



AN026JSKLN Series
AN035JSKLN Series
AN050JSKLN Series
AN080JSKLN Series
AN100JSKLN Series

ERV(Energy Recovery Ventilator) installation manual

imagine the possibilities

Thank you for purchasing this Samsung product.

SAMSUNG

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1. When this product is installed in a country which is subject to Commission regulation (EU) No 1253/2014 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for ventilation units, be sure to install a differential pressure switch (MOS-P1050), which can measure pressures at the front and back of the filter, together with the product.
(For the differential pressure switch, be sure to use only specified one. If any unauthorized differential pressure switch is used, the product may be damaged or malfunction.)
2. For information about how to install a differential pressure switch, refer to its installation manual that comes with it.

Safety precautions

Keep this installation manual together with the user's manual in a handy place so that you can find it whenever you need to see it after reading this manual thoroughly.

- * Make sure to read the following safety precautions carefully before installation.
- * Make sure to observe the cautions specified in this manual.
- * Conduct a test run of the unit after installation and then explain all system functions to the owner.
- * The indications and meanings are as shown below.

 WARNING	Hazards or unsafe practices that may result in severe personal injury or death .
 CAUTION	Hazards or unsafe practices that may result in minor personal injury (to installer/user) or property damage .

SEVERE WARNING SIGNS

- ▶ Do not install the unit by yourself. Incorrect installation of the unit could cause injury due to fire, electric shock and water leakage or from the unit falling. Consult a dealer or a qualified installer.
- ▶ Place a grille over the air inlet to prevent birds nesting inside.
- ▶ Do not attempt to repair, move, modify or reinstall the unit on your own. Make sure that these installations are carried out by qualified personnel to avoid electric shock or fire.
- ▶ Check if the voltage and the frequency of the main power supply are required for the unit to be installed and check the connection.
- ▶ The electric work must be done by service agent or similarly qualified person according to national wiring regulations and use only rated cable. If the capacity of the electric work is not properly completed, electric shock or fire may occur.
- ▶ Make sure the air intake is located far from an exhaust port of a burner. It may cause oxygen shortage.
- ▶ Ground the unit. Do not connect the ground to a gas pipe, water pipe, lightning rod or telephone grounding. Defective grounding could cause electric shock.
- ▶ Do not leave electrical connections loose, to do so may cause sparking, heat build up or electrical shock.
- ▶ Install separate MCCB and ELB when installing the power cable. If you do not install the MCCB and ELB, electric shock or fire may occur.
- ▶ If the power plug is damaged, replace it by the manufacturer or qualified personnel to avoid the risk.
- ▶ Disconnect the circuit breaker when you don't use the product for a long period of time to save energy.
- ▶ Do not install the electrical cables under tension; doing so may lead to electrical disconnection and attendant problems.
- ▶ Disconnect the electrical supply before carrying out repairs.
- ▶ Do not pull the electric wire or touch the power plug with wet hands.
- ▶ Installers are required to read the general information carefully for safety.
- ▶ Do not put the product near dangerous substances to prevent fire, explosion or injury and do not expose the product to direct sunlight.
- ▶ Avoid the use of an extension cord and do not share the power outlet with other appliances. Incomplete connection, defective insulation or exceeding the permissible current may cause electric shock or fire.
- ▶ Make sure to turn off the main power when setting up the product's electric circuit or power cords. There is electric shock.
- ▶ The product should be installed in accordance with the National Electrical regulations.
- ▶ Ensure that the national safety code requirements have been followed for the main supply circuit. Ensure that a properly sized and connected ground wire is in place.
- ▶ Be sure not to perform power cable modification, extension wiring, and multiple wire connection.
 - It may cause electric shock or fire due to poor connection, poor insulation, or current limit override.
 - When extension wiring is required due to power line damage, refer to "How to connect your extended power cables" in the installation manual.

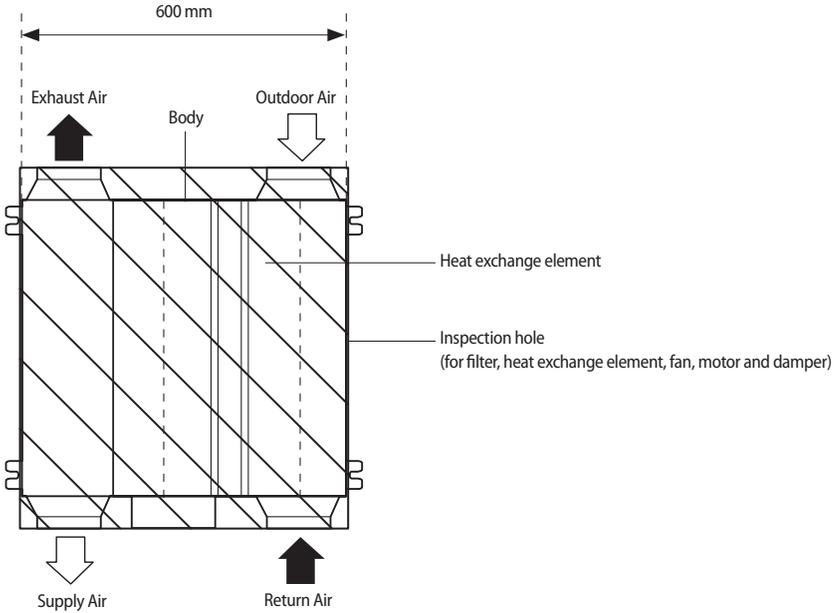
Safety precautions

CAUTION SIGNS

- ▶ Install the unit in a place where it is strong enough to hold the product weight. When installed in place where it is not strong enough to support the product weight, the unit may fall and cause injury.
- ▶ Wrap the product in thermal insulation if it is installed in a ceiling void which has outside air introduced to it. This will reduce the risk of moisture build up and the risk of electrical shock.
- ▶ Do not install the product in a place where it is exposed to inflammable gas leakage.
- ▶ Do not install the product in humid place such as bathroom. It may cause electric shock or malfunction.
- ▶ Make sure to use the part provided or specified parts for the installation work. The use of defective parts could cause injury, fire, electric shock or the unit falling, etc.
- ▶ Do not install the product in the place where exposed to sulfurous acid or steam because it may damage the parts or cause malfunction.
- ▶ Do not install the product in the place where generates toxic gas such as chemical factory. It may cause fire or gas poisoning.
- ▶ Check the product for damage that may have taken place during transportation and do not install or use damaged equipment.
- ▶ All of the manufacturing and packaging material used for your new appliance are compatible with the environment and can be recycled.
- ▶ Dispose of the packaging material in accordance with the local requirements.
- ▶ Install a ground leakage breaker depending on the installation place (where it is humid). If not, it may cause electric shock.
- ▶ The product must be installed according to the national electrical regulations.
- ▶ The maximum input power and current is measured according to the IEC Standard and the input power and current is measured according to ISO standard.
- ▶ Do not use this product for dehumidifying purpose in areas with high humidity such as underground parking lot, bathroom, etc.
 - Hot and humid air may enter into the product and cause electrical damage, fire, electric shock or water leakage.
- ▶ Do not install the product in places with high temperature and humidity (such as swimming pool, sauna, bathroom etc.) where fog or frost are often formed since dew condensation may form within the heat exchanging element.
- ▶ 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.

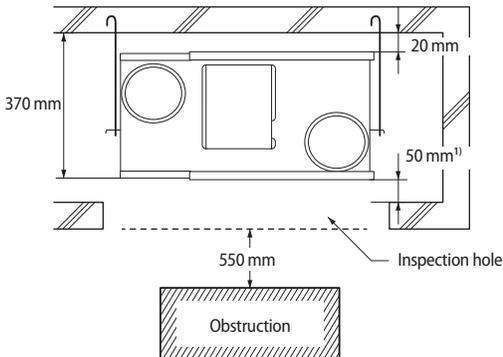
Space requirement

***026**



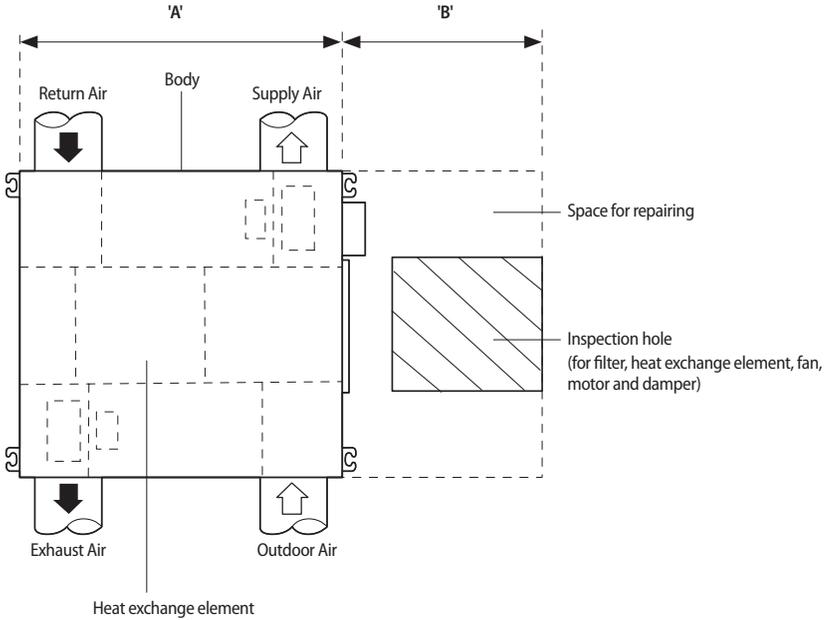
NOTE

- The ERV should be installed in a ceiling which has enough space above as seen in the picture.
- For maintenance, make sure that the space below the inspection hole is at least 550 mm from the obstruction.
- When installing the differential pressure switch, make an additional inspection hole at the location of the pressure measurement plastic tube for its maintenance.
- ¹⁾When installing the Differential Pressure Switch onto the product, make sure that the space between the bottom side of the product and the inner surface of the ceiling is at least 50 mm to protect the pressure measuring hose.



