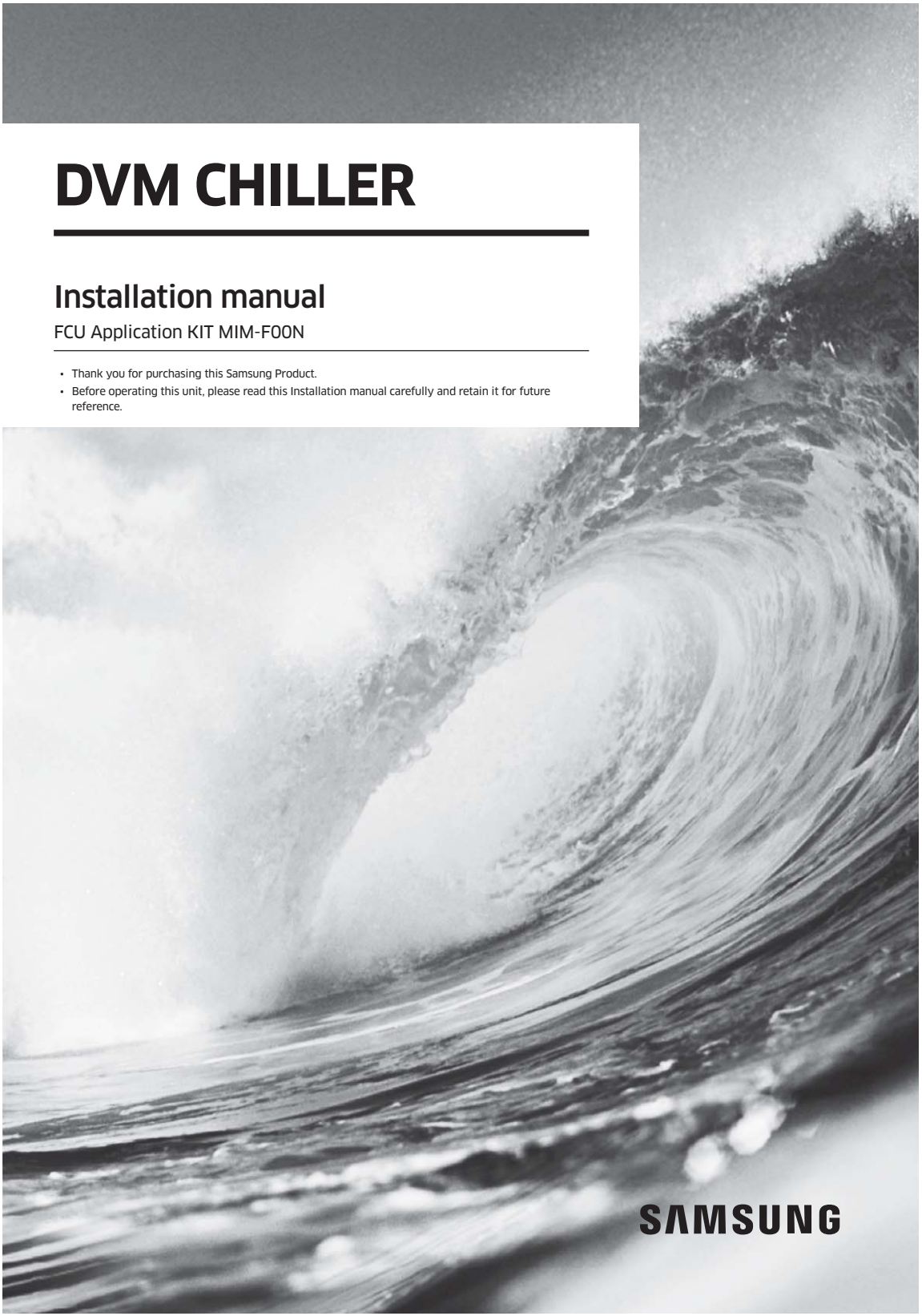
SAMSUNG

DVM CHILLER

Installation manual

FCU Application KIT MIM-F00N

- Thank you for purchasing this Samsung Product.
- Before operating this unit, please read this Installation manual carefully and retain it for future reference.



Contents

PREPARATION 3

Safety precautions 3

CHECKING BEFORE THE INSTALLATION 7

Checking before the installation 7

Accessories 7

Net dimension 7

Name of the parts 8

Diagram of DMS 2.5 and DVM CHILLER & FCU 9

Diagram of BMS and DVM CHILLER & FCU 10

INSTALLATION 12

FCU KIT installation 12

FCU KIT installation 12

Wiring work 15

Functions of FCU KIT 19

Diagram of ASS'Y control 21

Installing water temperature sensor 26

SETTING 28

Setting address of FCU KIT and installation option 28

Procedure of option setting 28

Setting an option 29

Setting address (MAIN/RMC) of FCU KIT 34

Setting FCU KIT installation option 35

Changing a particular option 42

OTHERS 43

Troubleshooting 43

Error code 43

Inspection and test operation 44

Checking FCU KIT installation 44

Trial operation 44

Function of wired remote controller 46

Display 46

Safety precautions

These safety precautions are for owner's safety and preventions of property damage. Therefore, please read this manual thoroughly before installing or using your product. (Please refer to appropriate installation for any optional product installation.)

⚠ **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 or property damage.

Follow directions.

Do NOT attempt.

Make sure the machine is grounded to prevent electric shock.

Unplug the power plug from the wall socket.

Do NOT disassemble.

For installation

⚠ **WARNING**

The installation of this product must be performed by a qualified technician or service company.

- Failure to do so may result in electric shock, fire, product malfunction, or injury.

Connect the power with rated voltage when installing.

- Failure to do so may result in electric shock, fire, or product malfunction.

Check if the installation was done correctly according to the installation manual.

- There is risk of electric shock or fire if the product is installed incorrectly.

Make sure that all wiring work is done by qualified person complying regional standards and instructions in this manual.

- If the installation is done by unqualified person, there is risk of product malfunction, electric shock or fire caused by incorrect installation.

Contact the service center when you need to dispose the product.

Safety precautions

Do not install this product near a heater, inflammable material. Do not install this product in a humid, oily or dusty location, in a location exposed to direct sunlight and water (rain drops). Do not install this product in a location where gas may leak.
- Potential risk of electric shock or fire.

Do not attempt to move or re-install the product that is already installed.
- There is risk of electric shock or fire.

Do not attempt to repair, disassemble, or modify the product yourself.
- There is risk of product damage, electric shock or fire. When repair is needed, consult service center.

For installation

⚠ CAUTION

Install the product on a hard and even place that can support its weight.
- If the place cannot support its weight, the product may fall down and it may cause product damage.

Make sure there is no tension to the cable during installation.
- Cable may get cut and cause fire.

Install the product in a place with temperature between 0 ~ 39 ℃ (32 ~ 102 °F) with no direct sunlight.
- If not, there is risk of fire or product malfunction.

Do not install the product in a place where special spray or acid/alkali solution is used.
- If not, there is risk of fire or product malfunction.

Do not connect the power cable to the communication cable terminal.
- There is risk of fire.

When installing the product in hospitals or other places, make sure that the product does not interrupt with other products.
- If not, there is risk of product malfunction.

Do not allow water to enter the product.
- If not, there is risk of electric shock or fire.

Do not press the buttons with any sharp objects.
- There is risk of electric shock or damage to the parts.

For power supply

⚠ WARNING

Do not pull or excessively bend the power cord. Do not twist or tie the power cord.
- Potential risk of electric shock or fire.

For operation

⚠ WARNING

If the product generates a strange noise, a burning smell or smoke, disconnect the power supply immediately and contact a service center.
- Potential risk of electric shock or fire.

Contact a service center to reinstall the product.
- If not, there is risk of product malfunction, water leakage, electric shock or fire.
- A delivery service for the product is not provided. If you reinstall the product in another location, additional construction costs and installation fee will be charged.

When an error appears or the product malfunctions, stop the operation immediately.
- If the product generates a burning smell or it malfunctions, turn it off and disconnect the power supply immediately, and then contact a service center. If not, there is risk of electric shock, fire, or damage to the product.

Do not attempt to repair, disassemble, or modify the product yourself.
- This may result in electric shock, fire, a product malfunction or injury.

For operation

⚠ CAUTION

Do not allow water to enter the product.
- There is risk of fire or explosion.

Safety precautions

Do not operate the product with wet hands.
- There is risk of electric shock.

Do not spray volatile material such as insecticide onto the product.
- As well as being harmful to humans, this may also result in electric shock, fire or a product malfunction.

Do not hit or apply excessive force of any kind to the product.

Do not use this product for other purposes.
- This product is designed to be used only for DVM CHILLER.

Do not press the buttons with any sharp objects.
- Electric shock or part damage may occur.

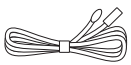
For cleaning

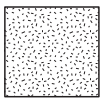
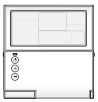
⚠ **WARNING**

Do not clean the product by spraying water directly onto it. Do not use benzene, thinner, acetone or alcohol to clean the product.
- This may result in discoloration, deformation, damage, electric shock or fire.

