

History

Version	Modify	Date	Etc.
Ver.1.0	Release "System Air-conditioner Control System Guide" TDB	16.10.20	

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Solution

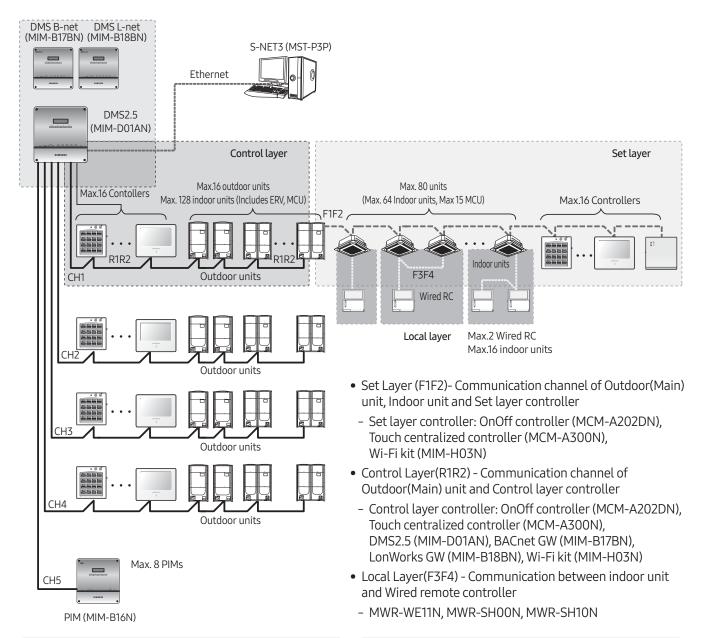
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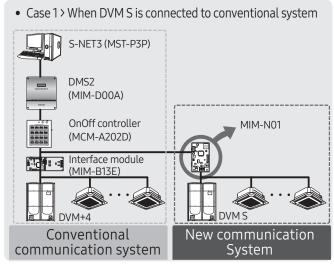
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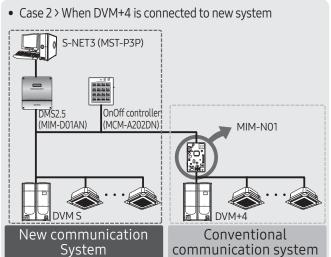
Individual Control System

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Overview of DVM S New communication system diargram



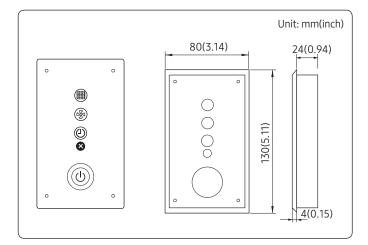




Receiver KIT

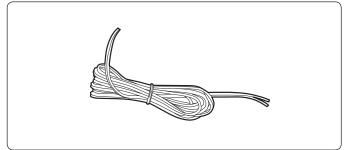
MRK-A10N

Features



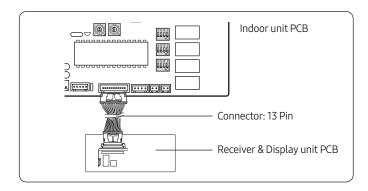
Receiver & Display Unit

- Concealed wireless signal receiver
- Filter replacement sign
- Fan operation display
- Operation Timer setting display
- Operation On/Off button
- Operation On display LED (blue)
- Defrost operation display LED (red)



Receiver wire

Wiring



- Connect one end of the receiver wire with the Receiver & Display unit PCB.
- Connect the other end of the receiver wire with the duct type indoor unit PCB.

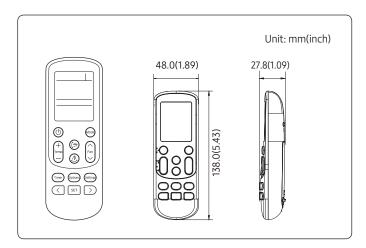
Note

- Wire length: 10m (42.65ft)
- Receiver & Display unit is only available for a duct type indoor unit.

Wireless Remote Controller

MR-EH00 (MR-EH00R)*

Features

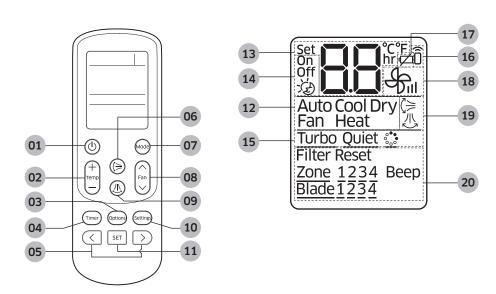


Easy and convenient operation control

- Operation ON/OFF control
- Fan speed control
- Operation temperature setting
- Filter replacement alarm reset
- Air swing control
- Simple ON/OFF timer
- Indoor unit option code setting
- Option/Setting selection

	MWR-EH00	MWR-EH01
Heating Operating Temperature range	18°C ~ 30°C	8°C ~30 °C

Description of parts



١	No	Name	Description	
C	01	On/Off button	Press this button to turn On/Off the indoor unit.	
C	02	Temperature button	Press this button to increase/decrease the set temperature by 1°C(1°F).	

Wireless Remote Controller > MR-EH00 (MR-EH00R)*

No	Name	Description
03	Option button	Selects options during operation.
04	Timer button	Sets timer option.
05	Direction button	Moves to select and set an option.
06	Air flow direction (Up and down) button	Press this button to activate/deactivate vertical air flow movement. (Not applicable to Duct type model)
07	Operation mode button	Press this button to select one of the 5 operation modes. (Auto, Cool, Dry, Fan, Heat)
08	Fan speed button	Press this button to select one of the fan speeds. (Auto, Low, Medium and High.)
09	Air flow direction (Left and right) button	Press this button to activate/deactivate horizontal air flow movement.
10	[Setting] button	Selects settings.
11	Set/Cancel button	Selects or cancels an option.
12	Operation mode indicator	Indicates the operation mode.
	Set temperature & On/Off set time indicator	Basic – Indicates the set temperature.
13		Timer setting – Indicates the On/Off set time.
14	On/Off timer indicator	Indicates the On/Off timer setting.
15	[Option] indicator	Indicates the selected [Option] - Turbo, Quiet, SPI
16	Transmission indicator	Indicates when wireless signal is received (by pressing any buttons).
17	Low battery indicator	Indicates the battery life.
18	Fan speed indicator	Indicates the fan speed settings.
19	Air swing indicator	Indicates when vertical or horizontal air flow movement.
20	[Setting] indicator	Indicates the selected [Setting] - Filter reset, indoor unit selection, Beep, Blade selection

()* is used in Turkey.

Wireless Remote Controller > MR-EH00 (MR-EH00R)*

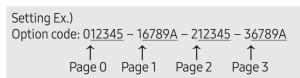
Additional function

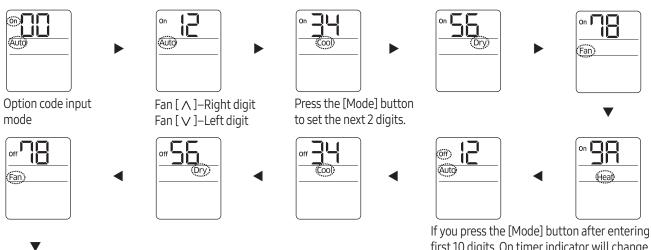
Option code setting

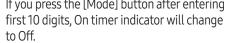
- 1 Remove the batteries from the remote controller.
- Press the Temp [+] and [-] button at the same time and insert the batteries.
- Set the 2 digits of option code. If you press the Fan $[\Lambda]$ button, you can change the right digit. If you press the Fan [V] button, you can change the left digit.
- Press the [Mode] button to set the next 2 digits of option code. Input 20 digits in total.
- Press the (1) button more than twice to set the indoor unit option code. (When indoor unit option code is set, a beep will sound. When the setting is incorrect, all the LED on the indoor unit panel will flicker.)



• Option code is composed with total of 24 digits including page number. From the wireless remote controller, enter the option code without page number.







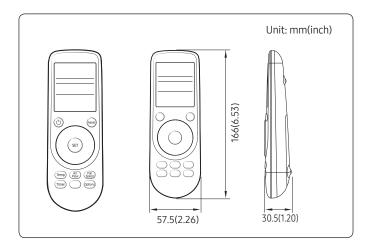


Press the [Power] button more than two times towards the indoor unit.

Wireless remote controller

AR-KH00E (AR-KH00R)*

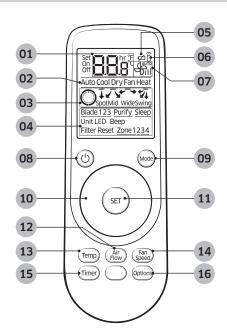
Features



Easy controlling with the wheel

- 360 cassette air flow direction control
- Operation ON/OFF control
- Fan speed control
- Operation temperature setting
- Filter replacement alarm reset
- Simple ON/OFF timer
- Indoor unit option code setting

Description of parts



No	Name	Description
	Set temperature/ • Basic – Indicates the set temperature.	
01	Timer indicator	 Timer setting – Indicates the ON/OFF set time.
02	Operation mode indicator	Indicates the operation mode.
03	Air flow direction indicator	Indicates the air flow direction (Spot, mid, wide, swing)

Wireless Remote Controller > AR-KH00E (AR-KH00R)*

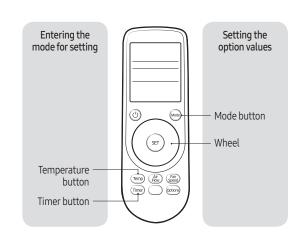
No	Name	Description
04	Options indicator	Indicates the option function setting. (Filter reset, Beep, Zone, etc)
05	Low battery indicator	Indicates the battery life.
06	Signal transmission indicator	Indicates when wireless signal is received. (by pressing any buttons)
07	Fan speed indicator	Indicates the fan speed setting.
08	Power button	Press the button to turn On/Off the indoor unit.
09	Mode button	Press the button to select operation mode. (Auto, Cool, Dry, Fan, Heat)
10	Wheel	You can control the set temperature, fan speed, and air flow direction by rotating the Wheel.
11	SET button	Press the button to confirm the selection.
12	Temperature button	If you press the button then the set temperature will be increased by 0.5°C(0.5°F)
13	Air flow direction button	Press the button to select air flow direction.
14	Fan speed button	Press the button to select fan speed.
15	Timer button	Press the button to set timer option.
16	Options button	Press the button to select option function.

Additional function

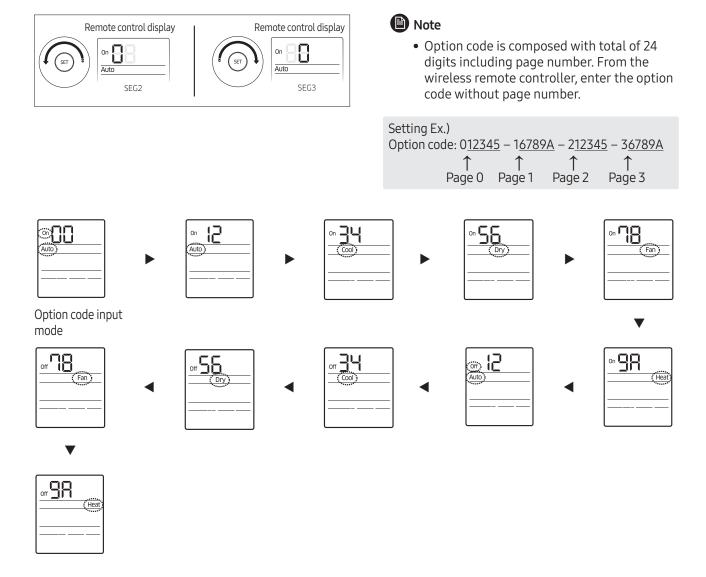
■ Option code setting

- Remove the batteries from the remote control.
- While holding down the and time buttons simultaneously, insert the batteries into the remote control.
- Set the 2digits of option code
 - If you rotate the wheel counterclockwise, you can change the left digit.
 - If you rotate the wheel clockwise, you can change the right digit.
- Press the button to set the next 2 digits of option code. Input 20 digits in total
- Press the (b) button more than twice to set the indoor unit option code. (When indoor unit option code is set, a beep will sound.

When the setting is incorrect, indoor unit will display error.)



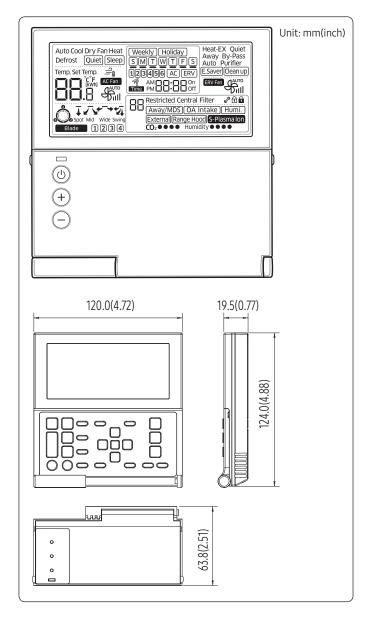
Wireless Remote Controller > AR-KH00E (AR-KH00R)*



Wired Remote Controller

MWR-WE11N (MWR-WE11RN)*

Features



Air conditioner/ERV control

- AC operation ON/OFF control
- AC operation mode, setting temperature, fan speed, air flow direction setting
- AC individual blade control (Function is available when indoor units support any of above functions)
- ERV operation ON/OFF control
- ERV operation mode, fan speed setting
- AC/ERV error monitoring
- Filter cleaning alert and reset alert time
- Individual/group control, indoor unit/ERV interlocking
- Energy saving control
- Control maximum 16 "Indoor unit + ERV" in group with single wired remote controller

Energy saving operation

- Upper/Lower temperature limit setting
- Automatic operation stop: Automatically stops the operation, when it is not used for certain period of time set by user

Weekly operation schedule setting

- Weekly operating schedule (A/C only, ERV only, A/C+ERV)
- Able to set desired AC operation mode, setting temperature and fan speed to operate based on weekly reservation
- Able to apply schedule exception day

User convenience function

- Child lock
- Different button permission levels (Operation mode, temperature setting, ON/OFF, fan speed)
- Real-time clock: Displays current time, day (Summer time support)
- Built-in room temperature sensor
- Service mode support
 - Indoor unit cycle data monitoring
 - Indoor unit option code setting and monitoring
 - Indoor unit address setting and monitoring

Product specification

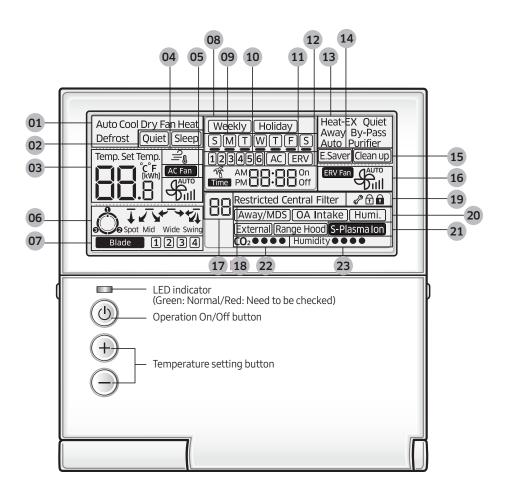
Power Supply	Power Consumption	Operating Temperature range	Operating Humidity range	Communication
DC 12V	2W	0°C~40°C (32°F~104°F)	30%RH~90%RH	2-wire PLC

Compatible product

Indoor unit	FCU KIT
AM****N****Model	MIM-F00N

Description of parts

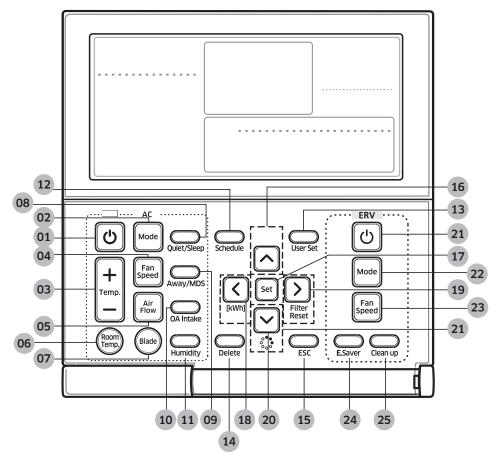
Display



Classificat	ion	Indication	Function
	01	Auto Cool Dry Fan Heat Defrost	Displays air conditioner operation
	02	[Quiet] [Sleep]	Displays Quiet/Sleep operation
Air Conditioner Related	03	Temp. Set Temp.	Displays indoor temperature/set temperature/power consumption
Information	04		Displays discharge temperature control
	05	AC Fan	Displays AC fan speed
	06	Spot Mid Wide Swing	Displays air flows
	07	Blade 1234	Displays blade selection
	08	Weekly Holiday	Weekly schedule/Holiday setting displays
Cebodulo	09	SMTWTFS	Displays current day(□) or scheduled day(_)
Schedule related information	10	123456	Displays scheduled number
	11	(AC) (ERV)	Displays scheduled device selection
	12	AM O O On Time PM O O Off	Displays current time/summer time/scheduled time
	13	Heat-EX Quiet Away By-Pass Auto Purifier	Displays ventilator (ERV) operation
Ventilator (ERV) related	14	E.Saver	Displays Energy Saving Operation
information	15	(Clean up	Displays Clean up
	16	ERV Fan JAUTO	Displays ventilator (ERV) fan speed
	47		Displays remaining time of the auto stop time/ERV delay time - Solid: Hour unit, Blinking: Minute unit
	17		Displays Demand Response Mode during a Demand Response Event : d , d , d , d , d . (It is applicable to some models for Australia only.)
	18	Restricted Central Filter	Displays invalid operation/central control/filter cleaning (filter cleaning period)
Common function	19	<i>₽</i> 🕣 🖬	Displays check/partial locking/full locking
related information	20	Away/MDS OA Intake Humi. External Range Hood	Displays Away/Motion detect sensor/Outdoor air supply intake/ Humidifying/External interconnection control/Range hood
	21	S-Plasma Ion	Displays S-Plasma Ion
	22	CO₂●●●	Displays indoor CO2 density
	23	Humidity ● ● ●	Displays indoor humidity

()* is used in Turkey.

Buttons



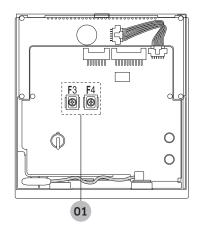
Classificat	tion		Indication	Function			
	01	O	Operation On/Off button	Turns the air conditioner power On/Off			
	02	Mode	Mode button	Selects the desired air conditioner operation			
	03	+ Temp.	Temperature setting button	Sets the desired temperature			
Air	04	Fan Speed	Fan speed button	Changes the air conditioner's fan speed			
conditioner related	05	Air	Air Flow button	Changes the air flow direction			
button	06	Room Temp.	Temp. button	Checks the indoor temperature			
	07	Blade	Blade button	Selects a blade for individual control			
	08	Quiet/Sleep	Quiet/Sleep button	Selects Quiet or Sleep operation for the air conditioner			
	09	Away / Motion detect sensor button		Selects when no one is detected in an indoor area, when the air conditioner needs to be turned off automatically, when the AWAY operation is set;			

Classificat	ion		Indication	Function				
Air conditioner	10	OA Intake	Outdoor air intake	Selects the MINI AHU indoor unit Outdoor intake function				
related button	11	Humidity	Humidity button	Turns the MINI AHU indoor unit humidifying function On/Off				
	12	Schedule	Schedule Button	Selects the schedule setting function				
	13	User Set	User Set Button	Selects the detailed setting function				
	14	Delete	Delete button	Cancels the schedule setting				
Special	15	ESC	ESC button	Returns to general mode from schedule and detailed setting screens				
	16	Now Province	Navigational buttons	Moves between items or change the item value				
function displays	17	Set button		Saves your new settings				
	18	[kWh]	kWh button	Displays the amount of the power consumption				
	19	Filter Reset	Filter Reset button	Turns off the filter cleaning displays (filter using time reset)				
	20		S-Plasma Ion button	Selects the S-Plasma Ion function				
	21	O	Operation On/Off button	Turns the Ventilator(ERV) On/Off				
	22	Mode	Mode button	Selects the desired operation for the Ventilator(ERV)				
Ventilator (ERV) related -	23	Fan Speed	Fan speed button	Changes the fan speed for your Ventilator(ERV)				
buttons	24	E.Saver	E.Saver button	Starts Energy Saving Operation				
	25	Clean up	Clean up button	Selects air purification through the in/out load controls				

Note

- After cleaning the filter, please press the Filter Reset button. The Filter lamp will turn off, and it will be turned on again upon the next cleaning period.
- If you press a functional button not supported by the indoor unit, then the Restricted lamp will turn on.
- If the temperature display setting is set to indoor temperature and you press the Room Temp. button, the Restricted lamp display will appear. (When you install the Wired Remote Controller, the setting is available.)
- If you press the On/Off $oldsymbol{\phi}$ button when your Ventilator(ERV) is connected to a Wired Remote Controller, then the air conditioner and the Ventilator(ERV) might operate or stop at the same time or only the air conditioner might operate or stop. The factory setting is set to simultaneous operation/stop. (When you install the Wired Remote Controller, the setting is available.)
- Although the air conditioner and the Ventilator(ERV) are set to simultaneous operation/stop, you can individually control the air conditioner and the Ventilator(ERV) by using another controller (e.g. wireless remote controller, central controller, S-net mini) except for a Wired Remote Controller.

Description of parts (PCB)



No.	Name	Description
01	Communication and power wiring terminal	Connection with indoor unit (F3/F4)



• MWR-WE11N uses 2-wire power line communication.

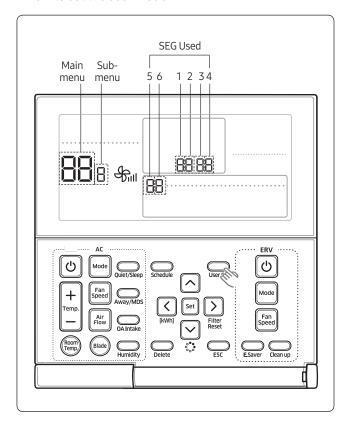
Option function

■ User setting mode

Main menu	Sub menu	Fund	tion	SEG Used	Default	Range	Unit
1		Auto stop time s	etting/checking	1,2	0	0~12 hours	1 hour
2		Temp limits [°C(°F)]	Lowest temperature	1,2	16 (61)	16~30°C (61~86°F)	1°C(1°F)
		remptimits [C(F)]	Highest temperature	3,4	30 (86)	18~30°C (65~86°F)	1°C(1°F)
		All	ock	1	0	0 – Unlock, 1 - Lock	-
		Lock of partial button	On/Off button	2	0	0 – Unlock, 1 – Lock	-
3			Mode button	3	0	0 – Unlock, 1 – Lock	-
			Temperature button	4	0	0 – Unlock, 1 – Lock	-
			Fan speed button	5	0	0 – Unlock, 1 – Lock	-
			Schedule button	6	0	0 – Unlock, 1 – Lock	-
4	1	Current da (Year, Mo	1,2/ 3,4/ 5,6	10/01/01	00~99/1~12/1~31	YY/ MM/DD	
4	2	Current Time Setting (Day, Hour, Minute)		Day/ Am,Pm /1,2/3,4	Friday/ PM /12/00	Sun~Sat/AM~PM/0~12/0~59	Day/ Hour/ Minute

Main menu	Sub menu	Fund	tion	SEG Used	Default	Range	Unit
	1	Summer Time Use and	Use of summer time (Y/N)	1	0	0 – No use, 1 – Use	-
		Setting Methods	Summer Time Application Method	2	0	0 – Weekly, 1 – Daily	-
5	2	Summer time Start (? Month		1,2/4	03/F	1~12th month/ 1~4,F (last week)th week	-
	3	Summer time End (? Month	, ? th Sunday)	1,2/4	10/F	1~12th month/ 1~4,F (last week)th week	-
	4	Summer tim Start (? Month		1,2/3,4	03/22	Jan~Dec/1~31th day	Month, date
	5	Summer tim End (? Month	•	1,2/3,4	09/22	Jan~Dec/1~31th day	Month, date
		Backlight Time S	1,2	5	0~30 sec	1 sec	
6		Use of LED(0	3	1	0 – No use, 1 – use	-	
		Use of LED	(Red) (Y/N)	4	1	0 – No use, 1 – use	-
7		Ventilator (ERV) delay time setting/checking [When using Ventilator	Ventilator (ERV) Delay Application (Y/N)	1	0	0 – No use, 1 – use	-
		(ERV) interlocking control]	Delay Time	3,4	30	30~60 minutes	1 min.
0		Reset to user r (except the c		1	0	0 – No use, 1 – Reset	-

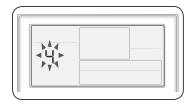
• How to set the user mode



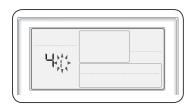
- If you want to set the detailed settings, press the [User Set] button.
 You will enter the User Set mode, and the [Main Menu]
 - will be displayed.
- 2 Refer to the Wired Remote Controller's user setting mode table on the previous page to select the desired menu.
 - a Using the [∧]/[∨] buttons, select a main menu number and press the [>] button to enter the submenu setting screen.
 - **b** Using the [∧]/[∨] buttons, select a sub-menu number and press the [>] button to enter the data setting screen.
 - **c** Once you have entered the setting screen, the current setting will be displayed.
 - **d** Refer to the chart for data setting.
 - **e** Using the $[\land]/[\lor]$ buttons, change the settings and press the $[\gt]$ button to move to the next setting.
 - **f** Press the Set button to save the setting and exit to the sub-menu setting screen.
 - **g** Press the Esc button to exit to general mode.

Note

- While setting the data, you can use the [∧]/[∨] buttons to set the range of SEG used.
- While configuring the setting, press the [Esc] button to exit to the sub-menu setting screen without saving the setting.
- Current time setting (Example)



1 Press the [User Set] button. (Main Menu) will be displayed, and you can press the $[\Lambda]/[V]$ buttons to select No.4, which will set the current time.



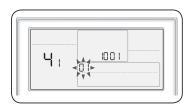
2 Press the [>] button to select 'Year, Month, Date' in the [Sub-menu]. Press the $[\Lambda]/[V]$ buttons to select No. 1. You can modify the year/month/ date setting.



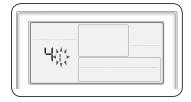
3 Press the [>] button to select the 'Year'. Press the $[\Lambda]/[V]$ buttons to select the year ('00~'99).



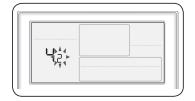
4 Press the [>] button to select the 'Month'. Press the $[\Lambda]/[V]$ buttons to select month (01~12).



5 Press the [>] button to select the 'Day'. Press the $[\Lambda]/[V]$ buttons to select day(01~31).



6 Press the [Set] button to complete your setting of 'Year, Month, Day'. The setting changes will be applied and you can exit to the sub-menu.



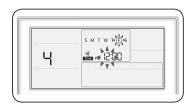
7 In the sub-menu, select 'day, AM/PM, hour, minute'.
Press the [∧]/[∨] buttons to select no.2. You can set the 'day, AM/PM, hour, minute'.



8 Press the [>] button to select the 'Day'.
Press the [∧]/[∨] buttons to select day (Sun~Sat).



Press the [>] button to select 'AM or PM'.Press the [∧]/[∨] buttons to toggle between AM and PM.



10 Press the [>] button to select the 'Hour'. Press the $[\land]/[\lor]$ buttons to select the hour (01~12).



11 Press the [>] button to select the 'Minute'. Press the $[\Lambda]/[V]$ buttons to select minute (00~59).

- 12 Press the [Set] button to complete the current time setting.

 The setting changes are applied and you can exit to general mode.
- **13** Press the [Esc] button to exit to general mode.

Service mode

Main menu	Sub menu		Function	Data bit	Factory setting	Description	Unit
			Cooling/Heating selection	1	0	0 – Cooling/Heating, 1 – Cooling only	-
	1	Wired remote controller Option	Use of wireless remote controller	2	1	0 – No use, 1 - Use	-
	'	setting/checking (1)	MAIN/SUB wired remote controller	3	0	0 –MAIN, 1- SUB	-
			Temperature unit	4	0	0 – Celcius(°C), 1 – Fahrenheit(°F)	-
			Temperature sensor selection	1	0	0 – Indoor unit, 1 – Wired remote controller	-
			Use of average temperature	2	0	0 – No use, 1 - Use	-
		Wired remote	Use of Auto mode	3	1	0 – No use, 1 - Use	-
	2	controller Option setting/checking (2)	Temperature display	4	0	0 – Set temperature, 1 - Room temperature	-
			AC On/Off button function	5	1	0 – Indoor unit + ERV, 1 – Indoor unit only, 2 – ERV only	-
			Lock of Blade1	1	0	0 – Unlock, 1 – lock	-
1	3	Blade	Lock of Blade2	2	0	0 – Unlock, 1 – lock	-
1)	setting/checking	Lock of Blade3	3	0	0 – Unlock, 1 – lock	-
			Lock of Blade4	4	0	0 – Unlock, 1 – lock	-
			Use of By-Pass mode	1	0	0 – No use, 1 - Use	-
	4	ERV option Setting/checking	Use of Auto mode	2	0	0 – No use, 1 - Use	-
	7		Use of air purification mode	3	0	0 – No use, 1 - Use	-
			Use of external control	4	0	0 – No use, 1 - Use	-
	5	Room Temperature	Temperature control reference	1,2,3	0	-9 ~ 40 °C(15~104 °F)	0.1 °C
		compensation	Temperature compensation value	4,5,6	0	-9.9 ~ 9.9 °C	0.1 °C
	6	Number of	Number of indoor units	1,2	-	0 ~ 16	-
		connected units	Number of ERVs	3,4	-	0 ~ 16	-
	7	Desired temperature i	ncrement/decrement (°C only)	1	0	0-1 °C, 1-0.5 °C, 2-0.1 °C	-
	8	Set/Check ERV Energy saving	Select individual Energy saving operation	1	0	0-ON/OFF alternating operation, 1-Outdoor air cooling operation for different temperature setting	-
		operation	Minimum temperature of outdoor air cooling	3,4	15	5 ~ 15 °C (41~59 °F)	°C
	0	Factor	Factory option setting		0	0 – Unchanged 1 – Factory setting	-
2	1	Sot	ftware code	1~6	-	Software code	-
	2	Soft	ware version	1~6	-	Software version	-

Main menu	Sub menu		Function	Data bit	Factory setting	Description	Unit
	1	Indoor unit room temperature			-	Room temperature	°C
	2	Indoor unit EVA IN temperature			-	EVA IN temperature	°C
	3	Indoor unit E	EVA OUT temperature	1,2,3	-	EVA OUT temperature	°C
	4	Indoo	r unit EEV step	1,2,3	-	EEV step	-
			Use of central control	1	-	0 – No use, 1 - Use	-
	5	Indoor unit option	Use of drain pump	2	-	0 – No use, 1 - Use	-
3	5	checking (1)	Use of electric heater	3	-	0 – No use, 1 - Use	-
			Use of hot water coil	4	-	0 – No use, 1 - Use	-
			Use of external control	1	-	0 – No use, 1 - Use	-
			Use of RPM compensation	2	-	0 – No use, 1 - Use	-
	6	Indoor unit option checking (2)	Filter time	3	-	0 – 2000 hours, 1 – 1000 hours	-
			Heating temperature compensation	4	-	0-2 °C, 1-5 °C	-
			EEV stop step in heating	5	-	0 – 1/80 steps, 1 – 80	-
				12	-	MAIN address (00H~4FH)	-
	1		Setting/Checking the address	34	-	MAIN address (00H~4FH)	-
				56	-	Group address (00H~FEH)	-
4	2	Indoor unit/ Ventilator (ERV) option setting ^{2)*}	Setting/Checking the product option	1)*	-	D. Controller in talleling	-
	3	option setting -	Setting/Checking the installation option 1	1)*	-	Refer to the installation manual of the connected indoor unit/ventilator (ERV)	-
	4		Setting/Checking the installation option 2	1)*	-	, , , , , , , , , , , , , , , , , , , ,	-
	1	Mini AHU setting/	RPM setting/checking	3,4	-	0~31 steps	1step
		checking	Humidity setting/checking	6	-	0 – 30, 1 - 40, 2 - 50	-
		Setting/Checking the discharge	Use of discharge temperature control	1	-	0 – No use, 1 - Use	-
5	2	temperature of the	Cooling discharge temperature	3,4	-	8~25 °C (46~77 °F)	1°C
		indoor unit	Heating discharge temperature	5,6	-	18~43 °C (64~109 °F)	1°C
			Cooling discharge temperature	1,2	-	13~25 °C (55.4~77 °F)	1°C
	3	temperature checking	Heating discharge temperature	3,4	Room transport	18~30 °C (64~86 °F)	1°C

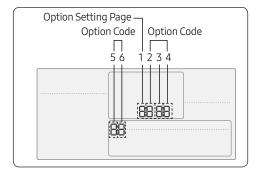
()* is used in Turkey.

Main menu	Sub menu		Function	Data bit	Factory setting	Description	Unit
			Use of cold air prevention	1	-	0 – No use, 1 - Use	-
	1	ERV Plus setting/	Use of humidification when Heating thermo off	2	-	0 – No use, 1 - Use	-
		checking	Use of fan operation in Defrost	3	-	0 – No use, 1 - Use	-
			Use of humidification when Heating	4	-	0 – No use, 1 - Use	-
		ERV Plus	Cooling	1,2	-	15~30 °C (59~86 °F)	1°C
	2	temperature setting/checking	Heating	3,4	-	15~30 °C (59~86 °F)	1°C
6	7	ERV Plus Auto	Set temperature	1,2	-	15~30 °C (59~86 °F)	1°C
	3	mode temperature setting/checking	Set temperature difference	3,4	-	5~15 °C (41~59 °F)	1°C
			compensating temperature A g EEV control for ERV Plus	1,2	-	0~10 °C	1°C
	4	Checking the compe the Heating El	3	-	0 – Non use of humidifier (0°C/32°F) 1 – Use humidifier(10°C/50°F)	-	
	5	ERV Plus fan RPM	Air supply RPM	1,2	-	10~27 steps	1 step
		setting/checking	Air exhaustion RPM	3,4	-	10~27 steps	1 step
	1	View master setting/ checking	Indoor unit View master setting/checking	123456	-	address	-
	2	(F3F4 line Indoor unit master)	ERV unit View master setting/ checking	123456	-	address	-
7	3	Mode master indoor unit setting/	Mode master indoor unit checking	123456	-	address	-
	4	checking (F1F2 line Indoor unit master) ^{3)*}	Mode master indoor unit setting	1	-	0-No use, 1-Use, 2-Release	-
	1	Status of Automatic Air-Volume setting			0	0 – OFF (Disabled or Cancelled) 1 – Completion 2 – Running Automatic Air-Volume	-
8	2	Automatic A	ir-Volume Operation	1	0	0 – Disable, 1 – Enable	-
	3	Automatic Air-Volume Voltage Setting			2	1~3 steps (2 - Default) For the specific voltage of model, please refer to the installation manual of each product.	-
	1		Factory setting	1	0	0-No use, 1-Reset	-
0	2	Reset	Power Master Reset ^{4)*}	1	0	0-No use, 1-Reset	_
	3		Addressing Reset	1	0	0-No use, 1-Reset	-

Note

- 'NONE' will be displayed if the indoor unit does not support the function. In some cases, the setting may not possible or it may be not applied though it is set on the unit.
- If communication initialization is needed after the setting, the system will reset automatically and communication will be initialized.

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



• To set 24 digit option

SEG1	SEG2	SEG3	SEG4	SEG5	SEG6				
0	*	*	*	*	*				
Page numb	er								
SEG7	SEG8	SEG9	SEG10	SEG11	SEG12				
1	*	*	*	*	*				
Page numb	er								
SEG13	SEG14	SEG15	SEG16	SEG17	SEG18				
2	*	*	*	*	*				
Page numb	Page number								
SEG19	SEG20	SEG21	SEG22	SEG23	SEG24				
3	*	*	*	*	*				

Page number

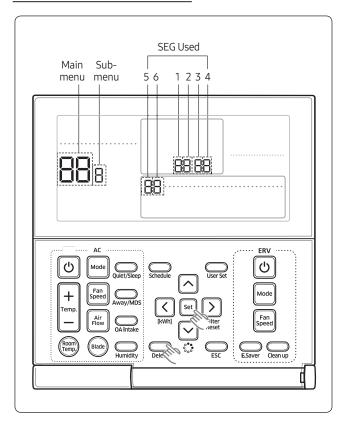
- * Regardless of Celsius and Fahrenheit setting, service mode setting is available only with Celsius.
- 2)* If you enter Main menu #4, you must select the targeted indoor unit/ventilator (ERV) address and then select the sub menu.
- 3)* Setting is available when there is only 1 indoor unit connection and while the indoor unit operation is not operating.
- 4)* Power Master Reset is a setting needed to supply optimized power to wired remote controller when multiple indoor units are connected to wired remote controller in a group.

Note

• Address is displayed in hexadecimal. Please refer to the following table.

Hexadecimal	Decimal								
00	0	10	16	20	32	30	48	40	64
01	1	11	17	21	33	31	49	41	65
02	2	12	18	22	34	32	50	42	66
03	3	13	19	23	35	33	51	43	67
04	4	14	20	24	36	34	52	44	68
05	5	15	21	25	37	35	53	45	69
06	6	16	22	26	38	36	54	46	70
07	7	17	23	27	39	37	55	47	71
08	8	18	24	28	40	38	56	48	72
09	9	19	25	29	41	39	57	49	73
0A	10	1A	26	2A	42	3A	58	4A	74
0B	11	1B	27	2B	43	3B	59	4B	75
0C	12	1C	28	2C	44	3C	60	4C	76
0D	13	1D	29	2D	45	3D	61	4D	77
0E	14	1E	30	2E	46	3E	62	4E	78
0F	15	1F	31	2F	47	3F	63	4F	79

How to set the service mode

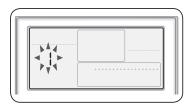


- If you want to use the various additional functions for your Wired Remote Controller, press the [Set] and [Esc] buttons at the same time for more than three seconds. You will enter the additional function settings, and the [main menu] will be displayed.
- Refer to the list of additional functions for your Wired Remote Controller on the next page, and select the desired menu.
 - **a** Using the $[\Lambda]/[V]$ buttons, select a main menu number and press the [>] button to enter the submenu setting screen.
 - **b** Using the $[\land]/[\lor]$ buttons, select a sub-menu number and press the [>] button to enter the data setting screen.
 - **c** When you enter the setting stage, the current setting will be displayed.
 - **d** Refer to the chart for data setting.
 - **e** Using the $[\Lambda]/[V]$ buttons, select the settings. Press the [>] button to move to the next setting.
 - **f** Press the [Set] button to save the settings and exit to the sub-menu setting screen.
 - **g** Press the [Esc] button to exit to normal mode.

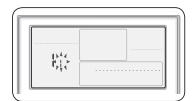
Note

- While setting the data, you can use the $[\Lambda]/[V]$ buttons to set the range of SEG.
- While configuring the setting, press the [Esc] button to exit to the setting sub-menu without saving your changes.

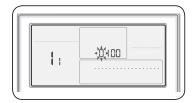
Example method of setting wired remote controller option



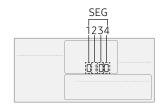
1 Press the [Set] and [ESC] buttons at the same time for more than 3 seconds. When (Main menu) is displayed press the $[\Lambda]/[V]$ button to select no.1.



2 Press the [>] button to select the number you will set. Press the $[\Lambda]/[V]$ button and select no.1



3 Press the [>] button to enter the data setting stage. When you enter the setting stage, the current setting value will be displayed.



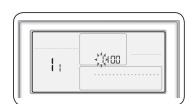
SEG1: Heat pump indoor unit

SEG2: Use wireless remote controller

SEG3: Master wired remote controller

SEG4: Temperature display – Celsius (°C)

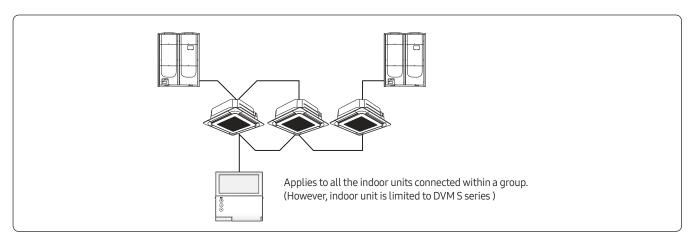




- 4 Press the [<]/[>] button to select the desired Data1.
 - Press the $[\land]/[\lor]$ button to select no.1.
 - The wired remote controller option is set from both cooling and heating to cooling only.
- **5** Press [Set] button to complete the option setting. Save the setting value and exit to sub menu.
- **6** Press [Esc] button to exit to normal mode.

■ Built-in temperature sensor of wired remote controller

Temperature control with built-in temperature sensor

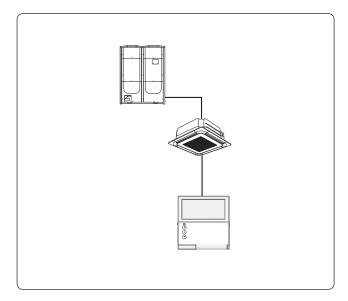


Note

• Check the setting of the wired remote controller built-in sensor from the service menu.

Main menu	Sub menu		Function			Description	Unit
			Cooling/Heating selection	1	0	0-Cooling/Heating, 1-Cooling only	-
	1	Wireless remote controller	Use of wireless remote controller	2	1	0-No use, 1-Use	-
	1	Option setting/ checking (1)	MAIN/SUB wired remote controller	3	0	0-MAIN, 1-SUB	-
			Temperature unit	4	0	0-Celsius(°C), 1-Fahrenheit(°F)	-
1		Wireless	Temperature sensor selection	1	0	0-Indoor unit, 1-Wired remote controller	-
			Wireless	Use of average temperature	2	0	0-No use, 1-Use
		remote	Use of Auto mode	3	1	0-No use, 1-Use	-
	2	controller Option setting/ checking (2)	Temperature display	4	0	0-Set temperature, 1-Room temperature	-
		3.,	AC On/Off button function	5	0	0-Indoor unit+ERV, 1-Indoor unit only, 2-ERV only	-

Heating mode temperature compensation



Indoor unit INSTALL option setting (Refer to indoor unit intallation manual)

SEG	Function	Value
21	Heating setting temperature compensation	1 – 2°C(°F) 2 - 5°C(°F)



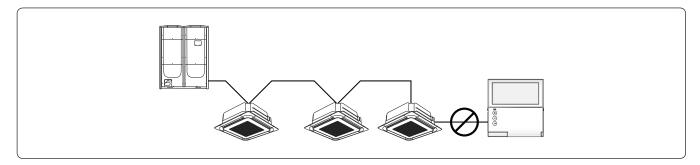
• When built-in sensor of the wired remote controller is used, heating mode temperature compensation (+2°C or +5°C) will be reset to 0°C.

Note

• If there is no option switch on the indoor unit PCB, check the setting of the heating temperature compensation from the service menu.

Main menu	Sub menu	Function		Used SEG	Factory setting	Description	Unit
		Indoor unit option checking(2)	Use of external control	1	-	0-No use, 1-Use	-
3			Use RPM compensation	2	-	0-No use, 1-Use	-
	6		Filter time	3	-	0-2000 hours, 1-1000 hours	-
			Heating temperature compensation	4	-	0-2°C(°F), 1-5°C(°F)	-
			EEV stop step in heating	5	-	0-0/80 step,1-80 step	-

When communication error or power failure occurs while using built-in temperature sensor



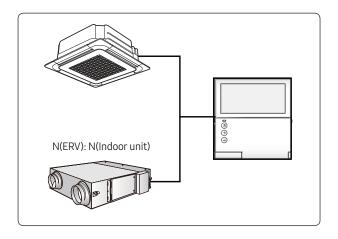
When communication error occurs over 3 minutes,

- Indoor unit ignores the built-in temperature sensor and use indoor unit temperature sensor.
- Indoor unit applies the heating setting temperature compensation.(+2°C,+5°C)

When communication resumes,

- Built-in temperature use is recovered.
- Setting must be done again to use the temperature compensation.

■ Energy saving operation mode

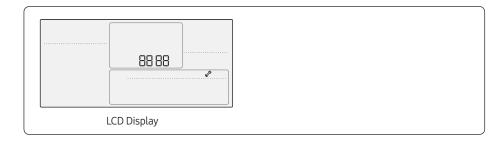


🖺 Note

• Energy saving operation mode is available only when there is at least one indoor unit and ERV is connected.

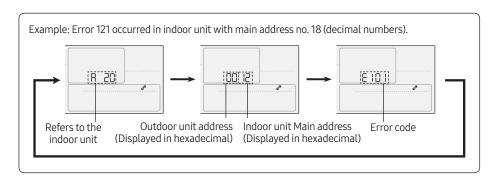
- By comparing indoor room temperature, setting temperature and outdoor temperature, wired remote controller changes ERV operation mode and fan speed to minimize unnecessary outdoor unit operation.
- Energy saving operation is not available when ERV is not connected.
- Energy saving operation is not available when 'Centralized control' is set.
- Energy saving operation will not be executed when ERV is set to Outing mode or set in external interlocking mode.
- Temperature measurement is set as indoor unit temperature sensor as default, and it can be changed depending on the wired remote controller option setting.
- Basically room temperature value means indoor unit's sensor. But it can be changed depending on option setting. (External room sensor or Built-in sensor of wired remote controller)

Display



Error display

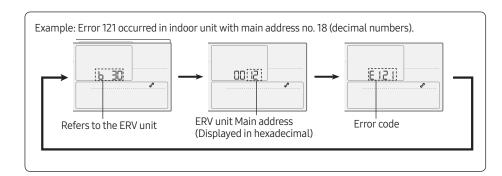
Error codes for the Wired Remote Controller and the product connected to your Wired Remote Controller will be displayed in the LCD display.



• When an Error Occurs in Your Indoor/Outdoor Units (Product Group Display: A)

The product address for the error will be displayed, followed by the error code.

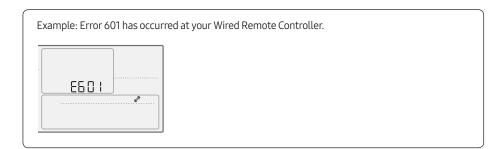
Example: Error 101 occurs for Indoor Unit No. 200012.



• When an Error Occurs in Your Ventilator(ERV) (Product Group Display: B)

The product address for the error will be displayed, followed by the error code.

Example: Error 121 has occurred at ventilator(ERV) No. 300012.



• When an Error Occurs in Your Wired Remote Controller

Only an error code will be displayed. (No address will be displayed.)

Example: Error 601 has occurred at your Wired Remote Controller.

Wired remote controller error codes

Display	Description		
50 t	Communication error between wired remote controller and indoor/ERV units after successful communication.		
502	No communication between Master(Main) and Slave(Sub) wired remote controllers.		
604	When tracking between wired remote controller and indoor unit/ventilator (ERV) is not complete for more than 3 minutes (Including communication error between indoor units and outdoor units)		
5 1 8	Over 16 indoor/ERV indoor units installed.		
629	Two or more wired remote controllers set as Slave(SUB).		
653	Temperature sensor Open/Short error.		
554	EEPROM error		

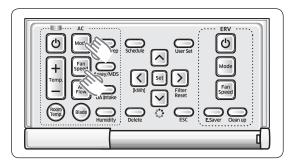
! Caution

• For the error codes for your indoor/outdoor units and ventilator(ERV), refer to the installation manual of each device.



Setting/Cancelling the Mode master indoor unit

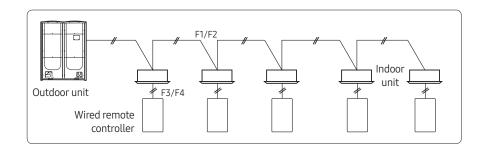
- Mode master indoor unit setting is simply selecting an indoor unit that will become standard among many indoor units to prevent mixed operation (which one or more indoor units operating in different operation mode).
 - Setting: Connect just 1 indoor unit and stop the operation. Then press and hold the Mode button for 5 seconds to set the indoor unit as 'Mode master indoor unit'
 - Cancelling: Connect just 1 indoor unit and stop the operation. Then press and hold the Fan speed button for 5 seconds to cancel the 'Mode master indoor unit' setting.



Communication diagram

Individual control (1)

Control 1 indoor unit with 1 wired remote controller



Control

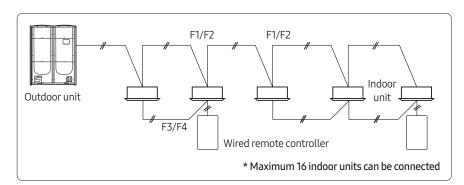
• All connected indoor units

Display

· Operation status of the connected indoor unit

Group control (1)

Control multiple indoor units with 1 wired remote controller



Control

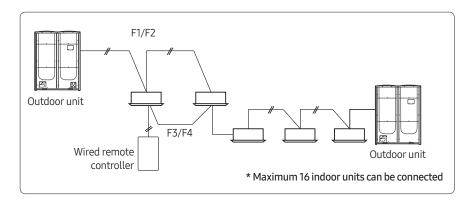
• All connected indoor units

Display

- Priority 1. Display the status of View Master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address

Group control (2)

Control multiple indoor units connected to different outdoor units with 1 wired remote controller



Control

• All connected indoor units

Display

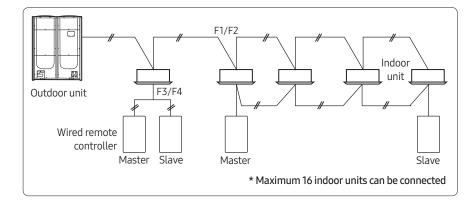
- Priority 1. Display the status of View Master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address

/ Caution

• When controlling group of indoor units connected to different outdoor unit, address of the each outdoor unit must be set differently.

Group control (3)

Control 1 or multiple indoor units with 2 wired remote controllers



Control

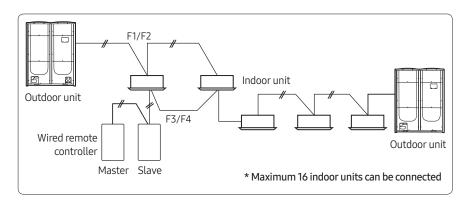
• All connected indoor units

Display

- Priority 1. Display the status of View Master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address
 - Two wired remote controllers identically display the operation status of the indoor unit according to above priority.

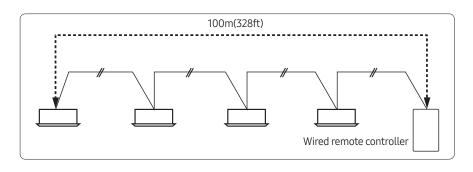
Group control (4)

Control multiple indoor units connected to different outdoor units with 2 wired remote controller



! Caution

• When controlling group of indoor units connected to different outdoor unit, address of the each outdoor unit must be set differently.



• All connected indoor units

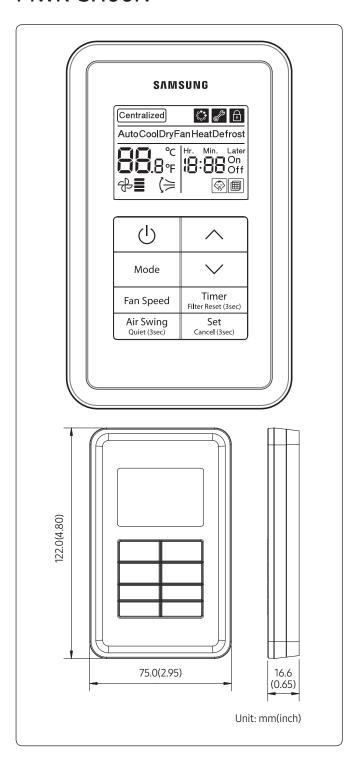
Display

- Priority 1. Display the status of View Master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address
 - Two wired remote controllers identically display the operation status of the indoor unit according to above priority.