Space requirement

035/050/080/100

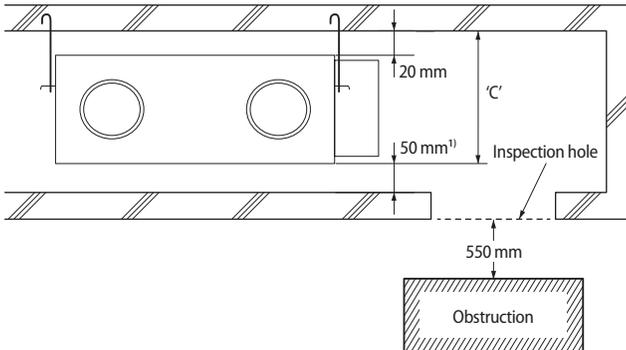


Unit: mm

Model	'A'	'B'	Number of heat exchange elements
035/050	1000	600	2
080/100	1135	800	



- The ERV should be installed in a ceiling which has enough space above as seen in the picture.
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- When installing the differential pressure switch, make an additional inspection hole at the location of the pressure measurement plastic tube for its maintenance.
- ¹⁾ When installing the Differential Pressure Switch onto the product, make sure that the space between the bottom side of the product and the inner surface of the ceiling is at least 50 mm to protect the pressure measuring hose.

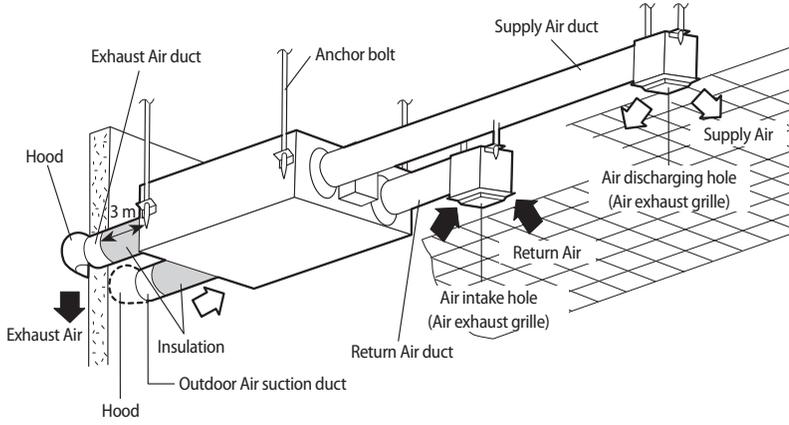


Unit: mm

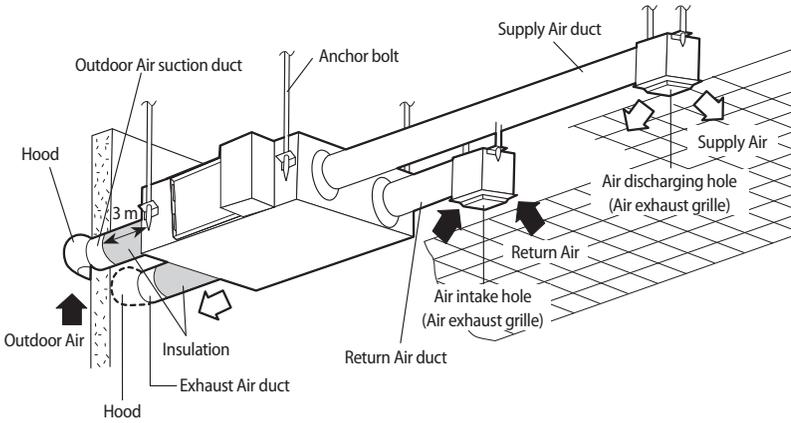
Model	'C'
035/050	300
080/100	370

Installation diagram

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035/050/080/100



Installation diagram

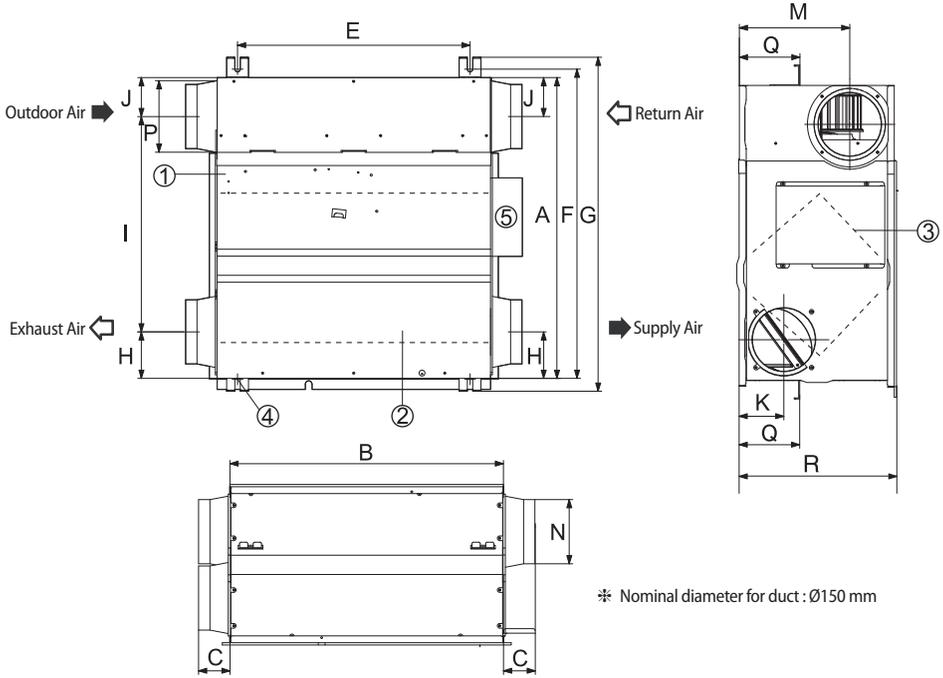


CAUTION

- Install the unit in a place where it is strong enough to hold the product weight.
- Install the unit in a place where the space is enough for repair and other service.
- Do not install the product in places with high temperature and humidity (such as swimming pool, sauna, bathroom etc.) where fog or frost are often formed since dew condensation may form within the heat exchanging element.
- Do not install the product in indoor or outdoor with high temperature and humidity. Dew may form on the internal part of the product, including the heat exchanger. When cold air flows in to the product, frost may form within the product therefore make sure that the outlet of the air conditioner and the RA diffuser is installed at least 1.5 m apart.
- Use rated cables for wiring and make sure they are connected and fixed securely.
- Install the duct and diffuser in a way that the supplied air does not contact the user directly because in winter time the cold supplied air may give an unpleasant feeling when it reaches the user.
- Noise may increase when there are large amount of exhausting air. Be sure to install the duct based on standard air volume. When necessary, control the air volume by installing volume damper. If the noise continues, install an additional noise attenuator. (Volume damper, noise chamber and flexible noise reducer are optional.)
- Install the external grille (hood) designed to prevent rain water from entering. (Should be purchased separately)
- It is mandatory to install electric damper on the OA (outdoor air) side and back draft damper on the EA (exhaust air) side. It is also recommended to install them on RA (room air) and SA (supply air) side. You may prevent the dew formation within the product which forms due to outdoor air inflow or temperature difference between the indoor and outdoor. (Electric damper and back draft damper should be purchased separately.)
- Outdoor air duct must be installed at least 3 m above the product.

External dimension

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* Nominal diameter for duct : $\phi 150$ mm

01 BEFORE INSTALLATION

No.	Name	Quantity
①	Maintenance cover	1
②	Heat exchange element	1
③	Dust filter	2
④	Hanger	4
⑤	Electrical component box	1

Unit: mm

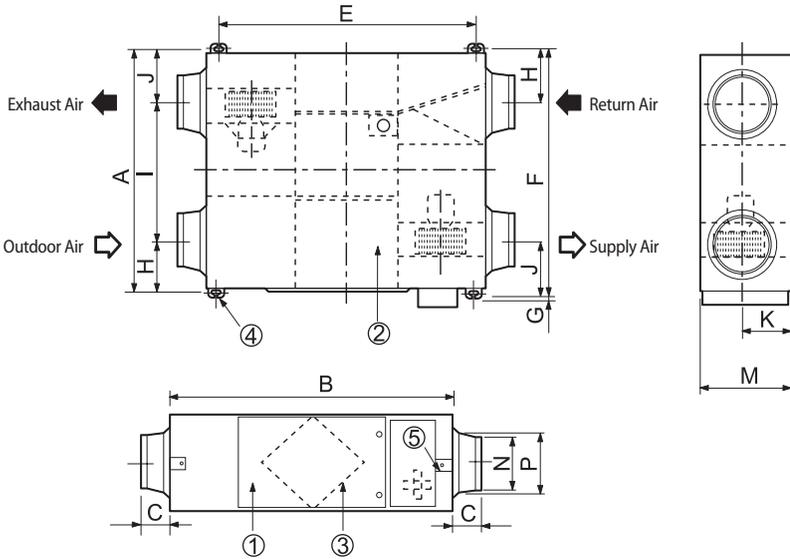
Model	A	B	C	E	F	G	H	I	J	K	M	N	P	Q	R
***026**	600	660	70	510	675	729	102	470	85	98	242	$\phi 140$	$\phi 156$	133	350



• Ensure the space for installing and repairing.

External dimension

035/050/080/100



Model	Nominal diameter for duct
035/050	Ø200
080/100	Ø250

No.	Name	Quantity
①	Maintenance cover	1
②	Heat exchange element	2
③	Dust filter	4
④	Hanger	4
⑤	Electrical component box	1

Unit: mm

Model	A	B	C	E	F	G	H	I	J	K	M	N	P
035/050	1000	1012	99	940.6	1036.4	26	130	617	253	135	270	Ø 194	Ø 241.5
080/100	1135	1220	84	1110	1183	25	184	613.3	387.8	170	340	Ø 244	Ø 270

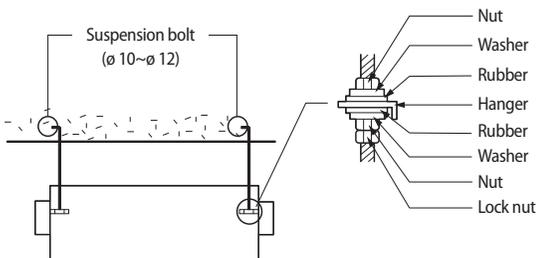


• Ensure the space for installing and repairing.

Hanging the ERV

Ensure correct installation - poor installation may result in malfunction or injury, due to the product falling.

1. Insert bolt anchors to a ceiling. Use existing ceiling support or construct a suitable support.
2. Install the suspension bolts depending on the ceiling type.
3. Screw two nuts to the suspension bolts making space for hanging the unit.
4. Hang the unit horizontally to the suspension bolts between two nuts.
5. Fasten the nuts to suspend the unit.
 - The washer should be fit for the hanger.



- Ensure that the ceiling is strong enough to support the weight of the unit. Before hanging the unit, test the strength of each attached suspension bolt.

