LG
Life's Good

Installation/User Manual

V-NET™ ACS

- Make sure to read the cautions for safety before installation and use, and use it correctly.
- It is intended to keep protect the safety of the installer and user and to prevent the property damage, etc.
- After reading the user manual, please keep it at a place where user can access any time.

Model Name: BACnet Gateway (ACP BACnet)
Model No.: PQNFB17C1, PQNFB17C0

P/NO : MFL67709501

www.lge.com

Explanatory Notes

Copyrights

Registered Trademarks

TIPS FOR SAVING ENERGY

Here are some tips that will help you minimize the power consumption when you use the air conditioner. You can use your air conditioner more efficiently by referring to the instructions below:

- Do not cool excessively indoors. This may be harmful for your health and may consume more electricity.
- Block sunlight with blinds or curtains while you are operating the air conditioner.
- Keep doors or windows closed tightly while you are operating the air conditioner.
- Adjust the direction of the air flow vertically or horizontally to circulate indoor air.
- Speed up the fan to cool or warm indoor air quickly, in a short period of time.
- Open windows regularly for ventilation as the indoor air quality may deteriorate if the air conditioner is used for many hours.
- Clean the air filter once every 2 weeks. Dust and impurities collected in the air filter may block the air flow or weaken the cooling / dehumidifying functions.

Notes

The product images and descriptions included in this manual are stated based on ACP BACnet Free volt (Model No.: PQNFB17C0).

- ACP BACnet Free volt (PQNFB17C0)
- ACP BACnet 24V (PQNFB17C1)

For your records

Staple your receipt to this page in case you need it to prove the date of purchase or for warranty purposes. Write the model number and the serial number here:

Model number :

Serial number :

You can find them on a label on the side of each unit.

Dealer's name :

Date of purchase :

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IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.

Always comply with the following precautions to avoid dangerous situations and ensure peak performance of your product

WARNING

It can result in serious injury or death when the directions are ignored.

CAUTION

It can result in minor injury or product damage when the directions are ignored.

WARNING

- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Installation MUST conform with local building codes or, in the absence of local codes, with the Nation Electrical Code NFPA 70/ANSI C1-1003 or current edition and Canadian Electrical Code Part1 CSA C.22.1.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

Installation

- Any question about the product installation should be asked to the service center or the professional installation agency.
  - It may cause fire, electric shock, explosion or injury.
- Consult the service center or the professional installation agency about reinstalling the installed product.
  - It may cause fire, electric shock, explosion or injury.
- Please use the standardized parts.
  - It may cause fire, electric shock, explosion, injury, or failure.
- Do not keep or use combustible gas or inflammable material near the product.
  - IT may cause fire or electric shock.
- Do not disassemble, repair or modify the product at random.
  - It may cause failure of the product.

- Do not install where raindrop can fall.
  - It may cause failure of the product.
- Do not install the product at wet place.
  - It may cause failure of the product.
- Provided product and adaptor shall only be installed and used inside a building.
  - It may cause fire or failure of the product.
    *Do not install or use outside.
- Install stably in a place that can endure the weight of the ACP BACnet.
  - If the installation place is not strong enough, the ACP BACnet may fall and damaged.
- Make sure to enquire to the specialty store of the product purchase or service center for electric works.
  - It may cause fire or electric shock.
- Do not damage the power cord or bend it by force.
  - It may cause fire or electric shock.
- You need to use a safely insulated power supply which follows IEC61558-2-6 and NEC Class2
  - If you do not follow, It may cause fire, electric shock, explosion or injury.
- Do not connetion 220V power to 24V products
  - If you do not follow, It may cause fire, electric shock, explosion or injury.
- Do not connect power cord to the control signal connector.
  - It may cause fire or explosion.

Operation

- Do not change or extend the power cord with your own discretion.
  - It may cause fire or electric shock
- Do not place any heating device near the product.
  - It may cause fire.
- Do not use any heating device near the power cord.
  - It may cause fire or electric shock.
- Do not let water flow into the product.
  - It may cause electric shock or failure.
- Do not put heavy weight on the power cord.
  - It may cause fire or electric shock.
- Do not put heavy weight on the product.
  - It may cause the failure of the product.

- If the product is flooded, consult the service center or the professional installation agency.
  - It may cause fire or electric shock.
- Let the children or the old and the weak be controlled by the guardian to use.
  - It may cause accident or failure.
- Do not give any shock to the product.
  - Any shock to the product may cause failure.
- Grab the head of the plug of the power cord to pull when disconnecting the plug, and do not click the plug with wet hands.
  - It may cause fire or to deform the product.
- Do not use the product in certain environments as follows.
  - If the product is used in a place with oil, steam, or sulfuric acid gas, performance may be degraded or product may be damaged.
- Do not press the switch or button with sharp objects.
  - It may cause electric shock or failure of the product.
- Please check the operation temperature.
  - If the product is used in an environment with the temperature exceeding the operation boundary, it may cause a severe damage.
    Please check the usage temperature boundary in the manual. If there is no specified temperature, please use the product within the boundary of 0~40°C.
- Do not put a container, etc. with water on the product.
  - It may cause fire or electric shock.
- Do not click the switch with wet hand.
  - It may cause electric shock or failure of the product.
- Please read installation and user manual for connection with PC or peripheral devices.
  - It may cause fire or failure of the product.
- If a warning window appears on PC, product stops, or it does not work, immediately stop the usage.
  - It may cause fire or failure of the product.

⚠ CAUTION

Operation

- Do not use strong detergent such as solvent, but a soft cloth.
  - It may cause fire or to deform the product.
- Please check the rated capacity of the power.
  - It may cause fire or failure of the product.

MEMO

Table Of Contents

ENGLISH

MEMO

ENGLISH

ACP BACnet FUNCTIONS AND SPECIFICATION

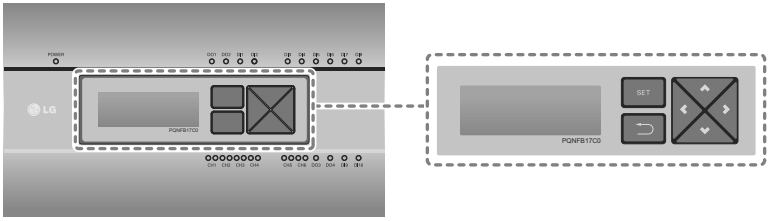
ACP BACnet is the central controller that can manage up to 256 equipments in one space individually or as combined. ACP BACnet can monitor or control the equipments installed in each room of the building from the places such as the management office of a building or the administration office of a school.

ACP BACnet Functions

Major functions of the ACP BACnet are as follows.

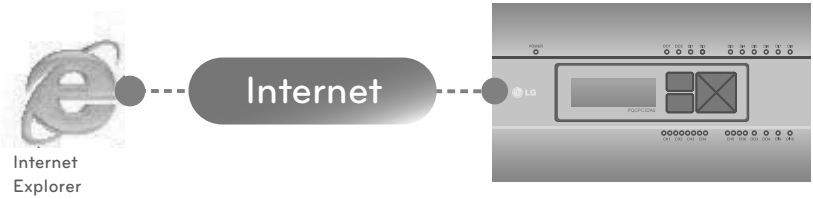
Environment setting function using the ACP BACnet external buttons ACP BACnet can use the external buttons installed outside of the ACP BACnet to set the following functions.

- Set Network environment (IP address, Net mask, Gateway)
- Set the function to use between Peak/demand function
- SW upgrade function
- Data backup function
- Data recovery function
- Set the ID of ACP BACnet when connected with demand function
- Fire Alarm function
- Fahrenheit/Celsius setting function
- Device ID setting function
- Vnet number setting function
- Foreign Device register function



Embedded web server function

window using Internet Explorer, the central control program in ACP BACnet web server is automatically run, and the functions of various contents can be used.



- Controlling of up to 256 air conditioner indoor units
- Monitoring of error and operation status
- Controlling the peak power / demand power
- System setting function

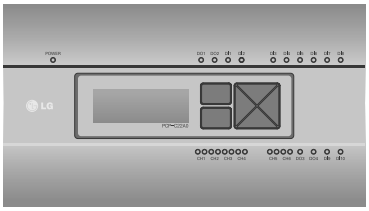
Devices that can interface with ACP BACnet

Device	ACP BACnet
AC Ez	o
Simple Central Controller	o
AC-Smart	o
AC Manager	o
Air Conditioner	o
Ventilation	o
AWHP	o
Fire Alarm	o
Chiller	x
AHU	o

ACP BACnet Components

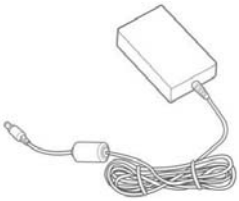
Inside the packaged box of the ACP BACnet, there are the components as in the following drawing.

Open the packaged box of the ACP BACnet, and check if all of the corresponding components are included.

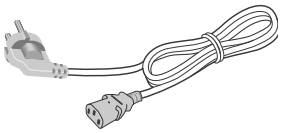


ACP BACnet

ACP BACnet Quick Manual



Power Supply Adaptor
Input: 100~240V
AC 50/60Hz 3.33A
Output: DC 12V
3.33A, 40W MAX



Power Cord
250V AC, 3A

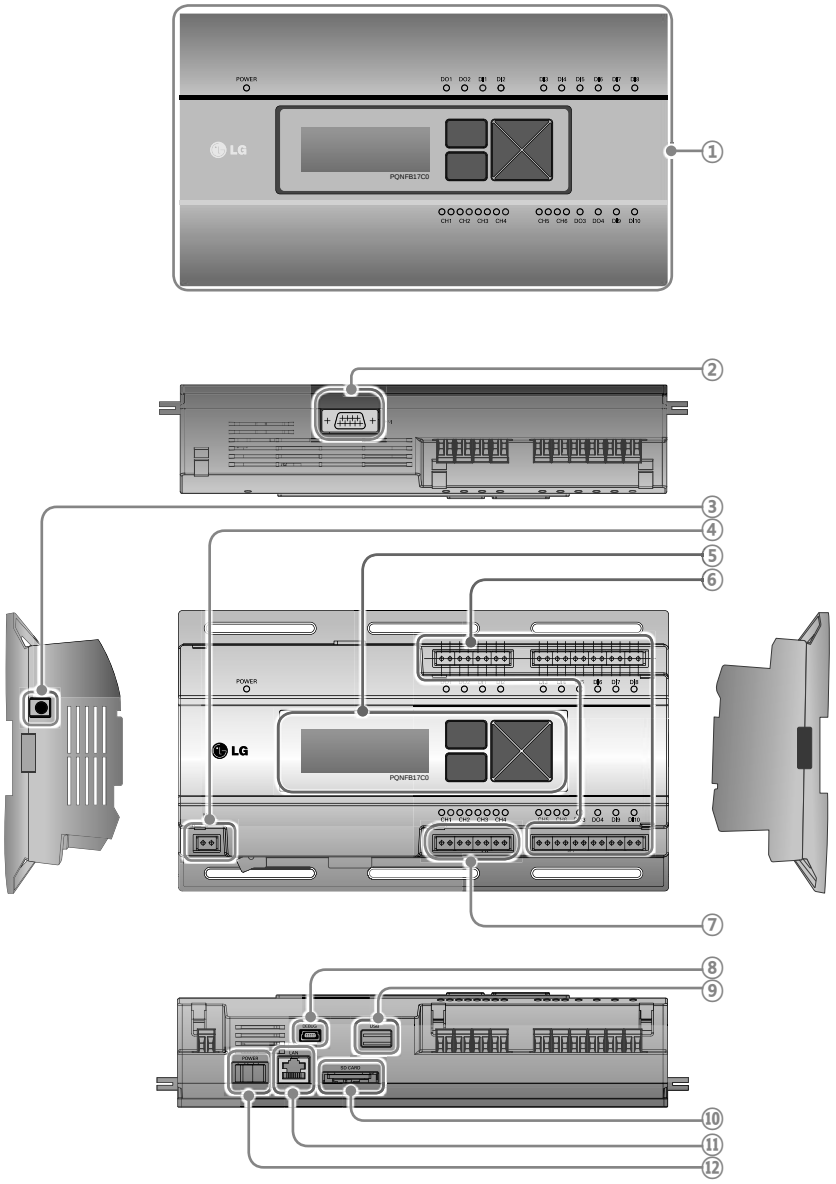
ACP BACnet Installation/User Manual CD

Notes

Power Supply Adaptor and Power Cord are not included in PQNFB17C1.

Names of each part of ACP BACnet

ACP BACnet is composed as follows.



Notes

No. 3 and No. 4 may be different for each model.

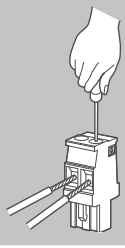
Number	Item	Description
①	Cover	Front cover of the ACP BACnet
②	RS-232 console port	Reserved communication port
③	Adaptor connection jack	Jack for DC 12V to connect to the power supply adaptor (not supported by PQNFB17C0.)
④	Power port	AC24V port for power connection (not supported by PQNFB17C0)
⑤	Buttons and LCD	Buttons and LCD to set network environment and to display other information
⑥	Optional input/ output and RS-485 communication port	Connection port to connect to external input/output signals and RS-485 communication port for external expansion. (8 DI's, 2 DO's, 2 RS-485 communication ports)
⑦	RS-485 communication port	RS-485 communication ports to connect to air conditioner and ventilation equipment (4 in total)
⑧	Mini USB port	USB to Serial port for software debugging
⑨	USB port	For software update and data backup
⑩	SD card slot	For RS-485 communication data backup.
⑪	Ethernet port	Ethernet port to connect to internet and AC Manager
⑫	Power switch	Switch to turn on or off the power of the ACP BACnet

Caution

If four times the power connector for the connection, as shown by using the right connection, but please note that an electric shock.

Use the designated parts must be connected to a power source.

- Connector manufacturers: PHOENIX CONTACT
  PartNo: MVSTBR 2,5 / 2-ST-5, 08 2P 5.00MM



ACP BACnet Hardware Specification

ACP BACnet hardware specification is as follows.

Category	Description
Boundary of usage temperature	0°C~40°C
CPU	i.MX515 • 32Bit 800MHz speed
RAM	128MB DDR2 SDRAM * 2EA
ROM	4GB i-NAND Flash
Communication ports	• Ethernet 10 / 100 BASE-T • USB : USB Host (SW upgrade, data backup) mini USB Device (Debug) • RS-485 communication ports 6EA • SD card slot (RS-485 communication logging) • RS-232 Console Port (HMI)
External input/output ports	DI, DO
LED	27EA (RS communication status, Ethernet communication status, power status, operation status)
LCD	20 ×4 Character-LCD (network environment setting and information display)

Notes

License policy

This product follows GPL (General Public License) for the use of Embedded Linux.

ENGLISH

Starting

Login and logout

The following explains how to log in/out ACP BACnet.

Connected to the ACP BACnet

How to Connect to the ACP BACnet is as follows.

1. Connected to theACP BACnet enter the IP address of the ACP BACnet in the Internet Browser.

Login

You can login as follows.

1. Run ACP BACnet.
2. After entering your ID and password in the login window, click **[Confirm]**.
   - You are now logged in.

Logout

You can logout as follows.

1. On the top right of the ACP BACnet screen, click the **[Logout]** button.
   - You are now logged out.

Home screen composition and features

The following explains the home screen composition and features.

Number	Item	Description
①	Running Status (Unit)	Checks if all the devices are operating, has stopped, or has already been checked.
②	Time	Check the current date and time. (You need Internet connection to check the weather.)
③	Today's Schedule	• Check the registered schedules in chronological order. • Click the **[+]** button to move to the schedule menu.
④	Main Menu	Use ACP BACnet main menu.
⑤	Home	Return to the home screen.
⑥	View Menu	Display the active menu.
⑦	Current Menu	Display the name of the active menu.

MEMO

ENGLISH

Using the Program

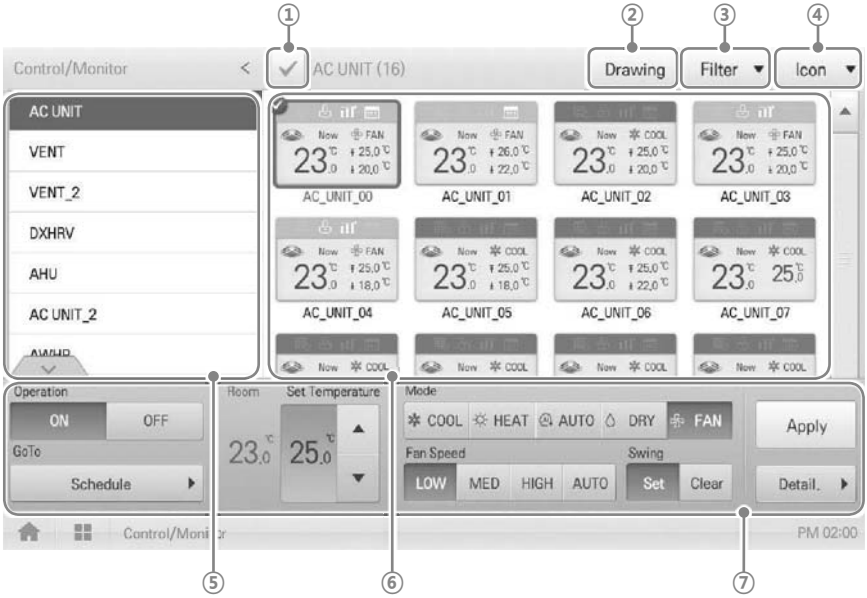
The following explains how to use the ACP BACnet functions.

Control/Monitor

Control/Monitoring is managing multiple devices collectively as one. The following explains the Control/Monitor menu options.

Control/Monitoring screen composition and features

The following explains Control/Monitoring screen composition and features.



Number	Item	Description
①	Select/Deselect All	Select/deselect all devices in a group.
②	**[Drawing]** Button	View floor plans of a group.
③	**[Filter]** Button	Select device types for which you want to check the control status.
④	View Type Select	Select a view type for the monitoring screen (Icon/Simple/Detailed) (For more on **View Type**, refer to page 12)
⑤	Group List	Check device group listings.

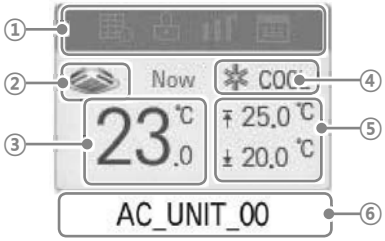
Number	Item	Description
⑥	Monitoring Screen	Check the control status of a device.
⑦	Device Control Box	• Display the device control menu. • The device control box shows different menus depending on the device. (For more on Control Menu per Device on page 17)

View Type

Control/Monitor menu has three types of views (icon, simple, and detailed). The following shows the screen composition and features per view type.

Icon

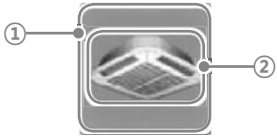
The control status is shown in icons. The device icon has a composition and feature as follows.



Number	Item	Description
①	Operation Mode and Device Status Icon	The color at the top of the icon box shows the current operation mode, and the status of the device is indicated as an icon.
②	Device Icon	The device to be controlled is indicated as an icon. The device shown may not represent the appearance of the actual unit.
③	Current Temperature	Display the current temperature.
④	Operation Mode	Display the operation mode of the device.
⑤	Desired Temperature	Display the desired temperature.
⑥	Device Name	Display the name of the device.

Simple

The control device and operation mode are displayed only.



Number	Item	Description
①	Operation Mode	The color of the box indicates the current operation mode.
②	Device Icon	The device to be controlled is indicated as an icon.

Details

All properties of the control device are tabulated in details.

Monitoring screen colors and icons

Box colors and operation mode per icon

Color	Icon	Operation Mode
 (Blue)		Cooling
		Ventilation, General
 (Orange)		Heating
		Ventilation, Electric Heat
 (Navy)		Dehumidification
 (Sky Blue)		Fan
 (Green)		Power Saving
 (Purple)		Auto
		Ventilation, Auto
 (Yellow)	-	ON & Short
 (Gray)	-	OFF & Open
	-	Error

Device status icon

Icon	Device Status
	Filter Exchange
	Full Lock On
	Peak/Demand Control
	Schedule

Control device icon

Icon	Device Type
	Indoor Device
	Ventilators
	AHU
	AWHP
	Chiller
	DI
	DO
	DOKIT

Device Control

You can control the devices as follows.

