts. (Otherwise, it could cause aluminum tape to peel off.)**

- **Before connecting the ducts, make sure that there are no metal chips or other foreign matter (For example paper or vinyl) inside the ducts or inside the product.**
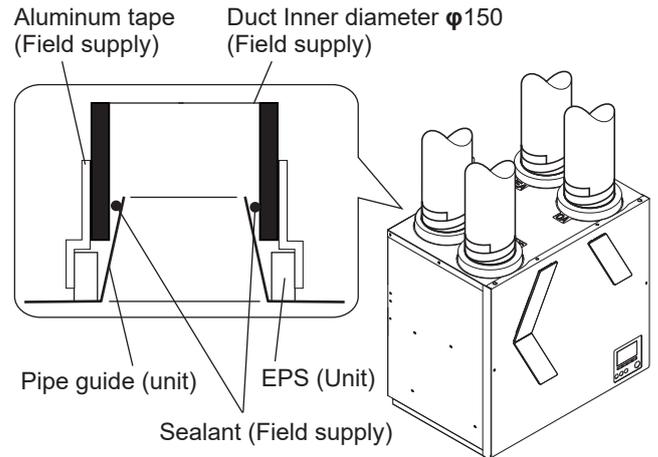
■**VL-250CZPVU-R-E**
■**VL-250CZPVU-L-E**



Aluminum tape (Field supply)
Duct Inner diameter φ150 (Field supply)
Pipe guide (unit)
Sealant (Field supply)

■**VL-350CZPVU-R-E**
■**VL-350CZPVU-L-E**



Aluminum tape (Field supply)
Duct Inner diameter φ150 (Field supply)
Pipe guide (unit)
EPS (Unit)
Sealant (Field supply)
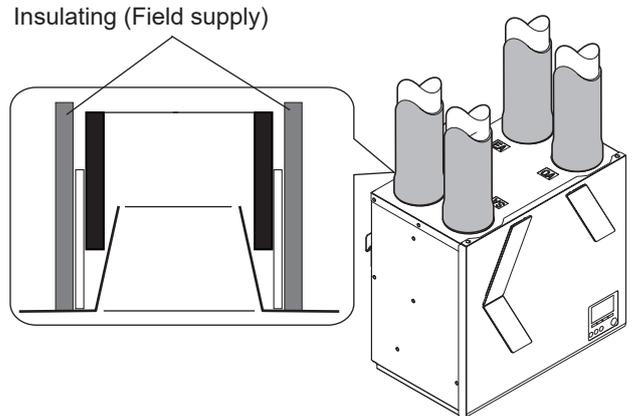
### 4.4.2 Insulating Ducts

⚠️ **CAUTION**

**To prevent dew condensation, insulate the ducts and pipe guide. (glass wool 25 mm or equivalent)**
**Be sure to insulate up to the base of pipe guide.**

**When the product is anticipated to be stopped for a long time, insulate the RA (Return Air) side ducts also. (i.e. not operated for 24 hours).**
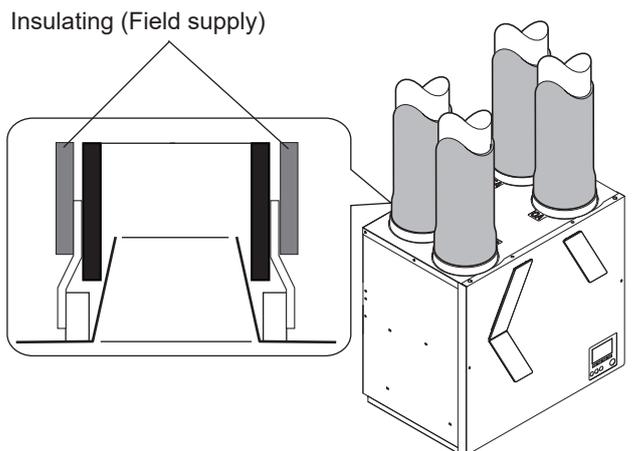**Indoor humidity can cause condensation because exposed parts can become cold in winter.**

■**VL-250CZPVU-R-E**
■**VL-250CZPVU-L-E**



Insulating (Field supply)

■**VL-350CZPVU-R-E**
■**VL-350CZPVU-L-E**



Insulating (Field supply)

## 4.5 Connecting drain piping

⚠ **CAUTION**

**Make sure to connect drain piping by the following procedure to prevent freezing and dew condensation forming on the surface of the piping**

- Connect the drain piping on the indoor side of the insulation layer
  Insulate the drain piping up to the end of the piping
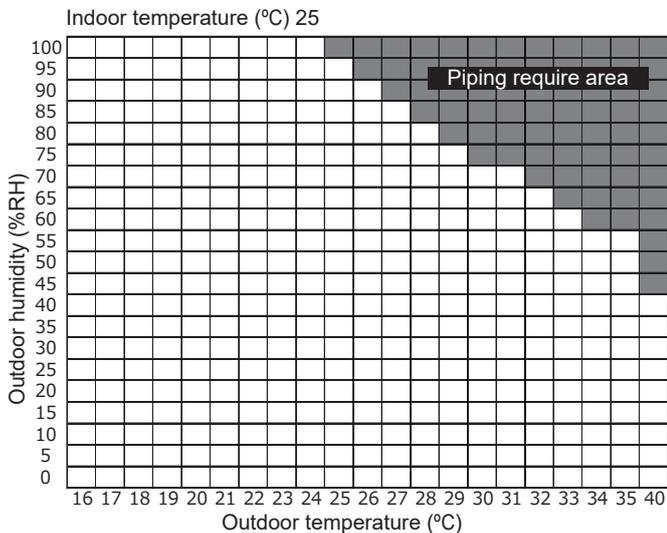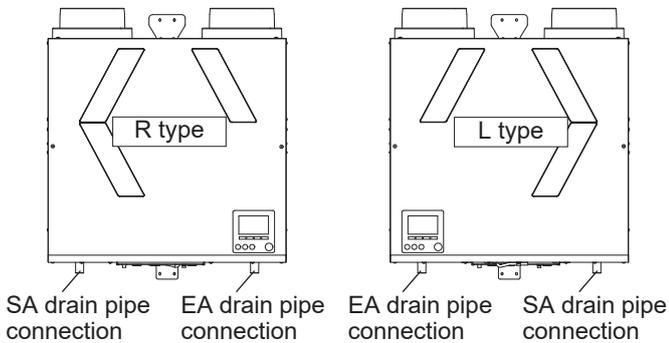- Do not let the end of drain piping be immersed in the rain gutter, etc.
  **(At times of heavy snow, the rain gutter freezes and drain water is not discharged, which results in water leaking from the Lossnay unit.).**

**This unit has two drain pipes for EA and SA.**
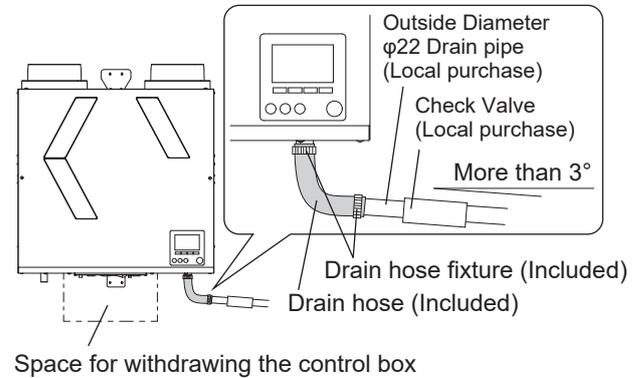EA means Exhaust Air side, SA means Supply Air side.
  EA drain pipe : Piping required
  SA drain pipe : Depend on temperature and humidity, see the following conditions.



SA drain pipe connection    EA drain pipe connection    EA drain pipe connection    SA drain pipe connection

Indoor temperature (ºC) 25



Piping require area

Outdoor humidity (%RH)

Outdoor temperature (ºC)

### 4.5.1 Connection method of drain hose (EA drain pipe)

1) Securely connect the accessary drain hose to the root of the connection port.
   Securely fix the accessory hose band by tightening with a flat head screwdriver. (Otherwise, water leakage can result.)

2) Connect one edge of the drain hose to the commercially available drain pipe (Drain pipe for building: hard PVC pipe (outside diameter: φ22)).
   Securely fix the accessory hose band by tightening with a flat head screwdriver.

3) Connect the drain pipe so that it has at least three degree of downward gradient from the lower part of the unit. (Otherwise, water leakage can result.)

4) Make sure to attach commercially available check valves. For how to use, follow their instructions. (If not used properly, water leakage can result.)
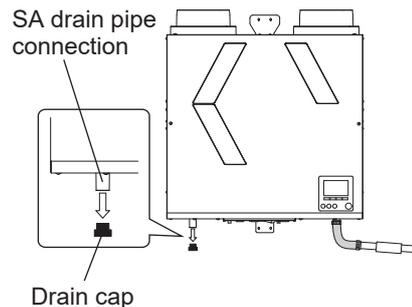


Outside Diameter φ22 Drain pipe (Local purchase)
Check Valve (Local purchase)
More than 3°
Drain hose fixture (Included)
Drain hose (Included)
Space for withdrawing the control box

**Note**

- **Do not adhere drain hoses with drain connection ports. (Otherwise, maintenance cannot be performed.)**

- **Do not place the drain piping nearby the space for withdrawing the control box. (If the control box cannot be pulled out, product maintenance cannot be performed.)**

### 4.5.2 Connection method of drain hose (SA drain pipe)

1) Extract the drain cap from the connection port of the SA drain. The cap is fix with tape.

2) Do the piping following the same procedures as the EA drain pipe.
   Drain hoses are not included; contact your dealer or contractor.



SA drain pipe connection

Drain cap

# 5. Electrical Work

## ⚠ WARNING

**Electrical work must be carried out safely and reliably by a professional electrical contractor (properly qualified electrician) in accordance with internal wiring provisions and electricalequipment technical standards.**
Poor connection and faulty electrical work could result in electric shock or fire.

**Use 220 to 240 V AC power.**
Failure to head this warning may result in fire, electric shock or damage to the circuit boards.

**Make sure to install the ground wire.**
In case of product failure and electric leakage, it may cause an electric shock.

### Note

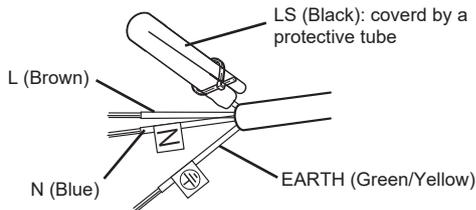- **A power supply isolator must be installed.**

**Please understand that expenses incurred in recovery work to deal with the above malfunction shall be borne by the contractor.**
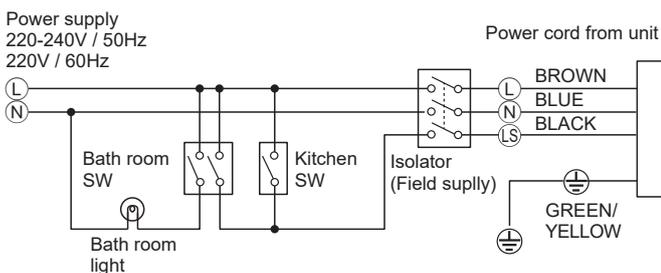
## 5.1 Standard use

Power cord (unit)

### Note

- **LS (Black cord) means Live switch for kitchen and bath room. When you use LS, remove protective tube.**
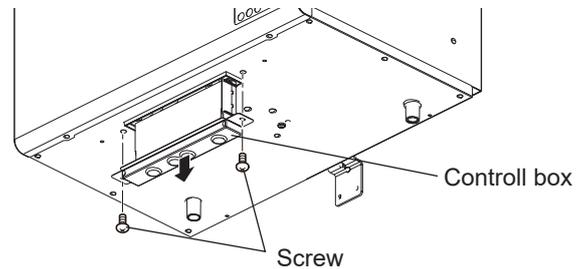


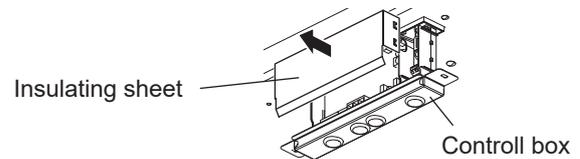Example: Unit serving a kitchen and a bath room.