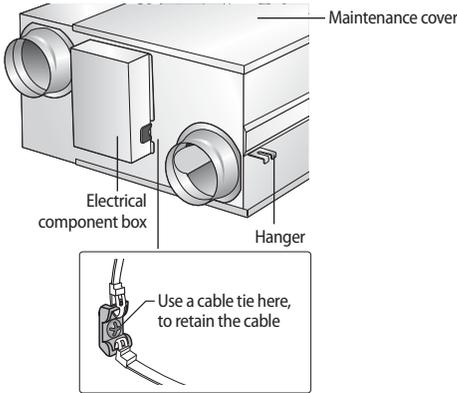
Electric wiring

Before electric wiring, make sure that the voltage is 1 wire 220~240 V, 50 Hz/60 Hz.

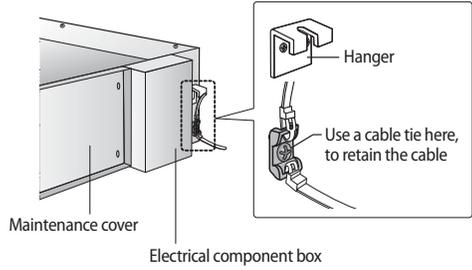
Electrical component box

Surface

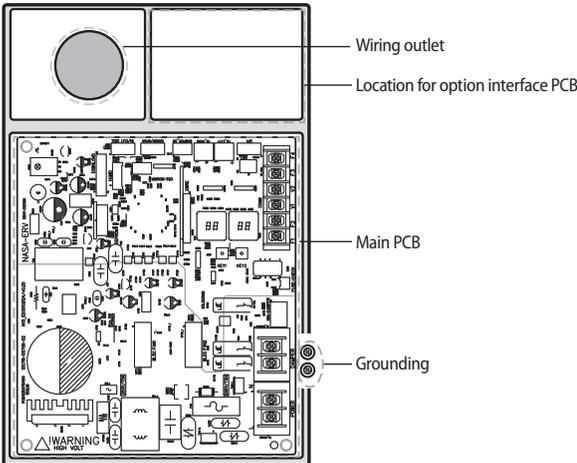
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***035/050/080/100**

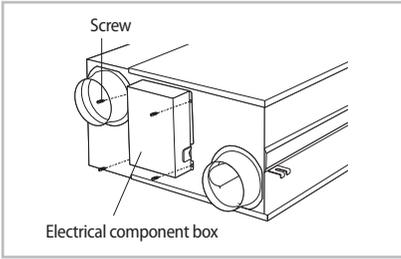


Inside

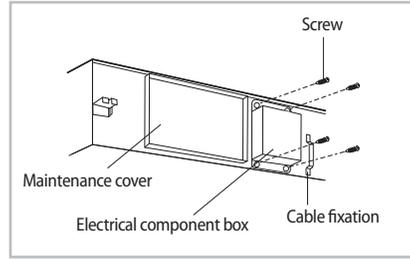


Electric wiring

1. Remove the 4 screws on the electrical component box and open the cover plate.



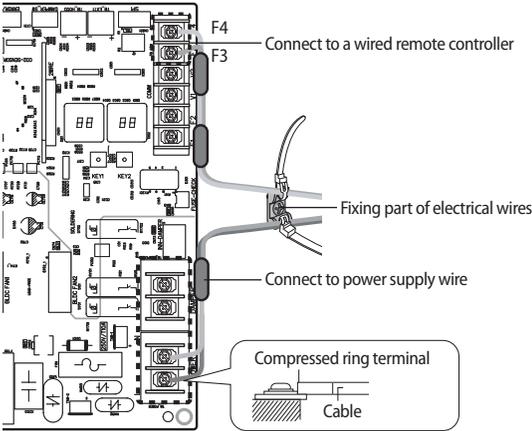
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[**035/050/080/100**]

2. Connect the cables correctly as seen in the picture.

- Fix the cables with a cable tie.



3. Connect the cable to the terminal board with a compressed ring terminal.

* Fix the screws in the electrical component box with designated torque referring to the table.

Recommended size		Tightening torque (kgf-cm)
Power Cable	M4	12.0 ~ 18.0
Communication Cable	M3.5	8.0 ~ 12.0

* 1 N·m=10 kgf-cm

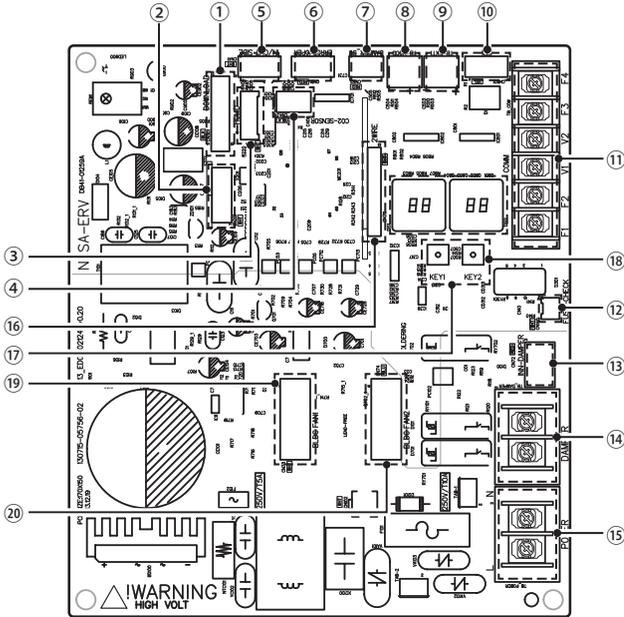


CAUTION

- Do not wash the heat exchange element. It may decrease the efficiency.
- The unit should be installed in accordance with the National Electrical regulations. Ensure that the national safety code requirements have been followed for the main supply circuit.

Electric wiring

Main PCB



No.	Part name	Description	Part No.
①	Download	Program downloader connector	CN301(BLK)
②	EEPROM SUB PBA	-	CN201(WHT)
③	Humidity sensor	Outdoor humidity sensor connector	CN31(WHT)
④	CO ₂ sensor	CO ₂ (Carbon dioxide) sensor connector	CN43(BLK)
⑤	Temperature sensor	Indoor and outdoor temperature sensor connector	CN41(WHT)
⑥	Operation monitoring output	Outputs operation status (Error/Operation ON) (MIM-B14)	CN81(RED)
⑦	Internal damper switch	Inputs damper switch contact signal	CN52(RED)
⑧	External contact control part (HOOD)	Turn on/off the HOOD mode by connecting a kitchen hood to an external contact, or control the filter's differential pressure by connecting a differential pressure switch to an external contact.	TB_HOOD
⑨	External contact control part	Turn on/off the via external contact	TB_EXT1
⑩	Virus Doctor	Virus Doctor kit connector	CN801(YEL)
⑪	Communication connection part	F1, F2(Communication between ventilation systems, communicate with interface module) V1, V2(Power supply connector for interface module) F3, F4(Wired remote controller communication)	TB_COMM(BLK)
⑫	Thermal Fuse status input connector	Inputs status of Thermal Fuse within the power terminal block	CN140(WHT)
⑬	Internal damper power supply	Damper motor control part for switching ventilation mode	CN72(RED)
⑭	External damper / Humidity power supply	External damper and Humidity power supply connector	TB_DAMPER(BLK)
⑮	Power supply input	220V / 60 Hz	TB_POWER(BLK)
⑯	2 wire communication (wired remote controller) SUB PBA	-	CN311(WHT)
⑰	Display part	Display part	-
⑱	KEY input part	KEY input part to execute trial operation, reset or view mode	-
⑲	Exhaust motor	EA (Exhaust air) motor connector	CN73(WHT)
⑳	Supply motor	SA (Supplied air) motor connector	CN74(BLU)

How to connect your extended power cables

1. Prepare the following tools.

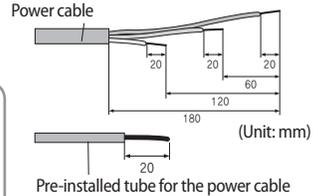
Tools	Crimping pliers	Connection sleeve (mm)	Insulation tape	Contraction tube (mm)
Spec	MH-14	20xØ6.5(HxOD)	Width 19mm	70xØ8.0(LxOD)
Shape				

2. As shown in the figure, peel off the shields from the rubber and wire of the power cable.

- Peel off 20 mm of cable shields from the pre-installed tube.



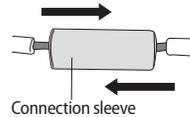
- For information about the power cable specifications for indoor and outdoor units, refer to the installation manual.
- After peeling off cable wires from the pre-installed tube, insert a contraction tube.



3. Insert both sides of core wire of the power cable into the connection sleeve.

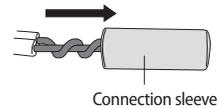
► **Method 1**

- Push the core wire into the sleeve from both sides.

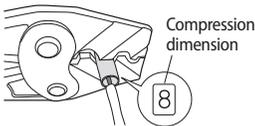


► **Method 2**

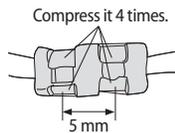
- Twist the wire cores together and push it into the sleeve.



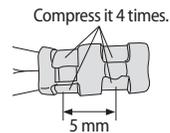
4. Using a crimping tool, compress the two points and flip it over and compress another two points in the same location.
- The compression dimension should be 8.0.
 - After compressing it, pull both sides of the wire to make sure it is firmly pressed.



► **Method 1**



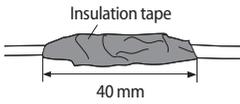
► **Method 2**



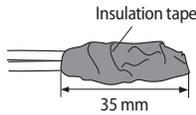
Electric wiring

5. Wrap it with the insulation tape twice or more and position your contraction tube in the middle of the insulation tape. Three or more layers of insulation are required.

► **Method 1**



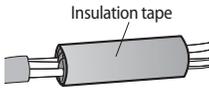
► **Method 2**



6. Apply heat to the contraction tube to contract it.



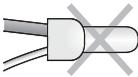
7. After tube contraction work is completed, wrap it with the insulation tape to finish.