• Max. distance between the farthest indoor unit and wired remote controller: 100m(328ft)

Wired remote controller

MWR-SHOON



Features

- Simplified wired remote controller
- AC operation ON/OFF control
- Fan speed control
- Setting operation mode and temperature
- Reset filter cleaning alert indicator
- Adjust air flow direction
- Operation on/off timer function

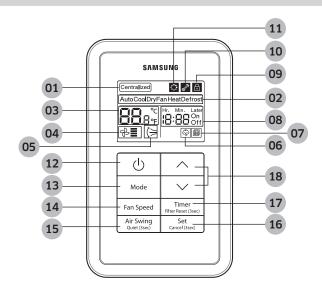
Product specification

Power supply	DC 12V
Power consumption	1.5 W
Operating temperature range	0°C~40°C (32°F~104°F)
Operating humidity range	30 % RH~90 % RH
Communication	2-wire PLC
Maximum length of connection	100 m (328ft)
Maximum number of controllable devices	16 indoor units

Compatible product

Indoor unit AM****N****Model	
------------------------------	--

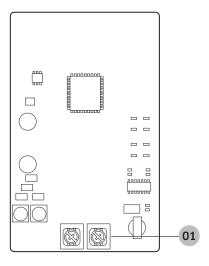
Description of parts



No.	Name	Description			
	Controlized control	Indicator will be on when remote controller usage restriction is set.			
01	Centralized control indicator	(Devices that support centralized control: OnOff controller, DMS2.5, Touch centralized controller etc.)			
02	Operation mode indicator	Indicates current operation mode when the indoor unit is operating (Cool/Auto/Dry/Fan/Heat)			
03	Set temperature indicator	Indicates the set temperature when the indoor unit turns on.			
04	Fan speed indicator	Indicates the fan speed settings.			
05	Air swing indicator	Indicates when vertical air swing is on.			
06	Quiet mode indicator Indicates when quiet mode is on.				
07	Filter cleaning indicator	Indicates when preset filter cleaning period is passed.			
		On: Indicates when On timer is set			
		Off: Indicates when Off timer is set			
08	Timer indicator	Hr. Min. Later:			
		 Timer mode: Displays the set time for On/Off timer (Min. 30 minutes ~ Max. 18 hours) General mode: Displays remaining time before Timer function will execute 			
		This icon will be displayed when button is locked or when unavailable function (function which indoor unit does not support) is selected			
09	Lock/Restricted indicator	• Icon On: All buttons are locked			
	indicator	 Icon blinks for 3 seconds: When partially locked button is pressed or unavailable function (function which indoor unit does not support) is selected 			
10	Inspection indicator	Indicates that inspection is required.			
11	SPi indicator	Indicates that SPi or other cleaning function of the indoor unit is on.			

No.	Name	Description	
12	On/Off button	Press this button to turn on/off the indoor unit.	
13	Mode button	Press this button to select the desired operation mode. (Auto \to Cool \to Dry \to Fan \to Heat)	
14	Fan speed button	Press this button to select one of the fan speeds from Auto, Low, Medium, High, Turbo. Available Fan Speed may differ depending on the operation mode of the indoor unit. • Low ♣ → Medium ♣ → High ♣ ■ → Turbo ♣ ■ → Auto ♣ → ♣ ■ → ♠ ■ → ♠	
15	Air swing button	Press this button to turn on/off the vertical air swing when the indoor unit supports vertical air swing movement.	
16	Set/Cancel button	This button can be used only for Timer, User mode, Service mode. • Short press: Set (Save) • Press and hold for 3 seconds: Cancel	
17	 Timer button/ Short press: You can set the On/Off timer. Press and hold for 3 seconds: Resets the filter cleaning alert indicator. 		
18	Temperature adjustment/ Time adjustment button	 General mode: Press this button to increase/decrease the set temperature by preset unit. Short press: adjust the temperature by 1°C(°F) or 0.5°C(°F) or 0.1°C(°F) depending on the setting. Press and hold: adjust the temperature by 1°C(°F) every 0.5 second Timer mode: Press this button to increase/decrease the set time. Up to 3 hours: Increase/decrease by 30 minute unit Over 3 hours: Increase/decrease by 1 hour unit 	

PCB

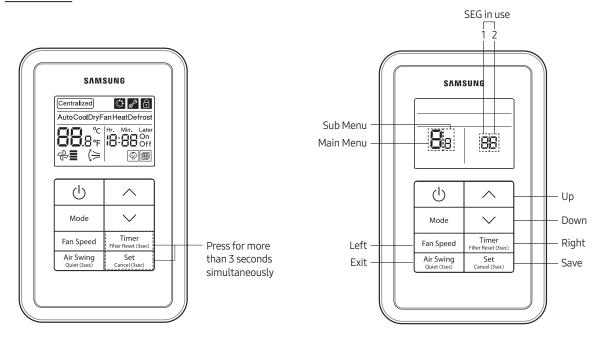


No.	Name	Description
01	Power/communication connection terminal	Connect to indoor unit (F3/F4)

Option function

User setting mode

How to set

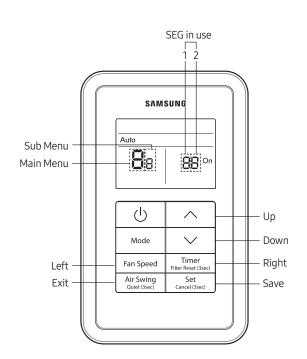


Main menu	Sub menu	Function		Default	Page in use	Range	Save
0	1	Reset U	Reset User mode to default value			0 - Disabled, 1 - Reset	none
	1		Lock all			0 - Unlock, 1 - Lock	0
	2		Lock On/Off button	0	1	0 - Unlock, 1 - Lock	0
	3		Lock Mode button	0	1	0 - Unlock, 1 - Lock	0
1	4	Partially lock buttons	Lock Temperature adjustment button	0	1	0 - Unlock, 1 - Lock	0
	5		Lock Fan speed button	0	1	0 - Unlock, 1 - Lock	0
	6		Lock Timer button	0	1	0 - Unlock, 1 - Lock	0
2	1	Temperature	Lower temperature	16	1	16~30	0
	2	restriction	Upper temperature	30	1	16~30	0

Service mode

How to set





• Page display

On	Page1	Page2	Page3	Page4	Page5	Off	Page6	Page7	Page8	Page9	Page10
OII	Auto	Cool	Dry	Fan	Heat	OII	Auto	Cool	Dry	Fan	Heat

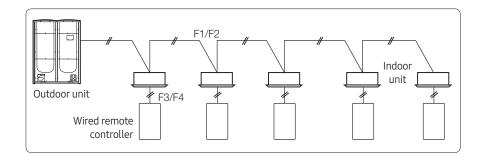
Main menu	Sub menu		Function	Default	Page in use	Range
	1		Reset the option setting of the wired remote controller to dafault value	0	1	0 - Disabled, 1 - Reset
0	2	Reset	Reset wired remote controller to factory default	0	1	0 - Disabled, 1 - Reset
	3		Power Master Reset	0	1	0 - Disabled, 1 - Reset
	4		Addressing Reset	0	1	0 - Disabled, 1 - Reset
	1		Check the number of connected indoor units	0	1	0~16
1	2	Wired remote	Check the number of connected ERV	0	1	0~16
'	3	controller information	Check the MICOM code of wired remote controller	none	1~3	MICOM code
	4		Check the software version of the wired remote controller	none	1~3	Updated date

Main menu	Sub menu		Function	Default	Page in use	Range
	1		Target indoor unit address setting	View Master indoor unit	1~3	Select address from one of the connected indoor unit Display example) Page 1: 20 (Refers to indoor unit) Page 2: 00 (Outdoor unit address) Page 3: 04 (Main address)
2	2	Address/ option	Check/Set main address	Main address of Target indoor unit	1	Main address (00H~4FH, Hexadecimal digits)
	3	setting	Check/Set RMC address	Main address of Target indoor unit	1	RMC(1): 0~F/ RMC(2): 0~F (Hexadecimal number) ^{1)*}
	4		Check/set the product option	Product option of target indoor unit	1~10	Option code
	5		Check/Set installation option (1)	Installation option of target indoor unit	1~10	Option code
	6		Check/Set installation option (2)	Installation option of target indoor unit (2)	1~10	Option code
3	1	Check/Set view master	Check/Set indoor unit view master	View Master indoor unit	1~3	Select address from one of the connected indoor unit (hexadecimal number)
	2		No function	-	1~3	-
4	1	Check/Set Mode	Check the address of the mode Master indoor unit	none	1~3	Address of the mode Master indoor units
	2	master indoor unit	Setting the mode Master indoor unit	none	1	0- Not set, 1-Set, 2-Cancel
	1		Set indoor unit for 'coolilng and heating'/'cooling only'	0	1	0- Cooling and heating, 1-Cooling only
	2	Check/Set option function of	Setting wireless remote controller usage restriction	1	1	0 - Disable, 1 - Enable
5	3		Setting Master/Slave wired remote controller	0	1	0-Master, 1-Slave
	4	the wired remote	Setting auto operation usage	1	1	0 - Disable, 1 - Enable
	5	controller	Temperature display Celsius(°C)/ Fahrenheit(°F)	0	1	0- Celsius (°C), 1-Fahrenheit (°F)
	6		Set unit for desired temperature (0,1,2) (Only available when temperature is displayed in Celsius (°C)	0	1	0-1°C, 1-0.5°C, 2-0.1°C

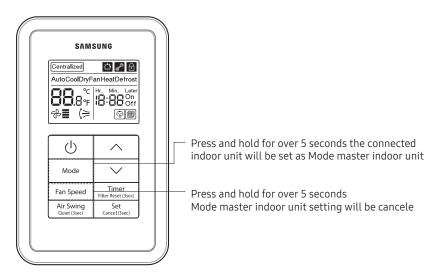
^{1)*} When RMC(1) is set as F, RCM(2) can be set up to E only.

2)* Mode master indoor unit: The indoor unit which can decide the operation mode. Other indoor unit will follow mode master indoor unit's operation mode.

Setting mode master indoor unit

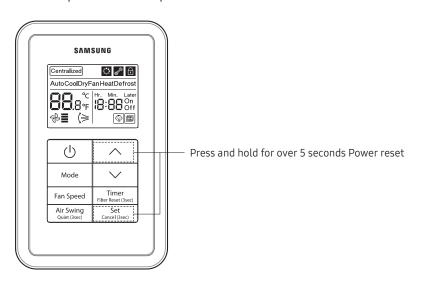


• Only when the wired remote controller is connected to an indoor unit directly (1:1 connection), you can set the mode master indoor unit that sets the operation mode of the outdoor unit.



System reset

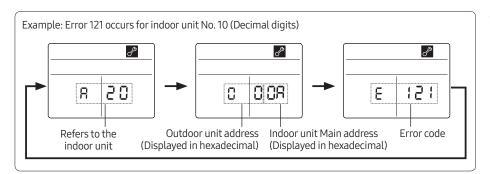
Reset the power of the simplified wired remote controller



Display

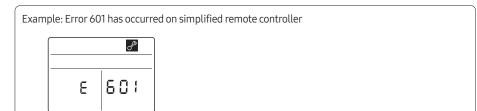
Error display

Error codes of for the simplified wired remote controller and the product connected to it will be displayed on the LCD display.



• When an error occurs in your indoor/outdoor units (Product group display: A20)

Address of the product with error code and address will be displayed alternately.



• When an error occurs in your simplified wired remote controller

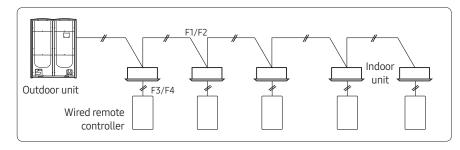
Only an error code will be displayed. (No address will be displayed)

No.	Error code	Description of the error				
1	50 t	Communication error between wired remote controller ↔ Indoor unit	-			
2	602	mmunication error between Master ↔ Slave wired remote controller Error is only detected on slave wired remote controller				
3	604	Communication tracking error between wired remote controller ↔ Indoor unit				
4	S :8	xceeded maximum number of units (16 units)				
5	827	wo or more wired remote controllers are set as Slave				
6	654	 Memory (external ROM) read/write error This error is detected only during power reset. If error occurs on memory after power has turned on, it will not effect on operation of the wire remote controller display and therefore error code will not be displayed. 	-			

Communication diagram

Individual control (1)

Control 1 indoor unit with 1 wired remote controller



Control

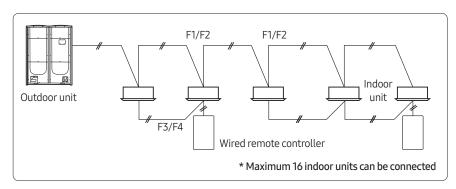
• All connected indoor units

Display

• Operation status of the connected indoor unit

Group control (1)

Control multiple indoor units with 1 wired remote controller



Control

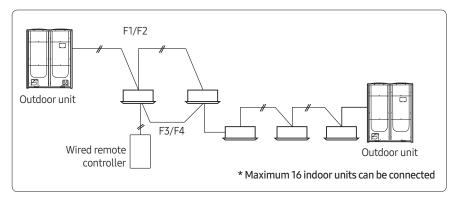
• All connected indoor units

Display

- Priority 1. Display the status of view master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address

Group control (2)

Control multiple indoor units connected to different outdoor units with 1 wired remote controller



Control

• All connected indoor units

Display

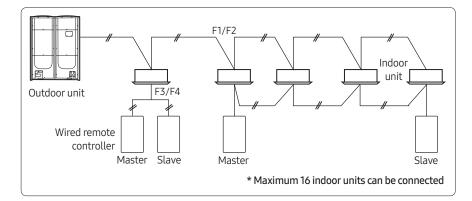
- Priority 1. Display the status of view master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address

/ Caution

• When controlling group of indoor units connected to different outdoor unit, address of the each outdoor unit must be set differently.

Group control (3)

Control 1 or multiple indoor units with 2 wired remote controllers



Control

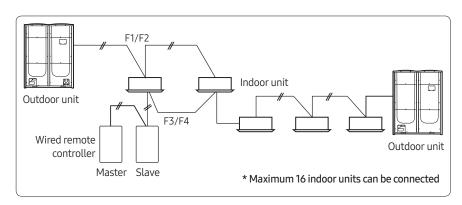
• All connected indoor units

Display

- Priority 1. Display the status of View Master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address
 - Two wired remote controllers identically display the operation status of the indoor unit according to above priority.

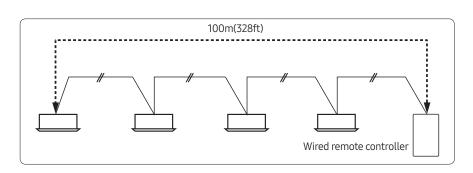
Group control (4)

Control multiple indoor units connected to different outdoor units with 2 wired remote controller



! Caution

• When controlling group of indoor units connected to different outdoor unit, address of the each outdoor unit must be set differently.



• All connected indoor units

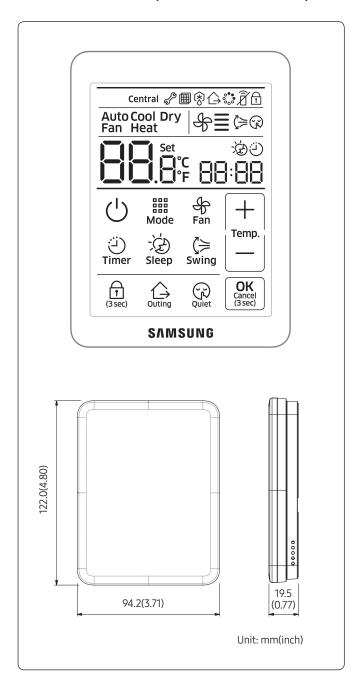
Display

- Priority 1. Display the status of View Master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address
 - Two wired remote controllers identically display the operation status of the indoor unit according to above priority.

• Max. distance between the farthest indoor unit and wired remote controller: 100m(328ft)

Wired remote controller

MWR-SH10N (MWR-SH10RN)*



Features

- Touch screen wired remote controller
- IR receiver is included
- Quiet, Sleep, Outing mode
- AC operation ON/OFF control
- Fan speed control
- Setting operation mode and temperature
- Reset filter cleaning alert indicator
- Operation on/off timer function

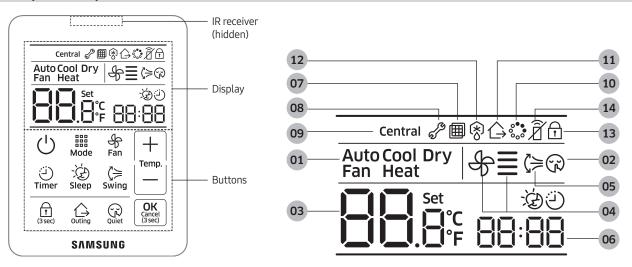
Product specification

Power supply	DC 12V
Power consumption	1.5 W
Operating temperature range	0°C~40°C (32°F~104°F)
Operating humidity range	30 % RH~90 % RH
Communication	2-wire PLC
Maximum length of connection	100 m (328ft)
Maximum number of controllable devices	16 indoor units

Compatible product

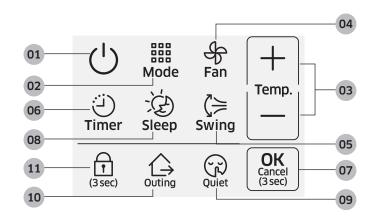
Indoor unit	AM****N*****Model
FCU KIT	MIM-F00N

Description of parts



No.	Name	Description
01	Operation mode indicator	Indicates current operation mode when the indoor unit is operating (Cool/Auto/Fan/Dry/Heat)
02	Quiet mode indicator	Indicates when Sleep mode is ON.
03	Temperature indicator	Indicates Indoor temperature/Set temperature
04	Fan speed indicator	Displays fan speed
05	Air swing direction indicator	Displays air swing (Up/Down)
06	Timer indicator	Displays ON/OFF time (scheduled time)
07	Filter cleaning indicator	Displays filter cleaning (filter cleaning period)
08	Inspection indicator	Displays check
09	Centralized control indicator	Indicator will be on when remote controller usage restriction is set. (Devices that support centralized control: OnOff controller, DMS, Touch centralized controller, etc.)
10	Virus doctor indicator	Displays when virus doctor is ON.
11	Outing mode indicator	Displays when outing mode is ON.
12	Defrost operation indicator	Displays defrost operation.
13	Locking/invalid operation indicator	Displays partial locking/all locking/invalid operation
14	IR receiver indicator	Displays IR receiver for wireless remote controller (Default: disuse, indication on)





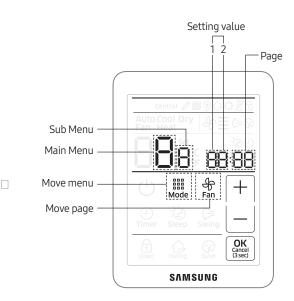
No.	Name	Description
01	ON/OFF button	Turn the air conditioner power on/off
02	Mode button Select a desired air conditioner operation	
03	Temperature setting button Set a desired temperature and adjust the time	
04	Fan speed button	Change the air conditioner's fan speed
05	Air swing button	Select the air flow direction of the air conditioner
06	Timer button	Select the timer function
07	OK/Cancel button	Confirm or cancel (by pressing and holding the button for 3 seconds)
08	Sleep button	Select sleep operation for the air conditioner
09	Quiet button	Select quiet operation for the air conditioner
10	Outing button	Select outing operation for the air conditioner
11	Lock button	Lock the wired remote controller

Option function

User setting mode

How to set





- If you want to use the various additional user functions for your wired remote controller, press the top left corner (hidden button) of the display for more than 3 seconds
 - You will enter the additional function settings, and the main menu will be displayed
- Refer to the list of additional user functions for your wired remote controller on the next page, and select the desired menu
 - Using the [+]/[] buttons, select a main menu number and press the [Mode] button to enter the sub menu setting screen
 - Using the [+]/[] buttons, select a sub menu number and press the [Mode] button to enter data setting
 - Using the [+]/[] buttons, select the settings
 - Press the [Fan] button to select page
 - Press the [OK] button to save the current settings The [OK] button is invalid on the main menu or sub menu setting screen
 - Press the [Cancel] button for more than 3 seconds to exit to normal mode without saving settings

M	ain	Sub	Sub nenu Function description		Setting value			
		menu			Value	Factory default	Page	Save location
	1 Temperature Limit	1	Temperature	Lower limit	8 ~ 30 °C (47 ~ 86 °F)	8(47)	01	Wired remote controller
		Upper limit	8 ~ 30 °C (47 ~ 86 °F)	30(86)	01	Wired remote controller		
	_	3	Set Outing	Cooling desire temperature on outing function	25 ~ 30 °C (77 ~ 86 °F)	27(81)	01	Wired remote controller
		4	Temperature	Heating desire temperature on outing function	16 ~ 22 °C (61 ~ 72 °F)	16(61)	01	Wired remote controller

Main	Cub			Setting value								
Main menu	Sub menu		Function description	Value	Factory default	Page	Save location					
	1		Lock of all buttons	0-Unlock, 1-Lock	0	1	Wired remote controller					
		Doubiel	Lock of operation ON/OFF button	0-Unlock, 1-Lock	0	1	Wired remote controller					
	2	Partial Button Lock 1	Lock of temperature setting buttons	0-Unlock, 1-Lock	0	2	Wired remote controller					
			Lock of fan speed button	0-Unlock, 1-Lock	0	3	Wired remote controller					
			Lock of ON/OFF timer function button	0-Unlock, 1-Lock	0	1	Wired remote controller					
		Doubiel	Lock of Swing function button	0-Unlock, 1-Lock	0	2	Wired remote controller					
	3	Partial Button Lock 2	Lock of Sleep function button	0-Unlock, 1-Lock	0	3	Wired remote controller					
3		_	Lock of Quiet function button	0-Unlock, 1-Lock	0	4	Wired remote controller					
			Lock of Outing function button	0-Unlock, 1-Lock	0	5	Wired remote controller					
	4	Operation Mode Partial Button Lock	Lock of operation mode button	0-Unlock, 1-Lock	0	1	Wired remote controller					
			Hide of auto mode	0-Unlock, 1-Lock	0	2	Wired remote controller					
			Hide of cool mode	0-Unlock, 1-Lock	0	3	Wired remote controller					
	4		Hide of dry mode	0-Unlock, 1-Lock	0	4	Wired remote controller					
			Hide of fan mode	0-Unlock, 1-Lock	0	5	Wired remote controller					
									Hide of heat mode	0-Unlock, 1-Lock	0	6
6	1	Checkir	ng/setting of backlight time out	0~30 (Disuse in 0)	5	1	Wired remote controller (1 time use)					
	1		Resetting filter cleaning alarm	0-No reset, 1-Reset	0	1	Wired remote controller					
	2		Use of virus doctor	0-Disuse, 1-Use	0	1	Wired remote controller					
7	3	User Setting Function	Use display of current temperature	0-Disuse, 1-Use	1	1	Wired remote controller					
	4		Use of button melody	0-Disuse, 1-Use	1	1	Wired remote controller					
	5		Use of IR receiver for wireless remote controller 1)*	0-Disuse, 1-Use	0	1	Wired remote controller					
8	1	Setting/Checking Easy Tuning		-2~+2	0	1	Wired remote controller (1 time use)					
0	1	Reset to c	default value of user setting mode (except current time)	0-No reset, 1-Reset	0	1	Wired remote controller (1 time use)					

^{1)*} In case of duct type indoor unit, you can use wireless remote controller using IR receiver of this wired remote controller without "Display and receiver kit" ()* is used in Turkey.

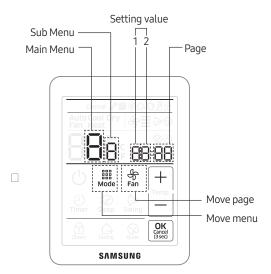
- Technical Data Book 51

Service mode

How to set







- If you want to use the various additional functions for your wired remote controller, press the top right corner (hidden button) of the display for more than 3 seconds and drop it. Then you can press [+]/[-] buttons and select No.3 and press [OK] button.
 - You will enter the additional function settings, and the main menu will be displayed.
 - If you select the other number and press [OK] button, then you can go back to the normal display.
- 2 Refer to the list of additional functions for your wired remote controller on the next page, and select the desired menu.
 - Using the [+]/[-] buttons, select a main menu number and press the [Mode] button to enter the sub-menu setting screen.
 - Using the [+]/[] buttons, select a sub menu number and press the [Mode] button to enter data setting
 - Using the [+]/[-] buttons, select the settings.
 - Press the [Fan] button to select page.
 - Press the [OK] button to save the current settings. the [OK] button is invalid on the main menu or sub menu setting screen.
 - Press the [Cancel] button for more than 3 seconds to exit to normal mode without saving settings.

Main	Sub			Setting value				
	menu	Fur	nction description	Value	Factory default	Page	Save location	
		Wired remote controller setting/	Cooling/Heating selection	0 - Cooling/ Heating, 1 - Cooling only	0	01	Wired remote controller	
1	1 1		Use of wireless remote controller for indoor unit	0 - No use, 1 - Use	1	02	Wired remote controller	
			checking (1)	Master/Slave wired remote controller	0 - Master, 1 - Slave	0	03	Wired remote controller
			Temperature unit	0 - Celsius(°C), 1 - Fahrenheit(°F)	0	04	Wired remote controller	

Main	Cub			Setting va	alue		
Main menu	Sub menu	Fui	nction description	Value	Factory default	Page	Save location
			Temperature sensor selection	0 - Indoor unit, 1-Wired remote controller	0	01	Wired remote controller
)	Use of average temperature	0 - No use, 1 - Use	0	02	Wired remote controller
	2	Wired remote controller setting/	Use of Auto mode	0 - No use, 1 - Use	1	03	Wired remote controller
1		checking (2)	Temperature display	0 - Set temperature 1 - Room temperature 2 - Relative temperature 1)*	0	04	Wired remote controller
	5	Room temperature compensation	Temperature control reference	-9 ~ 40 °C (15.8 ~104 °F)	Current sensor temperature	01	Wired remote controller
		2)*	Temperature compensation value	-9.9 ~ 9.9 °C (14.2 ~49.8 °F)	0	02, 03	Wired remote controller
	6	Number of connected units	Number of indoor units	0 ~ 16	0	01	None
	7	Temp decre	perature increment/ ement unit (°C only)	0 - 1 °C, 1 - 0.5 °C, 2 - 0.1 °C	0	01	Wired remote controller
	0	Factory option setting		0 - Unchanged, 1 - Factory setting	0	01	None
2	1		Software code	Software code	None	01~03	None
2	2	9	oftware version	Software version	None	01~03	None
	1		Target address setting	Target address of indoor unit (Example: 20 02 1F)	View master	01~03	None
	2	Indoor unit	Main address setting/ checking	0~4F (in hexadecimal digits)	Main address of target	1	None
4	3	address/option setting/ checking 3)*	RMC address setting/ checking	0x00~0xFE 4)*	RMC address of target	1	None
	4		Basic option setting/ checking	Option code	Basic option of target	01~20 5)*	None
	5		Install option setting/ checking	Option code	Install option of target	01~20 5)*	None
	6		Install(2) option setting/ checking	Option code	Install(2) option of target	01~20	None

^{1)*} Relative temperature means that the wired remote controller only displays the temperature increase or decrease (± 3) compared to the reference temperature. Reference temperature is determined by other controller's desired temperature setting.

⁽Example: DMS set 24 °C (75 °F) \rightarrow 24 °C (75 °F) is reference temperature. Wired remote controller displays it as '0')

^{2)*}Only the Celsius temperature unit is allowed when this function setting and checking in the service mode. For the Fahrenheit temperature, you need temperature conversion before this function setting and checking by the Celsius temperature unit.

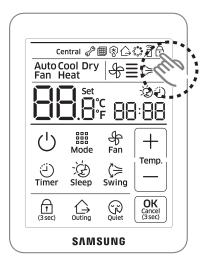
^{3)*} When setting the address/option, you can set the target indoor unit by selecting sub menu 1.

^{()*} is used in Turkey.

System reset

Press the top right corner (hidden button) of the display for more than 7 seconds.

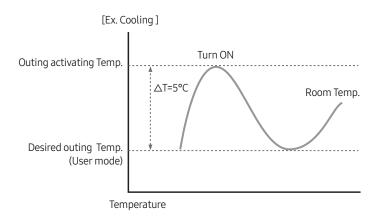
Your wired remote controller will be initialized, and the device will search for the indoor units connected to your wired remote controller again.



Outing operation

Outing function keeps minimum cooling/ heating temperature of indoor on your absence.

- Press the [Outing] button. Outing indicator will be displayed.
- **2** When an air conditioner is turned off,
 - a If indoor temperature has 5°C(9°F) difference with desired outing temperature, the air conditioner will be turned on automatically.
 - **b** If indoor temperature is same as desired outing temperature, the air conditioner will be turned off automatically.

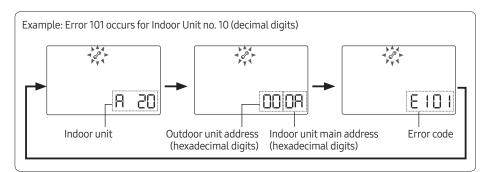


- c it is repeated depending on indoor temperature within 12 hours, and then outing function is canceled.
- You can use outing function in only cool/heat mode.
- The outing function will be active when indoor unit is turned off.
- The outing function operates with low fan speed.
- If there is any input button on your wired remote controller, outing function will be canceled.
- If your indoor unit's status is changed, outing function will be canceled.
- You can set the desired outing temperature on the user setting mode. Outing temperature setting range>
 - Cool mode: 25~30°C (77~86°F), default: 27 °C (81°F)
 - Heat mode: 16~22°C (61~72°F), default: 16 °C (61°F)
- You can use the outing function in the master wired remote controller. The slave wired remote controller just displays it for a outing function status of the master wired remote controller.
 - Press the [Outing] button on the slave wired remote controller, then the will blink.
- The outing function operation will be canceled if you change the master/slave setting on your wired remote controller.

Error display

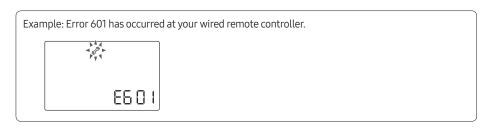
Error codes for the wired remote controller and the indoor units connected to your wired remote controller will be displayed in the LCD display.





• When an error occurs in your indoor/outdoor units (product group display: A)

The product address for the error will be displayed, followed by the error code.



• When an error occurs in your wired remote controller

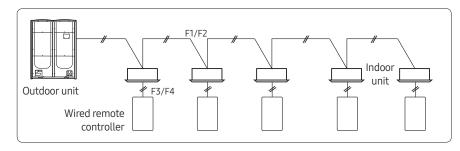
Only an error code will be displayed. (No address will be displayed.)

No.	Error code	Description of the error	Remarks
1	60 :	Communication error between wired remote controller and indoor units (When communication is lost for over 3 minutes after detecting the indoor unit and the wired remote controller)	-
2	502	No communication between Master(Main) and Slave(Sub) wired remote controllers	-
3	604	No communication between wired remote controller and indoor units (Including communication error between indoor units and outdoor units)	-
4	5	 Exceeded maximum number of indoor unit connection (16 indoor units) Reset is required after checking the number of indoor units 	-
5	829	Two or more wired remote controllers set as slave(sub)	-
6	853	Temperature sensor open/short error	
7	854	EEPROM error	-

Communication diagram

Individual control (1)

Control 1 indoor unit with 1 wired remote controller



Control

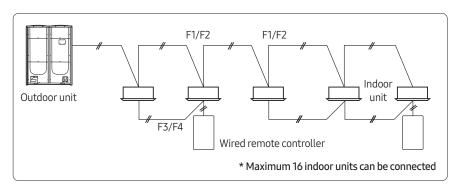
• All connected indoor units

Display

 Operation status of the connected indoor unit

Group control (1)

Control multiple indoor units with 1 wired remote controller



Control

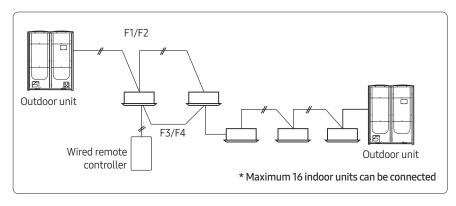
• All connected indoor units

Display

- Priority 1. Display the status of view master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address

Group control (2)

Control multiple indoor units connected to different outdoor units with 1 wired remote controller



Control

• All connected indoor units

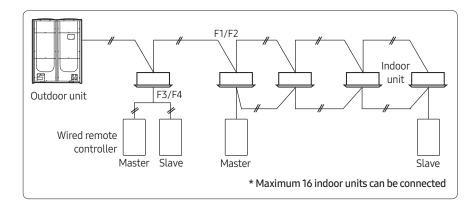
- Priority 1. Display the status of view master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address

/ Caution

• When controlling group of indoor units connected to different outdoor unit, address of the each outdoor unit must be set differently.

Group control (3)

Control 1 or multiple indoor units with 2 wired remote controllers



Control

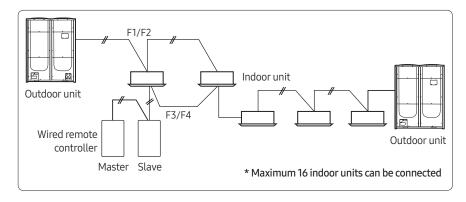
• All connected indoor units

Display

- Priority 1. Display the status of View Master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address
 - Two wired remote controllers identically display the operation status of the indoor unit according to above priority.

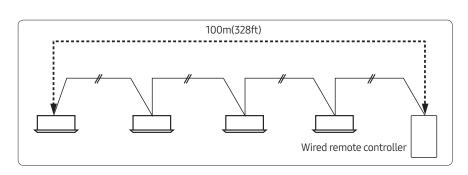
Group control (4)

Control multiple indoor units connected to different outdoor units with 2 wired remote controller



/!\ Caution

• When controlling group of indoor units connected to different outdoor unit, address of the each outdoor unit must be set differently.



• All connected indoor units

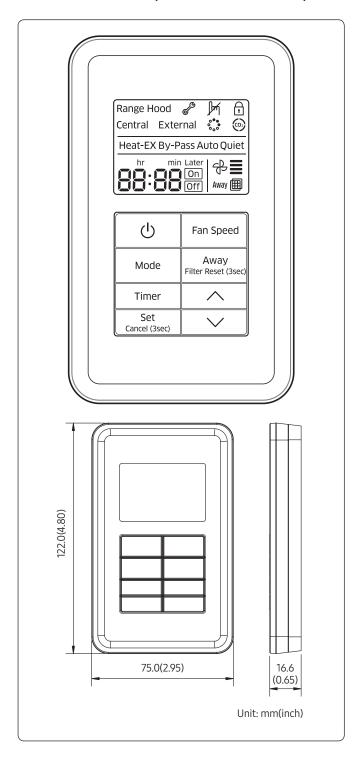
Display

- Priority 1. Display the status of View Master indoor unit
- Priority 2. Display the status of indoor unit which has the earliest Main address
 - Two wired remote controllers identically display the operation status of the indoor unit according to above priority.

• Max. distance between the farthest indoor unit and wired remote controller: 100m(328ft)

ERV Wired Remote Controller

MWR-VH12N (MWR-VH12RN)*



Features

- Wired remote controller for ERV
- ERV operation ON/OFF control
- Fan speed control
- Operation mode setting
- Filter replacement alarm reset
- Outing mode
- Simple On/Off timer

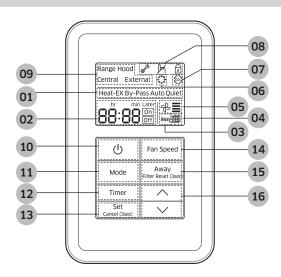
Product specification

Power supply	DC 12V
Power consumption	1.5 W
Operating temperature range	0°C~40°C (32°F~104°F)
Operating humidity range	30 % RH~90 % RH
Communication	2-wire PLC
Maximum length of connection	100 m (328ft)
Maximum number of controllable devices	16 ERVs

■ Compatible product

ERV	New communication ERV only

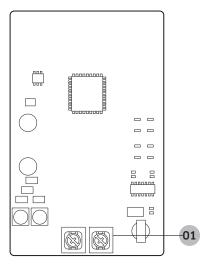
Description of parts



No.	Name	Description	
01	Operation mode indicator	Indicates current operation mode when the ERV is operating. (Heat-EX/By-Pass/Auto/Quiet)	
		On Indicates when On timer is set. Off Indicates when Off timer is set.	
02	Timer indicator	 hr min Later Timer mode: Displays the set time for On/Off timer. (Min. 30 minutes~Max. 24 hours) General mode: Displays remaining time before Timer function will execute. 	
03	Outing mode indicator Indicates when outing mode is on.		
04	Filter cleaning (period) indicator	Indicates when preset filter cleaning is required.	
05	Fan speed indicator Indicates current fan speed settings.		
06	S-Plasma ion(SPI) indicator (optional)	Indicates when S-Plasma ion(SPI) function is on.	
07	CO ₂ sensor indicator (optional)	Indicates indoor CO ₂ density when the sensor is on. (If the ERV is operating.)	
08	Inspection/Lock/Restricted indicator	 ♠: Indicates that inspection is required. ♠: Indicates when an unavailable function which is not supported by indoor units is selected or when the button is locked. ♠: Indicates when all buttons are locked. 	
09	Exhaust hood/Centralized/ External interlocking control indicator	Indicates when Exhaust hood/Centralized/External interlocking control is on.	
10	On/Off button	To turn ERV on or off	
11	Operation mode button	To select an operation mode (Heat-EX → By-pass → Auto → Quiet) • Available operation mode is according to ERV View master.	

No.	Name	Description		
12	Timer button To set simple on/off timer or external interlocking delay			
13	To set or cancel the option • Press and hold the button for over 3 seconds to cancel the timer.			
14	To select the fan speeds of indoor units • Available fan speed differs depending on the operation mode in the following order; Low → Medium → High → Turbo → Auto.			
15	 To turn the outing mode on or off To turn the filter cleaning display off Press and hold the button for over 3 seconds to turn off the display. 			
To move to the last or the Press the button to incre Up to 3 hours: Increase Over 3 hours: Increase Press the button to incre interlocking delay is set.		 To move to the last or the next items or change the set value Press the button to increase or decrease the set time during the timer is set. Up to 3 hours: Increase/decrease by 30 minute unit Over 3 hours: Increase/decrease by 1 hour unit Press the button to increase or decrease the set time during external interlocking delay is set. Set the time by 1 minute unit between 30 minutes and 1 hour. 		

■PCB

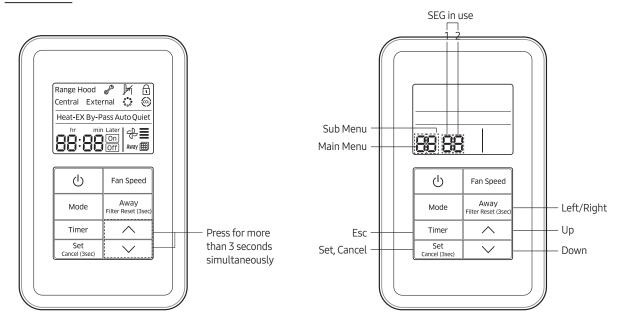


No.	Name	Description
01	Power/communication connection terminal	Connect to indoor unit (F3/F4)

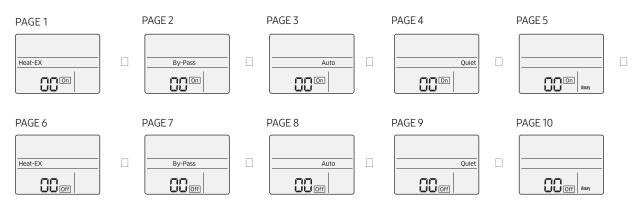
Option function

■ User setting mode

How to set



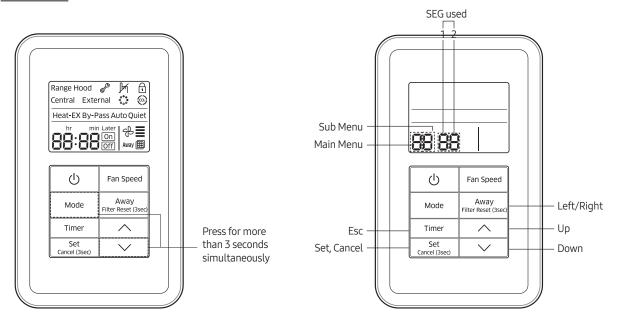
• SEG is divided as page according to displaying operation mode, [On], [Off] icon.



Main menu	Sub menu		Function	Default	Page in use	Range	Remarks
0	1	Reset User mode to default value		0	1	0 - Disabled, 1 - Reset	
	1		Lock all	0	1	0 - Unlock, 1 - Lock	
	2		Lock On/Off button	0	1	0 - Unlock, 1 - Lock	
1	1 3	Partially lock	Lock Mode button	0	1	0 - Unlock, 1 - Lock	
	4	4 buttons	Lock Fan speed button	0	1	0 - Unlock, 1 - Lock	
	5		Lock Timer button	0	1	0 - Unlock, 1 - Lock	

Service mode

How to set



Main menu	Sub menu		Function	Default	Page in use	Range	Remarks
	1		Reset the option setting of ERV wired remote controller to dafault value	0	1	0 - Disabled, 1 - Reset	
0	2	Reset	Reset ERV wired remote controller to factory default	0	1	0 - Disabled, 1 - Reset	
	3		Power Master Reset 2)*	0	1	0 - Disabled, 1 - Reset	
	4		Addressing Reset	0	1	0 - Disabled, 1 - Reset	
	1		Check the number of connected indoor units	0	1	0~16	
1	2	ERV wired remote controller information	Check the number of connected ventilators(ERV)	0	1	0~16	
'	3		Check the MICOM code of ERV wired remote controller	0	Page 1~3	MICOM code	
	4		Check the software version of ERV wired remote controller	0	Page 1~3	Updated date	
	1		Setting (Target)	ERV View Master	Page 1~3	Address of registered device Hexadecimal number 4)*	
2	2	Address/ option setting 1)*	Check/Set main address	Main address of the target	1	Main address (00H~4FH, Hexadecimal digits)	
	3		Check/Set RMC address	RMC address of the target	1	Group address (00H~4FH, Hexadecimal digits)	

Main menu	Sub menu	Function		Default	Page in use	Range	Remarks
	4	Address/ option setting 1)*	Check/set the product option	Product option of the target	Page 1~10	Option code of indoor units or ventilators	
2	5		Check/Set installation option (1)	Installation option 1 of the target	Page 1~10	Refer to installation manuals of connected indoor units or ventilations	
	6		Check/Set installation option (2)	Installation option 2 of the target	Page 1~10	Refer to installation manuals of connected indoor units or ventilations.	
3	1	Check/Set	Check/Set indoor unit view master	Indoor unit view Master	Page 1~3	Address of registered device Hexadecimal number 4)*	No function
5	2	view master	Check/Set ERV view master	ERV view master	Page 1~3	Address of registered device Hexadecimal number 4)*	
	1	Check/Set option	Setting Master/Slave ERV wired remote controller	0	1	0 - Master, 1 - Slave	
4	2	function of ERV wired remote controller	Setting external interconnection control usage	0	1	0 - No use, 1 - Use	
	1		Air exhaust RPM	none	Page 1~2	0~9999	
	2		Air intake RPM	none	Page 1~2	0~9999	
	3		Indoor temperature	none	1	0~99	
5	4	Check/Set ventilator	Outdoor temperature	none	1	0~99	
	5	(ERV)	Indoor humidity	none	1	0~99	
	6		Outdoor humidity	none	1	0~99	
	7		CO ₂ sensor	none	Page 1~2	0~9999	
	8		FAN Step 5)*	none	1	0~31	

^{1)*} You must select the targeted device in the sub menu 1 and then set the address/option.

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

RMC(2) can be set up to E only when RMC(1) is set as F.

(RMC(1): Group channel, RMC(2): Group address)

4)* Displays ventilator address (Hexadecimal digits)

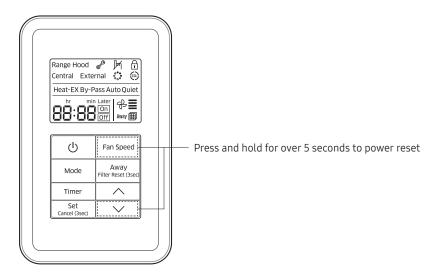
Ex) 30 00 0B: 0B is ERV Main address.

5)* Fan Step can be set when only one ventilator is connected.

^{2)*} Power Master Reset is a setting for supplying the most stable power to the ERV wired remote controller when the controller is connected to multiple indoor units or ventilators as a group.

System reset

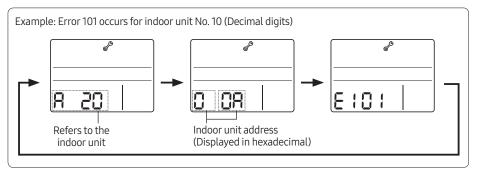
Reset the power of the ERV wired remote controller.



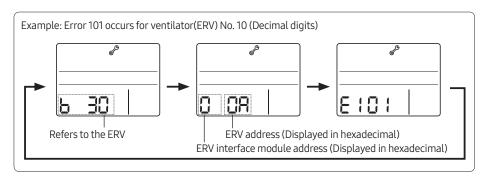
Display

Error display

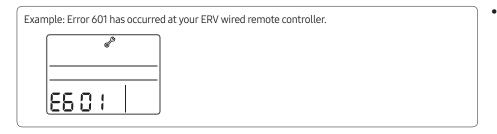
Error codes for the ERV wired remote controller and the product connected to it will be displayed on the LCD display.



- When an error occurs in your indoor/outdoor units (Product group display: A20)
 - Address of the product with error and the error code will be displayed alternately.



- When an error occurs in your ventilator(ERV) and ERV interface module (Product group display: b30)
 - Address of the product with error and the error code will be displayed alternately.



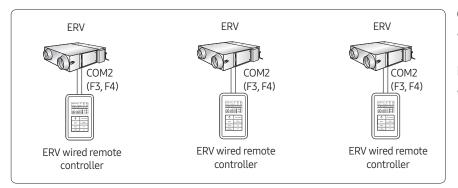
• When an error occurs in your ERV wired remote controller Only an error code will be displayed. (No address will be displayed.)

No.	Error code	Description of the error
1	684	Tracking error between ERV wired remote controller and ventilator(ERV) for over 3 minutes
2	689	No indoor unit installed for interlocking function
3	5 1 8	 Over 16 ERV/indoor units installed The ERV wired remote controller must be reset after checking the number of installed ERV/indoor units
4	627	Installation error in Slave ERV wired remote controller (When two or more slave ERV wired remote controllers are installed)
5	602	No communication between Master and Slave wired remote controllers
6	60 I	Communication error between ERV wired remote controller and ERV/indoor units (When there's no communication between the devices for 3 minutes after successful ERV wired remote controller tracking)
7	654	EEPROM error

Connection diagram

Individual control

1 ERV, 1 wired remote controller



Control

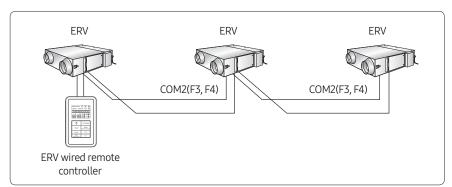
• All connected ERVs

Display

Status of connected ERVs

Group control (1)

Control multiple ERVs with single wired remote controller



Control

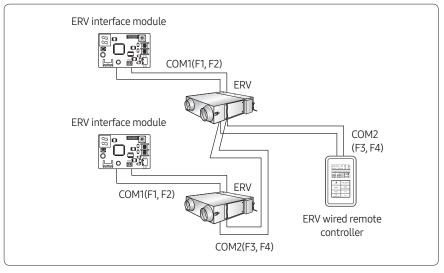
All connected ERVs

Display

- Priority 1. Display the operation status of View Master ERV
- Priority 2. Display the operation status of ERV which has the earliest Main address

Group control (2)

Control multiple ERVs connected to different ERV interface modules with single wired remote controller



Control

• All connected ERVs

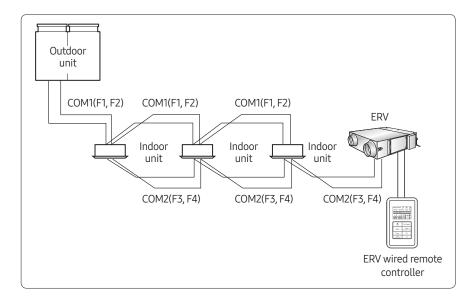
Display

- Priority 1. Display the operation status of View Master ERV
- Priority 2. Display the operation status of ERV which has the earliest Main address

()* is used in Turkey.

Mixed installation

Connect indoor units and ERVs to a single ERV wired remote controller



Control

All connected ERVs

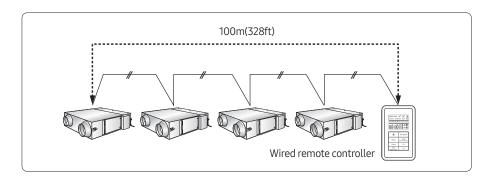
Display

- Priority 1. Display the operation status of View Master ERV
- Priority 2. Display the operation status of ERV which has the earliest Main address

∴ Caution

- Connect the devices as the above diagram for external interlocking control which interlock ERV On/Off with indoor unit On/Off.
- ERV wired remote controller cannot control indoor units.
- ERV wired remote controller and wired remote controller for indoor units cannot be connected at the same time. (AWR-WE10N etc.)

Maximum length of connection



 Max. distance between the farthest ERV and wired remote controller: 100m (328ft)

Chapter 02

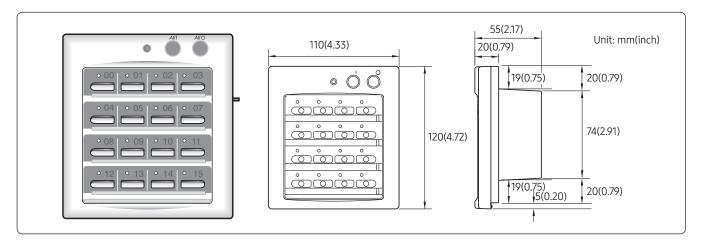
Centralized Control System

OnOff controller MCM-A202DN (MCM-A202DRN)*	69
Touch centralized controller MCM-A300N	76
Operation mode selection switch MCM-C200	89
Wi-Fi kit MIM-H03N (MIM-H03RN)*	91
Interface module MIM-N01	104
ERV interface module MIM-N10	111

OnOff controller

MCM-A202DN (MCM-A202DRN)*

Features



- Maximum 16-group controller (Max. 128 units)
- Whole/Group/Individual indoor unit control (On/Off)
- Restriction on the use of wireless/wired remote controllers and external contact control
- Cooling and heating mode control
- Indoor unit error display

Product specification

Power supply		AC200V~240V, 50/60Hz		
Power consumption		8W		
Operating Tem	perature range	0°C~40°C (32°F~104°F)		
Operating Hun	nidity range	30%RH~90%RH		
Communicatio	n	RS485 x 1 (R1/R2)		
Max. Communi	ication length	1000M (3280ft)		
		Device	Number	
	Catlerian	Indoor units (including ERV, MCU)	80 (Maximum 64 indoor units, 16 ERVs and 15 MCUs)	
	Set layer	Outdoor unit	1	
Max.		OnOff controller/Touch centralized controller/Wi-Fi kit	Total 16	
connectable				
number of		Device	Number	
device		Indoor units (including ERV, MCU)	128	
	Control layer	Outdoor unit (including compatible interface module MIM-N01)	16	
		OnOff controller/ Touch centralized controller	16 (15 when DMS2.5, BACnet gateway, LonWorks gateway is connected)	
		DMS2.5/BACnet GW/LonWorks GW	Total 1	

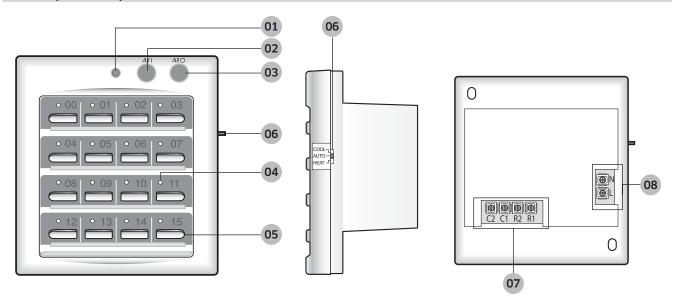
OnOff controller > MCM-A202DN (MCM-A202DRN)*

■ Compatible product

Outdoor unit	AM****X****
	OnOff controller (MCM-A202DN)
	Touch centralized controller (MCM-A300N)
Controller	DMS2.5 (MIM-D01AN)
	BACnet GW (MIM-B17BN)
	LonWorks GW (MIM-B18BN)

- Conventional communication outdoor unit requires interface module (MIM-N01) to establish connection
- MIM-B13D, MIM-B13E, MIM-B04A Interface modules cannot be connected.
- To connect ERV, MIM-N10 interface module is required.

Description of parts

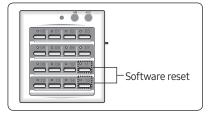


No.	Name	Description
01	Indoor unit operation LED	It lights on when more than one indoor unit operates.It flickers during indoor unit tracking process after power reset.
02	All ON button	Press All ON button to turn on all the indoor units.
03	All OFF button	Press All OFF button to turn off all the indoor units.
04	Group indoor unit operation LED	 It lights on when one indoor unit of the group is operating. It also flickers when indoor unit has an error. During tracking indoor units, LED whose number is equivalent to indoor unit RMC(2) address flickers.
05	Indoor unit control button	Press each indoor unit button to control the equivalent unit operation.