## 5.2 External device connection use

Connect the each cable for external devices to control board according to the way below.
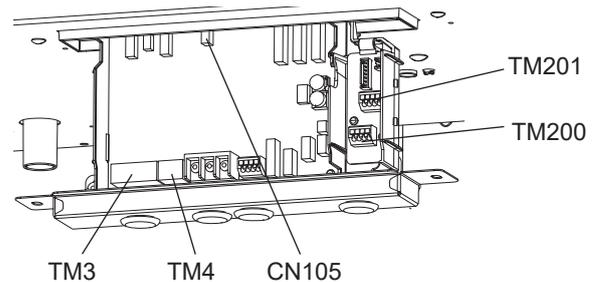
1) Remove 2 screws. Pull the control box. (It stops in the middle)



2) Remove an insulating sheet. (Be careful of the protrusions on both sides of the control box)



3) Connect the cables.



Please see ** about how to connect.

CN 105: IT interconnection Wi-Fi
TM200 1-2: Analog input 1 for Sensor 0-10V
　　　　3-4: Analog input 2 for Sensor 0-10V
TM201 ①-②: Not available
　　　　③-④: Volt-free contact for Boost Switch
TM3: Signal output
　　　(Pre-heater, Malfunction, Operation monitor)
TM4: Operation controller
　　　If you use it, conntact to your dealer.

4) Make a cut in the Bush. Then pass the cord of the external device through the Bush.
Attach the insulating sheet on the control box.
Insert the control box to the unit, attach two screws. (Don't forget to place the insulating sheet)
Bind the external device wirings with a cable strap (supplied) and attach it under the unit. (It is recommended to install it with flexibility so that it will not be loaded from the outside.)
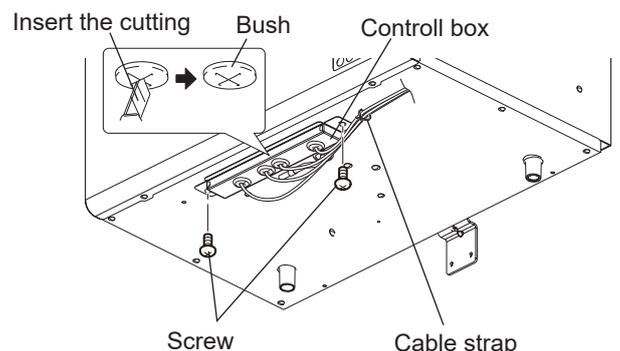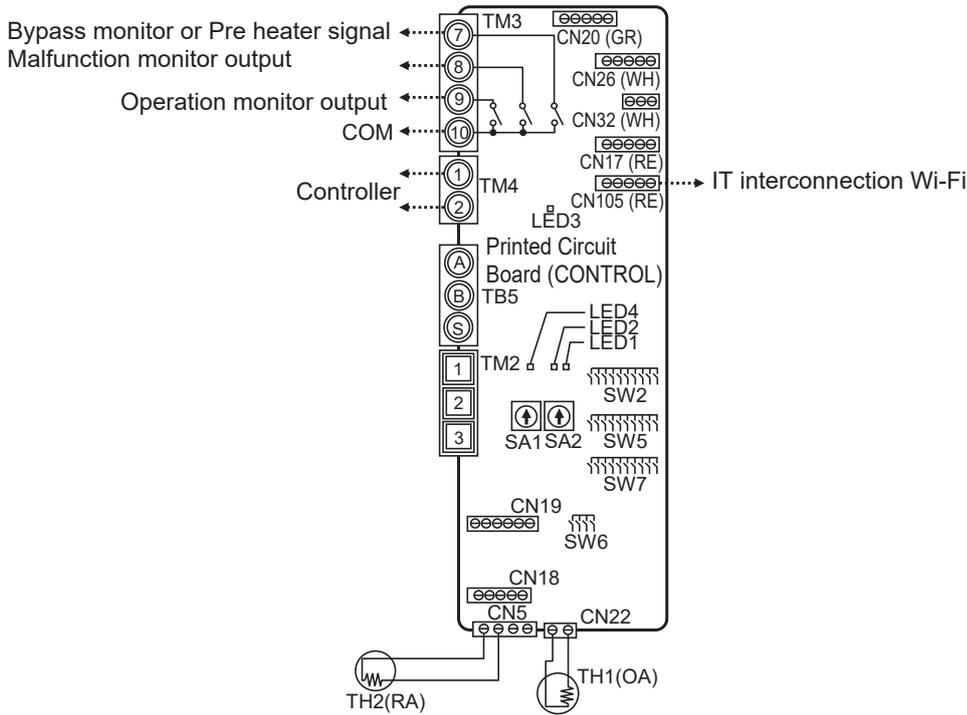
## Diagram for control board
## Control circuit board

Bypass monitor or Pre heater signal
Malfunction monitor output
Operation monitor output
COM

TM3

(7)
(8)
(9)
(10)

CN20 (GR)
CN26 (WH)
CN32 (WH)
CN17 (RE)
CN105 (RE) → IT interconnection Wi-Fi

Controller

(1) TM4
(2)

LED3

Printed Circuit
Board (CONTROL)

(A)
(B) TB5
(S)

LED4
LED2
LED1

[1] TM2

SW2

[2]
[3]

SA1 SA2

SW5

SW7

CN19

SW6

CN18

CN5    CN22

TH2(RA)    TH1(OA)

## Signal interface circuit board (VL-40S)

CN217 CN232

VL-40
(DC)

TM201

[1] [2] [3] [4]

Sensor    Field supply sensor, etc. (Volt-free)
          Contact rating
          15 VDC 0.1A
Bypass    Minimum applicable load 1 mA

External device (DC 0-10 V)
Make sure of correct polarity

+ − + −
  1     2
TM200

# 6. How to use Controller

## 6.1 Controller button functions



Function buttons

The function button guide



| F1 | F2 | F3 | F4 |

① **ON/OFF button**
  Off operation is disabled at the factory default setting.
  Please see 6.4.2.7 Control mode.

② **SELECT button**

③ **RETURN button**

④ **MENU button**
  The «Main menu» screen is displayed.
  Please see **6.2 Menu structure**.

⑤ **Backlit LCD**
  The screen displays operation settings.
  Press any button to turn on the backlight.
  You will be able to operate buttons.
  After turning on the backlight for a certain period of time, the backlight turns off.

⑥ **ON/OFF lamp**
  The lamp lights up in green while the product is operated. It blinks in green, while the product has an error.

⑦ **Function buttons (F1, F2, F3, F4)**
  Use to select each settings on each screen.
  The functions of the buttons change depending on the screen.
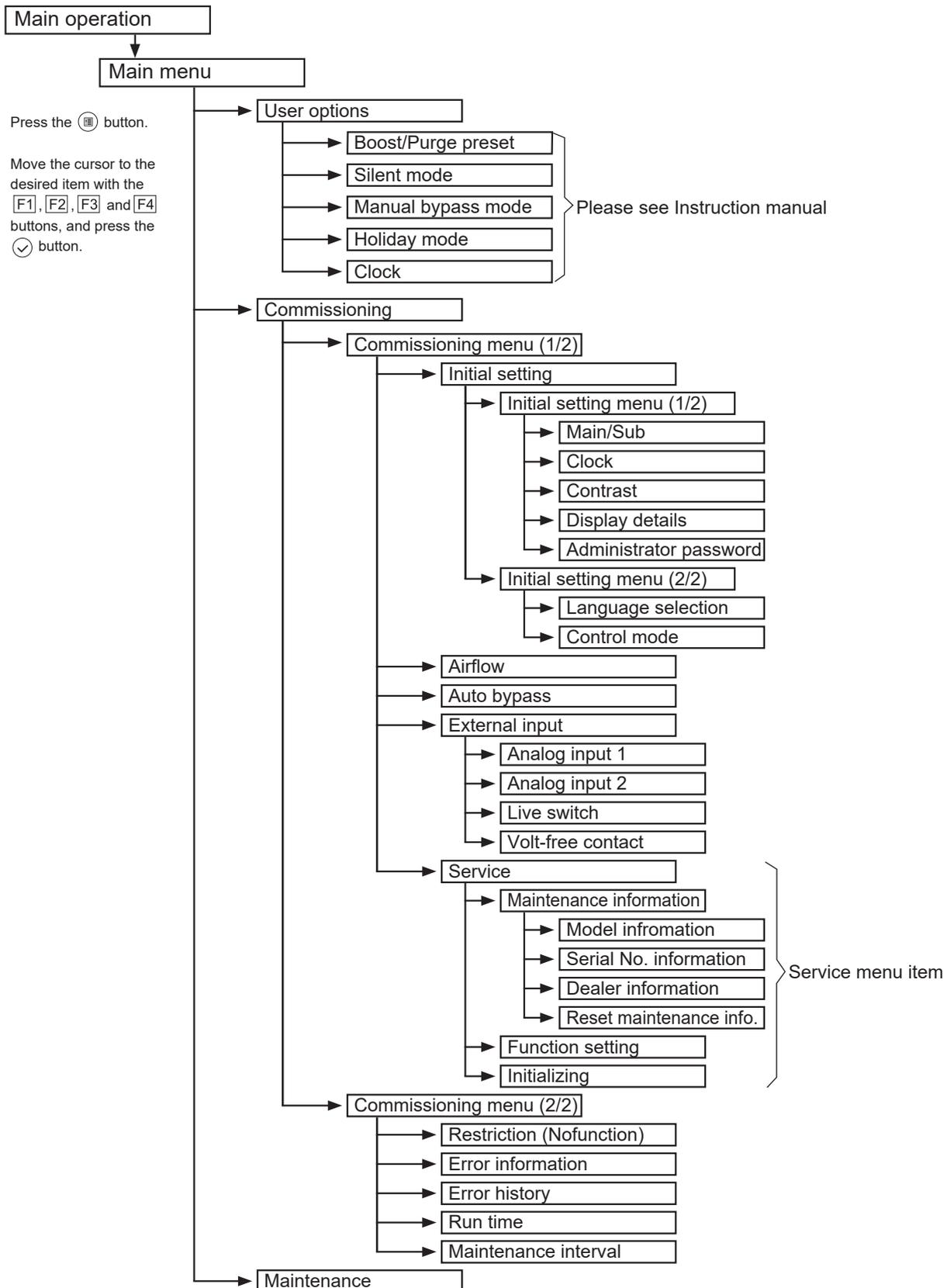  See the **"function button guide"** at the bottom of the screen.

---

**Note**

- If the function is not set in the function button , the function button guide will not be displayed.

---

## 6.2 Menu structure

Main operation

Main menu

Press the ▣ button.

Move the cursor to the desired item with the F1 , F2 , F3 and F4 buttons, and press the ✓ button.

User options
- Boost/Purge preset
- Silent mode
- Manual bypass mode
- Holiday mode
- Clock

Please see Instruction manual

Commissioning

Commissioning menu (1/2)

Initial setting

Initial setting menu (1/2)
- Main/Sub
- Clock
- Contrast
- Display details
- Administrator password

Initial setting menu (2/2)
- Language selection
- Control mode

Airflow

Auto bypass

External input
- Analog input 1
- Analog input 2
- Live switch
- Volt-free contact

Service

Maintenance information
- Model infromation
- Serial No. information
- Dealer information
- Reset maintenance info.

Service menu item

Function setting

Initializing

Commissioning menu (2/2)
- Restriction (Nofunction)
- Error information
- Error history
- Run time
- Maintenance interval

Maintenance

### Navigating through the screens
- To go back to the «Main menu» screen ...... ▣
- To return to the previous screen ................. ✓

### Note
- If no buttons are touched for 10 minutes (service menu item: 2 hours), the screen will automatically return to the «Main operation» screen.
- Any settings that have not been saved will be lost.
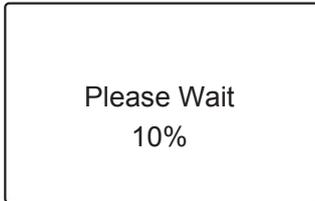
## 6.3 «Main menu» screen and operation

### 6.3.1 Turning on the power

Before turning on the power:

1) Make sure that the connection is properly installed according to the Installation Manual.
2) Make sure that the product has been installed completely.