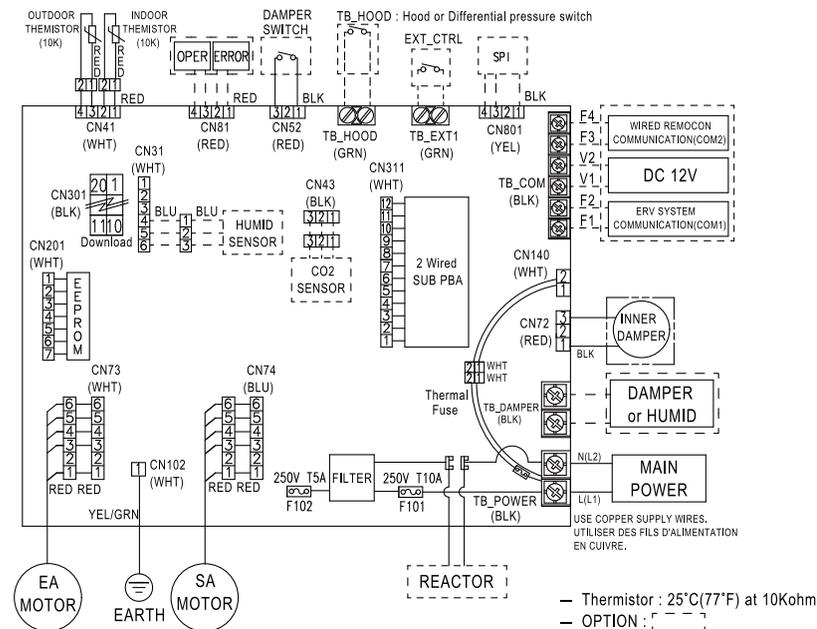
- Make sure that the connection parts are not exposed to outside.
- Be sure to use insulation tape and a contraction tube made of approved reinforced insulating materials that have the same level of withstand voltage with the power cable. (Comply with the local regulations on extensions.)



- In case of extending the electric wire, please DO NOT use a round-shaped Pressing socket.
- Incomplete wire connections can cause electric shock or a fire.



Schematic diagram



Power and Communication cables specification

Power Cable	Communication Cable
2.0 mm ²	0.75 mm ² (VCTF)

* The power and communication cables are not supplied with ERV unit.



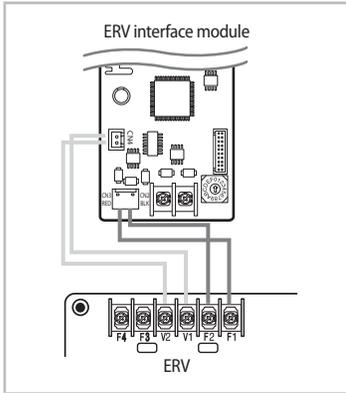
• Power supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord. (Code designation IEC:60245 IEC 57 / CENELEC: H05RN-F or IEC:60245 IEC 66 / CENELEC: H07RN-F)

Connecting the unit

Make sure to disconnect the power cable and power supply before connecting the ERV to other control solutions. If not, it may cause malfunction due to electrical interference.

ERV interface module

It does not need to connect the ERV interface module in case of individual control. Connect the ERV interface module to the MASTER ERV only, in case of centralized control.

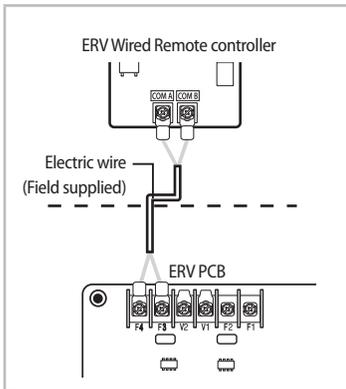


1. Connect the CN4 of the ERV interface module to the V1, V2 terminal of the ERV PCB. (DC 12 V)
2. Connect the CN3 of the ERV interface module to the F1, F2 terminal of the ERV PCB.



- Check the polarity when connecting CN4 of the interface module and the V1, V2 of the ERV. (Connection of V1 and V2 must not be switched.)

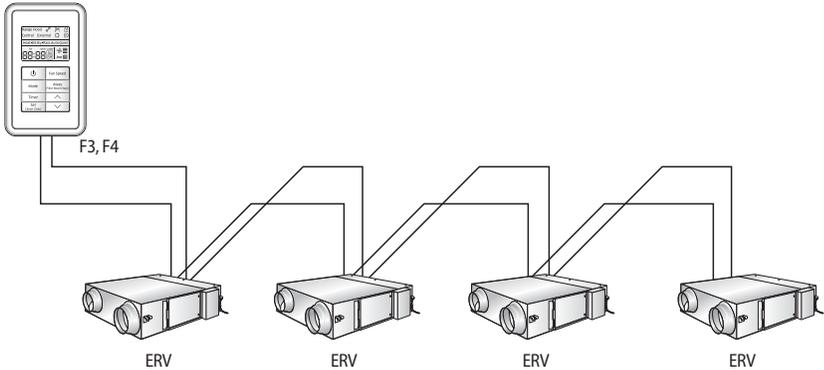
ERV Wired Remote controller



1. Remove the back cover of the ERV wired remote controller.
2. Connect the COM A (F3), COM B (F4) of the ERV wired remote controller to the F3, F4 terminal of the ERV PCB.
3. Reassemble the back cover and the ERV wired remote controller.

ERV wired remote controller and multiple ERVs

ERV Wired Remote Controller



1. Remove the back cover of the ERV wired remote controller.
2. Connect the COM A (F3), COM B (F4) of the ERV wired remote controller to the F3, F4 terminal of the ERV PCB.
3. Reassemble the back cover and the ERV wired remote controller.

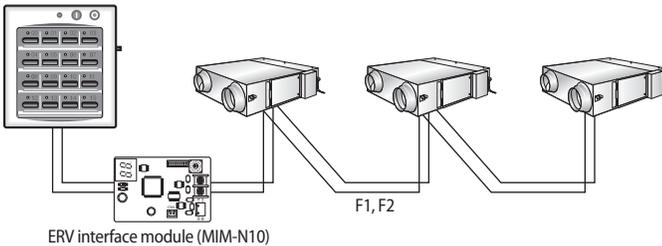


CAUTION

- Maximum 16 ERV units can be connected to 1 ERV wired remote controller at once.

Setting the OnOff controller

OnOff Controller



NOTE

- Maximum 16 ERV units can be connected to 1 ERV interface module
- Maximum 128 units (ex. ERV, duct indoor unit etc.) can be connected to 1 OnOff controller.
- MAIN address:
 - Required address for communication between ventilation systems.
 - If the MAIN address is not set, address will be set automatically and virtual address will be assigned.
- RMC address: Address of OnOff controller

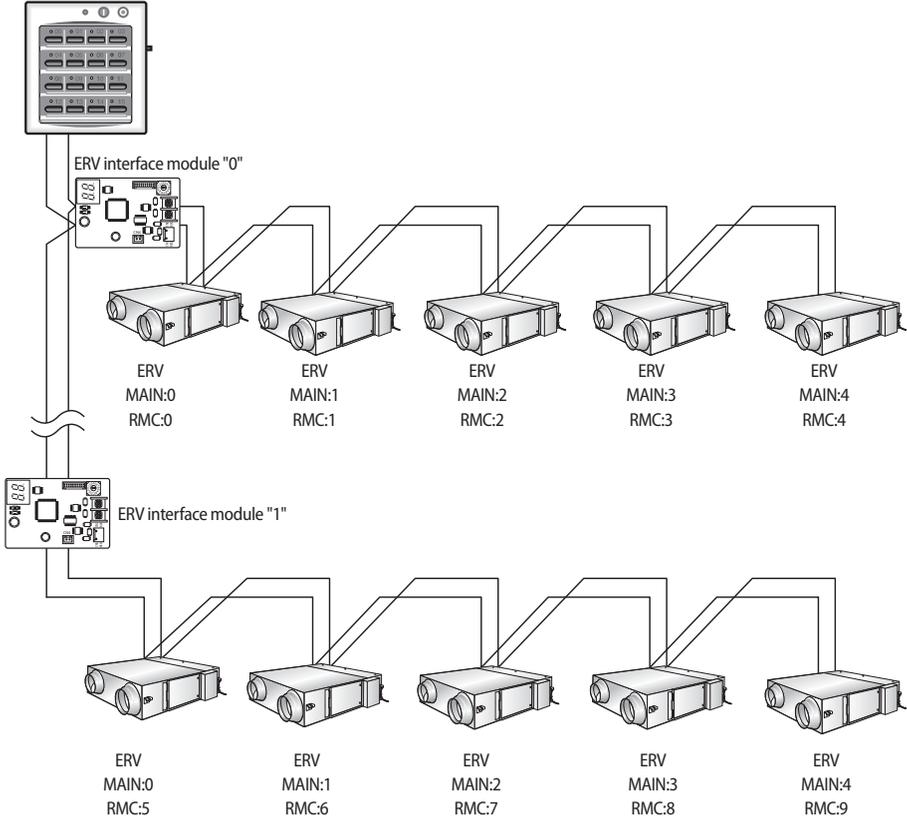
Connecting the unit

Control setting for the OnOff controller

Setting centralized individual control (1:1, Individual room control)

- ▶ For centralized individual control, RMC address of each ERV must be set differently from the OnOff controller.

OnOff controller

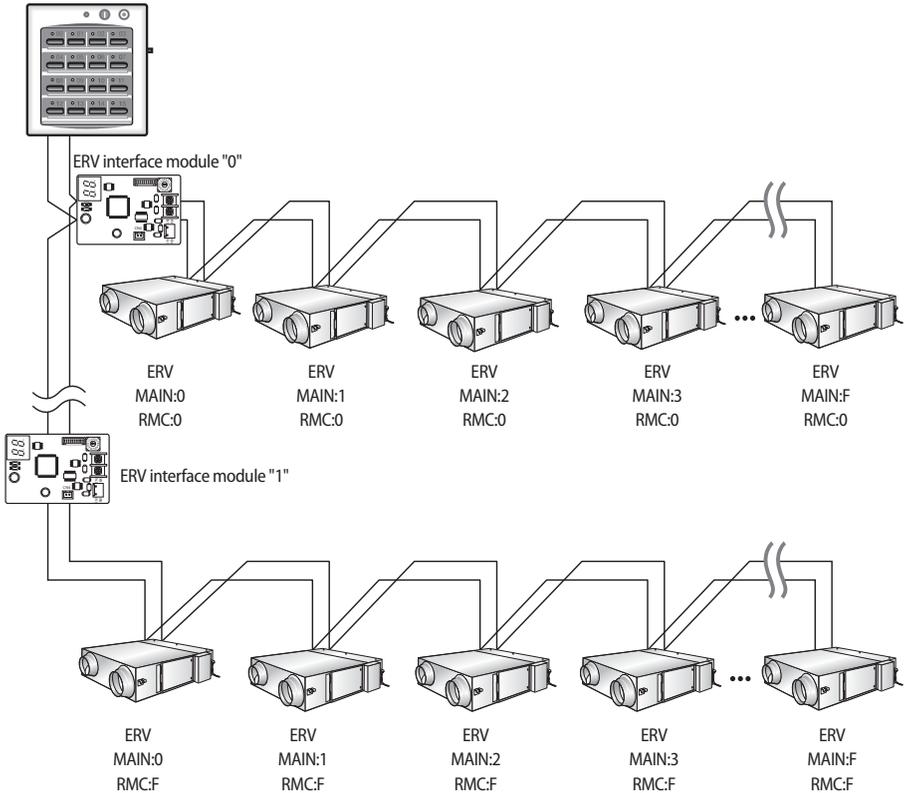


- If you turn on the switch No. 00 of the OnOff controller, ERV with RMC address 0 will be turned on and starts to operate.