OnOff controller > MCM-A202DN (MCM-A202DRN)*

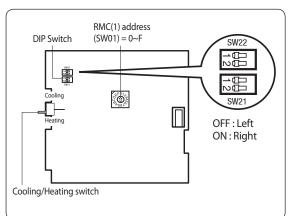
No.	Name	Description
06	Operation mode selection switch	Set operation mode selection switch to a certain mode and press indoor unit control button to control operation mode. Whenever pressing any button on the controller, set operation mode is delivered to the indoor unit.
07	Communication terminal	 C1 C2: No function R1 R2: Connect to Outdoor unit, DMS2, OnOff controller
08	Power terminal	AC200V~240V connection

• Press button 11 and button 15 together for 5 seconds to reset the OnOff controller.



Different Levels of the OnOff Controller

• Adjust the DIP switch in the OnOff controller PCB and set a level. This will enable the user to control the indoor units connected to the OnOff controller according to the set level.



Switch	SW22		Meaning		
No.	1	2	Meaning		
LEVEL 0	OFF	OFF	Among the various controllers, such as the OnOff controller, wired/wireless controller and the indoor unit button, the air conditioner will only be able to operate with the most recently used controller		
LEVEL 1	ON	OFF	The wired/wireless controller can only be used when the OnOff controller is powered on.		
LEVEL 2	OFF	ON	The air conditioner can only be operated with the OnOff controller.		

Note

- The LEVEL of the OnOff controller is '0' when all the switches are in the 'OFF' position.
- Changed LEVEL will be applied immediately when you turn on or off the operation with an OnOff controller.
- Level application and authorization for controlling from OnOff controller can be restricted depending on the Level setting from the upper controller with priority.
 - Ex) OnOff controller cannot control the indoor units if the control level set from the DMS is higher than the level of OnOff controller.

OnOff controller > MCM-A202DN (MCM-A202DRN)*

Setting the option for OnOff controller

1 You can adjust the DIP switch (SW21) on PCB of the OnOff controller to set the option and control the OnOff controller according to the selected option.

SW21		Contents
1	2	Contents
ON	-	Disable OnOff controller usage
OFF	-	Enable OnOff controller usage

- All the DIP switches of the OnOff controller is set to OFF as factory default setting.
- SW21 setting of the DIP switch will be applied instantly.
- Option setting for communication can be executed regardless of the Level setting.

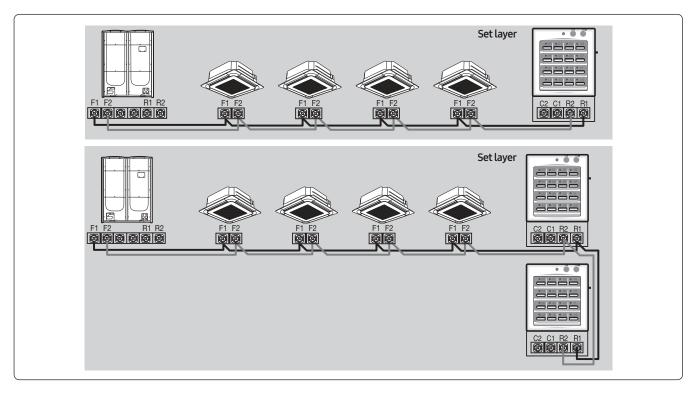
Connection diagram

Set layer connection (F1/F2)

- When OnOff controller only controls indoor units of 1 outdoor unit, then it can be connected to F1/F2 line of outdoor unit or indoor unit.
- Max. 16 Controllers can be connected to same communication line.

⚠ Caution

• Connectable controller: OnOff controller (MCM-A202DN), Touch centralized controller (MCM-A300N), Wi-Fi kit (MIM-H03N)



OnOff controller > MCM-A202DN (MCM-A202DRN)*

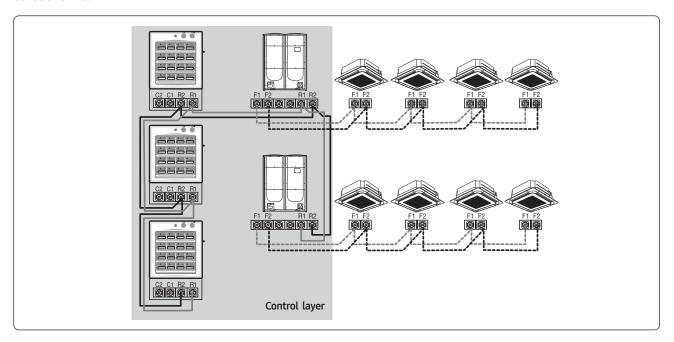
Control layer connection (R1/R2)

- New communication upper level controller
- Max. 16 Controllers can be connected to same communication line (In case of DMS2.5/BACnet gateway/LonWorks gateway connection, Max.15)
- Max. 16 outdoor units can be connected to same communication line (Includes interface module MIM-N01).

- Connectable controller
 - Touch centralized controller (MCM-A300N).
 - OnOff controller (MCM-A202DN).
 - DMS2.5(MIM-D01AN), BACnet gateway (MIM-B17BN), LonWorks gateway (MIM-B18BN): Only one of the three models.

Connection with outdoor unit

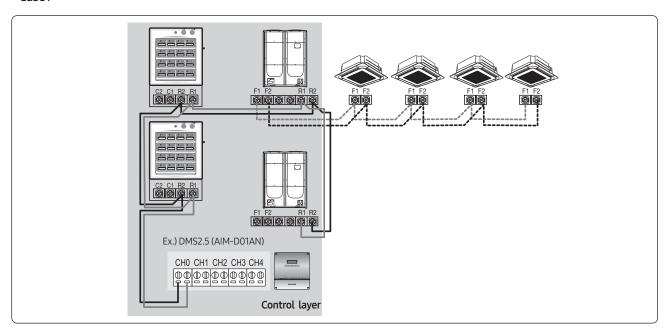
When OnOff controller controls indoor units of multiple outdoor units, then it should be connected to R1/R2 line of outdoor units.



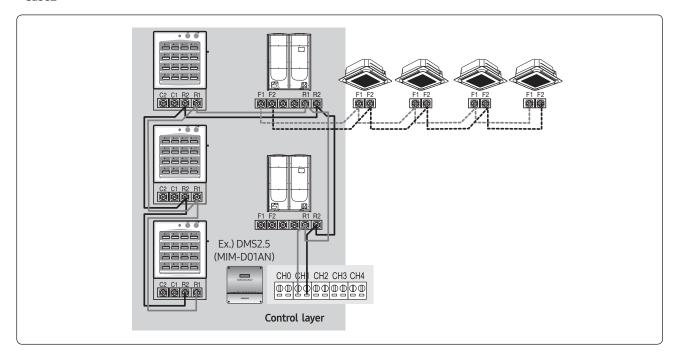
OnOff controller > MCM-A202DN (MCM-A202DRN)*

Connection with DMS2.5/BACnet GW/LonWorks GW

• Case1



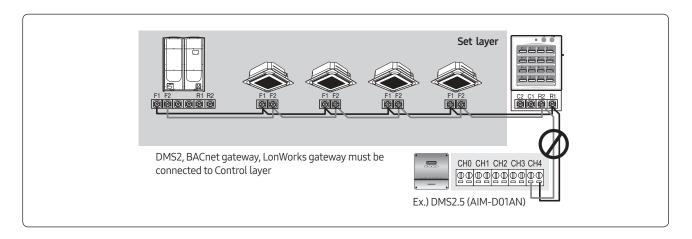
• Case2



⚠ Caution

• When OnOff controller is connected to Outdoor unit's F1/F2 line, you cannot connect DMS2.5 to OnOff controller's R1/R2 line.

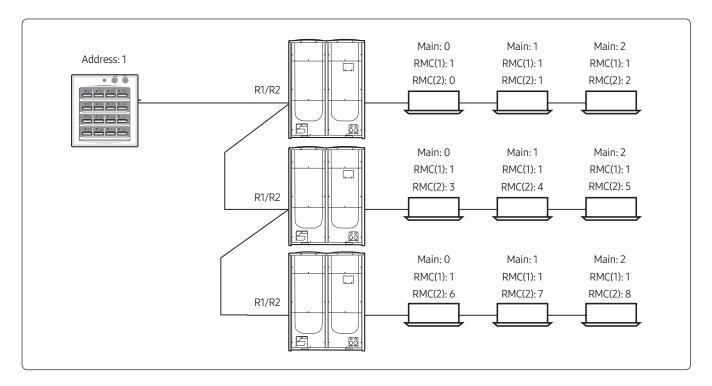
OnOff controller > MCM-A202DN (MCM-A202DRN)*



Display

Various LED display

After power reset to the OnOff controller, it carries out indoor unit tracking process.

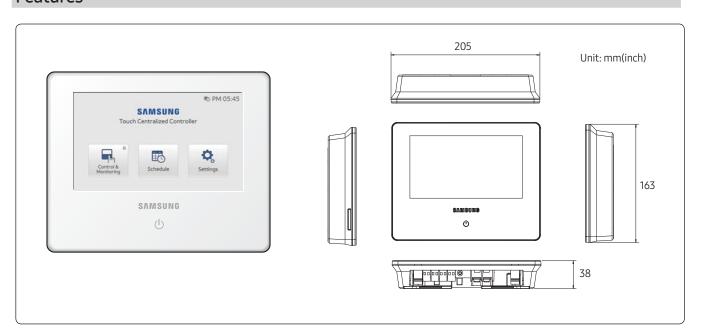


- OnOff controller only communicate with indoor units which has same RMC(1) address with OnOff controller's address.
- During tracking indoor units, LED whose number is equivalent to indoor unit RMC(2) address flickers.
 - In LED 00 \rightarrow LED 01 \rightarrow LED 02 \rightarrow LED 03 \rightarrow LED 04 \rightarrow LED 05 order

Touch centralized controller

MCM-A300N

Features



- 7 inch touch LCD controller
- Controls maximum 128 indoor units

- Controls maximum 12 zones
- Schedule control, Indoor unit usage restriction, View indoor unit error history

Product specification

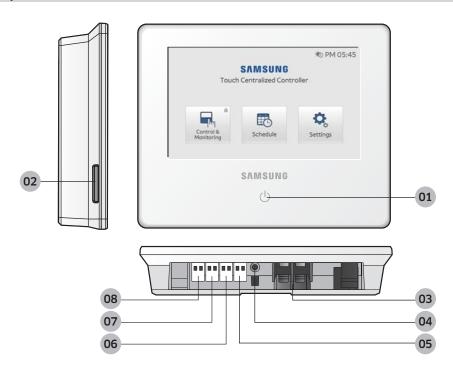
Power supply		AC200V~240V, 50/60Hz			
Power consumption		110W			
Operating temperatur	re range	0°C~40°C (14°F~104°F)	0°C~40°C (14°F~104°F)		
Operating humidity ra	inge	30%RH~90%RH			
Communication		RS485 x 1 (F1/F2 or R1/R2)			
External	Digital Output	1			
communication port	Digital Input	2			
	RS485	1000m(3280ft)			
Maximum connection length	Digital Output	100m(328ft)			
connection tength	Digital Input	100m(328ft)	100m(328ft)		
		Device	Number		
	Set layer	Indoor units (including ERV, MCU)	80 (Maximum 64 indoor units, 16 ERVs and 15 MCUs)		
		Outdoor unit	1		
		OnOff controller			
		Touch centralized controller	Total 16		
		Wi-Fi kit			
	Control layer	Device	Number		
Max. connectable number of device		Indoor units (including ERV, MCU, FCU KIT)	128		
		Outdoor unit (including MIM-N01, MIM-N10, MIM-F10N, DVM CHILLER unit)	16		
		OnOff controller	16 (15 when DMS2.5, BACnet gateway,		
		Touch centralized controller	LonWorks gateway is connected)		
		DMS2.5			
		BACnet GW	Total 1		
		LonWorks GW			
		Wi-Fi kit (MIM-H03N)	Total 1 (Maximum 16 indoor units, 16 outdoor units)		

■ Compatible product

Outdoor unit	AM****X****
	OnOff controller (MCM-A202DN)
	Touch centralized controller (MCM-A300N)
Controller	DMS2.0, 2.5 (MIM-D01AN, MIM-D01AN)
Controtter	BACnet gateway (MIM-B17BN)
	LonWorks gateway (MIM-B18BN)
	Wi-Fi kit (MIM-H03N)

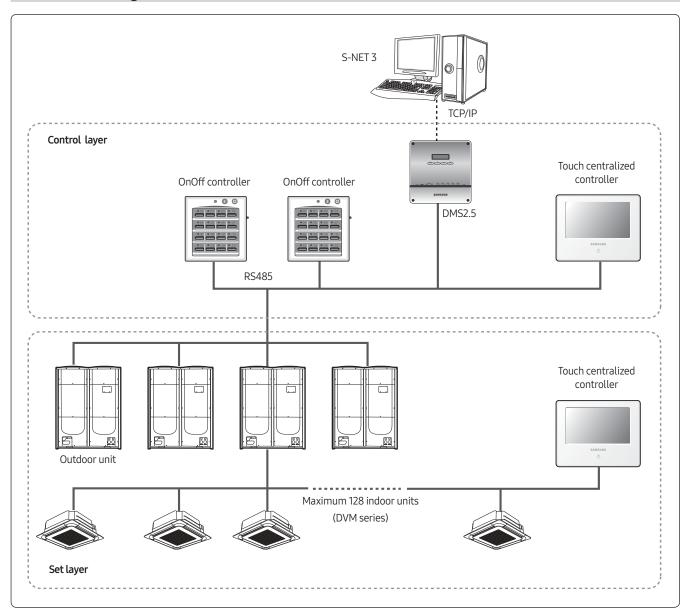
- Conventional communication outdoor unit requires interface module (MIM-N01) to establish connection
- MIM-B13D, MIM-B13E, MIM-B04A Interface modules cannot be connected.
- To connect ERV, MIM-N10 is required.
- To connect FCU KIT, MIM-F10N is required.

Description of parts



No.	Name	Description
01	LCD On/Off button and Indoor unit operation indicator	 Button: Turn on/off the LCD screen Indicator Blue: Turns on if any one of the indoor unit is in operation. Red: Turns on if nay one of the indoor unit has an error
02	SD card slot	Use to back-up data on SD card or updating S/W
03	Power terminal	Connect AC 100~240 V, 50/60 Hz power
04	Reset button	Use to reset Touch centralized controller
05	DI-1 terminal	Terminal block for connecting digital input signal from 3rd party device.
06	DI-2 terminal	Terminal block for connecting digital input signal from 3rd party device.
07	DO Terminal	Terminal block for digital output signal. • Short: When any one of indoor units turns On • Open: When all indoor units are off
08	485 communication terminal	 When connecting to set layer: Connect to outdoor unit or indoor unit (F1/F2) When connecting to control layer: Connect to outdoor unit, OnOff controller, Touch centralized controller or DMS2.5 (R1/R2)

Connection diagram

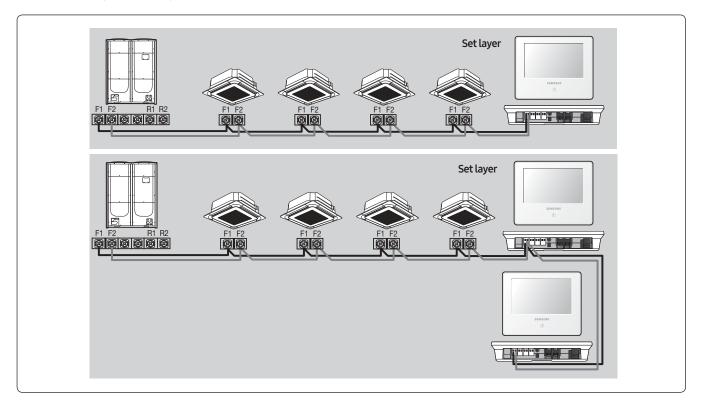


Connection

Set layer connection (F1/F2)

- When Touch centralized controller only controls indoor units of 1 outdoor unit, then it can be connected to F1/F2 line of outdoor unit or indoor unit.
- Max. 16 Controllers can be connected to same communication line.

 Connectable controller: OnOff controller (MCM-A202DN), Touch centralized controller (MCM-A300N), Wi-Fi kit (MIM-H03N)



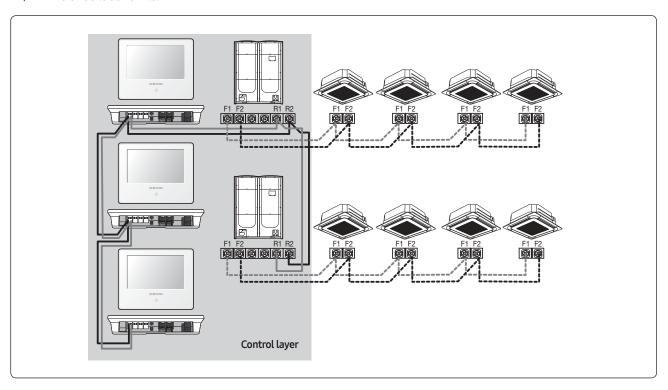
Control layer connection (R1/R2)

- Max. 16 Controllers can be connected to same communication line (In case of DMS2/BACnet gateway/LonWorks gateway) connection, Max.15)
- Max. 16 outdoor units can be connected to same communication line (Includes interface module MIM-N01).

- Connectable controller
 - Touch centralized controller (MCM-A300N).
 - OnOff controller (MCM-A202DN).
 - DMS2.5(MIM-D01AN), BACnet gateway (MIM-B17BN), LonWorks gateway (MIM-B18BN): Only one of the three models.

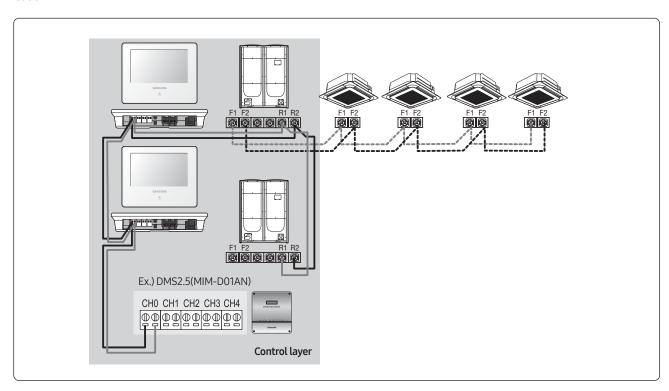
Connection with outdoor unit

When Touch centralized controller controls indoor units of multiple outdoor units, then it should be connected to R1/R2 line of outdoor units.

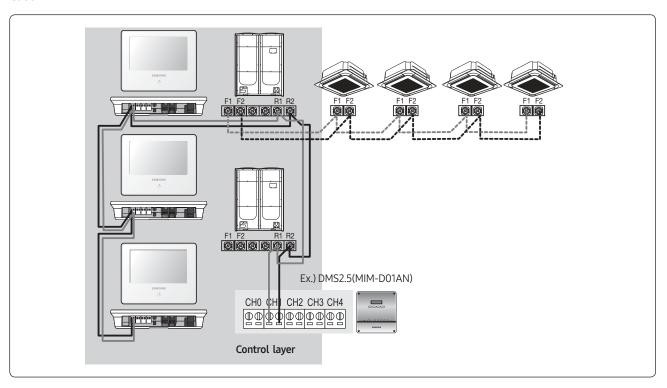


Connection with DMS2.5/BACnet GW/LonWorks GW

• Case1

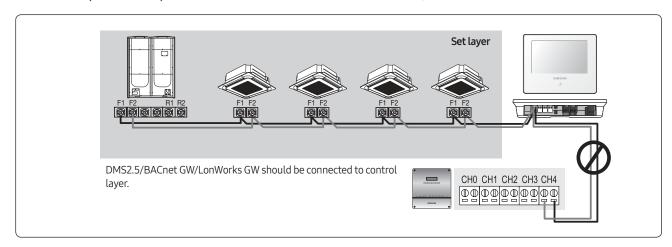


• Case2



$\underline{\wedge}$ Caution

• DMS2.5, BACnet GW, and LonWorks GW cannot be connected to F1/F2.



Main function

Zone control



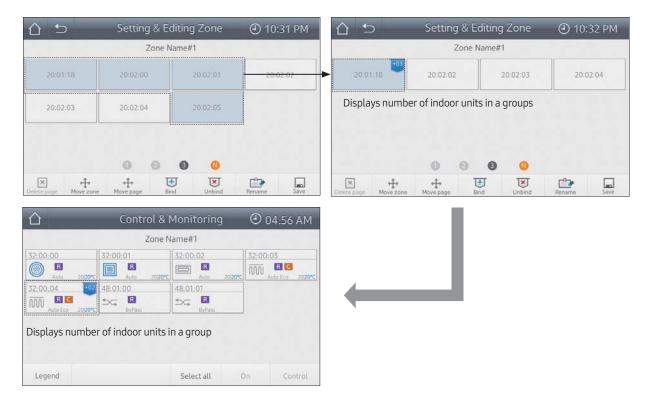
- You can create a zone by grouping multiple indoor units
- Maximum 12 zones can be created (Total up to 128 indoor units)



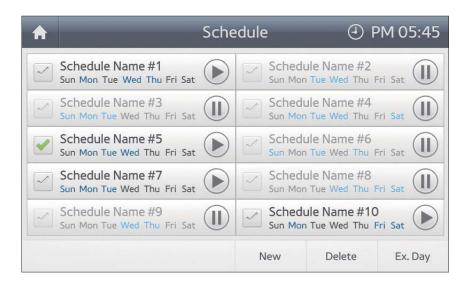
- You can set the name of Zone/indoor unit
- You can set the zone icon for purpose of each zone.

Grouping indoor units

Function to control and monitor multiple indoor units that are grouped and expressed as single indoor unit



Schedule control



- Maximum 10 schedules can be created
- Excluded day setting is possible

Setting indoor unit usage restriction

Cool lower limit/Heat upper limit





- It can set the lower temperature limit in Cool mode and the upper temperature limit in Heat mode.
- This setting can be changed by other touch centralized controller and DMS2.5.

Operation mode limit



- To prevent the wrong operation mode setting, it can limit the operation mode of indoor unit.
 - Cool only: Heat, Auto (Heat) operation mode is restricted
 - Heat only: Cool, Dry, Auto (Cool) operation mode is restricted
- This setting can be changed by other touch centralized controller and DMS2.5.

Lock function

You can lock the functions of Touch centralized controller.

Screen lock



• You can lock the screen. Password is required when you try to use it.

Operating panel lock



• You can set the access lock of each item of operating panel. The locked item will be deactivated.

Menu lock



• You can set the access lock of each menu. Password is required when you try to use it.

Touch centralized controller

Remote controller usage restriction

Indoor unit operating panel





- You can set the controller restriction.
- You can set the type of controller which will be restricted when "Disable RC" is applied from operating panel. [Settings] → [Device settings] → [Control level]

Device settings



- You can set the type of controller which will be restricted when "Disable RC" is applied from operating panel.
 - Remote controller: Restrict wired/wireless remote controller usage, OnOff controller usage is possible
 - OnOff controller: Restricts wired/wireless remote controller and OnOff controller usage

Tracking



- Detects all the indoor and outdoor units that are connected to communication line of Touch centralized controller
- When multiple number of Touch centralized controller is connected together, you can use check box of S/H (Show/Hide) to select indoor units that will be controlled from each Touch centralized controller.

Hiding indoor unit

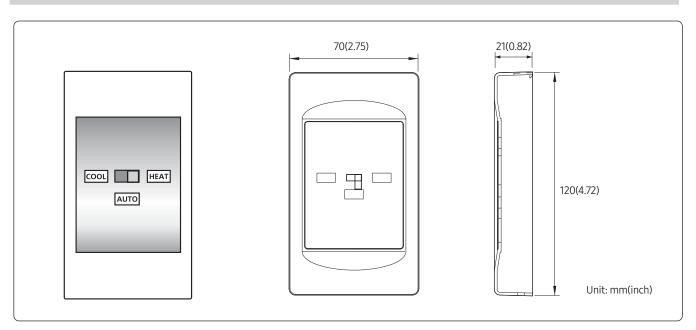


• Indoor unit with no check mark on S/H (Show/Hide) check box, will not be controlled and monitored from the Touch centralized controller.

Operation mode selection switch

MCM-C200

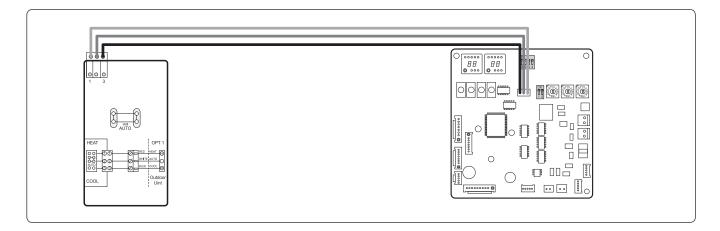
Features



Operation mode selection switch

- Outdoor unit operation mode selection (Cooling, Heating or Auto)
- Mixed operation mode protection

Installation

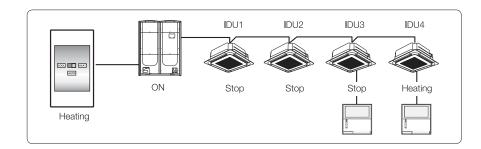


- 1 operation mode selection switch must be connected to 1 outdoor unit.
- Max. distance between the outdoor unit PCB and the MCM-200: 100m(328ft)

Operation mode selection switch > MCM-C200

Control example

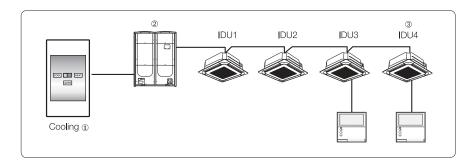
Initial condition



- Cool/Heat Selector: Heating position
- IDU1, 2, 3: Stop mode, IDU4: Heating mode
- Compressor ON

Sequence 1

Set the Cool/Heat selector to the Cooling position

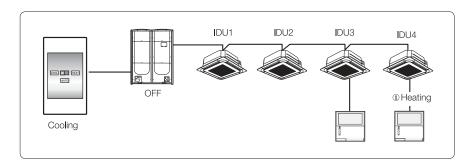


Result

- ① Change Cool/ Heat Selector to Cooling
- ② Automatically compressor OFF
- ③ Running IDU4 stops

Sequence 2

Set IDU4 to Heating with Remote controller



Result

- ① IDU4 ignores Heating command
 - IDU4 keeps OFF status.

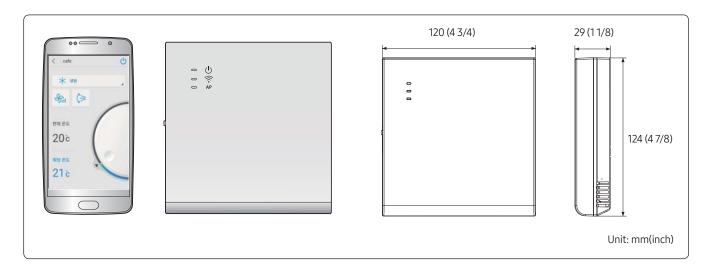
Note

• Operation mode selection switch fixed indoor unit operation mode. Indoor unit ignores opposite operation mode. (It will not accept the command and it will just beep shortly)

Wi-Fi kit

MIM-H03N (MIM-H03RN)*

Features



- Control and monitoring system air conditioner by mobile phone. (Max. 16 units)
- Weekly schedule setting

- Group control and monitoring (ON/OFF)
- Current/daily/weekly/monthly energy usage data of outdoor unit. (This function is available in certain outdoor unit model)

Product specification

Power supply		DC 12V		
Power consumption		6W		
Operating temperature range		0°C~40°C (32°F~104°F)		
Operating humidity	range	30%RH~90%RH		
Communication	Wired	RS485 (Communication with outdoor unit)		
Communication	Wireless	Wi-Fi 802.11b, g, n, 2.4 GHz (Communication with AP)		
Maximum	RS485	1000m (3280ft)		
connection length	Wi-Fi	20m(66ft) (It depends on AP specificatio	n)	
		Device	Nui	mber
	Set layer	Indoor units (including ERV, MCU kit)	16 units. (In case of more than 16 units connection, it displays only 16 units in ascending order of main address.)	
		Outdoor units	1	unit
		OnOff controller	14	
		Touch centralized controller	16 units (Including Wi-Fi kit Max.4)	
		Wi-Fi kit	(including with Richida.4)	
Max. connectable	Control Layer	Device	Nui	mber
number of device		Indoor units (including ERV)	16 (units.
		Outdoor units (Interface module, ERV interface module)	16 units.	
		OnOff controller	16 units.	
		Touch centralized controller		
		DMS2.5	Total 16 t	Total 16 units
		BACnet GW		
		Wi-Fi kit	4 unit	

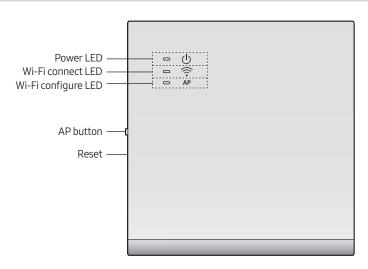
- Max.5 mobile app users per 1 Wi-Fi kit.
- Max.4 Wi-Fi kit registration per 1 user account.
- Controller: Controllers which can connect to Set layer (F1/F2) including Wi-Fi kit.

■ Compatible product

Outdoor unit	AM***X*****
ERV	AM****S*****
	OnOff controller (MCM-A202DN)
Controller	Touch centralized controller (MCM-A300N)
	Wi-Fi kit (MIM-H03N)

• ERV should connect MIM-N10 interface module to connect Wi-Fi kit.

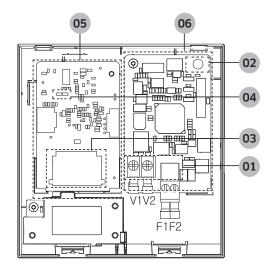
Description of parts



LED display information

No	LED information	Power	Wi-Fi Connect	Wi-Fi Configure
01	Initialized	ON	ON	ON
02	Normal	ON	ON	OFF
03	AP connection OK. but, internet is not connected	ON	Blinking	OFF
04	Air conditioner searching OK. but AP connection is not completed.	ON	OFF	OFF
05	Wi-Fi modem is in malfunction	Blinking	Blinking	Blinking
06	Searching AP (AP mode)	ON	OFF	ON
07	Searching air conditioner	Blinking	Blinking	OFF
08	No air conditioner information	Blinking	OFF	OFF
09	Inspecting network PBA	ON	Blinking	Blinking
10	Requesting a token (AP mode)	ON	OFF	Blinking

()* is used in Turkey.

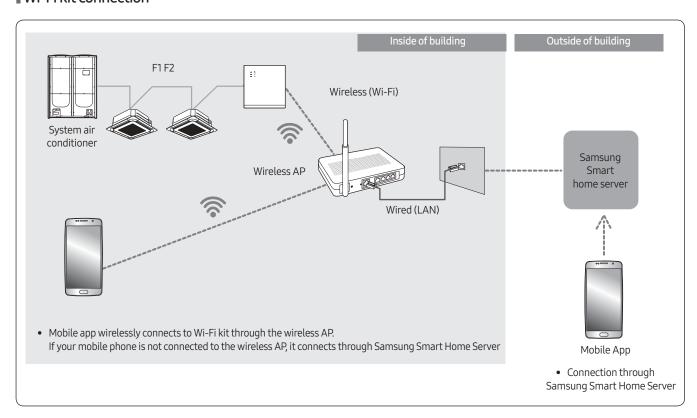


No.	Contents
01	Power/communication connection terminal
02	Tracking/Initializing button *
03	SD card slot
04	LED
05	Network PBA
06	Interface module PBA

^{*} Tracking: Press button for 1 or more second. Initializing: Press button for more than 5 seconds

Connection diagram

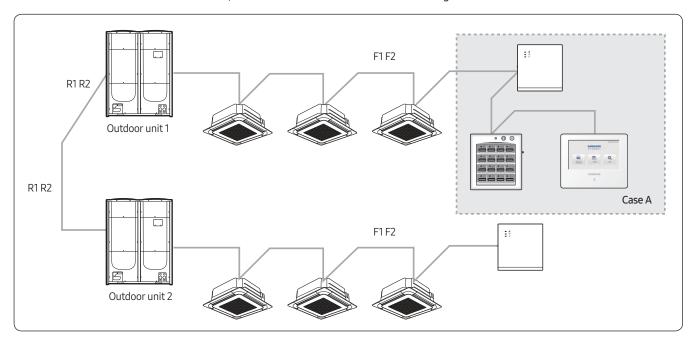
■ Wi-Fi kit connection



Connection with controllers

Case A (Set layer): Indoor units of outdoor unit 1 will be controlled.

- Wi-Fi kit is connected to Set layer only.
- If Wi-Fi kit uses "Multi tenant" fuction, then OnOff controller can no be use together.



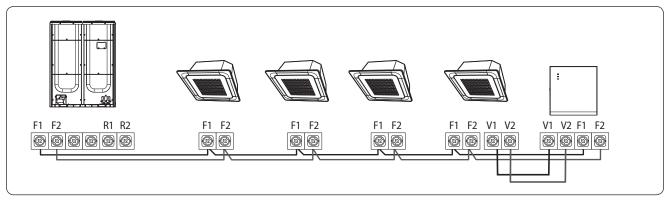
Note

• If controllers set "Remote controller restriction", then Wi-Fi kit is also restricted.

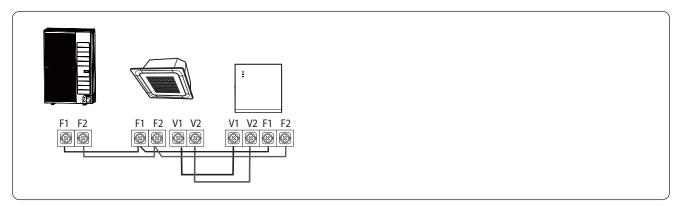
Connection

Set layer connection (F1/F2) only

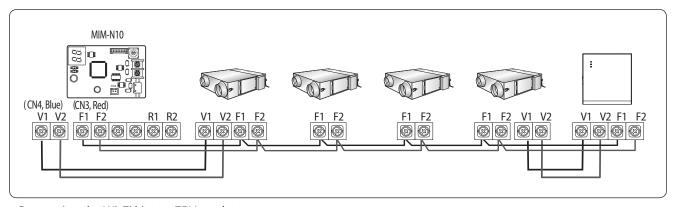
- 1) When connected to a single outdoor unit (F1-F2)
- * Connection diagram of Wi-Fi kit



Connecting the Wi-Fi kit to a multi type product >



Connecting the Wi-Fi kit to a single type product >

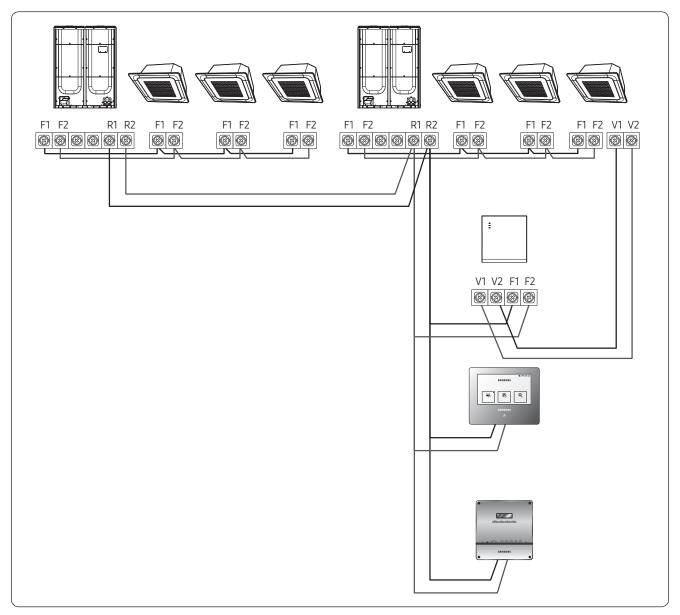


Connecting the Wi-Fi kit to a ERV product >

⚠ Caution

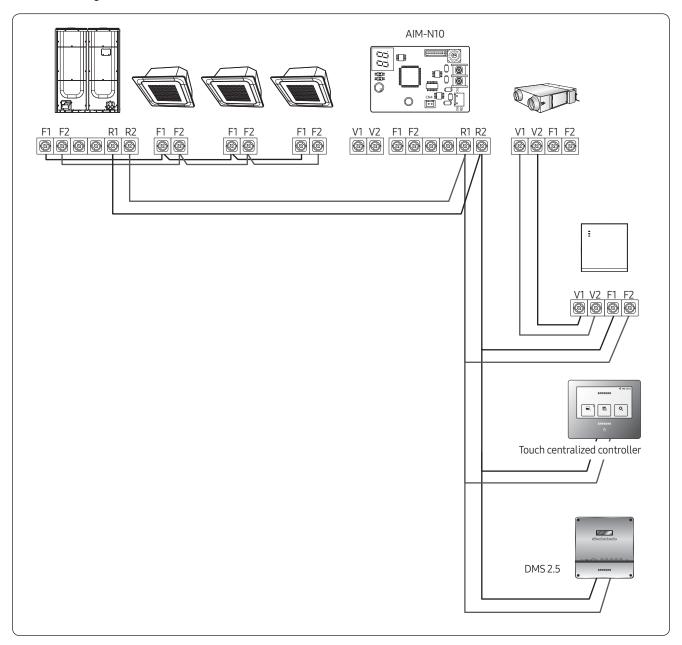
• New communication applied unit only

2) When connected to two or more outdoor units (R1-R2)



- Connect F1 and F2 of the Wi-Fi kit to R1 and R2 of the outdoor unit.
- Connect the power supply to V1 and V2 of the indoor unit.
- Can install together with other controllers such as touch centralized controller and DMS 2.5.

3) When installing with ERV (R1-R2)



- Connect F1 and F2 of the Wi-Fi kit to R1 and R2 of the outdoor unit.
- Connect the power supply to V1 and V2 of the indoor unit or ERV.
- Can install together with other controllers such as Touch centralized controller and DMS 2.5.

⚠ Caution

- Up to 16 indoor and outdoor units can be connected.
- When it is connected to two or more outdoor units, some functions including energy monitor can be restricted.

Main function

Control and monitoring by mobile phone





- You can control all connected indoor units of Wi-Fi kit (Max.16 units)
- You can turn ON/OFF all indoor units together.
- You can control individual indoor unit in
- (Detailed settings: Operation ON/OFF, operation mode, temperature setting, fan speed, air flow direction)
- You can rename indoor units.

Note

• In case of more than 16 units are connected, Wi-Fi kit displays only 16 units in ascending order of main address.

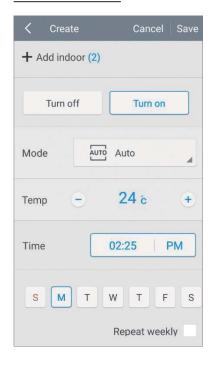
Group control





- You can create group. (Max.16 groups)
- You can turn ON/OFF all indoor units of group at once.
- If you select individual indoor unit of group, then you can control it in detail. (Detail setting: Operation ON/OFF, operation mode, temperature setting, fan speed, air flow direction)

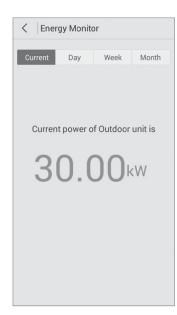
Schedule control

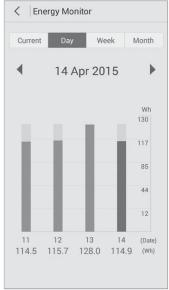


- You can set weekly schedule.
 (Max. 10 schedules. Possible to repeat it within the period)
- You can apply the schedule setting to multiple indoor units.
- You can set detailed operation if you set "On" schedule.
 (Operation mode, temperature setting)

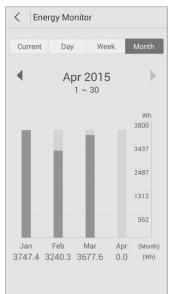
Energy monitor

• You can check the current/daily/weekly/monthly energy usage data of outdoor unit. (This function is available in certain outdoor unit model)



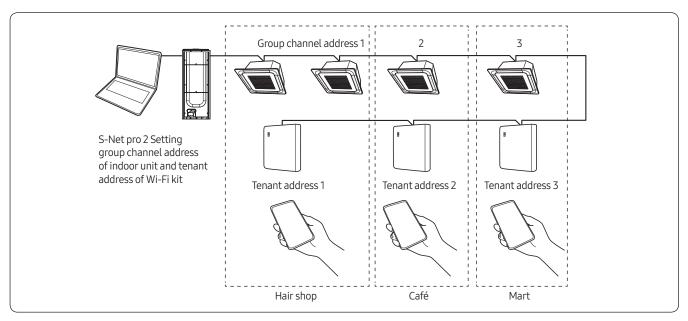






Setting individual usage of indoor unit

For individual usage of indoor units connected to outdoor unit, installing multiple number of Wi-Fi kit allows classifying indoor units by group channel address (RMC1).

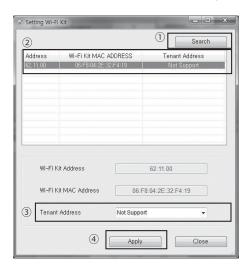


Note

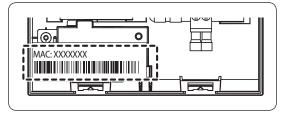
- Multi tenant function is to set controlling and monitoring of indoor units assigned to one group channel address (RMC1) by identical tenant address of Wi-Fi kit.
- Install Wi-Fi kits as number of groups to use.
 - Maximum number of Wi-Fi kit that can be connected to outdoor unit module is 4.
 - Maximum number of indoor unit that can be connected to Wi-Fi kit is 16.

Note

- You can change names of each Wi-Fi kit on your smartphone. You cannot change names of other connected smartphones.
- Set tenant address to each Wi-Fi kit by Wi-Fi kit setting function on installing program (S-Net pro 2).



- 1 Click Search to find connected Wi-Fi kits.
- **2** Select one MAC address among searched Wi-Fi kits.
 - MAC address can be found on the label inside of Wi-Fi kit.



- 3 Set tenant address. (Not support, 0 ~ F)
 - Enter tenant address to S-NET pro 2, and it will be applied as below.

Tenant address	Group channel address of indoor unit controlled by W-Fi kit
Not Support	Control all indoor units connected to outdoor unit
0	Control indoor units assigned to group channel address 0
1	Control indoor units assigned to group channel address 1
2	Control indoor units assigned to group channel address 2
3	Control indoor units assigned to group channel address 3
4	Control indoor units assigned to group channel address 4
5	Control indoor units assigned to group channel address 5
6	Control indoor units assigned to group channel address 6
7	Control indoor units assigned to group channel address 7
8	Control indoor units assigned to group channel address 8
9	Control indoor units assigned to group channel address 9
А	Control indoor units assigned to group channel address A
В	Control indoor units assigned to group channel address B
С	Control indoor units assigned to group channel address C
D	Control indoor units assigned to group channel address D
E	Control indoor units assigned to group channel address E
F	Control indoor units assigned to group channel address F

- Ex.) If tenant address 2 is entered to Wi-Fi kit by S-NET pro 2, only indoor units assigned to 2 for RMC1 will be the target of controlling and monitoring.
- 4 Click Apply and the tenant address will be saved on Wi-Fi kit.

Note

- Refer to "Setting an indoor unit address and installation option" in installation guide of indoor unit to set indoor unit group address. (SEG9: 1, SEG 11: RMC1)
- If you want to reset the tenant address, please contact Samsung service center.
- To control all indoor units classified by tenant address with one smart phone, each Wi-Fi kit should be registered on the smartphone.
- When using multi tenant function by Wi-Fi kit, upper controllers other than OnOff controller (such as Touch centralized controller, DMS, etc.) can be installed at the same time.

Note

• Data storage

Data	Location	
Data	Wi-Fi kit	Mobile phone
Group information	-	0
Indoor unit name	0	-
Schedule setting	0	-
Settings	Δ	Δ
Settings	(Set temp. unit/Set temp. scale)	(Heat temp. range)
Device installation information	0	_
(Number of indoor unit, Address, etc)	0	
Energy usage of outdoor unit	0	_
(6 months)		
Connection information	0	0

Initialization

- Initializing button: Reset to factory default state.
- Mobile app deletion: Deletes every data relating Wi-Fi kit in mobile phone.

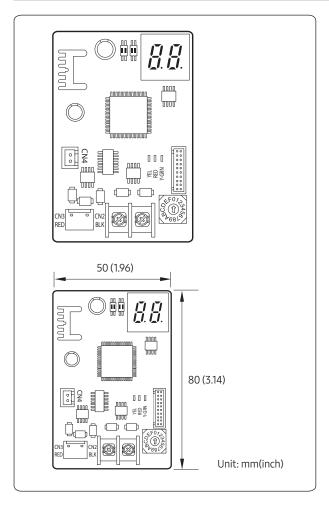
⚠ Caution

• After initialization, you must register Wi-Fi kit to Mobile app again.

Interface module

MIM-N01

Features



- Communication interface module between outdoor units and the upper level controller which has different communication
- Connect 1 interface module to 1 outdoor unit
- Individual control Maximum 48 indoor units
- Group control Maximum 16 groups
- Detecting communication type automatically: Judge the communication type of upper level controller according to communication type of the outdoor unit
- Supported communication type
 - Conventional communication outdoor unit ↔ New communication upper level controller
 - New communication outdoor unit ↔ Conventional communication upper level controller

∴ Caution

• This interface module does not support connection between Conventional communication outdoor unit ↔ Conventional communication upper level controller/New communication outdoor unit ↔ New communication upper level controller

Product specification

Power Supply	DC 12V
Power Consumption	2.4 W
Operating Temperature range	-10 °C~50 °C (14°F~122°F)
Operating Humidity range	10%RH~90%RH
Communication	RS485 x 2
Max.Communication Length	1000 M (3280 ft)
Maximum number of connection	 New communication outdoor unit ← Conventional communication upper level controller F1/F2: 1 outdoor unit R1/R2: 1 upper level controller
	 Conventional communication outdoor unit Only 1 DMS 2.5, BACnet/LonWorks Gateway connection is allowed)

■ Compatible Models

New communication outdoor unit ↔ Conventional communication upper level controller

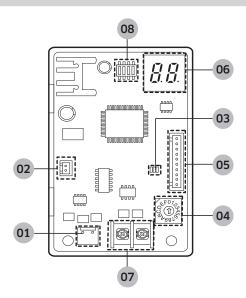
Outdoor unit	AM***X****
Upper level controller	 1 OnOff controller: MCM-A202D 2 DMS2: MIM-D00A 3 BACnet Gateway: MIM-B17 4 LonWorks Gateway: MM-B18 5 S-NET mini: MST-S3W

- Function controller and S-NET 2 Plus are not supported.
 - New communication Outdoor unit + MIM-N01 + MCM-A202D + Function controller (X)
 - New communication Outdoor unit+ MIM-N01 + MCM-A202D + S-NET 2 Plus (X)

■ Conventional communication outdoor unit → New communication upper level controller

Outdoor unit	DVM Plus 4, 3, 2, CAC, FJM	
Upper level controller	 1 OnOff Controller: MCM-A202DN 2 DMS2.5: MIM-D01AN 3 BACnet gateway: MIM-B17BN 4 LonWorks gateway: MIM-B18BN 5 Touch centralized controller: MCM-A300N 6 Wi-Fi kit: MIM-H03N 	

Description of parts



No.	Name	Description
01	F1/F2 communication connector	Communication connector that connects to outdoor unit/F1/F2
02	Power connector	DC 12V

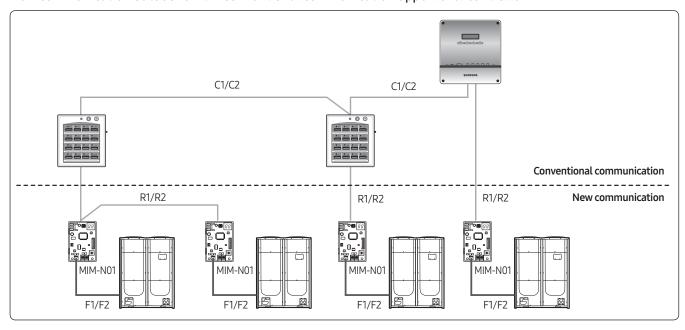
No.	Name	Description			
03	Communication LED	Comr	munication indicator LED		
		• Lef	• Left LED 3: No function		
		Middle LED 1: Blinks during it communicates with upper level controller			
		• Rig uni	ht LED 2: Blinks during it communicates with outdoor unit and indoor t		
04	Address setting switch	Sets the address of interface module			
05	Software update connector	Using this connector, Interface module software can be updated			
06	7-segment	Displays the communication status between interface module and outdoor unit			
07	Upper level controller communication channel	Communication connection channel to upper level controller R1/R2			
08	DIP switch	SW1	Description		
		1	On: Manual address setting/Off: Auto address setting		
		2	No function		
		3	No function		
		4	No function		

Note

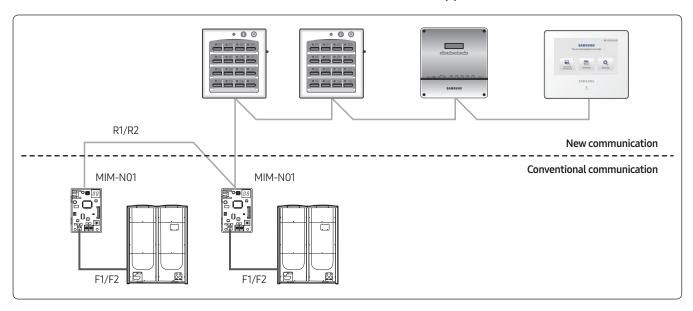
- When connecting to the conventional communication controller, address must be set manually regardless to the SW1 setting. When setting the address manually, make sure to set the address that is not assigned to other deivce already.
- When connecting to the new communication controller, SW1 must be ON to set the address manually, and make sure to set the address that is not assigned to other compatible interface module or outdoor units.

Connection diagram

New communication outdoor unit ↔ Conventional communication upper level controller



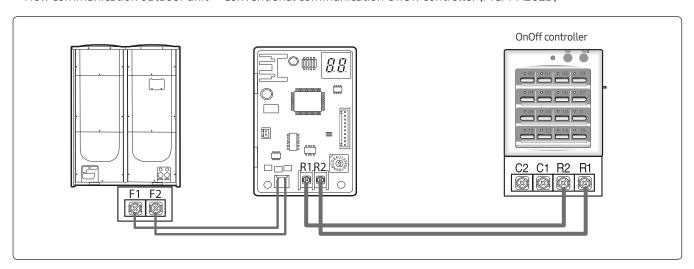
■ Conventional communication outdoor unit → New communication upper level controller



Connection

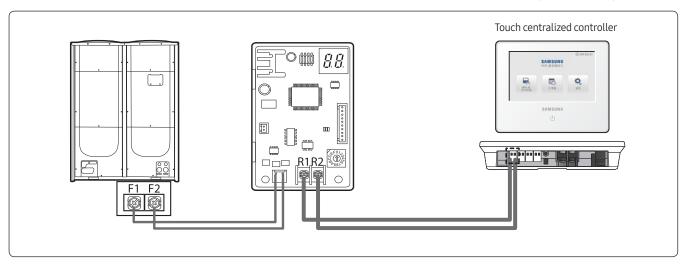
■ Connecting with OnOff controller

- Conventional communication outdoor unit ↔ New communication OnOff controller (MCM-A202DN)



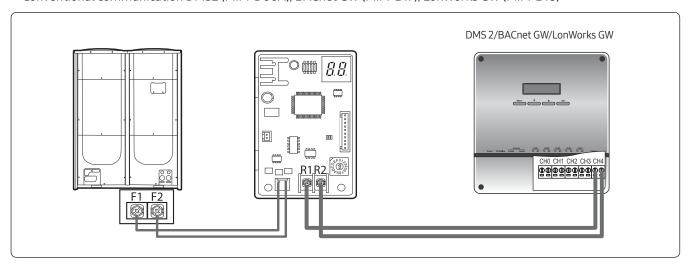
■ Connecting to Touch centralized controller

Conventional communication outdoor unit ↔ New communication Touch centralized controller (ACM-A300N)



Connecting to DMS 2/BACnet GW/LonWorks GW

- Conventional communication outdoor unit ↔
 New communication DMS2.5 (MIM-D01AN)/BACnet GW (MIM-B17BN)/LonWorks GW (MIM-B18BN)
- New communication outdoor unit ↔
 Conventional communication DMS2 (MIM-D00A)/BACnet GW (MIM-B17)/LonWorks GW (MIM-B18)



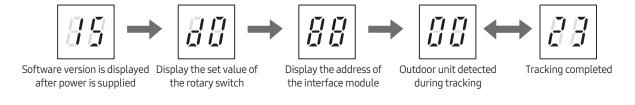
Note

- When connecting AM****X***** outdoor unit and new communication controller, you don't have to connect them with MIM-N01.
- When connecting Conventional communication outdoor unit and controller (ex. MCM-A202D), MIM-B13D or MIM-B13E must be used.