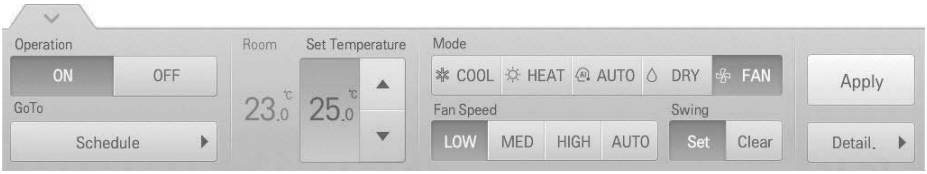
1. From the main menu, click the **[Control/Monitor]** menu icon.
2. Click the device group you want to control from the group list.
   - The monitoring screen for the device is displayed.
3. Click the device you want to control.
   - To select all devices, click the ✓ button at the top.
   - The device control area appears at the bottom of the screen.
4. In the device control box, set the control status of the device.
   - The device control box shows a different menu depending on the device. For information about the control area for each device, GoTo the refer to **Control Menu per Device** on page 17.
5. Once you have finalized the settings, click the **[Apply]** button.

Control Menu per Device

The control box menu differs depending on the device. The following shows the control box menu per device.

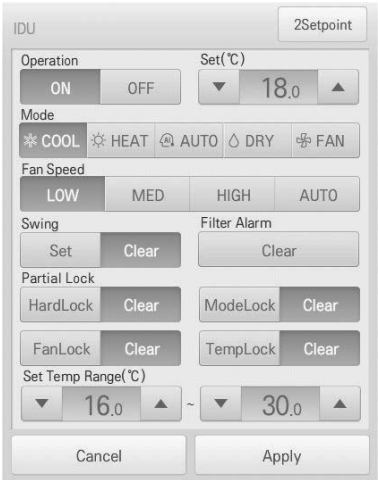
Indoor Device

The following is the indoor unit control menu and features.



Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[Off]** Button: Stops the operation of the device.
GoTo	**[Schedule▶]** Button: Move to **Schedule** menu.
Room	Display the current temperature.
Set Temperature	Click **[▲]/[▼]** to set the temperature. (The maximum/minimum temperatures that can be set may differ depending on the model.)
Mode	• **[COOL]** Button: Operates with Cooling Mode. • **[HEAT]** Button: Operates with Heating Mode. • **[AUTO]** Button: Evaluates the operating environment conditions and automatically sets the optimum temperature. • **[DRY]** Button: Dehumidifies during rainy seasons or whenever humidity is high. You cannot set the temperature in this mode. • **[FAN]** Button: Purifies the air. You cannot set the temperature in this mode.
Fan Speed	• **[LOW]** Button: Slow fan speed. • **[MED]** Button: Medium fan speed. • **[HIGH]** Button: Fast fan speed. • **[AUTO]** Button: Loops from LOW to MEDIUM to HIGH speeds.
Swing	• **[Set]** Button: Turns on automatic oscillation for the fan. • **[Clear]** Button: Turns off automatic oscillation for the fan.
[Detail. ▶] Button	Controls details.

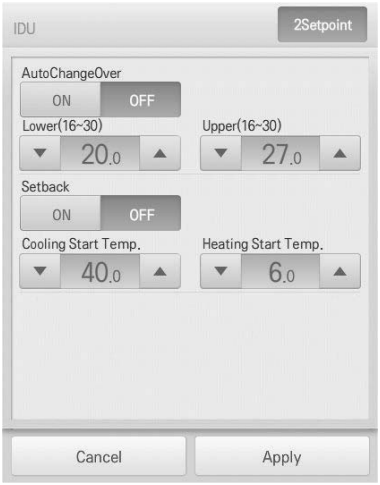
- Indoor unit fine control



Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[Off]** Button: Stops the operation of the device.
Set	Click **[▲]/[▼]** to set the temperature.
Mode	• **[COOL]** Button: Operates with Cooling Mode. • **[HEAT]** Button: Operates with Heating Mode. • **[AUTO]** Button: Evaluates the operating environment conditions and automatically sets the optimum temperature. • **[DRY]** Button: Dehumidifies during rainy seasons or whenever humidity is high. You cannot set the temperature in this mode. • **[FAN]** Button: Purifies the air. You cannot set the temperature in this mode.
Fan Speed	• **[LOW]** Button: Slow fan speed. • **[MED]** Button: Medium fan speed. • **[HIGH]** Button: Fast fan speed. • **[AUTO]** Button: Loops from LOW to MEDIUM to HIGH speeds.
Swing	• **[Set]** Button: Turns on automatic oscillation of the fan. • **[Clear]** Button: Turns off automatic oscillation of the fan.
Filter Alarm	Click the Disable button to deactivate the filter exchange alarm. (For other models, it may not work properly.)

Item	Description
Partial Lock	• **[HardLock]** Button: Disables remote control for all features. • **[Clear]** Button: All functions are unlocked. • **[ModeLock]** Button: Disables remote control for local mode setting. • **[Clear]** Button: Mode is unlocked. • **[FanLock]** Button: Disables remote control for local fan speed setting. • **[Clear]** Button: Fan speed is unlocked. • **[TempLock]** Button: Disables remote control for local temperature setting. • **[Clear]** Button: Temperature setting is unlocked.
Set Temp Range	Click **[▲]/[▼]** to set the temperature limit.
[2Setpoint] Button	Switches between cooling and heating within the selected temperature range.

• Indoor 2Setpoint (Auto Operation Mode)

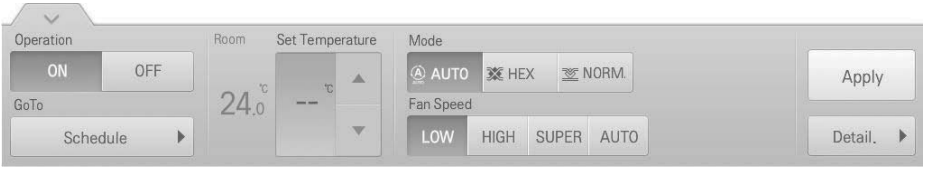


Item	Description
Auto Change Over	(The auto change over function works well with "Heat Recovery" model. For other models, it may not work properly.) Set the auto change over function to switch the operation mode automatically to keep the proper room temperature. • **[ON]** Button: Enable Auto Change Over • **[OFF]** Button: Disable Auto Change Over
Lower	Click **[▲]/[▼]** to set the lower limit temperature range (16°C~30°C / 60°F~86°F).
Upper	Click **[▲]/[▼]** to set the upper limit temperature range (16°C~30°C / 60°F~86°F).

Item	Description
Setback	(The setback function works well with "Heat Recovery" model. For other models, it may not work properly.) Set the setback function to control the proper room temperature when the indoor unit is turned off. • **[ON]** Button: Enable temperature limits • **[OFF]** Button: Disable temperature limits
Cooling Start Temp.	Click **[▲]/[▼]** to set the cooling start temperature (21°C~40°C / 70°F~104°F).
Heating Start Temp.	Click **[▲]/[▼]** to set the heating start temperature (1°C~20°C / 34°F~68°F).

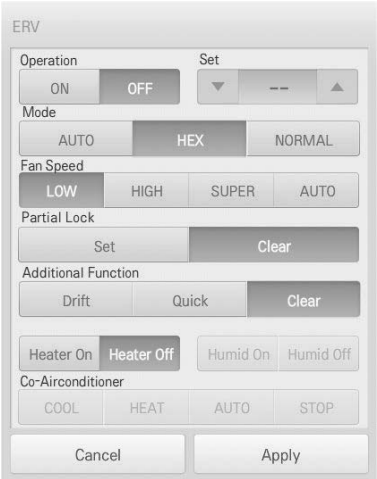
ERV

The following is the ERV control menu and features.



Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[Off]** Button: Stops the operation of the device.
GoTo	**[Schedule▶]** Button: Move to **Schedule** menu.
Room	Display the current temperature.
Set Temperature	Click **[▲]/[▼]** to set a desired temperature (the ventilator is not activated).
Mode	• **[AUTO]** Button: Evaluates the operating environment conditions and automatically sets the optimum temperature. • **[HEX]** Button: Air supply and emissions are all ventilated through the heat exchanger. • **[NORM]** Button: Ventilate emissions without passing through the heat exchanger.
Fan Speed	• **[LOW]** Button: Slow fan speed. • **[HIGH]** Button: Fast fan speed. • **[SUPER]** Button: Maximum fan speed. • **[AUTO]** Button: Loops from LOW to HIGH to SUPER speeds.
[Detail. ▶] Button	Control details.

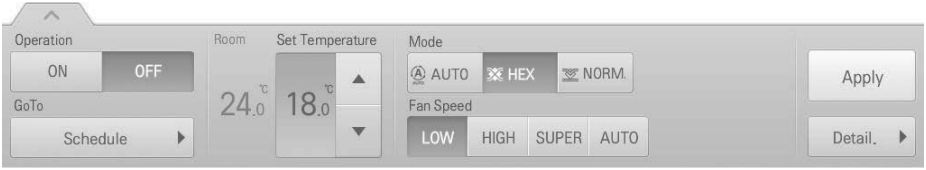
- ERV Fine Control



Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[OFF]** Button: Stops the operation of the device.
Set	Click **[▲]/[▼]** to set a desired temperature (the ventilator is not activated).
Mode	• **[AUTO]** Button: Evaluates the operating environment conditions and automatically sets the optimum temperature. • **[HEX]** Button: Air supply and emissions are all ventilated through the heat exchanger. • **[NORMAL]** Button: Ventilate emissions without passing through the heat exchanger.
Fan Speed	• **[LOW]** Button: Slow fan speed. • **[HIGH]** Button: Fast fan speed. • **[SUPER]** Button: Maximum fan speed. • **[AUTO]** Button: Loops from LOW to HIGH to SUPER speeds.
Partial Lock	• **[Set]** Button: Disables remote control for all features. • **[Clear]** Button: Disable the lock.
Additional Function	• **[Drift]** Button: Reduces energy consumption by operating in the most efficient method possible. • **[Quick]** Button: Operates at maximum performance to prevent the room's contaminated or humid air from entering other spaces. • **[Clear]** Button: Disables power saving / rapid operation. • **[Heater On]** Button: Enables the heater function to heat the room. • **[Heater Off]** Button: Disables the heater function. Some additional function might not be provided according to your country such as U.S.

ERV DX

The following is the ERV DX control menu and features.



Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[Off]** Button: Stops the operation of the device.
GoTo	**[Schedule▶]** Button: Move to **Schedule** menu.
Room	Display the current temperature.
Set Temperature	Click **[▲]/[▼]** to set the temperature.
Mode	• **[AUTO]** Button: Evaluates the operating environment conditions and automatically sets the optimum temperature. • **[HEX]** Button: Air supply and emissions are all ventilated through the heat exchanger. • **[NORM]** Button: Ventilate emissions without passing through the heat exchanger.
Fan Speed	• **[LOW]** Button: Slow fan speed. • **[HIGH]** Button: Fast fan speed. • **[SUPER]** Button: Maximum fan speed. • **[AUTO]** Button: Loops from LOW to HIGH to SUPER speeds.
[Detail. ▶] Button	Control details.

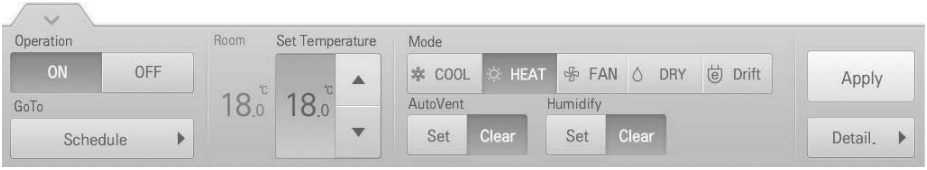
- ERV DX

Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[OFF]** Button: Stops the operation of the device.
Set	Click **[▲]/[▼]** to set the temperature.
Mode	• **[AUTO]** Button: Evaluates the operating environment conditions and automatically sets the optimum temperature. • **[HEX]** Button: Air supply and emissions are all ventilated through the heat exchanger. • **[NORMAL]** Button: Ventilate emissions without passing through the heat exchanger.
Fan Speed	• **[LOW]** Button: Slow fan speed. • **[HIGH]** Button: Fast fan speed. • **[SUPER]** Button: Maximum fan speed. • **[AUTO]** Button: Loops from LOW to HIGH to SUPER speeds.
Partial Lock	• **[Set]** Button: Disables remote control for all features. • **[Clear]** Button: Disables the lock.

Item	Description
Additional Function	• **[Drift]** Button: Reduces energy consumption by operating in the most efficient method possible. • **[Quick]** Button: Operates at maximum performance to prevent the room's contaminated or humid air from entering other spaces. • **[Clear]** Button: Disables power saving / rapid operation. • **[Heater On]** Button: Enables the heater function to heat the room. • **[Heater Off]** Button: Disables the heater function. • **[Humid On]** Button: Enables the humidifier function for room humidity control. • **[Humid Off]** Button: Disable the humidifier function (not activated). Some additional function might not be provided according to your country such as U.S.
Co-Airconditioner	• **[COOL]** Button: Operates with Cooling Mode. • **[HEAT]** Button: Operates with Heating Mode. • **[AUTO]** Button: Operates in Auto Mode. • **[STOP]** Button: Stops the air conditioning function.

AHU

The following is the AHU control menu and features.



Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[Off]** Button: Stops the operation of the device.
GoTo	**[Schedule▶]** Button: Move to **Schedule** menu.
Room	Display the current temperature.
Set Temperature	Click **[▲]/[▼]** to set the temperature.
Mode	• **[COOL]** Button: Operates with Cooling Mode. • **[HEAT]** Button: Operates with Heating Mode. • **[FAN]** Button: Purifies the air. • **[DRY]** Button: Dehumidifies the air during the rainy season or when humidity is high. • **[Drift]** Button: Reduces energy consumption by operating in the most efficient method possible.
AutoVent	• **[Set]** Button: If the CO2 concentration level increases during cooling or heating, increase the outdoor air volume to reduce the CO2 concentration level. • **[Clear]** Button: Disables AutoVent.
Humidify	• **[Set]** Button: Enables the humidifier function. • **[Clear]** Button: Disables the humidifier function.
[Detail. ▶] Button	Control details.

- AHU Fine Control

Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[OFF]** Button: Stops the operation of the device.
Set	Click **[▲]/[▼]** to set the temperature.
Mode	• **[COOL]** Button: Operates with Cooling Mode. • **[HEAT]** Button: Operates with Heating Mode. • **[FAN]** Button: Purifies the air. • **[DRY]** Button: Dehumidifies the air during the rainy season or when humidity is high. • **[Drift]** Button: Reduces energy consumption by operating in the most efficient method possible.
AutoVent	• **[Set]** Button: If the CO_2 concentration level increases during cooling or heating, increase the outdoor air volume to reduce the CO_2 concentration level. • **[Clear]** Button: Disables AutoVent.
CO2(ppm)	Use [▲]/[▼] to set the desired carbon dioxide emission level from 500 ppm to 1,500 ppm in intervals of 100 ppm (CO_2 is not settable in some models.).
Humidify	• **[Set]** Button: Enables the humidifier function. • **[Clear]** Button: Disables the humidifier function.
Humidity(%)	Use [▲]/[▼] to set the desired humidity from 40% to 60% in intervals of 1%.
Partial Lock	• **[Set]** Button: Disables remote control for all features. • **[Clear]** Button: Disables the lock.
OA Damper	Use [▲]/[▼] to set the OA damper from 0° to 90° in intervals of 1°.
EA Damper	Use [▲]/[▼] to set the EA damper openness from 0° to 90° in intervals of 1°.
MIX Damper	Use [▲]/[▼] to set the mix damper openness from 0° to 90° in intervals of 1°.

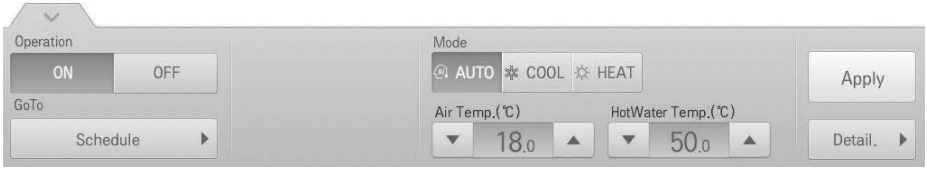
DOKIT

The following is the DOKIT control menu and features.

Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[Off]** Button: Stops the operation of the device.
GoTo	**[Schedule▶]** Button: Move to **Schedule** menu.

AWHP

The following is the AWHP control menu and features.



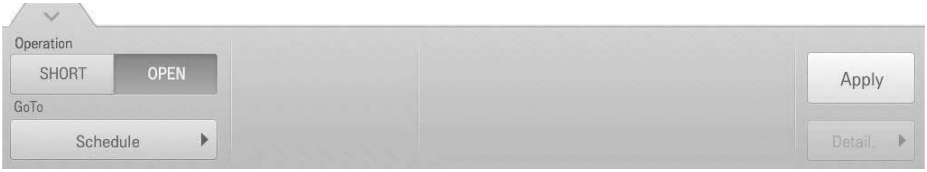
Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[Off]** Button: Stops the operation of the device.
GoTo	**[Schedule▶]** Button: Move to **Schedule** menu.
Mode	• **[AUTO]** Button: Evaluates the operating environment conditions and automatically sets the optimum temperature. • **[COOL]** Button: Operates with Cooling Mode. • **[HEAT]** Button: Operates with Heating Mode.
Air/Water Temp.	(Indicated as air or water temperature depending on the product.) Click **[▲]/[▼]** to set the air/water temperature.
HotWater Temp.	Click **[▲]/[▼]** to set the water heater temperature.
[Detail. ▶] Button	Control details.

- AWHP Fine Control

Item	Description
Operation	• **[ON]** Button: Starts the operation of the device. • **[OFF]** Button: Stops the operation of the device.
Hotwater	• **[ON]** Button: Enables the hot water function. • **[OFF]** Button: Disables the hot water function.
Partial Lock	• **[Set]** Button: Disables remote control for all features. • **[Clear]** Button: Disable the lock.
Mode	• **[AUTO]** Button: Evaluates the operating environment conditions and automatically sets the optimum temperature. • **[COOL]** Button: Operates with Cooling Mode. • **[HEAT]** Button: Operates with Heating Mode.
Air/Water Temp.	(Indicated as air or water temperature depending on the product.) Click **[▲]/[▼]** to set the air/water temperature.
Hot Water Temp.	Click **[▲]/[▼]** to set the water heater temperature.

DO

The following is the DO control menu and features.



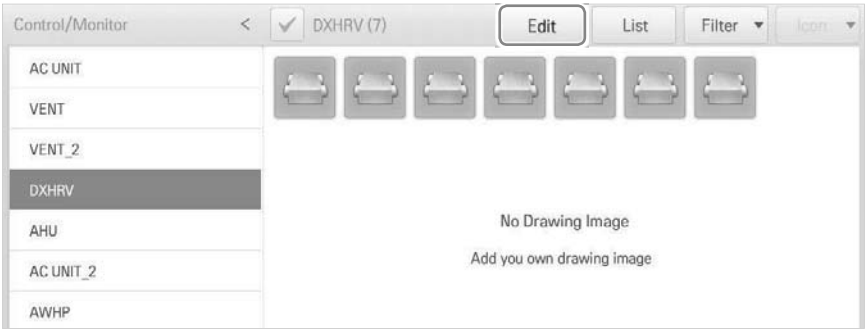
Item	Description
Operation	• **[SHORT]** Button: Short signal output. • **[OPEN]** Button: Open signal output.
GoTo	**[Schedule▶]** Button: Move to **Schedule** menu.