Setting centralized group control (1:1 group, simultaneous control of 16 groups)

- ▶ For centralized group control, RMC address of all ventilation systems must be set equally from the OnOff controller. Maximum 16 units can be set in same RMC address.

OnOff controller



NOTE

- If you turn on the switch No. 00 of the OnOff controller, ERV with RMC address 0 will be turned on and starts to operate.
- You can control up to 128 units (Power on/off)

Connecting the unit

Setting simultaneous control of OnOff controller and ERV wired remote controller

- ▶ The OnOff controller can be controlled via RMC address of the ERV, while the ERV wired remote controller can be controlled via F3, F4.

OnOff controller



ERV
MAIN:0
RMC:2



F1, F2

ERV interface
module

ERV wired remote
controller



F3, F4



ERV
MAIN:1
RMC:0

ERV
MAIN:2
RMC:0

ERV
MAIN:3
RMC:0

ERV
MAIN:F
RMC:0



- ERV wired remote controller communicates by automatic addressing method which doesn't require address setting.

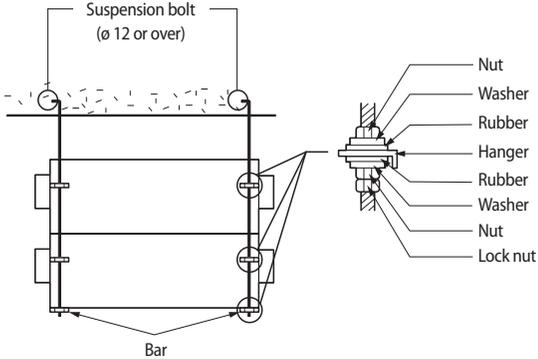
Connecting ERV 1500CMH, 2000CMH

This instruction is to connect two 800CMH units to use as 1500CMH or connect two 1000CMH units to use as 2000CMH.



- After installing 1500CMH, 2000CMH model, you can set 2 ERV units as a zone in DMS setting but they will operate individually. For about settings, refer to DMS installation manual.

Installation guide

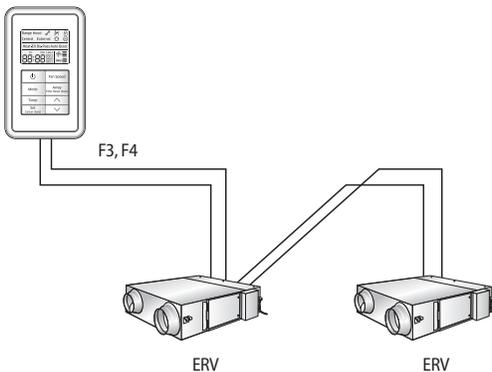


CAUTION

- Install the product at a place it can withstand the weight of the product.
- Attach an insulator (T10) between the products to prevent vibration and condensation.
- Install bars under the product to bear the weight of the product and use anchor bolts that are Φ 12 or larger. (Bar, insulator, anchor bolt, and nut should be purchased separately.)

ERV wired remote controller

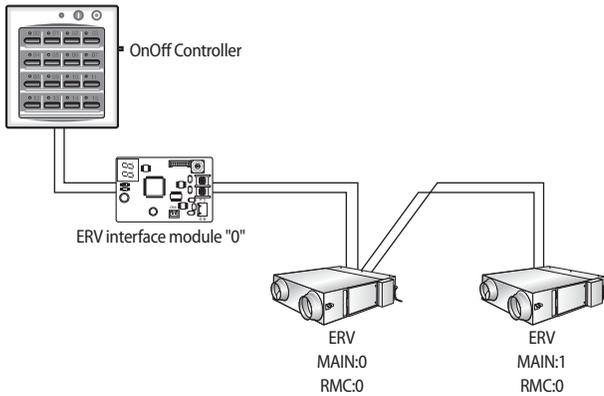
ERV Wired Remote Controller



Connecting the unit

Setting centralized individual control

- ▶ For centralized individual control, RMC address of each ERV must be set equally from the OnOff controller.



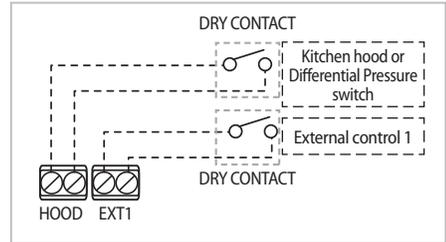
- If you turn on the switch No. 00 of the OnOff controller, ERV with RMC address 0 will be turned on and starts to operate.

Other Installation Specification

External Control

Use an external device or a mechanical contract to interlock and control the ventilation system. The figure below shows the configuration where one external controller and a kitchen hood or differential pressure switch are connected.

- ▶ Using external controller
 - It connects both sides of EXT1.
 - If the external controller 1 is set to ON position, ERV is operated in the last used condition.
- ▶ Using a kitchen hood
 - Connect the kitchen hood to both sides of HOOD.
 - Set SEG17 of the installation option 1 (O2 mode) to 0. (Default: 1)
 - When the kitchen hood is turned on, the supply air operates at the Turbo fan speed and the exhaust air operates at the Low fan speed.
- ▶ Using a differential pressure switch
 - Connect the differential pressure switch to both sides of HOOD.
 - Set SEG17 of the installation option 1 (O2 mode) to 1. (Default: 1)
 - The pressure difference between the front and back of the filter is measured to display filter-cleaning reminders on the wired remote control display.

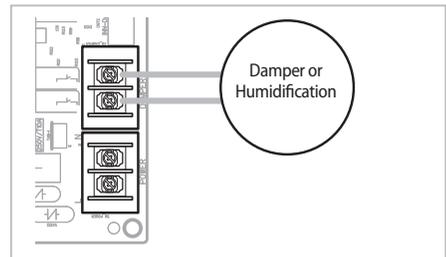


CAUTION

- The kitchen hood and the differential pressure switch cannot be used at the same time. Be sure to connect only one of them.
- For the differential pressure switch, be sure to use only specified one.

Connecting external load

- ▶ Connection is necessary to use humidifying unit or damper with the ERV
- ▶ When external damper is installed, damper will be opened when the ERV is ON and damper will be closed when the ERV is OFF.
- ▶ Electric current load should not exceed 2 A under the output terminal. You must install extra contact point relay when electric current load should exceed 2 A. (220V↓)
- ▶ To use an external load, you must set the installation option. (Refer to installation option 2 of the ERV)



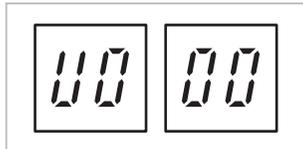
Connecting the unit

Trial operation of the ERV

Trial operation

- ▶ Start the trial operation by pressing the KEY1 button below the display (7-segment). Press the KEY1 button again to end the trial operation.
- ▶ **U0** will be displayed on the display 1 during trial operation.

Description of ERV display



SEG1: Displays "U" when ERV is communicating with a wired remote controller

SEG2: Displays RMC address of the ERV (0~F)

SEG3/SEG4: Displays the main address of the ERV (0~47)

- ※ If the display is showing "U0 00" as shown above, it means that ERV is communicating normally with a wired remote controller and its RMC address is "0" and the main address is "00".

View mode of ERV

- ▶ If you press KEY 2, various data will be displayed.
- ▶ Displayed data will vary as shown in below table, depending on the number of times you press the KEY 2.

Number of pressed times	Displayed content	Example	Display on segment			
			SEG1	SEG2	SEG3	SEG4
1	Discharge air fan RPM	1,350 RPM	1	1	3	5
2	Supply air fan RPM	950 RPM	2	Off	9	5
3	Indoor temperature	25 °C	3	Off	2	5
4	Outdoor temperature	30 °C	4	Off	3	0
5	CO ₂ concentration ¹⁾	1,220 ppm	5	1	2	2
6	Number of installed (ERV) units	3 units	6	Off	0	3
7	Indoor humidity ²⁾	40	7	Off	4	0
8	Outdoor humidity ²⁾	50	8	Off	5	0
9	Developer mode					

- ※ Press the KEY2 switch for more than 3 seconds to reset.

※ 1)* For the models without CO₂ sensor, 00 will be displayed on SEG3, 4.

※ 2)* For the models without humidity sensor, 00 will be displayed on SEG3, 4.

Error Code Display

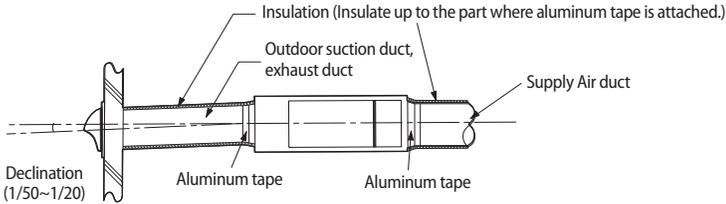
Classifications	Explanation	Error Code
Sensor error	Indoor temperature sensor (Short/Open)	121
	Outdoor temperature sensor (Short/Open)	221
	CO ₂ (Carbon dioxide) sensor (Short/Open)	139
	Outdoor humidity sensor error	183
Fan error	SA (Supplied air) fan motor error	561
	EA (Exhaust air) fan motor error	562
Communication error	Error due to repeated MAIN address	108
	System down due to communication error after tracking has been complete	202
	Communication error between ERV wired remote controller ↔ ERV (When there's communication interruption for 3 minutes after detecting the ERV)	601
Others	EEPROM error	162
	OPTION setting error (Option not inputted)	163
	Error on thermal fuse within the power terminal block (Open)	198
	Operation is stopped because outdoor & indoor temperature is below 0 degree celsius.	490
	Damper error [Error will be detected when there's no input from the switch for 100 seconds (approximate time for damper to rotate 5 times) during damper output]	654

* 602-609 indicate errors due to ERV wired remote controller. Refer to the ERV wired remote controller installation manual.