Checking before the installation

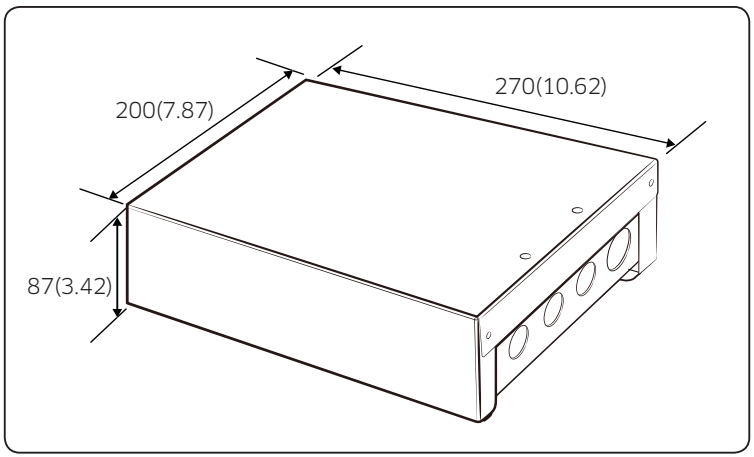
Accessories

Name	Pipe temperature sensor [10 m(32.8 ft)]	Aluminum tape	Rubber tape	M4x16 screws
Quantity	2	4	2	4
Image				

Name	Insulator	Cable tie	Wired Remote Controller (Purchased separately)
Quantity	2	6	1
Image			

Net dimension

[Unit : mm(inch)]



Checking before the installation

Name of the parts

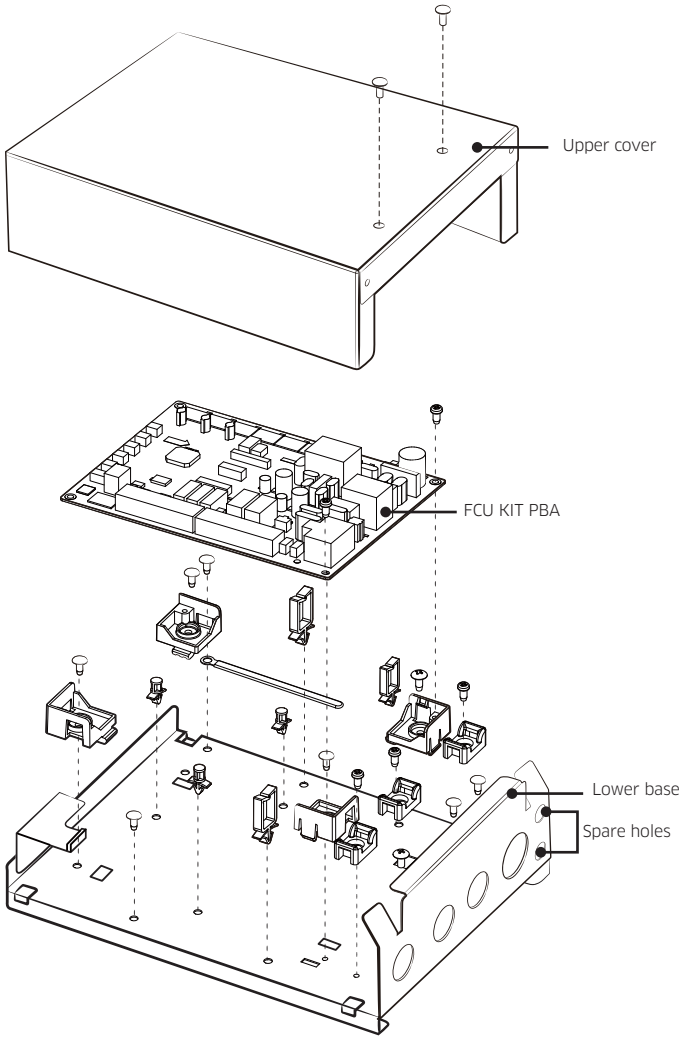
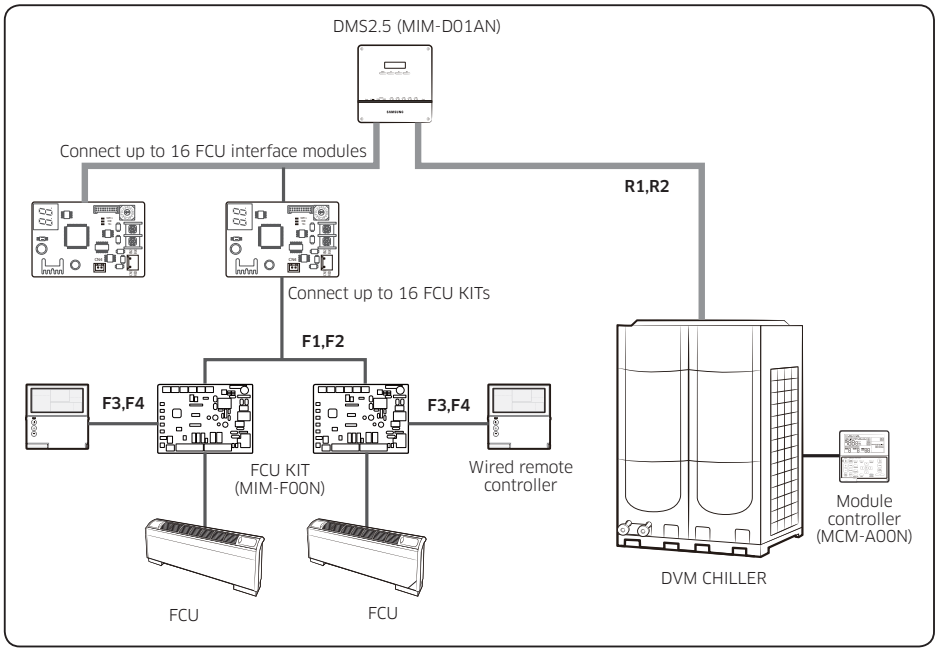


Diagram of DMS 2.5 and DVM CHILLER & FCU



- FCU KIT and FCU interface module is for integrated control of FCU with DVM CHILLER by DMS 2.5.
- Maximum number of FCU interface modules that can be installed to a DMS2.5, and maximum number of FCU KITs that can be installed to a FCU interface module is both 16.
- Maximum number of FCU interface modules that can be installed to a channel of DMS2.5 is 16 (Max. 128 FCU KITs).
- Some functions of wired remote controller may not work. (Refer to page 46.)
- Control logic of DMS2.5 should be set to interlock FCU KIT and DVM CHILLER. Refer to user manual of DMS2.5 for setting control logic.

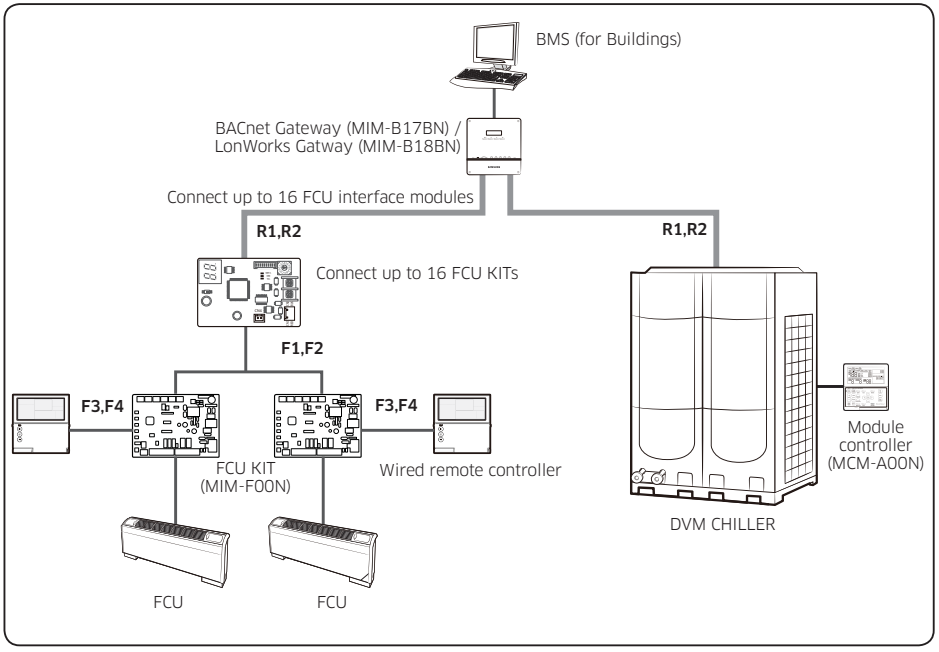
Checking before the installation

- FCU interface module should be installed inside of FCU KIT.
- DMS2.0 is not supported.
- Cabel Max length
  - DMS -FCU interface module : max 1000 m(3280.8 ft)
  - FCU interface module -FCU KIT :max 1000 m(3280.8 ft)

⚠ CAUTION

- Install FCU that has terminal block to fix power cable by screw. Do not connect power cable by cutting.

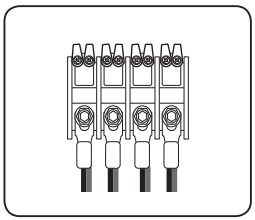
Diagram of BMS and DVM CHILLER & FCU



- FCU KIT and FCU interface module is for integrated control of FCU with DVM CHILLER by DMS 2.5.
- Maximum number of FCU interface modules that can be installed to a BACnet/LonWorks, and maximum number of FCU KITs that can be installed to a FCU interface module is both 16.
- Maximum number of FCU interface modules that can be installed to a channel of BACnet/LonWorks is 16.
- Some functions of wired remote controller may not work. (Refer to page 46.)
- FCU interface module should be installed inside of FCU KIT.