Interface module > MIM-N01

Display

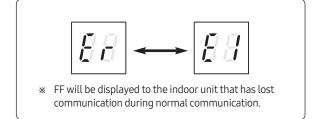
Checking the operation



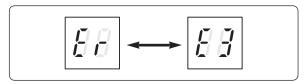
Displays the Main address of the communicating indoor units alternately [Displays the indoor unit that is set as (centralized control)]

Error display

• Communication error between outdoor unit and the interface module

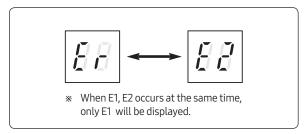


• Interface module tracking failure

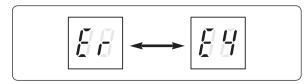


- Communication error between conventional communication outdoor unit ↔ New communication upper level controller after tracking has been completed
 - It will be displayed after failing 80 times of communication trial after interface module has started tracking (approximately 3 minutes)
- Communication error between New communication outdoor unit ↔ Conventional communication upper level controller after tracking has been completed
 - It will be displayed after failing the tracking process over 10 minutes from the interface module has started tracking.

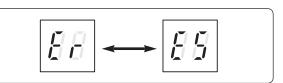
• Communication error between upper level controller and the interface module after tracking has been completed



• When problem occurs on EEPROM



• When same address was assigned to more than one interface module (Only detected when new communication upper level controller is connected to conventional communication outdoor unit)



Interface module > MIM-N01

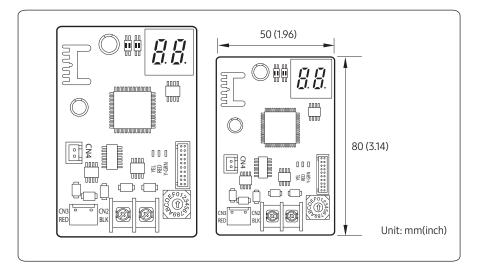
■ Error display table

Error	Display	Error Code	Display on new communication upper level controller	Display on Conventional communication upper level controller
EEPROM	Er-E4	E654	E654	-
Overlapped address	Er-E5	E108	E108	-
Tracking failure	Er-E3	E604	E201	-
Indoor unit communication error	Er-E1	E615	E201 or E101	E615
Outdoor unit communication error	Er-E1	E616	E202	E616
Upper level controller communication error (Conventional type)	Er-E2	-	-	-

ERV interface module

MIM-N10

Features



∴ Caution

• This interface module does not support connection between Conventional communication ERV ↔ Conventional communication upper level controller

- Communication interface module between new communication ERV and controller
- Connect 1 ERV interface module to Max. 16 ERVs
- Individual control Maximum 16 **ERVs**
- Group control Maximum 16 groups
- Supported communication type
 - Conventional communication ERV ↔ New communication upper level controller
 - New communication ERV \leftrightarrow Conventional communication upper level controller
 - New communication ERV \leftrightarrow New communication upper level controller

Product specification

Power Supply	DC 12V	
Power Consumption	2.4 W	
Operating Temperature range	-10 °C~50 °C (14°F~122°F)	
Operating Humidity range	10%RH~90%RH	
Communication	RS485 x 2	
Max.Communication Length	1000 M (3280 ft)	
Maximum number of connection	 New communication ERV ↔ Conventional communication upper level controller F1/F2: ERV 16 ERVs R1/R2: 1 upper level controller Conventional communication ERV ↔ New communication upper level controller F1/F2: ERV 16 ERVs R1/R2: Total up to 16 upper level controllers (Only 1 DMS 2.5, BACnet GW/LonWorks GW connection is allowed) 	
	 New communication ERV ↔ New communication upper level controller F1/F2: ERV 16 ERVs R1/R2: Total up to 16 upper level controllers (Only 1 DMS 2.5, BACnet GW/LonWorks GW connection is allowed) 	

ERV interface module > MIM-N10

■ Compatible Models

New communication ERV \leftrightarrow Conventional communication upper level controller

ERV	New communication ERV	
Upper level controller	 1 OnOff controller: MCM-A202D 2 DMS2: MIM-D00A 3 BACnet GW: MIM-B17 4 LonWorks GW: MIM-B18 5 S-NET mini: MST-S3W 	

- Function controller and S-NET 2 Plus are not supported.
 - New communication ERV+ MIM-N10 + MCM-A202D + Function controller (X)
 - New communication ERV + MIM-N10 + MCM-A202D + S-NET 2 Plus (X)

■ Conventional communication ERV · New communication upper level controller

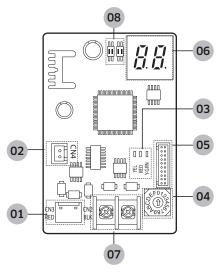
ERV	Conventional communication ERV (Except mechanical ERV)		
Upper level controller	 1 OnOff controller: MCM-A202DN 2 DMS2.5: MIM-D01AN 3 BACnet GW: MIM-B17BN 4 LonWorks GW: MIM-B18BN 5 Touch centralized controller: MCM-A300N 6 Wi-Fi kit: MIM-H03N 		

■ New communication ERV New communication upper level controller

ERV	New communication ERV	
Upper level controller	 OnOff controller: MCM-A202DN DMS2.5: MIM-D01AN BACnet GW: MIM-B17BN LonWorks GW: MIM-B18BN Wi-Fi kit: MIM-H03N 	

ERV interface module > MIM-N10

Description of parts





- When connecting to the conventional communication controller, address must be set manually regardless to the SW1 setting. When setting the address manually, make sure to set the address that is not assigned to other deivce already.
- When connecting to the new communication controller, SW1 must be ON to set the address manually, and make sure to set the address that is not assigned to other compatible interface module or outdoor units.

No.	Name	Description	
01	F1/F2 communication connector	Communication terminal that connects to outdoor unit/F1/F2 of ERV	
02	Power connector	DC 12V	
		Communication indicator LED • Left LED 3: No function	
03	Communication LED	• Middle RED: Blinks during it communicates with upper level controller	
		 Right Y-GRN: Blinks during it communicates with ERV 	
04	Address setting switch	Sets the address of interface module	
05	Software update connector	Using this connector, Interface module software can be updated	
06	7-segment	Displays the communication status between interface module and ERV	
07	Upper level controller communication channel	Communication terminal to upper level controller R1/R2	



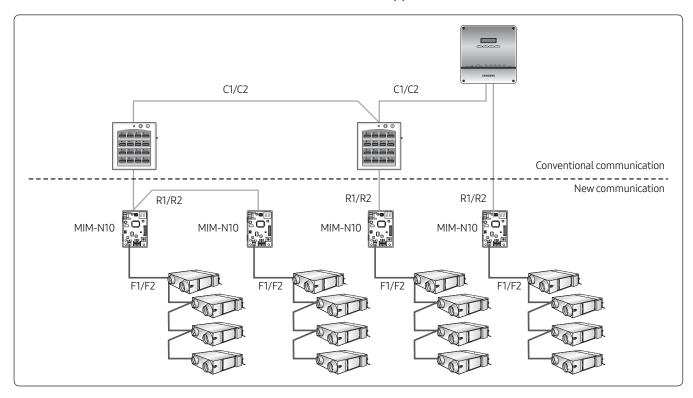
SW5 - No use

SW4	Description	
1	OFF (Auto address setting, switch must be down)	
	ON (Manual address setting, switch must be up)	
2	OFF (New communication upper level controller ↔ Conventional communication ERV) (Conventional communication upper level controller ↔ New communication ERV) ON (New communication upper level controller ↔	

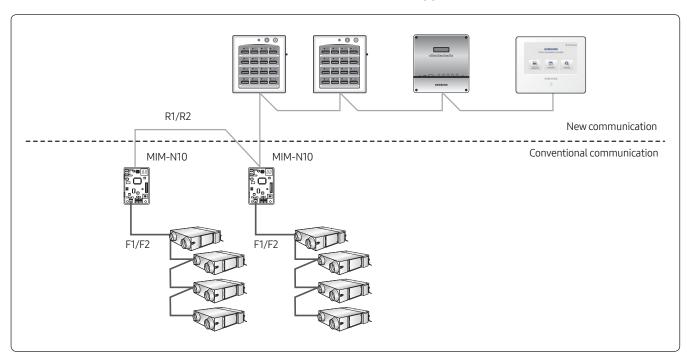
- When upgrading the program, SW4-2 must be set to ON status before proceeding upgrade regardless of the installation condition.
 - After completing the download, set the DIP switch #2 correctly according to installation condition before supplying the power.

Connection diagram

■ New communication ERV Conventional communication upper level controller



■ Conventional/new communication ERV · New communication upper level controller

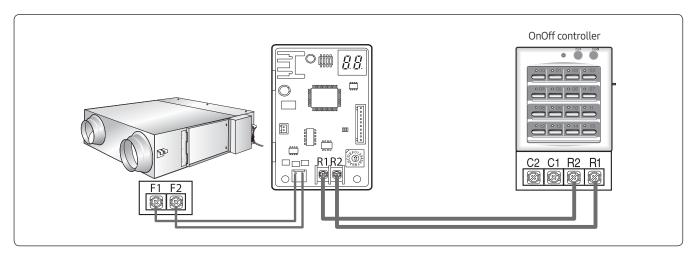


ERV interface module > MIM-N10

Connection

Connecting with OnOff controller

- Conventional communication ERV ↔ New communication OnOff controller (MCM-A202DN)
- New communication ERV ↔ Conventional communication OnOff controller (MCM-A202D)

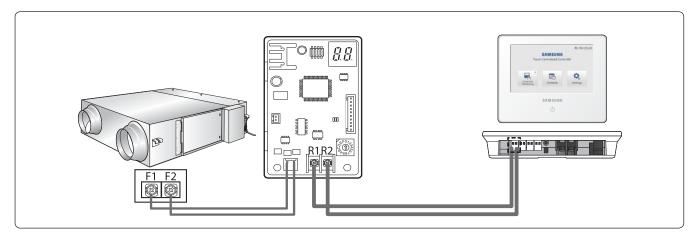


Note

• When connecting conventional communication ERV and OnOff controller(MCM-A202D), MIM-B13D or MIM-B13E must be used.

Connecting with Touch centralized controller

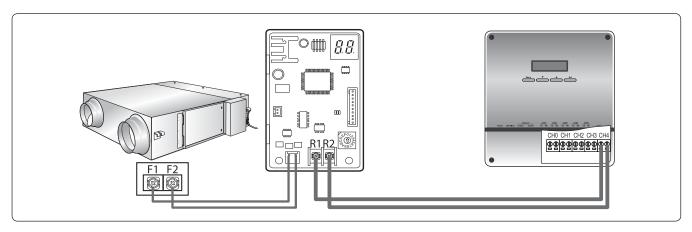
- Conventional communication ERV ↔ New communication Touch centralized controller (MCM-A300N)



ERV interface module > MIM-N10

Connecting with DMS2/BACnet GW/LonWorks GW

- Conventional communication outdoor unit
 → New communication DMS2.5(MIM-D01AN)/BACnet GW (MIM-B17BN)/
 LonWorks GW (MIM-B18BN)
- New communication outdoor unit
 ← Conventional communication DMS2(MIM-D00A)/BACnet GW (MIM-B17)/LonWorks GW (MIM-B18)



Checking the operation

- **1** When initializing power supply, $\square\square$ will be indicated after indicating the program cord.
- **2** After receiving valid communication more than once, ### will be indicated.
- **3** When the communication is normal, the MAIN ADDRESS of the ventilator that can be controlled by the ERV interface module is indicated in order.
- **4** When there is no communication between the ventilaotr and the ERV interface module for more than 3 minutes, EB ↔ EB will be indicated alternately.
- 5 When there is no communication between an ERV interface module and an upper level controller for more than 3 minutes, EE ↔ EE will be indicated alternately.
- **6** When the ERV interface module tracking is not complete, *EB* ↔ *EB* will be indicated alternately.
- **7** When there's error on EEPROM of the ERV interface module, *EE* ↔ *EE* will be indicated alternately.
- 8 When same address was set to multiple ERV interface modules, E∃ ↔ E5 will be indicated alternately.
- **9** When more than 16 ventilators are installed, *EE* ↔ *EE* will be indicated alternately.
- 10 When ventilators and indoor units are installed together, $EE \leftrightarrow EP$ will be indicated alternately.

Chapter 03

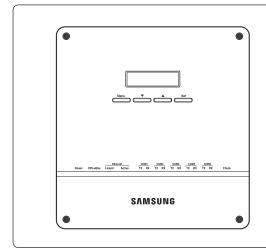
Integrated management System

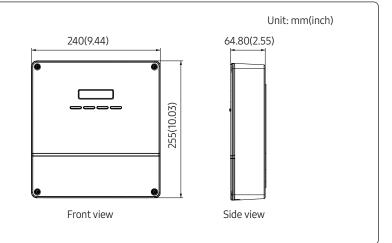
DMS2.5	
MIM-D01AN (MIM-D01ARN)*118	3
S-NET3	
MST-P3P 16 ⁵	_

DMS2.5

MIM-D01AN (MIM-D01ARN)*

Features





- Built-in web server for PC-independent management and remote access control
- Multiple upper-layer control access (S-NET 3, Web-client)
- Weekly/Daily schedule control
- Power distribution function
- Current time management even during power failure (for 24 hours)

- Emergency stop function with simple contact interface
- Individual/Group control of up to 256 indoor units and ERV, AHU, DVM CHILLER, FCU kit
- User editable control logic
- Accessible level management
- Dynamic security management
- Operation & error history management
- Data storage in non-volatile memory & SD memory

/ Caution

• You cannot upgrade DMS 2.0 to DMS2.5 by software upgrade.

Product specification

	Source	DC Adaptor				
Power	Input	100~240VAC (±10%), 50/60Hz				
	Output	12V 3A				
Operating tem		-10°C ~ 50°C (14°F~122°F)				
Operating hu		0%RH~90%RH				
Communication method		Lower level: RS485 x 5 Upper level: Ethernet 100 Base-T x 1				
External	Digital Output	8				
connection port	Digital Input	8				
	RS485	1000 m (3280ft)				
Maximum length	Digital Output	100 m (328ft)				
of connection	Digital Input	100 m (328ft)				
	Ethernet	100 m (328ft): When there is no repeater				
		Device	Numbers per each channel	Total number for 5 channels		
	Control layer	Indoor units (including ERV, MCU, FCU KIT)	128	256		
Max. connectable number of device		Outdoor units (including MIM-N01, MIM-N10, MIM-F10N,DVM CHILLER unit)	16	80		
		OnOff controller	Total 15	Total 75		
		Touch centralized controller	_	(Including Wi-Fi		
		Wi-Fi kit (MIM-H03N)	kit Max.4) kit Max.20)			
		PIM interface module (MIM-B16N)	8	8		

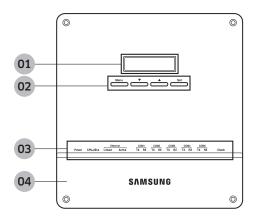
■ Compatible product

Outdoor unit	AM***X*****
Controller	OnOff controller (MCM-A202DN)
	Touch centralized controller (MCM-A300N)
	PIM interface module (MIM-B16N)
	Wi-Fi kit (MIM-H03N)

- Conventional communication outdoor unit requires interface module(MIM-N01).
- MIM-B13D, MIM-B13E, MIM-B04A Interface modules cannot be connected.
- To connect ERV, MIM-N10 is required.
- To connect FCU KIT, MIM-F10N is required.
- Conventional PIM must connect to CH4(COM5) of DMS 2.5.

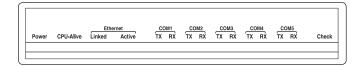
Description of parts

Front



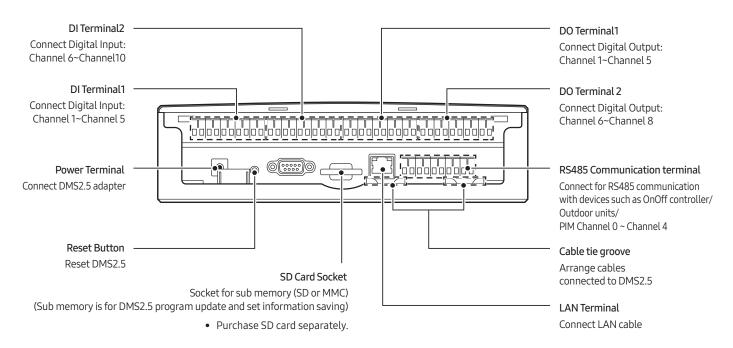
No.	Name	Function
01	LCD display	Shows current time and IP address. Various messages will be displayed depending on button input.
02	LCD operation button	There are 4 buttons (Menu, ▼ (Down), ▲ (Up), Set) and you can access to menu and move, check the menu.
03	LED Indicator	Check 15 LED status such as Power, CPU-Alive, Ethernet-Linked/Active, COM1~5-TX/RX and Check
04	DMS2.5 Bottom cover	Unfasten 2 screws on the bottom and separate the bottom cover from DMS2.5. Then check cable connection part.

LED indicator

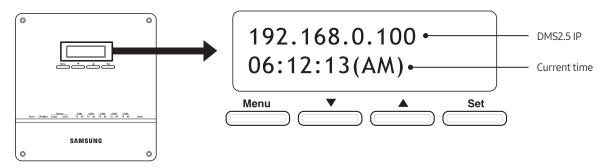


Item	Name	Status
Power	Power indicator	Turns blue when the power is supplied
CPU Alive	CPU operation indicator	Blinks in orange with 1 second intervals during normal operation
Ethernet - Linked	Internet connection indicator	Turns green during normal connection
Ethernet - Active	Internet data transmission/ reception indicator	Blinks in orange during normal transmission/ reception
COM1~5 - TX	OnOff controller/ Outdoor unit data transmission indicator	Blinks in green during normal transmission
COM1~5 - RX	OnOff controller/ Outdoor unit data reception indicator	Blinks in green during normal reception
Check	Indoor/outdoor unit/error check indicator	Turns green when there is an error on more than one indoor/outdoor unit or in communication

Bottom



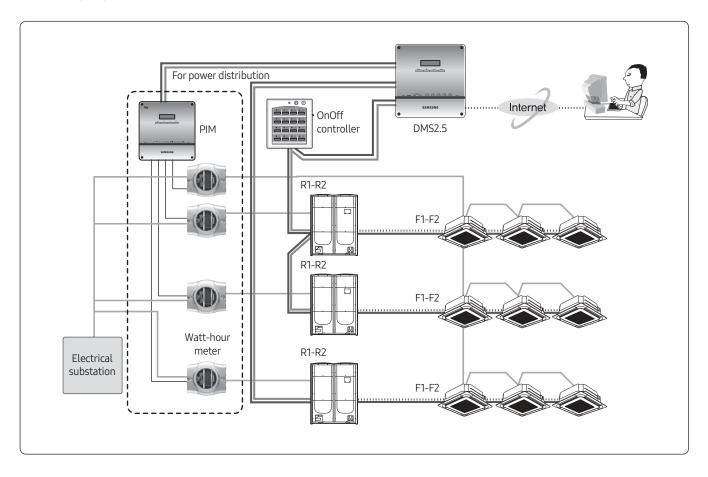
Menu and display



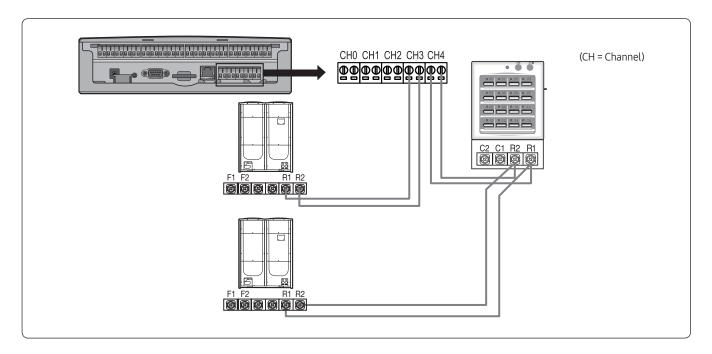
Button	Detail description	
LCD display	 General display: Displays IP address of the DMS2.5 and current time In Menu: Displays menu information and set value 	
Menu	Access menu and select main menu Cancel menu setting	
V	Move between menu Change the menu settings	
<u> </u>	Move between menu Change the menu settings	
Set	Access sub menuSave the change of menu settings	

Connection diagram

MIM-B16N(PIM) can be connected with outdoor units or controllers to same channel of DMS2.5.



Wiring



■ Connecting outdoor unit directly

- Maximum 16 outdoor units can be connected to each channel
- Total 80 outdoor units can be connected

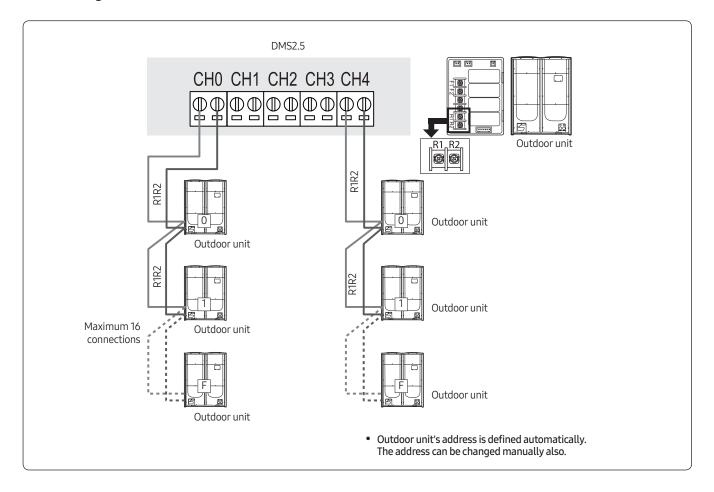
Connecting OnOff controller/Touch centralized controller

• Maximum 15 OnOff controller/Touch centralized controller can be connected to each channel

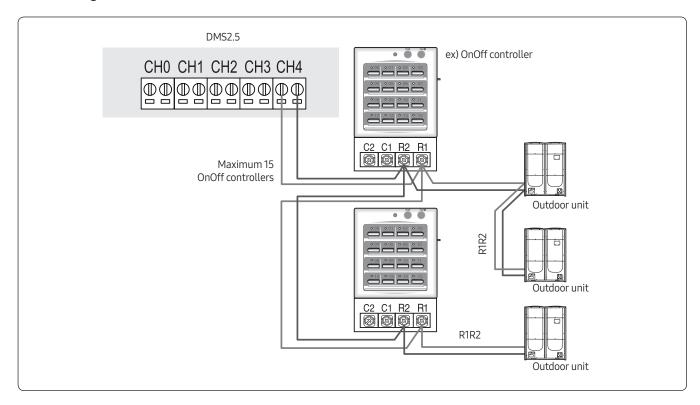


- DMS2.5 can connect outdoor unit and OnOff controller/Touch centralized controller at the same time.
- Outdoor unit and OnOff controller/Touch centralized controller can be connected to 1 communication channel at the same time.

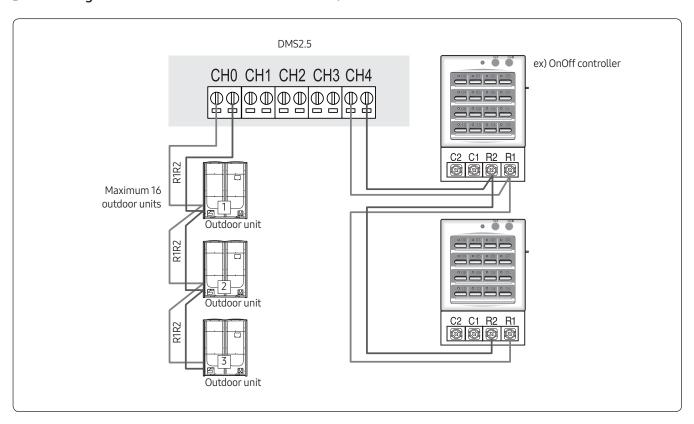
■ Connecting with outdoor unit



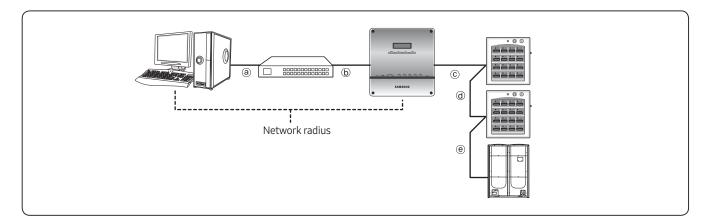
Connecting with OnOff controller/Touch centralized controller



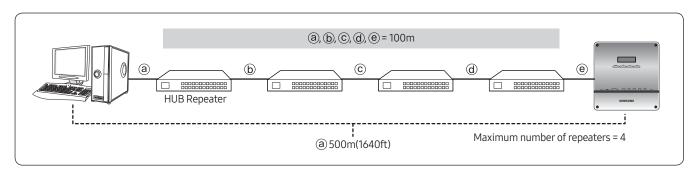
Connecting with outdoor unit and OnOff controller/Touch centralized controller



Wiring distance



- Distance between DMS2.5 and OnOff controller/Touch centralized controller/outdoor unit
 - Distance from the DMS2.5 to the furthest device cannot exceed 1000m(3280ft).
 - ©+@+@≤1000m
- Distance between DMS2.5 and upper level controller
 - Since DMS2.5 supports 100 Base-T Ethernet, first repeater or upper level controller from the DMS2.5 cannot be further than 100m(328ft) (IEEE 802.3). Therefore, maximum network radius is restricted to 500m(1640ft).

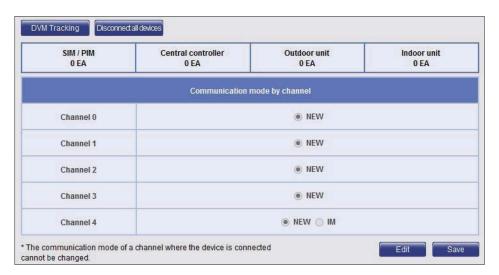


Function

Tracking

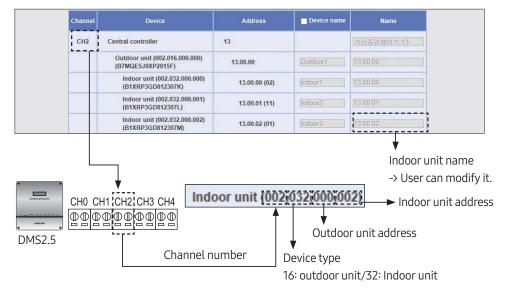
Tracking is an operation that finds devices which are connected to DMS2.5.

Through tracking operation, devices which are connected to DMS2.5 can recognize if they are connecting to DMS2.5. To supervise and control system air conditioner using DMS2.5, tracking should be done first.



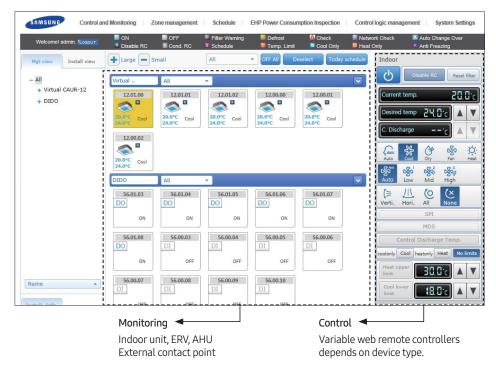
- When outdoor unit or controller is connected to channel, set as "NEW"
- When PIM(MIM-B16N) is connected to channel, set as "IM"
- PIM should be connected separately with outdoor unit or controllers.

You can check the number of installed devices, address of the devices or rename the indoor unit after tracking is completed.



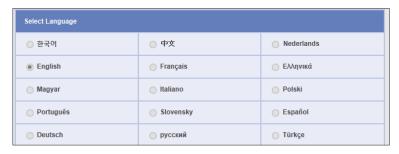
■ Control & monitoring

DMS2.5 can control and monitor Max 256 devices. (Indoor unit, ERV, AHU, DVM CHILLER, FCU KIT) And it also controls and monitors external contact point (8 Digital input, 6 Digital output.)



■ Multiple language support

DMS2.5 (MIM-D01AN) supports 15 languages



Set silent contol

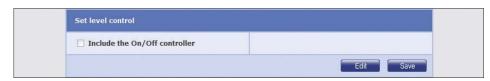
DMS2.5(MIM-D01AN) can contol indoor unit without operation beeping sound using below setting option.



- Control and Monitoring: Select this if you want to control silently in 'Control and Monitoring' screen of DMS2.5.
- Schedule: Select this if you want to perform 'Schedule' silently.
- Control logic: Select this if you want to perform 'Control logic' silently.

■OnOff controller restriction

DMS2.5 (MIM-D01AN) can restrict OnOff controller, Touch centralized controller usage.



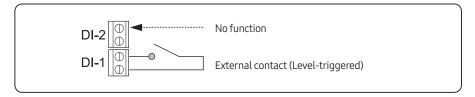
• Select this if you want to restrict controlling from OnOff controller and Touch centralized controller when you disable RC from the DMS2.5.

■ Contact point control

You can select emergency operation pattern



Pattern 2



Short external contact: Emergency stop

- Turns off all the indoor units when there is an ON signal input
- All the remote control use is disabled
- Control from S-NET3 is unavailable
- Disable schedule control

Open external contact: Resume operation

- After Emergency stop, the indoor units stay in the current OFF states.
- All the remote control use is restored to the previous state.
- Schedule control is enabled again.

Pattern 3

Schedule control is not interrupted in Pattern 3.



External contact input to DI-1

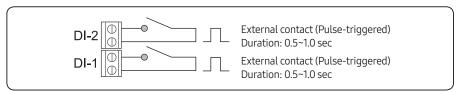
- Short contact: Starts all indoor unit operation.
- Open contact: Stops all indoor unit operation.

External contact input to DI-2

- Short contact: Disables the use of all wired/ wireless remote controllers.
- Open contact: Enables the use of all wired/ wireless remote controllers.

Pattern 4

Schedule control is not interrupted in Pattern 4.



External contact pulse input to DI-1

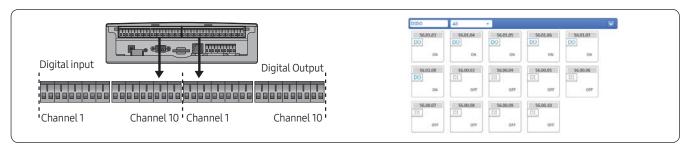
Short pulse-triggered: Starts all indoor unit operation.

External contact pulse input to DI-2

• Short pulse-triggered: Stops all indoor unit operation.

■ General external contact point control

DMS2.5 has Digital input/output ports to check the external device status or turn them On/Off through contact point.



DI: Voltage free contact signal input (Open/Short)

- Channel 1, Channel 2 is occupied with [Emergency stop] function.
- Channel 3~Channel 10: DMS2.5 can monitor the contact signal input state of each channel

DO: Contact signal output (DC 12V)

- Channel 1, Channel 2, Channel 9 and Channel 10 is occupied with other functions.
- Channel 3~Channel 8: DMS2.5 can control contact signal output.

Note

• DI 1, 2/DO 1, 2, 9, 10 will be excluded from control and monitoring since it is being used by internal function of DMS2.5.

Time sync with the wired remote control



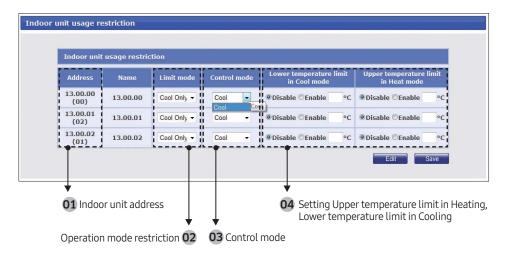
- 1 Click [System Settings] → [System environment setting] when DMS2.5 web page menu screen appears.
- 2 Click [Edit] on [Time settings on the wired remote control] in [Time sync with the wired remote control] menu.
 - Set the time to use.
- 3 Click [Edit] on [Time sync with the wired remote control using RMS] in [Time sync with the wired remote control] menu and click [Apply].
 - Be sure to click [Apply] to start auto sync through RMS service.
- 4 Click [Save].

Note

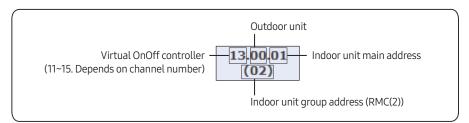
- Time setting is available only in some wired remote controllers that can support time setting function through the DMS.
- You can use the auto time sync function of the wired remote controller through the RMS only while using the RMS service. The time for the wired remote controller is automatically set based on the RMS time once a day.

Indoor unit usage restriction

- Operation limit: To prevent the wrong operation mode setting, it can limit the operation mode of indoor unit.
- Temperature limit: It can set the lower temperature limit in Cool mode and the upper temperature limit in Heat mode.



1 Check the indoor unit address.



- Select the Limit mode
 - Indoor units within same outdoor unit must be set in same limit mode.
 - All indoor units of one outdoor unit set same operation mode restriction automatically.
- 3 Control mode will be set automatically depends on the seleceted restricted mode
 - Ex) When the restricted mode is set to [Cool-only] and then [Control mode] is set to [Cool] automatically If user set [Heating mode] using remote controller → Indoor unit ignores the command.
- 4 Set the Upper temperature limit in Heating and Lower temperature limit in Cooling.
 - Upper temperature limit in Heating and Lower temperature limit in Cooling can be set differently for each indoor unit. [Cooling:18°C~30 °C (64°F~86°F), Heating:16 °C~30 °C (61°F~86°F)]

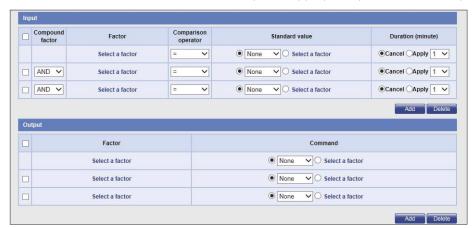
Logic control

What is logic control?

User can control the air conditioner, ERV, AHU and digital output depending on the conditions, such as room temperature and outdoor temperature, set by the user. Input condition can be used with parameter and it will be calculated with arithmetic equation. Schedule function executes operation by time but logic control executes operation according to the conditions that set by the user.

Examples of utilizing the logic control

- Case 1) Government regulates the lowest room temperature to be 26°C (78°F) in public places. When the room temperature is lower than 26°C (78°F), administrator must turn off all the air conditioners in the area. Is there any way for the air conditioner to turn off automatically depending on the certain room temperature?
- Case2) During spring and fall, it is cold in the morning and warm in the afternoon. Therefore, I'm using the air conditioner in heating mode in the morning and depending on the outdoor temperature?
- Case 3) I'm using air conditioner with ERV. In the days with the outdoor temperature relatively lower than the indoor, I want to use ERV instead of the air conditioner to ventilate and minimize the air conditioner use. Is there any way to set the air conditioner or ERV to operate appropriately and automatically depending on the temperature?



Input

- Select the factor to input condition
 - · Device, factor
- 2 Edit the condition
 - Compound factor/Comparison operator
 - Standard value/Duration

		0	utput
_	C I I		

- Select output factor
 - · Device, factor
- 2 Edit output
 - Create control

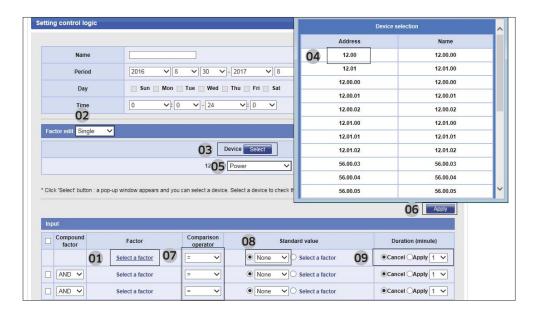
	Edit factor			
	Single factor	Power Current temp. Desired temp. Outdoor temp. Mode Fan speed Air flow Enable/Disable RC Trouble, Limit mode		
	Arithmetic factor	+	Current temp. Desired temp. Outdoor temp.	
k	Function factor	Average	Current temp. Desired temp. Outdoor temp.	

Compound factor
AND
OR

Comparison operator
=
=>
=<
>
<
≠

Command
Power
Desired temp.
Mode
Fan speed
Air swing
Enable/Disable RC
Limit mode

Editing input factor



- 01 Click "Select a factor". ▶ 02 Select type of the factor ▶ 03 Click "Select a device" ▶
- 04 Select the device from the list. ► 05 Select a detail item ► 06 Click "Apply". ►
- 07 Select the comparison operator ▶ 08 Select a standard value ▶ 09 Select the duration
- Single factor: 1 device and 1 factor.

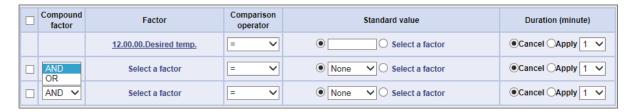


Arithmetic: It means 2 devices are connected by arithmetic operator.



• Function: Use average value of various conditions from the device and create it as a factor.

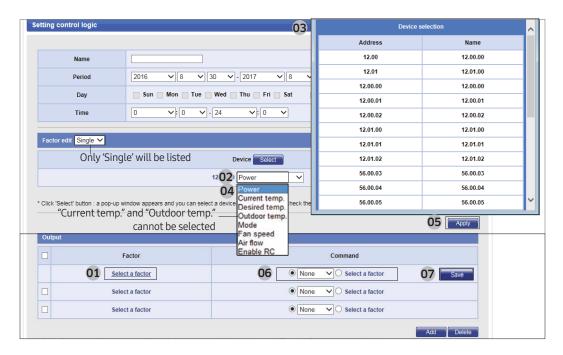




- Compound factor: AND, OR, No selection
 Ex) Apply 'AND' or 'OR' to 3 factors → (input 1) AND (input 2) OR (input 3)
- Comparison operator: =, =>, =<, <, >, ≠
- Standard value: Standard value of the factor
 Ex) When the factor is "Outdoor temperature of the indoor unit number 00", then standard value is value of the "Outdoor temperature". →"Outdoor temperature of the indoor unit number 00" > 20
- Duration: Duration can be set between 1~60 min.

ltem	Comparison operator	Standard value
Power	=,≠	On, Off
Current temp	=, =>, =<, <, >, ≠	Temperature value (number)
Desired temp	=, =>, =<, <, >, ≠	Temperature value (number)
Outside temp	=, =>, =<, <, >, ≠	Temperature value (number)
Mode	=, ≠	Auto, Cool, Dry, Fan, Heat
Fan speed	=, ≠	Auto, Low, Med, High
Air flow	=, ≠	Vertical, Horizontal, All, None
Enable RC	=, ≠	ON, OFF, Level 1
Trouble	=, ≠	True, False
Limit mode	=,≠	None, Cool Only, Heat Only

Editing output factor



- 01 Click "Select a factor". ▶ 02 Click "Select a device". ▶ 03 Select the device from the list. ▶
- 04 Select a detail item to control. ► 05 Click "Apply". ► 06 Select "Command". ► 07 Click "Save".

Control example – Setting

Ex) Set the ERV to turn off together when the indoor unit turns off

1 Click [Control logic management] → [Setting control logic] from DMS2.5 menu. Click [Register] to create new control logic.



2 Enter Name, period/day and time for new control logic.

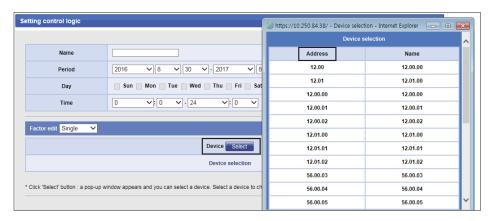


3 Create input condition: Click [Select a factor] from the 'Input' window.

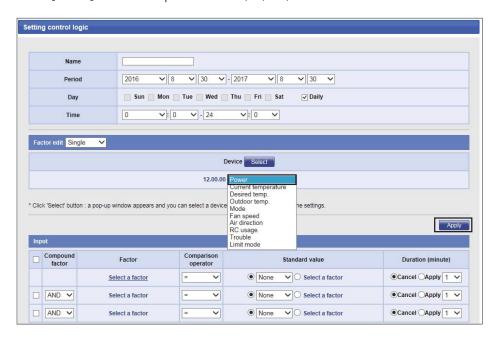


()* is used in Turkey.

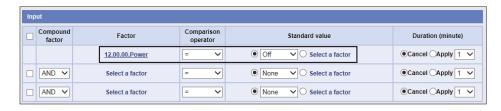
Click [Select], then [Device selection] window will pop up. Select a indoor unit to apply the new control logic.



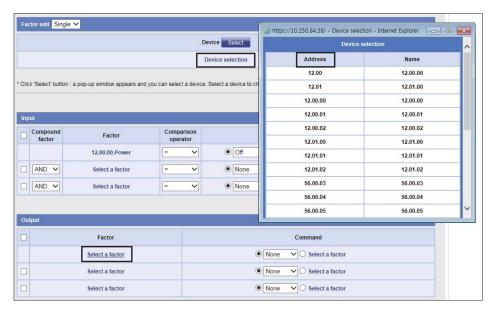
- Create input condition: When the device is selected, click [Power] and click [Apply].
 - [Power] means the operation state (On/Off).



- Create input condition: Select '=' as a comparison operator and select "Off" as a standard value.
 - Meaning: Execute output control when 12.00.00 device is off.



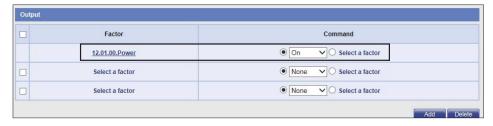
7 Create output: From the output window, select the device to apply the control when input condition is satisfied. Click [Apply] when selection is completed.



8 Create output: Select "Power" as a factor of the selected device and click [Apply].



- **9** Create output: From the output window, select the control to be executed when input condition is satisfied.
 - Turn off the ERV no. 0

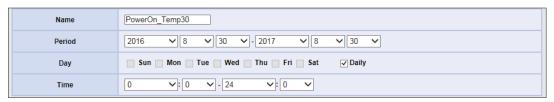


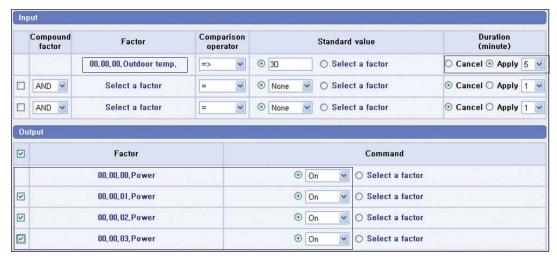
- 10 Click [Save] when the setting is completed.
- 11 To apply the new logic control, select the created logic and click [Apply].



Control example – Control logic

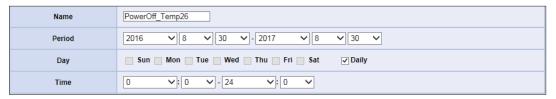
- Ex) Control logic 1: Turn on 4 indoor units when outdoor temperature is 30°C or higher. Control logic 2: Turn off 4 indoor units when outdoor temperature is 26°C.
- Control logic 1

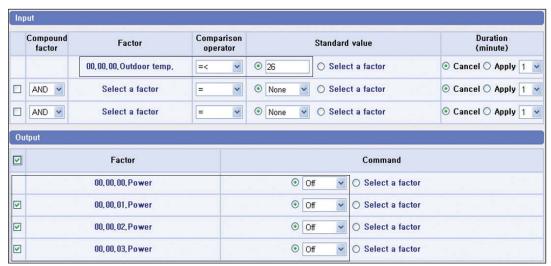




- 1 Input: When outdoor temperature is 30°C (86°F) or higher.
- **12.** When condition 1 lasted for 5 **13.** Output: Turn on 4 indoor units. miniute.

• Control logic 2





- 1 Input: When outdoor temperature is 26°C(78°F) or lower.
- **14.** Output: Turn off 4 indoor units.

Register control logic



.

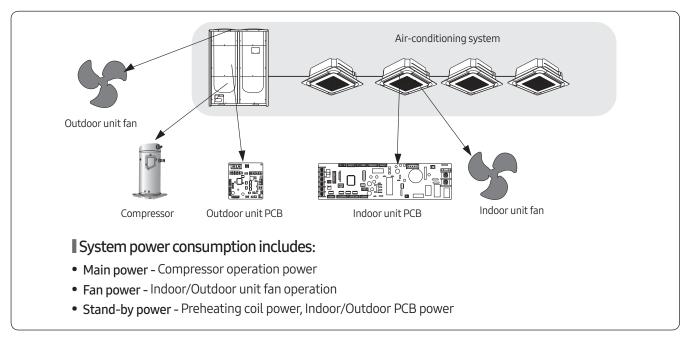
• Control logic applied



Application completed

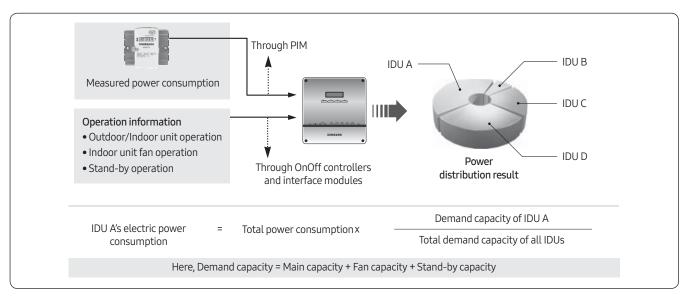
Power distribution

Where does power consumption occurs?



DMS2.5 power distribution theory

All the system information of power and indoor/outdoor operation is always monitored by the DMS2.5 for power distribution calculation.



🖺 Note

- Demand capacity means the value that parameters of different units like required power and refrigerant amount are transformed into as a common number to make easy algebraic calculation.
- Power distribution is not supported to ERV, DVM CHILLER, FCU KIT.
- You can check DVM CHILLER's power consumption in the meter history menu.
 (PIM and watt-hour meter must be connected)

Main capacity

This is determined dynamically with the combination of various refrigerating parameters such as difference between room and set temperature or evaporator input/output temperature.

These parameters, as a result, determine the refrigerant amount flowing into the indoor unit by controlling EEV steps.

Fan capacity

This is constant value for indoor unit models. It differs depending on indoor units of different capacity.

When the indoor unit starts Cooling, Heating, Auto and Fan modes, fan capacity values of the indoor units are always monitored by the DMS2.5. DMS2.5 gathers capacity of zero value when they stop operating.

Stand-by capacity

Stand-by capacity is constant for all indoor units regardless of their operations. Since stand-by power is consumed all the time by PCBs and preheating coils in the outdoor unit, whose value is monitored with the same fraction which is relatively small compared to main capacity or fan capacity.

What if the room temperature begins to reach the set temperature?

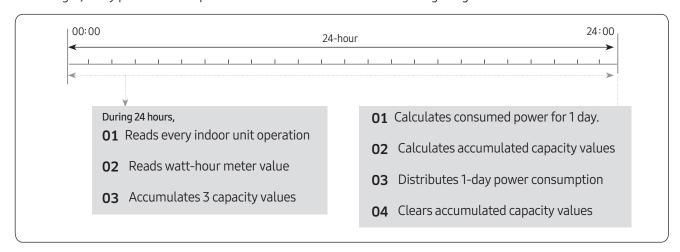
If the room temperature begins to reach the set temperature, the indoor unit does not have to extract the full refrigerant amount to keep the set condition. Capacity from the indoor unit goes down to indicate the outdoor unit that it does not need refrigerant at the full capacity state.

When the room temperature has reached the set temperature, there is no need to pump the refrigerant into the indoor unit. Indoor unit goes into the thermally OFF state and sends capacity of zero value to the outdoor unit and the DMS2.5, which results in fan or stand-by power distribution only.

Capacity accumulation and power distribution

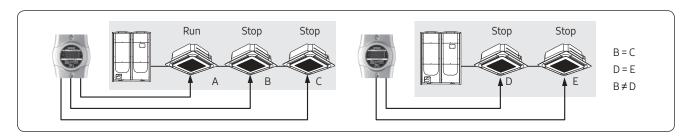
DMS2.5 gathers power consumption and capacity values during one-day.

At midnight, 1-day power consumption is distributed to the indoor units using the gathered information.

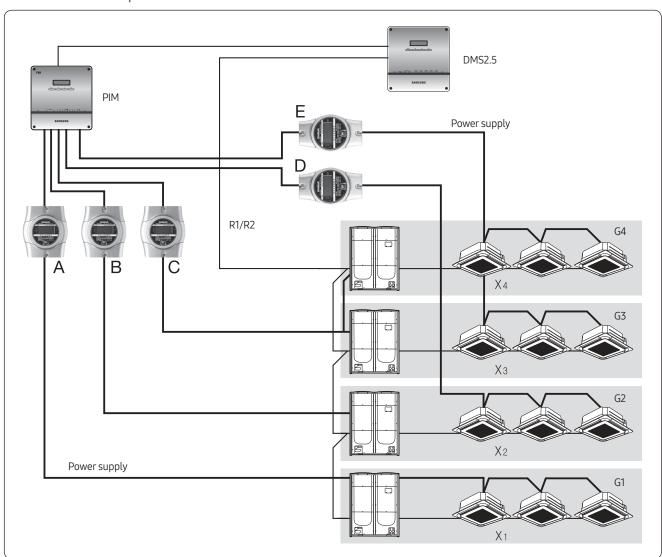


Not equal stand-by power distribution (In case all the indoor units are stopped)

Since there always exists error in each power consumption amount, distributed stand-by power may not be equal for different air-conditioning system. But the difference is so small that it is negligible.

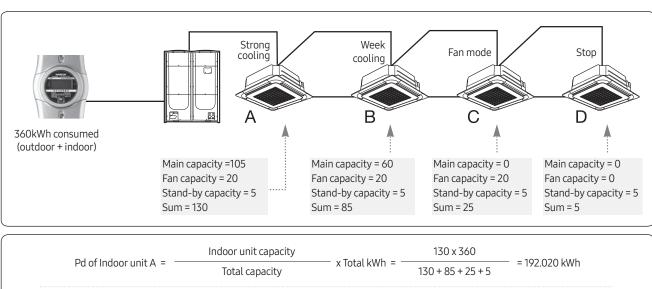


• Power distribution equation



• When configuring the DMS2.5 and the whole system, mapping of watt-hour meters for indoor/outdoor units must be precisely assigned for correct power distribution.

• Example Suppose capacity values accumulated at 24:00 during one whole day is as follows.



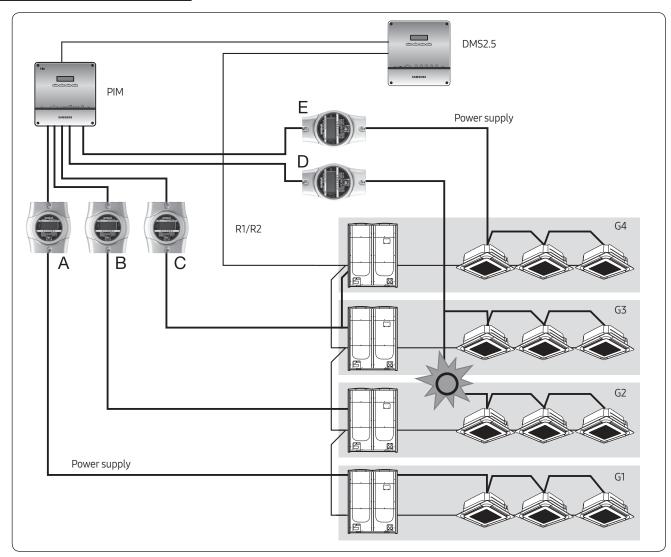
Pd of Indoor unit A =
$$\frac{130 \times 360}{\text{Total capacity}} \times \text{Total kWh} = \frac{130 \times 360}{130 + 85 + 25 + 5} = 192.020 \text{ kWh}$$

Pd of Indoor unit B =
$$\frac{85 \times 360}{130 + 85 + 25 + 5} = 124.900 \text{ kWh}$$

Pd of Indoor unit C =
$$\frac{25 \times 360}{130 + 85 + 25 + 5} = 36.735 \text{ kWh}$$

Pd of Indoor unit D =
$$\frac{5 \times 360}{130 + 85 + 25 + 5} = 7.347 \text{ kWh}$$

Installation example (Allowed)



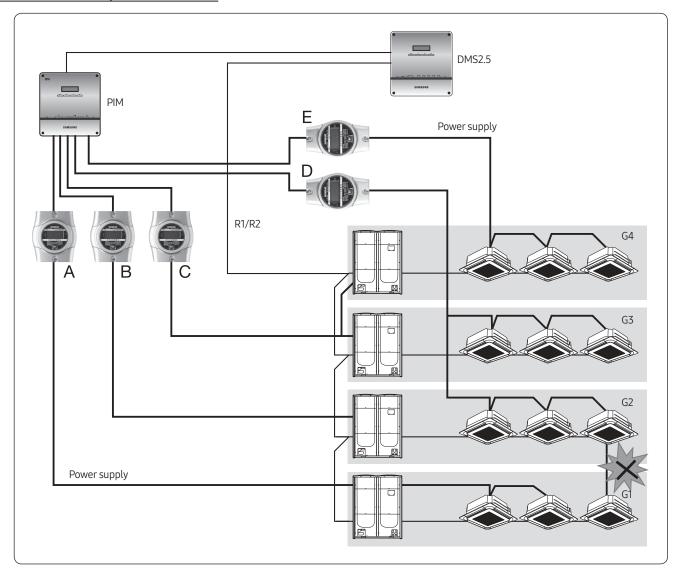
Mapping watt-hour meters to indoor/outdoor units

- Watt-hour meter A is mapped to all indoor/outdoor units in G1.
- Watt-hour meter B is mapped to the outdoor unit in G2.
- Watt-hour meter C is mapped to the outdoor units in G3 and G4.
- Watt-hour meter D is mapped to the indoor units in G2 + G3.
- Watt-hour meter E is mapped to the indoor units in G4.
- Installation above is allowed with proper mapping configuration.