### 6.3.2 When the power is supplied, the screen below will appear.

Normal start up (indicating the percentage of process completion)

Please Wait
10%

**Note**

- Only the first time, the «Language selection» screen will be appeared.
- The product will not start-up without language selection.
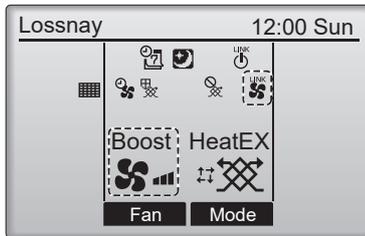- See 6.4.2.6 Language selection.

### 6.3.3 Main operation

After the successful startup, the «Main operation» will appear.
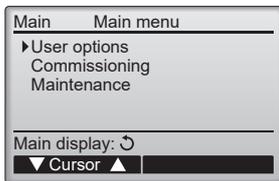
The product is not in operation.

Lossnay                12:00 Sun
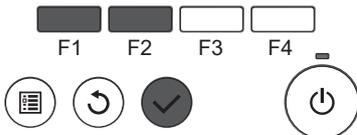
The product is in operation.

Lossnay                12:00 Sun

Boost   HeatEX

Fan     Mode

### 6.3.4 Main menu

Press (▤) button, this screen appear.

| Main       Main menu |
| --- |
| ▶User options |
| Commissioning |
| Maintenance |
| |
| Main display: ↻ |
| ▼ Cursor ▲ |

F1    F2    F3    F4
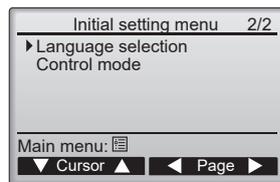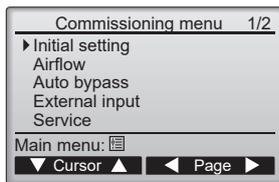
Press F1, F2 to move the cursor.

Press (✓) to go to the next screen.

## 6.4 Commissioning menu

- You can use Commissioning menu.

| Commissioning menu    1/2 |
| --- |
| ▶Initial setting |
| Airflow |
| Auto bypass |
| External input |
| Service |
| Main menu: ▤ |
| ▼ Cursor ▲    ◀ Page ▶ |

F1    F2    F3    F4

| Initial setting menu    2/2 |
| --- |
| ▶Language selection |
| Control mode |
| |
| |
| |
| Main menu: ▤ |
| ▼ Cursor ▲    ◀ Page ▶ |

F1    F2    F3    F4

Press F1, F2, F3, F4 to move the cursor.

Press (✓) to go to the next screen.

- Administrator password is required. See **6.4.1 Administrator password**.
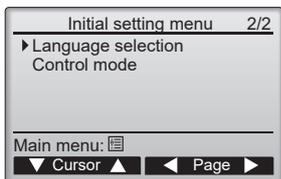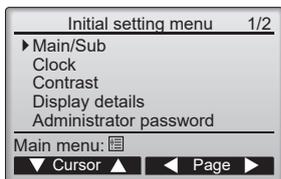
### 6.4.1 Administrator password <Administrator password is required.>

```
┌─────────────────────────────┐
│   Administrator password    │
│─────────────────────────────│
│  Enter administrator password │
│            0000             │
│                             │
│ Select: ✓                   │
│ ◄ Cursor ►  │  ─    +       │
└─────────────────────────────┘
```

F1   F2   F3   F4

Press F1, F2 to move the cursor.

Press F3, F4 to change the number.

Press ✓ to set the password.

---

**Note**

- The administrator password is required to set the items under «Commissioning menu».
- Factory default password is *9999*.
- 6.4.2.5 Administrator password setting to change your password.

---

## 6.4.2 Initial setting menu

```
┌─────────────────────────────┐
│  Initial setting menu   1/2 │
│ ▶Main/Sub                   │
│  Clock                      │
│  Contrast                   │
│  Display details            │
│  Administrator password     │
│ Main menu: ▤                │
│ ▼ Cursor ▲  │  ◄ Page ►     │
└─────────────────────────────┘
```

F1   F2   F3   F4

```
┌─────────────────────────────┐
│  Initial setting menu   2/2 │
│ ▶Language selection         │
│  Control mode               │
│                             │
│                             │
│ Main menu: ▤                │
│ ▼ Cursor ▲  │  ◄ Page ►     │
└─────────────────────────────┘
```

F1   F2   F3   F4

Press F1, F2, F3, F4 to move the cursor.
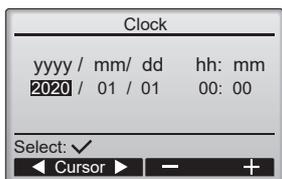
Press ✓ to go to the next screen.

#### 6.4.2.1 Main/Sub

The product does not have this function. Press ↻ button to go back to the «Initial setting menu» screen.

#### 6.4.2.2 Clock

You can set Clock *year, month, day, hour, minute*.

```
┌─────────────────────────────┐
│            Clock            │
│─────────────────────────────│
│ yyyy /  mm/  dd    hh:  mm   │
│ 2020 /  01  / 01   00:  00   │
│                             │
│ Select: ✓                   │
│ ◄ Cursor ►  │  ─    +       │
└─────────────────────────────┘
```

F1   F2   F3   F4

Press F1, F2 to move the cursor.

Press F3, F4 to change the value.
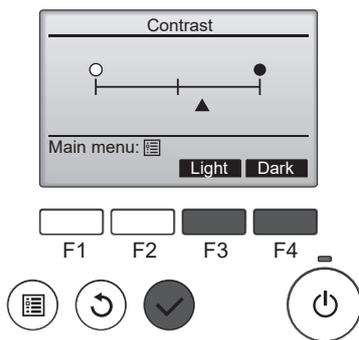
Press ✓ to save the changes.

---

**Note**

- Clock setting is necessary for setting the time, Silent mode, Holiday mode, Manual bypass mode and Error history. Make sure to perform clock setting when the product is used for the first.

---

### 6.4.2.3 Contrast

You can set Contrast of the screen.

```
┌─────────────────────────────┐
│          Contrast           │
│                             │
│    ○──────────────●         │
│    ├──────┼───────┤         │
│           ▲                 │
│                             │
│ Main menu: ▤                │
│              Light   Dark   │
└─────────────────────────────┘
     ┌──┐ ┌──┐ ┌──┐ ┌──┐
     └──┘ └──┘ └──┘ └──┘  ▬
      F1   F2   F3   F4

     ▤    ↺    ✓         ⏻
```

Press F3 to adjust the contrast.

Press ✓ to save the changes.

---

**Note**

- Adjust the contrast to improve viewing in different lighting conditions or different installation locations. This setting does not always improve the display from all directions.

---

### 6.4.2.4 Display details

You can change the display details about clock and temperature, sensor value.

```
┌─────────────────────────────┐
│       Display details       │
│ ▸ Clock        No  24h      │
│   Temperature  ℃/℉          │
│   Sensor value Yes/ No      │
│                             │
│ Select: ✓                   │
│ ▼ Cursor ▲         Change   │
└─────────────────────────────┘
     ┌──┐ ┌──┐ ┌──┐ ┌──┐
     └──┘ └──┘ └──┘ └──┘  ▬
      F1   F2   F3   F4

     ▤    ↺    ✓         ⏻
```

Press F1, F2 to move the cursor.

Press F4 to change the setting.

Press ✓ to save the changes.

*Clock*: See 6.4.2.4 Clock display
*Temperature*: Change the temperature display [Celsius (ºC)/
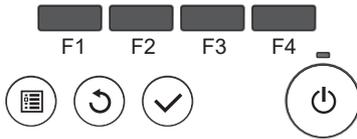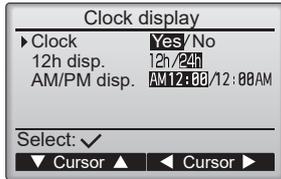        Fahrenheit (ºF)]
        The factory default setting: *ºC*
*Sensor value*: Change [Display (Yes)/Hide (No)] the sensor value
        on the «Main operation» screen.
        The factory default setting: *No*

---

**Note**

- Sensor value includes [Outdoor temperature], [Return temperature], [Supply temperature], [$CO_2$ concentration].

- To display the [Sensor value] on the «Main operation» screen, change the [Function setting] (See 6.4.6.3, 6.4.6.5), [External input] ([$CO_2$ concentration] display only, see 6.4.5) setting in addition to the setting.

- The outdoor and return temperatures are detected by the thermometer of the product.

- A $CO_2$ sensor must be connected display the [$CO_2$ concentration].

- The supply temperature is calculated based on the standard heat-exchange efficiency.

- The values will differ from the actual outdoor, return, supply temperatures, and $CO_2$ concentration.

## Clock display

### Clock display

**Clock:**
Change [Display (Yes)/Hide (No)] the time on the «Main operation» screen.
The factory default setting: *Yes*

**12h display format:**
Change the time display [12 hour (12h)/24 hour (24h)] on the «Main operation» screen.
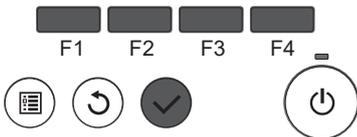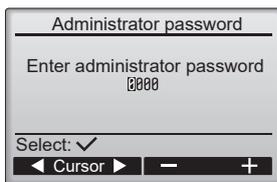The factory default setting: *24h*

**AM/PM display:**
Only selecting [12h disp.].
Change [AM/PM] display position.
The factory default setting: *AM 12:00*

Clock display screen:
- ▶ Clock          Yes/No
- 12h disp.        12h/24h
- AM/PM disp.      AM12:00/12:00AM
- Select: ✓
- ▼ Cursor ▲ | ◄ Cursor ▶
- F1  F2  F3  F4

---

- Time display format will also be reflected on the timer and schedule setting display. The time is displayed as shown below.

  12-hour format: AM12:00 ~ AM1:00 ~ PM12:00 ~ PM1:00 ~ PM11:59

---

### 6.4.2.5 Administrator password setting
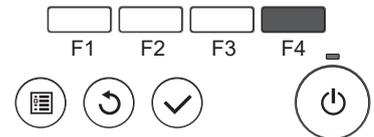
You can set the administrator password.

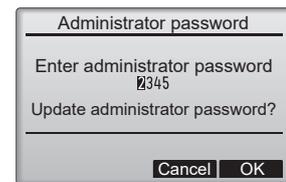① Press F1, F2, F3, F4 to enter the current password.

Press ✓ to go to the next screen.

Administrator password
Enter administrator password
0000
Select: ✓
◄ Cursor ▶ | — | +
F1  F2  F3  F4

② Press F1, F2, F3, F4 to enter the new password.

Press ✓ to go to the next screen.

Administrator password
Enter administrator password
1234
Change administrator password.
Select: ✓
◄ Cursor ▶ | — | +
F1  F2  F3  F4

③ Press F4 to update the new password.

Administrator password
Enter administrator password
2345
Update administrator password?
Cancel  OK
F1  F2  F3  F4
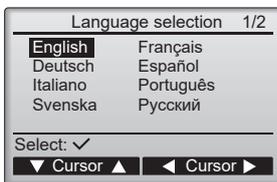
---

### Note

- To prevent unauthorized access, change the default password. Have the password available for those who need it.