Registering Floor Plan

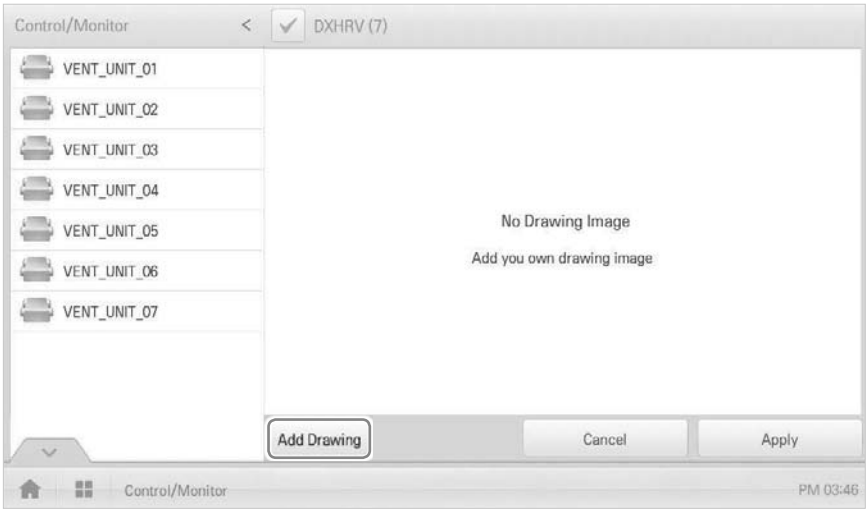
In the Control/Monitor menu, you can register floor plans to identify and locate each device and device group. On the floor plan, you can register space information as well as the location where a device is installed.

1. In the main menu, click the **[Control/Monitor]** menu icon.
2. Select the device group you want to monitor from the group list.
   - The monitoring screen for the device is displayed.
3. Click **[Drawing]** button.

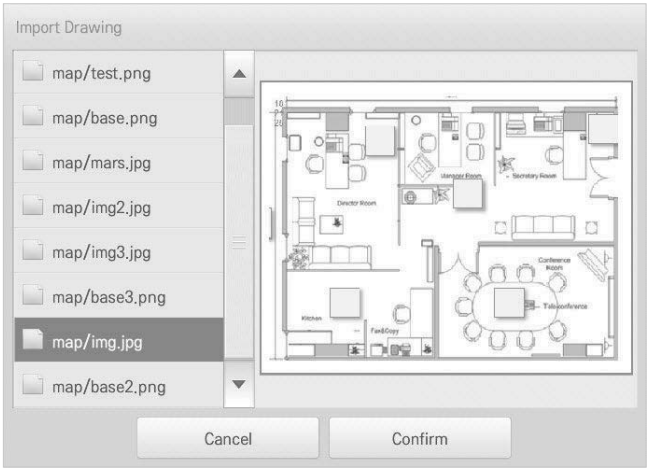
4. Click **[Edit]** button.



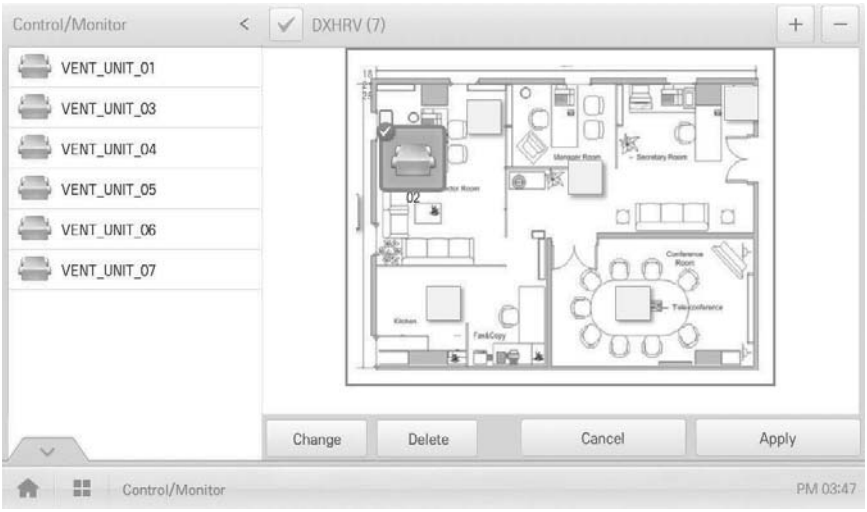
5. **[Add Drawing]** button.
   - The Open Floor Plan window is displayed.



6. Select a desired floor plan from the Open Floor Plan window, then click **[Confirm]**.
   - The floor plan image is displayed.



7. In the device list, select a device you want to display on the floor plan and click the device location on the plan.
   - To delete a device from the plan, double-click its icon.



8. To complete the registration of the floor plan, click the **[Apply]** button.

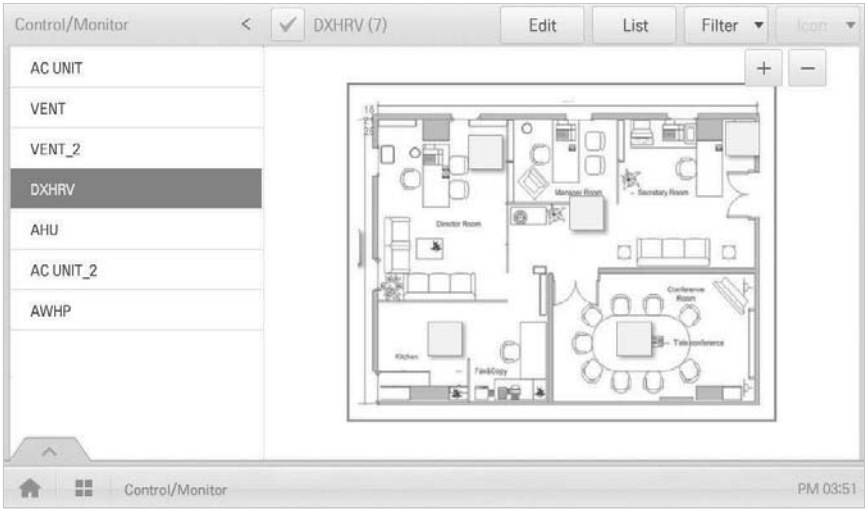
Notes

- To add a floor plan, put image file to USB root directory or /mnt/flash/map directory.
- To add a floor plan, you can only use jpg, gif, or png file formats.
- To add a floor plan, a 2MB or less image size is recommended.

Checking Floor Plan

In Control/Monitoring, you can check floor plans. On the floor plan, you can register space information as well as the location where a device is installed.

1. In the main menu, click the **[Control/Monitor]** menu icon.
2. Select the device group you want to monitor from the group list.
   - The monitoring screen for the device is displayed.
3. Click **[Drawing]** button.
   - The registered floor plan is displayed.

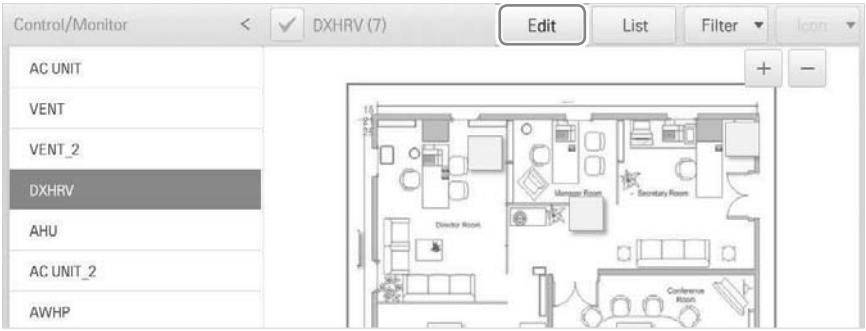


Editing the Floor Plan

You can edit a registered floor plan.

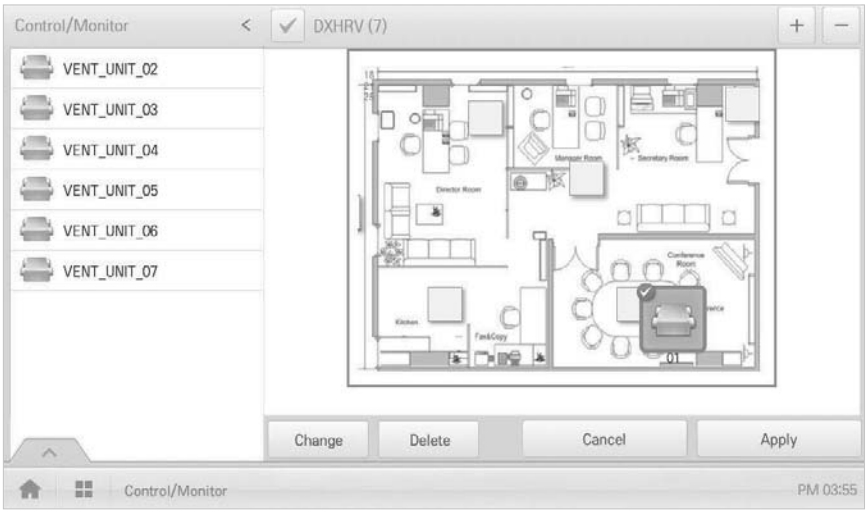
1. In the main menu, click the **[Control/Monitor]** menu icon.
2. Select the device group you want to monitor from the group list.
   - The monitoring screen for the device is displayed.
3. Click **[Drawing]** button.

4. Click **[Edit]** button.



5. To change floor plan, click **[Change]** button.
   - The Open Floor Plan window is displayed.
6. Select a desired floor plan from the Open Floor Plan window, then click **[Confirm]**.
   - The floor plan image is displayed.

7. To change the location of a device, click the icon of the device and then click the location to which you want to move that device.



8. To complete floor plan editing, click the **[Apply]** button.

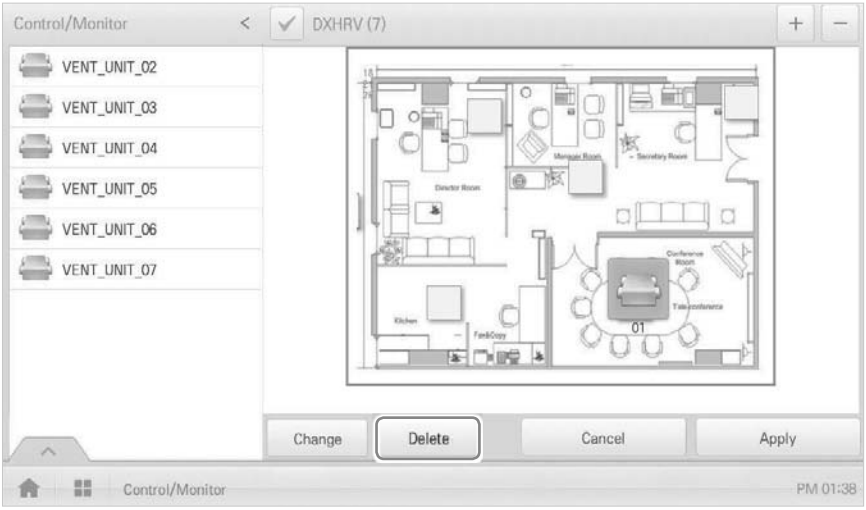
Notes

- To add a floor plan, put image file to USB root directory or /mnt/flash/map directory.
- To add a floor plan, you can only use jpg, gif, or png file formats.
- To add a floor plan, a 2MB or less image size is recommended.

Deleting the Floor Plan

You can delete a registered floor plan.

1. In the main menu, click the **[Control/Monitor]** menu icon.
2. Select the device group you want to monitor from the group list.
   - The monitoring screen for the device is displayed.
3. Click **[Drawing]** button.
   - The registered floor plan is displayed.
4. Click **[Edit]** button.
5. To delete a floor plan, click the **[Delete]** button.

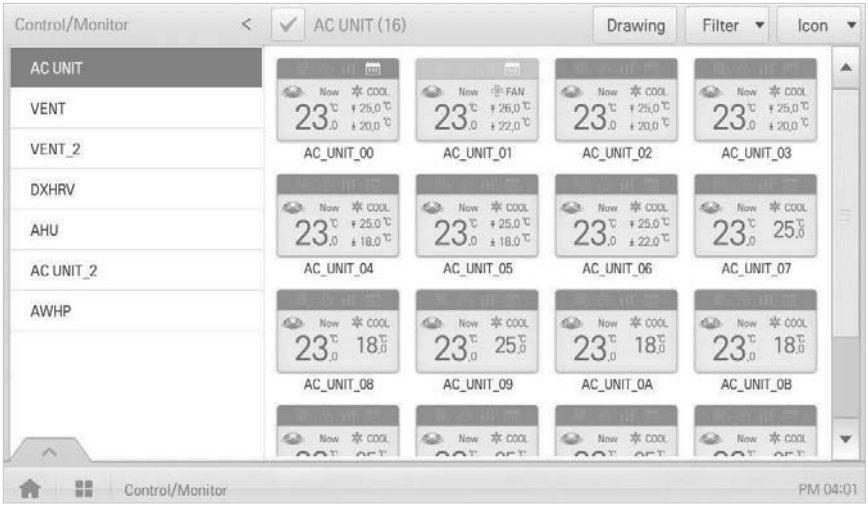


6. When you are prompted to confirm the deletion, click **[Confirm]**.

Monitoring a Device

You can check the control state of registered devices.

1. In the main menu, click the **[Control/Monitor]** menu icon.
2. Select the device group you want to monitor from the group list.
   - The monitoring screen for the device is displayed.
3. Click a device you want to monitor.
4. Please check the device information in the monitoring screen.
   - The information on the monitoring screen differs depending on the view type. For details about the view types, View Type on page 12.



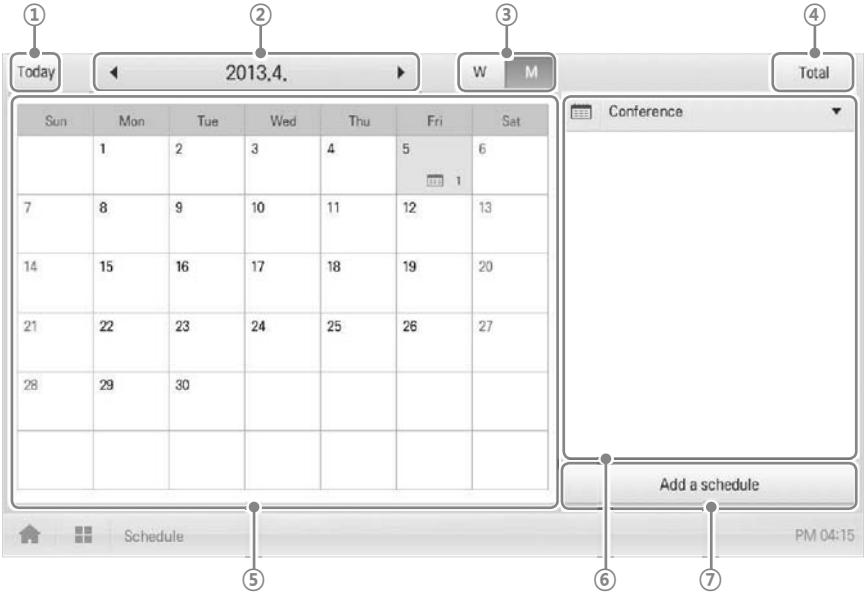
5. To check the control status of the device, click the **[Detail.]** button.

Schedule

The Schedule feature allows you to program the behavior of the devices. If a device must adhere to a certain schedule, you can program the device to operate only at scheduled times. Scheduled devices do not activate unless programmed to do so and are managed centrally. This can significantly reduce energy consumption.

Schedule Screen composition and features

The following explains Schedule Screen composition and features.



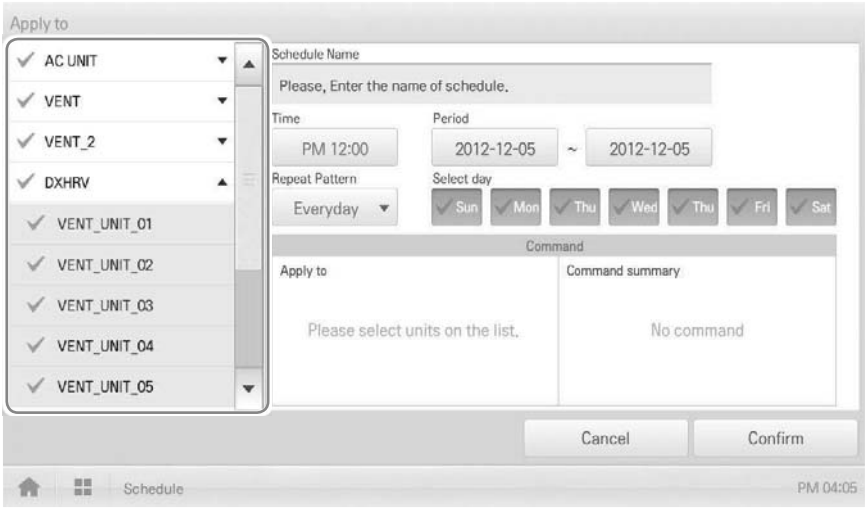
Number	Item	Description
①	**[Today]** Button	Display today's date, the current week, or the current month.
②	Dates	• Displays the selected date. • Use **[◀]/[▶]** to move to the previous/next date.
③	View Type	• **[W]** Button: Converts to Week View. • **[M]** Button: Converts to Month View.
④	**[Total]** Button	View full schedule list.
⑤	Calendar	• Displays the schedules for the selected dates. • Today's date is marked in light blue.
⑥	Schedule List	Displays registered schedules by name.

Number	Item	Description
⑦	**[Add a Schedule]** Button	Registers new schedules.

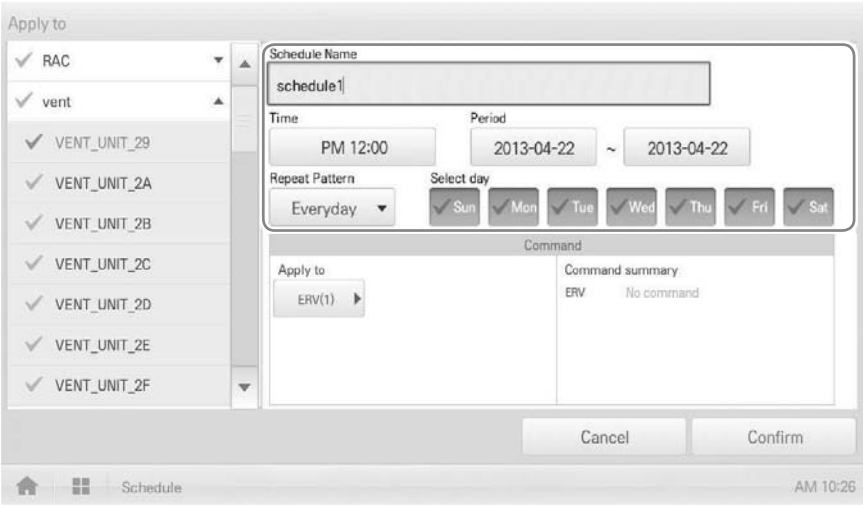
Creating Schedules

You can configure and add a schedule for a device.

1. In the main menu, click **[Schedule]** menu icon.
2. **[Add a Schedule]** Button.
   - The Add Schedule window opens.
3. In the group list, click a device for which a schedule is applied.
   - The selected device is displayed in the applied device area of the control command configuration.



4. Configure the schedule information that controls the device.



Item	Description
Schedule Name	Click the input box. Enter the name of the schedule..
Time	• Click the time area and then the **[+]/[-]** button to select the desired time. • Click the **[AM]/[PM]** button to select before or after midday.
Period	Click the period area and then the **[+]/[-]** button to select the desired period.
Repeat Pattern	Click the Repetition Pattern area and select a desired pattern. • **Select Day**: Selected days the schedule will be performed. • **Once**: Applies a schedule once on a selected date. • **Everyday**: Applies the same schedule Everyday. • **Mon - Fri**: Applies a schedule repeatedly from Monday to Friday. • **Mon - Sat**: Applies a schedule repeatedly from Monday to Saturday.
Select day	Click a desired day to apply a schedule.

5. Click the device icon of the applied device.
   - The control configuration window for the device is displayed. The control configuration window differs depending on the device.