⚠ CAUTION

- Install FCU that has terminal block to fix power cable by screw. Do not connect power cable by cutting.



FCU KIT installation

FCU KIT installation

1 Check the location of FCU KIT installation.

- Select the installation location that FCU can be fixed (such as wall, etc.) according to structure of FCU.

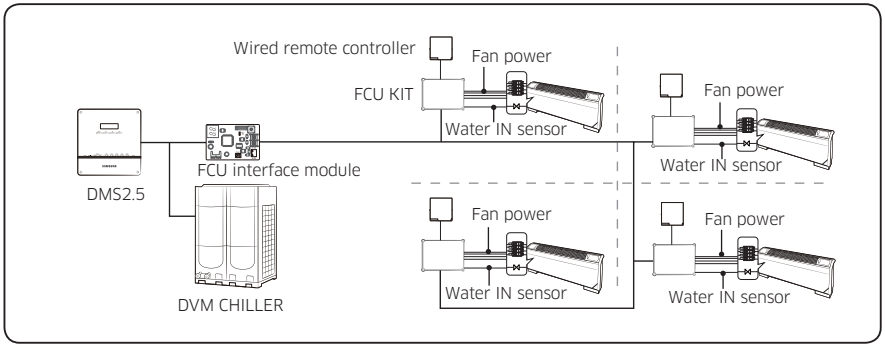
2 Select FCU product that has terminal block, and connect power cable of FCU KIT to the terminal block.

3 Select the control type (individual control or integrated control) and install FCU KIT and FCU.

- In case of direct power output from FCU KIT to FCU fan motor, select the fan motor which maximum current is not over 1 A (RMS).
- In case of installing multiple FCU to a FCU KIT, install relay for power supply.

Individual control of FCU

- Install FCU and FCU KIT by 1 to 1.
- Maximum number of FCU KITs that can be installed to a FCU interface module is 16.

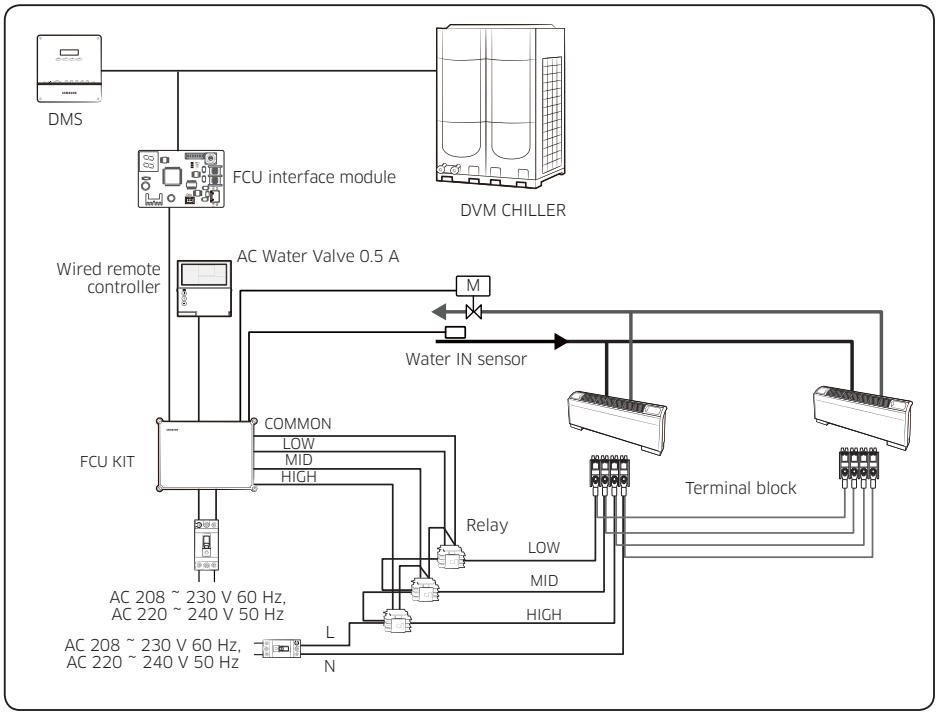


- Indoor temperature sensor must be installed to control FCU. Use either wired remote controller built-in sensor or external room sensor (MWR-TA).
  - Option setting value should be changed in service setting mode of wired remote controller after installing the remote controller. (Main menu 1, Sub menu 1, SEG 1, value 1)
  - In case of using external temperature sensor (optional), value of SEG24 (FCU KIT external indoor temperature sensor) of 05 series installation option should be set as 1.

- Water sensor should be attached to inlet pipe (1) for 2 pipe system (Water In), and each inlet pipe (2) for 4 pipe system (Cooling pipe In/Heating pipe In).
- Maximum number of FCU KITs that can be installed and controlled simultaneously by a wired remote controller is 16.

Integrated control of FCU

- Install FCUs and FCU KIT by multiple FCUs to 1 FCU KIT.

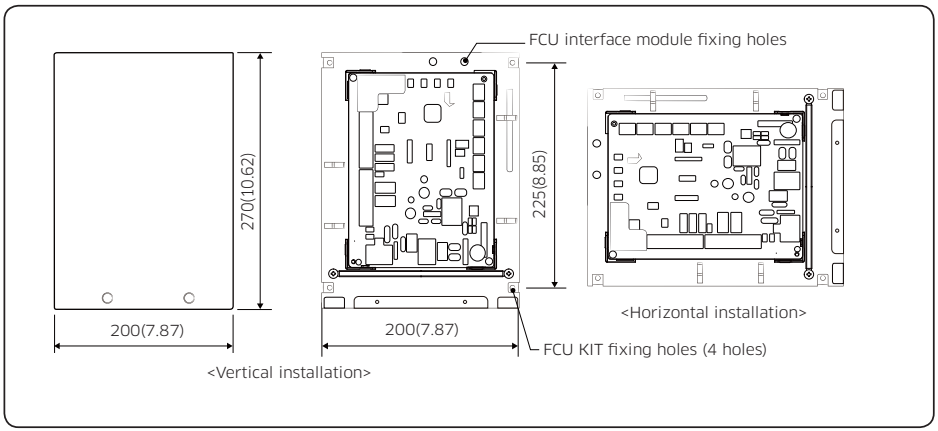


- National electric appliance safety standard should be applied for relay installation and capacity and power cable connection of FCU terminal block.

FCU KIT installation

FCU KIT installation

Install FCU KIT where the weight load of the product can be supported.



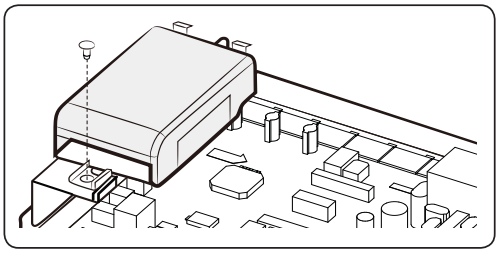
1 Unscrew 2 screws of FCU KIT cover, and separate cover.

2 Fix the FCU KIT on the wall by 4 screws.

- FCU KIT may be installed vertically or horizontally as shown in the figure.
  - When installing horizontally, install FCU KIT at right angles to prevent entering water.

FCU interface module installation

Before installing the FCU interface module, complete connecting DC power and communication of FCU interface module and sensor cables of FCU KIT.



1 Fix the case with one screw.

INSTALLATION

Wiring work

Connecting a power cable and communication cable

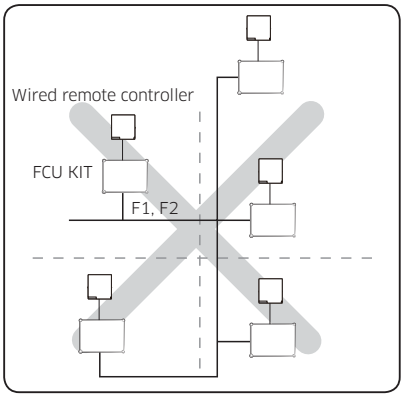
- Make sure to cut-off the power before connecting the power cable.
- The power cable and communication cable of FCU KIT should be within 10% of the maximum allowable length of the cable or voltage drop.
- Install circuit breaker (ELCB) concerning total power consumption of connected FCU KIT.
- Connect F3, F4 of FCU KIT terminal block to communication terminal block (F3, F4) of wired remote controller. (Refer to page 18.)
- Use appropriate tools to connect the cables firmly within rated torque range so that it can withstand external forces, and arrange the cables neatly so that cover or any other parts won't get loose. If the cable is connected loosely, overheat, electric shock or fire may occur.
- Install the power and communication cable in a protection tube to protect them from water or external shock.
- Connect power cable to ELCB.

Tightening part	Tightening torque		
		N·m	lbf·ft
Interface module, wired remote controller connection	M3	0.5 ~ 0.75	0.37 ~ 0.55
AC FAN, 2/3 WAY VALVE connection	M3.5	0.8 ~ 1.2	0.59 ~ 0.89
2P TERMINAL BLOCK for power supply	M4	1.2 ~ 1.8	0.89 ~ 1.33

FCU KIT installation

⚠ CAUTION

- The circuit diagram on the cables as shown above represents only outline and it does not describe detailed instruction on the actual installation work.
- The communication cable should not branch due to possible communication error.