---

### 6.4.2.6 Language selection

Language selection    1/2
English     Français
Deutsch     Español
Italiano    Português
Svenska     Русский
Select: ✓
▼ Cursor ▲ | ◄ Cursor ▶
F1  F2  F3  F4

Language selection    2/2
Nederlands
Select: ✓
▼ Cursor ▲ | ◄ Cursor ▶
F1  F2  F3  F4
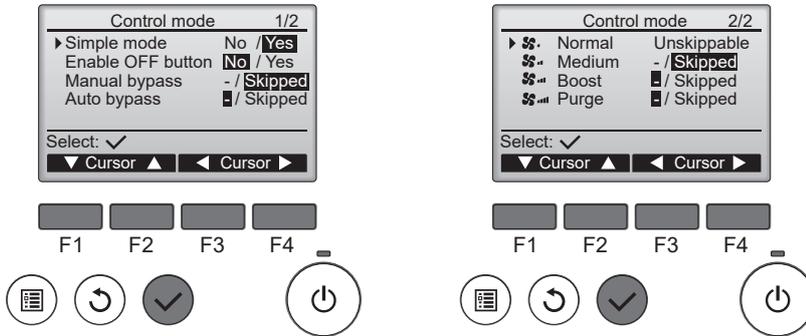
Press F1, F2, F3, F4 to move the cursor.
Press ✓ to save the language.

*Eng-23*

### 6.4.2.7 Control mode

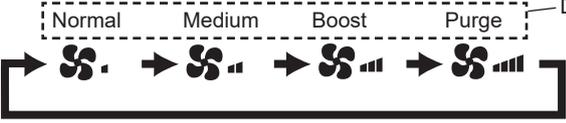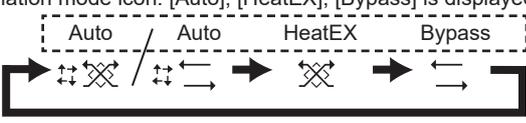Setting Fan speed, ventilation mode icon and limitation of function.

> **Note**
> - «Control mode» screen cannot be go to when the product is in operation. Press ⏻ on the «Initial setting» screen to stop the operation.

```
   Control mode      1/2              Control mode      2/2
▶ Simple mode      No / Yes       ▶ 🌀· Normal    Unskippable
  Enable OFF button No / Yes        🌀· Medium    - / Skipped
  Manual bypass    - / Skipped      🌀· Boost     ▪ / Skipped
  Auto bypass      ▪ / Skipped      🌀· Purge     ▪ / Skipped

  Select: ✓                         Select: ✓
  ▼ Cursor ▲    ◄ Cursor ►          ▼ Cursor ▲    ◄ Cursor ►

  F1   F2   F3   F4                 F1   F2   F3   F4
```

Press F1, F2 to move the cursor.

Press F3, F4 to change the setting.

Press ✓ to save the changes.

The contents of setting items are as follows

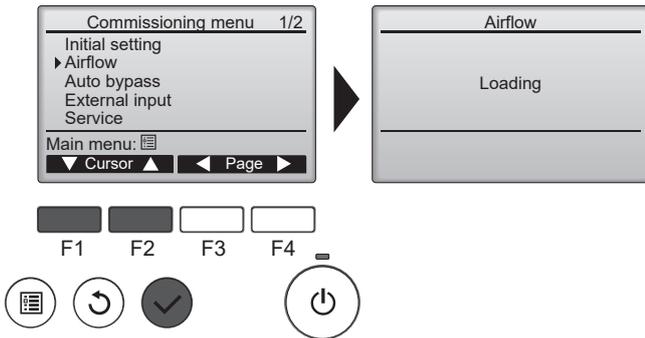| Setting item | | Base setting | | Remarks |
|---|---|---|---|---|
| Simple mode | | Yes (Factory default setting) | No | Select [Yes] Fan speed icon: [Normal], [Medium], [Boost], [Purge] is displayed. <br><br> Normal — Medium — Boost — Purge — Displayed <br><br> Ventilation mode icon: [Auto], [HeatEX], [Bypass] is displayed. <br><br> Auto / Auto — HeatEX — Bypass — Displayed <br><br> **Note** <br> - Make sure to select first [Yes/ No] (Simple mode). <br> - If you change Yes/No, the settings of [Enable OFF button], [Manual bypass], [Auto bypass], and [Fan speed] will return to the Base settings. |
| Enable OFF button | | No | Yes | Select [Yes] to enable the [OFF function] of the ⏻. <br> When you want the product to stop operating with the [Yes] setting, use an isolator. <br><br> **Note** <br> - Except for the screen below, the [OFF function] is valid regardless of the setting of [Enable OFF button]. <br> «Main operation», «Main menu», «User options», «Boost/Purge preset», «Silent mode», «Manual bypass mode», «Holiday mode», «Clock», «Maintenance». |
| Manual bypass | | Skipped | — | Select [Skipped] to set the ventilation mode [Manual bypass operation ( ← )] to skip. <br> When you want to use [Manual bypass operation] with the [Skipped] setting. Use the Manual bypass function. |
| Auto bypass | | — | — | Select [Skipped] to set the ventilation mode [Auto bypass operation ( ⇄🌀 / ⇄← )] to skip. |
| Fan speed | 🌀· | Unskippable | — | Select [Skipped] to set the Fan speed to skip. Base notch is [Unskippable]. |
| | 🌀· | Skipped | Unskippable | |
| | 🌀· | — | — | |
| | 🌀· | — | — | |

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## 6.4.3 Air flow

Adjust the output of the fan speed.

> **Note**
> - Make sure to set the Airflow settings for all fan speeds to be used and measure the air volumes. The output of the notch whose fan speed has been changed from the factory default setting is different from the output of the notch whose fan speed has not been changed. For example, the fan outputs are different under the same 70% settings. (For 65% of 🌀◃ whose fan output was changed from the factory default and 70% of 🌀◃ whose fan output was not changed, the output of the latter can be lower than the former one.)
> - Make sure to set the fan speed after making the supply air volume and the exhaust air volume equal. If there is a large difference in the supply and exhaust air volumes, the product protection function for winter may not operate properly.

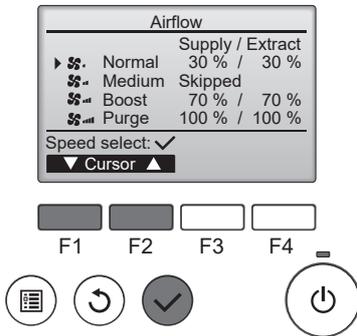### 6.4.3.1 Accessing the «Airflow» screen

Press F1 and F2 to move the cursor.

Press ✓ to go to the next screen.

> The product data is loaded before the screen will appear. [Loading] is displayed. (10-60 seconds)
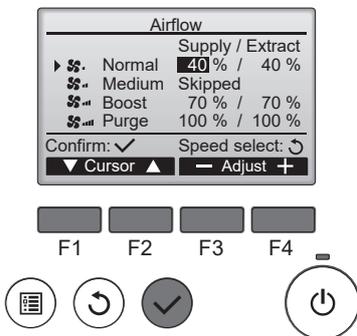
### 6.4.3.2 Fan speed selection

Press F1 and F2 to move the cursor.

Press ✓ to select a fan speed.

> The fan speed set to Skipped on the «Control mode» screen will show Skipped and the Airflow cannot be set.

### 6.4.3.3 Adjust the supply air fan output/exhaust air fan output of the fan speeds
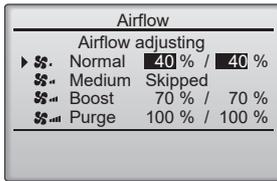
Press F1 and F2 to move the cursor.

Press F3 and F4 to change the fan output. (Pressing and holding the button will increase the changing speed.)

Press ✓ to set the fan output.

> **Note**
> - Press ✓ after changing the output of one fan speed to perform 6.4.3.4 Adjust the fan output of the product. (You can only change either supply or exhaust air speed output per one time.)

### 6.4.3.4 Adjust the fan output of the product

```
           Airflow
       Airflow adjusting
 ▶ 💨·  Normal   40 % / 40 %
   💨.  Medium   Skipped
   💨.  Boost    70 % /  70 %
   💨.  Purge   100 % / 100 %
```

The product starts adjusting the fan output.

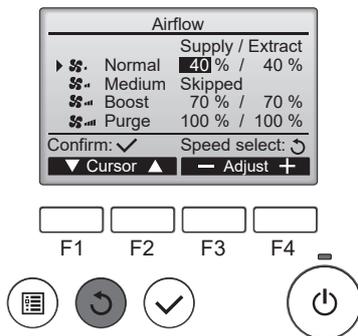[Airflow adjusting] is displayed.

After completing the output adjustment of the fan on the product, it returns to the screen of 6.4.3.3.

> **Note**
> - Measure the air volume after Airflow adjusting has disappeared.

If readjustment is needed for the output of the same fan speed, repeat 6.4.3.3-6.4.3.4.

### 6.4.3.5 Output settings for other fan speeds

```
              Airflow
            Supply / Extract
 ▶ 💨·  Normal   40 % /   40 %
   💨.  Medium   Skipped
   💨.  Boost    70 % /   70 %
   💨.  Purge   100 % /  100 %
  Confirm: ✓      Speed select: ↻
  ▼ Cursor ▲   │  — Adjust +

   ☐    ☐    ☐    ☐
   F1   F2   F3   F4

   [▤]  (↻)  (✓)        (⏻)
```

Press (✓) to return to 6.4.3.2 Fan speed selection.

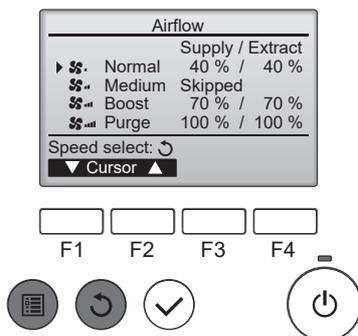Select other fan speed at 6.4.3.2.

Reperform 6.4.3.3-6.4.3.4

> **Note**
> - The fan speed icons below indicate the level of air volume. Make sure to set the product so that the output of the fan speed and the indication of the icon are the same.
>
> Normal     Medium     Boost     Purge
>
> 💨· < 💨. < 💨. < 💨.

### 6.4.3.6 Saving the settings

```
              Airflow
            Supply / Extract
 ▶ 💨·  Normal   40 % /   40 %
   💨.  Medium   Skipped
   💨.  Boost    70 % /   70 %
   💨.  Purge   100 % /  100 %
  Speed select: ↻
  ▼ Cursor ▲

   ☐    ☐    ☐    ☐
   F1   F2   F3   F4

   [▤]  (↻)  (✓)        (⏻)
```

Press (↻) to return to 6.4.3.2 Fan speed selection.

When (↻) or (▤) is pressed, the setting is stored and the «Airflow» screen is displayed.

> **Note**
> - Make sure to set the Airflow settings for all fan speeds to be used and measure the air volumes. If not performed, the outputs of the fan speeds and the indications of the icons may not be the same.

## 6.4.4 Auto bypass

In the Auto bypass mode, the product decides to operate heat exchange ventilation/bypass ventilation every 30 minutes.
On the «Auto bypass» screen, set the threshold of the switching map for heat exchange ventilation/bypass ventilation.
Outside temperature, indoor temperature, and their temperature difference can be set as the threshold.

Outdoor temp. low limit:
The lowest limit of outdoor temperature in the bypass ventilation area
The factory default setting: 16°C / Setting range: 10 to 25°C

Target indoor temp.:
The lowest limit of indoor temperature in the bypass ventilation area
The factory default setting: 16°C / Setting range: 15 to 30°C

Outdoor temp. cooler by:
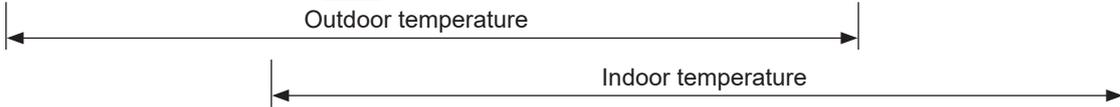The upper limit of temperature difference between indoor temperature and outdoor temperature
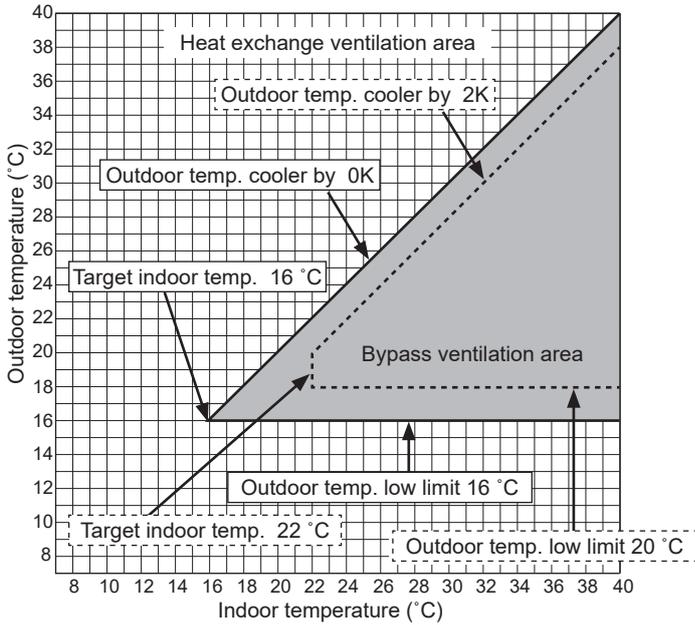The factory default setting: 0K / Setting range: 0 to 7K

---

**Note**

- When °C/°F is switched on 6.4.2.4 «Display details» screen, the indications of the [Outdoor temp. low limit]and the [Target indoor temp.] will be switched. The table shows the changed values.