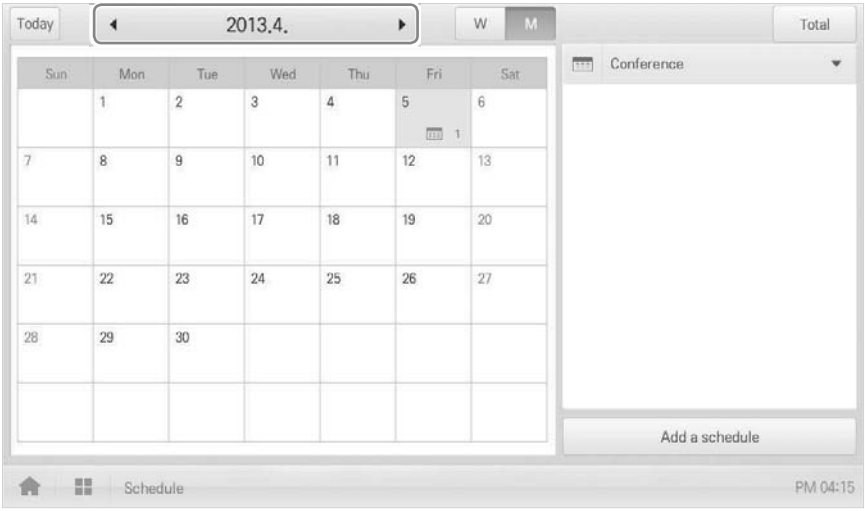
6. Configure the device control status, then click the **[Confirm]** button.
   - The control list configured in the Command Summary area is displayed.

7. To complete the schedule configuration, click the **[Confirm]** button.

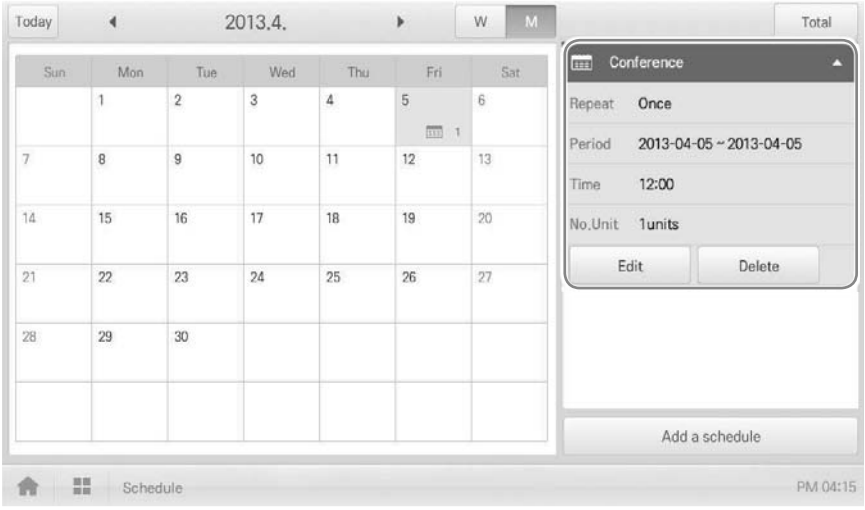
Checking Schedules

You can check registered schedules.

1. In the main menu, click the **[Schedule]** menu icon.
2. In the Date area, click the **[◀]/[▶]** button to select a schedule search period.
   - The number of schedules are displayed for the selected date.



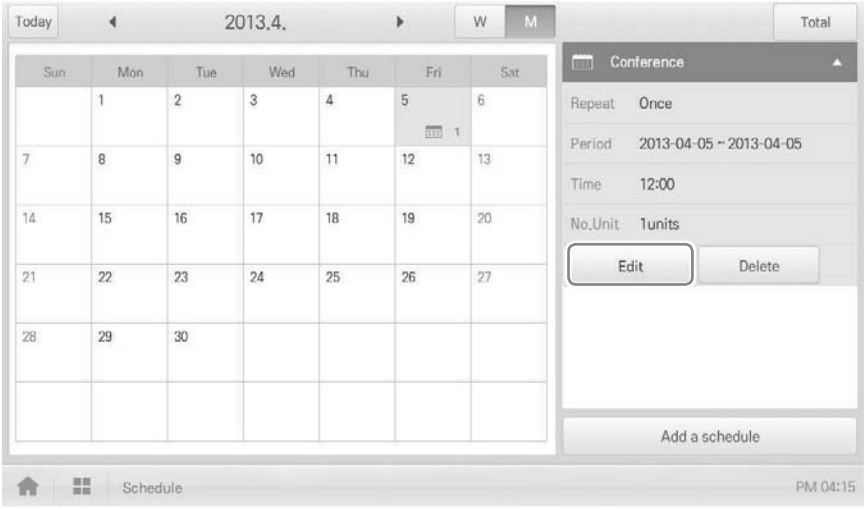
3. To check schedule details, click a schedule you want to check in the schedule list.
   - Schedule details are displayed.



Editing Schedules

You can modify the content of a registered schedule as follows.

1. In the main menu, click the **[Schedule]** menu icon.
2. Click a schedule you wish to modify from the schedule list.
   - Schedule details are displayed.
3. Click the **[Edit]** button.
   - The schedule configuration screen is displayed.

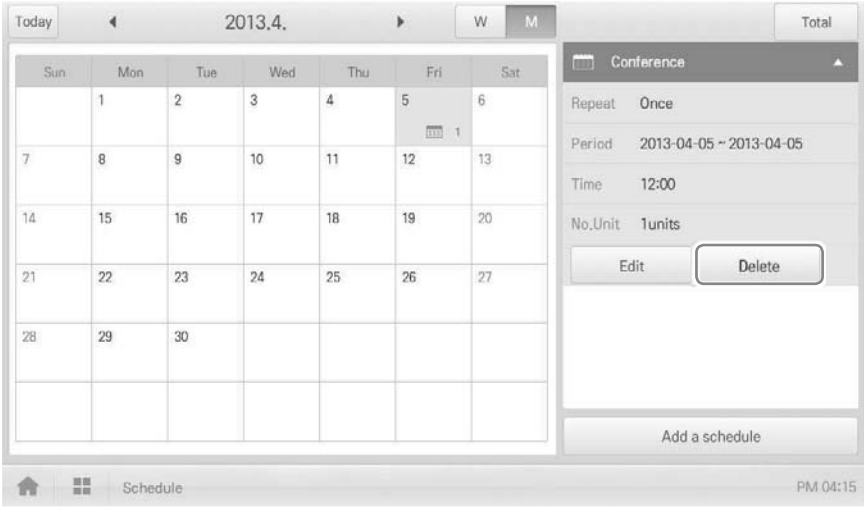


4. Modify the schedule information and device control configuration, then click the **[Confirm]** button.
   - The changed data will be saved.

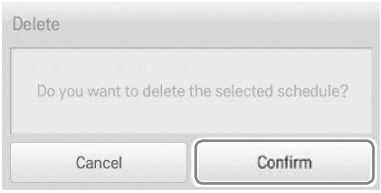
Deleting Schedules

You can delete a registered schedule as follows.

1. In the main menu, click the **[Schedule]** menu icon.
2. Click a schedule you wish to delete from the schedule list.
   - Schedule details are displayed.
3. Click the **[Delete]** button.



4. When you are prompted to confirm the deletion, click **[Confirm]**.
   - The selected schedule is deleted.



Auto Logic

Auto Logic allows the system to automatically control the power consumption of external devices. You can also set the indoor temperature to automatically adjust to outdoor conditions or activate devices for certain periods of time.

Notes

If you set a device control value in the auto logic status view, the device can operate based on that value.

Peak Control

Peak control limits peak power consumption. You can set the target operating rate so that total power consumption does not exceed the set limit. To prevent power consumption from exceeding the limit, the system will automatically change cooling mode to fan mode and cancel heating mode.

Notes

Depending on the installation site specifications, either of the peak control and demand control functions can be selected. Go to **Environment** > **Advance Setting** > **Peak/Demand Set** and select a desired control type.

Editing Groups

The auto logic designates the registered devices as a group and controls them by group. The following explains how to create groups and how to edit the created groups.

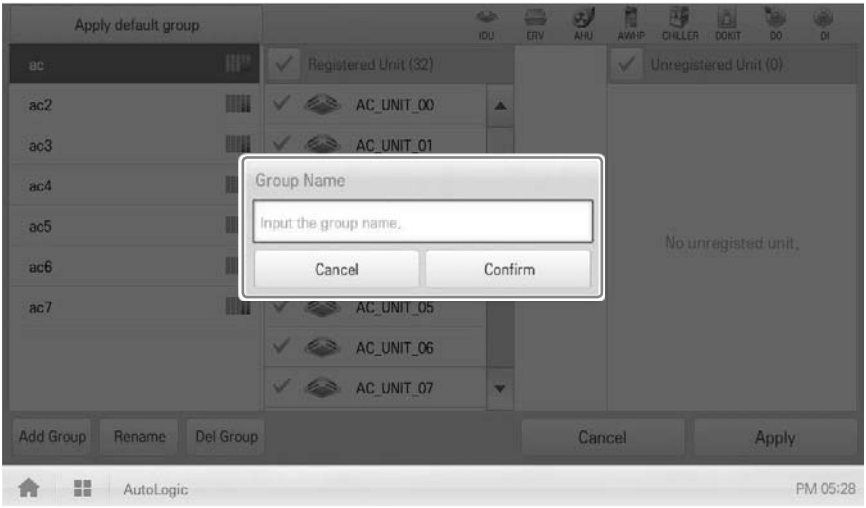
Adding Groups

You can create a group as follows.

1. In the main menu, click the **[AutoLogic > Peak Control]** menu icons.
2. Click the **[Edit Group]** button.
   - The screen converts to Edit Group.
3. Click the **[Add Group]** button.

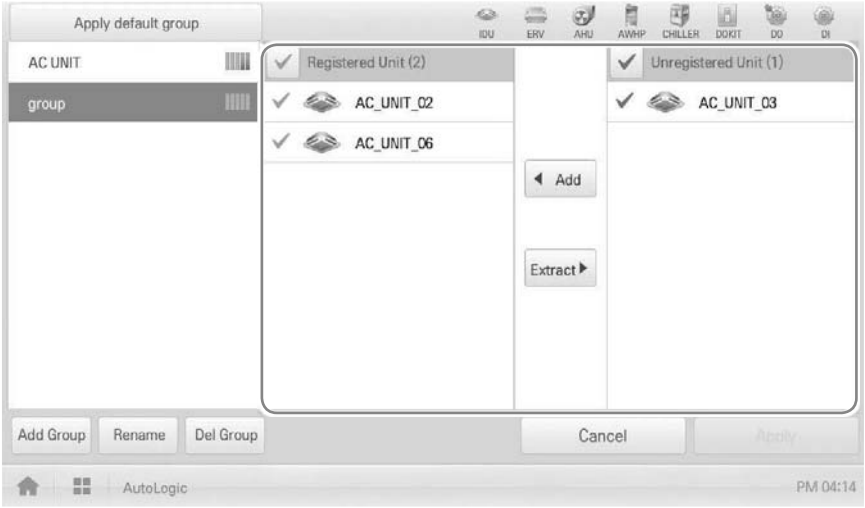
> **Notes**
>
> By clicking **[Apply default group]**, you can create a group automatically based on the group and indoor unit configuration set in the Device Management menu.

4. When the window to input a group name is displayed, enter a group name and click the **[Confirm]** button.
   - The group is added to the group list.



5. In the group list, click the group added in Step 4.

6. In the non-registered device area, click a device to add to the new group and click the **[Add]** button.
   - The selected device is moved to the registered device area.



Notes

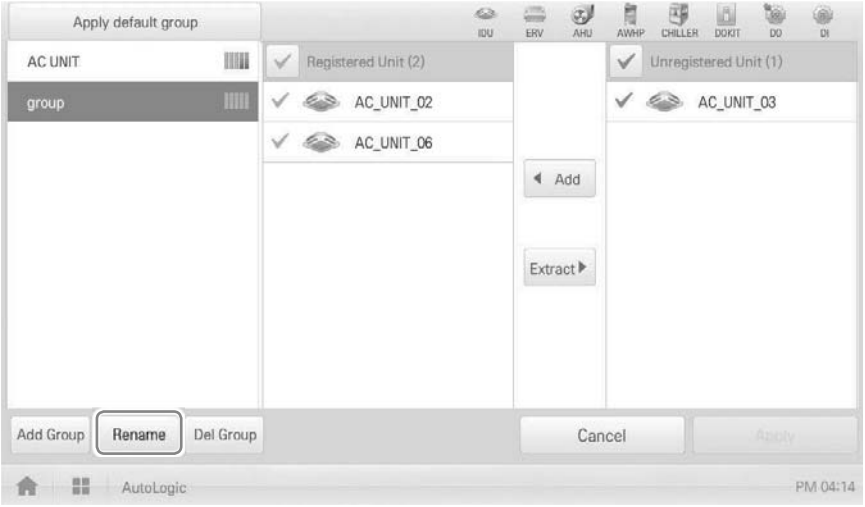
Peak control is only limited to indoor devices, therefore you cannot register other devices such as the ventilator, AHU or AWHP.

7. To complete group creation, click the **[Apply]** button.

Changing Group Name

You can change the name of a registered group as follows.

1. In the main menu, click the **[AutoLogic > Peak Control]** menu icon.
2. Click the **[Edit Group]** button.
   - The screen converts to Edit Group.
3. In the group list, click a group whose name you want to change and click the **[Rename]** button.



4. Enter a new group name and click the **[Confirm]** button.
   - The group name is now changed.

Deleting Groups

You can delete a registered group.

1. In the main menu, click the **[AutoLogic > Peak Control]** menu icon.
2. Click the **[Edit Group]** button.
   - The screen converts to Edit Group.
3. In the group list, click a group to be deleted and click the **[Del Group]** button.

4. When you are prompted to confirm the deletion, click **[Confirm]**.
   - The selected group is deleted and the tab removed.

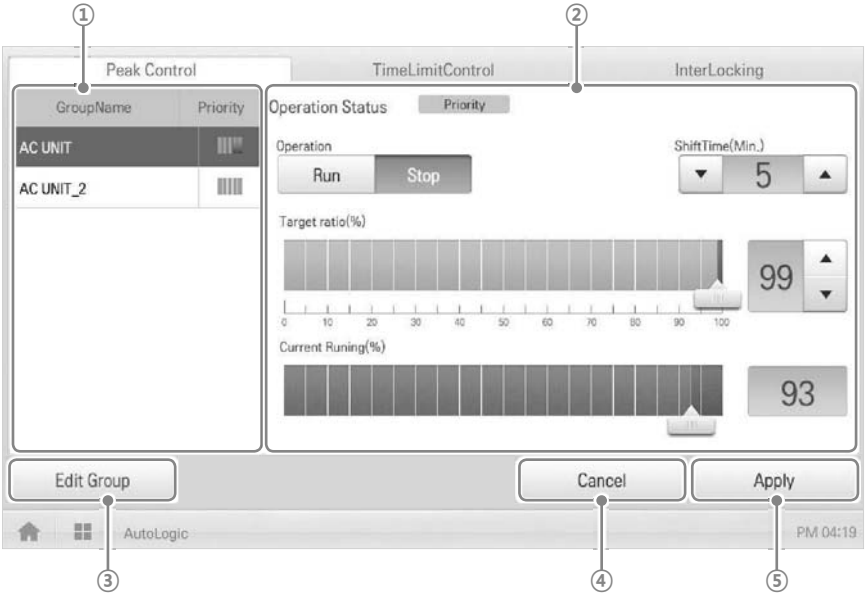
Notes

- The group configured in Peak Control is also applied to Demand Control.
- If you change the group configuration in the device management menu, the group configured in Peak Control is initialized.

Configuring Peak Control

You can configure Peak Control as follows.

1. In the main menu, click the **[AutoLogic > Peak Control]** menu icon.
2. Select the control status in the control configuration area.



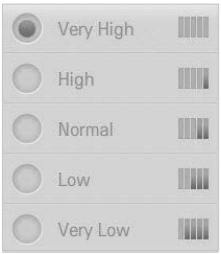
Number	Item	Description
①	Group List	Displays the device group list and group priority.
②	Control Configuration Area	Configures Peak Control configuration and details. • **Operation Status** - Can be configured in **[Environment > Advance Setting]**. - **Priority Control**: Control based on group priority - **Outdoor Unit Control**: Controls based on outdoor unit capacity limit.

Number	Item	Description
②	Control Configuration Area	(Operation Status - Priority Control selected) • **Operation** - **[Run]** Button: Operates the device. - **[Stop]** Button: Stops the operation of the device. • **Shift Time(Min.)**: Click **[▲]/[▼]** to set the time in minutes to force the operation to switch over. • **Target ratio(%)**: Click **[▲]/[▼]** or drag to set the target rate. • **Current Running(%)**: Displays the current rate. (Operation Status - Outdoor unit capacity control selected) • **Operation** - **[Run]** Button: Operates the device. - **[Stop]** Button: Stops the operation of the device. • **Target ratio(%)**: Click **[▲]/[▼]** or drag to set the target rate.
③	**[Edit Group]** Button	Edit a control group.
④	**[Cancel]** Button	Cancels control configuration.
⑤	**[Apply]** Button	Applies control configuration.

3. To complete configuration, click the **[Apply]** button.

Configuring Priority

1. In the main menu, click the **[AutoLogic > Peak Control]** menu icon.
2. In the group list, click the priority icon ( ) of the group in question and then select a desired priority.



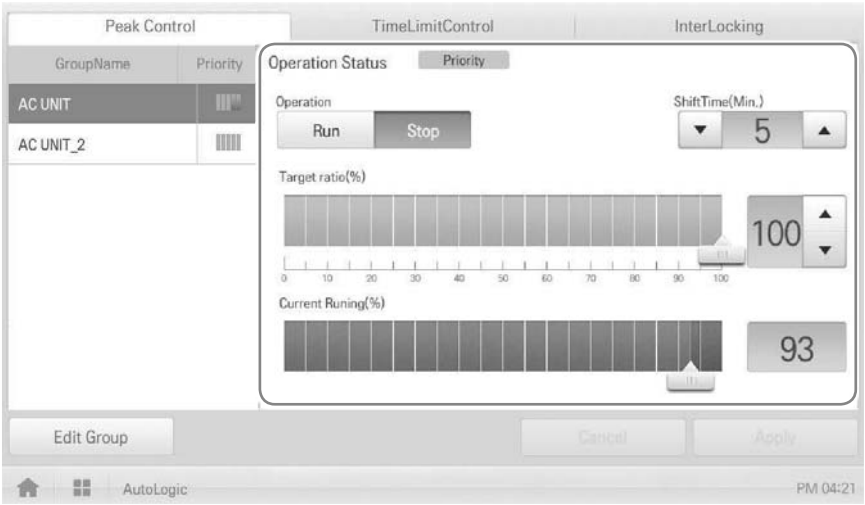
Notes

Basically, a newly added group has the highest priority. If a group is added, re-configure the priority for all groups.

Checking Peak Control Status

You can check the Peak Control configuration status as follows.