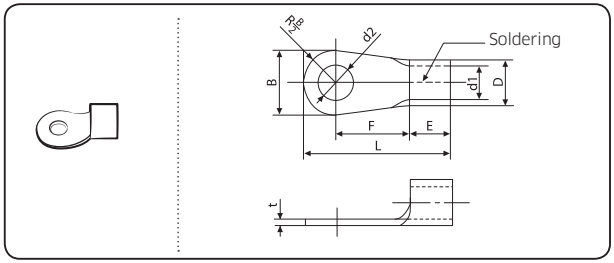


- When peeling off outer sheath of the power cable, be careful not to damage the inner sheath of the cable by using a correct tool.
- The unpeeled sheath of the power and communication cable must be inserted more than 20 mm(0.78 inch) to inside of FCU KIT holder.
- The installation of communication cable should be separated from power cable or other communication cables.

Selecting solderless ring terminal

1 Select the solderless ring terminal depending on the nominal dimension of the power cable.

2 Cover and insulate the solderless ring terminal and connection part of the power cable.



Nominal dimensions for cable	Nominal dimensions for screw	B		D		d1		E	F	L	d2		t
		Basic size	Allowance	Basic size	Allowance	Basic size	Allowance	Min.	Min.	Max.	Basic size	Allowance	Min.
1.5 (0.002)	4 (0.15")	6.6 (0.25")	±0.2 (±0.007")	3.4 (0.13")	+0.3 (+0.011") -0.2 (-0.007")	1.7 (0.06")	±0.2 (±0.007")	4.1 (3/16")	6 (1/4")	16 (5/8")	4.3 (0.16")	+0.2 (+0.007") 0 (0")	0.7 (0.02")
	4 (0.15")	8 (0.31")											
2.5 (0.003)	4 (0.15")	6.6 (0.25")	±0.2 (±0.007")	4.2 (0.16")	+0.3 (+0.011") -0.2 (-0.007")	2.3 (0.09")	±0.2 (±0.007")	6 (1/4")	6 (1/4")	17.5 (3/4")	4.3 (0.16")	+0.2 (+0.007") 0 (0")	0.8 (0.03")
	4 (0.15")	8.5 (0.33")											
4 (0.006)	4 (0.15")	9.5 (0.37")	±0.2 (±0.007")	5.6 (0.22")	+0.3 (+0.011") -0.2 (-0.007")	3.4 (0.13")	±0.2 (±0.007")	6 (1/4")	5 (1/4")	20 (3/4")	4.3 (0.16")	+0.2 (+0.007") 0 (0")	0.9 (0.035")

FCU KIT installation

FCU KIT power cable specification

This specification is when installing a FCU KIT.

Europe

Power supply	Power cable	Ground wire	Communication cable	ELCB
AC 220 - 240 V~ 50 Hz, 1 Ph	Min. 2.5 mm² (0.0039 inch²)	Min. 2.5 mm² (0.0039 inch²)	Min. 0.75 mm² (0.0012 inch²)	15 A

Part	Rated Capacity
Fan (High, Mid, Low)	AC 220 - 240 V~ 50 Hz, 1 Ph, 1 A
Water Valve	AC 220 - 240 V~ 50 Hz, 1 Ph, 0.5 A

USA

Power supply	MCA	MOP
AC 208 - 230 V~ 60 Hz, 1 Ph	2.75	15 A

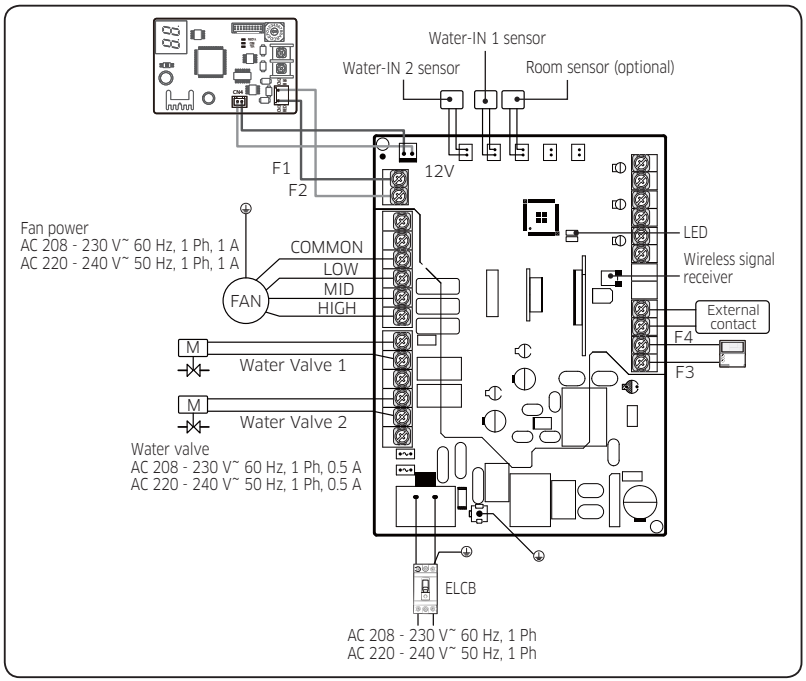
Part	Rated Capacity
Fan (High, Mid, Low)	AC 208 - 230 V~ 60 Hz, 1 Ph, 1 A
Water Valve	AC 208 - 230 V~ 60 Hz, 1 Ph, 0.5 A

DC Wire

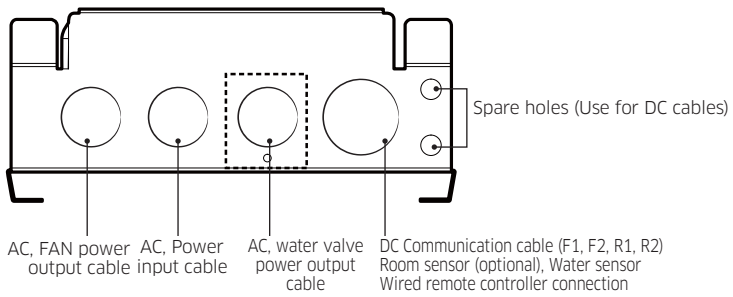
Part	Rated Capacity
Remote controller	DC 12 V
External contact	Zero voltage contact input
Sensor cable	NTC ./10 kΩ 25 °C

Functions of FCU KIT

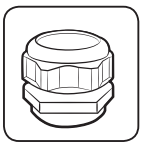
- Fan control (Auto, High, Mid, Low), valve control, setting indoor temperature, sensing inlet water pipe temperature is possible by FCU KIT. (Room temperature sensor must be installed.)
- For direct power supply from FCU KIT, fan motor must work at AC 208 - 230 V~ 60 Hz, AC 220 - 240 V~ 50 Hz and 1 A or low. Otherwise, install relay for external power suppy to the fan motor.
- 2/3 way solenoid valve is a type that works at AC 208 - 230 V~ 60 Hz, AC 220 - 240 V~ 50 Hz and supports product with 0.5 A or low.



FCU KIT installation



- Power cable: Conduit and Conduit fitting (1/2") work by installer
- Water valve: Conduit and Conduit fitting (1/2") after separating screw by installer when necessary



- DC, zero voltage contact: cable gland (3/4") work by installer

- Use conduit (1/2") and fitting (1/2") for power cable, and use cable gland (3/4") for DC cables.
- Each parts must be certified by national authority.
  - USA: UL certified products (UL514B), Europe: CE certified products
- Withdraw DC cables by spare holes if the DC cable wire holder is too tight.
- Use double-sheathed cables when using DC spare holes.
- Fix the power and communication cable at internal mount tie by using cable ties.
- Do not unscrew water valve cable wire holder if not used.
- Installation may be more simple by inserting sensor connector before connecting communication cable.

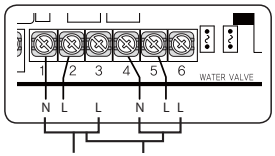
NOTE

- Arrange communication cables (F1, F2, R1, R2) to the opposite way of power cable.

Diagram of ASS'Y control

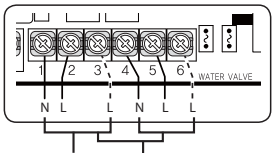
1 Water valve contact output status for operation mode.

When using a 2-way valve (normal close type)



Terminals for 2-pipe type Terminals for 4-pipe type

When using a 3-way valve



Terminals for 2-pipe type Terminals for 4-pipe type

⚠ **CAUTION**

- When connecting the valve power cable, be sure to connect the wires (N, L) to the correct terminals (N, L).
  - Failure to do so may damage the PBA.