Note

• Watt-hour meter can be shared to the multiple indoor/outdoor systems.

Installation example (Not allowed)

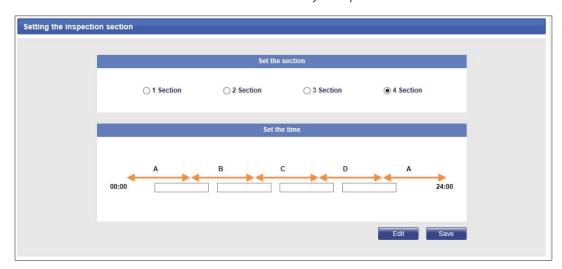


All indoor units in one outdoor unit must have the same power source.

• Installation above cannot be available for the reason that one indoor unit in G1 has different power source from the other indoor units. In this case, fractional power of D consumed by the separate-powered indoor unit in G1 is distributed to the indoor units in G2 and G3.

Setting the inspection section

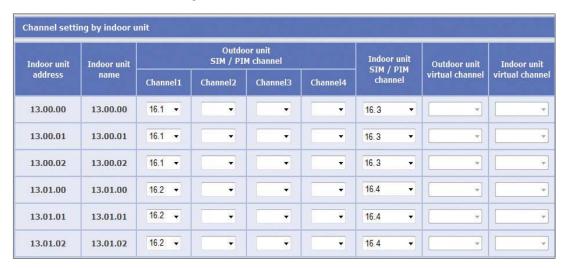
If you want to check the distribution result by time period, set the time section. You must use S-NET3 to check the distribution result by time period.



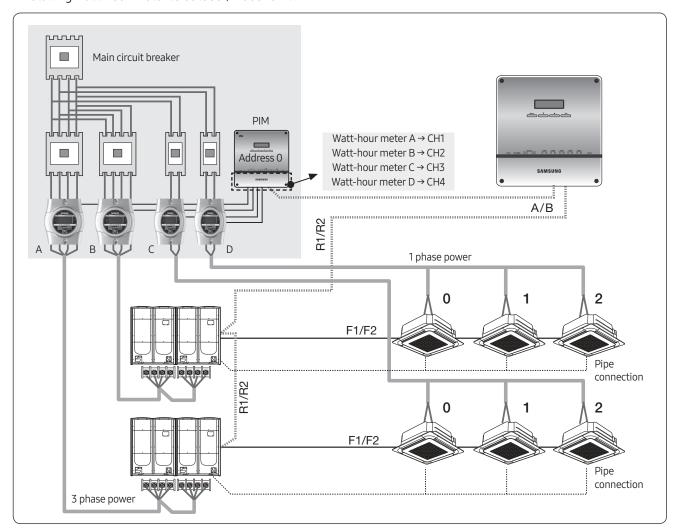
Setting the power distribution environment

This is important task for checking precise energy consumption of the outdoor/indoor unit. Each watt-hour meter connected to outdoor unit must be checked for which channel of the PIM interface module it is connected. Then PIM channel must be set according to the outdoor unit.

Indoor units must be checked which watt-hour meter it is connected to and then PIM channel of the corresponding watt-hour meter must be set according to indoor unit PIM channel as shown below.



Example of watt hour meter installation 1
 Installing watt-hour meter to outdoor/indoor unit

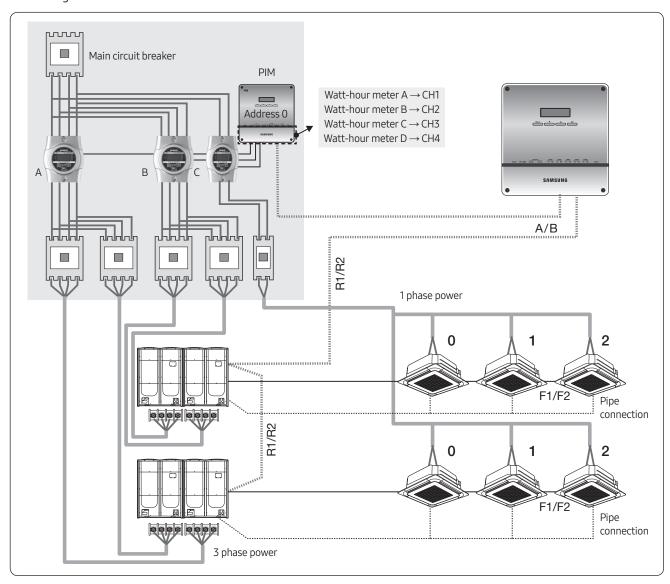


Indoor unit address	Indoor unit name	Outdoor unit SIM / PIM channel				Indoor unit	Outdoor unit	Indoor unit
		Channel1	Channel2	Channel3	Channel4	SIM / PIM channel	virtual channel	virtual channel
13.00.00	13.00.00	16.1 ▼		-		16.3 ▼	_	
13.00.01	13.00.01	16.1 ▼	•			16.3 ▼	-	
13.00.02	13.00.02	16.1 ▼			-	16.3 ▼	-	-
13.01.00	13.01.00	16.2 -				16.4 ▼	-	
13.01.01	13.01.01	16.2 🕶	-	-	•	16.4 →	7	_
13.01.02	13.01.02	16.2 →		-	7	16.4	-	-

Caution

[•] Connect appropriate watt-hour meter to outdoor/indoor unit. 0* is used in Turkey.

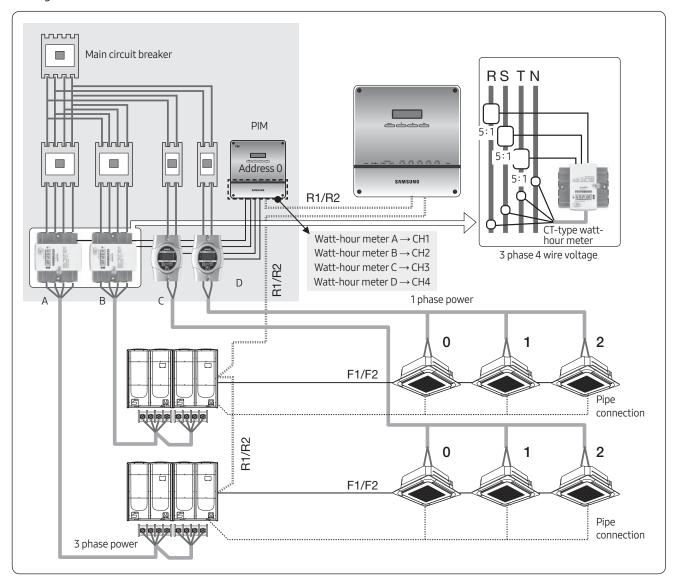
• Example of watt hour meter installation 2 Installing 1 watt-hour meter to all indoor units

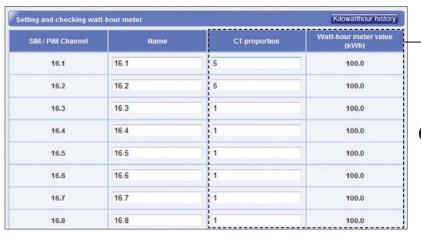


	Outdoor unit t Indoor unit SIM / PIM channel		Indoor unit	Outdoor unit	Indoor unit					
	name	Channel1	Channel2	Channel3	Channel4	SIM / PIM channel		virtual channel		
13.00.00	13.00.00	16.1 ▼		-	•	16.3	¥		_	 Since all indoor unit are connected to 1 watt-hour meter, Pli channel address of a indoor units is same
13.00.01	13.00.01	16.1 ▼		-	-	16.3	•	*	-	
13.00.02	13.00.02	16.1 ▼	-			16.3	•	-	•	
13.01.00	13.01.00	16.2 ▼		-	-	16.3	Ŧ	-	-	
13.01.01	13.01.01	16.2 🔻	-	-	-	16.3	¥	-	-	
13.01.02	13.01.02	16.2 -	-	-	-	16.3	v	-	-	

()* is used in Turkey.

• Example of watt hour meter installation 3 Using CT watt-hour meter to and outdoor unit



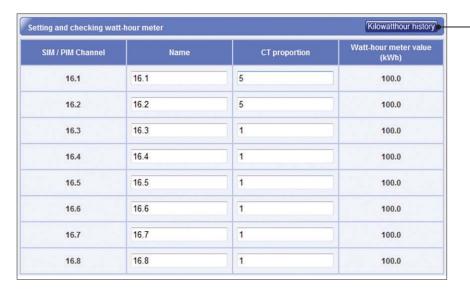


[Setting and checking watt-hour meter] From the menu, CT proportion of the CT watt-hour meter must be entered.

Note

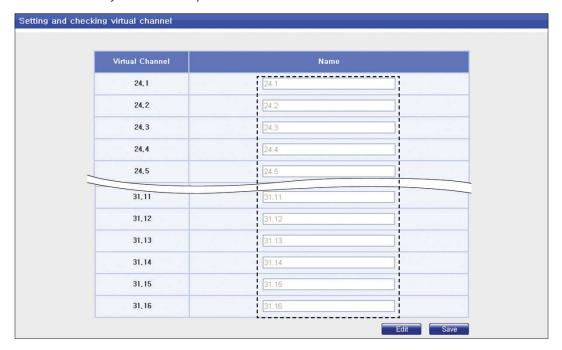
• After entering CT proportion of the CT watt-hour meter, watt-hour meter must be set to correct outdoor/ indoor units from the [Channel setting by indoor unit] window.

• Checking the watt-hour meter connection Kilowatthour history of the watt-hour meter, connected to each PIM interface module, can be checked. Maximum 365 days worth of Kilowatthour history can be checked.

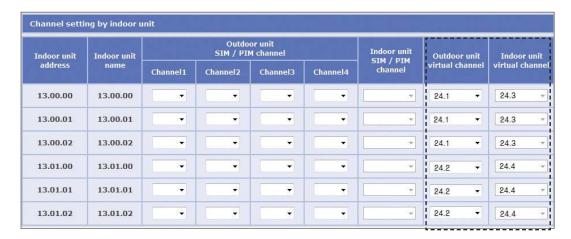




Setting virtual watt-hour meter
 When watt-hour meter or PIM interface module is not installed to a watt-hour meter channel, virtual channel can be used to manually distribute the power distribution



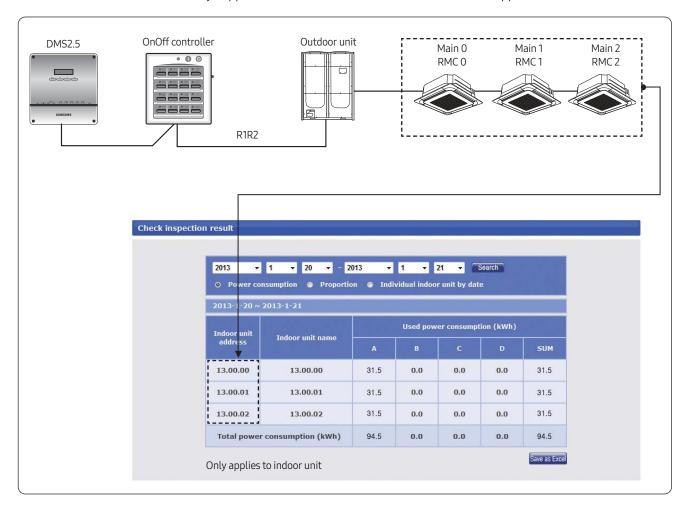
- Maximum 128 virtual channel can be used.
- Address of the virtual channel will be displayed as following. (24~31).(1~16)





• When PIM interface module is not installed, PIM channel of the outdoor/indoor unit will be inactive.

• Caution Power distribution function is only supported to air conditioners and AHU. ERV is not supported.



User authorization management



- Admin (Administrator): Can access all menus, accessible menu cannot be changed
- Manager: Default setting Can access all menus, accessible menu can be changed.
- Regular user: Default setting Can access [Control and monitoring] menu only.

I Editing user authorization

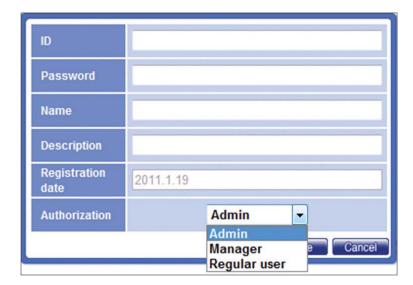


• Accessible menu authorization of manager is editable. Select/deselect the checkbox of the function and save the setting to change the authorization.

User management



• You can add or delete the user who access DMS2.5 through web.

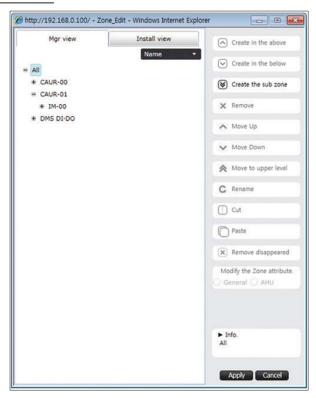


• Authorization of the added user can be set from [Admin], [Manager], [Regular user].

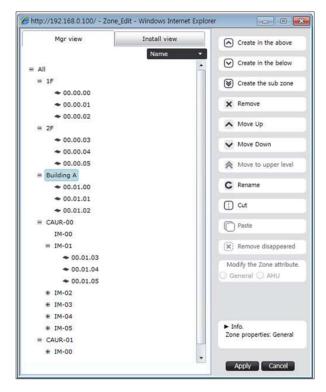
Zone management

- Zone edit: User can arrange the indoor units for convenient management.
- Setting the user authorization: Can restrict accessible indoor units depending on the user ID.

Zone edit



Initial setting



Zone edit:

- Add, delete zone
- Change name
- Move indoor unit

Setting the user authorization



- Authorization to control and monitor a zone of indoor units can be assigned according to User ID
- Select the zone and select a user ID who can access the zone.
 - Access authorization can be set by zone.
- **2** After setting, click [Save] to complete the authorization setting.



• User access authorization applies to all indoor units of the zone in same manager.

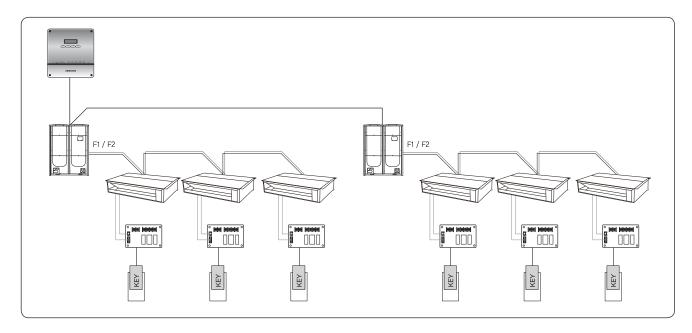
Control for unoccupied room

- It is the function to keep the room temperature when user goes out for a while.
- User can set the detail operation of [Unoccupied room control] using DMS2.5 or S-NET pro2.

Note

 Applicable indoor unit and controller Indoor unit: New communication applied DVM indoor unit. (Software version check is required) FCU KIT: MIM-F00N

Diagram



Requirement

- To use this function, external contact interface module (MIM-B14) should be installed to indoor unit.
- Installation option code of indoor unit [SEG14] should be set

[Installation option code SEG14]

SEG14	Contact	Operation of [Unoccupied room mode]					
3EU14	Contact	Indoor unit	Use of R/C	Use of upper controller			
1	Close	ON	0	0			
Open		Operates as [Unoccupied room mode]	0	0			
Close		Stay OFF	0	0			
Open		Operates as [Unoccupied room mode]	Х	X			
Close		Operates as last status before [Contact = Open]	0	0			
	Open	Operates as [Unoccupied room mode]	Х	X			

Setting



- Control and Monitoring] > [Occupied/Vacant room control] menu: You can see indoor units which can support [Vacant room control]
- Set [Apply]
 - Enable: Indoor unit operates as [Vacant room control] when contact status is open.
 - Disable: Indoor unit stops when contact status is open.
- Set detail operation
 - Mode, Desired temperature, fan speed
 - Setting value is saved in indoor unit memory. (The setting value will be maintained in case of power failure or DMS2.5 removal)

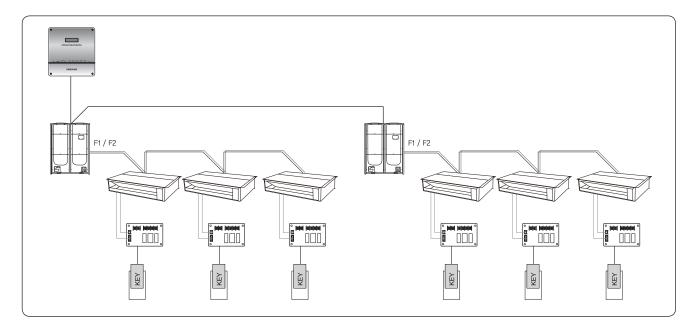
■ Pre-heating/Pre-cooing control for occupied room

- This is a function to detect a user entrance (via an external contact) and to automatically perform the pre-heating, pre-cooling.
- It applies when the contact state of MIM-B14 which is connected to the indoor unit is Close.
- Detailed pre-operation settings is set by DMS2.5 or S-NET Pro2.
- Occupied and unoccupied control can be used at the same time.

Note

 Applicable indoor unit and controller Indoor unit: New communication SINGLE indoor unit Controller: DMS 2.5, S-NET pro2

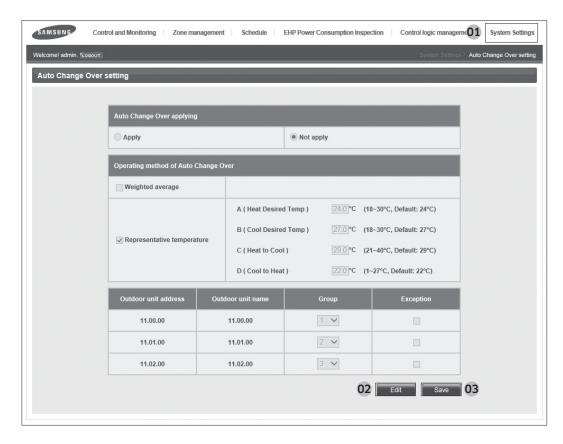
Diagram



Requirement

CASE	Install option SEG14	DMS2.5/S-N	NET pro2	Operation			
SEG	on	Unoccupied room mode	Occupied mode	Contact = Close	Contact = Open	Use of R/C when Contact = open	
1		Use	Use	Turn On as [Occupied room mode]	Operates as [Unoccupied room mode]	0	
2	1	U3E	No use	Turn On as previous setting	Operates as [Unoccupied room mode]	0	
3	(On/Off)	No use	Use	Turn On as [Unoccupied room mode]	Off	0	
4		No use	No use	Turn On as previous setting	Off	0	
5		Use	Use	Turn On as [Occupied room mode]	Operates as [Unoccupied room mode]	Х	
6	2 (Off only)		No use	Stay Off	Operates as [Unoccupied room mode]	Х	
7	(Off only)	No use	Use	Turn On as [Occupied room mode]	Off	Х	
8			No use	Stay Off	Off	Х	
9		Use	Use	Turn On as [Occupied room mode] Or Off	Operates as [Unoccupied room mode]	X	
10	3		No use	Operate as last status before [Contact = Open]	Operates as [Unoccupied room mode]	Х	
11	(Window)	No use	Use	Turn On as [Occupied room mode] Or Off	Off	Х	
12			No use	Operate as last status before [Contact = Open]	Off	Х	

Setting Auto Change Over



- 1 Click [System Settings] → [Auto Change Over setting] when DMS2.5 web page menu screen appears.
- Using the 'Auto Change Over' function, DMS2.5 can control indoor units to start auto cooling or auto heating.
- When using auto cooling or heating, DMS2.5 operates the Fan → Cool or Heat → Auto modes in order. For ERV PLUS, it operates the Fan \rightarrow Cool or Heat modes in order.
- 2 Click [Edit] to configure the Auto Chang Over settings.

▲ [Apply] / [Not apply]

 When using the Auto Change Over function, 'A' appears in the [Control and Monitoring] screen on the indoor unit, and the indoor unit cannot control its operation mode separately.



B [Weighted average]: Configure the settings so that indoor units automatically switch between cooling and heating modes according to the set temperature, current temperature, and cooling/heating capacity of the indoor units that

Let's assume, for example, indoor units of the same capacity have been installed. If a larger number of the units have desired temperature lower than the current temperature, all of the units automatically switch to cooling mode. If a larger number of the units have the set temperature higher than the current number, all of the units automatically switch to heating mode.

- **C** [Representative temperature]: Sets to run auto cooling or heating operation, according to the average temperature of the turned-on indoor units.
- DMS 2.5 sets the indoor units to the auto cooling mode and keeps the temperature according to 'B (Heat Desired Temp)' when the average temperature of the units currently running is higher than 'C (Heat to Cool)'. DMS 2.5 also sets the indoor units to the auto heating mode and keeps the temperature according to 'A (Cool Desired Temp)' when the average temperature of the units currently running is lower than 'D (Cool to Heat)'.

Outdoor unit setting

- Only Heat Pump outdoor units that support new communication mode appear in the list. However, not listed in the list are the Heat Pump outdoor units that are connected to the Fresh Duct, Hydro Unit, Hydro Unit HT, Single EHS, DVM CHILLER, or cooling only indoor unit, as these units are not applicable for Auto Change Over.
- The following outdoor units are not displayed in the list: the outdoor units designed solely for cooling and the outdoor units connected to the heating/cooling change-over switch if the switch is set to the cooling only mode or to the heating only mode.
- The conventional indoor and outdoor units connected to ERV interface module, FCU interface module, Heat Recovery, and compatible interface module—those units do not appear in the list, as these units are not applicable for Auto Change Over.
- Auto Change Over works for each group.
- All indoor units in a single group become the targets for weighted average or representative temperature, and are controlled to equally run auto cooling or auto heating.
- If you select [Exception], the outdoor unit cannot use the Auto Change Over function despite being grouped, and indoor units connected to the outdoor unit are excluded from the targets of weighted average or representative temperature.
- If the outdoor unit is set to cooling or heating only mode, the Auto Change Over function is not available.
- 3 Click [Save] after finishing the setup.

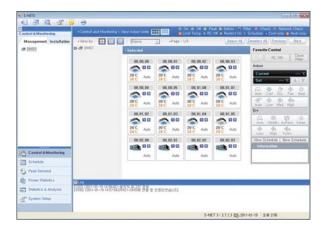
Note

• When the DMS2.5 is installed in the S-Net3, Touch Centralized controller, Wi-Fi Kit product, or wired/wireless remote controllers simultaneously, the indoor unit with the Auto Change Over function cannot control operation modes through S-Net3, Touch Centralized controller, Wi-Fi Kit product, or the wired/wireless remote controller.

S-NET3

MST-P3P

Features



PC program designed to manage system air conditioners in a large site.

- Max. 16 DMS2.5 connection
- Max. 4,096 indoor unit controlling and monitoring
- Integrated management of indoor units, ventilators and AHU(Excluding DVM CHILLER, FCU KIT)
- Manages operation and error history
- Check indoor/outdoor unit cycle data
- Integrated management of peak control in single program

PC specifications

Item	Model	Details		
PC	CPU Pentium 4 or above			
	Memory More than 512MB			
	HDD More than 1Gbyte space available			
	Network	10/100M		
OS	-	Windows NT, Windows 2000, Windows XP, Windows VISTA, Windows 7		

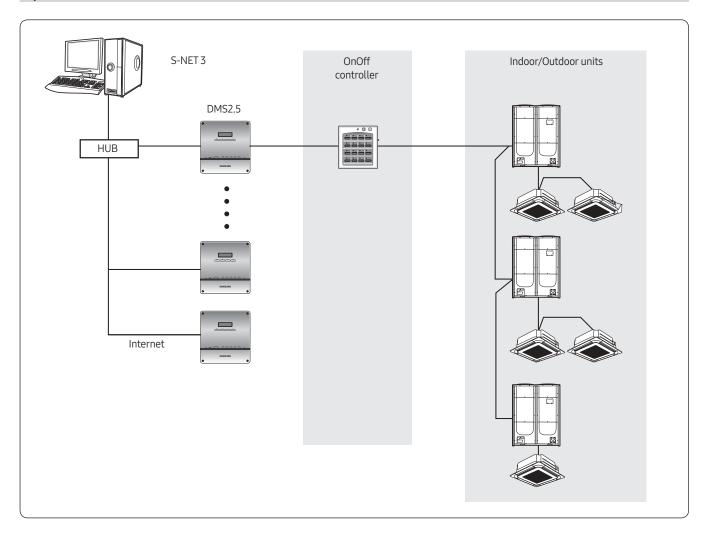
Compatible product

DMS DMS(MIM-D00AN), DMS(MIM-D01AN)		
	DMS	



Model	MST-P3P
Number of connection	Max. 16 DMSs

System connection



Function

S-NET3 function description

	View the management structure	Control and monitor the indoor units (max. 4,096 units).		
	View the installation structure	Check and refer the state of various devices such as indoor/outdoor units, OnOff controller, and I/M.		
Control & Monitoring	Indoor unit/ERV control	Set the operation mode, temperature, fan speed, and fan Control & Monitoring direction of indoor unit/ERV.		
	Indoor unit/ERV monitoring	Monitor the status of indoor unit/ERV.		
	View outdoor unit	Check the outdoor unit's cycle data and the cycle data of the linked indoor units.		
	View DMS2.5	Check the status data of the control unit linked to DMS2.5.		
	Create new schedule	Set new schedule.		
	View schedule	Check the schedule of the selected indoor unit.		
Cab a di ila	Start/Stop schedule	Start/Stop schedule application.		
Schedule	Store/Call schedule	Store/Call a prepared schedule.		
	View daily schedule	Confirm each schedule by date.		
	Set common exception date	Set the date which schedule operation is not applied on.		
	Usage time and power	Check the usage time and power for total, group, and individual indoor units.		
Usage time and	Power consumption report	For preparing the report on the power consumption by each indoor unit for the period set.		
power	Power distribution management group edition	Edit an indoor unit's power management structure		
	Set the electricity rate section	Set up to 3 sections for electricity billing management.		
	Indoor unit status	Check the status of indoor unit operation/temperature setting per period.		
Statistics and analysis	Usage time and power	Check the usage time and power for total, group, and individual indoor units.		
	Indoor unit usage	The usage ratio of all indoor units for a specific period.		
	Set environment	Set the environment related to S-NET3 (password, language, temperature unit).		
	Set DMS2.5	Set the DMS2.5 to connect with S-NET3.		
System	Refer event log	Refer the warning, error, data of indoor units.		
management	Renew installed device information	Modify S-NET3 data if installation data has been changed.		
	DMS2.5 backup/restore	Backup the data of DMS2.5 connected to S-NET3.		
	S-NET3 backup/restore	Backup the data of S-NET3.		

■ User functions

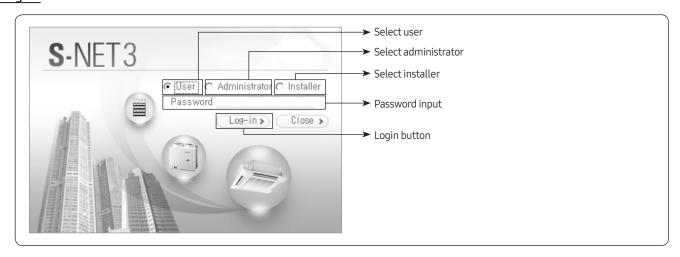
Manage a range of functions accessible to different types of users such as regular user, administrator and installer.

	User	Administrator	Installer
View the total indoor unit	0	0	0
Structure editing	X	0	0
The list of installed devices	X	0	0
Whole indoor unit stop	0	0	0
Indoor unit/ERV control/Monitoring	0	0	0
View the management structure	0	0	0
View the installation structure	X	0	0
View outdoor units, DMS2.5	X	0	0
Schedule	X	0	0
Indoor unit operation setting	X	0	0
Usage time and power	X	0	0
Power consumption report	X	0	0
Power distribution management group edit	X	0	0
Power distribution section setting	Х	0	0
Statistics/Analysis	X	0	0
S-NET3 setting	X	0	0
DMS2.5 setting	X	0	0
Event log reference	X	0	0
Tracking	X	0	0
DMS2.5 restoration	X	0	0
DMS2.5 backup	X	0	0
S-NET3 restoration/backup	Х	0	0

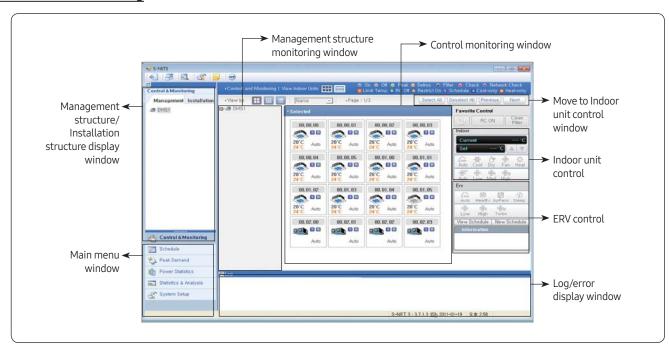
Detail function description

S-NET3 display

Log-in



Control and monitoring

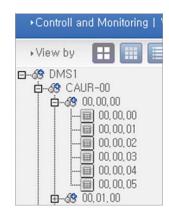


Installation structure window

Select the installation structure tab then select DMS2.5 connected to S-NET3; it is possible to see the program version, status of the selected DMS2.5, the program version and communication status of OnOff controller.

If indoor or outdoor unit is selected at the installation structure, it is possible to check the hardware information of the selected device.

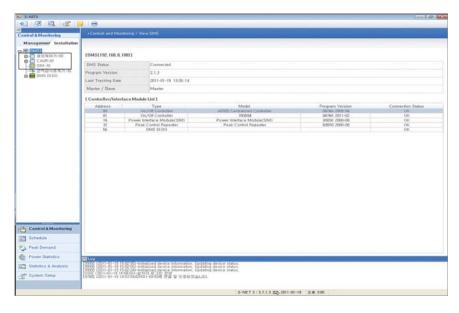




Selecting management structure

Selecting installation structure

A When DMS2.5 & OnOff controller are selected.

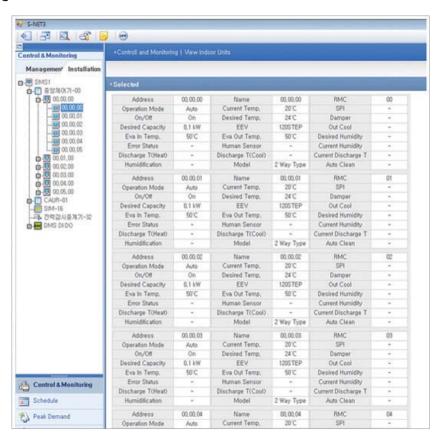


- DMS2.5 status, DMS2.5 program version, last tracking date and Master/Slave setting state.
- Displays model name, software version, communication state of centralized controller, PIM.

B When outdoor unit is selected



- Outdoor unit cycle data, outdoor unit model, interface module model and interface module program version is displayed.
- C When indoor unit is selected



Indoor unit operation status, indoor unit cycle data and indoor unit model code is displayed.

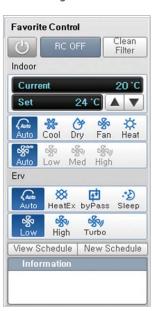
Control

- Control indoor unit/ERV through the control window that appears on the screen.
- Control total indoor units, the operation mode of indoor units, multiple selection, temperature, fan speed, and fan direction.
- Set Upper/Lower temperature limit so that temperature cannot be set outside of the limited temperature range.
- Enable/disable remote control usage.
- Check the schedule of the selected indoor unit.
 - A Deselect device



B Selecting indoor unit and ERV together





C Selecting indoor unit





D Selecting ERV

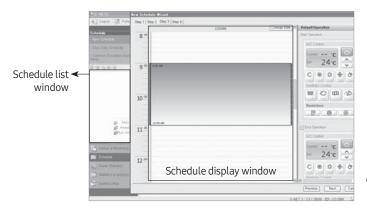




Schedule control

A Schedule setting

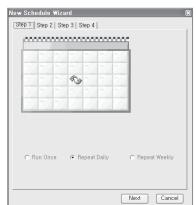
- Able to set a schedule to control indoor units and ERVs. (creating, modifying, deleting).
- Able to set weekly, daily, one day schedule.
- Able to control the operation mode, temperature setting, fan speed, fan direction during the schedule control.

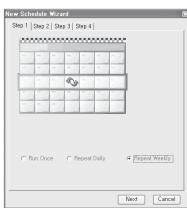


• Easy schedule control for user with the wizard method (step-by-step setting).

The 1st step (select a schedule mode)





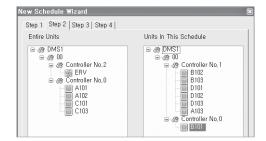


One day only

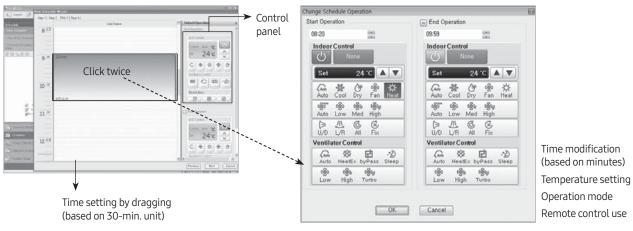
Repeat daily

Repeat weekly

- 2nd step (select the indoor units to apply a schedule to)
 - Display the total indoor units in S-NET3.
 - Able to select individual indoor units, OnOff controller, DMS2.5.

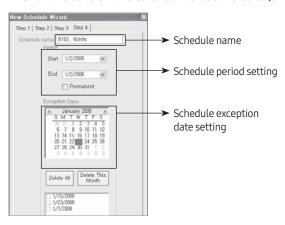


- The 3rd step (schedule operation setting)
 - Set up time by dragging on the time table.
 - Set the schedule with the control panel on the right. (Operation mode. temperature setting, fan speed, fan direction and remote control use).
 - Click the schedule time setup window to display a schedule modification window (able to modify a schedule time, operation mode and temperature setting).

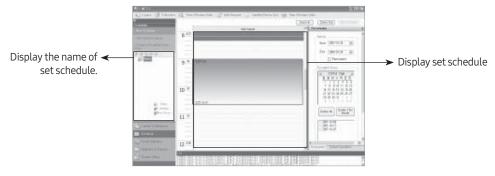


Schedule modification panel

- The 4th step (Schedule period and exception date setting)
 - Click the date on the calendar to set the date (once selected, the designated date is displayed in red).



- Schedule setting completion
 - Displays a schedule list to be automatically applied to the schedule



B Schedule control

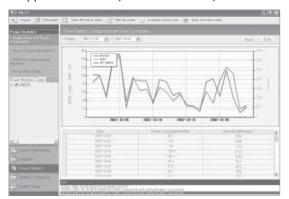
- Click the set schedule display window twice to display the modification panel. Then it is possible to modify various functions such as schedule time, operation mode and temperature setting.
- Able to carry out various functions such as a schedule name change, schedule delete, indoor unit addition and deletion with the icons on the left menu window.

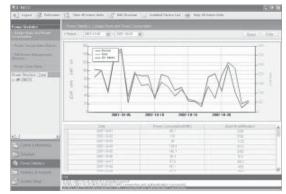


Usage time and power consumption

A Usage time and power

• Able to search for the power consumption and usage time by different conditions including the total indoor units applied to S-NET3, OnOff controller, individual indoor unit. OnOff controller, individual indoor unit.



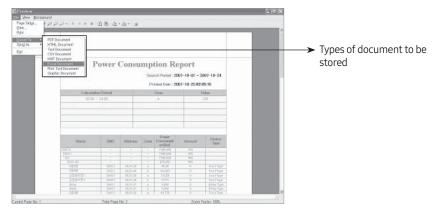


Total indoor unit usage reference

Individual indoor unit usage reference

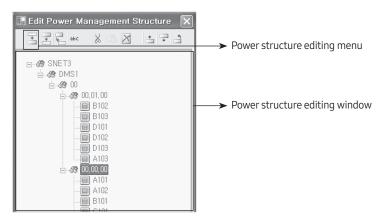
B Power consumption report

- Able to print out the amount of power consumed for a specific period of time in the form of report.
- The applicable formats include PDF, TXT, HTML, CSV, MHT, EXCEL, graphic documents.



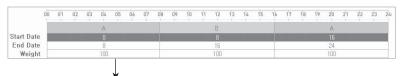
C Power management structure editing

- Just as the structural editing at the monitoring, power management can be restructured to ensure greater convenience for administrators.
- Once the power management structure is edited, power consumption report and usage can be referred in the edited formats.



D Power section setting

- It can be referred and divided into max. 3 sections for power consumption reference.
- It is possible to refer or prepare reports for usage time and power consumption by dividing section by each hour.

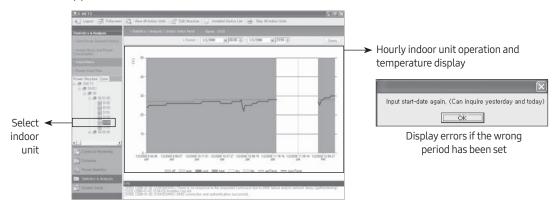


Able to adjust the sections by inputting relevant time.

Statistics and analysis

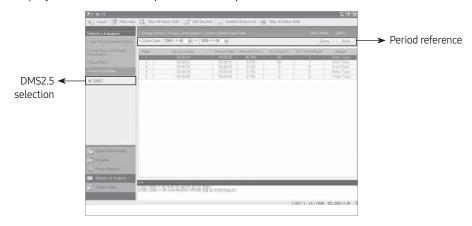
A Indoor unit status

- Able to see the operation status of selected indoor units and room temperature for the present and the past.
- Able to refer to the operation status for the last two days. If the reference day is out of range, an error message window will appear.



B Power consumption of indoor units

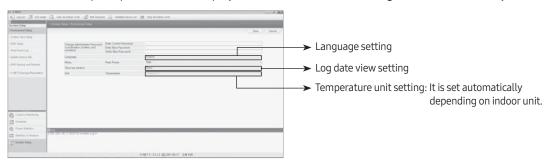
• Displays the use time and power consumption ratios for the indoor units connected to each DMS2.5.



System management

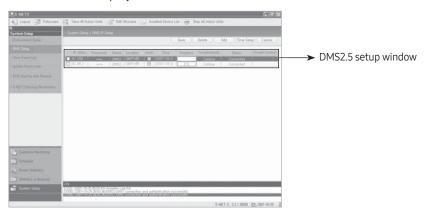
A Environment setting

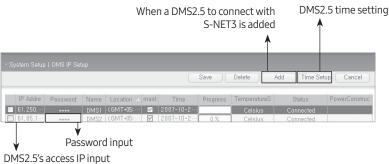
- Set the environment of S-NET3.
- Set administrator password, language, temperature unit, default value for indoor unit, etc.
- Determine if peak power will be displayed or not in the menu setting (Korean market only).



B DMS2.5 setting

- Set the DMS2.5 to connect with S-NET3.
- Click Save after inputting IP and passwords (1) and it will attempt to make communication with S-NET3 and DMS2.5 then display normal when communication is made.



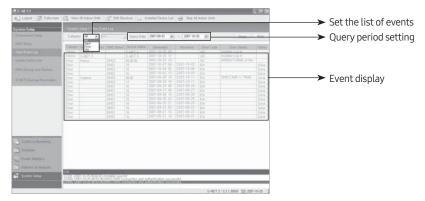


Note

- DMS2.5 has two passwords. One is a password needed to connect to a DMS2.5 web client (set at the user management), the other is necessary to make access to S-NET3 (set at the system environment).
- When the wrong password for S-NET3 is input, a message indicating DMS2.5 account recognition failure appears.

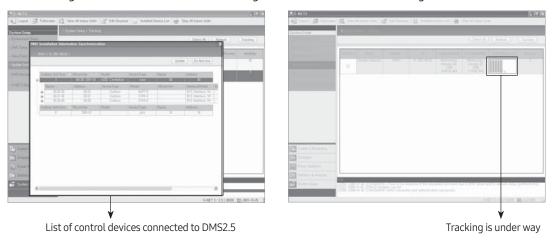
C View event log

• Able to check various information such as indoor/outdoor units connected to S-NET3, control device error/ warning, information details by date.



D Information update of the installed device

- Able to carry out information update or tracking for the installed device.
- Tracking involves receiving data from DMS2.5 after tracking it so as to renew data, whereas data renewal involves correcting data from DMS2.5 after receiving data without DMS2.5 tracking.



E S-NET3 backup and restoration

- Able to backup and restore data of S-NET3.
- Backup involves in backing up all data in S-NET3. Thus, if backup data is restored in a PC where S-NET3 is installed, it will produce the same environment that is previously used.



S-NET3 log information

Log	Contents				
E9000	Connection impossible				
E9001	Connection denied				
E9002	Connection finished				
E9010	WINK denied				
E9011	DMS2.5 password authentication failure				
E9012	Serial exchange failure				
E9100	General error on instruction transmission				
E9150	Attempt to transmit to a DMS2.5 not in connection				
E9151	Attempt to transmit to a DMS2.5 not registered				
E9200	General error on response acceptance				
E9250	There is no response to the requested command due to DMS2.5 failure and/or network delay				
E9300	XML generating				
E9400	XML parsing				
E9401	Installation information on S-NET3 and DMS2.5 does not match, check tracking information				
E9999	Initialized device information updating device status				
I101	Common user log in				
l102	Administrator user log in				
1103	Installer log in				
1104	Log in				
1105	Log out				
1201	Tracking				
1202	Request to tracking				
1301	Request to schedule change				
1801	Insert DMS2.5				
1802	Delete DMS2.5				
1803	DMS2.5 time setting				
19700	DMS2.5 connection and authorization successful				
19701	Reconnection				
19801	Emergency stop				

Chapter 04

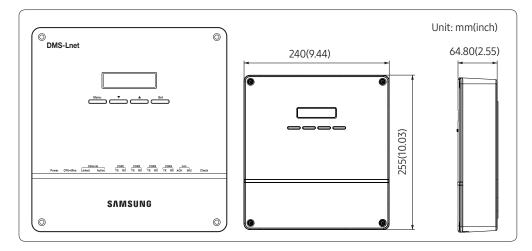
Gateway

LonWorks Gateway	
MIM-B18BN (MIM-B18BRN)*	.182
BACnet Gateway	
MIM-B17BN (MIM-B17BRN)*	.201
External Contact Interface Module	
MIM-B14	.231
MTFC (Multi Tenant Function Contro	oller)
MCM-C210N	236
PIM (Pulse Interface Module)	
MIM-B16N (MIM-B16RN)*	240
Module Controller	
MCM-A00N	252
FCU KIT	
MIM-F00N	268
FCU interface module	
MIM-F10N	.276

LonWorks Gateway

MIM-B18BN (MIM-B18BRN)*

Features



- For LonWorks protocol system.
- Support DMS2.5 control function at the same time.

Product specification

	Source	DC Adaptor				
Power supply	Input	100~240VAC (±10%), 50/60Hz				
Output		12V 3A				
Operating temp	perature range	-10°C ~ 50°C (14°F~122°F)				
Operating hu	midity range	10%RH ~ 90%RH				
		Lower layer: RS485 x 5				
Communication	on connection	Upper layer: Ethernet 100Base-T x 1				
		LonWorks layer: TP/FT-10A(Free topology)	78kbps)			
External	Digital Output	8				
connection port	Digital Input	10				
	RS485	1000m (3280ft)				
Maximum	Digital Output	100m (328ft)				
length of	Digital Input	100m (328ft)				
connection	Ethernet	100m (328ft): When there is no repeater				
	LonWorks	500m (1640ft): When connecting with Bus type: 2700m (8858ft)				
		Device	Numbers per each channel	Total number for 5 channels		
Max.		Indoor units (including ERV, MCU, FCU KIT)	128	128		
connectable number of	Control layer	Outdoor unit (including MIM-N01, MIM-N10, MIM-F10N, DVM CHILLER unit)	16	80		
device		OnOff controller	Total 15	Total 75		
		Touch centralized controller	iotat i5	10(a(/)		
		PIM interface module (MIM-B16N)	8	8		
		Film lifter (ace module (MIM-R 1917)	ŏ	ŏ		

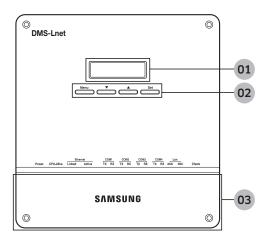
■ Compatible product

Outdoor unit	AM******		
	OnOff controller (MCM-A202DN)		
Controller Touch centralized controller (MCM-A300N)			
	PIM interface module (MIM-B16N)		

- Conventional communication outdoor unit requires compatible interface module (MIM-N01) to establish connection
- MIM-B13D, MIM-B13E, MIM-B04A Interface modules cannot be connected.
- To connect ERV, MIM-N10 is required.
- To connect FCU KIT, MIM-F10N is required.
- Conventional PIM must connect to CH4(COM5) of DMS 2.5.

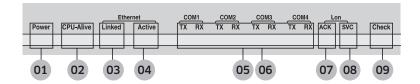
Description of parts

Front



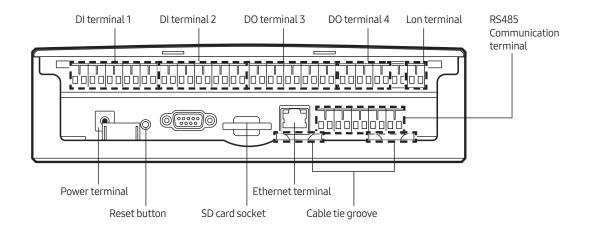
No.	Item	Function			
01	LCD display	Displays current time or menu.			
	Menu button	Access the setting menu.			
02	▼/▲ button	Select function or setting item in the setting menu.			
_	Set button	Enter or check setting item in the setting menu.			
03	Bottom cover	Unscrew 2 screws on the bottom to remove the cover and check the cable connections.			

LED indicator



No.	Item	Name	Status
01	Power	Power indicator	Turns blue when the power is supplied.
02	CPU Alive	CPU operation indicator	Blinks in orange with 1 second intervals during normal operation.
03	Ethernet-Linked	Internet connection indicator	Turns green during normal connection.
04	Ethernet-Active	Internet data transmission/reception Blinks in orange during normal transmi reception.	
05	COM1~4-TX	Channel 1~4 OnOff controller/Interface module Data transmission indicator	Blinks in green during normal transmission.
06	COM1~4-RX	Channel 1~4 OnOff controller/interface module Data reception indicator	Blinks in green during normal reception.
07	Lon ACK	LonWorks data reception indicator	Blinks in green during normal reception.
08	Lon SVC	LonWorks device status indicator	Blinks in green during un-configured.
09			Turns green when there is an error on more than one indoor/outdoor unit or in communication.

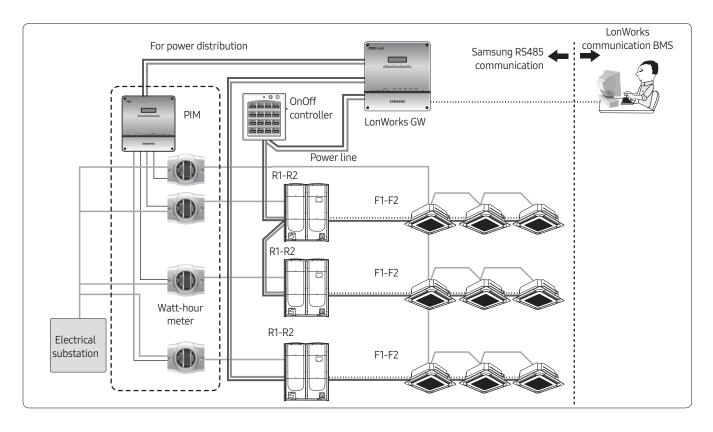
Bottom



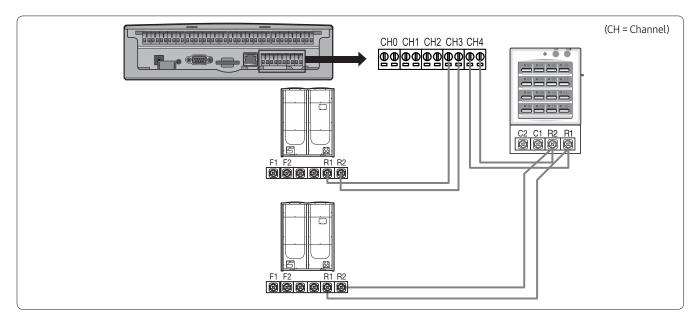
Name	Description
DI terminal 1	Digital Input connection terminal, Channel1~Channel5
DI terminal 2	Digital Input connection terminal, Channel6~Channel10
DO terminal 3	Digital Output connection terminal, Channel1~Channel5
DO terminal 4	Digital Output connection terminal, Channel6~Channel8
Lon terminal	Terminal Block for LonWorks communication (TP/FT-10)
Reset button	Reset LonWorks Gateway
SD card socket	Sub memory (for program update and set information saving) socket
RS485 communication terminal	RS485 port for communication with OnOff controller/interface module
Ethernet Terminal	Connect LAN cable
Cable tie groove	Groove for arranging cables

Connection diagram

MIM-B16N(PIM) can be connected with outdoor units or controllers to same channel of DMS2.5.



Wiring

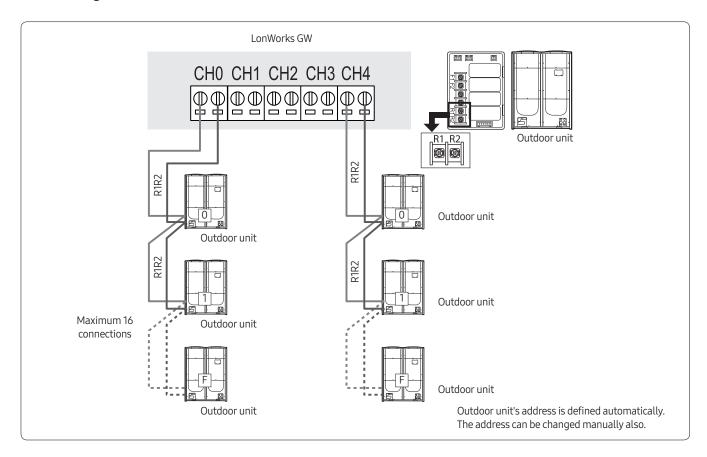


- Connecting outdoor unit directly
 - Maximum 16 outdoor units can be connected to each channel
 - Total 80 outdoor units can be connected
- Connecting OnOff controller/Touch centralized controller
 - Maximum 15 OnOff controller/Touch centralized controller can be connected to each channel

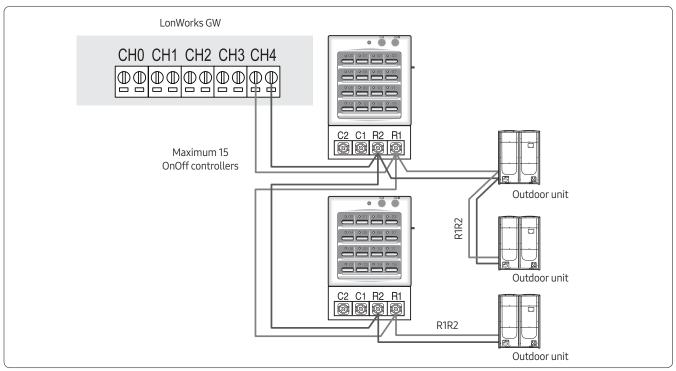
Note

- LonWorks GW can connect outdoor unit and OnOff controller/Touch centralized controller at the same time.
- Outdoor unit and OnOff controller/Touch centralized controller can be connected to 1 communication channel at the same time.