The factory default setting

| °C | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| °F | 50 | 52 | 54 | 55 | 57 | 59 | 61 | 63 | 64 | 66 | 68 | 70 | 72 | 73 | 75 | 77 | 79 | 81 | 82 | 84 | 86 |

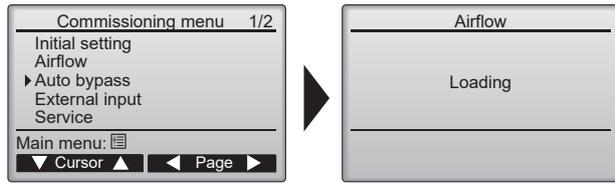Outdoor temperature

Indoor temperature

---

Setting reference example)



---

**Note**

- Conditions of prohibiting bypass ventilation: In the following conditions, the ventilation mode switches to the heat exchange ventilation mode.
  - Outdoor temperature: 8°C or lower (condensation prevention on the product).
    The prohibited conditions will be cancelled if the outdoor temperature becomes 10°C or higher.
  - When outdoor temperature thermistors or indoor temperature thermistors are in malfunction.
  - When a slim air-conditioner, interlocked with the product, is operating in the fan operation mode or heating mode.
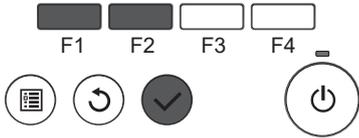
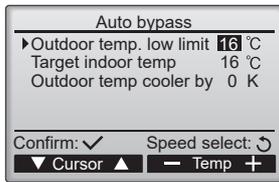### 6.4.4.1 Accessing the «Auto bypass» screen

```
Commissioning menu    1/2
  Initial setting
  Airflow
▶ Auto bypass
  External input
  Service
Main menu: ▤
  ▼ Cursor ▲   ◄ Page ►
```

```
        Airflow


        Loading
```

F1  F2  F3  F4

Press F1 and F2 to move the cursor.

Press ✓ to go to the next screen.

The product data is loaded before the screen will appear.
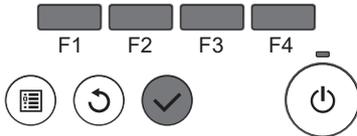[Loading] is displayed. (10-60 seconds)

### 6.4.4.2 Fan speed selection

```
         Auto bypass
▶Outdoor temp. low limit 16 ℃
  Target indoor temp       16 ℃
  Outdoor temp cooler by   0  K


Confirm: ✓    Speed select: ↻
  ▼ Cursor ▲   ー Temp ＋
```

F1  F2  F3  F4

Press F1 and F2 to move the cursor.
Press F3 and F4 to change the setting value.
Press ✓ to save the fan output.

## 6.4.5 External input

The product has external input terminals. (See below.)

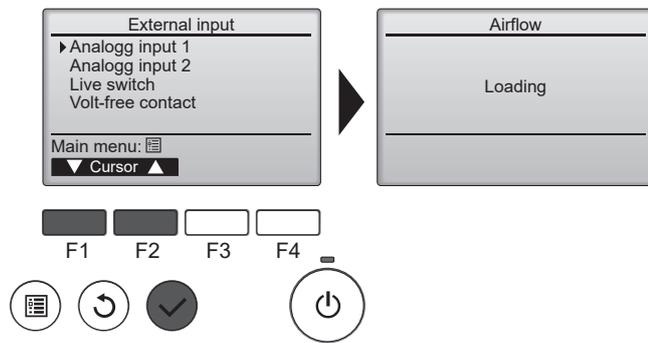| Function name | Input | Terminal |
|---|---|---|
| Analog input 1 | 0 -10 VDC | TM200 1-2 |
| Analog input 2 | 0 -10 VDC | TM200 3-4 |
| Live switch | 220-240 VAC | Power cable LS (Black) |
| Volt-free contact | Contact input | TM201 3-4 |

On the «External input» screen, you can set the operation for the external input.

> **Note**
> - The product operates according to the highest fan speed input from the external input of the effective settings. When the fan speed is determined by the external input, ⚡ is displayed on the «Main operation» screen.
> - When the icon is displayed, the operation of the product may differ from the fan speed displayed on the controller. Also, a lower speed cannot be selected by the controller. (Note that a higher speed can be selected.)

### 6.4.5.1 Accessing «Analog input 1» screen
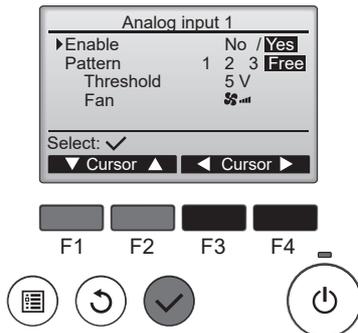**(Take the same process for Analog input 2, Live switch, and Volt-free contact screens.)**

Press F1 and F2 to move the cursor.

Press ✓ to go to the next screen.

The product data is loaded before the screen will appear. [Loading] is displayed. (10-60 seconds)

### 6.4.5.2 Analog input 1 (Take the same process for Analog input 2.)

Press F1 and F2 to move the cursor.

Press F3 and F4 to change the setting value.

Press ✓ to save the changes.

Enable:
Select [Use(Yes) / No use(No)] for Analog input 1.
The factory default setting: *No*

Pattern:
Change the operation pattern for Analog input 1.
The factory default setting: *1*

Treshold:
Change the threshold of the input voltage for the [Pattern=Free] operation.
The factory default setting: *5 V*

Fan:
Change the operating fan speed if the input voltage in the [Pattern=Free] operation exceeds the threshold.
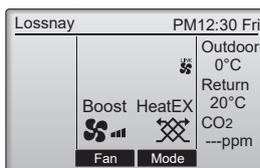The factory default setting: 🌀

[Threshold] and [Fan] will be displayed only when [Pattern=Free] is selected.

The table shows the conditions for operation patterns.

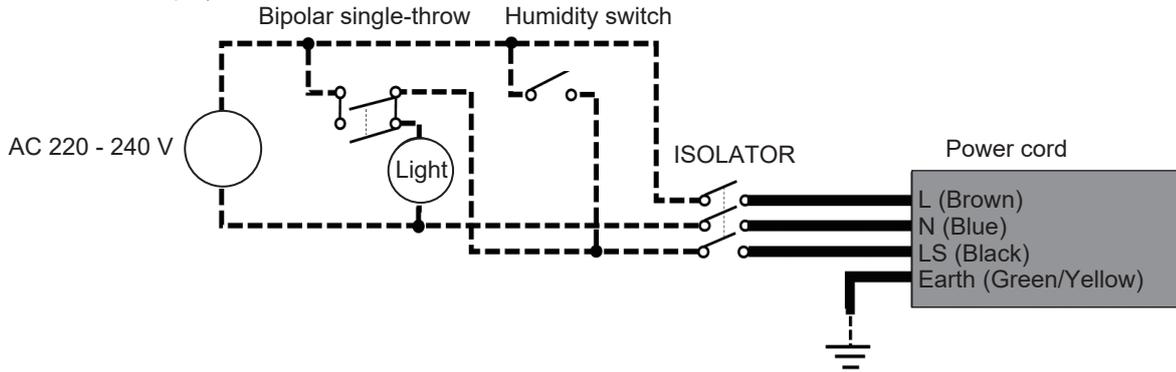| Pattern | Input voltage [VDC] | $CO_2$ concentration [ppm] | Fan speed | Remarks |
|---|---|---|---|---|
| 1 | 0.0 -2.6 | 0 - 520 | | - Select the $CO_2$ sensor whose relation between the $CO_2$ concentration and the output voltage is *2000 ppm = 10 VDC*.<br>- The fan speed will be the highest if the input voltage exceeds 6.0 VDC. (For 6.0 VDC or lower, refer to the left side of the table.)<br>- The input voltages and $CO_2$ concentrations are standards. (Values are not guaranteed.)<br>- If the input voltage is somewhere in between, the fan speed varies depending on the conditions.<br>- When [Skipped] is selected for the fan speed on the «Control mode» screen, the fan speed will be one lower level. |
| | 3.0 - 4.1 | 600 - 820 | | |
| | 4.5 - 5.6 | 900 - 1120 | | |
| | 6.0 or more | 1200 or more | | |
| 2 | 0.0 - 2.1 | 0 - 420 | | - Select the $CO_2$ sensor whose relation between the $CO_2$ concentration and the output voltage is *2000 ppm = 10 VDC*.<br>- The fan speed will be the highest if the input voltage exceeds 5.0 VDC. (For 5.0 VDC or lower, refer to the left side of the table.)<br>- The input voltages and $CO_2$ concentrations are standards. (Values are not guaranteed.)<br>- If the input voltage is somewhere in between, the fan speed varies depending on the conditions.<br>- When [Skipped] is selected for the fan speed on the «Control mode» screen, the fan speed will be one lower level. |
| | 2.5 - 3.4 | 500 - 680 | | |
| | 3.8 - 4.6 | 760 - 920 | | |
| | 5.0 or more | 1000 or more | | |
| 3 | 0.0 - 1.0 | / | — | - Input voltage: 0.0-1.0 VDC: The fan speed can be set by the controller. Input voltage: 1.5 VDC or higher: The fan speed cannot be set by the controller.<br>- If the input voltage is somewhere in between, the operation will be unstable.<br>- When [Skipped] is selected for the fan speed on the «Control mode» screen, the fan speed will be one lower level. |
| | 1.5 - 2.5 | / | | |
| | 3.5 - 4.5 | / | | |
| | 5.5 - 7.0 | / | | |
| | 8.5 - 10.0 | / | | |
| Free | Depends on the Threshold. | / | Depends on the Fan. | - If the threshold exceeds the input voltage, the product operates at the fan speed set on the Fan.<br>- The fan speed cannot be changed by the input voltage change for 15 minutes after the input voltage change exceeding the threshold.<br>- The fan speed set to Skipped on the «Control mode» screen is not displayed. |

---

## Note

- Below settings are required to display the $CO_2$ concentration on the «Main operation» screen.
  - In the function setting, enable the indication of the $CO_2$ sensor. (See 6.4.6.3 and 6.5.)
  - Connect the $CO_2$ sensor to the terminal for Analog input 1. (The sensor value for Analog input 2 is not displayed.)
  - Set Analog input 1 to Pattern=1 or 2. (When Pattern =3 or Free is selected, [--- ppm] is displayed on the «Main operation» screen.)

### 6.4.5.3 Live switch

Set the operation for the live switch input (220-240 VAC input linked with a lighting switch etc.).
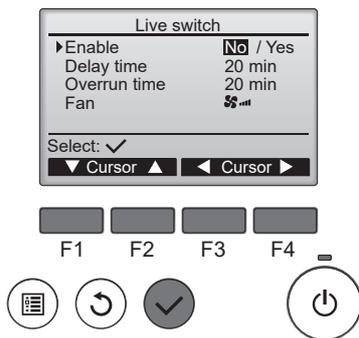
Connection example)



⚠ **CAUTION**

**Do not connect a load such as lighting to the live switch input.**
It may cause product failure.

---

**Note**

- Since the circuit secures 30 mA when the switch is turned on, the maximum number of switches that can be used for the Live switch input is three when using the minimum load capacity of 10 mA.