1. In the main menu, click the **[AutoLogic > Peak Control]** menu icon.
2. Check how Peak Control is configured.

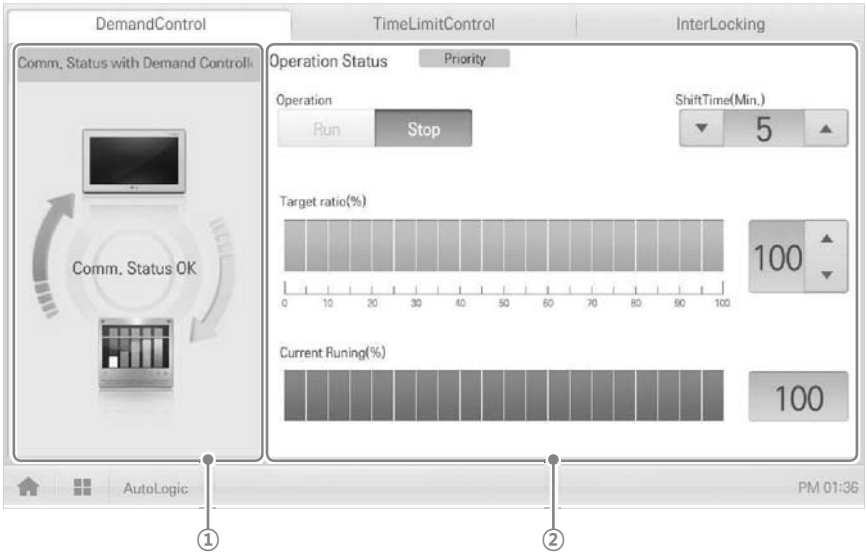


Item	Description
Control Configuration Area	Configure Peak Controls. • **Operation Status** - Can be configured in **[Environment > Advance Setting]**. - **Priority**: Controls based on group priority - **Outdoor unit capacity control**: Controls based on outdoor unit capacity limit. (Operation Status - Priority Control selected) • **Operation** - **[Run]** Button: Operates the device. - **[Stop]** Button: Stops the operation of the device. • **ShiftTime(Min.)**: The cycle by which the operation switches over. • **Target ratio(%)**: Displays the target operation rate. • **Current Running(%)**: Displays the current rate. (Operation Status - Outdoor unit capacity control selected) • **Operation** - **[Run]** Button: Operates the device. - **[Stop]** Button: Stops the operation of the device. • **Target ratio(%)**: Displays the target operation rate.

Checking Demand Control Status

You can check the Peak Control configuration status as follows.

1. In the main menu, click the **[AutoLogic > Demand Control]** menu icon.
2. Check how Demand Control is configured.



Number	Item	Description
①	**Comm. Status with Demand Controller**	Displays the communication status between demand controller and ACP BACnet.
②	**Control Configuration Area**	Checks the demand configuration details. • **Operation Status** - Can be configured in **[Environment > Advance Setting]**. - **Priority Control**: Control based on group priority - **Outdoor Unit Control**: Controls based on outdoor unit capacity limit.

Number	Item	Description
②	**Control Configuration Area**	(Operation Status - Priority Control selected) • **Operation** - **[Operate]** Button: Operates the device. - **[Stop]** Button: Stops the operation of the device. • **Shift Time(Min.)**: The cycle by which the operation switches over. • **Target ratio(%)**: Displays the target operation rate. • **Current Running(%)**: Displays the current rate. (Operation Status - Outdoor unit capacity control selected) • **Operation** - **[Run]** Button: Operates the device. - **[Stop]** Button: Stops the operation of the device. • **Target ratio(%)**: Displays the target operation rate.

Time-limit Operation

The time-limit operation is to limit the amount of time the devices (indoor unit, ventilator, DOKITs, AWHP, and AHU) are running individually. By setting the device operation time in advance, you can control for how long a device works and have it stop automatically.

Editing Groups

The auto logic designates the registered devices as a group and controls them by group. The following explains how to create groups and how to edit the created groups.

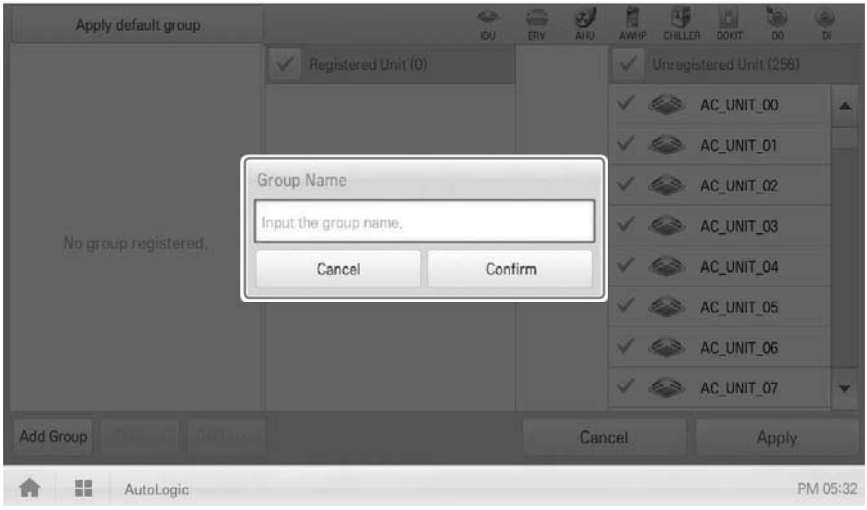
Adding Groups

You can create a group as follows.

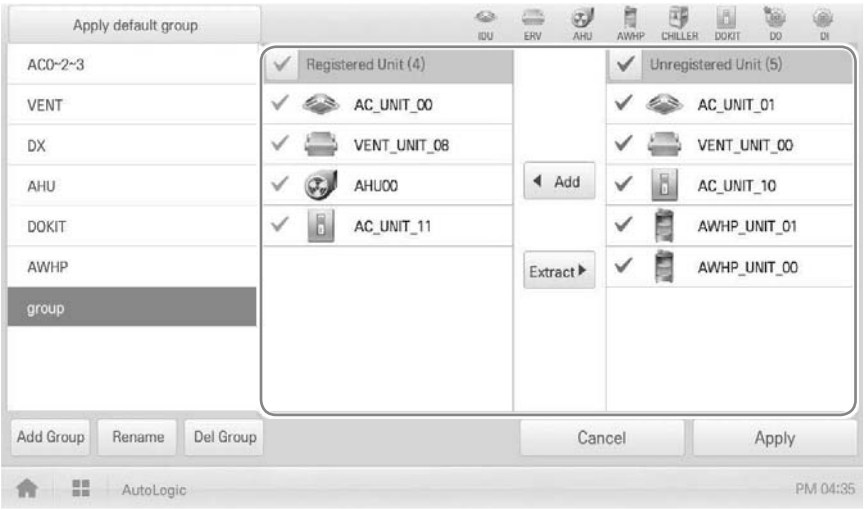
1. In the main menu, click the **[AutoLogic > TimeLimitControl]** menu icon.
2. Click the **[Edit Group]** button.
   - The screen converts to Edit Group.
3. Click the **[Add Group]** button.

> **Notes**
>
> By clicking **[Apply default group]**, you can create a group automatically based on the group and indoor unit configuration set in the Device Management menu.

4. When the window to input a group name is displayed, enter a group name and click the **[Confirm]** button.
   - The group is added to the group list.



5. In the group list, click the group added in Step 4.
6. In the non-registered device area, click a device to add to the new group and click **[Add]** button.
   - The selected device is moved to the registered device area.



Notes

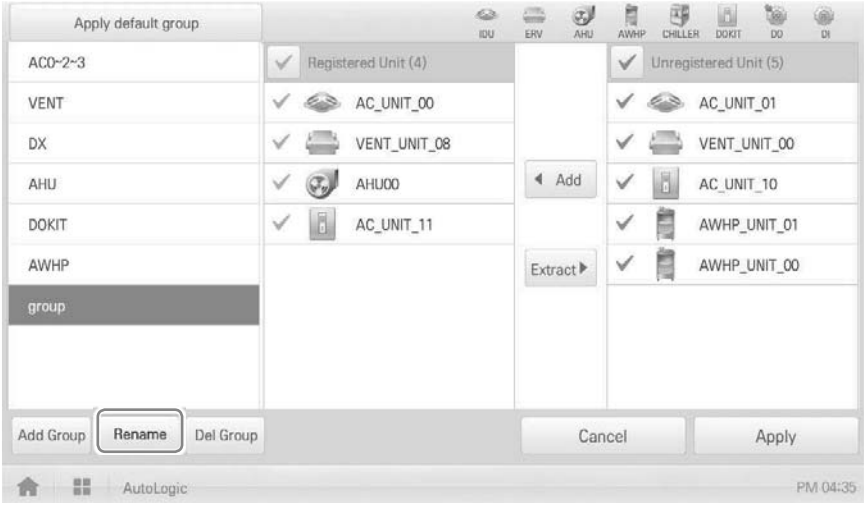
For the time-limit operation, you cannot register DI/DO.

7. To complete group creation, click the **[Apply]** button.

Changing Group Name

You can change the name of a registered group as follows.

1. In the main menu, click the **[AutoLogic > TimeLimitControl]** menu icon.
2. Click the **[Edit Group]** button.
   - The screen converts to Edit Group.
3. In the group list, click a group whose name you want to change and click the **[Rename]** button.

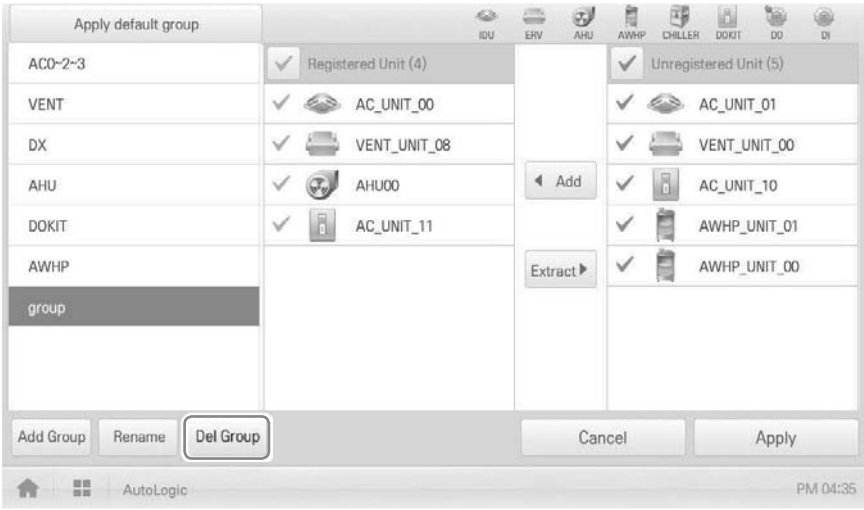


4. Enter a new group name and click the **[Confirm]** button.
   - The group name is now changed.

Deleting Groups

You can delete a registered group.

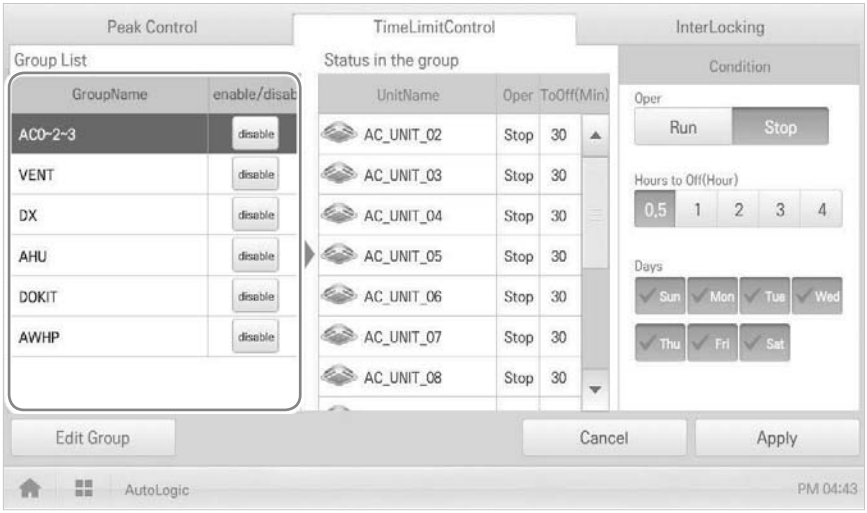
1. In the main menu, click the **[AutoLogic > TimeLimitControl]** menu icon.
2. Click the **[Edit Group]** button.
   - The screen converts to Edit Group.
3. In the group list, click a group to be deleted and click the **[Del Group]** button.



4. When you are prompted to confirm the deletion, click **[Confirm]**.
   - The selected group is deleted and the tab removed.

Configuring Time-Limit Operation

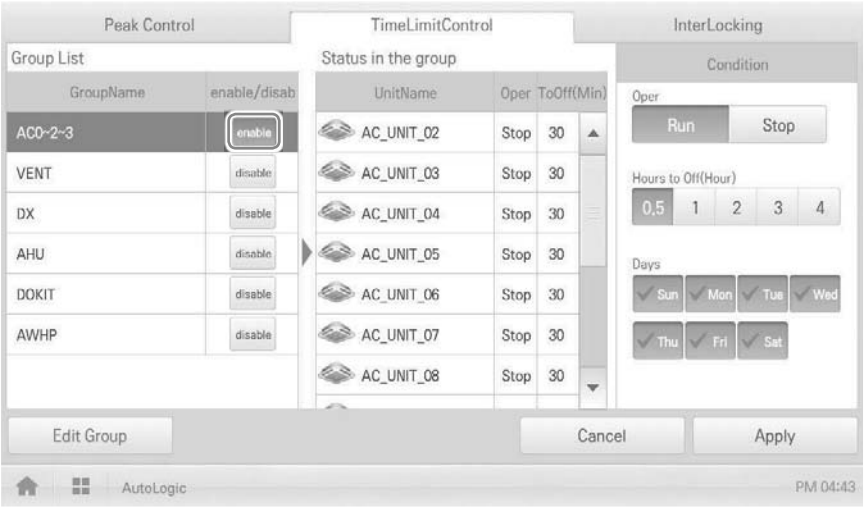
1. In the main menu, click the **[AutoLogic > TimeLimitControl]** menu icon.
2. In the group configuration status area, click a group to be controlled.
   - The device list, status information, and condition details of the group are displayed.



3. Select the control status in the conditions configuration area.

Item	Description
Oper	Choosing whether to run Time-Limit Operation • **[Run]** Button: Run the time-limit operation. • **[Stop]** Button: Stops the time-limit operation.
Hours to Off(Hour)	• Select the operation time limit of an operation group. • The devices included in the group operates for the selected time then stops automatically.
Days	Select a day on which to run the time-limit operation.

4. To run the time-limit operation on the group, in the group configuration operation status area, click the **[disable]** button.
   - The button changes to **[enable]**.



5. To complete the configuration, click the **[Apply]** button.

Notes

If you change the operation stop standby time, it takes about 15 seconds to apply it.

InterLocking

You can integrate the system with external devices, like fire alarms, to halt the operation of all indoor units and ventilators. For InterLocking, you should create a pattern for devices and apply the control configuration. The following explains how to create and manage a pattern and control device integration.

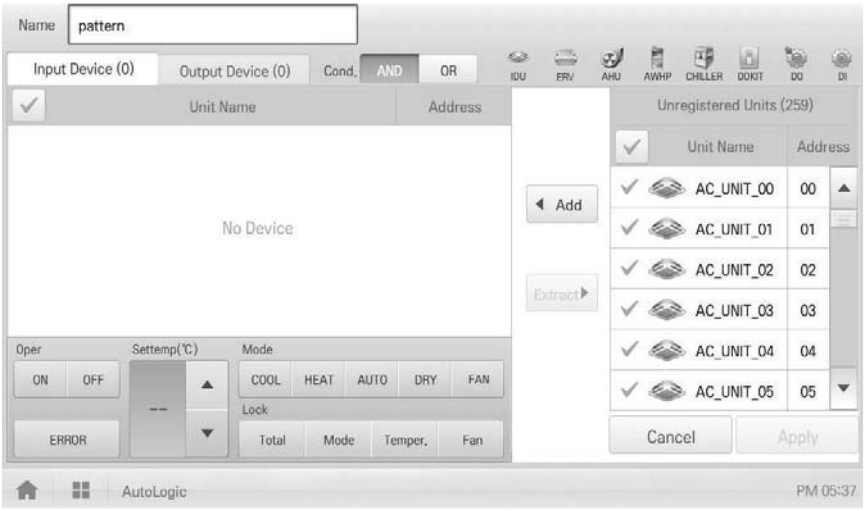
Managing Pattern

The following explains how to register integrated devices as a pattern and how to modify or delete a registered pattern.

Adding Pattern

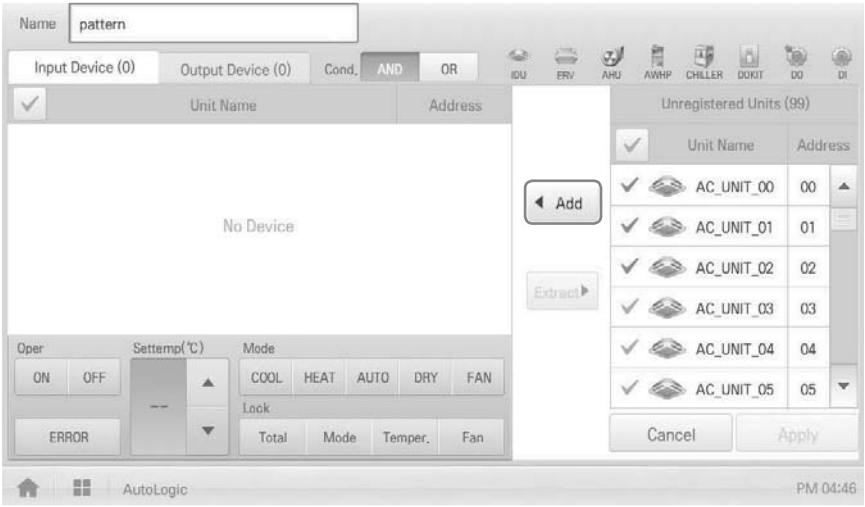
You can add a pattern as follows.

1. In the main menu, click the **[AutoLogic > InterLocking]** menu icon.
2. Click the **[Add]** button.
   - A window to create a pattern is displayed.
3. Type a new pattern name in the pattern name input window.

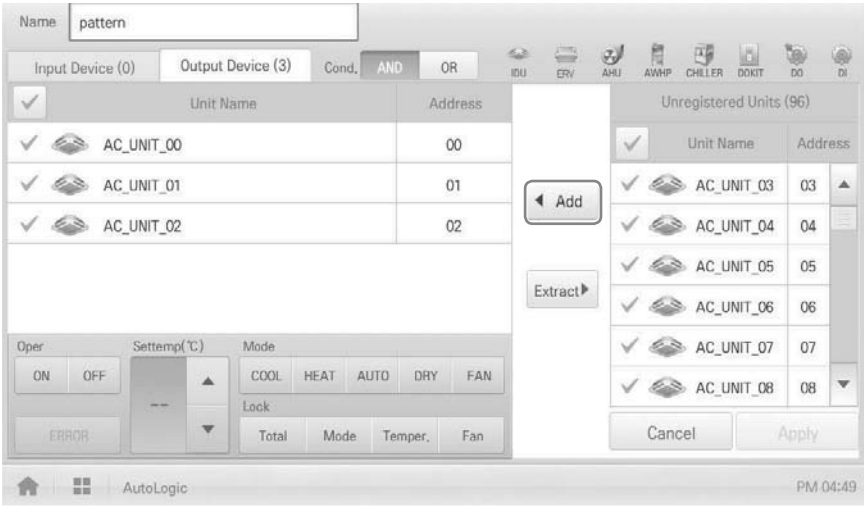


4. Click the **[Input Device]** tab.

5. In the non-registered device area, click a device to be registered and click the **[Add]** button.



6. In the input device list, click the device you want to control.
7. Select a control status in the control configuration area.
8. Click the **[Output Device]** tab.
9. In the non-registered device area, click a device to be registered and click the **[Add]** button.



10. In the output device list, click the device you want to control.
11. Select a control status in the control configuration area.
12. To complete the adding of a pattern, click the **[Apply]** button.

Editing Pattern

You can edit a pattern as follows.

1. In the main menu, click the **[AutoLogic > InterLocking]** menu icon.
2. Select a pattern and click the **[Edit]** button.
   - The pattern editing screen opens.
3. Modify the pattern configuration information and click the **[Apply]** button.