Installing the duct

Duct connection

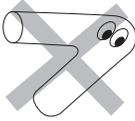
- ▶ Wind the aluminum tape securely around duct connections to prevent any air leak.
- ▶ Try to install indoor side supply air duct and exhaust air duct as far as possible from each other.
- ▶ Aspect ratio should be changed to less than 1:4 when cylindrical duct is changed to rectangular duct.
(Duct with less noise: Circular duct > Oval duct > Rectangular duct)
- ▶ To minimize noise, we recommend using flexible duct which is made of noise absorption/insulation material. Also, length of the duct should be minimum 3 m since noise may get louder due to larger volume of air flow when the length of the duct (between the ERV and the indoor exhaust air inlet and the supply air outlet) is short.
- ▶ 2 outdoor side ducts should be installed with declination toward outside, and indoor and outdoor ducts should be securely insulated. (Refer to below illustration)
- ▶ Duct and external hood installation must comply local ventilation equipment installation standards.
- ▶ Duct on the outdoor side should be at least 3 m long from the product to prevent rain water from entering to the product via duct.
- ▶ Motorized damper and Back draft damper should be installed according to damper installation standard for ERV as shown below.



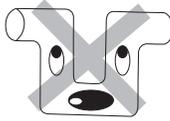
NOTE

- The use of flexible hose made of fiber glass is recommended to minimize noise. Install the duct at least over 3 m to reduce the noise as well.
- If the duct is not attached correctly and securely, it may result in malfunction.
- To prevent a short circuit, install the indoor air intake as far away as possible from an air outlet.

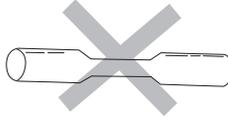
Examples of bad duct installation



Extreme bend



Multiple bend



Narrow connection part

Installation standards for damper of ERV (For preventing back draft, cold draft and condensation) (should be purchased separately)

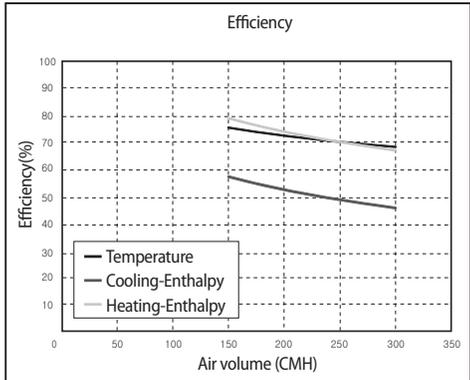
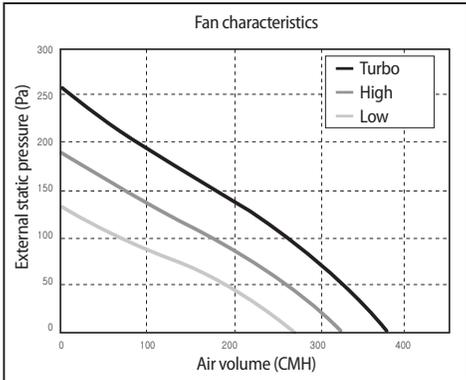
Classification	Outdoor air	Exhausted air	Supplied air	Returned air
Type of damper	Motorized damper	Back draft damper	Back draft damper	Motorized damper
Commercial ERV	Conditionally mandatory (Refer to the table below)	Conditionally mandatory (Refer to the table below)	Recommended	Recommended

Environmental condition	Installation condition	Motorized damper/back draft prevention damper installation requirement
Waterfront	Within 1,000 m	Required (Mandatory)
Lake, rivers	Within 500 m	Required (Mandatory)
Buildings	Underground installation	Required (Mandatory)

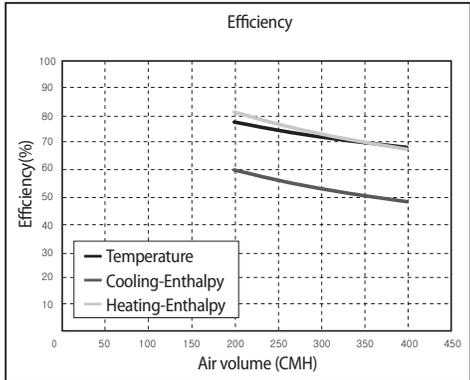
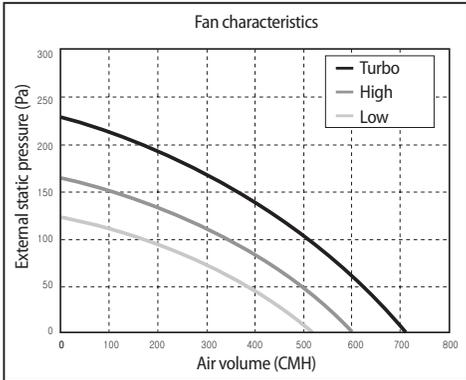
* Damper is recommended in a fog-prone area such as mountainous area.

Performance graph

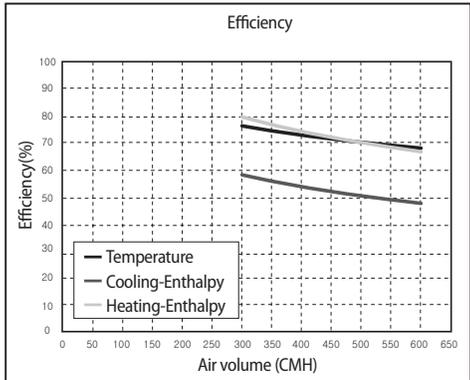
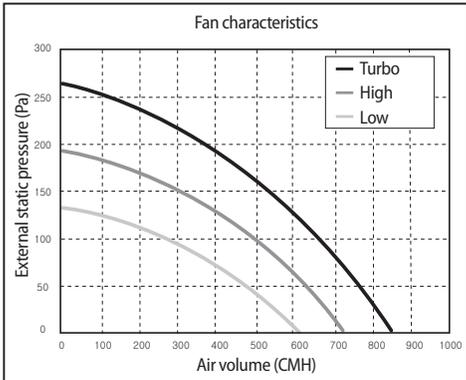
***026**

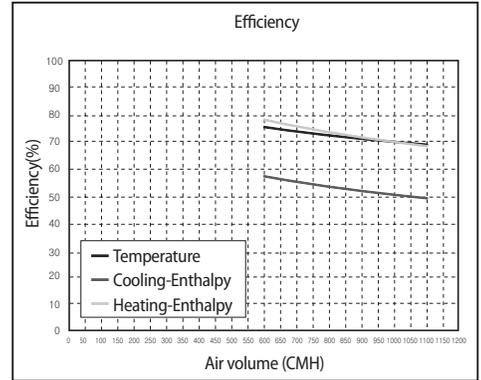
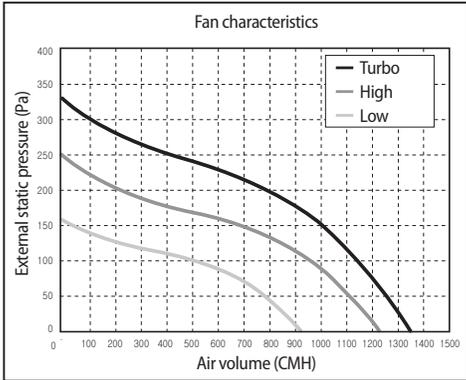
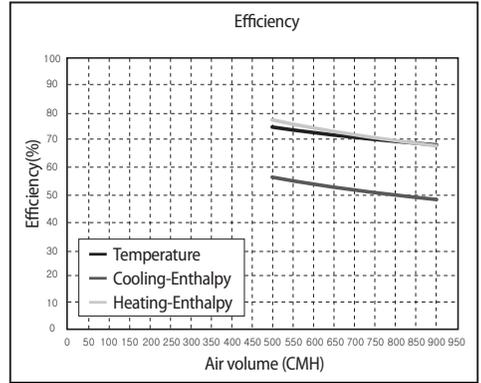
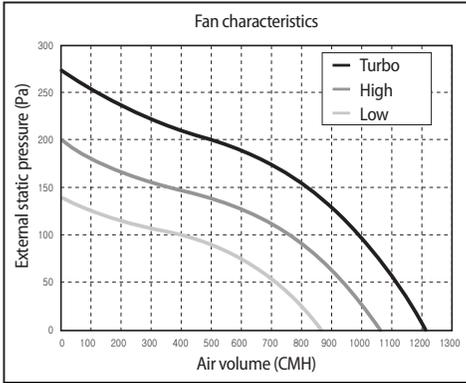


***035**



***050**





Final Checks and Trial Operation

Final checklist

Check the follows after the installation.

- ▶ Installation location and its strength
- ▶ Inspection hole installation
- ▶ Wiring
- ▶ Insulation

Check the operating condition and damper operation.

Setup the ERV wired remote controller		Checks	
Function	Air volume	Operating condition	Damper operation
Heat-EX mode	Turbo, High, Low	Check the airflow from outdoor air suction duct and air outlet is controlled by Turbo, High, Low.	Located on the corner (Open)
By-Pass mode	Turbo, High, Low		Located on side (Closed)

- ▶ If an error occurs during trial operation, check out the wiring. Turn off the sub power supply and carry out the wiring work again.
- ▶ After the trial operation, explain how to use the ERV to the user and hand over the product with the user's manual.

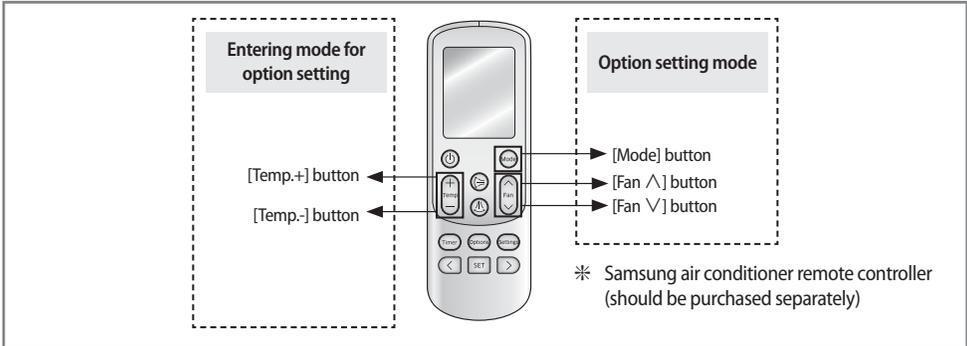
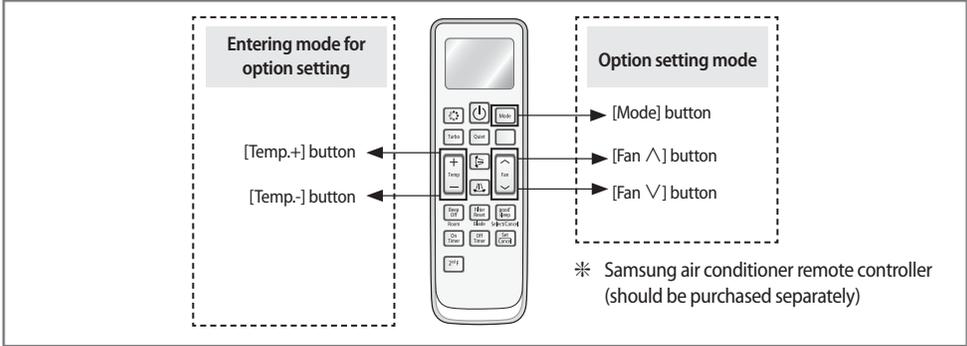
Temperature range for using and installing the product

Install condition	Outdoor air condition	Indoor air condition
0~40 °C, 80 % RH below	-15~50 °C, 80 % RH below	0~40 °C, 80 % RH below

Setting address of the ERV and installation option

Procedure of option setting

- ▶ Setting can be done by using a Samsung air conditioner wireless remote controller for indoor units. (Should be purchased separately.)