---



Press F1 and F2 to move the cursor.

Press F3 and F4 to change the setting value.

Press ✓ to save the fan output.

Enable:
   Select [Use(Yes)/No use(No)] of the Live switch.
   The factory default setting: *No*

Delay time:
   Change the delay time for the start of the Live switch operation from switch input ON.
   The factory default setting: *20 min*
   Setting range: 0-120 mins (5-min intervals)

Overrun time:
   Change the extension time from turning on the switch input to the end of the live switch operation.
   The factory default setting: *20 min*
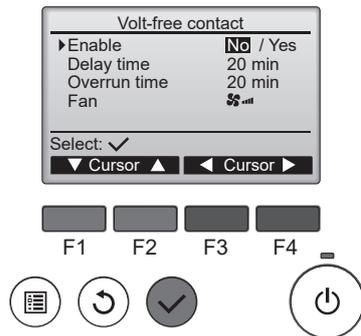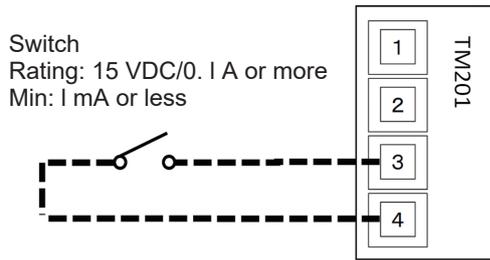   Setting range: 0-120 mins (5-min intervals)

Fan:
   Change the fan speed from the start to the end of the live switch operation.
   The factory default setting: 🌀 ▪▪▪

### 6.4.5.4 Volt-Free contact

Set the operation for Volt-free contact input (input linked with non-voltage contact etc.).

Connection example)

Switch
Rating: 15 VDC/0. l A or more
Min: l mA or less

TM201

| 1 |
| 2 |
| 3 |
| 4 |

**Note**

- Since the circuit ensures 1 mA when the switch is turned on, the maximum number of switches that can be used for Volt-Free contact input is one when the minimum load capacity is 1 mA.

```
        Volt-free contact
▶Enable              No / Yes
 Delay time          20 min
 Overrun time        20 min
 Fan                 🌀📶

Select: ✓
  ▼ Cursor ▲   ◀ Cursor ▶
```

F1    F2    F3    F4

Press F1 and F2 to move the cursor.

Press F3 and F4 to change the setting value.

Press ✓ to save the fan output.

Enable:
   Select [Use(Yes)/No use(No)] of the Volt-Free contact.
   The factory default setting: *No*

Delay time:
   Change the delay time for the start of the Volt-Free contact operation from switch input ON.
   The factory default setting: *20 min*
   Setting range: 0-120 mins (5-min intervals)

Overrun time:

   Change the extension time from turning off the switch input to the end of the Volt-Free contact operation.
   The factory default setting: *20 min*
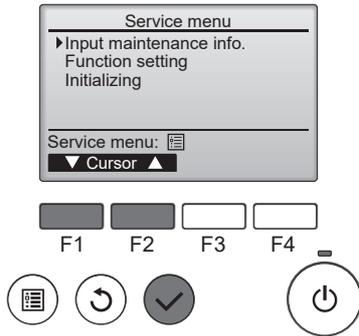   Setting range: 0-120 mins (5-min intervals)

Fan:
   Change the fan speed from the start to the end of the Volt-Free contact operation.

   The factory default setting: 🌀📶

## 6.4.6 Service

### 6.4.6.1 Accessing the «Service menu» screen

```
      Service menu
▸Input maintenance info.
 Function setting
 Initializing

Service menu: ▤
 ▼ Cursor ▲
```

F1   F2   F3   F4

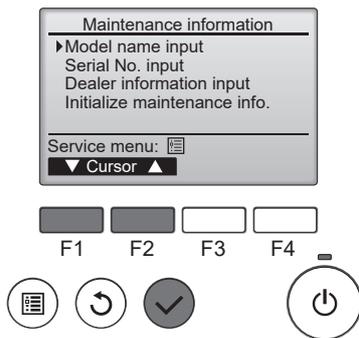Press F1 and F2 to move the cursor.

Press ✓ to go to the next screen.

### 6.4.6.2 Input maintenance info.

The following can be set.
The information input at (1), (2), and (3) is displayed on the «Error information» screen.

(1) Model name input: Model names can be registered. (Up to 18 characters)
(2) Serial No. input: Product serial No. can be registered. (Up to 8 characters)
(3) Dealer information input: Dealers' phone numbers can be registered. (Up to 13 characters)
(4) Initialize maintenance info.: The information set at (1), (2), and (3) above can be initialized.

```
   Maintenance information
▸Model name input
 Serial No. input
 Dealer information input
 Initialize maintenance info.

Service menu: ▤
 ▼ Cursor ▲
```

F1   F2   F3   F4

Press F1 and F2 to move the cursor.
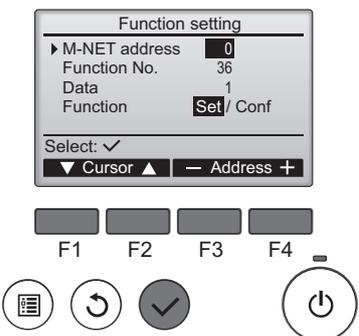
Press ✓ to go to the next screen.

### 6.4.6.3 Function setting

Set various functions.

> **Note**
> - The «Function setting» screen will not be displayed when the product operation is not stopped. Press ⏻ on the «Service menu» screen to stop the operation.

(1) M-Net address: Use [00]. Other than [00], functions (2) and (3) cannot be used.
(2) Function No.: Displays [Function No.] (See **6.5 Function setting**)
(3) Data: Displays the setting for [Function No.] (See **6.5 Function setting**)
(4) Function: Select Set (Setting)/Conf (Information confirmation) of [Function No].

```
      Function setting
▸ M-NET address    0
  Function No.     36
  Data              1
  Function     Set / Conf

Select: ✓
 ▼ Cursor ▲ │ — Address +
```

F1   F2   F3   F4

Press F1 and F2 to move the cursor.

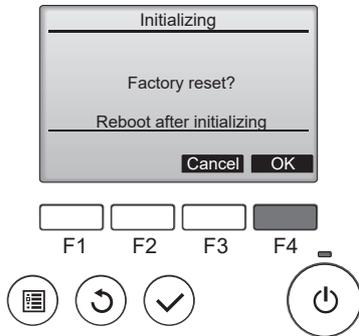Press F3 and F4 to change the setting value.

Press ✓ to go to the next screen.

### 6.4.6.4 Initializing

The setting values changed by the controller are returned to the factory default setting.

> **Note**
> - The «Function setting» screen will not be displayed when the product operation is not stopped. Press ⏻ on the «Service menu» screen to stop the operation.
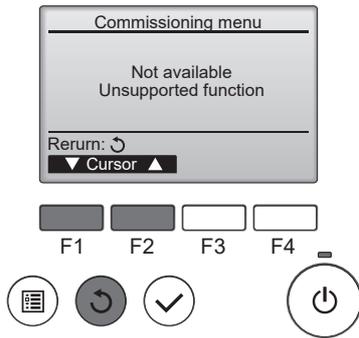
Press F4 to initialize the data.

The product will restart automatically after initializing the data.

## 6.4.7 Restriction (No function)
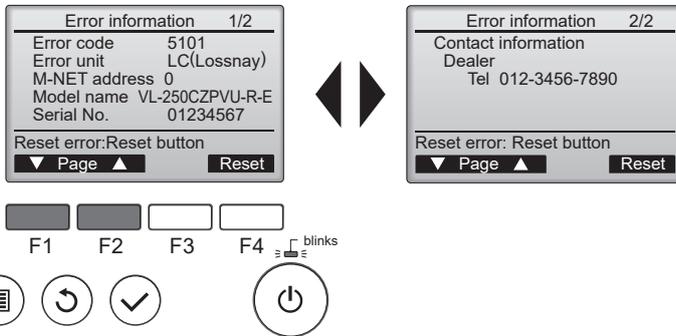
The product does not have this function.

Commissioning menu

Not available
Unsupported function

Rerurn: ↺
▼ Cursor ▲

F1   F2   F3   F4

Press ↺ to return to the previous screen.

## 6.4.8 Error information

If an error occurs, the following screen will be displayed.
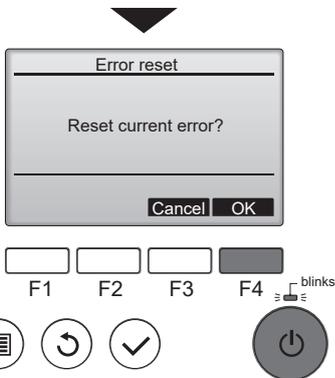Check the abnormal condition, stop the operation, and consult your dealer.

| Error information     1/2 |
| Error code         5101 |
| Error unit         LC(Lossnay) |
| M-NET address   0 |
| Model name   VL-250CZPVU-R-E |
| Serial No.          01234567 |
| Reset error:Reset button |
| ▼  Page  ▲              Reset |

F1   F2   F3   F4   blinks

| Error information     2/2 |
| Contact information |
|   Dealer |
|      Tel  012-3456-7890 |
| Reset error: Reset button |
| ▼  Page  ▲              Reset |

Press F1 and F2 to change the page.

Press F4 to move to the Reset screen.

Model name, Serial No. and Dealer information will be displayed only when they are set at 6.4.6.2.

Error reset

Reset current error?

Cancel   OK

F1   F2   F3   F4   blinks

Press F4 to reset the error information.

## 6.4.9 Error history

You can check the past error history.
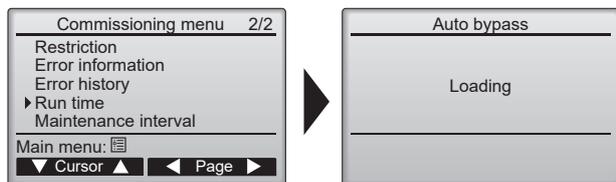Error state cannot be reset from this screen.

```
┌─────────────────────────────┐
│      Error history      1/4 │
│  Error  Unt#    dd/mm/yy    │
│  0900   ---     20/04/10 12:34│
│                             │
│                             │
│  Check menu: ↺              │
│  ▼  Page  ▲          Delete │
└─────────────────────────────┘
```

F1    F2    F3    F4

Press $\boxed{F1}$ and $\boxed{F2}$ to change the page.
Up to 4 pages, 12 cases can be stored in the error history.
Press $\boxed{F4}$ to move to the Reset screen.

```
┌─────────────────────────────┐
│      Error history          │
│                             │
│   Delete error history?     │
│                             │
│                             │
│              Cancel │ OK    │
└─────────────────────────────┘
```

F1    F2    F3    F4    blinks

Press $\boxed{F4}$ to reset the error information.

*Eng-36*

## 6.4.10 Run time

You can check the powered time and fan operation time of the product.
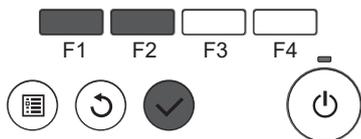
### 6.4.10.1 Accessing the «Run time» screen

```
Commissioning menu    2/2
 Restriction
 Error information
 Error history
▶Run time
 Maintenance interval
Main menu: 📖
 ▼ Cursor ▲    ◀ Page ▶
```

```
     Auto bypass


       Loading

```

F1   F2   F3   F4

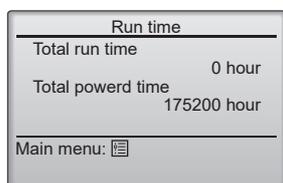Press F1 and F2 to move the cursor.

Press ✓ to go to the next screen.