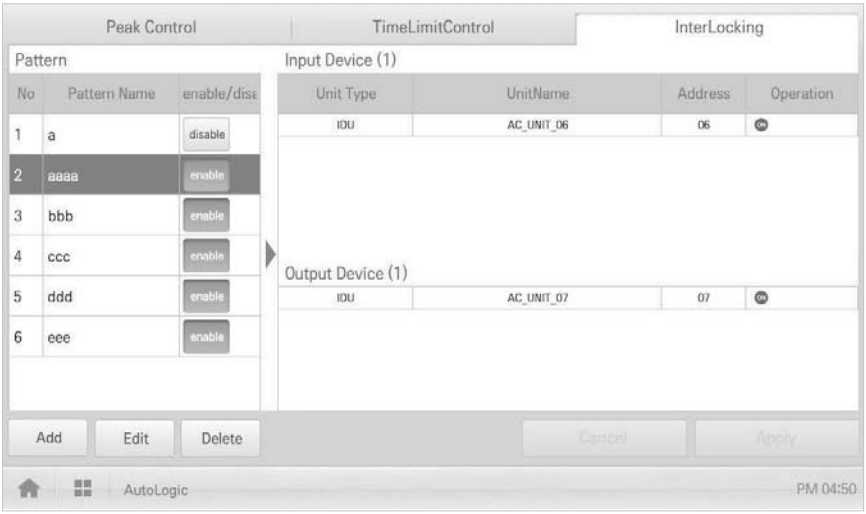
Deleting Pattern

You can delete a pattern as follows.

1. In the main menu, click the **[AutoLogic > InterLocking]** menu icon.
2. Select a pattern to be deleted and click the **[Delete]** button.
3. When you are prompted to confirm the deletion, click **[OK]**.
   - The selected pattern is deleted.

Checking InterLocking

1. In the main menu, click the **[AutoLogic > InterLocking]** menu icon.
2. Click a pattern for which you want check the device integration.
   - The device integration status for the pattern is displayed.

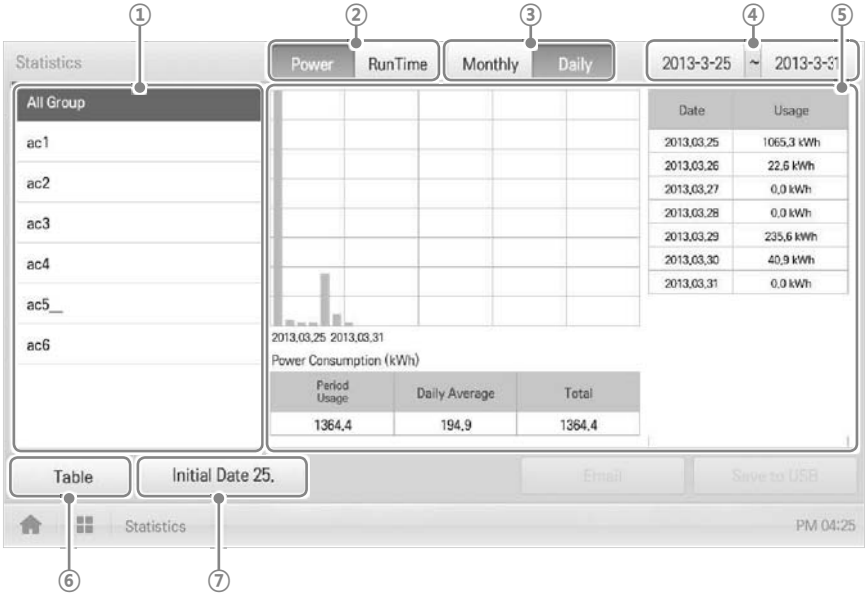


Statistics

The following explains how to use statistics and graphs to check the power consumption and operation time of a device.

Statistics Screen Composition and Features

The following explains the statistics screen composition and features.



Number	Item	Description
①	Group List	Displays the device group list.
②	Statistics Items	• **[Power]** Button: You can check the power consumption of each group and total power consumption. • **[RunTime]** Button: You can check the operating time and the total operating time of indoor units in each group.
③	Query Unit	• **[Monthly]** Button: Queries on monthly consumption within the last four months. • **[Daily]** Button: Queries on daily consumption within the query period.

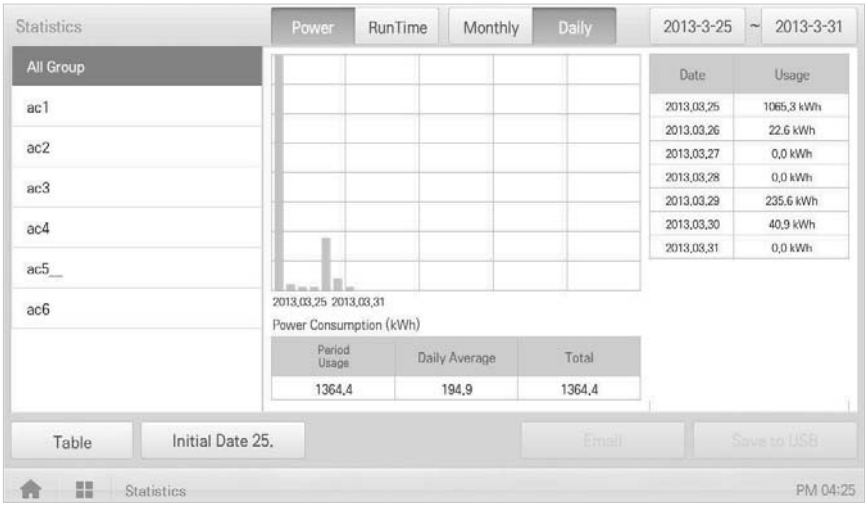
Number	Item	Description
④	Query Period Selection Area	• Selects the period for which you want to query statistics details for daily. • The start date should be no more than 31days before the end date.
⑤	Displays Statistics Information	• **Statistics data per period**: Displays power consumption per unit of query or operation time statistics and graphs. • **Power consumption**: Displays power consumption and use time.
⑥	**[Table]/[Graph]** Button	Converting Statistics Data View • **Table**: Views the queried statistics data in a table format. • **Graph**: Views the queried statistics data in a graphic format.
⑦	**[Initial Date]** Button	• Selects Statistics Reference Date. • Move to **Settings** > **General Settings** > **Statistics Reference Date**.

Querying Statistics

You can query the power consumption of a device or operation time statistics data as follows.

1. In the main menu, click the **[Statistics]** menu icon.
2. Click the device group you want from the group list.
3. Click the button of the statistics item you want.
   - **[Power]** Button: You can check the power consumption of each group and total power consumption.
   - **[RunTime]** Button: You can check the operating time and the total operating time of indoor units in each group.
4. In the query period selection area, click the date button and **[+]/[-]** button to select the desired period.
   - The start date should be no more than 31days for daily before the end date. The query period for monthly is automatically fixed to the last four months.

5. Check the statistics details in the statistics information display area.
   - To change the statistics information view type, click the **[Table]** or **[Graphic]** button.



Notes

The statistics data is stored up to 6 months.

Notes

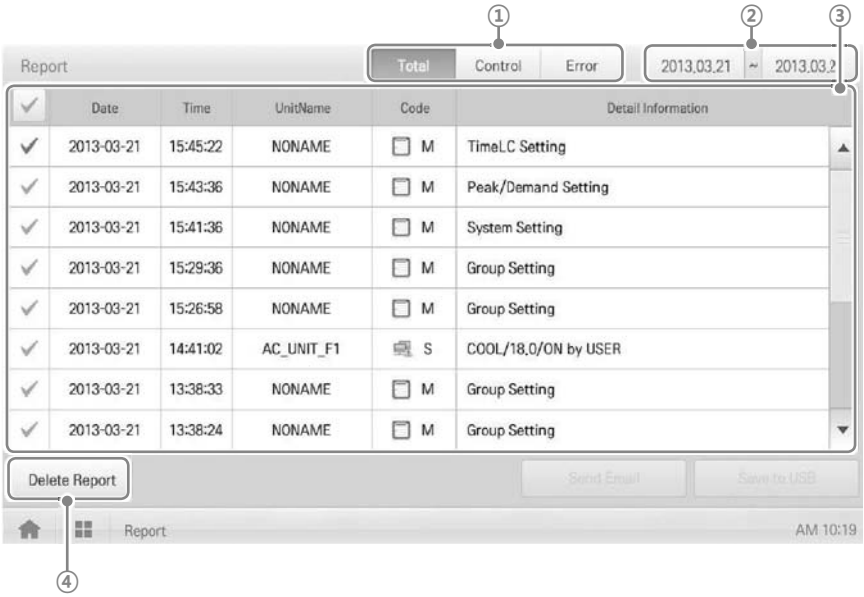
- Devices which can query the Run Time: Indoor units
- Devices which can query the Power consumption: devices which can be used with the PDI (For further information about the devices can be used with the PDI, please refer to the PDI manual.)

Report

The following explains how to query the device control information or error information.

Report screen composition and features

The following explains the report screen composition and features.

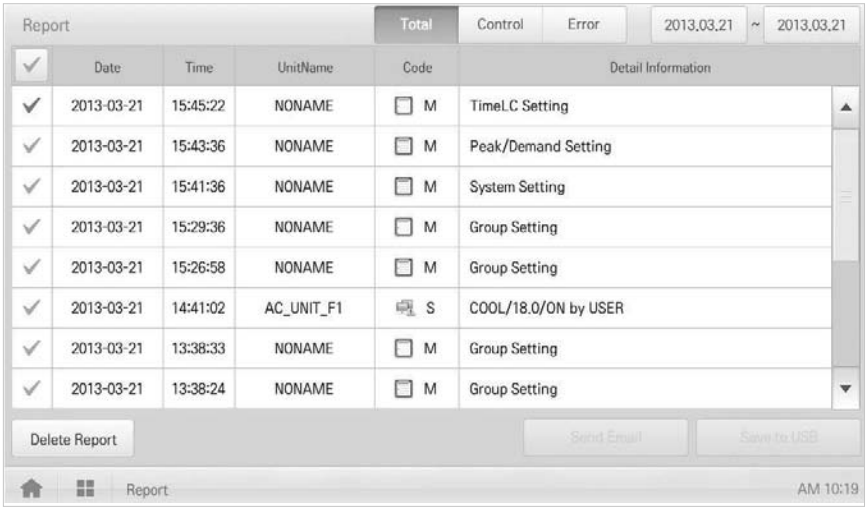


Number	Item	Description
①	Report Items	Selects report query items. • **[Total]** Button: Queries all reports regarding control and error. • **[Control]** Button: Queries control related reports only. • **[Error]** Button: Queries error related reports only.
②	Query Period Selection Area	• Selects the period for which you want to query report details. • The starting date should be no more than three months from the ending date.
③	Report detail display area	Displays the reports related to control and error.
④	**[Delete Report]** Button	Deletes the selected report.

Querying Report

You can query the device control or error report as follows.

1. In the main menu, click the **[Report]** menu icon.
2. In the report item, click an item for which you want to query a report.
   - **[Total]** Button: Queries all reports regarding control and error.
   - **[Control]** Button: Queries control related reports only.
   - **[Error]** Button: Queries error related reports only.
3. In the query period selection area, click the date button and **[+]/[-]** button to select the desired period.
   - The starting date should be no more than three months from the ending date.
4. Check the report details in the report detail display area.



Caution

You can query up to 200 reports. Up to 5000 reports are stored.

ENGLISH

Installing

You can add a device or change the settings of a registered device.

Registering Device

After installing ACP BACnet, log into ACP BACnet to register the devices to be connected.

ACP BACnet can register a device by using one of two methods.

- Registering Device Automatically
- Registering Device Manually

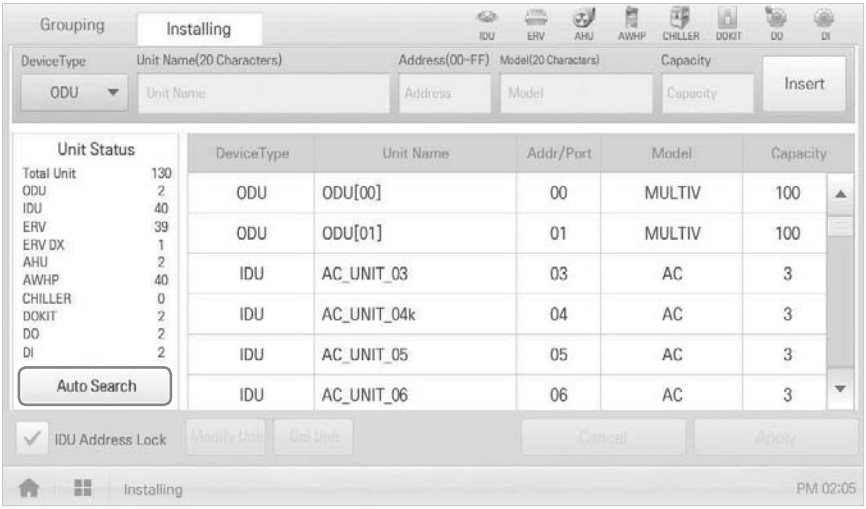
Notes

To register a device on ACP BACnet, you should login with administrator permissions.
If you have logged in already with standard user permissions, you cannot proceed with this process any further.

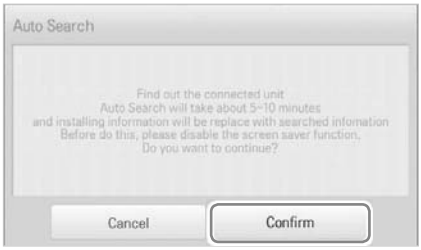
Registering Device Automatically

Devices connected to ACP BACnet are automatically searched for and registered. You can register a device automatically as follows.

1. In the main menu, click the **[Installing]** menu icon.
2. Click the **[Installing]** tab.
3. Click the **[Auto Search]** button.



4. When you are prompted to confirm the setting, click **[Confirm]**.
   - It takes 5 to 10 minutes to register a device automatically.

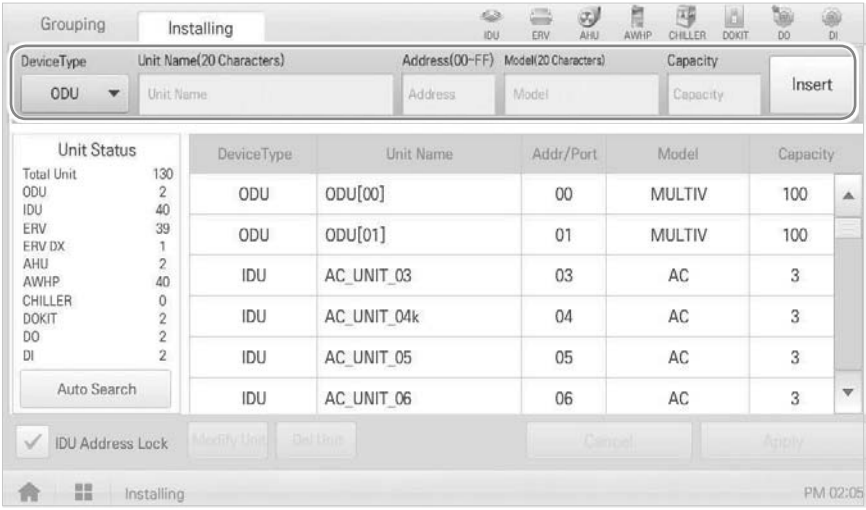


5. To save the searched devices, touch the **[Apply]** button.
   - Device registration is completed. 2 DIs and 2 DOs is always added to the Unit Status.

Registering Device Manually

Devices connected to ACP BACnet can be registered by the user by entering relevant information. You can register a device manually as follows.

1. In the main menu, click the **[Installing]** menu icon.
2. Click the **[Installing]** tab.
3. Type the device information and click the **[Insert]** button.



Item	Description
Device Type	Selects a device type. • IDU(indoor unit,), ODU(Outdoor unit,), ERV(Energy Recovery Ventilator), ERV DX(Direct Expansion Energy Recovery Ventilator), DI/DO, DOKIT, AWHP, or AHU
Unit Name (20 Characters)	Enter the device name. • Up to 20 characters.
Address (00-FF)	Type the physical address of the device. • A physical address value is a number between 00 and FF. You cannot type the same value for the same device. • You cannot enter a duplicate value for indoor devices and DOKIT.
Model (20 Characters)	Type the device model. • Up to 20 characters.
Capacity (5-digit)	Type the maximum power consumption of the device. • Up to 5 characters. • The power consumption value of the actual device cannot exceed the input value.

4. To save the device, click the **[Apply Change]** button.
   - Device registration is completed.

Changing Device

You can change the settings of registered devices.

1. In the main menu, click the **[Installing]** menu icon.
2. Click the **[Installing]** tab.
3. Click a device to be changed in the device list.
   - The device information is displayed in the device information input box.
4. Type the device information and click the **[Modify Unit]** button.
   - The changed device information is applied.
5. To save a change, click the **[Apply]** button.

Deleting Device

Follow these steps to delete a device from the list.

1. In the main menu, click the **[Installing]** menu icon.
2. Click the **[Installing]** tab.
3. In the device list, click a device to be deleted and click the **[Del Unit]** button.
4. When you are prompted to confirm the deletion, click **[Confirm]**.
   - The selected device is deleted from the list.
5. To save a change, click the **[Apply]** button.

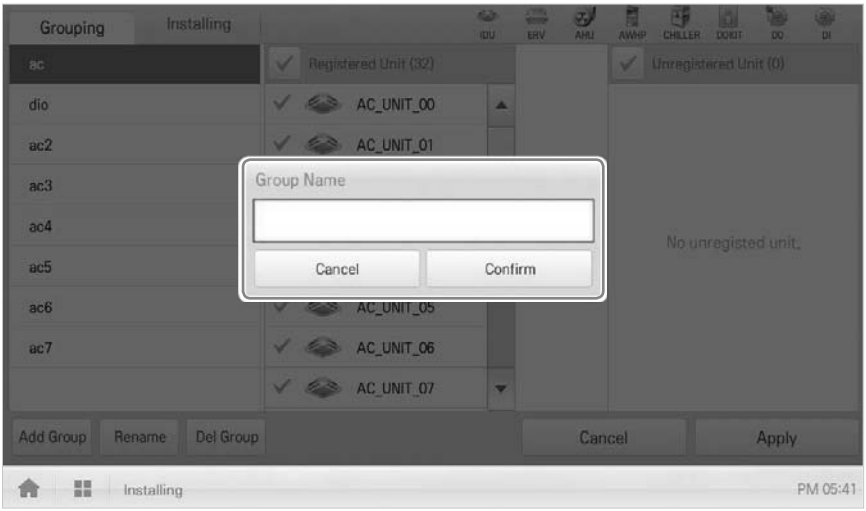
Managing Device

The following explains how to manage the information for a device added to the system.

Adding Groups

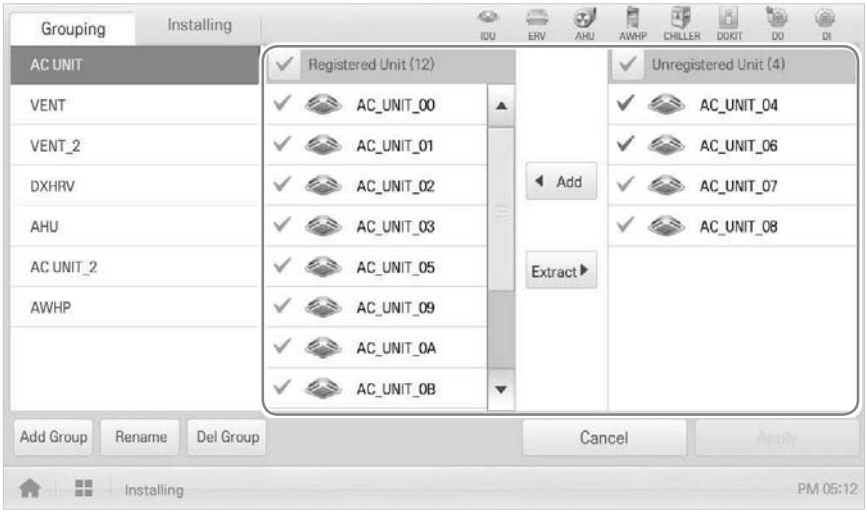
Follow these steps to add a new group.

1. In the main menu, click the **[Installing]** menu icon.
2. Click the **[Grouping]** tab.
3. Click the **[Add Group]** button.
4. When the window to type a group name is displayed, enter a group name and click the **[Confirm]** button.
   - The group is added to the group list.