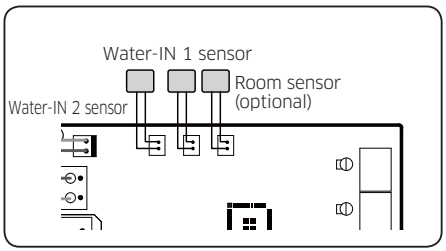
Pipe type	Operation power output		AC power output (Max. 0.5 A)	Remarks
2-pipe	Cooling/ Heating	Thermo ON	1-2	Normal Close Type
		Thermo OFF	1-3	Normal Open Type
4-pipe	Cooling	Thermo ON	1-2	Normal Close Type
		Thermo OFF	1-3	Normal Open Type
	Heating	Thermo ON	4-5	Normal Close Type
		Thermo OFF	4-6	Normal Open Type

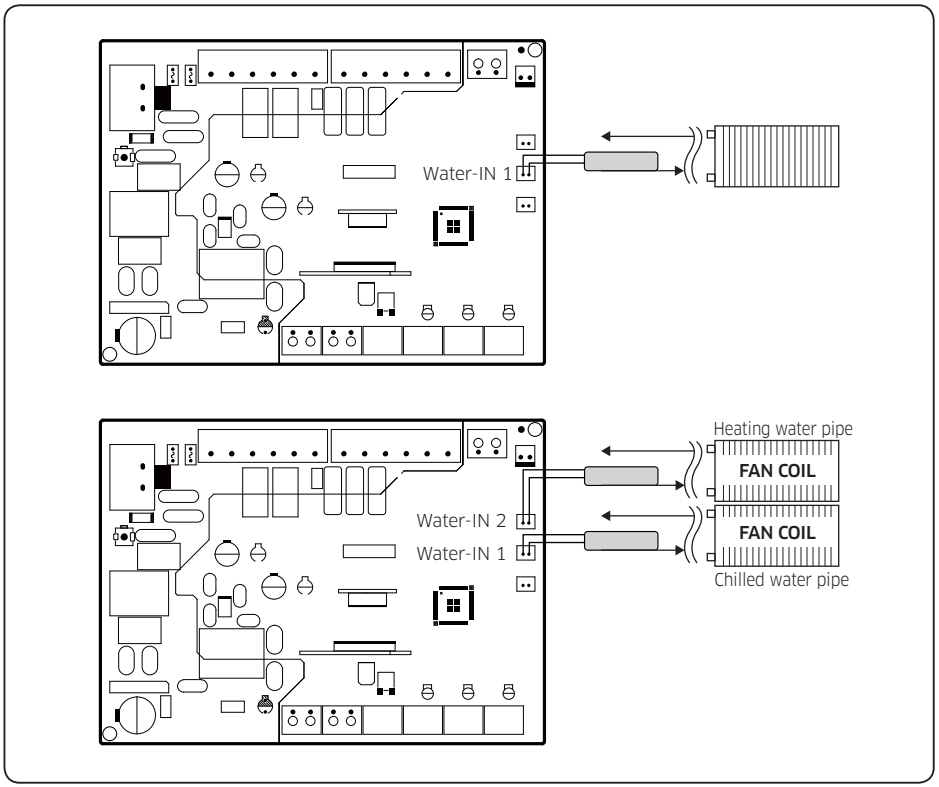
- Connect 3 Way valve power cable according to value of operation mode power output.
- Select each valve that is below 0.5 A of operation current.
- Installation option setting(05series, SEG14) is required to define 2 pipe or 4 pipe system.

FCU KIT installation

2 Sensor connection by FCU type

- Install water pipe sensor at inlet within 1 m from FCU.
- Connect the sensor after checking the installing location. (Refer to page 22 for sensor connection.)

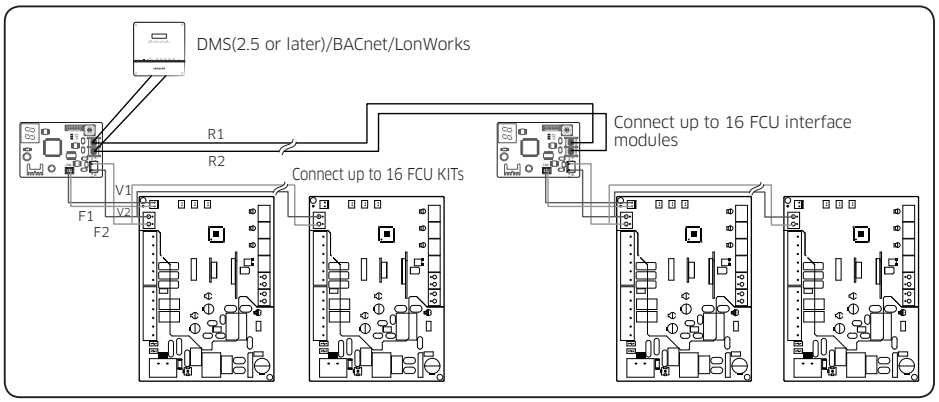




Pipe type	Location of PBA sensor	Location of pipe
2-pipe	Water-IN 1	Water inlet pipe
4-pipe	Water-IN 1	Chilled water inlet pipe
	Water-IN 2	Heating water inlet pipe

- When using 4-pipe system, set SEG14 of 05 series installation option as 1.
- In case of opposite installation of water pipe 1, 2 sensor in 4 pipe system, error(pipe block) will be occurred in 30minutes of operation(E992 or E993).

3 FCU interface module connection

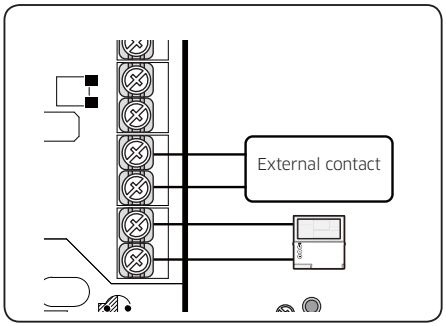


- Maximum number of FCU interface module and FCU KIT that can be installed to a channel of DMS is 16 and 128.

FCU KIT installation

4 External contact connection

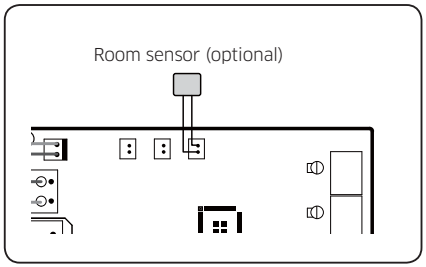
- In case of connecting external contact, set SEG14 of installation option according to the table.



Installation option SEG14	External contact status	
	Open	Close
0	Disuse	Disuse
1	FCU OFF, remote control possible	ON, remote control possible
2	FCU OFF, remote control impossible	Remain OFF, remote control possible
3	FCU OFF, remote control impossible	Remain operation status of FCU before external contact open • Operation ON of FCU before external contact open: FCU ON • Operation OFF of FCU before external contact open: FCU OFF • Remote control possible

5 Option room sensor (Model: MRW-TA)

- In case of installing room sensor as option, set installation option according to the table. (05series, SEG24 = 1)

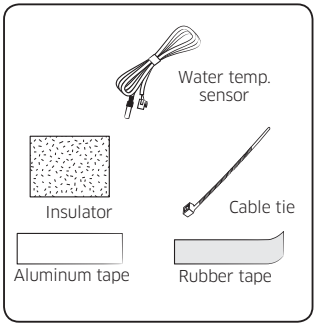


⚠ **CAUTION**

- Use either wired remote controller with built-in room sensor or external room sensor (MWR-TA) must be installed.

FCU KIT installation

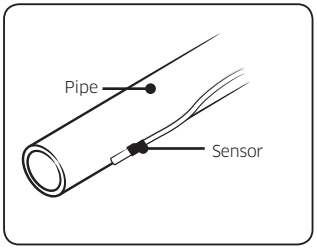
Installing water temperature sensor



1 Check the sensor and sensor holder.

NOTE

Pipe type	Location of PBA sensor	Classification	Diameter of sensor	Location of pipe
2-pipe	Water-IN 1	Pipe temperature sensor (Blue)	Ø7	Water inlet pipe
4-pipe	Water-IN 1			Chilled water inlet pipe
	Water-IN 2			Heating water inlet pipe

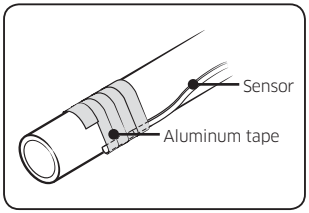


2 Stick the sensor to the pipe.

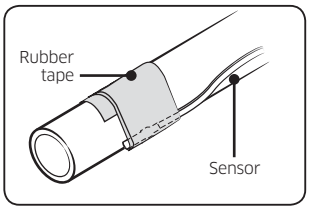
⚠ CAUTION

Attaching sensor

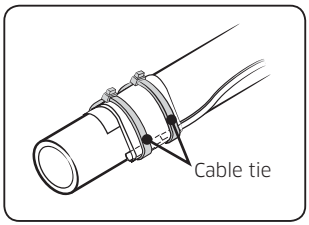
- Attach the sensor where temperature sensing is performed best.
- Stick the sensor as close as possible to attaching area.
- Do not use sensor holder.



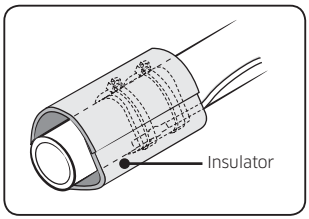
3 After fixing the sensor, stick the sensor to the pipe by using aluminum tape.