■ Connecting with outdoor unit

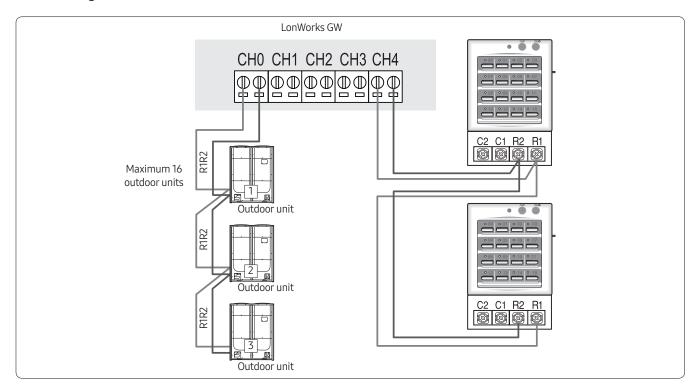


■ Connecting with OnOff controller

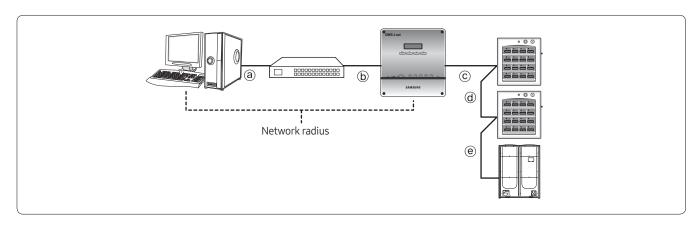


()* is used in Turkey.

Connecting with outdoor unit and OnOff controller



Wiring distance

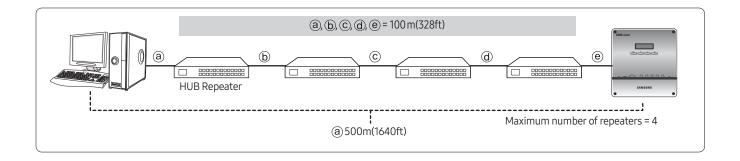


Distance between LonWorks GW and OnOff controller/outdoor unit

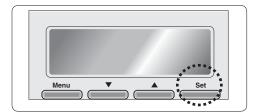
- Distance from the LonWorks GW to the furthest device cannot exceed 1000m(3280ft).
- © + d + e ≤ 1000m(3280ft)

Distance between LonWorks GW and upper level controller

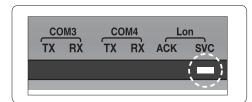
• Since LonWorks GW supports 100 Base-T Ethernet, first repeater or upper level controller from the LonWorks GW cannot be further than 100m(328ft) (IEEE 802.3). Therefore, maximum network radius is restricted to 500m(1640ft).



Commission



• To activate the Service Pin, press and hold [SET] button for more than three seconds while time is displayed in the LCD Display window of the front side of LonWorks Gateway.



• When you press Service Pin, Neuron ID will be sent and [SVC] LED of the front panel will be lit up for a second.

Standard program identifier (SPID)

• Manufacturers: Samsung Electronics Co., Ltd. MID: 191

• Device Classes: 70.00 - Gateways/72.80 --- HVAC Gateways

• Usage (Device Subclass): Utility {11}

• Channel Types: TP/FT-10 (ID: 4)

Object Types	Description	SFPT Name
8500	SCC – Generic	SFPTspaceComfortController

• Program ID: 90:00:BF:48:50:0B:04:00

Item summary

	Item	Function		
		Operation On/Off		
		Operation mode		
	Common	Air flow direction		
	Common	Fan speed		
		Device error information		
		Model, address, type information		
		Set temperature		
		Indoor temperature		
	Indoor unit AHU	Filter replacement alert/reset		
		Remote controller level		
Control & Monitoring		Thermostat information		
		Operation restriction setting (Cooling/Heating)		
		Setting lowest temperature/restriction		
		Setting highest temperature/restriction		
		Power consumption		
		Operation time		
		Emergency stop		
	Additional functions	DMS2.5 DI/DO		
	Additional functions	DMS2.5 lock		
		DMS2.5 error information		
		System error information		

Network variable

Indoor unit/ERV/AHU kit/Fresh duct/DVM Chiller/FCU Kit

No.	Name	Туре	M/O	Description	
1	nviONOff	SNVT_switch	0	ON/OFF command	
2	nviApplicMode	SNVT_hvac_mode	0	Setting operating mode	
3	nviSetpoint	SNVT_temp_p	0	Setting desire temperature	
4	nviFanStatus	SNVT_switch	0	Setting fan speed	
5	nviERVMode	SNVT_count	0	Setting ERV operation mode	
6	nviFilterReset	SNVT_switch	0	Filter reset command	
7	nviUserLockout	SNVT_switch	0	Setting the restriction of remote control use	
8	nviOccOpMode	SNVT_switch	0	Setting cooling only mode/heating only mode	
9	nviCoolTempLock	SNVT_switch	0	Setting the low temperature limit	
10	nviHeatTempLock	SNVT_switch	0	Setting the high temperature limit	
11	nvoSpaceTemp	SNVT_temp_p	М	Display indoor temperature	
12	nvoApplicMode	SNVT_hvac_mode	0	Display operating mode	
13	nvoSetpoint	SNVT_temp_p	0	Display desire temperature	
14	nvoOnOff	SNVT_switch	0	Display ON/OFF status	
15	nvoFanStatus	SNVT_switch	0	Display fan speed	
16	nvoERVMode	SNVT_count	0	Display ERV operating mode	
17	nvoErrorCode	SNVT_count	0	Display Error code	
18	nvoDeviceAlarm	SNVT_state	0	Remote control lock, Filter sign, Thermo ON/OFF, Error occurrence status display	
19	nvoOccOpMode	SNVT_switch	0	Cooling only/Heating only setup status display	
20	nvoCoolTempLock	SNVT_switch	0	Display low temperature limit setting status	
21	nvoHeatTempLock	SNVT_switch	0	Display high temperature limit setting status	
22	nvoUserLockout	SNVT_switch	0	Display the restriction of remote control use	
23	nvoEnergyConp	SNVT_elec_kwh_l	0	Display electricity usage (Time Period)	
24	nvoEnergyCon	SNVT_elec_kwh_l	0	Display electricity usage (Basic date)	
25	nvoRuntimep	SNVT_time_hour	0	Display used hours (Period)	
26	nvoRuntime	SNVT_time_hour	0	Display used hours (Basic date)	
27	nvoDevListDesc	SNVT_str_asc	0	Indoor unit HW information	

■ DVM system object

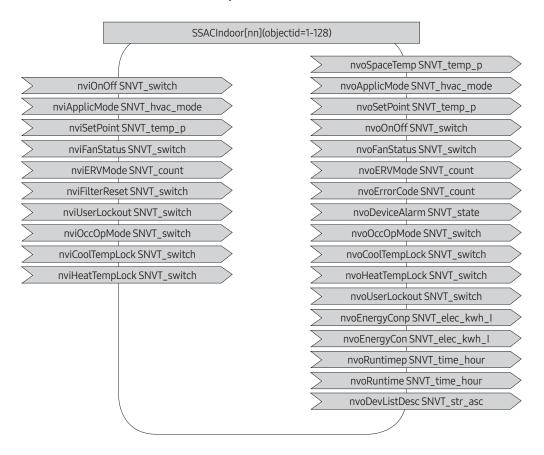
No.	Name	Туре	M/O	Description
1	nviDigitalOut[6]	SNVT_ switch	0	Control Digital output of DMS
2	nviAllOff	SNVT_hvac_emerg	0	Control all indoor unit/ERV OFF
3	nvoDigitalOut[6]	SNVT_ switch	0	Display Digital output status of DMS
4	nvoDigitalIn[8]	SNVT_ switch	0	Display Digital input status of DMS
5	nvoSystemLock	SNVT_ switch	0	Display System Lock status of DMS
6	nvoDMS2Alarm	SNVT_ count	0	Display communication error of the sub device connected to DMS
7	nvoSystemAlarm	SNVT_ count	0	

■ Configuration properties

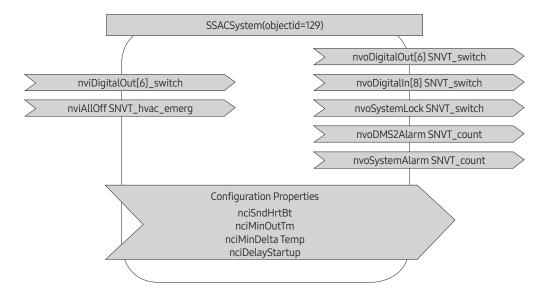
No.	Name	Туре	M/O	Description
1	nciSndHrtBt	SNVT_time_sec SCPTmaxSendTime	0	Send Heartbeat
2	nciMinOutTm	SNVT_time_sec SCPTminSendTime	0	Minimum Send Time
3	nciMinDeltaTemp	SNVT_temp_p SCPTminDeltaTemp	0	Min. difference before update
4	nciDelayStatrup	SNVT_time_sec SCPTpwrupDelay	0	Delay time after a power-up

Network parameter chart

Indoor unit/ERV/AHU/DVM Chiller/FCU kit object



Indoor unit/ERV/AHU/DVM Chiller/FCU kit object



Control and Monitoring Item

▮ Functional classification by a device.

The functions provided can be different according to the type of the connected device.

No	NV Name	Remarks	Indoor	ERV	AHU Kit	Fresh Duct	DVM Chiller	FCU Kit
1	nviOnOff	ON/OFF Command	0	0	0	0	0	0
2	nviApplicMode	Setting operation mode	0	Χ	0	0	0	0
3	nviSetpoint	Setting desiarable temperature	0	Χ	0	X	0	0
4	nviFanStatus	Setting wind speed and direction	0	0	Χ	Х	Х	0
5	nviERVMode	Setting ERV operation mode	Х	0	Χ	Х	Х	Х
6	nviFilterReset	Filter reset command	0	0	0	0	Х	Х
7	nviUserLockout	Setting the restriction of remote control use	0	0	0	0	0	0
8	nvoOccOpMode	Setting cooling only mode/Setting heating only mode	0	Х	0	0	Х	0
9	nviCoolTempLock	Setting the low temperature limit	0	Х	0	Х	Х	0
10	nviHeatTempLock	Setting the high temperature limit	0	Х	0	Х	Х	0
11	nvoSpaceTemp	Display indoor temperature	0	Χ	0	Х	0	0
12	nvoApplicMode	Display operating mode	0	Χ	0	0	0	0
13	nvoSetPoint	Display desire temperature	0	Χ	0	Х	0	0
14	nvoOnOff	Display ON/OFF status	0	0	0	0	0	0
15	nvoFanStatus	Display wind speed and direction	0	0	Χ	Х	Х	0
16	nvoERVMode	Display ERV operating mode	Х	0	Χ	Х	Х	Х
17	nvoErrorCode	Display Error code	0	0	0	0	0	0
18	nvoDeviceAlarm	Remote control Lock, Filter Sign, Thermo ON/OFF, Error occurrence status display	0	0	0	0	0	0
19	nvoOccOpMode	Cooling only/Heating only setup status display	0	Х	0	0	Х	0
20	nvoCoolTempLock	Low temperature limit setting status display	0	Χ	0	Х	Х	0
21	nvoHeatTempLock	High temperature limit setting status display	0	Х	0	Х	Х	0
22	nvoUserLockout	Display the restriction of remote control use	0	0	0	0	0	0
23	nvoEnergyCon_p	Display electricity usages(Time Period)	0	Χ	Х	Х	Х	Х
24	nvoEnergyCon	Display electricity usages(Basic date)	0	Χ	Χ	Х	Х	Х
25	nvoRuntime_p	Display used hours(Period)	0	Χ	0	Х	0	0
26	nvoRuntime	Display used hours(Basic date)	0	Χ	0	Х	0	0
27	nvoDevListDesc	The summary of device information(Model, Address, Operation Status)	0	0	0	0	0	0

Detail description of network variable

Indoor unit/ERV/AHU/DVM Chiller/FCU kit object

1-1. nvoSpaceTemp(11)

Description	Indoor temperature	
SNVT Type	SNVT_temp_p: Signed Long, 2 bytes	
Value and operation	Range: -10.0°C(-14.0°F) ~ 0.0°C(32.0°F)	

1-2. nvoApplicMode(12), nviApplicMode(2)

Description	Operation Mode status
SNVT Type	SNVT_hvac_mode: Enumeration(hvac_t)
	0: HVAC_AUTO
	1: HVAC_HEAT
	3: HVAC_COOL
Value and	6: HVAC_OFF
operation	9: HVAC_FAN_ONLY
	11: HVAC_ICE(Cool Storage)
	13: HVAC_ECONOMY(Hot Water)
	14: HVAC_DEHUMID

- Invalid Value: Automatically set as HVAC_AUTO
- 1-3. nvoSetpoint(13), nviSetpoint(3)

Description	Set Temperature
SNVT Type	SNVT_temp_p: Signed Long, 2 bytes
Value and operation	Cool: 18.0°C(64.4°F) ~ 30.0°C(86.0°F), Heat: 16.0°C(60.8°F) ~ 30.0°C(86.0°F) DVM Chiller : -10°C(14°F) ~ 55°C(131°F)

- Invalid Value: Automatically set up as minimum or maximum value.
- When setting temperature, only an integer value is applied. A decimal point is ignored.

1-4. nvoOnOff(14), nviOnOff(1)

Description	Power ON/OFF status		
SNVT Type	SNVT_switch: Unsigned/signed Short		
Value and operation		Value	State
	OFF	0.0	0
	ON	100.0	1

1-5. nvoFanStatus(15), nvoFanStatus(4)

Fan Speed and direction			
SNVT_switch: Unsigned/signed Short			
	Value	State	
Auto	0.0	-	
Low	1.0	-	
Mid	2.0	-	
High	3.0	-	
Eco	4.0	-	
Turbo	5.0	-	
Auto	Any>5.0	-	
Stop	-	0	
Up-Down	-	1	
	Auto Low Mid High Eco Turbo Auto	Value Auto 0.0 Low 1.0 Mid 2.0 High 3.0 Eco 4.0 Turbo 5.0 Auto Any>5.0	

- Supporting modes are different according to indoor units.
 - Indoor unit: Auto, Low, Mid, High (Turbo: Optional)
 - ERV: Mid, High, Turbo
 - FCU Kit: Auto, Low, Mid, High
 - AHU Kit: High
- When an indoor unit operation mode is Auto or Dehumid, Fan speed is controlled as 'Auto'.
- When an indoor unit operation mode is FAN ONLY, 'Auto' cannot be controlled by Fan speed.

1-6. nvoERVMode(16), nviERVMode(5)

Description	ERV Operation Mode
SNVT Type	SNVT_count: Unsigned Long, 2 bytes
Value and operation	(0: Auto) 1: H/R (2: Air purification) 3: Sleep 4: Normal

• (): Function that is not supported now.

1-7. nvoErrorCode(17)

Description	Error Code
SNVT Type	SNVT_count: Unsigned Long, 2 bytes
Value and operation	Valid Range: 0 ~ 999
	00 00 → No Error
	Refer to list of Error code

1-8. nvoDeviceAlarm(18)

Description	 Remote control restriction status Filter alert status Thermo On/Off status Error alert Status 				
SNVT Type	SNVT_	state:	16 Un	signed Bit	fields
	Byte	Bit9	Bit8	Operation	Remark
	Поло	0	0	Unlock	nvo
	Flags	0	1	Level1	User
		1	0	Lock	Lockout
	Byte	Bit9	Bit8	Operation	Remark
Value and	Flags _2	2	0	No alarm	nvo Filter
operation			1	Alarm	Alarm
			0	Thermo Off	Thermo
			1	Thermo On	On/Off
		0	0	No Error	nvo Error
		U	1	Error	Code

1-9. nvoOccOpMode(19), nviOccOpModeCmd(8)

Description	Operation Mode restriction		
SNVT Type	SNVT_switch: Unsigned/signed Short		
Value and operation		Value	State
	Unlock	0.0	0
	Cool only	1.0	1
	Heat only	2.0	1

1-10. nvoCoolTempLock(20), nviCoolTempLock(9)

Description	Setting/monitoring Lower limit temperature and function toggle		
SNVT Type	SNVT_switch: Unsigned/signed Short		
	Operation	Value	State
Value and	Unlock	18.0 ~ 30.0	0
Value and operation	Lock	18.0 ~ 30.0	1
	Cool: 18.0°C(64.4°F) ~ 30.0°C(86.0°F)		

1-11. nvoHeatTempLock(21), nviHeatTempLock(10)

Description	Setting/monitoring upper limit temperature and function toggle		
SNVT Type	SNVT_switch: Unsigned/signed Short		
	Operation	Value	State
	Unlock	16.0 ~ 30.0	0
Value and operation	Lock	16.0 ~ 30.0	1
орегация	Heat: 16.0°C(60.8°F) ~ 30.0°C(86.0°F)		

1-12. nvoEnergyConp(23)

Description	Electric consumption value within the period
SNVT Type	SNVT_elec_kwh_I: Signed Quad, 4bytes
Value and operation	Raw range: 0 ~ 999999 Resolution: 0.1

1-13. nvoEnergyCon(24)

Description	Electric consumption value after baselin
SNVT Type	SNVT_elec_kwh_I: Signed Quad, 4bytes
Value and operation	Raw range: 0 ~ 999999 Resolution: 0.1

1-14. nvoRunTimep(25)

Description	Indoor unit usage within the period
SNVT Type	SNVT_time_hour: Signed Long, 2bytes
Value and operation	Raw range: 0 ~ 65535

1-15. nvoRunTime(26)

Description	Indoor unit usage after baseline
SNVT Type	SNVT_time_hour: Signed Long, 2bytes
Value and operation	Raw range: 0 ~ 65535

- Energy consumption and Runtime are the accumulated value during the user setting period.
- The data above is for reference so you can not use them for official billing.

1-15. nviFilterReset(6)

Description	Filter alert reset			
SNVT Type	SNVT_time_hour: Signed Long, 2bytes			
Value and operation	Value	State	Operation	remark
	0.0	0	No Action	0
	100.0	1	Filter Reset	1
			,	

1-15. nviUserLockout(7), nvoUserLockout(22)

Remote control restriction			
SNVT_switch: Unsigned/signed Short			
Value	State	Operation	remark
0.0	0	Unlock	
100.0	1	Level 1	
100.0	2	Lock	
	Value 0.0 100.0	Value State 0.0 0 100.0 1	ValueStateOperation0.00Unlock100.01Level 1

1-15. nvoDevListDesc(27)

Description	Device Information
SNVT Type	SNVT_str_asc: Unsigned Character Array, 31bytes
Value and operation	Refer to Expansion of nvoDevListDesc

▮ Indoor unit/ERV/AHU/DVM Chiller/FCU kit object

Expansion of nvoDevListDesc

		desription	character	value
	[0]		Alphabet or digit	
	[1]		Alphabet or digit	
	[2]	Model information	Alphabet or digit	
	[3]	Modelinionnation	Alphabet or digit	
	[4]		Alphabet or digit	
	[5]		Alphabet or digit	
	[6]	Separator	Underbar(_)	095
	[7]	Centralized controller	Alphabet or digit	
	[8]	address	Alphabet or digit	
	[9]	Separator	Period(.)	046
	[10]	Interface Module address	Alphabet or digit	
	[11]	Interface Module address	Alphabet or digit	
	[12]	Separator	Period(.)	046
	[13]	Indoor I Init Address	Alphabet or digit	
	[14]	Indoor Unit Address	Alphabet or digit	
	[15]	Separator	Underbar(_)	095
ascii.	[16]	Unit type	0: indoor unit, 1: AHU, 2: ERV	
	[17]	Separator	Underbar(_)	095
	[18]	Operation mode	DMS Format 0: Auto, 1: Cool, 2: Dehumid, 3: Fan, 4: Heat	
	[19]	ON/OFF	0,1	
	[20]	Fan speed	0, 1, 2, 3, 4, 5	
	[21]	Fan Swing	0,1	
	[22]	Error	0,1	
	[23]	Separator	Underbar(_)	095
	[24]		Second significant digit	
	[25]	setPoint temperate	First significant digit	
	[26]		First decimal place	
	[27]		Second significant digit	
	[28]	Space temperate(*)	First significant digit	
	[29]		First decimal place	
	[30]	Null padding	0	048

• (*) If the value is a negative number, it is displayed as sign, 10-digit, single-digit.

■ DMS System object

2-1. nvoDigitalOut(3), nviDigitalOut(1)

Description	Digital output status on DMS		
SNVT Type	SNVT_switch: Unsigned/signed Short		
Value and operation		Value	State
	OFF	0.0	0
	ON	100.0	1

2-2. nvoDigitalIn(4)

Description	Digital Input status on DMS		
SNVT Type	SNVT_switch: Unsigned/signed Short		
Value and operation		Value	State
	OFF	0.0	0
	ON	100.0	1

2-3. nvoSystemLock(5)

Description	System lock status of DMS(only monitoring available)		
SNVT Type	SNVT_switch: Unsigned/signed Short		
Value and operation		Value	State
	Unlock	0.0	0
	Lock	100.0	1

2-4. nvoDMSAlarm(6)

Description	DMS Alarm
SNVT Type	SNVT_count: Unsigned Long, 2 bytes
	0: Normal
	8: Emergency stop
Value and	105: Tracing in progress
operation	108: Tracking failed
operation	109: Lon Module ↔ DMS2.5 communication Error
	110: Object ID Update

2-5. nvoSystemAlarm(7)

Description	SIM/PIM Communication Error Code
SNVT Type	SNVT_count: Unsigned Long, 2 bytes
Value and operation	SIM/PIM Communication Error Refer to list of Error code

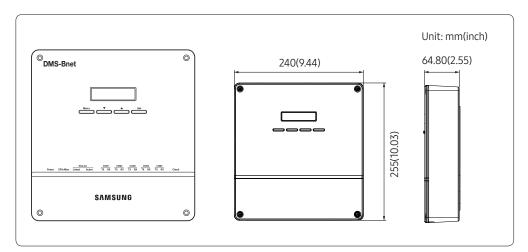
2-6. nviAllOff(2)

Description	DMS Alarm
SNVT Type	Enumeration, emerg_t
Value and	0: EMERG_NORMAL
operation	4: EMERG_SHUTDOWN

BACnet Gateway

MIM-B17BN (MIM-B17BRN)*

Features



 For BACnet protocol system Support DMS2.5 control function at the same time.

Product specification

	Source	DC Adaptor							
Power supply	Input	100~240VAC (±10%), 50/60Hz)0~240VAC (±10%), 50/60Hz						
	Output	12V 3A	2V 3A						
Operating temp	perature range	-10°C ~ 50°C (14°F~122°F)							
Operating hu	midity range	10%RH ~ 90%RH							
Communication	on connection	Lower layer: RS485 x 5Upper layer: Ethernet 100Base-T x 1							
External Digital Output		8							
connection port	Digital Input	10	10						
	RS485	1000m (3280ft)							
Maximum	Digital Output	100m (328ft)							
length of connection	Digital Input	100m (328ft)							
	Ethernet	100m (328ft): When there is no repeater							
		Device	Numbers per each channel	Total number for 5 channels					
		Indoor units (including ERV, MCU, FCU KIT)	128	256					
Max. connectable	Control layer	Outdoor unit (including MIM-N01, MIM-N10, MIM-F10N, DVM CHILLER unit)	16	80					
number of device	·	OnOff controller	Total 15	Total 75					
device		Touch centralized controller	TOTAL 13	TOTAL 7.5					
		PIM interface module (MIM-B16N)	8	8					
		Wi-Fi kit (MIM-H03N)	1	5					

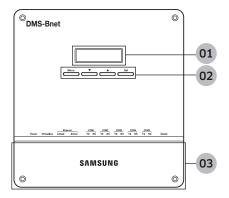
■ Compatible product

Outdoor unit	AM****X***
	OnOff controller (MCM-A202DN)
Controller	Touch centralized controller (MCM-A300N)
Controller	PIM interface module (MIM-B16N)
	Wi-Fi kit (MIM-H03N)

- Conventional communication outdoor unit requires compatible interface module (MIM-N01) to establish connection
- MIM-B13D, MIM-B13E, MIM-B04A Interface modules cannot be connected.
- To connect ERV, MIM-N10 is required.
- To connect FCU KIT, MIM-F10N is required.
- Conventional PIM must connect to CH4(COM5) of DMS2.5.

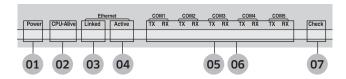
Description of parts

Front



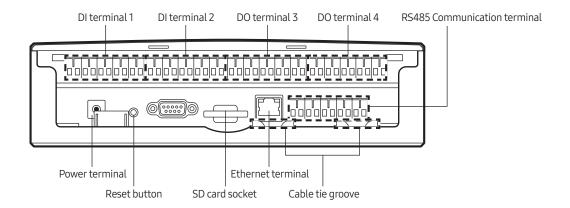
No.	Item	Function
01	LCD display	Displays current time or menu.
	Menu button	Access the setting menu.
02	▼/▲ button	Select function or setting item in the setting menu.
_	Set button	Enter or check setting item in the setting menu.
03	Bottom cover	Unscrew 2 screws on the bottom to remove the cover and check the cable connections.

LED indicator



No.	ltem	Name	Status
01	Power	Power indicator	Turns blue when the power is supplied
02	CPU Alive	CPU operation indicator	Blinks in orange with 1 second intervals during normal operation
03	Ethernet-Linked	Internet connection indicator	Turns green during normal connection
04	Ethernet-Active	Internet data transmission/reception indicator	Blinks in orange during normal transmission/reception
05	COM1~5 – TX	Channel 1~5 OnOff controller/ Interface module Data transmission indicator	Blinks in green during normal transmission
06	COM1~5 – RX	Channel 1~5 OnOff controller/ interface module Data reception indicator	Blinks in green during normal reception
07	Check	Indoor/Outdoor unit Communication status indicator	Turns green when communication error occurs

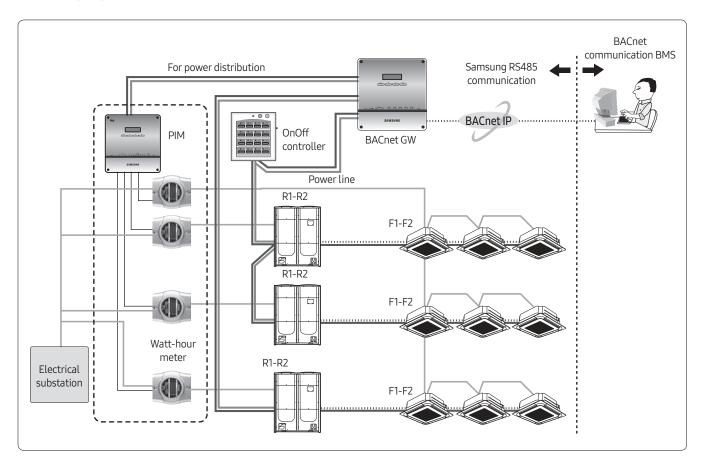
Bottom



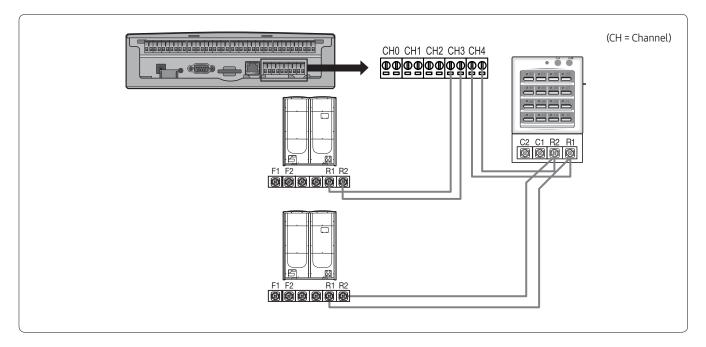
Name	Description
DI terminal 1	Digital Input connection terminal, Channel 1~Channel 5
DI terminal 2	Digital Input connection terminal, Channel6~Channel10
DO terminal 3	Digital Output connection terminal, Channel 1~Channel 5
DO terminal 4	Digital Output connection terminal, Channel 6~Channel 8
Reset button	Reset BACnet Gateway
SD card socket	Sub memory (for program update and set information saving) socket
RS485 communication terminal	RS485 port for communication with OnOff controller/interface module
Ethernet Terminal	Connect LAN cable
Cable tie groove	Groove for arranging cables

Connection diagram

MIM-B16N(PIM) can be connected with outdoor units or controllers to same channel of DMS2.5.



Wiring

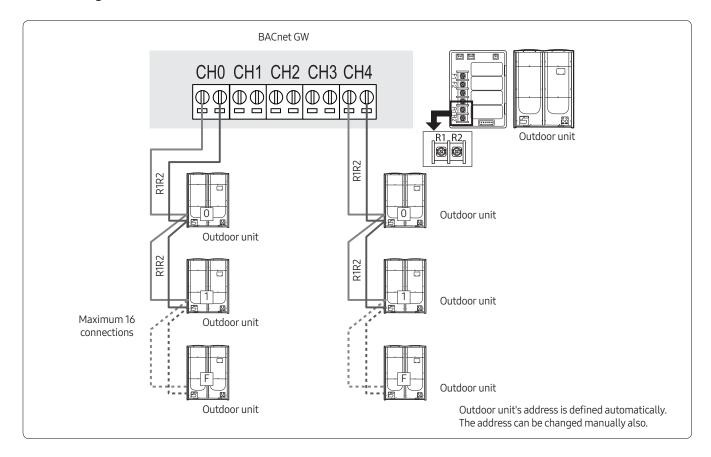


- Connecting outdoor unit directly
 - Maximum 16 outdoor units can be connected to each channel
 - Total 80 outdoor units can be connected
- Connecting OnOff controller/Touch centralized controller
 - Maximum 15 OnOff controller/Touch centralized controller can be connected to each channel

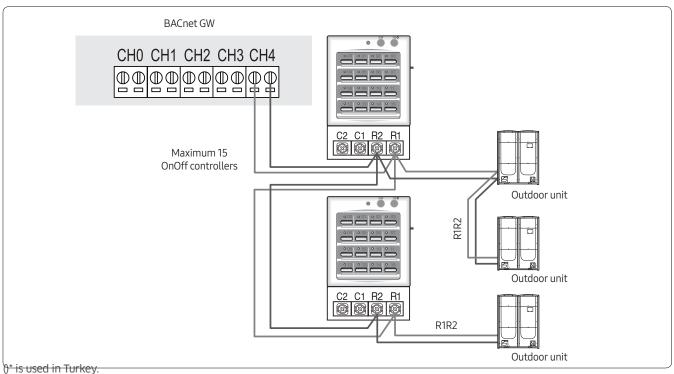
Note

- BACnet GW can connect outdoor unit and OnOff controller/Touch centralized controller at the same time.
- Outdoor unit and OnOff controller/Touch centralized controller can be connected to 1 communication channel at the same time.

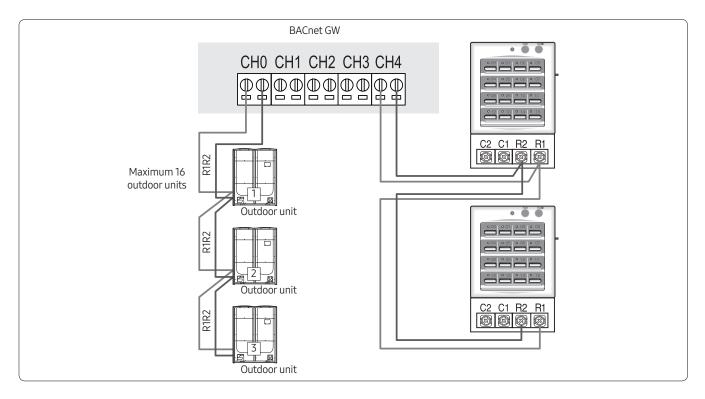
■ Connecting with outdoor unit



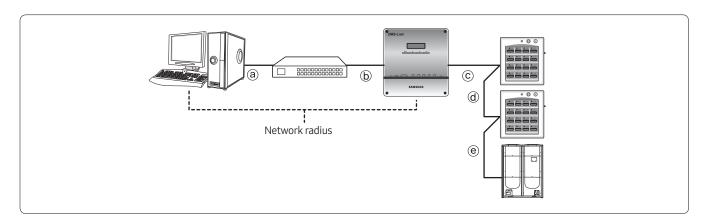
■ Connecting with OnOff controller



Connecting with outdoor unit and OnOff controller



Wiring distance

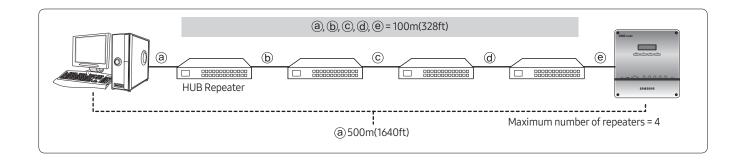


Distance between LonWorks GW and OnOff controller/outdoor unit

- Distance from the LonWorks GW to the furthest device cannot exceed 1000m(3280ft).
- © + @ + @ ≤ 1000m(3280ft)

Distance between LonWorks GW and upper level controller

• Since LonWorks GW supports 100 Base-T Ethernet, first repeater or upper level controller from the LonWorks GW cannot be further than 100m(328ft) (IEEE 802.3). Therefore, maximum network radius is restricted to 500m(1640ft).

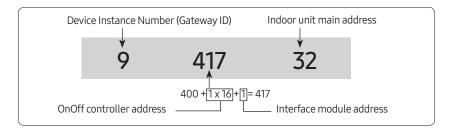


Description of device ID

Item	DNET – Range [Digit 2]	CPP – Range [Digit 3]	INDOOR – Range [Digit 2]
OnOff Controller	1~40	000~015	64
PIM	1~40	100~115	64
DMS DI/DO	1~40	300~315	64
Interface Module	1~40	400~655 (16 x 16)	64
Indoor Unit, ERV AHU kit, EHS	1~40	400~655	0~63
Gateway	1~40	900	64

Ex) • Indoor Unit

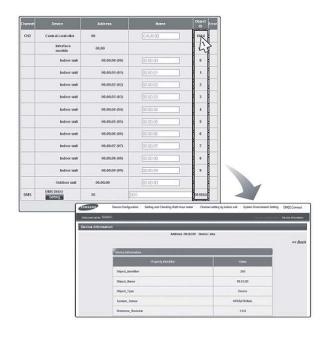
- DNET (Gateway number): 9
- Indoor Unit Address: 01.01.32
- Device ID: 941732



■ Checking device ID from BACnet Gateway

• Click 'Object ID' from the 'Object ID' column.

Detail information window will appear and detail information will be displayed.



Object List

Indoor unit

Single indoor unit has following point list.

				Unit		Status va	alue	
Instance	Object	Object	Object Name	Inactive	Active			
Number	·	Туре	,	Text-1	Text-2	Text-3	Text-4	Text-5
1	Indoor Temperature	Al	AC_RoomTemp_xx_xxxxxx	°C(°F)				
2	Set temperature	AV	AC_Temp_Set_xx_xxxxxx	°C(°F)				
3	Setting lower temperature limit	AV	AC_Cool_LimitTemp_xx_xxxxxx	°C(°F)				
4	Setting upper temperature limit	AV	AC_Heat_LimitTemp_xx_xxxxxx	°C(°F)				
5	The power value of an indoor unit after the basic date	AI	AC_Baseline_kWh_xx_xxxxxx	kWh				
6	The number of hours usage of an indoor unit after the basic date	Al	AC_Baseline_Minute_xx_xxxxxx	Minute				
7	Power value within period	Al	AC_Period_kWh_xx_xxxxxx	kWh				
8	The number of hours usage of an indoor unit within period	Al	AC_Period_Minute_xx_xxxxxx	Minute				
9(**)	Power On/Off	BV	AC_Power_xx_xxxxxx	Off	On			
10	Applying lower temperature limit setting	BV	AC_Cool_Limit_set_xx_xxxxxx	False	True			
11	Applying upper temperature limit setting	BV	AC_Heat_Limit_set_xx_xxxxxx	False	True			
12(**)	Filter sign status	BI	AC_FilterSign_xx_xxxxxx	False	True			
13(**)	Filter sign reset	ВО	AC_FilterSign_Reset_xx_xxxxxx	False	True			
14(**)	Operation mode status	MV	AC_Operation_Mode_xx_xxxxxx	Auto	Cool	Heat	Fan	Dry
15(*)	Fan speed status	MV	AC_FanSpeed_xx_xxxxxx	Auto	Low	Mid	High	Turbo
16	Air flow direction status	MV	AC_FanFlow_xx_xxxxxx	None	Vertical	Horizon	All	
17(**)	Operation mode limit status	MV	AC_Mode_Limit_xx_xxxxxx	No Limit	Cool Only	Heat Only		
18(**)	Remote controller limit status	MV	AC_Remocon_Limit_xx_xxxxxx	Enable RC	Disable RC	Conditional RC		
19(**)	Integrated error code of both indoor unit and outdoor unit	AI	AC_Error_Code_xx_xxxxxx	Refer to Samsung integrated error code list				
20(*)	SPI setting	BV	AC_SPI_xx_xxxxxx	False	True			
21(*)	HumanSensor setting	BV	AC_MDS_xx_xxxxxx	False	True			
22(**)	AC Indoor Notify	NC	AC_Notify_xx_xxxxxx			occurred, se the recipier		

()* is used in Turkey.

Instance		Ob:4		Unit		Status va	alue	
Instance Number	Object	Object Type	Object Name	Inactive	Active			
Nullibei		Type		Text-1	Text-2	Text-3	Text-4	Text-5
23(**)	Discharge cooling set temperature	AV	AC_DisCoolTemp_Set_xx_xxxxxx	°C(°F)				
24(**)	Discharge heating set temperatrue	AV	AC_DisHeatTemp_Set_xx_xxxxxx	°C(°F)				
25(**)	Discharge current temperature	Al	AC_DisCurrentTemp_xx_xxxxxx	°C(°F)				

Note

• Temperature setting range can be different depending on the model and the common range is as follows:

- Auto: 18~30°C(64~86°F) - Cool: 18~30°C(64~86°F) - Heat: 16~30°C(60~86°F)

- Fan: Temperature cannot be adjusted

- Dry: 18~30°C(64~86°F)

• (*) Mark is optionally supported.

• (**) For a fresh duct, (**) mark is supported.

■AHU kit

Single AHU unit has following point list.

				Unit		Status value			
Instance	Object	Object	Object Name	Inactive	Active				
Number	Object	Туре	Object Name	Text-1	Text-2	Text-3	Text- 4	Text-5	
1	Indoor Temperature	Al	AHU_RoomTemp_xx_xxxxxx	°C(°F)					
2	Set temperature	AV	AHU_Temp_Set_xx_xxxxxx	°C(°F)					
3	Setting lower temperature limit	AV	AHU_Cool_LimitTemp_xx_xxxxxx	°C(°F)					
4	Setting upper temperature limit	AV	AHU_Heat_LimitTemp_xx_xxxxxx	°C(°F)					
5	The power value of an indoor unit after the basic date	Al	AHU_Baseline_kWh_xx_xxxxxx	kWh					
6	The number of hours usage of an indoor unit after the basic date	Al	AHU_Baseline_Minute_xx_xxxxxx	Minute					
7	Power value within period	Al	AHU_Period_kWh_xx_xxxxxx	kWh					
8	The number of hours usage of an indoor unit within period	AI	AHU_Period_Minute_xx_xxxxxx	Minute					
9	Power On/Off	BV	AHU_Power_xx_xxxxxx	Off	On				

				Unit		Status va	alue	
Instance	Object	Object	Object Name	Inactive	Active			
Number	Object	Туре	Object Nume	Text-1	Text-2	Text-3	Text- 4	Text-5
10	Applying lower temperature limit setting	BV	AHU_Cool_Limit_set_xx_xxxxxx	False	True			
11	Applying upper temperature limit setting	BV	AHU_Heat_Limit_set_xx_xxxxxx	False	True			
12	Filter sign status	BI	AHU_FilterSign_xx_xxxxxx	False	True			
13	Filter sign reset	ВО	AHU_FilterSign_Reset_xx_xxxxxx	False	True			
14	Operation mode status	MV	AHU_Operation_Mode_xx_xxxxxx	Auto	Cool	Heat	Fan	Dry
15	Operation mode limit status	MV	AHU_Mode_Limit_xx_xxxxxx	No Limit	Cool Only	Heat Only		
16	Remote controller limit status	MV	AHU_Remocon_Limit_xx_xxxxxx	Enable RC	Disable RC	Conditional RC		
17	Integrated error code of both indoor unit and outdoor unit	Al	AHU_Error_Code_xx_xxxxxx	Refer to	Refer to Samsung integrated error code list			
18(*)	Discharge cooling set temperature	AV	AHU_DisCoolSetTemp_xx_xxxxxx	°C(°F)				
19(*)	Discharge heating set temperature	AV	AHU_DisHeatSetTemp_xx_xxxxxx	°C(°F)				
20(*)	Discharge current temperature	Al	AHU_Dis_CurrentTemp_xx_xxxxxx	°C(°F)				
21(*)	Humidification setting	BV	AHU_Humidification_xx_xxxxxx	Off	On			
22(*)	Outdoor air intake setting	BV	AHU_OAIntake_xx_xxxxxx	Off	On			
23(*)	Outdoor cooling setting	BV	AHU_OutdoorCool_xx_xxxxxx	Off	On			
24(*)	Fan speed status	MV	AHU_FanSpeed_xx_xxxxxx	Low	Mid	High		
25(*)	Set humidity status	MV	AHU_SetHumidity_xx_xxxxxx	Low	Mid	High		
26(*)	Current humidity status	МІ	AHU_CurrentHumidity_xx_xxxxxx	Low	Mid	High		
27	AHU Notify	NC	AHU_Notify_xx_xxxxxx			ccurred, ser the recipien		



• (*) Mark is optionally supported.

■ ERV, ERV Plus

Single ERV or ERV Plus unit has following point list.

Landana		Ole te et		Unit		Status va	Status value		
Instance Number	Object	Object Type	Object Name	Inactive	Active				
		Турс		Text-1	Text-2	Text-3	Text-4	Text-5	
1	Power On/Off operation	BV	ERV_Power_xx_xxxxxx	Off	On				
2	Filter sign status	BI	ERV_FilterSign_xx_xxxxxx	False	True				
3	Filter sign reset	ВО	ERV_FilterSign_Reset_xx_xxxxxx	False	True				
4	Operation mode status	MV	ERV_Operation_Mode_xx_xxxxxx	Auto	HeatEx	Bypass	Sleep		
5	Fan speed status	MV	ERV_FanSpeed_xx_xxxxxx	Low	High	Turbo			
6	Remote controller limit status	MV	ERV_Remocon_Limit_xx_xxxxxx	Enable RC	Disable RC	Conditional RC			
7	Integrated error code of ERV unit	Al	ERV_Error_Code_xx_xxxxxx						
8(*)	The power value of an ERV Plus unit after the basic date	Al	ERV_Plus_Baseline_kWh_xx_xxxxxx	kWh					
9(*)	The number of hours usage of an ERV Plus unit after the basic date	Al	ERV_Plus_Baseline_Minute_xx_xxxxxx	Minute					
10(*)	Power value within period	Al	ERV_Plus_Period_kWh_xx_xxxxxx	kWh					
11(*)	The number of hours usage of an ERV Plus unit within period	Al	ERV_Plus_Period_Minute_xx_xxxx xx	Minute					
12(*)	ERV Plus operation mode status	MV	ERV_Plus_Operation_Mode_xx_xx xxxx	Auto	Cool	Heat	Off		
13(*)	ERV Plus operation mode limit status	MV	ERV_Plus_Mode_Limit_xx_xxxxxx	No Limit	Cool Only	Heat Only			
14(*)	ERV Notify	NC	ERV_Notify_xx_xxxxxx			occurred, se the recipier			



• (*) Mark is optionally supported.

■ DVM CHILLER

Single DVM CHILLER Unit has following point list.

Instance Number	Object	Object Type	Object Name	Unit	Status value					
				Inactive	Active					
				Text-1	Text-2	Text-3	Text-4	Text-5		
1	Chilled Water Temperature	Al	MC_WaterTemp_xx_xxxxxx	°C(°F)						
2	Set temperature	AV	MC_WaterTemp_Set_xx_xxxxxx	°C(°F)						
3	Demand limit setting	AV	MC_Demand_Set_xx_xxxxxx	%						
4	The number of hours usage of an indoor unit after the basic date	Al	MC_Baseline_Minute_xx_xxxxxx	Minute						
5	The number of hours usage of an indoor unit within peirod	Al	MC_Period_Minute_xx_xxxxxx	Minute						
6	Power On/Off operation	BV	MC_Power_xx_xxxxxx	Off	On					
7	Water Law	ВО	MC_Water_Law_xx_xxxxxx	False	True					
8(*)	Quiet	BV	MC_Quiet_xx_xxxxxx	Off	On					
9(*)	Forced Fan	BV	MC_Forced_Fan_xx_xxxxxx	Off	On					
10(*)	Operation mode status	MV	MC_Operation_Mode_xx_xxxxxx	Cool	Heat	Cool Storage	Hot Water			
11(*)	Remote controller limit status	MV	MC_Remocon_Limit_xx_xxxxxx	Enable RC	Disable RC	Conditional RC				
12(*)	Integrated error code	Al	MC_Error_Code_xx_xxxxxx							
13(*)	DVM CHILLER Notify	NC	MC_Notify_xx_xxxxxx		n the error occurred, send event to list estination in the recipient_list. (Max: 8)					

BACnet Device Object does not support master function of DVM CHILLER.

■Object list

EHS

Instance Number	Object	Object Type		Unit	Unit Status value		
			Object Name	Inactive	Active		
				Text-1	Text-2	Text-3	Text-4
1	Room temperature	Al	EHS_RoomTemp_xx_xxxxxx	°C(°F)			
2	Set temperature	AV	EHS_Temp_Set_xx_xxxxxx	°C(°F)	Use when displayed temperature type is set to 'Room'.		
3	Set temperature of water out	AV	EHS_WaterOutTemp_Set_xx_xxxxxx	°C(°F)	Use when displayed temperature type is set to 'WaterOut'.		
4	Set temperature of hot water	AV	EHS_HotWaterTemp_Set_xx_xxxxxx	°C(°F)			
5	Setting lower temperature limit	AV	EHS_Cool_LimitTemp_xx_xxxxxx	°C(°F)			
6	Setting upper temperature limit	AV	EHS_Heat_LimitTemp_xx_xxxxxx	°C(°F)			
7	Lower temperature limit for water out	AV	EHS_WOCoolLimitTemp_xx_xxxxxx	°C(°F)			
8	Upper temperature limit for water out	AV	EHS_WOHeatLimitTemp_xx_xxxxxx	°C(°F)			
9	Upper temperature limit for hot water	AV	EHS_WTHeatlLimitTemp_xx_xxxxxx	°C(°F)			
10	The power value after the basic date	Al	EHS_Baseline_kWh_xx_xxxxxx	kWh			
11	The number of hours usage of an in- door unit after the basic date	Al	EHS_Baseline_Minute_xx_xxxxxx	Minute			
12	Power value within period	Al	EHS_Period_kWh_xx_xxxxxx	kWh			
13	The number of hours usage of an in- door unit within period	Al	EHS_Period_Minute_xx_xxxxxx	Minute			
14	Current temperature of water out	Al	EHS_WOCurrentTemp_xx_xxxxxx	°C(°F)			
15	Current temperature of hot water	Al	EHS_HotWaterTemp_xx_xxxxxx	°C(°F)			
16	Displayed temperature type	BI	EHS_ControlTempType_xx_xxxxxx	Room	WaterOut		
17	Thermostat usage	BI	EHS_Thermostat_xx_xxxxxx	False	True		
18	Outing	BI	EHS_GoOut_xx_xxxxxx	Off	On		
19	Power On/Off	BV		Off	On		
20	Setting lower temperature limit	BV	EHS_Cool_LimitTemp_Set_xx_xxxxxx	False	True	Use when di tempera- tu is set to 'R	ire type

Instance Number	Object	Object Type		Unit	Jnit Status value			
			Object Name	Inactive	Active			
				Text-1	Text-2	Text-3	Text-4	
21	Setting upper temperature limit	BV	EHS_Heat_LimitTemp_Set_xx_xxxxxx	False	True	Use when displayed tempera- ture type is set to 'Room'.		
22	Apply lower temperature limit for water out	BV	EHS_WOCoolLimitFlag_xx_xxxxxx	False	True	Use when displaye tempera- ture type is set to 'WaterOut		
23	Apply upper temperature limit for water out	BV	EHS_WOHeatLimitFlag_xx_xxxxxx	False	True	Use when display tempera- ture ty is set to 'WaterOu		
24	Apply upper temperature limit for hot water	BV	EHS_WTHeatLimitFlag_xx_xxxxxx	False	True			
25	On/Off status of hot water mode	BV	EHS_HotWater_Power_xx_xxxxxx	Off	On			
26	Status of quiet operation	BV	EHS_Sleep_xx_xxxxxx	Off	On			
27	Operation mode status	MV	EHS_Operation_Mode_xx_xxxxxx	Auto	Cool	Heat		
28	Operation mode limit status	MV	EHS_Mode_Limit_xx_xxxxxx	No Limit	Cool Only	Heat Only		
29	Remote controller limit status	MV	EHS_Remocon_Limit_xx_xxxxxx	Enable RC	Disable RC	Conditional RC		
30	Status of hot water operation mode	MV	EHS_HotWater_Mode_xx_xxxxxx	* Force	Eco	Standard	1PXFS	
31	Integrated error code of both indoor unit and outdoor unit	Al	EHS_Error_Code_xx_xxxxxx					
32	EHS notifiy	NC	EHS_Notify_xx_xxxxxx	When the error occurred, send event to list of destination in the recipient_list. (Max: 8)				

Note

• Force hot water mode (* marked) will be supported later. It is the point list of Hydro Unit and Hydro Unit HT.

SIM (PIM)

Single SIM (PIM) has following point list.

Instance Number	Object	Object Type	Object Name	Status value
1	SIM (PIM) error code	Al	SIM_Error_Code_xx_xx	Refer to list of error code
2	SIM (PIM) Notify	NC	SIM_Notify_xx_xx	When the error occurred, send event to list of destination in the recipient_list. (Max: 8)

■ OnOff Controller

Single OnOff Controller has following point list.

Instance Number	Object	Object Type	Object Name	Status value
1	OnOff Controller error code	Al	Central_Error_Code_xx_xx	Refer to the list of the integrated error code
2	OnOff Controller notify	NC	Central_Notify_xx_xx	When the error occurred, send event to list of destination in the recipient_list. (Max: 8)

Interface module (Outdoor unit)

Single Interface(Outdoor unit) module has following point list.

Instance		Object		Unit	Unit Status value				
Instance Number	Object	Object	Object Name	Inactive	Active				
Nullibel		Type		Text-1	Text-2	Text-3	Text-4	Text-5	
1	Outside temperature	Al	ODU_Outside_Temp_xx_xxxx	°C(°F)					
2(*)	Cool capacity compensation	AV	ODU_Cool_Compensation_xx_ xxxx	0: 5~7°C(41~45°F)/1: 7~9°C(41~48°F)/ 2: 9~11°C(48~52°F)/3: 10~12°C(50~54°F)/ 4: 11~13°C(52~55°F)/5: 12~14°C(54~57°F)/ 6: 13~15°C(55~59°F)/14: Auto control (from ODU)					
3(*)	Heat capacity compensation	AV	ODU_Heat_Compensation_xx_ xxxx	8: 33kg	0: 25kg/cm²/1: 26kg/cm²/ 2: 27kg/cm²/3: 28kg/cm²/ 4: 29kg/cm²/5: 30kg/cm²/ 6: 31kg/cm²/7: 32kg/cm²/ 8: 33kg/cm²/14: Auto control (from ODU)				
4	Compressor status	BI	ODU_Comp_Status_xx_xxxx	False	True				
5	Interface module error code	Al	Repeater_Error_Code_xx_xxxx	Refer to the list of the integrated error code					
6	Interface module notify	NC	IM_Notify_xx_xxxx	When the error occurred, send event to list of destination in the recipient_list. (Max: 8)					

(*) Mark is optionally supported.

■ BACnet Gateway

BACnet Gateway has following point list.