5. In **Grouping**, click the group added in Step 4.

6. In the non-registered device area, click a device to add to the new group and click the **[Add]** button.
   - The selected device is moved to the registered device area.

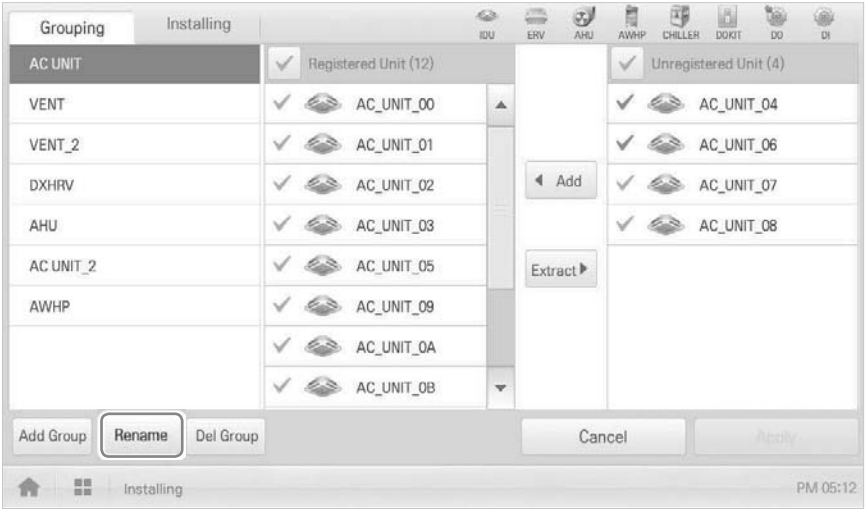


7. To complete group creation, click the **[Apply]** button.
   - When all non-registered devices are registered, the **[Apply]** button is enabled.

Changing Group Name

You can change the name of a registered group as follows.

1. In the main menu, click the **[Installing]** menu icon.
2. Click the **[Grouping]** tab.
3. In the device management list, click a group whose name you want to change and click the **[Rename]** button.

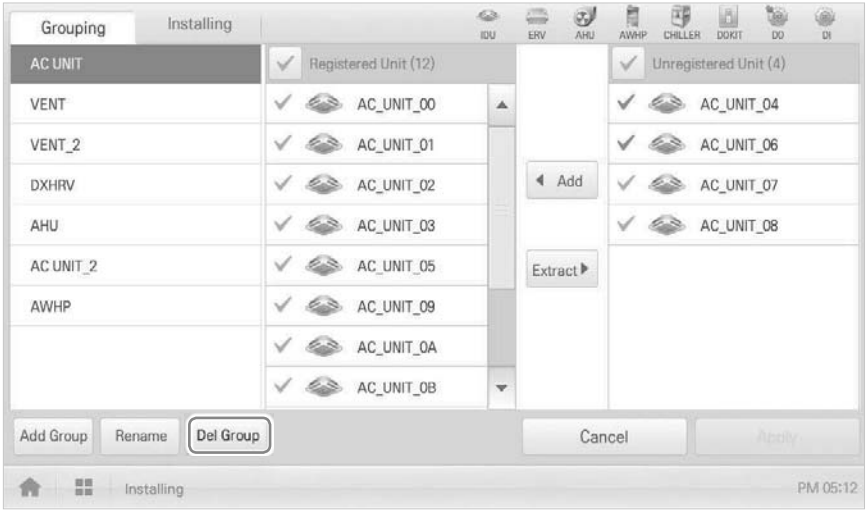


4. Enter a new group name and click the **[Confirm]** button.
   - The group name is changed.

Deleting Groups

You can delete a registered group.

1. In the main menu, click the **[Installing]** menu icon.
2. Click the **[Grouping]** tab.
3. In the device management list, click a group to be deleted and click the **[Del Group]** button.



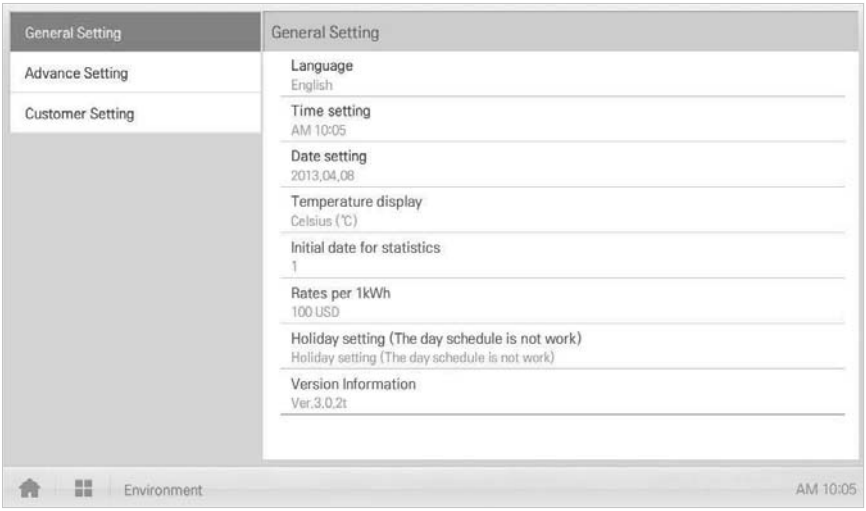
4. When you are prompted to confirm the deletion, click **[Confirm]**.
   - The selected group is deleted and the tab removed.

Environment

The following explains how to configure the system environment for user convenience and how to check an already configured environment.

General Setting

The following explains how to configure the general system environment.



Item	Description
Language	Configures the language displayed on the screen (한국어(Korean)/ English).
Time setting	Configures system time.
Date setting	Configures system date.
Temperature display	Configures the temperature system.
Initial date for statistics	Configures the reference date for querying statistical data.
Rates per 1kWh	Configures the charge per 1kWh and currency.
Holiday setting (The day schedule is not work)	Selects the days for which schedules are not be applied.
Version Information	Checks the current software version.

Language

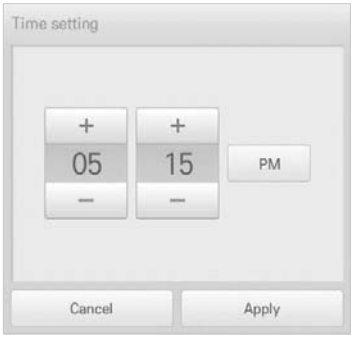
Configures the language displayed on the screen.

1. In the main menu, click the **[Environment]** menu icon.
2. In the settings list, click **General Setting**.
3. In the detailed settings list, click **Language**.
4. Click a language you want.
   - The selected language is applied as the system language.

Time setting

You can configure the time used for the system as follows.

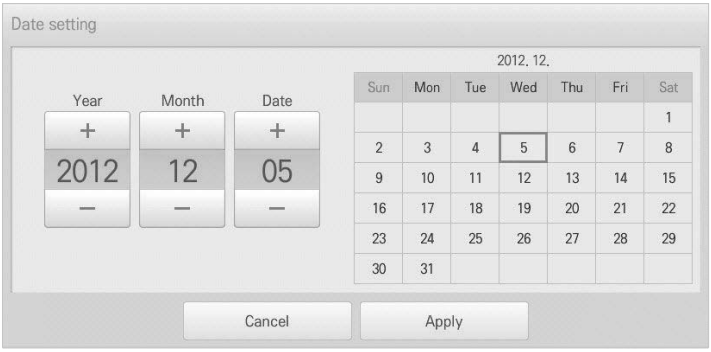
1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **General Setting**.
3. In the detailed settings list, click **Time setting**.
4. Apply the current time and click the **[Apply]** button.
   - Click **[+]/[-]** button to select the time.
   - Click the **[AM]/[PM]** button to select before or after midday.



Date setting

You can configure the date used for the system as follows.

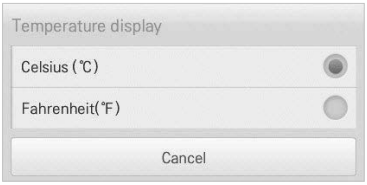
1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **General Setting**.
3. In the detailed settings list, click **Date setting**.
4. Modify the pattern configuration information and click the **[Apply]** button.
   - Use **[+]/[-]** button to select a date.



Temperature display

You can select a temperature system as follows.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **General Setting**.
3. In the detailed settings list, click **Temperature display**.
4. Click the temperature system you want.
   - When selecting the Celsius system, in the **Minimum Celsius(℃) Temperature** window, click the minimum temperature.



Initial date for statistics

Statistics Reference Date is the date for calculating the indoor unit's operation time by month. The operation time from this date through the previous date to the same date of the next month is calculated and provided as statistical data. You can configure Statistics Reference Date as follows.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **General Setting**.
3. In the detailed settings list, click **Initial date for statistics**.
4. **[+]/[-]** button to select a date you want and **[Apply]** button.

Rates per 1kWh

You can configure the charge per kWh and the currency as follows.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **General Setting**.
3. In the detailed settings list, click **Rates set**.
4. Configure the charge/kWh configuration information and click **[Apply]** button.
   - **rates per(1kWh)**: Charge per 1kWh.
   - **Currency**: Click **[▼]** button to select the desired currency.

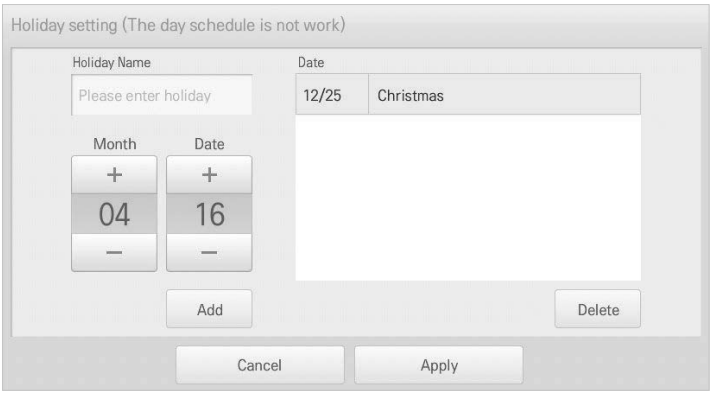
Holiday setting(The day schedule is not work)

The following explains how to register an exception date or how to delete a registered date.

Adding Exception Date

You can add a desired exception date as follows.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **General Setting**.
3. In the detailed settings list, touch **Holiday setting(Days in which the schedule is ignored)**.
   - The Exception Date Configuration window opens.

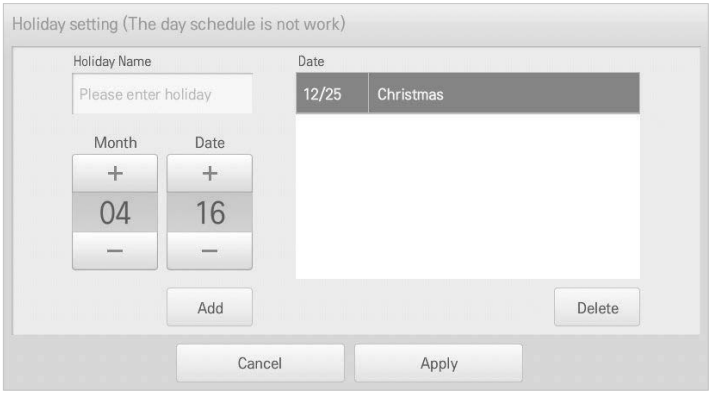


4. Type a name for the exception date in the exception date input box.
5. **[+]/[-]** button to select an exception date.
6. To add the selected exception date, click **[Add]**.
   - The exception date is registered on the exception date list.
7. To complete Exception Date Configuration, click the **[Apply]** button.

Deleting Exception Date

You can delete a registered exception date as follows.

1. In the main menu, click the **[Environment]**menu icon.
2. In the Settings list, click **General Setting**.
3. In the detailed settings list, touch **Holiday setting(Days in which the schedule is ignored)**.
   - The Exception Date Configuration window opens.



4. Click an exception date in the exception date list, and click the **[Delete]** button.
5. To complete Exception Date Configuration, click the **[Apply]** button.

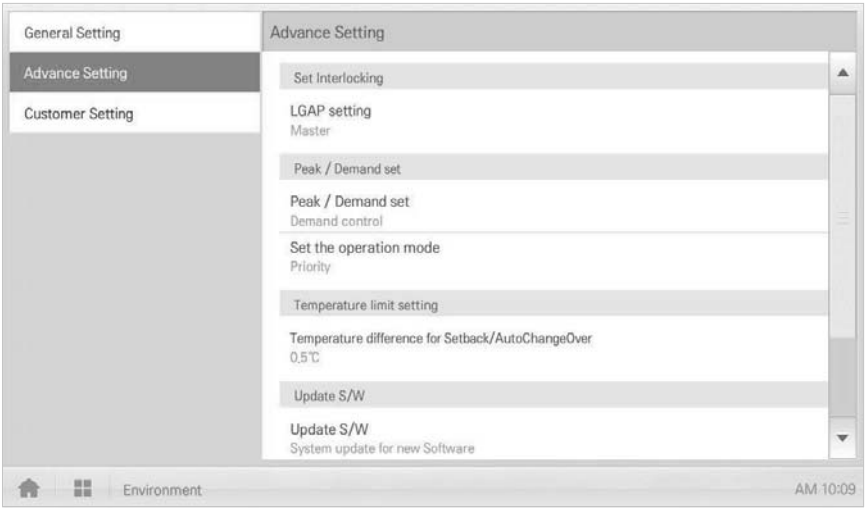
Version Information

You can check the current version of the software as follows.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **General Setting**.
3. In the detailed settings list, click **Version Information**.
   - The current version of the system is displayed in a popup window.

Advance Setting

The following explains how to configure the functions necessary for device operation.



Item	Description
LGAP setting	• **Master**: ACP BACnet must be set to only master. • **Slave**: Not used.
Peak/Demand set	• **Peak Control**: You can use the peak control feature in the auto logic menu. • **Demand Control**: You can use the demand control feature in the auto logic menu.
Set the operation mode	• **Priority Control**: In **Peak/Demand Control** menu, control the devices based on the priority of the group. • **Outdoor Unit Capacity Control**: In the **Peak/Demand Control** menu, control the outdoor capacity rate per unit.
Temperature difference for Setback/ AutoChangeOver	**[+]/[-]** button to select the temperature gap.
Update S/W	• Software upgrade using a USB memory stick. • Complete upgrade and restart the system.
DB backup	Backup the DB onto a USB memory stick.
Recovery DB	Use the DB stored on the USB memory stick to restore the system.

LGAP setting

ACP BACnet can interface with another central controller to control a device. You can configure the interface type with other devices as follows.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **Advance Setting**.
3. In the detailed settings list, click **LGAP setting**.
4. Click a type you want.
   - **Master**: ACP BACnet must be set to only master.
   - **Slave**: Not used.

Peak/Demand set

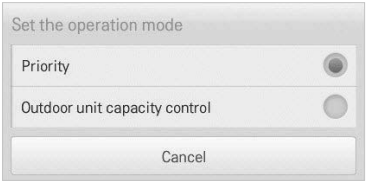
You can select a control type to be used for auto logic.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **Advance Setting**.
3. In the detailed settings list, click **Peak/Demand set**.
4. Click a control type to be used for auto logic
   - **Peak Control**: You can use the peak control feature in the auto logic menu.
   - **Demand Control**: You can use the demand control feature in the auto logic menu.

Set the operation mode

You can configure the operation type as follows.

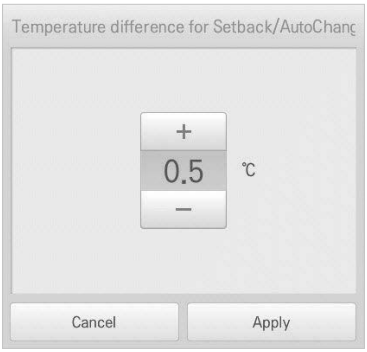
1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **Advance Setting**.
3. In the detailed settings list, click **Set the operation mode**.
4. Click an operation type you want.



Temperature difference for Setback/AutoChangeOver

You can configure the temperature gap for auto changeover operation.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **Advance Setting**.
3. In the detailed settings list, click **Temperature difference for Setback/AutoChangeOver**.
4. **[+]/[-]** button to select a temperature gap you want and **[Apply]** button.



Update S/W

You can upgrade the current version of software as follows.

Notes

To update the software, you need a USB memory stick which has patch.tar file in the ramdisk folder.

1. Connect the USB memory to ACP BACnet.
2. In the main menu, click the **[Environment]** menu icon.
3. In the Settings list, click **Advance Setting**.
4. In the detailed settings list, click **Update S/W**.
5. When the software update window appears, click the **[Update S/W]** button.
   - When the update has been completed, the program restarts.

DB backup

You can backup the database stored in the system to USB memory as follows.

1. Connect the USB memory to ACP BACnet.
2. In the main menu, click the **[Environment]** menu icon.
3. In the Settings list, click **Advance Setting**.
4. In the detailed settings list, click **DB backup**.
5. When the DB Backup window appears, click the **[DB backup]** button.

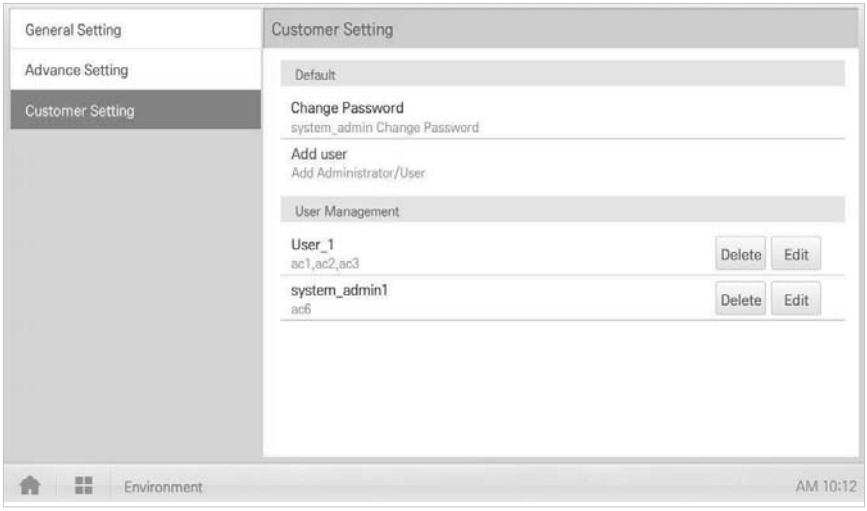
Recovery DB

You can use the database stored on USB memory to restore the system database.

1. Connect the USB memory stick to ACP BACnet.
2. In the main menu, click the **[Environment]** menu icon.
3. In the Settings list, click **Advance Setting**.
4. In the detailed settings list, click **Recovery DB**.
5. When the DB Recovery window appears, click the **[Recovery DB]** button.
   - When the DB recovery has been completed, the program restarts.

Customer Setting

Only the administrator account can change user environments.



Item	Description
Change Password	Only the administrator account can change the password.
Add user	Add up to 30 new system users.
User Management	• **[Delete]** Button: Deletes a user. • **[Edit]** Button: Changes user information.

Change Password

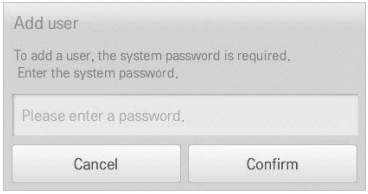
The administrator account can change a password as follows.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **Customer Setting**.
3. In the detailed settings list, click **Change Password**.
4. After entering the current and new passwords, click **[Confirm]**.
   - **Current P/W**: Enter the current password.
   - **New P/W**: Enter the new password a user desires.
   - **Re-type P/W**: Enter the new password to confirm that the new password has been entered correctly.