4 Cover the sensor by rubber tape.



5 Fix the sensor by cable tie.

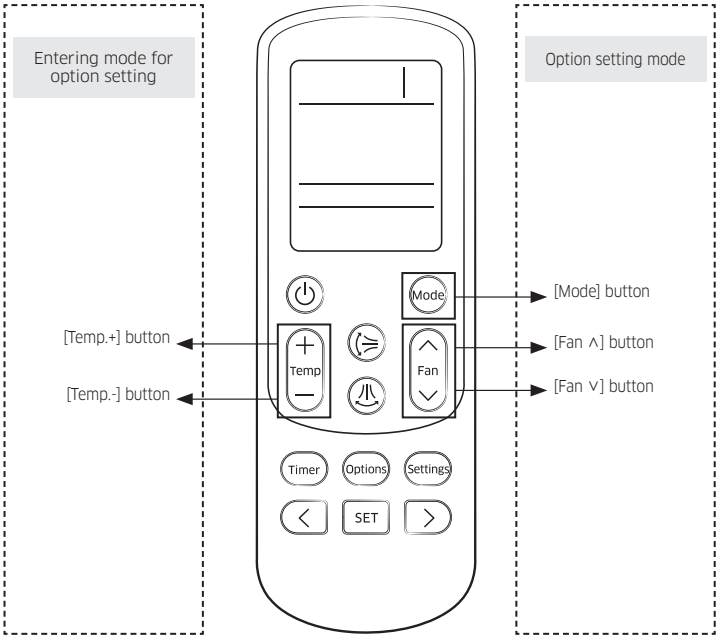


6 Attach insulator around sensor attached area.

Setting address of FCU KIT and installation option

Procedure of option setting

- Setting address of FCU KIT and installation option is set by remote controller option. It is also possible by wired remote controller and S-NET pro2.
- Remote controller receiver of wireless remote controller is included in FCU KIT PBA.



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 

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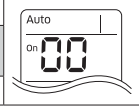
SETTING

Step 2. Procedure of option setting

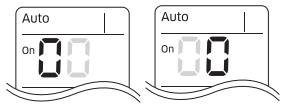
After entering the option setting stage, select the option as shown below.

⚠ CAUTION

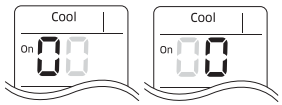
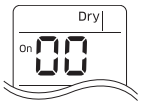
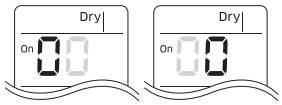
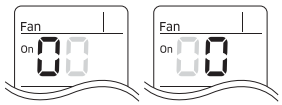
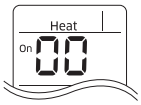
- 24 digits are available to be input for the option setting.
- SEG1, SEG7, SEG13, and SEG19 are page display option so they do not need to be set.
- Set the SEG2~SEG6, SEG8~SEG12 in 'ON' status and SEG14~18, SEG20~24 in 'OFF' status.

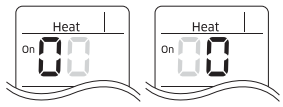
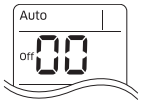
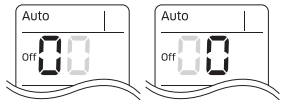
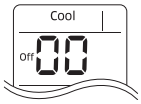
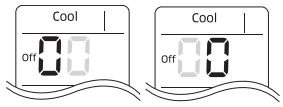
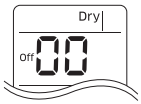
SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12	ON (SEG1 ~ SEG12)	OFF (SEG13 ~ SEG24)
0	X	X	X	X	X	1	X	X	X	X	X		
SEG13	SEG14	SEG15	SEG16	SEG17	SEG18	SEG19	SEG20	SEG21	SEG22	SEG23	SEG24		
2	X	X	X	X	X	3	X	X	X	X	X		

Setting an option

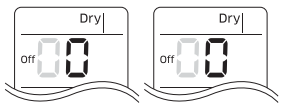
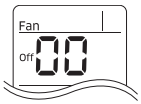
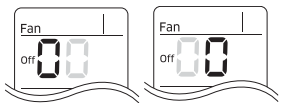
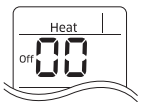
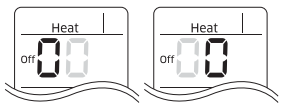
Status	Setting an option
 SEG2 SEG3	**1** Setting SEG2, SEG3 option Press [Fan∨] button to enter SEG2 value. Press [Fan ∧] button to enter SEG3 value. Each time you press the button, [SEG image] will be selected in rotation.
	**2** Setting Cool mode Press [Mode] button to change to Cool mode in the On status.

Setting address of FCU KIT and installation option

Status	Setting an option
 SEG4 SEG5	**3** Setting SEG4, SEG5 option Press [Fan∨] button to enter SEG4 value. Press [Fan ∧] button to enter SEG5 value. Each time you press the button, [SEG image] will be selected in rotation.
	**4** Setting Dry mode Press [Mode] button to change to Dry mode in the On status.
 SEG6 SEG8	**5** Setting SEG6, SEG8 option Press [Fan∨] button to enter SEG6 value. Press [Fan ∧] button to enter SEG8 value. Each time you press the button, [SEG image] will be selected in rotation.
	**6** Setting Fan mode Press [Mode] button to change to Fan mode in the On status.
 SEG9 SEG10	**7** Setting SEG9, SEG10 option Press [Fan∨] button to enter SEG9 value. Press [Fan ∧] button to enter SEG10 value. Each time you press the button, [SEG image] will be selected in rotation.
	**8** Setting Heat mode Press [Mode] button to change to Heat mode in the On status.

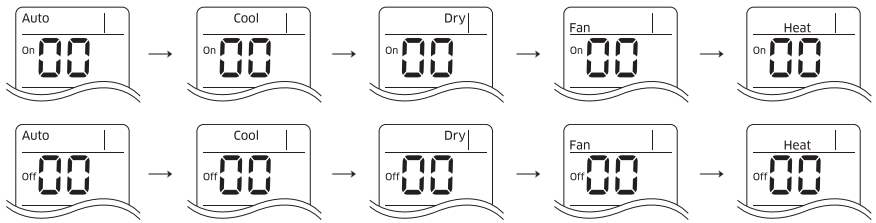
Status	Setting an option
 SEG11 SEG12	**9** Setting SEG11, SEG12 option Press [Fan∨] button to enter SEG11 value. Press [Fan ∧] button to enter SEG12 value. Each time you press the button, [SEG image] will be selected in rotation.
	**10** Setting Auto mode Press [Mode] button to change to Auto mode in the Off status.
 SEG14 SEG15	**11** Setting SEG14, SEG15 option Press [Fan∨] button to enter SEG14 value. Press [Fan ∧] button to enter SEG15 value. Each time you press the button, [SEG image] will be selected in rotation.
	**12** Setting Cool mode Press [Mode] button to change to Cool mode in the Off status.
 SEG16 SEG17	**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, [SEG image] will be selected in rotation.
	**14** Setting Dry mode Press [Mode] button to change to Dry mode in the Off status.

Setting address of FCU KIT and installation option

Status	Setting an option
 SEG18 SEG20	**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, [SEG image] will be selected in rotation.
	**16** Setting Fan mode Press [Mode] button to change to Fan mode in the Off status.
 SEG21 SEG22	**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, [SEG image] will be selected in rotation.
	**18** Setting Heat mode Press [Mode] button to change to Heat mode in the Off status.
 SEG23 SEG24	**19** Setting SEG23, SEG24 option Press [Fan∨] button to enter SEG23 value. Press [Fan ∧] button to enter SEG24 value. Each time you press the button, [SEG image] will be selected in rotation.

Step 3. Procedure of option setting

After option setting is complete, press the [Mode] button to check whether the setting value is correct or not.



Step 4. Inputting an option

Press [Power] button twice consecutively to remote controller receiver to finish the setting. Try more than two times to make sure that option is set.

Step 5. Check for operation

1 Check automatic reset when entering FCU KIT option, and check if it operates normally using wired remote controller.

2 Reset the power of FCU interface module after setting address. Unplug the V1, V2 connectors connected to FCU interface module and plug them again.

Setting address of FCU KIT and installation option

Setting address (MAIN/RMC) of FCU KIT

1 Check if power is supplied to FCU KIT.

- When the power is not supplied to FCU KIT, there should be additional power supply to it.

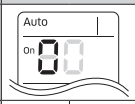
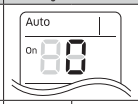
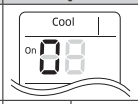
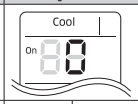
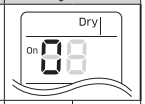
2 Remote controller receiver of wireless remote controller is included in FCU KIT PBA.

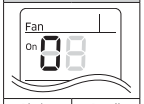
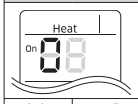
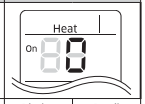
3 Depending on the installation condition of FCU KIT, address (MAIN/RMC) to each FCU KIT should be set.

4 Set the FCU KIT address (MAIN/RMC) by using a remote controller.

- The default setting value of the FCU KIT address (MAIN/RMC) is "0A0000-100000-200000-300000".

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

Option	SEG1		SEG2		SEG3		SEG4		SEG5		SEG6	
Description	Page		Mode		Setting main address		Hundreds digit of address		Tens digit of address		Ones digit of address	
Remote controller display												
Display/detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail
	0		A		0	No main address	0	Hundreds digit	0~9	Tens digit	0~9	Ones digit
					1	Address setting mode						

Option	SEG7		SEG8	SEG9		SEG10	SEG11		SEG12	
Description	Page			Setting RMC address			Group channel(*16)		Group address	
Remote controller display										
Display/detail	Display	Detail	No function	Display	Detail	No function	Display	Detail	Display	Detail
	1			0	No main address		RMC1	0~F	RMC2	0~F
				1	Address setting mode					

⚠ **CAUTION**

- Main address (SEG5 ~ SEG6) can be set in range of 0 ~ 47.
- When using automatic address setting, FCU interface module automatically assigns FCU KIT address between 00 ~ 15.
- If you set the SEG 3 as 0, the FCU KIT will maintain the existing main address even if you input the option value of SEG5 ~ SEG6.
- If you set the SEG9 as 0, the FCU KIT will maintain existing RMC address even if you input the option value of SEG11 ~ SEG12.