Step 1. Entering setting mode

1. Remove batteries from the remote controller.
2. While pressing and holding the [Temp +] and [Temp -] buttons, insert the batteries.
3. Check whether you enter the option setting stage.

Step 2. Procedure of option setting

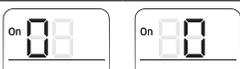
After entering the option setting stage, select the option as shown below.

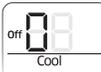
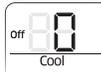
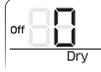


- 24 digits are available to be input for the option setting.
- SEG1, SEG7, SEG13, and SEG19 are page option so they do not need to be set.
- Set the each 2 bit option code in order except page options. SEG2, SEG3 → SEG4, SEG5 → SEG6, SEG8 → SEG9, SEG10 → SEG11, SEG12 → SEG14, SEG15 → SEG16, SEG17 → SEG18, SEG20 → SEG21, SEG22 → SEG23, SEG24

SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12	On(SEG1~12)	Off(SEG13~24)
0	X	X	X	X	X	1	X	X	X	X	X		
SEG13	SEG14	SEG15	SEG16	SEG17	SEG18	SEG19	SEG20	SEG21	SEG22	SEG23	SEG24		
2	X	X	X	X	X	3	X	X	X	X	X		

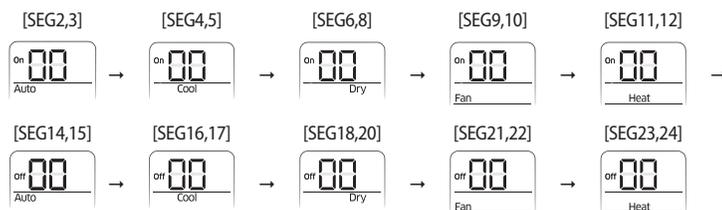
Setting address of the ERV and installation option

Option setting	Status
<p>1. Setting SEG2, SEG3 option</p> <p>Press [Fan ∨] button to enter SEG2 value.</p> <p>Press [Fan ∧] button to enter SEG3 value.</p> <p>Each time you press the button, $\square \rightarrow \square \rightarrow \dots \text{E} \rightarrow \text{F}$ will be selected in rotation.</p>	 <p style="text-align: center;">SEG2 SEG3</p>
<p>2. Setting Cool mode</p> <p>Press [Mode] button to select Cool mode in On status.</p>	
<p>3. Setting SEG4, SEG5 option</p> <p>Press [Fan ∨] button to enter SEG4 value.</p> <p>Press [Fan ∧] button to enter SEG5 value.</p> <p>Each time you press the button, $\square \rightarrow \square \rightarrow \dots \text{E} \rightarrow \text{F}$ will be selected in rotation.</p>	 <p style="text-align: center;">SEG4 SEG5</p>
<p>4. Setting Dry mode</p> <p>Press [Mode] button to select DRY mode in On status.</p>	
<p>5. Setting SEG6, SEG8 option</p> <p>Press [Fan ∨] button to enter SEG6 value.</p> <p>Press [Fan ∧] button to enter SEG8 value.</p> <p>Each time you press the button, $\square \rightarrow \square \rightarrow \dots \text{E} \rightarrow \text{F}$ will be selected in rotation.</p>	 <p style="text-align: center;">SEG6 SEG8</p>
<p>6. Setting Fan mode</p> <p>Press [Mode] button to select Fan mode in On status.</p>	
<p>7. Setting SEG9, SEG10 option</p> <p>Press [Fan ∨] button to enter SEG9 value.</p> <p>Press [Fan ∧] button to enter SEG10 value.</p> <p>Each time you press the button, $\square \rightarrow \square \rightarrow \dots \text{E} \rightarrow \text{F}$ will be selected in rotation.</p>	 <p style="text-align: center;">SEG9 SEG10</p>
<p>8. Setting Heat mode</p> <p>Press [Mode] button to select Heat mode in On status.</p>	
<p>9. Setting SEG11, SEG12 option</p> <p>Press [Fan ∨] button to enter SEG11 value.</p> <p>Press [Fan ∧] button to enter SEG12 value.</p> <p>Each time you press the button, $\square \rightarrow \square \rightarrow \dots \text{E} \rightarrow \text{F}$ will be selected in rotation.</p>	 <p style="text-align: center;">SEG11 SEG12</p>
<p>10. Setting Auto mode</p> <p>Press [Mode] button to select Auto mode in Off status.</p>	
<p>11. Setting SEG14, SEG15 option</p> <p>Press [Fan ∨] button to enter SEG14 value.</p> <p>Press [Fan ∧] button to enter SEG15 value.</p> <p>Each time you press the button, $\square \rightarrow \square \rightarrow \dots \text{E} \rightarrow \text{F}$ will be selected in rotation.</p>	 <p style="text-align: center;">SEG14 SEG15</p>
<p>12. Setting Cool mode</p> <p>Press [Mode] button to select Cool mode in the Off status.</p>	

Option setting	Status
13. Setting SEG16, SEG17 option Press [Fan ∨] button to enter SEG16 value. Press [Fan ∧] button to enter SEG17 value. Each time you press the button, 0 → 1 → ... E → F will be selected in rotation.	  SEG16 SEG17
14. Setting Dry mode Press [Mode] button to select Dry mode in Off status.	
15. Setting SEG18, SEG20 option Press [Fan ∨] button to enter SEG18 value. Press [Fan ∧] button to enter SEG20 value. Each time you press the button, 0 → 1 → ... E → F will be selected in rotation.	  SEG18 SEG20
16. Setting Fan mode Press [Mode] button to select Fan mode in Off status.	
17. Setting SEG21, SEG22 option Press [Fan ∨] button to enter SEG21 value. Press [Fan ∧] button to enter SEG22 value. Each time you press the button, 0 → 1 → ... E → F will be selected in rotation.	  SEG21 SEG22
18. Setting Heat mode Press [Mode] button to select HEAT mode in Off status.	
19. Setting SEG23, SEG24 mode Press [Fan ∨] button to enter SEG23 value. Press [Fan ∧] button to enter SEG24 value. Each time you press the button, 0 → 1 → ... E → F will be selected in rotation.	  SEG23 SEG24

Step 3. Check the option you have set

After setting option, press [Mode] button to check whether the option code you input is correct or not.



Step 4. Input option

Press the  button while aiming the remote controller towards the indoor unit to complete the setting.

For the correct option setting, you must input the option twice.

Step 5. Check operation

Press the  button on the ERV wired remote controller to operate the product.

Setting address of the ERV and installation option

Setting the address of ERV (MAIN/RMC)

- Check whether power is supplied to the ERV or not.
 - When the power is not supplied to the ERV, there should be additional power supply to it.
- Depending on the installation condition of the ERV, each ERV's address (MAIN/RMC) should be set.
- Set the ERV's address (MAIN/RMC) by using a remote controller.
 - Initial address of the ERV is set as follows; "MAIN:0, RMC:0"
 - Set MAIN and RMC address only when it is necessary. When ERV interface module assigns address automatically, setting the MAIN address is unnecessary and even though the MAIN address is set, the ERV will follow the address assigned by the ERV interface module.
 - Default value will be maintained when you input the numbers that shouldn't be set on each SEG. (If you input any number in SEG13~24, the value will be ignored.)
 - If you input any value on the SEG with "No function", it will be ignored.
- Use a wired/wireless remote controller to set the option. When setting the option with wireless remote controller, receiving module for remote controller is embedded in PBA so there's no need for connecting extra panel.

Option No. : 0AXXXX-1XXXXX-2XXXXX-3XXXXX

Option	SEG1		SEG2		SEG3		SEG4	SEG5		SEG6	
Description	Page		Mode		Setting main address		No function	10-digit of ERV		The unit digit of an ERV	
Indication and Details	Indication	Details	Indication	Details	Indication	Details		Indication	Details	Indication	Details
	0		A		0	No main address		0~4	10-digit	0~9	Unit digit
					1	Address setting mode					
Option	SEG7		SEG8		SEG9		SEG10	SEG11		SEG12	
Description	Page		No function		Setting RMC address		No function	Group channel		Group address	
Indication and Details	Indication	Details			Indication	Details		Indication	Details	Indication	Details
	1				0	No main address		RMC1	0~2	RMC2	0~F
			1	Address setting mode							

Example) To set "MAIN address: 3/ Group channel: 1/ RMC address: B", you may set the option as shown in the following table (excluding SEG1 and SEG7 which is page option).

SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
0	A	1	-	-	3
SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
1	-	1	-	1	B



CAUTION

- Main address can be set from 0~47 only and if any other values are set, 'communication error' will occur.
- If you set the SEG3 as 0, the ERV will maintain the existing main address even if you input the option value of SEG6.
- If you set the SEG9 as 0, the ERV will maintain existing RMC address even if you input the option value of SEG11~12.

Setting the installation option of the ERV

(suitable for the condition of each installation location)

1. Check whether power is supplied to the ERV or not.
 - When the power is not supplied to the ERV, there should be additional power supply to it.
2. Depending on the installation condition, set the installation option of the ERV.
 - Initial value for installation option of the ERV is "020010-100000-200012-300000" and "050000-100000-200000-300000".
 - If you input any value on the SEG with "No function", it will be ignored.
3. Use a wired/wireless remote controller to set the option. When setting the option with wireless remote controller, receiving module for remote controller is embedded in PBA so there's no need for connecting extra panel.