Instance Number	Control and Monitoring	Object Type	Object Name	Status value
1	All device OFF	ВО	ALL_OFF_xx	Inactive: All devices Off
2	DMS2.5 Status	Al	DMS2_Status_xx	0: Normal, 8: Emergency stop, 105: Tracking in progress, 108: Tracking failed 109: DMS2.5 <-> BACnet Communication failed
3	BACnet error code	Al	BACnetApp_Error_Code_xx	BACnet error code
4	Gateway Notify	NC	GW_Notify_xx	When the error occurred, send event to list of destination in the recipient_list. (Max: 8)

■ Digital input/output

Digital input/output Gateway has following point list.

				Unit		Status	value	
Instance Number	Object	Object Type	Object Name	Inactive	Active			
Number		Турс		Text-1	Text-2	Text-3	Text-4	Text-5
1	Digital Input 1	BI	DI_01_xx_xx (BACnet Gateway Reserved)	Off	On			
2	Digital Input 2	BI	DI_02_xx_xx (BACnet Gateway Reserved)	Off	On			
3	Digital Input 3	BI	DI_03_xx_xx	Off	On			
4	Digital Input 4	BI	DI_04_xx_xx	Off	On			
5	Digital Input 5	BI	DI_05_xx_xx	Off	On			
6	Digital Input 6	BI	DI_06_xx_xx	Off	On			
7	Digital Input 7	BI	DI_07_xx_xx	Off	On			
8	Digital Input 8	BI	DI_08_xx_xx	Off	On			
9	Digital Input 9	BI	DI_09_xx_xx	Off	On			
10	Digital Input 10	BI	DI_10_xx_xx	Off	On			
11	Digital Output 1	ВО	DO_01_xx_xx (BACnet Gateway Reserved)	Off	On			
12	Digital Output 2	ВО	DO_02_xx_xx (BACnet Gateway Reserved)	Off	On			
13	Digital Output 3	ВО	DO_03_xx_xx	Off	On			
14	Digital Output 4	ВО	DO_04_xx_xx	Off	On			
15	Digital Output 5	ВО	DO_05_xx_xx	Off	On			
16	Digital Output 6	ВО	DO_06_xx_xx	Off	On			
17	Digital Output 7	ВО	DO_07_xx_xx	Off	On			
18	Digital Output 8	ВО	DO_08_xx_xx	Off	On			

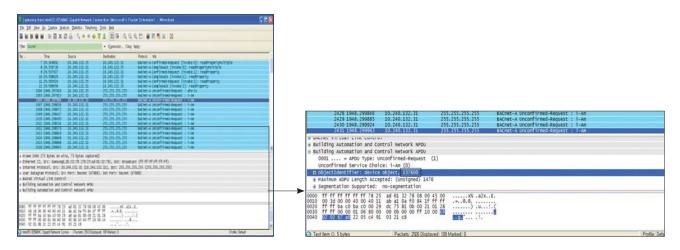
⚠ Caution

- You may use ALL_OFF command to turn on all the indoor units but it is not recommended.
- If communication error occurs on devices such as SIM/OnOff Controller/Interface Module etc, other functions such as power distribution may also create a problem. You must have BMS system to check the errors and you must take action immediately.

Checking BACnet communication through Wireshark

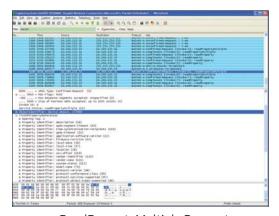
Who-is (I-Am)

· After device instance numbers have been automatically assigned, Who-is command which is requested in the Wireshark will be replied by i-am from the devices.

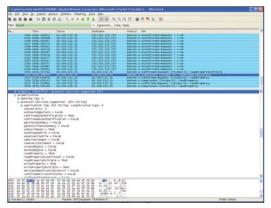


■ ReadPropertyMultiple

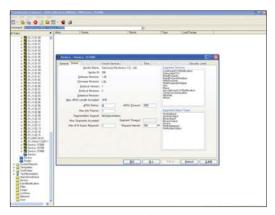
- Request all status datas.
- Device description, BACnet network number device node ID, status, BACnet MAC address version, Max APDU length accepted, APDU retries, timeout, supported services, supported object types and so on.



ReadPropertyMultiple Request



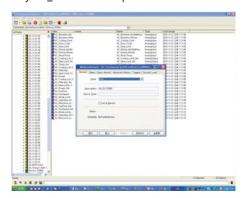
ReadPropertyMultiple Response

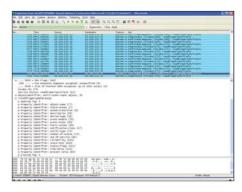


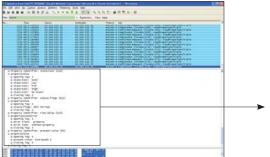
()* is used in Turkentinuum CyberStation

ReadPropertyMultiple

• Object_MultiStateInput









```
® Property Identifier: time-delay (113)
© propertyAccessError
© opening Tag: 5
© error Class: property
© error Code: unknown-property
© closing Tag: 5
© Property Identifier: present-value (85)
© propertyValue
© opening Tag: 4
© present-value: (unsigned) 1
© closing Tag: 4
© closing Tag: 1
```

WriteProperty

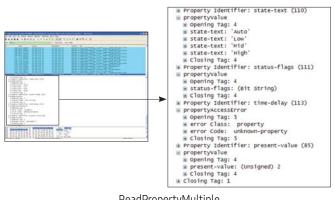




Change the FanSpeed from Auto to Low

BACnet-A Confirmed-Request [invoke:179]: writeProperty BACnet-A SimpleACK [invoke:179]: writeProperty BACnet-A Confirmed-Request [invoke:180]: readPropertyMultiple BACnet-A CompleXACK [invoke:180]: readPropertyMultiple

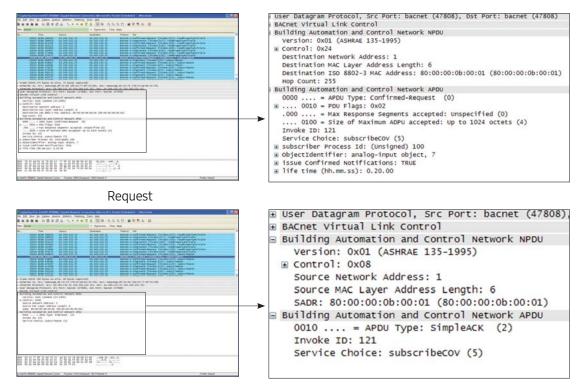
- 1. Request WriteProperty (FanSpeed 'Auto' → 'Low')
- 2. Response SimpleACK
- 3. Request ReadPropertyMultiple (FanSpeed)
- 4. Response ReadPropertyMultiple (FanSpeed 'Low')



WriteProperty

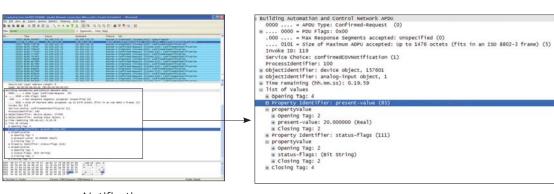
ReadPropertyMultiple

Subscribe COV

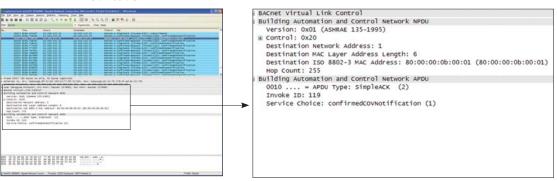


Response

COV Notification



Notification



()* is used in Turke Response

Standard Object Types Supported

Object Type	Supported	Dynamically Creatable	Dynamically Deletable	Writeable Properties
Analog Input	√			
Analog Output				
Analog Value				Present value
Binary Input	√			
Binary Output	\checkmark			Present value
Binary Value	\checkmark			Present value
Calendar				
Command				
Device	Yes	n/a	n/a	n/a
Event Enrollment				
File				
Group				
Loop				
Multi-state Input	\checkmark			Present value
Multi-state Output				
Multi-state Value	\checkmark			Present value
Notification Class	\checkmark			Recipient_List
Program				
Schedule				

Property support specification

Device property

	Property identifier	Property data	Check code	Support	DMS2.5
1	Object identifier	BACnetObjectIdentifier	R	V	Individual identifier
2	Object name	CharacterString	R	V	SAMSUNG DVM Gateway
3	Object type	BACnetObjectType	R	V	DEVICE
4	System status	BACnetDeviceStatus	R	V	During communication: "OPERATIONAL" Error with DMS2.5: "NON_OPERATIONAL"
5	Vendor name	CharacterString	R	V	Samsung Electronics CO., Ltd.
6	Vendor identifier	Unsigned16	R	V	200
7	Model name	CharacterString	R	V	MIM-B17BN
8	Firmware revision	CharacterString	R	V	1.20
9	Application software version	CharacterString	R	V	1.20
10	Location	CharacterString	0		X
11	Description	CharacterString	0	V	DMS2_BACnetIP [ver 1.00]
12	Protocol version	Unsigned	R	V	2.00
13	Protocol conformance class	Unsigned(16)	R		X
14	Protocol services supported	BACnetServicesSupported	R	V	For each device
15	Protocol object types supported	BACnetObjectTypesSupported	R	V	For each device
16	Object list	BACnetidentifier BACnet sequence [N]	R	V	For each device
17	Max APDU length accepted	Unsigned	R	V	1476
18	Segmentation supported	BACnetSegmentation	R	V	NO-SEGMENTATION

	Property identifier	Property data	Check code	Support	DMS2.5
19	VT classes supported	BACnetVTClass	O ⁽¹⁾		Х
20	Active VT sessions	BACnetVTSessions	O ⁽¹⁾		Χ
21	Local time	Time	0	V	Supported
22	Local date	Date	0	V	Supported
23	UTC offset	INTEGER	0		Х
24	Daylight savings timeout	BOOLEAN	0		Х
25	APDU segment timeout	Unsigned	O ⁽²⁾		Х
26	APDU timeout	Unsigned	R	V	3000
27	Number of APDU retries	Unsigned	R	V	3
28	List of session keys	BACnetSessionKey	0		Х
29	Time synchronization recipients	BACnetRecipient	O ⁽³⁾		Х
30	Max master	Unsigned(1127)	O ⁽⁴⁾	V	Х
31	Max info frames	Unsigned	O ⁽⁴⁾	V	Х
32	Device address binding	BACnetAddressBinding	R	V	Х
33	Protocol revision	Unsigned	R	V	2

■ Analog Input Property

	Property identifier	Property data	Check code	Support	DMS2.5
1	Object identifier	BACnetObjectIdentifier	R	V	
2	Object name	CharacterString	R	V	
3	Object type	BACnetObjectType	R	V	
4	Present value	REAL	R ⁽¹⁾	V	
5	Description	CharacterString	0	V	Al_Instance_device address
6	Device type	CharacterString	0		
7	Status Flags	BACnetStatusFlags	R	V	Communication Status_Flags FAULT flag → True OUT_OF_SERVICE → TRUE

	Property identifier	Property data	Check code	Support	DMS2.5
8	Event state	BACnetEventState	R	V	General Error
9	Reliability	BACnetReliability	0	V	Status_Flags FAULT flag → TRUE FAULT if Reliability is not NO_FALUT_DETECTED Communication error → COMMUNICATION_FAILURE General error → Unreliable_other
10	Out of service	BOOLEAN	R	V	Communication error → TRUE
11	Update interval	Unsigned	0		
12	Units	BACnetEngineeringUnits	R	V	
13	Min pres value	REAL	0	V	
14	Max Pres Value	REAL	0	V	
15	Resolution	REAL	0		
16	COV increment	REAL	O ⁽²⁾	V	
17	Time delay	Unsigned	O ⁽³⁾		
18	Notification class	Unsigned	O ⁽³⁾		
19	High limit	REAL	O ⁽³⁾		
20	Low limit	REAL	O ⁽³⁾		
21	Deadband	REAL	O ⁽³⁾		
22	Limit Enable	BACnetLimitEnable	O ⁽³⁾		
23	Event enable	BACnetEventTransitionBits	O ⁽³⁾		
24	Acked transition	BACnetEventTransitionBits	O ⁽³⁾		
25	Notify type	BACnetNotifyType	O ⁽³⁾		

■ Analog output property

	Property identifier	Property data	Check code	Support	DMS2.5
1	Object identifier	BACnetObjectIdentifier	R	V	
2	Object name	CharacterString	R	V	
3	Object type	BACnetObjectType	R	V	
4	Present value	REAL	W	V	
5	Description	CharacterString	0	V	Al_Instance_device address
6	Device type	CharacterString	0		

	Property identifier	Property data	Check code	Support	DMS2.5
7	Status Flags	BACnetStatusFlags	R	V	Communication Status_Flags FAULT flag → True OUT_OF_SERVICE → TRUE
8	Event state	BACnetEventState	R	V	General Error
9	Reliability	BACnetReliability	0	V	Status_Flags FAULT flag → TRUE FAULT if Reliability is not NO_FALUT_DETECTED Communication error → COMMUNICATION_ FAILURE General error → Unreliable_other
10	Out of service	BOOLEAN	R	V	Communication error → TRUE
11	Units	BACnetEngineeringUnits	R	V	
12	Min pres value	REAL	0	V	
13	Max Pres Value	REAL	0	V	
14	Resolution	REAL	0		
15	Priority array	BACnetPriorityArray	R	V	
16	Relinquish default	REAL	R	V	
17	COV increment	REAL	O ⁽¹⁾		
18	Time Delay	Unsigned	O ⁽²⁾		
19	Notification class	Unsigned	O ⁽²⁾		
20	High limit	REAL	O ⁽²⁾		
21	Low limit	REAL	O ⁽²⁾		
22	Deadband	REAL	O ⁽²⁾		
23	Limit enable	BACnetLimitEnable	O ⁽²⁾		
24	Event Enable	BACnetEventTransitionBits	O ⁽²⁾		
25	Acked transition	BACnetEventTransitionBits	O ⁽²⁾		
25	Notify type	BACnetNotifyType	O ⁽²⁾		

■ Binary input property

	Property identifier	Property data	Check code	Support	DMS2.5
1	Object identifier	BACnetObjectIdentifier	R	V	
2	Object name	CharacterString	R	V	
3	Object type	BACnetObjectType	R	V	

	Property identifier	Property data	Check code	Support	DMS2.5
4	Present value	BACnetBinaryPV	W	V	
5	Description	CharacterString	0	V	Al_Instance_device address
6	Device type	CharacterString	0		
7	Status Flags	BACnetStatusFlags	R	V	Communication Status_Flags FAULT flag → True OUT_OF_SERVICE → TRUE"
8	Event state	BACnetEventState	R	V	General Error
9	Reliability	BACnetReliability	0	V	Status_Flags FAULT flag → TRUE FAULT if Reliability is not NO_FALUT_DETECTED Communication error → COMMUNICATION_ FAILURE General error → Unreliable_other
10	Out of service	BOOLEAN	R	V	Communication error → TRUE
11	Polarity	BACnetPolarity	R	V	
12	Inactive text	CharacterString	O ⁽¹⁾	V	New
13	Active text	CharacterString	O ⁽¹⁾	V	New
14	Change of state time	BACnetDateTime	O ⁽²⁾		
15	Change of state count	Unsigned	O ⁽²⁾		
16	Time of state count reset	BACnetDateTime	O ⁽²⁾ O ⁽³⁾		
17	Elapsed active time	Unsigned32	O ⁽³⁾		
18	Time of active time reset	BACnetDate Time	0		
19	Time delay	Unsigned	O ⁽⁴⁾		
20	Notification class	Unsigned	O ⁽⁴⁾		
21	Alarm value	BACnetBinaryPV	O ⁽⁴⁾		
22	Event enable	BACnetEventTransitionBits	O ⁽⁴⁾		
23	Acked transition	BACnetEventTransitionBits	O ⁽⁴⁾		
24	Notify type	BACnetNotifyType	O ⁽⁴⁾		

■ Binary output property

	Property identifier	Property data	Check code	Support	DMS2.5
1	Object identifier	BACnetObjectIdentifier	R	V	
2	Object name	CharacterString	R	V	
3	Object type	BACnetObjectType	R	V	
4	Present value	BACnetBinaryPV	W	V	
5	Description	CharacterString	0	V	Al_Instance_device address
6	Device type	CharacterString	0		
7	Status Flags	BACnetStatusFlags	R	V	Communication Status_Flags FAULT flag → True OUT_OF_SERVICE → TRUE"
8	Event state	BACnetEventState	R	V	General Error Status_Flags FAULT flag → TRUE
9	Reliability	BACnetReliability	0	V	FAULT if Reliability is not NO_FALUT_DETECTED Communication error → COMMUNICATION_ FAILURE General error → Unreliable_other
10	Out of service	BOOLEAN	R	V	Communication error → TRUE
11	Polarity	BACnetPolarity	R	V	
12	Inactive text	CharacterString	O ⁽¹⁾	V	
13	Active text	CharacterString	O ⁽¹⁾	V	
14	Change of state time	BACnetDateTime	O ⁽²⁾		
15	Change of state count	Unsigned	O ⁽²⁾	V	
16	Time of State count reset	BACnetDateTime	O ⁽²⁾ O ⁽³⁾	V	
17	Elapsed active time	Unsigned32	O ⁽³⁾		
18	Time of active time reset	BACnetDate Time	0		
19	Minimum off time	Unsigned32	0		
20	Minimum on time	Unsigned32	0		
21	Priority array	BACnetPriorityArray	R		
22	Relinquish default	BACnetBinaryPV	R		
23	Time delay	Unsigned	O ⁽⁴⁾		
24	Notification class	Unsigned	O ⁽⁴⁾		
25	Alarm value	BACnetBinaryPV	O ⁽⁴⁾		
26	Event enable	BACnetEventTransitionBits	O ⁽⁴⁾		
27	Acked transition	BACnetEventTransitionBits	O ⁽⁴⁾		
28	Notify type	BACnetNotifyType	O ⁽⁴⁾		

()* is used in Turkey.

■ Multi-state input property

	Property identifier	Property data	Check code	Support	DMS2.5
1	Object identifier	BACnetObjectIdentifier	R	V	
2	Object name	CharacterString	R	V	
3	Object type	BACnetObjectType	R	V	
4	Present value	Unsigned	R ⁽¹⁾	V	
5	Description	CharacterString	0	V	M_Instance_device address
6	Device type	CharacterString	0		
7	Status Flags	BACnetStatusFlags	R	V	Communication Status_Flags FAULT flag → True OUT_OF_SERVICE → TRUE
8	Event state	BACnetEventState	R	V	General Error
9	Reliability	BACnetReliability	0	V	Status_Flags FAULT flag → TRUE FAULT if Reliability is not NO_FALUT_DETECTED Communication error → COMMUNICATION_FAILURE General error → Unreliable_other
10	Out of service	BOOLEAN	R	V	Communication error → TRUE
11	Number of states	Unsigned	R	V	
12	State text	BACnet sequence of characterString	0	V	
13	Time delay	Unsigned	O ⁽²⁾		
14	Notification class	Unsigned	O ⁽²⁾		
15	Alarm values	Unsigned list	O ⁽²⁾		
16	Fault values	Unsigned list	O ⁽²⁾		
17	Event enable	BACnetEventTransitionBits	O ⁽²⁾		
18	Acked transition	BACnetEventTransitionBits	O ⁽²⁾		
19	Notify type	BACnetNotifyType	O ⁽²⁾		

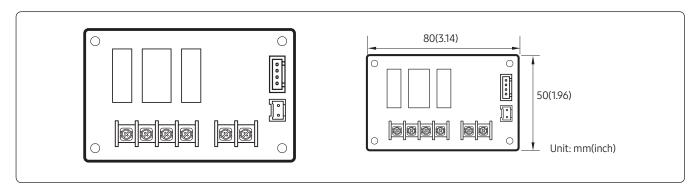
■ Multi-state Output Property

	Property identifier	Property data	Check code	Support	DMS2.5
1	Object identifier	BACnetObjectIdentifier	R	V	
2	Object name	CharacterString	R	V	
3	Object type	BACnetObjectType	R	V	
4	Present value	Unsigned	R ⁽¹⁾	V	
5	Description	CharacterString	0	V	M_Instance_device address
6	Device type	CharacterString	0		
7	Status Flags	BACnetStatusFlags	R	V	Communication Status_Flags FAULT flag → True OUT_OF_SERVICE → TRUE
8	Event state	BACnetEventState	R	V	General Error
9	Reliability	BACnetReliability	0	V	Status_Flags FAULT flag → TRUE FAULT if Reliability is not NO_FALUT_DETECTED Communication error → COMMUNICATION_FAILURE General error → Unreliable_other
10	Out of service	BOOLEAN	R	V	Communication error → TRUE
11	Number of states	Unsigned	R	V	
12	State text	BACnet arrangement of CharacterString	0	V	
13	Time delay	Unsigned	O ⁽²⁾		
14	Notification class	Unsigned	O ⁽²⁾		
15	Alarm values	Unsigned list	O ⁽²⁾		
16	Fault values	Unsigned list	O ⁽²⁾		
17	Event enable	BACnetEventTransitionBits	O ⁽²⁾		
18	Acked transition	BACnetEventTransitionBits	O ⁽²⁾		
19	Notify type	BACnetNotifyType	O ⁽²⁾		

External Contact Interface Module

MIM-B14

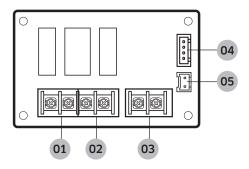
Features



Interlock DVM air-conditioner with external controller

- Indoor unit On/Off control by the external contact (Usable equipment: Card-key, Timer, Sensor)
- Output the indoor unit thermo ON/OFF state and operation status
- Output the indoor unit error state

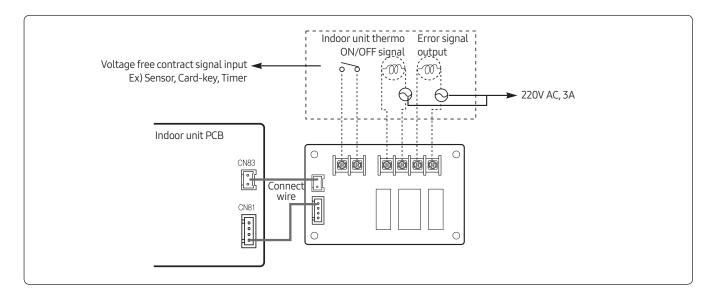
Description of parts



No.	Input/Output	Contact rating	Operation
01	Error state	220V AC, 3A	Normal:Close, Error:Open
02	Indoor unit Thermo On/Off or Operation State output (It depends on indoor unit's INSTALL option setting SEG 15.)	220V AC, 3A	[Output signal] SEG 15 = 0 Thermo On/Off SEG 15 =1 Operation On/Off (On:contact close, Off:contact open)
03	Operation signal input load	5V DC, 5mA	-
04	Connector for indoor unit	-	-
05	Connector for indoor unit	-	-

Installation

■ External contact line wiring



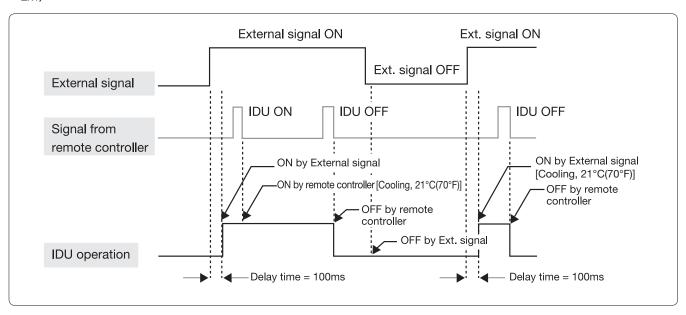
Note

- External operation input load: 5V DC/5mA.
- The length of wiring between MIM-B14 and external control equipment is 100m(328ft) max.
- To use external contact control system, indoor unit's INSTALL option setting is required. (Refer to indoor unit installation manual)
 - SEG 14 External control setting (Default: No use)
- After installed, the first operation will be conducted with Auto mode, Set temp. 24°C(75°F), Auto Fan speed.
- If the indoor unit in OFF status is turned ON through external contact signal; it will operate in the last operation status before it was turned off.

Control

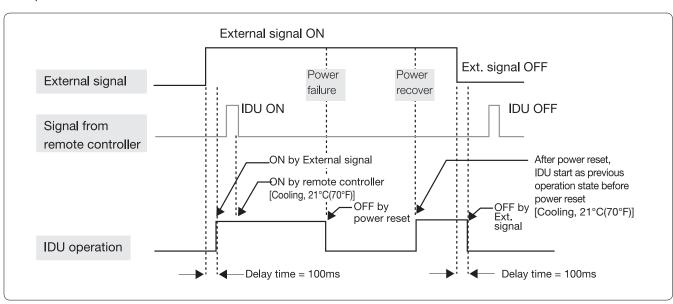
■ Timing diagram for external contact control

• Ex1)



Note

- IDU stands for Indoor Unit.
 No prioritized operation between the R/C and the external contact I/M.
- Ex2)

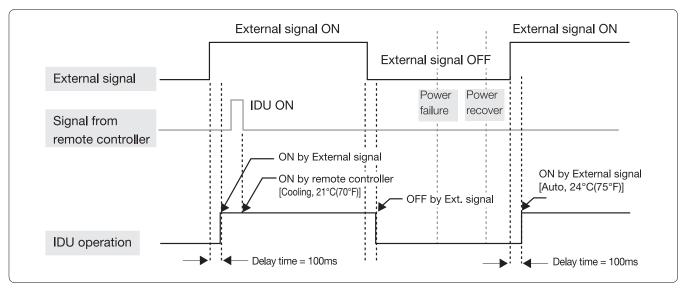


Note

• IDU stands for Indoor Unit.

After power reset, indoor unit operates as previous state. (IDU has power recovery function)

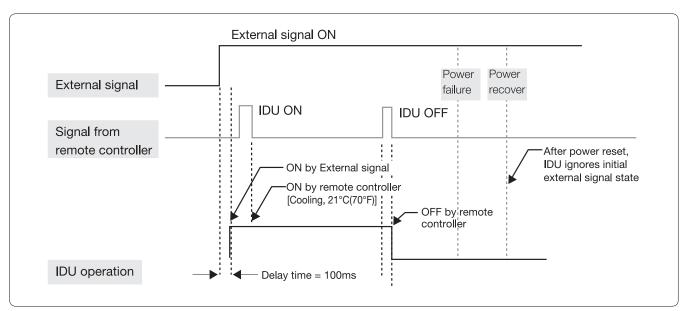
Ex3)



Note

• IDU stands for Indoor Unit. After power reset, if IDU is turn ON by external contact, it starts as Auto mode, 24°C(75°F), Auto fan speed.

■Ex4)



Note

• IDU stands for Indoor Unit. After power reset, IDU ignores initial external signal state.

■ Operation input

It is possible to set the method of indoor unit control by external contact signal.

- Method 1. Turn On/Off the indoor units by external contact signal
- Method 2. Set standby/Turn Off the indoor unit by external contact signal
- Method 3. Return to the last status/Turn Off the indoor unit by external contract signal

	Method 1	Method 2	Method 3
Indoor unit INSTALL option setting (Refer to inidoor unit installation manual)	SEG 14 = 1	SEG 14 = 2	SEG 14 = 3
Indoor unit operation by external contact	Short → Indoor unit On Open → Indoor unit Off	Short → Standby Open → Indoor unit Off	Short → Return to the last status of indoor unit Open → Indoor unit Off
Remote controller use	Short → Available Open → Available	Short → Available Open → Unavailable	Short → Available Open → Unavailable

■ Operation output

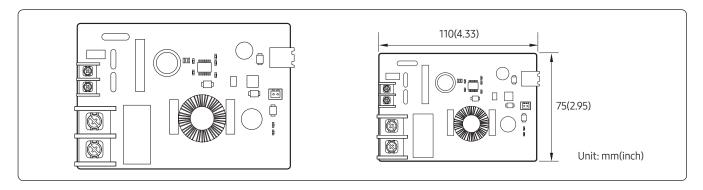
• Thermo off: Status where refrigerant is not flowing in either cooling/heating operation because desired temperature has been reached.

	DVM S series indoor unit		
	SEG 15 = 0	Thermo On/Off	
Output signal	SEG 15 = 1	Operation On/Off	
Output signal delay time		None	
Error signal			

MTFC (Multi Tenant Function Controller)

MCM-C210N

Features



- Multi tenant function controller is an auxiliary power supply device which allows indoor unit to turn off (close EEV) normally and maintain communication when main power supply is cut.
- It is used in site such as hotel where individual power is supplied to the indoor unit

Note

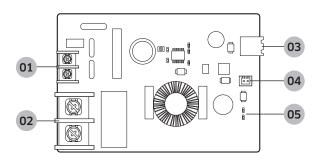
- To intall the MTFC, connection cable for the power, transformer and the IP (Ingress Protection) box must be purchased separately at the installation site.
- Specification of the transformer: UL Standard, Class2, 24Vac ±15% 50/60 Hz

Product specification

Devianavani	AC 24V
Power supply	50/60 Hz
Power consumption	10W
Operating temperature range	-10°C ~ 50°C (14°F ~ 122°F)
Operating humidity range	10 % RH~90 % RH
Maximum length of connection	3 m (9.84)
Number of control devices	1 indoor unit

MTFC (Multi Tenant Function Controller) > MCM-C210N

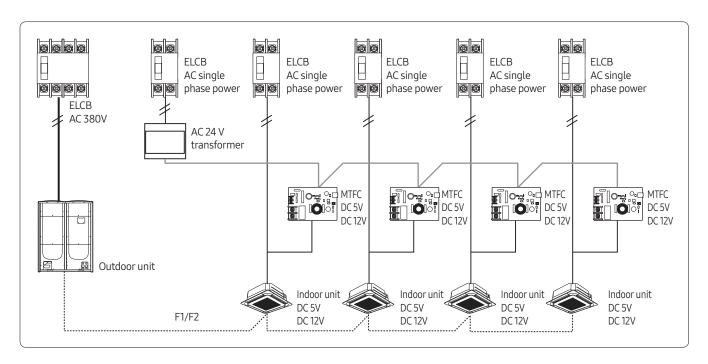
Description of parts



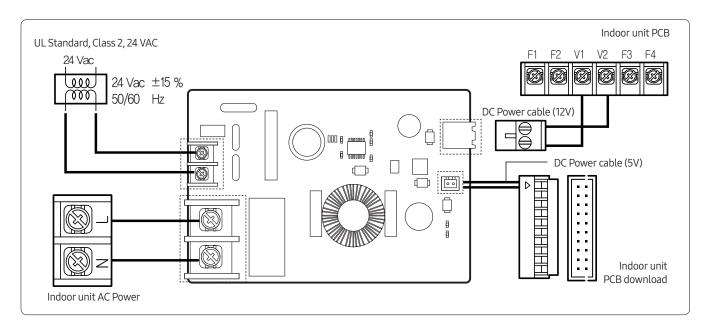
No.	Name	Description
01	Terminal for auxiliary power	Connect AC 24V power
02	Terminal for indoor unit power connection	To check for AC single phase power cut-off of the indoor unit, connect the power cable to the multi tenant function controller.
03	DC 12V output terminal	Terminal which supplies DC 12V to indoor unit
04	DC 5V output terminal	Terminal which supplies DC 5V to indoor unit
05	Operation status indicator LED	 LED ON: When AC single phase power for indoor unit is cut-off and DC 12V, DC 5V is output normally from the multi tenant function controller LED OFF: When AC single phase is supplied normally to the indoor unit

MTFC (Multi Tenant Function Controller) > MCM-C210N

Connection diagram



Connecting



MTFC (Multi Tenant Function Controller) > MCM-C210N

Main fucntion

Multi tenant function controller operation

- When AC power (that is supplied to indoor unit) is cut-off, it supplies auxiliary power (DC 12V, DC 5V) to the indoor unit.
- When AC power (that is supplied to indoor unit) is supplied normally, it cuts-off the auxiliary power (DC 12V, DC 5V) to the indoor unit.

Detail information of the indoor unit when the power is supplied by MTFC

Item	Operation	Detail information
Indoor unit operation	OFF	Remain indoor unit in off status, turning on is not possible
EEV control	Close	Operation off, follows indoor unit's EEV control
Self error diagnosis	Operating	Detects error such as EEV close/open by executing self-diagnosis
Displaying error on panel display	Display partially	Case 1) The errors of itself: it displays. Case 2) The errors of the other units: it doesn't display.
Operation of the connected wired remote controller	OFF	Power cut (not working)
Panel display	All off	All LEDs is off
Input outdoor unit key mode (Test run)	Not operating	The others are operated except the indoor unit in MTFC mode
Controlling from the control device	Not operating	Remain off status, turning on is not possible
Setting option code	Not operating	Option setting from wireles remote controller, wired remote controller and S-NET Pro etc is not possible
Recognition of MTFC status	Possible only through S-NET Pro 2	Using S-NET Pro2, user can check MTFC working status
Веер	Not operating	-

■ When AC single phase power is normally supplied to indoor unit

Indoor unit operates normally.

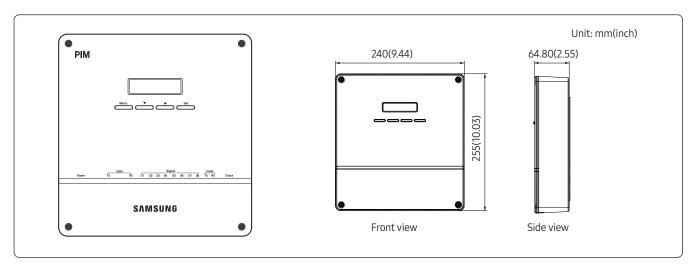
! Caution

- Wired remote controller for group control cannot be installed to an indoor unit which Multi Tenant Function controller was installed.
- EEV operation of the stopped Heat mode will be controlled in same condition as noise reduction control option when Multi Tenant Function Controller operates.
- If the Multi Tenant Function Controller operates while multiple indoor units are working in mixed operation mode (cooling and heating at the same time), dew may form on the indoor unit fan.

PIM (Pulse Interface Module)

MIM-B16N (MIM-B16RN)*

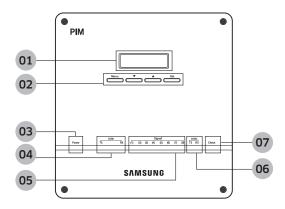
Features



- Pulse output electricity meter interface unit (max. 8 meters)
- 8-channel energy consumption display in real time
- System configuration with button manipulation
- Various text messages in LCD
- Current communication state indication

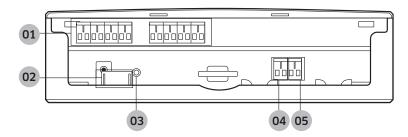
Device available (adapted)	Input: 100~240V AC, 50/60Hz, 1.0A
Power supply (adapter)	Output: 12V DC, 3.0A
Operating temperature range	-10°C ~ 50°C (14°F~122°F)
Operating humidity range	10%RH~90%RH
Marriago con estário en la capable	DMS2.5: 1000m (3280ft)
Maximum wiring length	Electricity meter: 200m (656ft)
Niahanafintanfaasa	Electricity meter: max. 8 units
Number of interfaces	DMS2.5: 1 unit

Display and buttons



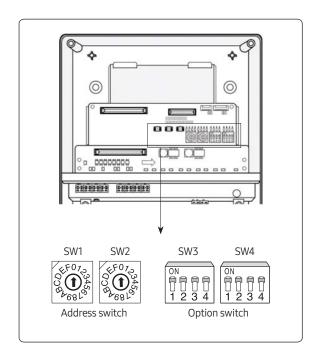
No.	Name	Description
01	LCD window	Information on current electricity readings, settings and operation state is displayed (16 character x 2 line LCD).
02	Menu button	Various menus are selected to monitor current electricity readings, to make configuration settings for electricity meters, and to check the error/settings.
03	Power (blue)	It's ON when power is supplied normally.
04	Communication (orange)	It blinks when communication between DMS2 and MIM-B16N normally works.
05	Pulse input (orange)	Each of the 8 LEDs blinks whenever a pulse from an electricity meter is detected.
06	Communication (orange)	Reserved
07	Check	It's ON when errors occur in communication or pulse input from electricity meters.

Connectors



No.	Name	Description
01	Pulse input terminals	8 terminals are allocated to interface pulse-type electricity meters. Each terminal is seen with a dedicated address on DMS2.
02	Power input	Power supply via the power adapter.
03	Reset button	Press the button to reset the MIM-B16N.
04	COM1	Connection terminal for RS485 communication with DMS.
05	COM2	Reserved

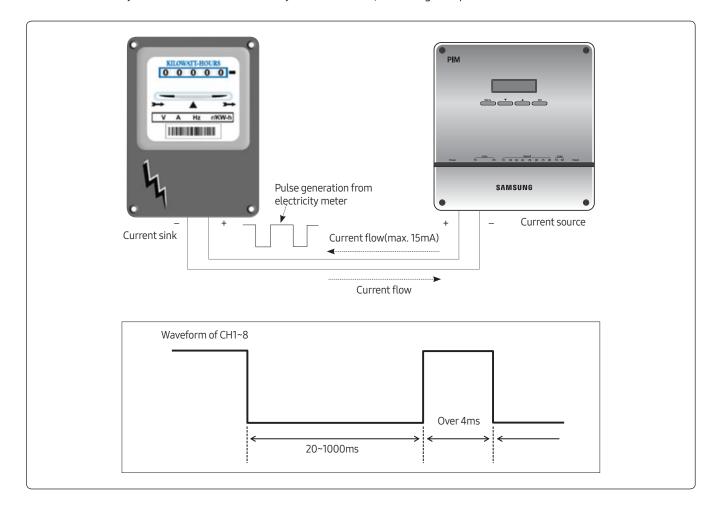
Address & option switches



	No.	Name	Description
	01	SW1	No function
	02	SW2	MIM-B16N address switch. Address greater than 7 (8~F) is not recognized.
	03	SW3	No function
-	04	SW4	No function

Specifications on electricity meter

- Current flow on output: Current-sinking
- Pulse rate:
 - Power meter: 1~10000 Wh/pulse (no decimal pulse rate allowed)
 - Gas meter: 0.001~10 m³/pulse
 - Water meter: 1 ~ 10000 liter/pulse (no decimal pulse rate allowed)
- Pulse width: 20 ~ 1000 ms with +/- 5% tolerance (no decimal pulse rate allowed)
- Time interval between pulses: min. 3ms
- Allowable current sinking: min. 15mA
- Withstanding voltage: min. 15V DC
- Interface circuitry: Electronic isolation circuitry recommended, no voltage output



Note

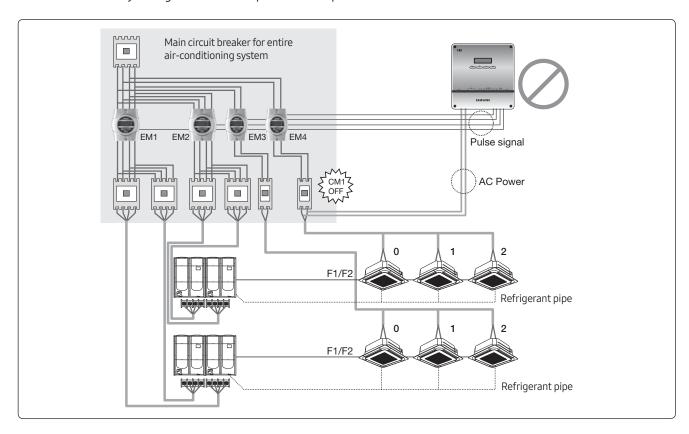
- Interface circuitry of an electricity meter has to withstand min. 15mA and min. 15V DC, both of which are applied by MIM-B16N.
- Even though MIM-B16N interface circuitry is realized with electric isolation components, it's highly recommended that interface circuitry of an electricity meter be designed with isolation to ensure robustness from contact spike or electric interference during wiring.

Installation

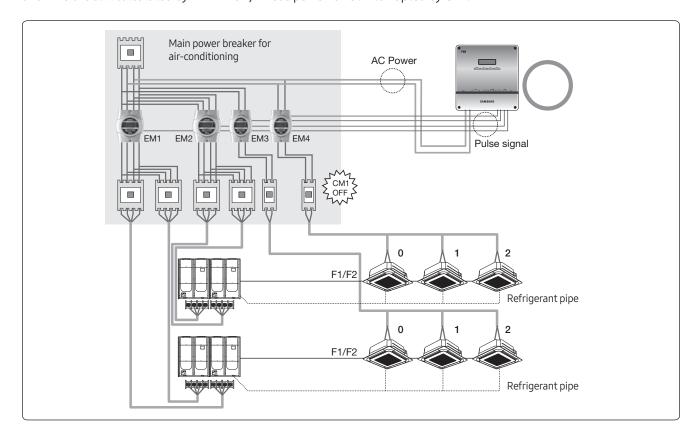
MIM-B16N must not be installed in a way that power to MIM-B16N is off when one of the over-current circuit breakers is switched off. Power supply to MIM-B16N must be off only when all the power supplies to refrigerant systems whose power consumptions are monitored by the MIM-B16N are cut off. This is because every pulse from electricity meters of some alive refrigerant systems must be sensed normally even if power supplies to other refrigerant systems have troubles.

• Example 1)

When the circuit breaker, CM1 is switched off for some reason while the others are still on, pulses from the electricity meters, EM1, EM2 and EM3 are not calculated by MIM-B16N, whose power is off by the CM1. This installation could lead to errors in electricity billing function when power interruption in local areas occurs.



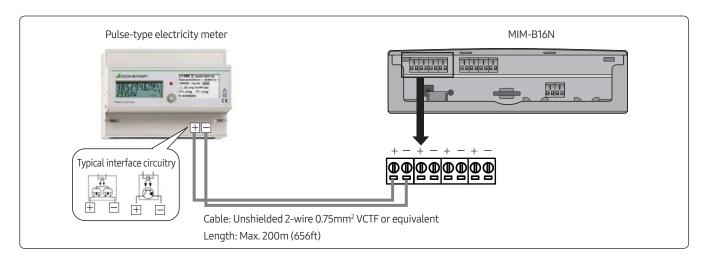
• Example 2)
Even when the circuit breaker, CM1 is switched off while the others are on, pulses from the electricity meters, EM1, EM2 and EM3 are still calculated by MIM-B16N, whose power is not interrupted by CM1.



Wiring

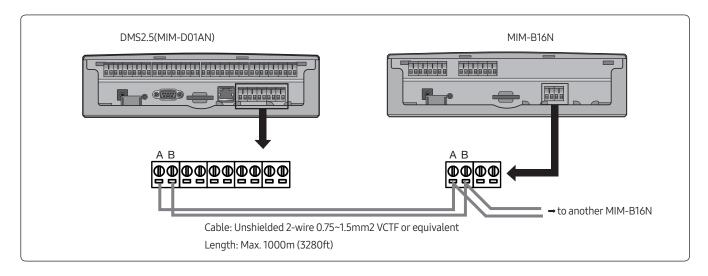
Wiring to electricity meter

Attention must be paid to make polarized connection between an electricity meter and MIM-B16N with correct specifications on wires.



Wiring to DMS2.5

Make sure that communication cable is wired between DMS2.5 and MIM-B16N with the right polarity.

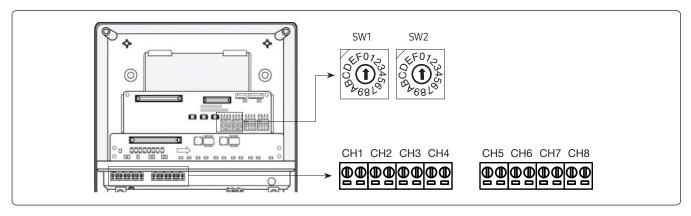


∴ Caution

- MIM-B16N can be connected with outdoor units/controllers to same channel of DMS2.5. Ex) DMS2.5 CH1: PIM + Outdoor unit (O)/PIM + Touch controller (O)
 - Outdoor unit or Controller should be new communication applied products.

Address assignment

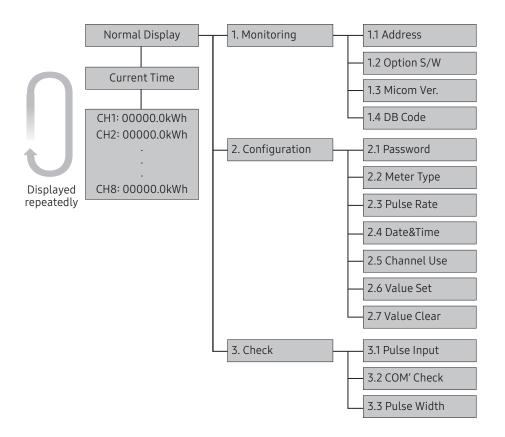
Each of the electricity meters is assigned with the dedicated address depending on MIM-B16N address setting and the position of the pulse input terminals.



■ Electricity meter address assignment table

CMS	Pulse input terminal							
SW2	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
0	16.01	16.02	16.03	16.04	16.05	16.06	16.07	16.08
1	17.01	17.02	17.03	17.04	17.05	17.06	17.07	17.08
2	18.01	18.02	18.03	18.04	18.05	18.06	18.07	18.08
3	19.01	19.02	19.03	19.04	19.05	19.06	19.07	19.08
4	20.01	20.02	20.03	20.04	20.05	20.06	20.07	20.08
5	21.01	21.02	21.03	21.04	21.05	21.06	21.07	21.08
6	22.01	22.02	22.03	22.04	22.05	22.06	22.07	22.08
7	23.01	23.02	23.03	23.04	23.05	23.06	23.07	23.08
8~15	Not recognized							

MIM-B16N menu structure



Main menu	Sub menu	Description					
		The MIM-B16N address is displayed with the physical address SW2 added by 30H on the LCD window.					
		Ex) LCD SW2 setting 1. Monitoring					
		30H 0 1.1 Address					
	PIM Address	31H 1					
		1.1 Address					
		37H 7 58 30 FF					
		Address PIM Fixed					
Monitoring	Option SW	Option switch setting to ON is displayed with the position number at the corresponding positions while setting to OFF is shown with the mark 'X'. Ex) 1.2 Option S/W					
		It displays PIM software version.					
	Micom version	Ex) 1.3 Micom Ver. 130123					
		It displays PIM software DB code.					
	DB Code	Ex) 1.4 DB Code DB91-01128A					
	Daggword	The password, which is asked to enter to change the configuration setting, is used to prevent unauthorized persons from accessing MIM-B16N. Factory setting is '0000'.					
	Password	Enter your P/W 0:0:0:0					
		You can select each channel's meter type.					
Configuration	Meter type ration	Default value: Power Meter					
Configuration		Type: Power Meter, Gas meter, Water Meter					
	Pulse Width	You can set pulse rate of meter which connected to each channel. [Range]					
		Power meter: 1~10000 Wh/pulse (No decimal pulse rate allowed)					
		Gas meter: 0.001~10 m³/pulse Water meter: 1 ~ 10000 liter/pulse (No decimal pulse rate allowed)					
	Date & time	Water meter: 1 ~ 10000 liter/pulse (No decimal pulse rate allowed) You can set current date and time.					
	שמנפ α נוווופ	You can set Enable/Disable state of each channel.					
	Channel use	If you set "Disable," then PIM doesn't display meter value of the disabled channel.					
		in you see Disable, then in account display meter value of the disabled challiet.					

Main menu	Sub menu	Description				
Configuration	Value set	Initial meter value must be set as a starting point for each of the enabled interface channels.				
	Value clear	Each or all the initial meter values are cleared when selected.				
	Pulse Input	When pulse input is detected during the test period, the channel numbers are displayed. Otherwise, the character 'X' is displayed on the corresponding channel position. All Check End X2XX5X7X				
Check	COM Check	Make a loopback connection between COM1 and COM2 to check if the DMS2.5 communication channel is working or not. Care must be taken for the connection polarity. When the COM1 communication channel is normal, the message 'OK' is displayed on the LCD window.				
CHECK	Pulse Width	on the LCD window. It checks if the pulse width values of actually connected meter are valid or not. OK: When the pulse is valid (pulse is valid when high pulse is between 20 ~ 1000msec), OK (M:####msec) will be displayed. #### represents the duration of the high pulse. NG: When the pulse is invalid (pulse is valid when high pulse is between 20 ~1000msec), or when there is no pulse inputs for 10 seconds), NG (M: 0000msec) will be displayed. PIM does not calculate the energy consumption during the checking process. The calculation will start after the check and returning to the upper menu. CH1 Check OK CH1 Check End NG (M:0000msec)				

Setting parameters on DMS2.5 (MIM-D01AN)

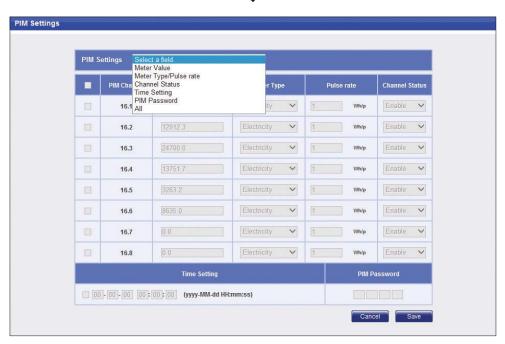
The following parameters for MIM-B16N can be also set and monitored on DMS2.5 (MIM-D01AN)

• Meter value, Meter type/pulse rate, Channel status, Time setting, PIM password

■[Tracking result page --> PIM "Setting"]

СНО	PIM Setting	16	16
СН0	PIM Setting	17	[17]







• DMS2.5 setting for MIM-B16N parameters

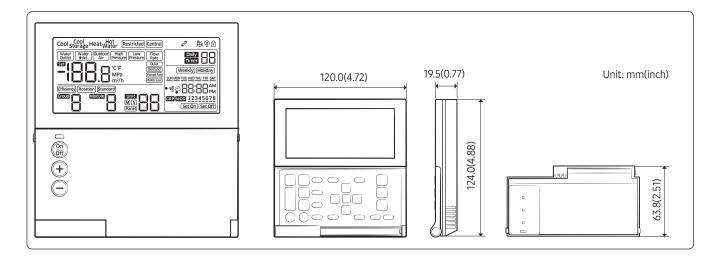
Error code

Error code	Description
E613	Error which occurs when there is no communication between DMS and PIM/SIM for 15 minutes.
E632	 Error which occurs when the pulse was input differently from the PIM setting. (If the pulse was inputted at the value outside of 10 ms ~ 1500 ms range for more than 15 times or when high pulse was inputted for over 3 minutes)
E654	Memory Read/Write error.
E108	Error which occurs when same address was assigned to different devices.

Module Controller

MCM-A00N

Features



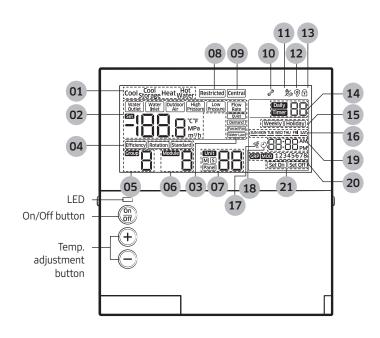
- DVM CHILLER On/Off control (Module/Group)
- Operation mode, water outlet temperature setting
- Optional operation setting
- Module/Group setting
- Weekly operation schedule setting

Product specification

Power Supply	DC 12V
Power Consumption	2W
Operating Temperature range	0°C~40°C (32°F~104°F)
Operating Humidity range	30%RH ~ 90%RH
Communication	2-wire PLC
Max. Communication length	200m (656ft)
Max. Number of connection	16 DVM CHILLER units

Description of parts

Display



No.	Display	Function
01	Cool Storage Heat Water	Displays the operation mode.
		Displays the set or current water temperature (°C, °F).
		■ NOTE
		• Press button to display the set water temperature for 3 seconds.
02	Water Water Outdoor High Low Flow Rate State Flow	 The default is the current water temperature, and it can be changed into the set water temperature in the service setting mode.
02	Ti⊡⊡.⊡ MPa m/h	\bullet The display will show Lo when the value can be displayed (-199 \sim 199) or show HI when it cannot be displayed.
		Displays the current temperature (°C, °F) of water inlet or outdoor air.
		Displays the current high or low pressure (MPa) of refrigerant.
		Displays the current water flow rate (m3/h).
03	Quiet Demand Forced Fan Water Law	Displays the selected applied operation.
04	Efficiency (Rotation) (Standard)	Displays the operation pattern by each module and group.
05	Group E	Displays the group from 1 to 4.
06	Module	Displays the module from 1 to 8.