Setting FCU KIT installation option

1 Check if power is supplied to FCU KIT.

- When the power is not supplied to FCU KIT, there should be additional power supply to it.

2 Remote controller receiver of wireless remote controller is included in FCU KIT PBA.

3 Depending on the installation condition of FCU KIT, installation option to each FCU KIT should be set.

4 Set the FCU KIT installation option by using a remote controller.

- The default setting value of the FCU KIT installation option is "020000-100000-200000-300000".

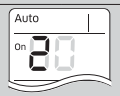
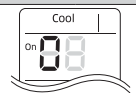
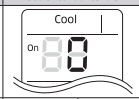
Setting address of FCU KIT and installation option

02 series installation option

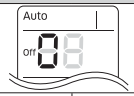
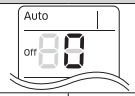
SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
0	2	-	Fan control when Thermo Off	Central control	-
SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
1	-	-	-	-	-
SEG13	SEG14	SEG15	SEG16	SEG17	SEG18
2	External control	External control output	-	-	-
SEG19	SEG20	SEG21	SEG22	SEG23	SEG24
3	-	Heating setting compensation	-	-	-

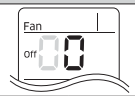
- SEG5 (Central control) is set as 1 (Use) in default setting. Setting option is not necessary when using central control. Error will not occur even when central control is not connected, and change the value to 0 (Disuse) when excluding indoor unit from central control.
- When setting the option other than above SEG values, the option will be set as “0”.

Option No. : 02XXXX-1XXXXX-2XXXXX-3XXXXX

Option	SEG1		SEG2		SEG3		SEG4(*1)				SEG5		SEG6	
Description	Page		Mode		-		Fan control when Thermo Off				Use of central control		-	
Remote controller display					-								-	
Display/detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail Fan stop when Cool/ Heat Thermo Off	Detail Minimal fan operation when Heat Thermo Off	Detail Minimal fan operation when Cool Thermo Off	Display	Detail	Display	Detail
	0		2		-		0	Disuse	Disuse	Disuse	0	Disuse	-	
							1	Enable	-	-	1	Enable		
							2	Disuse	Enable	Disuse				
							3	Enable	-	-				
							4	Disuse	Disuse	Enable				
							5	Enable	-	-				
							6	Disuse	Enable	Enable				
							7	Enable	-	-				

Option	SEG7		SEG8		SEG9		SEG10		SEG11		SEG12	
Description	Page		-		-		-		-		-	
Remote controller display			-		-		-		-		-	
Display/detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail
	1		-		-		-		-		-	

Option	SEG13		SEG14		SEG15		SEG16		SEG17		SEG18	
Description	Page		Use of external control		Setting the output of external control		-		-		-	
Remote controller display							-		-		-	
Display/detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail
	2		0	Disuse	0	Thermo ON	-		-		-	
			1	ON/OFF control	1	Operation ON						
			2	OFF control								
			3	Window ON/ OFF control								

Option	SEG19		SEG20		SEG21		SEG22		SEG23		SEG24	
Description	Page		-		Heating setting compensation offset		-		-		-	
Remote controller display			-				-		-		-	
Display/detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail
	3		-		0	0 ℃ (0 °F)	-		-		-	
					1	2 ℃ (3.6 °F)						
					2	5 ℃ (9 °F)						

(*1) Minimal fan operation when Thermo Off

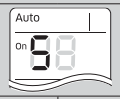
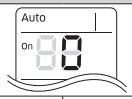
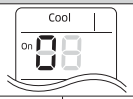
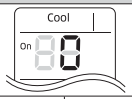
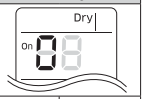
- Fan operates for 20 seconds every 5 minutes in Heat mode.
- Fan stops in Cool mode.

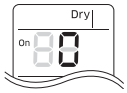
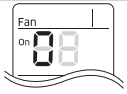
Setting address of FCU KIT and installation option

05 series installation option

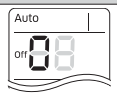
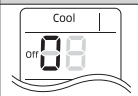
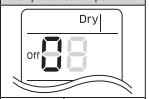
SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
0	5	Use Auto Change Over for 4-pipe only	(When setting SEG3) Standard heating temp. offset	(When setting SEG3) Standard cooling temp. offset	(When setting SEG3) Standard for mode change Heating → Cooling
SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
1	(When setting SEG3) Standard for mode change Cooling → Heating	(When setting SEG3) Required time for mode change	-	-	-
SEG13	SEG14	SEG15	SEG16	SEG17	SEG18
2	FCU KIT pipe installation structure	-	Valve open control when Thermo Off	-	FCU cool air prevention compensation temperature
SEG19	SEG20	SEG21	SEG22	SEG23	SEG24
3	-	-	-	Setting cool/heat air prevention skip	FCU KIT external room sensor

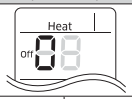
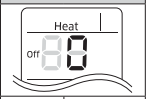
Option No. : 05XXXX-1XXXXX-2XXXXX-3XXXXX

Option	SEG1		SEG2		SEG3		SEG4		SEG5		SEG6	
Description	Page		Mode		Use Auto Change Over for 4-pipe only		(When setting SEG3) Standard heating temp. offset		(When setting SEG3) Standard cooling temp. offset		(When setting SEG3) Standard for mode change Heating → Cooling	
Remote controller display												
Display/ detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail
	0		5		0	Follow product option	0	0 °C (0 °F)	0	0 °C (0 °F)	0	1 °C (1.8 °F)
					1	Use Auto Change Over for 4-pipe only	1	0.5 °C (0.9 °F)	1	0.5 °C (0.9 °F)	1	1.5 °C (2.7 °F)
							2	1 °C (1.8 °F)	2	1 °C (1.8 °F)	2	2 °C (3.6 °F)
							3	1.5 °C (2.7 °F)	3	1.5 °C (2.7 °F)	3	2.5 °C (4.5 °F)
							4	2 °C (3.6 °F)	4	2 °C (3.6 °F)	4	3 °C (5.4 °F)
							5	2.5 °C (4.5 °F)	5	2.5 °C (4.5 °F)	5	3.5 °C (6.3 °F)
							6	3 °C (5.4 °F)	6	3 °C (5.4 °F)	6	4 °C (7.2 °F)
							7	3.5 °C (6.3 °F)	7	3.5 °C (6.3 °F)	7	4.5 °C (8.1 °F)

Option	SEG7		SEG8		SEG9		SEG10		SEG11		SEG12	
Description	Page		(When setting SEG3) Standard for mode change Cooling → Heating		(When setting SEG3) Required time for mode change		-		-		-	
Remote controller display							-		-		-	
Display/ detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail
	1		0	1 °C (1.8 °F)	0	5 min.	-		-		-	
			1	1.5 °C (2.7 °F)	1	7 min.						
			2	2 °C (3.6 °F)	2	9 min.						
			3	2.5 °C (4.5 °F)	3	11 min.						
			4	3 °C (5.4 °F)	4	13 min.						
			5	3.5 °C (6.3 °F)	5	15 min.						
			6	4 °C (7.2 °F)	6	20 min.						
			7	4.5 °C (8.1 °F)	7	30 min.						

Setting address of FCU KIT and installation option

Option	SEG13		SEG14		SEG15		SEG16		SEG17		SEG18	
Description	Page		FCU KIT pipe installation structure		-		Valve open control when Thermo Off		-		FCU cool air prevention compensation temperature	
Remote controller display					-				-			
Display/ detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail
	2		0	2-pipe	-		0	Valve close (normally close type)	-		0	0 °C (0 °F)
			1	4-pipe			1	Valve open (normally close type)			1	1 °C (1,8 °F)
											2	2 °C (3,6 °F)
											3	3 °C (5,4 °F)
											4	4 °C (7,2 °F)
											5	5 °C (9,0 °F)
											6	6 °C (10,8 °F)
											7	7 °C (12,6 °F)
											8	-7 °C (-12,6 °F)
											9	-6 °C (-10,8 °F)
											A	-5 °C (-9,0 °F)
											B	-4 °C (-7,2 °F)
											C	-3 °C (-5,4 °F)
											D	-2 °C (-3,6 °F)
											E	-1 °C (-1,8 °F)
											F	0 °C (0 °F)