Installation option 1 of the ERV / Basic option No.: 02XX1X-1XXXXX-2XXX12-3XXXXX

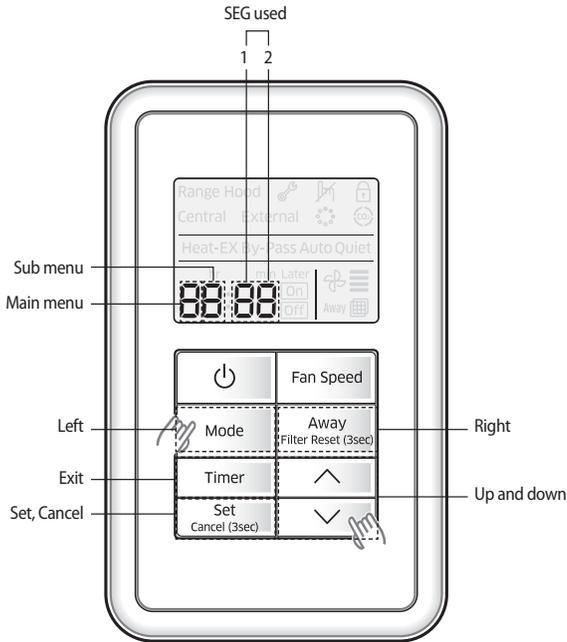
Option	SEG1		SEG2		SEG3	SEG4	SEG5		SEG6		
Description	Page		Mode		No function	No function	Use of centralized control		No function		
Indication and Details	Indication	Details	Indication	Details			Indication	Details			
	0		2				0	Disable			
							1	Enable			
Option	SEG7		SEG8		SEG9	SEG10	SEG11		SEG12		
Description	Page		No function	No function	No function	No function	No function		No function		
Indication and Details	Indication	Details									
	1										
Option	SEG13		SEG14		SEG15	SEG16	SEG17		SEG18		
Description	Page		No function	No function	No function	Use of Virus Doctor	Use of the kitchen hood or the differential pressure switch		Filter usage hours		
Indication and Details	Indication	Details				Indication	Details	Indication	Details		
	2					0	Disable	0	The kitchen hood is used.	2	1000 Hour
						1	Enable	1	The differential pressure switch is used.	6	2000 Hour
Option	SEG19		SEG20		SEG21	SEG22	SEG23		SEG24		
Description	Page		No function	No function	No function	No function	No function		No function		
Indication and Details	Indication	Details									
	3										

Setting address of the ERV and installation option

Installation option 2 of the ERV / Basic option No.: 05XXXX-1XXXXX-2XXXXX-3XXXXX

Option	SEG1		SEG2		SEG3		SEG4		SEG5		SEG6	
Description	Page		Option mode		No function		No function		No function		No function	
Indication and Details	Indication	Details	Indication	Details								
	0		5	Installation option 2 of the ERV								
Option	SEG7		SEG8		SEG9		SEG10		SEG11		SEG12	
Description	Page		No function		No function		No function		No function		No function	
Indication and Details	Indication	Details										
	1											
Option	SEG13		SEG14		SEG15		SEG16		SEG17		SEG18	
Description	Page		No function		Use of CO ₂ sensor		Use of external damper		No function		No function	
Indication and Details	Indication	Details			Indication	Details	Indication	Details				
	2				0	Disable	0	Disable				
					1	Enable	1	Enable				
Option	SEG19		SEG20		SEG21		SEG22		SEG23		SEG24	
Description	Page		Use of humidity sensor		Temperature setting of fresh cooling in auto mode operation		CO ₂ level setting (Air volume switch control)		No function		No function	
Indication and Details	Indication	Details	Indication	Details	Indication	Details	Indication	Details				
	3		0	Disable	0	Disable	0	900				
			1	Enable	1	18 °C	1	950				
					2	19 °C	2	1000				
					3	20 °C	3	1050				
					4	21 °C	4	1100				
					5	22 °C	5	1150				
					6	23 °C	6	1200				
					7	24 °C						
					8	25 °C						
9	26 °C											

Additional functions of ERV wired remote controller



1. If you want to use the various additional functions for your wired remote controller, press the **[Mode]** and **[∨]** buttons at the same time for more than three seconds.
 - You will enter the additional function settings, and the main menu will be displayed.
2. Refer to the list of additional functions for your ERV wired remote controller on the next page, and select the desired menu.
 - Using the **[∧]/[∨]** buttons, select a main menu number and press the **[Away]** button to enter the sub-menu setting screen.
 - Using the **[∧]/[∨]** buttons, select a sub-menu number and press the **[Away]** button to enter data setting screen.
 - When you enter the setting stage, the current setting will be displayed.
 - Refer to the chart for data settings.
 - Using the **[∧]/[∨]** buttons, select the settings. Press the **[Away]** button to move to the next setting.
 - Press the **[Set]** button to save the settings and exit to the sub-menu setting screen.
 - Press the **[Timer]** button to exit to normal mode.



NOTE

- While setting the data, press the **[Mode]/[Away]** button to move the digit of SEG.
- If you press the **[Timer]** button while you are setting data, you can exit to the sub-menu setting stage without saving your changes.

Setting address of the ERV and installation option

Installation/service setting mode



If communication initialization is needed after the setting, the system will reset automatically and communication will be initialized.

Main menu	Sub menu	Function	Factory setting	Page number	Range	Remarks	
2	2	Setting address/ option 2)*	Setting/checking main address	Main address of target	1	Main address [00H~4FH(hexadecimal)]	
	3		Setting/checking RMC address	RMC address of target	1	Group address [00H~FEH(hexadecimal)] 3*	
	4		Setting/checking product option	Basic option of target	10 1)*	Option code of indoor units or ERV units	
	5		Setting/Checking installation option 1	Installation option of target	10 1)*	Refer to the installation manual of connected indoor units or ERV units	
	6		Setting/Checking installation option 2	Installation(2) option of target	10 1)*	Refer to the installation manual of connected indoor units or ERV units	

* Refer to the installation manual of the wired remote controller for other menu.

1)* The total option codes are 24 digits. You can set six digits at a time and it is distinguished by page number. Press the [Timer] button to go to the next page.



- Options can be set from SEG1 to SEG24
 - SEG1, SEG7, SEG13, and SEG19 are page option so they cannot be set nor be displayed.
 - SEG2 is the option type which cannot be set.
 - When SEG2~SEG6 and SEG8~SEG12 are set, "On" will be displayed and when SEG14~18 and SEG20~24 are set, "Off" will be displayed.

SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12	On (SEG2~SEG6, SEG8~SEG12)	Off (SEG14~18, SEG20~24)
0	X	X	X	X	X	1	X	X	X	X	X		
SEG13	SEG14	SEG15	SEG16	SEG17	SEG18	SEG19	SEG20	SEG21	SEG22	SEG23	SEG24		
2	X	X	X	X	X	3	X	X	X	X	X		

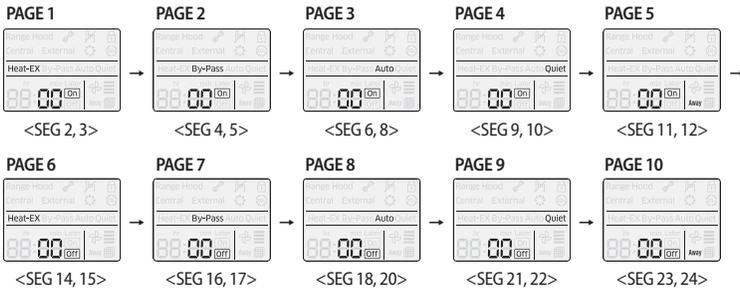
- The current SEG displayed can be distinguished by operation mode, On, and Off icon.

SEG2~SEG6, SEG8~SEG12

- On(Heat-EX → By Pass → Auto → Quiet → Away)

SEG14~SEG18, SEG20~24

- Off(Heat-EX → By Pass → Auto → Quiet → Away)



2)* When setting the address or option, you can set the target device with sub menu no.1.

3)* RMC(1) : 0~F / RMC(2) : 0~F (hexadecimal)

When RMC(1) is F, RMC(2) can be set up to E. (RMC(1) : Group channel, RMC(2): Group address)

Changing a particular option

※ Particular option can be set with a wireless remote controller only.

You can change each digit of set option.

Option	SEG1		SEG2		SEG3		SEG4		SEG5		SEG6	
Description	Page		Mode		Option mode to change		Tens digit of option SEG to change		Unit digit of option SEG to change		Changed value	
Indication and Details	Indication	Details	Indication	Details	Indication	Details	Indication	Details	Indication	Details	Indication	Details
		0		D		Option mode	0~F	Tens digit of SEG	0~9	Unit digit of SEG	0~9	Changed value

- ▶ If you want to change the one digit of the installation option 1 of the ERV, set the SEG3 to "2".
- ▶ If you want to change the one digit of the installation option 2 of the ERV, set the SEG3 to "5".

Example) To set "Virus doctor control" to "use" among installation option

Option	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
Description	Page	Mode	The option mode you want to change	Tens digit of option SEG to change	Unit digit of option SEG to change	Changed value
Settings	0	D	2	1	6	1

Example) To set "CO₂ sensor" to "use" among installation option

Option	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
Description	Page	Mode	The option mode you want to change	Tens digit of option SEG to change	Unit digit of option SEG to change	Changed value
Settings	0	D	5	1	5	1

Example) To set "Centralized control" to "use" among installation option (Default: Enable)

Option	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
Description	Page	Mode	The option mode you want to change	Tens digit of option SEG to change	Unit digit of option SEG to change	Changed value
Settings	0	D	2	0	5	0

Example) To set "Filter usage hours" to "2000 Hour" among installation option

Option	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
Description	Page	Mode	The option mode you want to change	Tens digit of option SEG to change	Unit digit of option SEG to change	Changed value
Settings	0	D	2	1	8	6

Example) To set "Humidification" to "use" among installation option

Option	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
Description	Page	Mode	The option mode you want to change	Tens digit of option SEG to change	Unit digit of option SEG to change	Changed value
Settings	0	D	5	1	4	1

Example) To set "External damper" to "use" among installation option

Option	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
Description	Page	Mode	The option mode you want to change	Tens digit of option SEG to change	Unit digit of option SEG to change	Changed value
Settings	0	D	5	1	6	1

Example) To set "Reverse installation" among installation option

Option	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
Description	Page	Mode	The option mode you want to change	Tens digit of option SEG to change	Unit digit of option SEG to change	Changed value
Settings	0	D	5	1	7	1

Memo

SAMSUNG