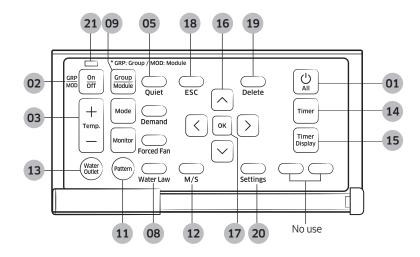
No.	Display	Function
		Displays the unit from 0 to 15 (maximum 16).
07		Displays Master or Slave.
	Panel Panel	Displayed when setting the Panel control function from a certain unit.
		 Panel control function is to set the unit to control the operation itself, so the operation cannot be controlled from the module control if this function is set.
		Displayed when button input is restricted.
		Restricted display will appear when the buttons are restricted due to central control or when a combined operation cannot be performed.
08	Restricted	
		 The module control will be restricted in the following cases. Example 1) Displayed when pressing button in the central control. Example 2) Displayed when setting the button lock function and then button in the service mode.
		Displayed when setting the central control.
		NOTE ■ NO
09	Central	Central display will appear when the module control is controlled by the central
		control room of the building or by the upper level control such as a central control or a DMS etc. In this case, timer and all functions will be operated by the upper level control.
		Displayed when an error occurs in a product or a module control.
	<i>C</i>	
10	6/9	 Blinked when an error occurs in a product or a module control, followed by the error code.
		 It will disappear when all errors is solved.
11	₹:	Displayed when a pump operates automatically to keep the pipes from freezing.
		Displayed when the defrost function operates.
12	(x)	
12	6	Defrost function is to remove frost on the outdoor unit during operating the heat
		mode.
		Displayed when selecting the button lock function.
13	igorplus	
1.5	ш	 To lock the buttons of the module control, press button.
		· · · · · · · · · · · · · · · · · · ·
14	Timer Timer	Displays the number of daily or entire timers.
15	(Weekly)(Holiday)	Displays weekly timer or holiday setting.

No.	Display	Function		
16	SUN MON TUE WED THU FRI SAT	Displayed days of week while setting weekly or daily timer or displaying the set timer.		
17	Displayed when the summer time function is set.			
		Displayed when setting the off timer for the entire DVM CHILLER in the additional function. Time for the off timer function can be set to maximum 23 hours.		
18	(3)	 NOTE The current time will be displayed if there is more than an hour until the set time. The remaining time will be displayed and the off timer display will appear if there is less than an hour until the set time. 		
19	B-B-AM PM	Displays the current time or the set time.		
20	GRP MOD 12345678	Displayed when selecting a group or a module while setting the weekly timer. (Group: $1 \sim 4$, Module: $1 \sim 8$)		
21	Set On Set Off	Displayed Set on or Set off while setting or displaying timer.		

NOTE

- If you set the input method as external contract control in the option setting of DVM CHILLER, the module control cannot control the units.
- The module control cannot sense the indoor temperature.
- The module control does not control the midnight electricity's time or the cool storage tank.

Buttons



Classificat	ion	ion Indication		Function				
				Turns on or off all the DVM CHILLERs. You can turn on or off all the connected modules and groups.				
	01	(L)	All start/ stop button	■ NOTE				
			Stop Satton	 When turning off all units and turn them back on, the units will operate in a previously selected mode. 				
Start/Stop				Turns on or off a group or a module individually.				
			0. (0(() 1)	When a module or a group is turned off, temperature or mode displays will not appear.				
	02	MOD Off	On/Off button	■ NOTE				
				 When turning off a module or a group and turn it back on, each module or group will operate in a previously selected mode. 				
				Adjusts the desired water temperature.				
			Temp. adjustment button	♠ NOTE				
Basic operation	03	+ Temp. —		 For celsius, the set water temperature can be adjusted by 1, 0.5, or 0.1 °C depending on the set value in the service mode. For fahrenheit, it can be depending on the set value in the service mode. For fahrenheit, it can be adjusted by 1 °F. 				
				• If you press and hold the button, it will be adjusted by 1 °C/1 °F.				
Basic operation O2 GRP On On/Off button O3 + Temp. adjustment button O4 Mode Operation mode button O5 Quiet Dutton O6 Demand Demand button O7 Forced Fan Snow prevention button O8 Water law button	Selects the desired operation mode.							
	05	Quiet	Quiet button	Selects the quiet function.				
Applied	06	Demand	Demand button	Selects the demand function.				
• •	07	Forced Fan	Snow prevention button	Selects the snow prevention function.				
	08	Water Law	Water law button	Selects the water law function.				

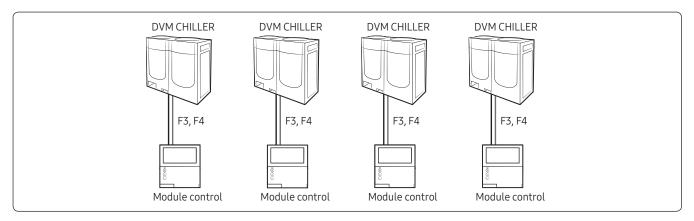
Classificat	ion	Ir	ndication	Function
	09	Group Module	Group/Module button	Selects a group or module control.
	10	Monitor	Monitor button	Shows the result of monitoring water outlet, water inlet, outdoor air, high and low pressure of refrigerant, and water flow rate.
Option change function	11	Pattern	Pattern button	Sets the operation pattern when controlling the DVM CHILLER by groups or modules.
	12	M/S	M/S button	Sets Master or Slave units.
	13	Water	Water outlet button	When pressing the water outlet button while the display shows the pressure of refrigerant or the water inlet temperature, the water outlet temperature will be displayed.
				Sets the weekly On/Off timer.
	14	Timer	Timer button	
Timer				• The timer can be set up to maximum 40 timers.
function			Timer display button	Checks the timer already set.
	15	Timer		■ NOTE
				You can check the timer by numbers or days of the week.
	16		Up, down, left, right button	Moves from stage to stage or changes the set value.
	17	ОК	OK button	Selects the stage or saves the setting.
Common	18	ESC	ESC button	Exits to normal mode without saving your changes while setting the timer or the additional function.
Common function				Deletes the timer.
	19		Delete button	■ NOTE
		Delete		 Press button for 3 seconds to delete all the timers while the display shows the timers.
	20	Settings	Settings button	Enters the additional function setting screen.
	<u> </u>			Displays the on/off status of the module or the group on the display. On: green LED is turned on Off: green LED is turned off Error: red LED is blinking
LED	21		LAMP	■ NOTE
	-			 When one of the modules or groups are operating, the green LED is turned on.
				 When a certain module or group needs to be inspected, the led LED is blinked.

NOTE

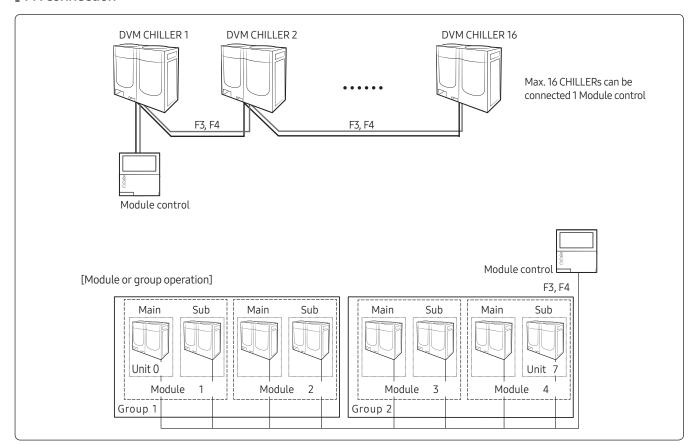
- Mode, temperature, or etc. can be set when only the module control is turned on.
- SEE BY ALL SECTION OF ALL SECTION

Connection diagram

1:1 connection



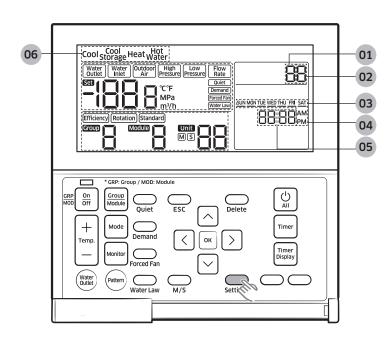
1:N connection



- Module/group operation is to combine multiple CHILLERs in modules or groups of a single water pipe system and to operate them depending on the working condition.
- A single module control can control a maximum of 16 DVM CHILLERs (0 ~ 15). DVM CHILLER can have a maximum of 8 modules (1 ~ 8) and 4 groups (1 ~4). A maximum of 8 units can be connected to a module, and a maximum of 8 modules can be connected to a group.

Optional function

Additional setting mode



How to set "Additional setting mode"
 Press "Settings" to enter "Additional setting mode"

No.	Name	Description
01	Main menu	Displays main menu value of the service mode table.
02	Sub menu	Displays sub menu value of the service mode table.
03	Page	Displays Page value of the service mode table.
04	Data Segment	Displays Data value of the service mode table.
05	Synchronized segment for setting the current time	Displays the data value of the Page on the left side of the LCD at the same time.
06	The status of each unit	Displays the status of each unit when selecting the monitoring function by each unit in the user mode.

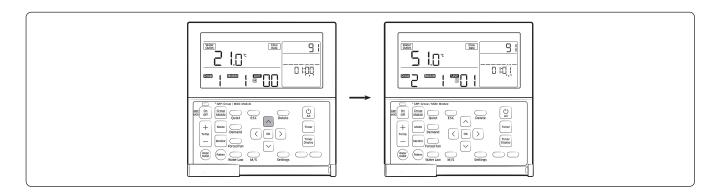
Main menu	Sub menu	Function		Initial value	Page	Range	Save
1	1	Off timer		0	1	00 ~ 12 hour(s) (by an hour)	Save
3	1	Lock all		0	1	0 - Unlock, 1 - Lock	Save
3	2	Lock timer		0	1	0 - Unlock, 1 - Lock	Save
		Set today's date	(yy) year	-	1	00 ~ 99	Save
4	1		(mm) month	-	2	01 ~ 12	Save
4			(dd) day	-	3	01~31	Save
			week) day of week	-	4	Sun. ~ Sat. (0 ~ 6)	Save

Main menu	Sub menu		Function	Initial value	Page	Range	Save
4	2	Set the current time	Hour: Minute	-	-	Setting range of hour 12-hours: (AM/PM) 01 ~ 12 24-hours: (AM+PM) 00 ~ 23 Setting range of minute: 0 ~ 59	Save
	1	Use and set the summer	Use the summer time function or not	0	1	0 - No use, 1 - Use	Save
	I	time function	Set the summer time type	0	2	0 - by a week, 1 - by a day	Save
		Start the	Month	3	1	01 ~ 12 (Jan. ~ Dec.)	Save
	2	summer time function (by a week)	Sunday on the selected week	F	2	1 ~ 4 (week) or F - the last week	Save
		Start the	Month	10	1	01 ~ 12 (Jan. ~ Dec.)	Save
5	3	summer time function (by a week)	Sunday on the selected week	F	2	1 ~ 4 (week) or F - the last week	Save
	4	Start the summer time function (by a day)	(mm) month	3	1	01 ~ 12 (Jan. ~ Dec.)	Save
			(dd) day	22	2	01 ~ 31 (day)	Save
	5	End the summer time function (by a day)	(mm) month	9	1	01 ~ 12 (Jan. ~ Dec.)	Save
			(dd) day	22	2	01 ~ 31 (day)	Save
	1	Set/check the time for backlight		5	1	00 ~ 30 (second) (Disuse when it is 00)	Save
6	2	Use LED (gree	n) or not	1	1	0 - No use, 1 - Use	Save
	3	Use LED (red)		1	1	0 - No use, 1 - Use	Save
	1		Display the operating status by units 1)*	The smallest unit number	1	00~15	-
9	2	User setting functions	Display the number of temperature control devices/thermostats	The number of the temperature control devices/ thermostats	1	00 ~ 16	-
0	1	Reset to the december (except the cu	efault value of user mode rrent time)	0	1	0 - No use, 1 - Reset	-

^{1*)} You can check the status of units connected to the module control.

When pressing button after selecting the unit number, you can change the status of the selected unit. (Water Outlet \rightarrow Water Inlet \rightarrow Outdoor Air \rightarrow High Pressure \rightarrow Low Pressure \rightarrow Flow Rate \rightarrow).

Press ☑, button to change the unit number.



NOTE

• The summer time is to put the clock ahead an hour earlier than standard time in summer.

Service mode

How to set the service mode

- **1** Start the service mode.
 - Press for over 3 seconds

A Caution

- To make it work correctly, you have to press the center of the buttons at the same time.
- 2 Select a main menu number.
 - △/✓ ► Select a main menu number
- 3 Select a sub menu number.
 - > ► ^/ ✓ ► Select a sub menu number
- 4 Select a Page number.

When changing a Page number, the display will show the set data value of the Page.

- > ► △ / ✓ ► Select a Page number
- **5** Set Data value.

Refer to the table in "Service setting mode" for setting each data.

- > ► △ / ► Adjust the data value
- **6** Save the data setting value.

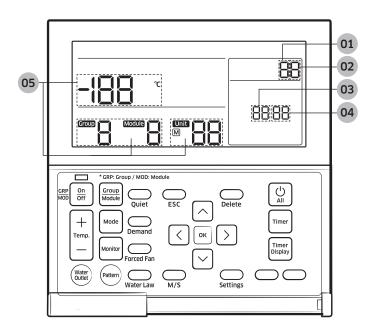


7 Complete the service mode.



NOTE

• If the current setting stage is in the main menu when pressing button, the service mode will be completed. If not, the stage will move to the main menu.



No.	Name	Description
01	Main menu	Displays main menu value of the service mode table.
02	Sub menu	Displays sub menu value of the service mode table.
03	Page	Displays Page value of the service mode table.
04	Data Segment	Displays Data value of the service mode table.
05	Synchronized segment for setting the current time	Displays the data value of the Page on the left side of the LCD at the same time.

■ Service setting mode

- After saving the setting, the DVM CHILLERs and the module control may be initialized if it is necessary.
- When entering the service mode during the tracking, you can enter the Data stage on the Main menu 4,5,6,9 (Save at DVM CHILLER) but you cannot change the setting.
 - The display will show Restricted if you press 🕟 button.
 - The display shows only the collected data during the tracking.

Main menu	Sub menu	Function		Initial value	Page	Range	Save
	1	Option setting/	DVM CHILLER cooling and heating/only cooling	0	1	0 - Cooling and heating, 1 - Only cooling	Save at Module control
	·	checking	Temperature unit display (°C)/(°F)	0	2	0 - Celsius (°C), 1 - Fahrenheit (°F)	Save at Module control
	2	Option setting/ checking 2	Temperature display set temperature/water temperature (Setting the module control's temperature display value)	1	1	0 - Set temperature 1 - current water outlet temperature (Default value)	Save at Module control
1	6	Number of connected units	Number of DVM CHILLERs	0	1	00 ~ 16	-
	7	temperature (A	unit of the desired vailable only when the ure display is °C.)	0	1	0 - 1 1 - 0.5 2 - 0.1	Save at Module control
	8	Setting	g type of time	0	1	0 - 12-hours, 1 - 24-hours	Save at Module control
	9	Check fo	or timer IC error	0	1	0 - Normal, 1 - Error	-
	0	Initializing serv	ice mode setting value	0	1	0 - Disuse, 1 - Reset	-
2	1	Checking micom codes of the module control		-	1~3	Micom code	-
2	2	Checking the version information of the module control program		-	1~3	Modified date	-
	1		Setting a targeted DVM CHILLER	View Master	1	A registered unit number	-
	4	Setting DVM CHILLE number/option	Setting/checking basic options	Basic options of the target	1~20	Option code	Save at DVM CHILLER
4	5		Setting/Checking installation options	Installation options of the target	1~20	Option code	Save at DVM CHILLER
	6		Setting/Checking installation options 2	Installation options 2 of the target	1~20	Option code	Save at DVM CHILLER

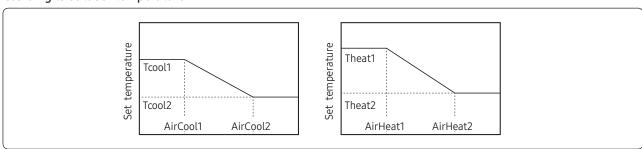
Main menu	Sub menu	F	unction	Initial value	Page	Range	Save
	1		Demand level ^{2)*}	-	Module number	0 - Default value (100 %) 1 - 95 % 2 - 90 % 3 - 85 % 4 - 80 % 5 - 75 % 6 - 70 % 7 - 65 % 8 - 60 % 9 - 55 % 10 - 50 %	Save at DVM CHILLER
	2		Quiet operation level	-	Module number	0 - Default value (100 %) 1 - Level1 2 - Level2 3 - Level3	Save at DVM CHILLER
5	3	Setting DVM CHILLER detailed setting	Standard for Water law ^{4)*}	-	Main unit number	Standard for Water Law temperature 0: Based on outdoor temperature/ 1: Based on room temperature	Save at DVM CHILLER
	4		AirCool1 (for Water law)	-	Main unit number	Outdoor temperature standard 1 [0 ~ 20°C(32 ~ 68°F)] in cooling mode	Save at DVM CHILLER
	5		AirCool2 (for Water law)	-	Main unit number	Outdoor temperature standard 2 [30 ~ 40 °C(86 ~ 104°F)] in cooling mode	Save at DVM CHILLER
	6		RoomCool1 (for Water law)	-	Main unit number	Room temperature standard 1 [15 ~ 24 °C(59 ~ 75°F)] in cooling mode	Save at DVM CHILLER
	7		RoomCool2 (for Water law)	-	Main unit number	Room temperature standard 2 [25 ~ 35 °C(77 ~ 95°F)] in cooling mode	Save at DVM CHILLER
	8		Tcool1 (for Water law)	-	Main unit number	Cooling set temperature standard 1 [-10 ~ 25 °C(14 ~ 77°F)] in cooling mode	Save at DVM CHILLER
	9		Tcool2 (for Water law)	-	Main number	Cooling set temperature standard 2 [-10 ~ 25 °C(14 ~ 77°F)] in cooling mode	Save at DVM CHILLER

Main menu	Sub menu	Function		Initial value	Page	Range	Save
	1		AirHeat1 (for Water law)	-	Main unit number ^{5)*}	Outdoor temperature standard 1 [-20 ~ 5°C(-4 ~ 41°F)] in heating mode	Save at DVM CHILLER
	2		AirHeat2 (for Water law)	-	Main unit number ^{5)*}	Outdoor temperature standard 2 [10 ~ 20°C(50 ~ 68°F)] in heating mode	Save at DVM CHILLER
	3		RoomHeat1 (for Water law)	-	Main unit number ^{5)*}	Room temperature standard 1 [15 ~ 24°C(59 ~ 75°F)] in heating mode	Save at DVM CHILLER
6	4	DVM CHILLER detailed setting 2	RoomHeat2 (for Water law)	-	Main unit number ^{5)*}	Room temperature standard 2 [25 ~ 35°C(77 ~ 95°F)] in heating mode	Save at DVM CHILLER
	5		Theat1 (for Water law)	-	Main unit number ^{5)*}	Heating set temperature standard 1 [35 ~ 55°C(95 ~ 131°F)] in heating mode	Save at DVM CHILLER
	6		Theat2 (for Water law)	-	Main unit number ^{5)*}	Heating set temperature standard 2 [35 ~ 55°C(95 ~ 131°F)] in heating mode	Save at DVM CHILLER
	9		Operation pattern for modules (When operating standard pattern by a group) ^{6)*}	-	Module number	0 - Standard 1 - Rotation 2 - Efficiency	Save at DVM CHILLER
	1	Set groups/ modules ^{7)*}	Assign modules/ groups to units	-	Unit number	Group(1 ~ 4)/ module (1 ~ 8)/ not set '-'	Save at DVM CHILLER
	2	Set a main unit	Set a main unit for modules	-/-/unit	Module number	Unit number of the selected module	Save at DVM CHILLER
9	3		Set a main unit for groups	-	Group number	Unit number of the selected group	Save at DVM CHILLER
9	4		Use Cool storage mode	-	1	0 - Disable, 1 - Enable	Save at DVM CHILLER
	5	Device option	Use Hot water mode	-	1	0 - Disable, 1 - Enable	Save at DVM CHILLER
	6	Set a backup module ^{8)*}	Set a backup module	-	Group number	0 – Disable, 1 ~ 8 – The unit number of the selected module	Save at DVM CHILLER

Main menu	Sub menu	Function		Initial value	Page	Range	Save
0	1	Reset	Initialize factory setting of the module control (Initialize user/service mode setting value)	0	1	0 - No use, 1 - Reset	-
	2		Initialize power master 9)*	0	1	0 - No use, 1 - Reset	-
	3		Initialize DVM CHILLER and module control's addressing	0	1	0 - No use, 1 - Reset	-

^{1)*} In 4-1 menu, the units connected to the module control will be displayed. Select the unit that you want to set and then move to 4-4, 5, 6 menu.

According to outdoor temperature



NOTE

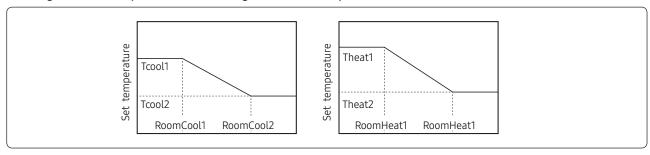
• If the unit is not a low temperature water model, the set temperature decided by the Water law control will not decease below 5°C(41°F).

^{2)*} Set a current limit rate. If you set the value less than 100 %, performance may decrease.

^{3)*} Set a level of the Quiet mode. Level3 is the lowest, performance and efficiency may decrease if the Quiet mode operates.

^{4)*} Select a standard for Water law when operating cooling or heating. Water law is to change the water outlet temperature, considering demand load changes according to outdoor or indoor temperature.

According to indoor temperatrue (when using an external temperature sensor)



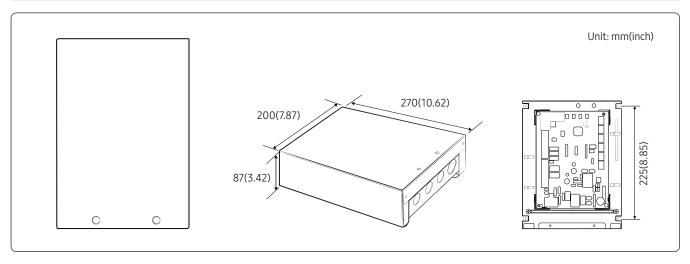
NOTE

- If the unit is not a low temperature water model, the set temperature decided by the Water law control will not decease below 5°C(41°F).
- ^{5)*} A main unit of a group or a module will be displayed. When setting a group, the value for a main unit of the group must be set.
- 6)* When setting "Standard pattern" for a group, you must set an operation pattern for each module in the group.
- ^{7)*} Only when completing setting a group or a module and their main units, the module control will operate properly. When completing the a group or a module setting and then exiting from service mode, the module control will be initialized and the tracking will be performed again.
- 8)* If a backup unit is selected, the unit will operate depending on the standards for DVM CHILLER. A backup module does not operate in the normal operation condition. If performance by operating the normal modules is not enough, the backup module will operate.
- 9)* Power Master Reset is a setting needed to supply optimized power to the module control when multiple DVM CHILLERs are connected to the module control.

FCU KIT

MIM-FOON

Features



- Communication and control interfacing kit between 3rd party FCU and Samsung control system.
- Possible to use wired remote controller
- Possible to use DMS2.5, Touch centralized controller
- Provides external contact input
- Outputs control signal for FCU fan.
- Outputs control signal for Water valve .

Product specification

Communication	RS485 x 1 (F1/F2) 2-wire PLC x 1 (F3/F4)
Max. length of connection	RS485 – 1000m(3280ft) 2-wire PLC - 100m(328ft)

Power & cable specification

Europe

Power Supply	Power cable	Ground wire	Communication cable	ELCB
AC220 - 240V~ 50Hz, 1Ph	Min. 2.5 mm ² (0.0039 inch ²)	Min. 2.5 mm ² (0.0039 inch ²)	Min. 0.75 mm ² (0.0012 inch ²)	15A

Part	Rated Capacity
Fan (High, Mid, Low)	AC220 - 240V~ 50Hz, 1Ph, 1A
Water Valve	AC220 - 240V~ 50Hz, 1Ph, 0.5A

USA

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

Part	Rated Capacity
Fan (High, Mid, Low)	AC208 - 230V~ 60Hz, 1Ph, 1A
Water Valve	AC208 - 230V~ 60Hz, 1Ph, 0.5A

Product specification

Power & cable specification

DC Wire

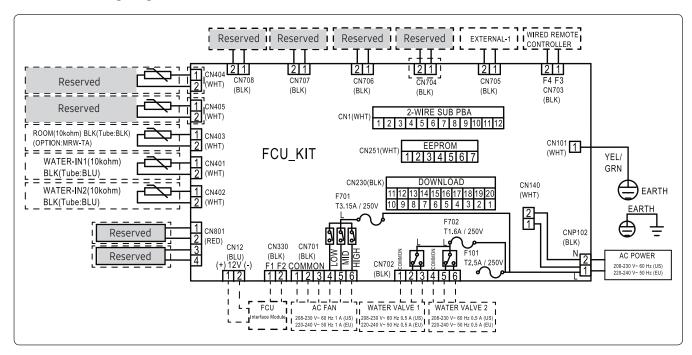
Part	Rated Capacity
Remote controller	DC 12V
External contact	Zero voltage contact input
Sensor cable	NTC./10 kΩ 25°C

■ Compatible controller

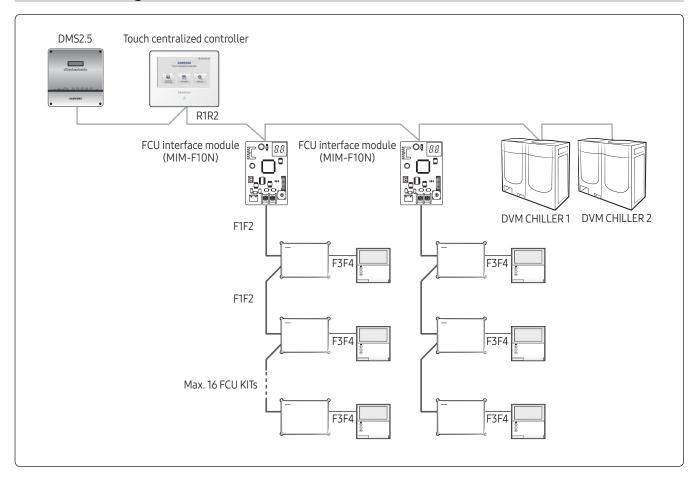
Wired remote controller	MWR-WE11N, MWR-SH10N
Interface module	MIM-F10N
DMS2.5	MIM-D01AN
BACnet GW	MIM-B17BN
LonWorks GW	MIM-B18BN

Description of parts

Electrical wiring diagram

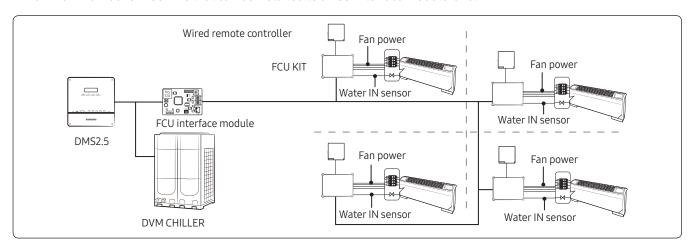


Connection diagram



Individual control of FCU

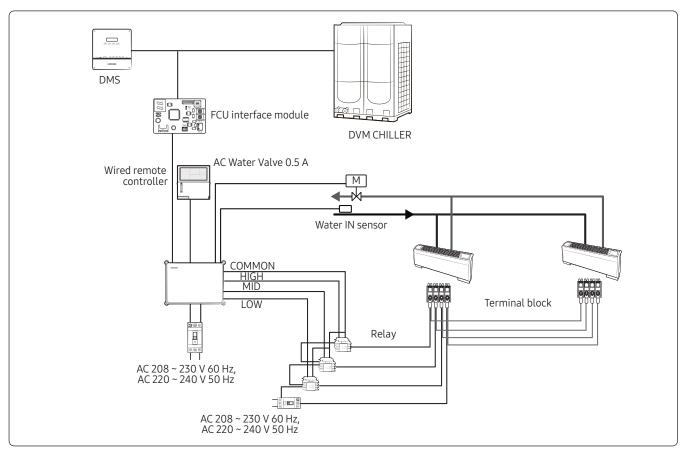
- Install FCU and FCU KIT by 1 to 1.
- Maximum number of FCU KITs that can be installed to a FCU interface module is 16.



- Indoor temperature sensor must be installed to control FCU. Use either wired remote controller built-in sensor or external room sensor (MRW-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.

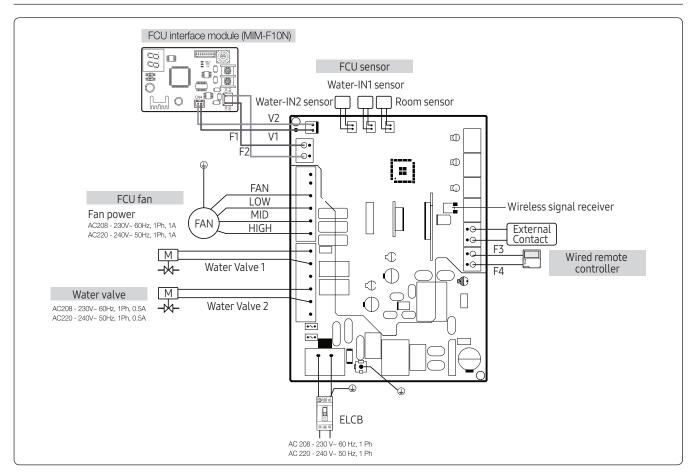
■ Integrated control of FCU

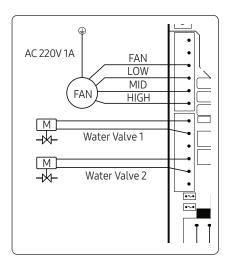
 $\bullet\,$ Install FCUs and FCU KIT by multiple FCUs to 1 FCU KIT.



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

Wiring





Fan: Must use below specification fan.

For direct power supply from FCU KIT, fan motor must work at AC 208 - 230V ~ 60 Hz, AC 220 - 240V ~ 50Hz and 1 A or low. Otherwise, install relay for external power supply to the fan motor.

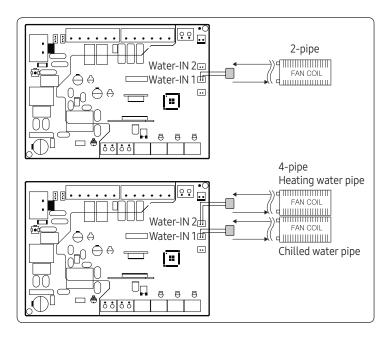
Water Valve: 2 Way or 3 Way solenoid valve

• 2/3 way solenoid value is a type that works at AC 208 - $230V \sim 60$ Hz, AC 220 - $240V \sim 50$ Hz and supports product with 0.5 A or low.

Pipe type	Power output according to operation mode		AC 220 V output (Max 0.5 A)	Note
2-pipe	Cooling/ Heating	Thermo ON	1-2	Normal Close Type
z-pipe		Thermo OFF	1-3	Normal Open Type
	Cooling	Thermo ON	1-2	Normal Close Type
4-pipe		Thermo OFF	1-3	Normal Open Type
4-pipe	Heating	Thermo ON	4-5	Normal Close Type
	Heating	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, SEG 14) is required to define 2 pipe or 4 pipe system.

Water IN sensor



- 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 30 minutes of operation(E992 or E993).

Pipe type	Sensor connection in PBA (FCU KIT)	Sensor location (Pipe)
2-pipe	Water-IN 1	Water pipe inlet
4-pipe	Water-IN 1	Chilled water pipe inlet
4-pipe	Water-IN 2	Heating water pipe inlet

■ Wired remote controller

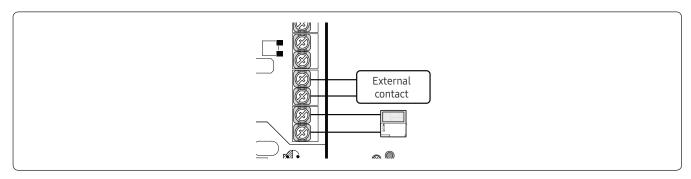
- 1 FCU KIT can connect 1 wired remote controller.
- 1 wired remote controller can connect Max.16 FCU KITs.
- * Wired remote controller can control below function of FCU KIT.
- On/Off
- Operation mode
- Temperature setting
- Fans speed. (High, Mid, Low)
- Schedule

I FCU interface module

• 1 FCU interface module can connect Max.16 FCU KITs.

■ External contact connection

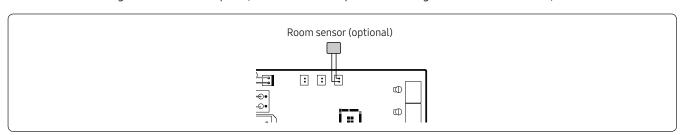
• In case of connecting external contact, set SEG14 of installation option according to the table.



Installation	External contact status		
option SEG14	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	

Option room sensor (Model: MRW-TA)

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



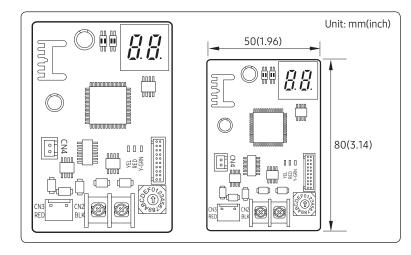
! Caution

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

FCU interface module

MIM-F10N

Features



- Communication interface module between FCU KIT and upper level controller.
- Connect 1 FCU interface module to Max. 16 FCU KITs.
- Supports FCU KIT only

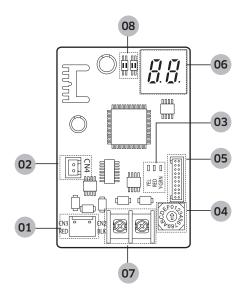
Product specification

Power Supply	DC 12V	
Power Consumption	1W	
Operating Temperature range	-10 °C~50 °C (14 °F~122 °F)	
Operating Humidity range	10%RH~90%RH	
Communication	RS485 x 2	
Maximum Communication Length	1000 M (3280 ft)	
Maximum number of connection	F1/F2: 16 FCU KITs R1/R2: Total up to 16 upper level controllers (Only 1 DMS 2.5, BACnet GW/LonWorks GW connection is allowed)	

Compatible Models

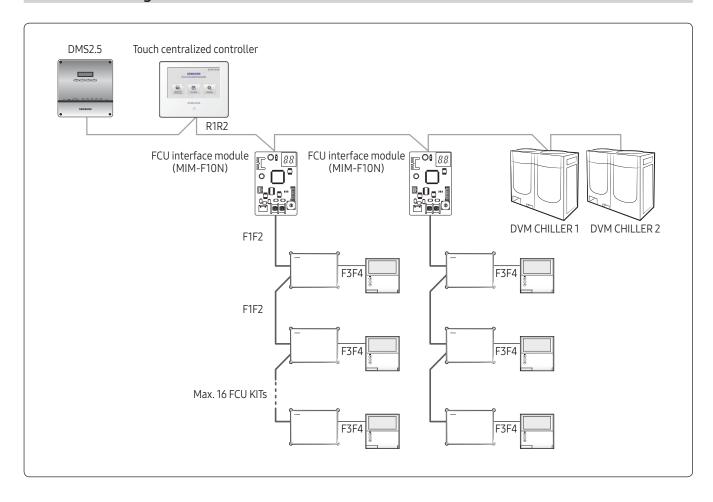
FCU KIT	MIM-F00N
Upper level controller	 DMS2.5: MIM-D01AN BACnet GW: MIM-B17BN LonWorks GW: MIM-B18BN Touch centralized controller: MCM-A300N

Description of parts



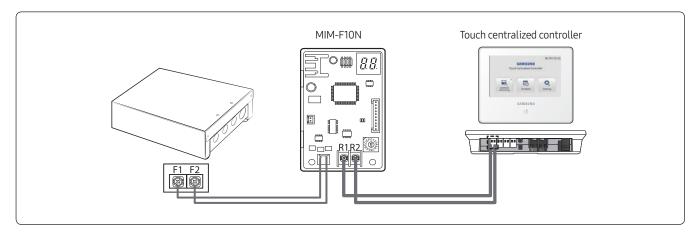
No.	Name	Description	
01	F1/F2 communication connector	Communication terminal that connects to F1/F2 of FCU KIT	
02	Power connector	DC 12V	
03	Communication LED	 Communication indicator LED Left LED3: No function Middle RED: Blinks during it communicates with upper level controller Right Y-GRN: Blinks during it communicates with FCU KIT 	
04	Address setting switch	Sets the address of interface module	
05	Software update connector	Using this connector, interface module software can be updates	
06	7-segment	Displays the communication status between interface module and FCU KIT	
07	Upper level controller communication channel	Communication terminal to upper level controller R1/R2	
08	DIP switch	SW4 SW5 SW4 Description OFF- Auto address setting (Random address), Switch must be down ON-Manual address setting (Assigns FCU interface module's address according to address setting switch), Switch must be up No function	

Connection diagram

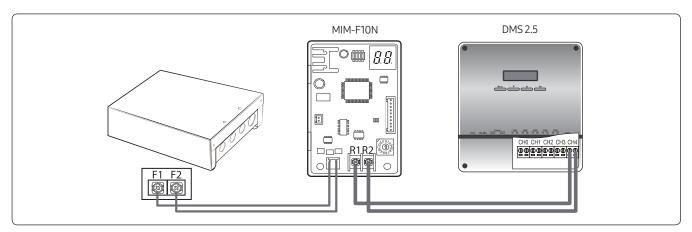


Connection

■ Connecting with Touch centralized controller



Connecting with with DMS2.5/BACnet GW/LonWorks GW



Display

- **1** When initializing power supply, ██ will be indicated after indicating the program cord.
- 2 After receiving valid communication more than once, **27** will be indicated.
- **3** When the communication is normal, the MAIN ADDRESS of the FCU KIT that can be controlled by the FCU interface module is indicated in order.
- 4 When there is no communication between the FCU KIT and the FCU interface module for more than 3 minutes, ₹₩ ↔ ₹₩ will be indicated alternately.
- **5** When the FCU interface module tracking is not complete, $F_{\alpha} \leftrightarrow F_{\alpha}$ will be indicated alternately.
- **6** When there's error on EEPROM of the FCU interface module, $F_{II} \leftrightarrow F_{II}$ will be indicated alternately.
- **7** When same address was set to multiple FCU interface modules, $F_{ij} \leftrightarrow F_{ij}$ will be indicated alternately.
- 8 When more than 16 FCU KITs are installed, $E_{\Gamma} \leftrightarrow E_{\Gamma}$ will be indicated alternately.
- 9 When FCU KIT and indoor units are installed together, FA ↔ FA will be indicated alternately.

Chapter **05**

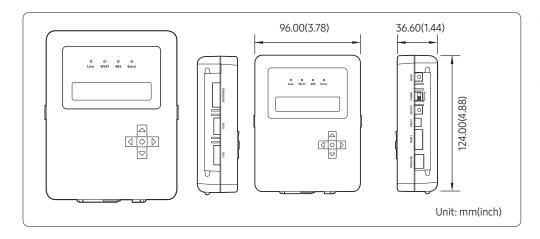
Solution

S-Checker MIM-C10N	282
S-Converter	202
MIM-CO2N (MIM-CO2RN)*	291

S-Checker

MIM-C10N

Features



- Execute test run for Samsung system air conditioner and inspects the parts (EEV, Sensor).
- It can be linked with mobile application to allow saving and monitoring data of the test run.

Product specification

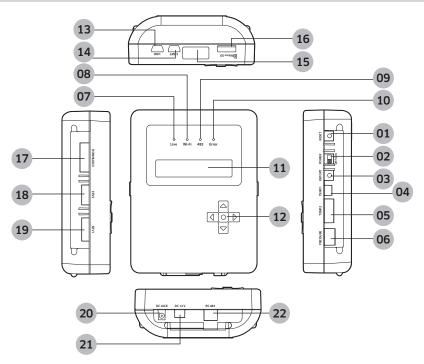
Power supply			DC 12V
Power consumption			Below 30W
Operating temperature range			0°C~40°C (32°F~104°F)
Operating humidity range			0%RH~90%RH
Communication	RS485	Port Q'ty	1
	Wi-Fi	Supportablity	Supported
Maximum number of controllable devices	RS485	m(ft)	1,000 (3280)
	Indoor unit	EA	64
	Outdoor unit	EA	1

- Supported specification of the mobile application
 - Resolution over 800 X 480, optimized at 1280 X 720
 - OS: Android 2.3~4.12

■ Compatible product

Outdoor unit	AM***X****Model
Indoor unit	AM****N****Model

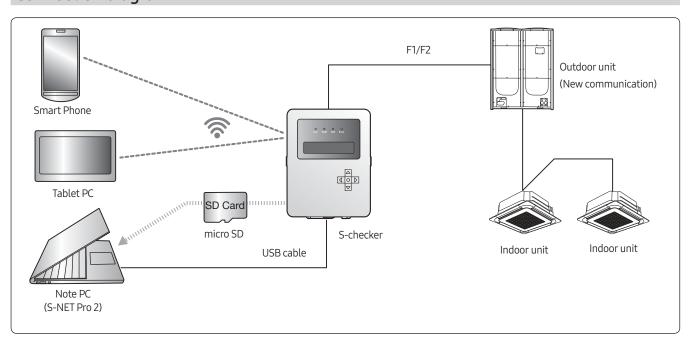
Description of parts



No.	Name	Description
01	Reset button	Use to reset S-checker
02	Power button	Use to turn on/off the power for S-checker.
03	Report button	Use to create report for test run.
04	Temperature sensor inspection connector 1	Connector for temperature sensor that is connected to pitch 250 pin connector. Temperature value can be checked from the S-checker by connecting the temperature sensor directly.
05	Temperature sensor inspection connector 2	Connector for temperature sensor that is connected to pitch 200 pin connector Temperature value can be checked from the S-checker by connecting the temperature sensor directly
06	Pressure sensor inspection connector (4 pin)	Connector for connecting high/low pressure sensor of the outdoor unit. Pressure value can be checked from the S-checker by connecting the temperature sensor directly.
07	System operation status LED	Turns on when the S-Checker is operating normally.
08	Wi-Fi connection LED	Turns on when the data is being transmitted to mobile through Wi-Fi
09	RS-485 operation status LED	Turns on when data is transmitted and received through RS-485 communication
10	System Error LED	Turns on when error occurs on S-checker.
11	LCD display	Check the current information and the items in menu that can be selected by menu buttons.

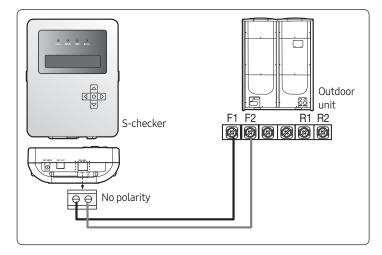
No.	Name	Description
12	Menu buttons	Use to move and select from menu.
13	USB for S-Net Pro 2	Mini USB for connecting with S-NET Pro 2.
14	USB for system	Use to download program etc.
15	IR tranceiver	Use to transmit IR.
16	Micro SD slot	Slot to insert Micro SD card.
17	PBA download connector	Use to download S-checker through PC.
18	EEV inspection connector 1 (5 Pin)	Check for error on EEV sensor 1, CAM Type (5 Pin)
19	EEV inspection connector 2 (6 Pin)	Check for error on EEV sensor 2, EDM Type (6 Pin)
20	DC 12V adapter	Use to connect independent 12 V power.
21	DC 12V connector	Connector to use 12V power from air-conditioner
22	RS-485 connector	Connector for RS-485 communication.

Connection diagram

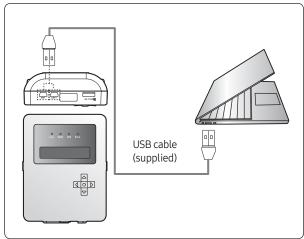


Connecting

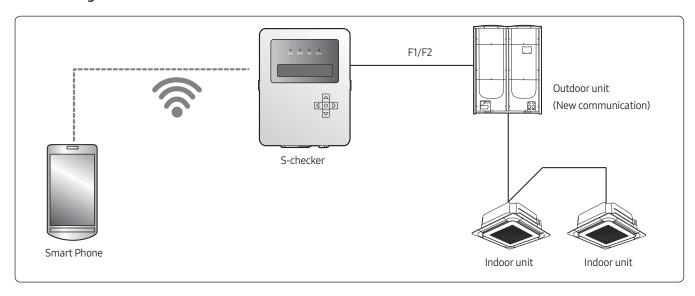
■ Connecting with outdoor unit



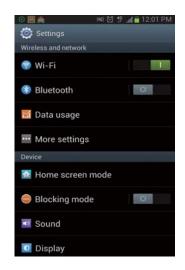
Connecting with S-NET Pro 2



■ Connecting with mobile device



Method 1- Search for S-Checker







Method 2- Scan from mobile application



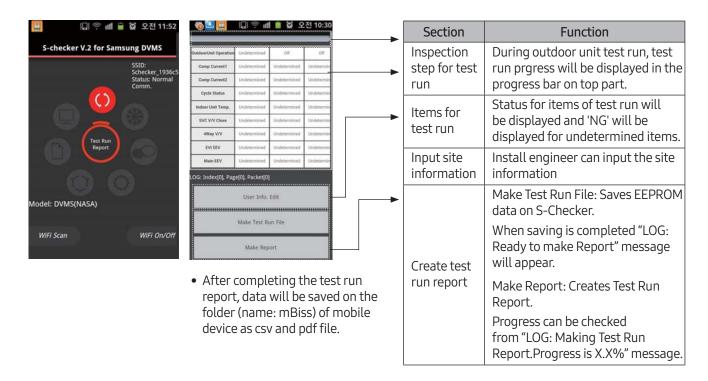




Main function

■ Test run report

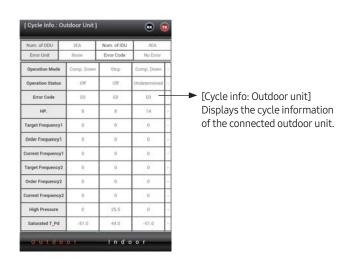
• Test run report menu will inspect the system in real time and notify the result.

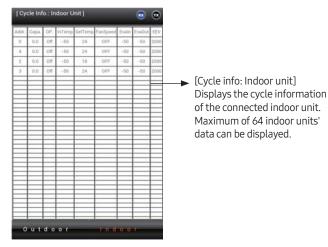


Display of the cycle information

• Cycle Info: it displays cycle data of the indoor and outdoor unit. (Displayed item is same as S-NET Pro 2)







Install monitoring

• It displays the installation information of the outdoor unit and indoor unit.





Install monitor: Outdoor unit

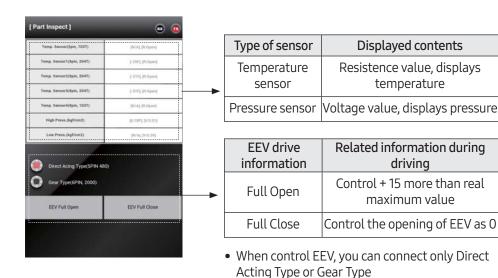


Install monitor: Indoor unit

Checking the status of device

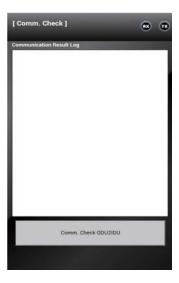
 You can connect pressure sensor, temperature sensor, EEV connector (that is connected to the PBA of indoor and outdoor unit) to the terminal on the S-checker and check the status of the device.





Checking the communication





- Through Comm. Check menu, communication status between indoor/outdoor unit can be checked.
- Indoor unit can be connected to S-checker alone without outdoor unit, to check the communication status of indoor unit.

Setting the indoor unit option





- You can check the option code of indoor unit from the S-checker.
- Option code setting can be applied to multiple numbers of indoor unit at once.

Other functions



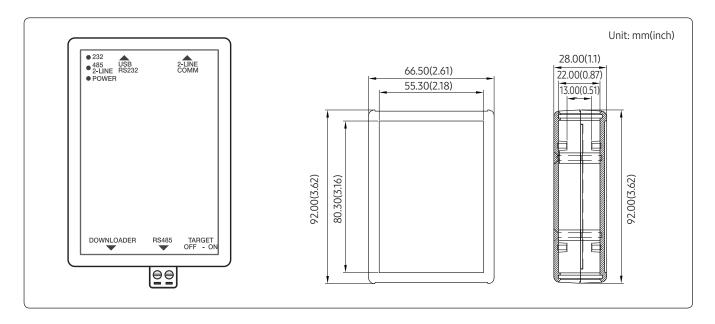


- A/C S/W Upgrade: Firmware for indoor and outdoor unit of system air conditioner can be upgraded.
- Unit control: This function restricts general operation if auto trial operation is incompleted.
- Refrigerant check: This is a detect function according to piping option which calculates the amount of refrigerant to see if it's adequate.

S-Converter

MIM-C02N (MIM-C02RN)*

Features



- Communication converting module to connect Samsung system air conditioner to a PC.
- Main purpose for use
 - To connect with test run program

[Test run program]

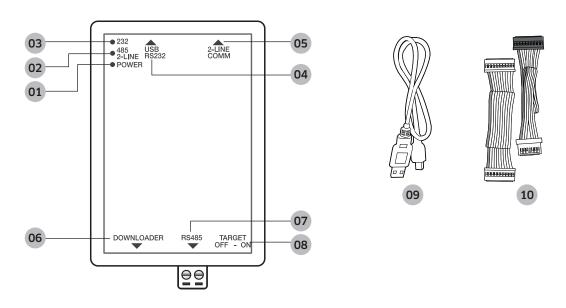
- S-NET Pro: Conventional communication
- S-NET Pro2: New communication

Product specification

Power supply			DC 5V, below 500mA
Power consumption			Below 3W
Operating temperature range			0°C~40°C (32°F~104°F)
Operating humidity range			0%RH~90%RH
Communication	RS485	Port Q'ty	1
Maximum length of connection	RS485	m(ft)	1000 (3280)

S-Converter > MIM-C02N (MIM-C02RN)*

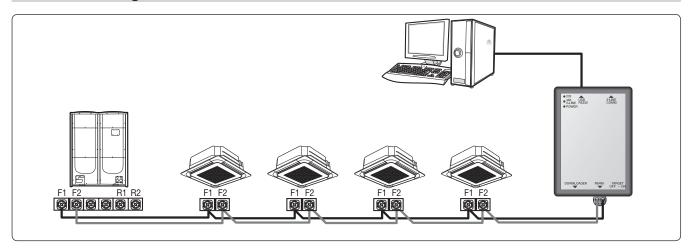
Description of parts



No.	Name	Description
01	Power LED	Display power status
02	485 communication/ 2 line communication LED	Displays communication status when outdoor unit 2 line remote controller is connected
03	232 LED	Displays communication status with the PC
04	USB-RS232 connection terminal	Connection terminal for communication with the PC
	2 line communication connection terminal	Only applies to new communication indoor unit
05		2 line communication connection terminal between indoor unit - wired remote controller (For R&D testing)
06	Downloader connection terminal	PBA download connection terminal
07	RS485 communication connection terminal	Connection cable for connecting with indoor/outdoor unit's F1, F2 communication terminal
		Only used when S-converter is used as SW downloader for the product
08	TARGET OFF – ON button	 If the S-Converter supplies the power through the PBA of the product that will download the SW, this button resets the power that was supplied through the S-Converter
09	USB-to-232 cable	Cable that connects S-Converter and PC
		Only used when S-converter is used as SW downloader for the product
10	SW downloader cable	 Connect S-Converter (20 Pin) and the downloader terminal (10 Pin, 7 Pin) of the product's PCB

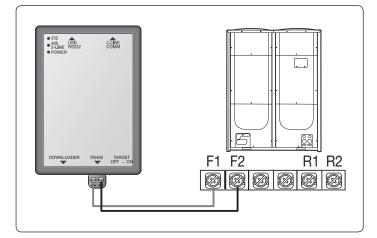
S-Converter > MIM-C02N (MIM-C02RN)*

Connection diagram

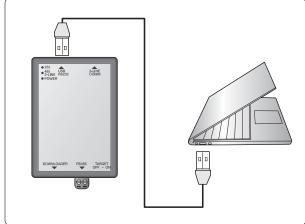


Connecting

Connecting with outdoor unit



Connecting with PC



S-Converter > MIM-C02N (MIM-C02RN)*

Display

POWER LED

- When connected to Conventional communication outdoor unit LED blinks
- When connected to new communication outdoor unit LED is on

■232 LED

- LED blinks every time control signal is transmitted from the Test run program
- If the LED doesn't blink even though the test run program sends control command, check if the program is appropriate for the communication type (Conventional communication/new communication)

485/2-LINE LED

- LED blinks when the data is being transmitted from the 485 or 2-line communication device
- 485 communication cable outdoor unit connection (Connects test run program)
 2-line communication device wired remote controller connection (connects program for the developer)
- If the LED doesn't turn on, check if the communication cable is disconnected/short or check if the device is appropriate for the communication type (Conventional communication/new communication)