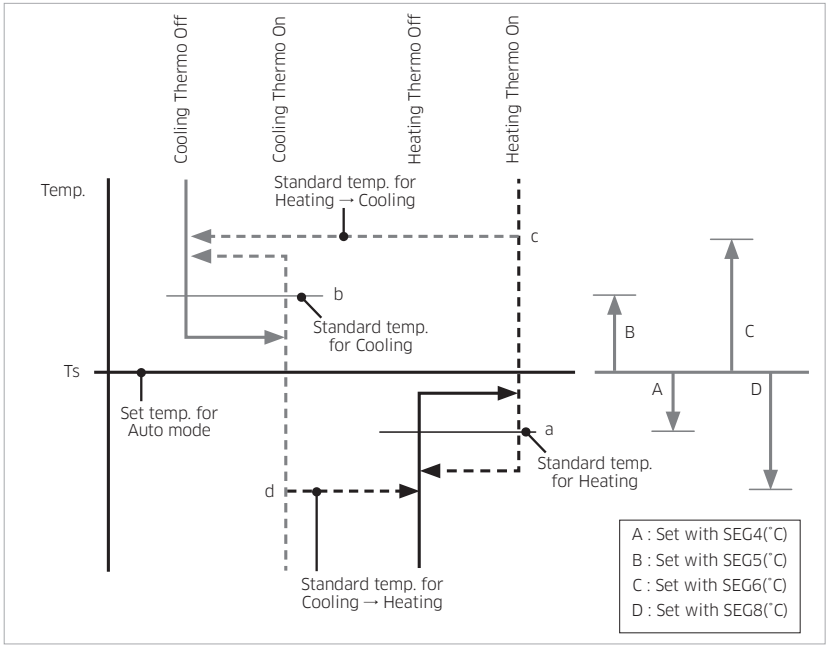
Option	SEG19		SEG20		SEG21		SEG22		SEG23		SEG24	
Description	Page		-		-		-		Setting cool/warm air prevention skip		FCU KIT external room sensor	
Remote controller display			-		-		-					
Display/ detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail
	3		-		-		-		0	Use in cool Use in heat	0	Disuse
									1	Disuse in cool Use in heat	1	Enable
									2	Use in cool Disuse in heat		
									3	Disuse in cool Disuse in heat		

- Valve open control when Thermo Off: Set to open valve when Thermo Off in case of applying Close type water valve (Valve closes normally if it is not set.)
- FCU cool air prevention compensation temperature: Temperature for preventing cool air can be controlled.
  - Default temp. + SEG18 ≥Water-IN temp. (℃): Heating fan On
  - Default temp. + SEG18 < Water-IN temp. (℃): Heating fan Off
- Fan speed can be various according to the water in temperature.

- Warm air prevention in cooling
  - Room < Water-IN temp. (℃) - 1 ℃: Fan Off
  - Room > Water-IN temp. (℃): Fan On
- In case of using external temperature sensor or minimal fan operation function, external temperature sensor or wired remote controller should be connected. (Internal temperature sensor option of wired remote controller should be set "Use" to use the function. Refer to installation manual of wired remote controller.)

SEG3, 4, 5, 6, 8, 9 additional information

When the SEG3 is set as "1" and follow Auto Change Over for 4-pipe only operation, it will operate as follows.

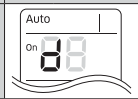
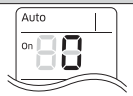
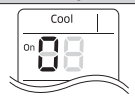
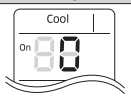
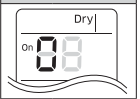


Cooling/Heating mode can be changed when Thermo Off status is maintained during the time with SEG9.

Setting address of FCU KIT and installation option

Changing a particular option

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		Ones digit of option SEG to change		Value to be changed	
Remote controller display												
Display/ detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail	Display	Detail
	0		D		Option mode	0~F	Tens digit of SEG	0~9	Ones digit of SEG	0~9	Value to be changed	0~9

NOTE

- Set SEG3 as "A" when changing one digit of FCU KIT address setting option.
- Set SEG3 as "2" when changing one digit of FCU KIT installation option.
  - Ex) When setting the 'Central control' into Use status

Option	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6
Description	Page	Mode	Option mode to change	Tens digit of option SEG to change	Ones digit of option SEG to change	Value to be changed
Setting	0	D	2	0	5	1

SETTING

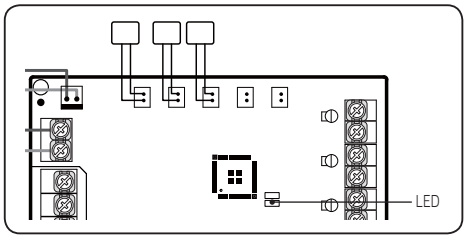
Troubleshooting

Error code

Operation and error status can be checked by LED of FCU KIT.

Error code	R-LED	Y/G-LED	Error	Solutions
162	ON	OFF	EEPROM error	Change EEPROM
163	OFF	ON	Option input error	Reset option
Communication error	ON	ON	Communication error (between interface modules or wired remote controller)	Check communication status between FCU KIT and interface module or wired remote controller
-	OFF	OFF	Power not supplied	Check power supply
-	Blinking	Blinking	Normal	

Error code	Error description
E121	Indoor temperature sensor error (Open/Short)
E990	Water-IN 1 sensor error (Open/Short)
E991	Water-IN 2 sensor error (Open/Short)
E101	Communication error between indoor and outdoor unit when there is no communication for 2 minutes
E201	Communication error on interface module detection – Incomplete interface module tracking in 10 minutes – Mixed installation of FCU KIT and indoor unit – Exceeding maximum installation number of FCU KIT (16)
E108	Error on repeated communication address
E109	Uncomplete setting communication address
E992	Sensor detached or water blocked in Cool mode
E993	Sensor detached or water blocked in Heat mode
E198	Thermal fuse open error
E162	EEPROM error
E163	EEPROM option error



Inspection and test operation

Checking FCU KIT installation

- Check if FCU KIT is installed properly.
  - Check if cables of FCU KIT are properly connected.
  - Check if FCU KIT is installed vertically or horizontally.
  - Install FCU KIT avoiding condensation area and water pipe line.
  - Tighten wire holder to fix power and communication cable.
  - Check if the locations of FCU KIT sensor and valve is appropriate.
  - Check if the location of sensor is placed at inlet and the sensor is attached to the pipe.

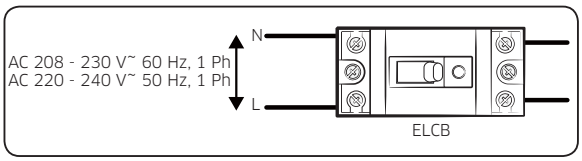
Trial operation

1 Before supplying the power, use DC 500 V insulation resistance tester to measure the insulation resistance of power (L, N) terminal and FCU KIT grounding.

- Measurement should be over 30 MΩ.

⚠ CAUTION

- Do not measure the communication terminal as the communication circuit can be damaged.
- Use common circuit tester on communication terminal to check open or short.



2 Check the power voltage (L, N) before supplying power and then turn on the switch.

3 After completing the installation, check the followings to make sure FCU KIT operates without a problem.

- Heat resistance of water pipe insulator
- Power connection
- Circuit breaker connection, grounding
- Operation of each operation mode for system
- Operation of 2 Way valve according to operation mode

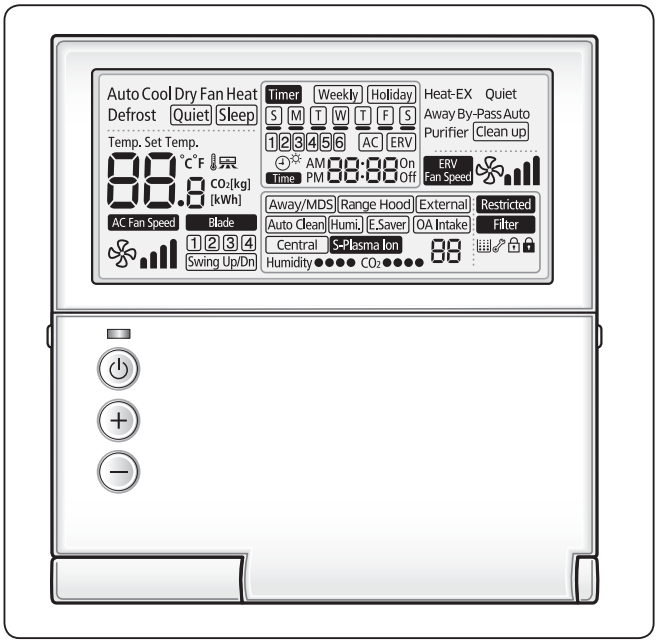
⚠ **CAUTION**

Solution for mixed operation prevention

- This function is to prevent DVM CHILLER and FCU (KIT) from operating in different modes.
  - Ex.) The situation that cool air comes out since DVM CHILLER is operating in Cool mode and FCU is operating in Heat mode in 2-pipe system
  - If Lock function is set on DMS2.5 or Touch centralized controller: Other operation modes cannot be operated by FCU KIT if administrator selected Cool/Heat mode and set Lock function on DMS2.5 or Touch centralized controller
  - If Lock function is not set on DMS2.5 or Touch centralized controller: Refer for maintenance that it detects water outlet temperature and stops fan after 10 minutes if temperature is not appropriate, and error message will occur if the fan is stopped for more than 30 minutes (E992, E993).

Function of wired remote controller

Display



- The following function of FCU KIT can only be used when using wired remote controller.
  - Operation On/Off
  - Auto/Cool/Fan/Heat mode
  - Setting temperature (Temperature range: Cool 18 ~ 30 °C (65 ~ 86 °F), Heat 16 ~ 30 °C (61 ~ 86 °F))
  - Fan speed (Auto, High, Mid, Low)
  - Timer

※Other functions do not work when pressing the button.

- Refer to user manual of wired remote controller for more details on using.

Memo