The product data is loaded before the screen will appear.
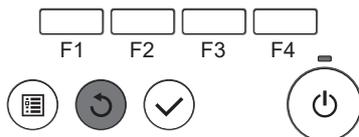[Loading] is displayed. (10-60 seconds)

### 6.4.10.2 Indication of Run time

```
         Run time
Total run time
                   0 hour
Total powerd time
              175200 hour

Main menu: 📖
```

F1   F2   F3   F4

Press ↺ to return to the previous screen.
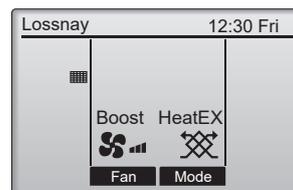
Total run time: Operation time of ventilator
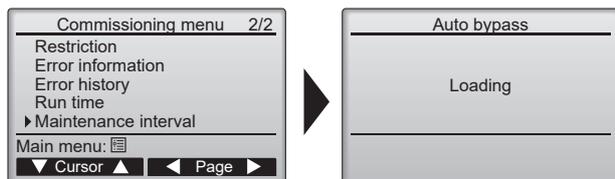Total powered time: Product powered time

## 6.4.11 Maintenance interval

Set the maintenance interval of the filters.

After the fan operation time exceeds the product maintenance interval, the maintenance sign (▦) will be displayed on the «Main operation» screen.
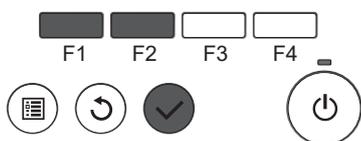
```
Lossnay                    12:30 Fri

   ▦

                      Boost   HeatEX
   ❄ ▂▃▅            ✖✖
         Fan              Mode
```

### 6.4.11.1 Accessing the «Maintenance interval» screen

```
   Commissioning menu    2/2
 Restriction
 Error information
 Error history
 Run time
▶Maintenance interval
Main menu: ▤
   ▼ Cursor ▲  │  ◀ Page ▶
```

```
       Auto bypass


         Loading


```
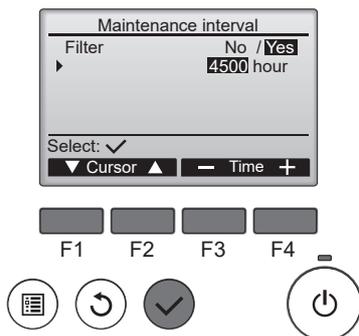
F1  F2  F3  F4

▤   ↺   ✓      ⏻

Press F1 and F2 to move the cursor.

Press ✓ to go to the next screen.

The product data is loaded before the screen will appear. [Loading] is displayed. (10-60 seconds)

### 6.4.11.2 Indication of Maintenance interval

```
     Maintenance interval
 Filter            No / Yes
▶                 4500 hour



 Select: ✓
   ▼ Cursor ▲  │ ─ Time +
```

F1  F2  F3  F4

▤   ↺   ✓      ⏻

Press F1 and F2 to move the cursor.

Press F3 and F4 to change the setting value.

Press ✓ to go to the next screen.

Filter:
   Select [Yes/No] to show the maintenance sign on the «Main operation» screen.
   The factory default setting: *Yes*

hour:
   Change the maintenance interval.
   The factory default setting: *4500 hours*

## 6.5 Function setting

### 6.5.1 Function setting list

| Function No. | Function name | Function setting value | | | | | | | | | | Factory default setting | Function description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | [0] | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | | |
| 1 | 1: Filter maintenance indicator / 2: Fan power increase | — | 1: Yes / 2: No | 1: No / 2: No | 1: Yes / 2: Yes | — | — | — | — | — | — | 1 | 1: Set the filter maintenance indication to show/hide. 2: Set Use/No use of the function that increases the fan output every 1/3 of 6.4.11 Maintenance interval passes. - This function cannot be used when the fan output is set to the highest (100%). |
| 5 | Power recovery mode | — | Stop | Operation | Automatic recovery | — | — | — | — | — | — | 3 | Set the operation mode when the power is recovered after the product stopped. [1] Stop: The operation mode becomes stop. [2] Operation: The operation mode becomes operation. [3] Automatic recovery: The operation mode becomes the mode that was set before the power failure. |
| 36 | Outdoor temperature indication | Hide | Show | — | — | — | — | — | — | — | — | 0 | Set to show/hide the temperature detected by the built-in thermistors. Set the settings of 6.4.2.4 also. No.36: *Lo* is displayed when lower than 2°C and *Hi* is displayed when 36°C or higher. |
| 37 | Indoor temperature indication | Hide | Show | — | — | — | — | — | — | — | — | 0 | No.37: *Lo* is displayed when lower than 9°C and *Hi* is displayed when 37°C or higher. No.38: This is the same as No.37. |
| 38 | Supply air (calculated value) temperature indication | Hide | Show | — | — | — | — | — | — | — | — | 0 | **Note** If both function settings No. 38 and 84 are [1], only the function setting No. 84: $CO_2$ concentration is displayed on the «Main operation» screen. (Since the same display position is allocated, the priority is given to the indication of function setting No.84: $CO_2$ concentration.) |
| 39 | Correction of temperature exchange efficiency (tens digit) | Function setting value: 0 to 9 –> Temperature exchange efficiency (tens digit): 0 to 9 | | | | | | | | | | 8 | Set the value of temperature exchange efficiency used for the calculated value of No.38 Supply air temperature indication. Factory default: 85% |
| 40 | Correction of temperature exchange efficiency (units digit) | Function setting value: 0 to 9 –> Temperature exchange efficiency (units digit): 0 to 9 | | | | | | | | | | 5 | |
| 41 | Correction of outdoor temperature | Function setting value: 0 to 14 –> Correction of outdoor temperature: -7°C to 7°C (1°C intervals) | | | | | | | | | | 7 | When No.36 Outdoor temperature indication and No.37 Indoor temperature indication are set to *Show*, set the correction value of the temperature shown on the controller. Example: If the temperature detected by the built-in thermistor is 20°C and the correction value is +3°C (the function setting value is 10), the temperature indicated by the controller will be 23°C. |
| 42 | Correction of indoor temperature | Function setting value: 0 to 14 –> Correction of indoor temperature: -7°C to 7°C (1°C intervals) | | | | | | | | | | 7 | **Note** - The indication value is not corrected when *Lo* or *Hi*. - Correction values are not reflected to the control (such as «Auto bypass») using outdoor/indoor temperatures. |

| Function No. | Function name | Function setting value | | | | | | | | | | Factory default setting | Function description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | [0] | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | | |
| 57 | External output setting 1 | — | Exhaust air fan | Supply air fan | Supply air after-heater | — | — | — | — | — | — | 1 | Set the ON/OFF conditions of terminal blocks TM3 9-10. [1] Exhaust air fan The terminal blocks turn ON/OFF in line with the operation/stop of the exhaust air fan. (The terminal blocks will perform the operation which is the same as ON/OFF of the controller.) [2] Supply air fan: The terminal blocks turn ON/OFF in line with the operation/stop of the supply air fan. (Depending on the conditions such as outdoor temperatures, the terminal blocks will stop automatically.) [3] Supply air after-heater: The output is turned ON 10 seconds after the supply air fan operation./ The supply air fan stops three minutes after the output is turned OFF. - Set the setting when supply air after-heaters are connected. |
| 58 | External output setting 2 | — | Bypass ventilation | Supply air preheater | — | — | — | — | — | — | — | 1 | Set the ON/OFF conditions of terminal blocks TM3 7-10. [1] Bypass ventilation The terminal blocks turn ON/OFF in line with the status (bypass/heat recovery ventilation) of the ventilation mode. (The terminal blocks turn ON/OFF in line with the built-in bypass damper.) [2] Supply air preheater: The output is turned ON 10 seconds after the supply air fan operation./ The supply air fan stops three minutes after the output is turned OFF. - Set the setting when supply air preheaters are connected. - The output of the terminal blocks become OFF when the outdoor temperature is 15°C or higher. - The output ON/OFF conditions can be changed at the function settings Nos.59 and 60. |
| 59 | Conditions of preheaters ON (Function setting No.58: Supprementally setting) | Function setting value: 0 to 15 –> Threshold of outdoor temperature: 0°C to 15°C (1°C intervals) | | | | | | | | | | 0 | Set the ON/OFF conditions of the function setting No.58 [2] Supply air preheater. No.59: Set the threshold of the outdoor temperature whose output of preheaters turns ON. (The output turns ON when it becomes lower than the threshold temperature. No.60: Set the time to turn OFF the output of preheater after turning ON the output. |
| 60 | Conditions of preheaters OFF (Function setting No.58: Supprementally setting) | 1 hour | 2 hours | 3 hours | 4 hours | 5 hours | — | — | — | — | — | 0 | |

| Function No. | Function name | Function setting value | | | | | | | | | | Factory default setting | Function description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | [0] | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | | |
| 81 | External output setting 3 | Malfunction monitor | Supply air shutter | – | – | – | – | – | – | – | – | 0 | Set the ON/OFF conditions of terminal blocks TM3 8-10.<br>[1] Malfunction monitor:<br>Turns the output ON when a malfunction occurs on the product. (This is used to indicate malfunctions aside from the controller.)<br>[2] Supply air shutter:<br>Set the setting so that the output ON/OFF match with the open/closed of the shutter installed on the OA duct.<br>- Output ON (shutter: open) conditions: 10 seconds before starting the supply air operation<br>- Output OFF (shutter: closed) conditions: The built-in thermistors detect that the outdoor temperature is -18°C or lower and 20 seconds have elapsed after the supply air fan stopped. |
| 82 | Standard air speed setting | 🌀. | 🌀.. | – | – | – | – | – | – | – | – | 0 | Set the base notch.<br>The setting can be changed in 6.4.2.7 Control mode. The priority is given to the latest setting. |
| 83 | Manual input priority mode | Disenable | Enable (The following are the setting hours.) | | | | | | | – | – | 0 | Set the setting so that the priority is given to 🌀. , 🌀.. for a certain time. Use this when you want to give the priority to the manual input (input from the controller, MELCloud application) rather than the external input control.<br><br>**Note**<br>Just by ending the function, the operation of the product may differ from fan speed displayed on the controller.<br>After changing the fan speed setting of the controller once and about 5 sec. have passed, the operation of the product will be the same as the fan speed setting of the controller. When set to 🌀. or 🌀.., the operation of the product returns to the fan speed by external input after the ending time elapses. |
| | | | 0.5 hour | 1.0 hour | 1.5 hours | 2.0 hours | 3.0 hours | 4.0 hours | 5.0 hours | | | | |
| 84 | CO2 concentration indication | Hide | Show | – | – | – | – | – | – | – | – | 0 | Set Show/Hide the $CO_2$ concentration values connected to the Analog input 1.<br>Set the settings of 6.4.2.4, and 6.4.5.2 also.<br>*Lo* is displayed when lower than 250 ppm and *Hi* is displayed when 2200 ppm or higher.<br><br>**Note**<br>If both function settings No. 38 and 84 are [1], only the function setting No. 84: $CO_2$ concentration is displayed on the «Main operation» screen. (Since the same display position is allocated, the priority is given to the indication of function setting No.84: $CO_2$ concentration.) |

In the following conditions, error code 3126 (malfunction on external devices) is displayed on the controller and the output of the function setting No.81 [1] Malfunction monitor turns ON.
- When the built-in OA thermistor detects 15°C or higher within 15 minutes from the start of output of the supply air preheater/after-heater.
- When the built-in OA thermistor detects -10°C or lower 60 minutes after the start of output of the supply air preheater/after-heater.

## 6.5.2 External output specifications

### ⚠ WARNING

**Make sure to install safety devices that do not have self-return functions on the duct heaters (supply air preheaters, supply air after-heaters). Do not supply the duct heaters with electricity directly from the product.**
Failure to heed this warning may result in fire.

**When using duct heaters (supply air preheaters, supply air after-heaters) that do not have temperature control functions, select duct heaters that have the appropriate capacity according to the airflow passing through the heaters.**
Failure to heed this warning may result in fire because the heaters will overheat if the airflow is too little compared to the capacity of heaters.

### ⚠ CAUTION

**Place the duct heaters (supply air preheaters, supply air after-heaters) at least 2 m from the product.**
Failure to heed this warning may cause damage on the product due to the preheating from the heaters.

---

**Note**

- Select duct heaters (supply air preheaters, supply air after-heaters) based on the laws, regulations, and standards of the local government. Select duct heaters that have the CE marking.

- Install the earth leakage breakers of the duct heaters (supply air preheaters, supply air after-heaters) in line with the related laws, regulations, and standards.

- Do not use duct heaters (supply air preheaters, supply air after-heaters) outside the set air volume.
  - If the heater capacities are too large, the heaters may switch ON/OFF frequently.
  - If the heater capacities are too small, the air may not be heated.

- Make sure to check the operation at a commissioning after checking that the duct heaters (supply air preheaters, supply air after-heaters) and the product are electrically connected and that the product functions are set.

- If the ventilation mode is set to Auto while preheating functions are used on the duct heaters (supply air preheaters, supply air after-heaters), the operation may be set to the bypass ventilation operation.

- When the product is interlocked with air conditioners (Mr. Slim), the supply air operation and the output of the supply air preheaters are stopped while the air conditioners are deforesting.
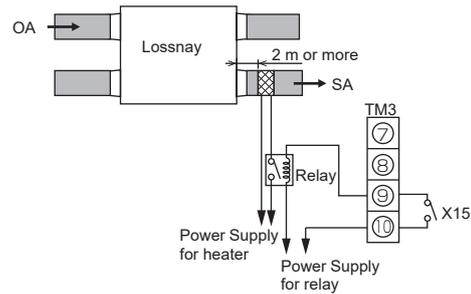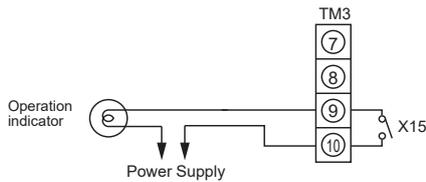
---

The control circuit boards of the product have external output terminals to output the product operation conditions to external devices.

| Output | Terminal block (TM3) | Signal type | TM3 terminal: rated | |
|---|---|---|---|---|
| | | | Maximum | Minimum |
| Function setting No.57, External output setting 1 (Exhaust air fan/supply air fan/supply air after-heater) | 9-10 | Volt-free conntact signal | 24VDC,1A | 5VDC,100mA |
| Function setting No.58, External output setting 2 (Bypass ventilation/supply air preheater) | 7-10 | | | |
| Function setting No.81, External output setting 3 (Malfunction monitor/supply air shutter) | 8-10 | | | |

## <Examples of electric wiring for function setting No.57 TM3 9-10>

Function setting value [1]: Exhaust air fan
Function setting value [2]: Supply air fan

Function setting value [3]: Supply air after-heater

## <Examples of electric wiring for function setting No.58 TM3 7-10>

Function setting value [1]: Bypass ventilation

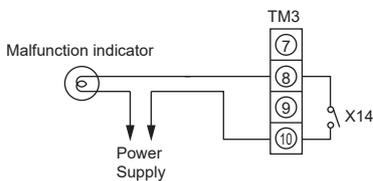Function setting value [2]: Supply air preheater

## <Examples of electric wiring for function setting No.81 TM3 8-10>

Function setting value [0]: Malfunction monitor

Function setting value [1]: Supply air shutter

## 6.6 Error list

| № | Error item | Error code | Unit operation | Error code reset | Description |
|---|---|---|---|---|---|
| 1 | Commissioning | 0900 | Commissioning operation | End the commissioning | The error is indicated when the product is in operation in the commissioning mode. |
| 2 | External device error | 3126 | Heater output: OFF | Stop the product. | The error is indicated when an abnormal temperature is detected by the built-in OA thermistor. It is assumed that there are wrong connections or wrong capacities of heaters. |
| 3 | Fan motor error | 4116 | Fan output: OFF Heater output: OFF | Stop the product. | Failure in fan motor |
| 4 | Temperature sensor error | 5101 | Supply air fan output: OFF Heater output: OFF Bypass ventilation is prohibited. | Cancel the error state. | The error is indicated when the built-in OA thermistor is in malfunction. |
| 5 | RA temperature sensor error | 5102 | The Heat exchange ventilation is fixed when the ventilation mode is Auto. | Cancel the error state. | The error is indicated when the built-in RA thermistor is in malfunction. |
| 6 | Function setting error | 7113 | Fan output: OFF Heat exchange ventilation is fixed. | Power supply reset | There is an error in the SW6 setting. |

## 6.7 Commissioning

Check the operation after installing the product.

### 6.7.1 Operation check by using the controller

Check the description of the instruction manual and the following operations.
(1) Start the product operation.
(2) Change the fan speed.
(3) Change the ventilation mode.
(4) Stop the product operation.

### 6.7.2 Operation check without using the controller

This is the function to check the operations of externally connected devices such as heaters. You can check the following specifications:
- When the output devices such heaters, malfunction monitors, and operation monitors are connected
- When the outdoor temperature is 8°C or lower (bypass damper operation check)

Operation method

(1) Supply the product with power.
(2) Turn On the commissioning switch (DIP-SW2-1). (Error code 0900 is displayed on the controller.)

| Terminal | Function No. | Data | Minutes / Seconds | 0 / 0 | 10 | 20 | 30 | 40 | 50 | 1 / 0 | 10 | 20 | 30 | 2 / 0 | 3 / 0 | 4 / 0 | 5 / 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - | - | - | FanSpeed | STOP | | | (purge) | | | STOP | | (purge) | | | | | |
| - | - | - | Ventilation mode | Bypass | | | | | | HeatEX | | | | | | | |
| TM3 7-10 | 58 | 1 | Bypass monitor output | OFF | ON | | | | | | | OFF | | | | | |
| | | 2 | Pre-heater output | OFF | | | | | | | | | | | | | ON |
| TM3 9-10 | 57 | 1 | EA fan monitor output | ON | | | | | | | | | | | | | |
| | | 2 | SA fan monitor output | ON | | | | | | | | | | | | | |
| | | 3 | SA fan monitor output delay operation | OFF | | | | | | | | | | | | ON | |
| TM3 8-10 | 81 | 0 | Malfunction monitor output | ON | | | | | | | | | | | | | |
| | | 1 | External shutter output | OFF | ON | | | | | | | | | | | | |

(3) Check that each function is operating properly.

(4) Turn OFF the commissioning switch (DIP-SW2-1).

# 7. Post-installation Checks

**When you have finished installation work, inspect the following items according to the following check list before turning the power on.**

**Be sure to correct any malfunctions that are found. (The functions is not being demonstrated or safety can not be ensured)**

|  | Check Item | Remedy for Malfunction | Check |
|---|---|---|---|
| Installation of Lossnay unit | Are the Lossnay unit and the duct piping installed on the indoor side of the insulation layer/airtight layer? | Install them on the indoor side of the insulation layer/airtight layer. | |
| | Is the Lossnay unit installed within ±1° of the horizontal? | Install within ±1° of the horizontal | |
| | Is sufficient work space ensured? *See "Working space (required space around Lossnay unit)" at "3. Standard Installation Examples." | Ensure the required work space | |
| Duct connections | Is the outdoor side duct installed tilted 1/30 or more towards the outside to prevent rain water from entering? | Install the duct tilted | |
| | Are there metal chips or other foreign matter (e.g. paper or vinyl) inside the Lossnay unit or the ducts? | Remove any foreign matter. | |
| | Are ducts insulated down to their base? *See "Duct piping/ 2. Insulating" at "4. Installation Procedure". | Insulate | |
| | Are ducts connected to the Lossnay unit? (Air leakage causes dew condensation.) | Securely connect the ducts | |
| Drain piping | Is the drain piping connected on the indoor side of the insulation layer? | Connect the drain piping on the indoor side of the insulation layer | |
| | Is the drain piping insulated up to its end? | Insulate up to the end of the drain piping | |
| | Is the end of the drain piping inside the rain gutter? | It is not inside the rain gutter | |
| | Is the end opening facing down vertically in a condition to drain water well? | Make the opening face down so that water drains well | |
| Wiring | Is the power supply voltage correct? | Use 220 to 240 V power supply. | |
| | Is the wiring work the same as wiring diagram? | Wire as shown in the wiring diagram | |
| | Is the ground wire connected to the screw certainly? | Securely connect the ground wire | |

# 8. Trial operation

After the system has been installed, make sure that cables are properly connected, then test the system's operation.

■ **Perform trial operation with the user in attendance.**
- Noise sometimes increases for several minutes after the power to the Lossnay unit is turned off. This is operation to maintain the ventilation air volume at the appropriate volume, and is not a malfunction.
- It is difficult to tell the ventilation state when there is wind outside or during operation of a range hood fan, etc. When turning on the power, stop operation of the range hood fan or other noise sources.

Press each of the buttons by following the procedure below to check that operation is normal.

| Operation Item | Operation Pad | Display | Step |
|---|---|---|---|
| 1. Powering on | | Please Wait 10% | Turn the power on *It takes approximately five minutes to switch the screen. |
| 2. Starting operation | ON/OFF lamp | Lossnay    12:00 Sun  Auto  Fan    Mode | Press the ⏻ button (operation LED lights) |
| 3. Selecting air volume | F2 | | Press the F2 button The fan speed is switched |
| 4. Selecting the ventilation mode | F3 | Auto / Auto | Press the F3 button The ventilation mode switches in order *Automatic → Heat exchanger → By-pass* |
| 5. Stopping operation | ON/OFF lamp | Lossnay    12:00 Sun | Press the ⏻ button (operation LED goes out) |

* When the backlight is off, pressing any button turns the backlight on and does not perform its function. (Except ⏻ button)

## ■ If trouble occurs during trial operation

| Symptom | Remedy | Check |
|---|---|---|
| Will not operate even when the operation switch for the controller is pressed. | • Check the power supply. (The specified power supply is single-phase 220-240 V / 50 Hz, 220 V / 60 Hz)<br>• Check for a short circuit or disconnection in the transmission cable. (Check that the voltage between terminals in the transmission cables is 10 to 13 VDC for the controller.)<br>• Check that the there is 5 cm or more separating the transmission cable from the power supply cable and any other transmission cables.<br>• Run the Lossnay independently using the trial operation switch (SW2-1) and check if it runs.<br><br>Lossnay runs → Check the signal lines<br>Lossnay doesn't run → Check the power supply<br><br>• Check if there are two or more controller connected. (The maximum is one.)<br>• Check that the wiring between the Lossnay unit and the remote controller is within 50 m | |
| Lossnay does not stop. | • Check that the trial operation switch (SW2-1) is set to off. | |
| The inspection indicator lamp (LED 1 Green) in the control box flashes. | 1 flash — Fault on supply fan motor<br>2 flashes — Fault on exhaust fan motor<br>4 flashes — Fault on OA thermistor<br>5 flashes — Not used on this model<br>6 flashes — Not used on this model<br>7 flashes — Not used on this model<br>8 flashes — Not used on this model<br>9 flashes — Fault on controller communication<br>10 flashes — Fault on function setting<br>11 flashes — Fault on power supply to controller<br><br>Turn the power off and consult your dealer. | |
| Abnormal vibration or abnormal noise | • Check for loose Wall braket.<br>• Check for ducts out of position.<br>• Check for loose or damaged parts.<br>• Check for vane contact. (sound of foreign matter getting inside) | |
| Air is not supplied or discharged from grills | • Check for foreign matter inside piping.<br>• Check for ducts out of position.<br>• Check piping to see if it is connected in such a way that it might cause air volume to drop or cause abnormal noise.<br>• Check the ducts to see if they are bent excessively. | |

- When an inspection number blinks on the controller, follow the procedures shown in the installation and operating manuals provided with the controller.

# Explaining to the User

- Explain to the user where the circuit breaker and remote controller are located and how to clean the filters.
- Tell the user the results of checks performed using the check list.
- Hand over the customer a leaflet with the URL where this manual can be viewed.
- Explain correct use by following the descriptions in the **Instruction Manual**. In particular, **Safety Precautions** describe important notices and warnings relating to safety. Explain to users that they should observe these.

## MITSUBISHI ELECTRIC CORPORATION

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