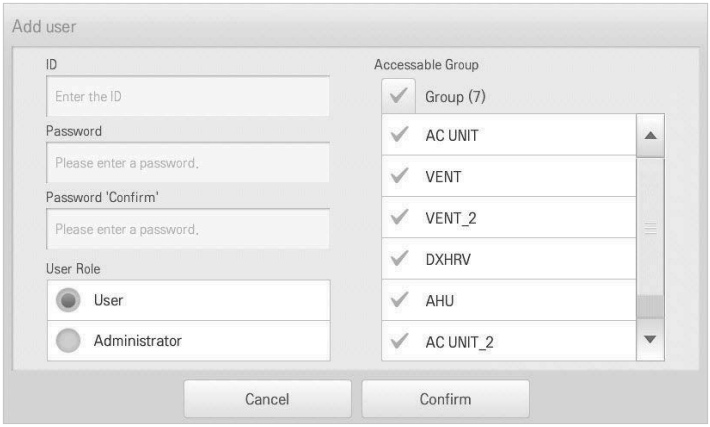
Add user

You can add a user as follows.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **Customer Setting**.
3. In the detailed settings list, click **Add User**.
4. When the system password input window appears, enter the password and click **[Confirm]**.



5. When the Add a New User window appears, enter the user information and click **[Confirm]**.
   - **ID**: Enter the user's ID for the email server.
   - **Password**: Enter the login password.
   - **Password 'Confirm'**: Re-enter the password.
   - **User Role**: Select the user permission you want
   - **Accessable Group**: Select a controllable device group



Notes

Use is limited depending on the user.

- General user menu: auto logic, report, device configuration, settings
- Administrator menu: Environment Configurations

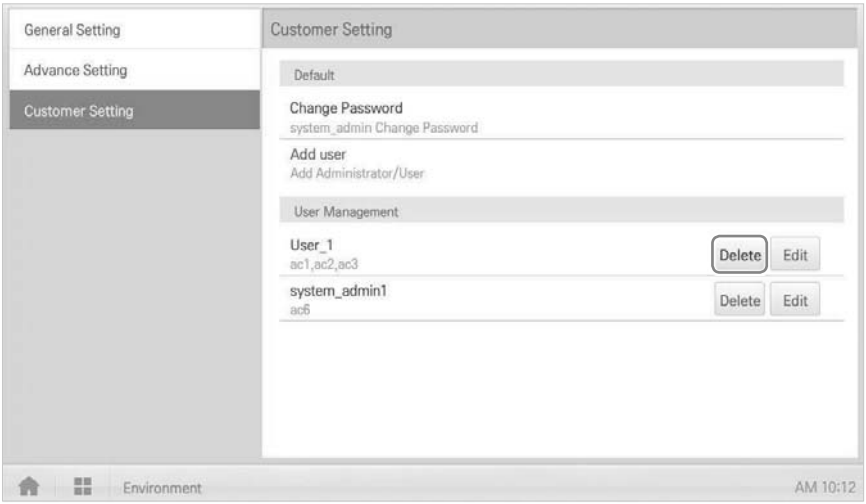
User Management

The following explains how to delete a registered user or edit user information.

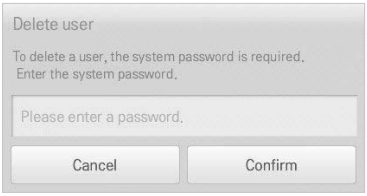
Deleting User Information

You can delete a registered user's information as follows.

1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **Customer Setting**.
3. In the user list, click the **[Delete]** button for the user information you want to delete.



4. When the system password input window appears, enter the password and click **[Confirm]**.
   - The user information is deleted.

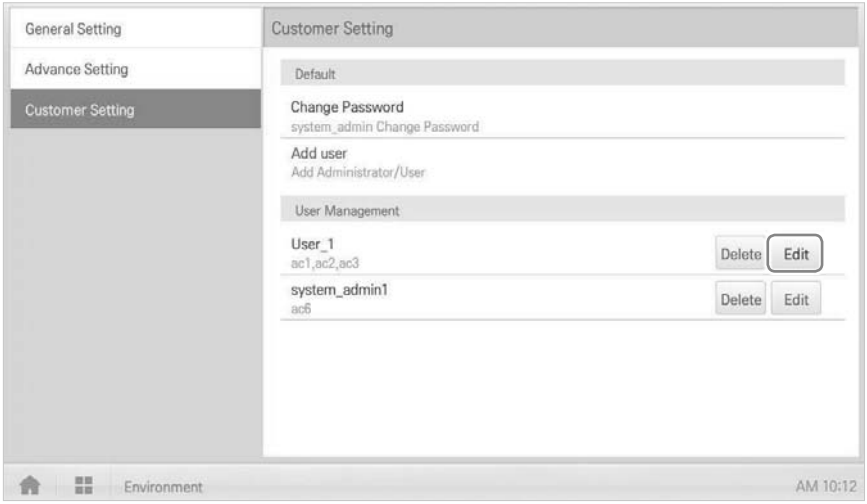


5. To complete user delete, click **[Confirm]**.

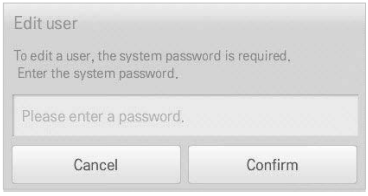
Editing User Information

You can edit a registered user's information as follows.

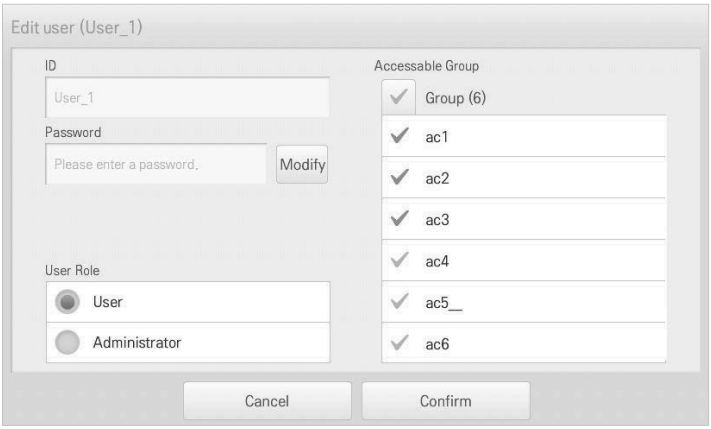
1. In the main menu, click the **[Environment]** menu icon.
2. In the Settings list, click **Customer Setting**.
3. In the user list, click the **[Edit]** button for the user information you want to edit.



4. When the system password input window appears, enter the password, click **[Confirm]**.



5. When the Edit User window appears, enter the user information and click **[Confirm]**.
   - The updated user information is applied.



6. To complete user edit, click **[Confirm]**.

Installing ACP BACnet

Installing ACP BACnet

This chapter describes how to install the ACP BACnet to use.

In order to use the ACP BACnet, the installation should be performed by the following order.

STEP 1. **Check the cautions during the ACP BACnet installation**
Before installing the ACP BACnet, check the cautions.

STEP 2. **Study the cable connections diagram of the entire system**
Study the cable connection diagram of the site where the ACP BACnet is installed.

STEP 3. **Set the indoor unit address**
Set the address of the ACP BACnet not to be overlapped with the connecting indoor unit.

STEP 4. **Set PI485 and connect cables**
Set DIP switch of PI485 correctly, and connect RS-485 communication cable.

STEP 5. **Install ACP BACnet and connect cables**
Install the ACP BACnet, and set network and other settings.

STEP 6. **Set ACP BACnet network address**
Set the network address to be able to access the ACP BACnet through internet.

STEP 7. **Set ACP BACnet functions**
Set language, peak/demand, whether to use schedule, whether to use power display, etc.

STEP 8. **Set Web GUI access environment**
Set the access environment in Web GUI, which is the operation program of the ACP BACnet.

STEP 9. **Input indoor unit and ventilator information**
Set the access environment in Web GUI, which is the operation program of the ACP BACnet.

STEP 10. **Verify and check ACP BACnet installation**
Verify and check whether the ACP BACnet is properly installed.

Caution

Installing the ACP BACnet

- The ACP BACnet installation work needs the professional technique. Therefore, the installation described in this chapter should be performed by the certified installation professional.
- Consult the service center or the professional installation agency certified by us about any question or request related to the installation.

Check points during the ACP BACnet installation

- The number of PI485 connected to one RS-485 communication line
  - ACP BACnet provides 4 RS-485 ports for indoor unit connection. (CH 1~4)
  - Up to 16 PI485 for outdoor unit can be connected to one RS-485 port, and up to 31 PI485 for
  - SINGLE/ventilation can be connected.
- The number of the indoor units that can be connected to one ACP BACnet
  - One ACP BACnet can be connected up to 256 indoor units. To one RS-485 port, all of 256 indoor units, which is the maximum number that can be connected to the ACP BACnet, may be connected.
    But, to improve the communication performance of RS-485, it is recommended to be divided and connected to 4 ports.
- RS-485 communication cable connection
  - There is a polarity in RS-485 communication cable connection, so be careful not to reverse the connection of the two cables.
  - Do not let the length of RS-485 communication cable exceed total of 1 Km.
  - RS-485 communication cable must be connected with BUS type.
- IP address of the ACP BACnet
  - IP address of the ACP BACnet, address of Gateway, and Net mask must be requested to the person in charge of the network of the corresponding site.

Caution

RS-485 Connection of the ventilation equipment

To connect ventilation equipment, it is recommended to use the ports other than RS-485 communication ports which are connected to air conditioners.

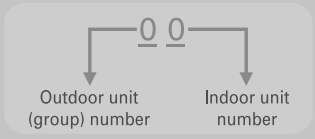
Setting the indoor unit address

By considering the entire installation configuration connecting to one ACP BACnet, set the address to each indoor unit not to be overlapped. 00~FF in hexadecimal can be set to the indoor unit address.

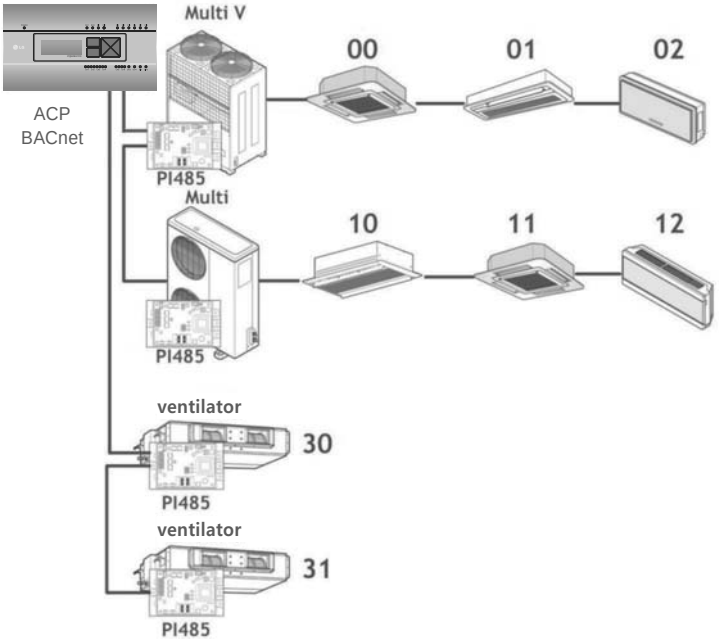
Notes

Assigning indoor and outdoor unit number

If the outdoor unit product is Multi V, it is recommended to assign the address by setting the first digit of the address as the number of the outdoor unit, and classifying the second digit as the number or the indoor unit, for easy composition and classification of the system.



The following example sets the address to the indoor unit.



When the ACP BACnet is interconnected with the AC Manager, the ventilator can be installed together and controlled.

The above figure shows the example that sets the addresses of 30 and 31 to the ventilators and connects to the ACP BACnet.

Notes

How to set the central control address of the indoor unit

The central control address setting method may be different for each indoor unit product or remote control type, so set the address by referring to the manual of the indoor unit product or wired remote controller.

Setting the PI485 and connecting the cable

After setting the address of the indoor unit, install the PI485 and set the DIP switch.

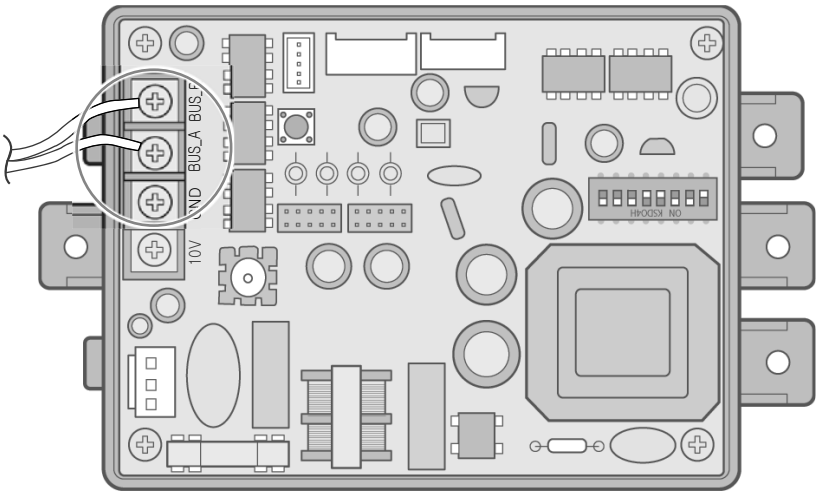
And then, connect the RS485 cable for communication with the ACP BACnet.

Notes

Installing the PI485

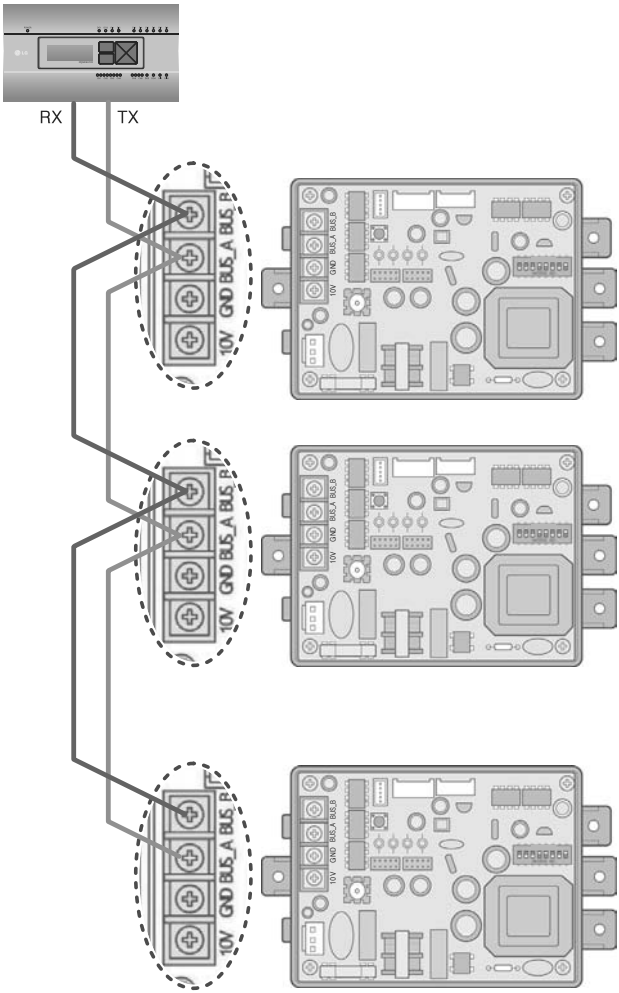
- Installing the PI485 depends on the outdoor unit.
- So, install the PI485 by referring to the PI485 manual or the installation technique information.

To connect PI485 and the ACP BACnet, two RS-485 cables need to be connected to BUS-A and BUS-B of PI485. Connect RS-485 cable by referring to the following figure.



If several PI485 are connected to each other to be connected to one ACP BACnet, connect each BUS-A and BUS-B of PI485 to be connected to BUS-A and BUS-B of another PI485.

The following figure is an example of connecting several PI485 with each other to connect to one ACP BACnet.

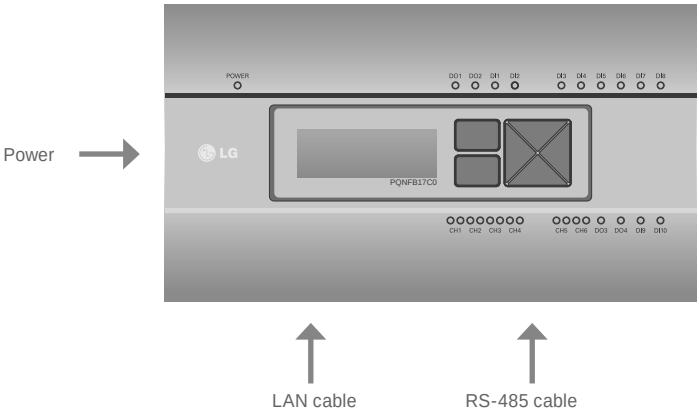


Installing ACP BACnet and connecting cables

After setting PI485, the ACP BACnet shall be installed in an adequate place, and RS-485 cable shall be connected for the communication with PI485.

And, Ethernet cable (LAN cable) shall be connected for the connection with internet or AC Manager. To fix the ACP BACnet, the following 2 methods may be used.

Install in DIN RAIL or fix to the wall considering the environment of the site.



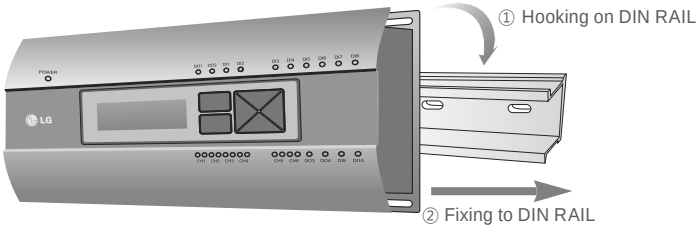
Installing the ACP BACnet in DIN RAIL

ACP BACnet can be installed in DIN RAIL with width 35mm and height 7.5mm.

Proceed as the follows to install the ACP BACnet in an adequate place.

The installation method of the ACP BACnet is explained here with the example of installing the ACP BACnet in DIN RAIL.

- Decide the space to install the ACP BACnet.
- Before installing the ACP BACnet, check if it is the adequate place to connect the ACP BACnet with the power, RS-485, and LAN cable.
- Install DIN RAIL.
- Hook the top part of the ACP BACnet on DIN RAIL.
- Push the main body of the ACP BACnet until you hear the sound of installation.
- Pull the ACP BACnet to check if it is fixed.



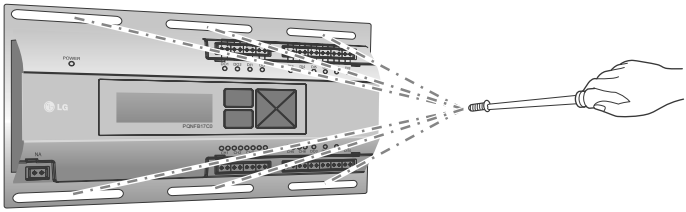
Caution

- After installing to DIN RAIL, do not fix to the wall using screws.
- ACP BACnet may be damaged.
- DIN Rail fixing Screw Spec: M3, screw head height 2.0 ~ 1.75mm, screw head diameter 7.0 ~ 5.5mm

Fixing the ACP BACnet to the wall

ACP BACnet can be installed by fixing to the wall. To install the ACP BACnet in an adequate place, proceed according to the following explanation. It explains here on how to install the ACP BACnet with the example of installing the ACP BACnet on the wall.

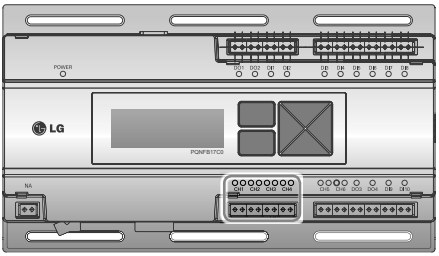
- Decide the space to install the ACP BACnet. Before installing the ACP BACnet, check if it is the adequate place to connect the ACP BACnet with the power, RS-485, and LAN cable.
- Fix to the wall using the driver. It can be fixed as in the following figure according to the location to install.



Connecting RS-485 cable to the ACP BACnet

After fixing the ACP BACnet in the installation place, RS-485 cable that was connected to PI485 shall be connected to the ACP BACnet. To connect RS-485 cable to the ACP BACnet, proceed as the following order.

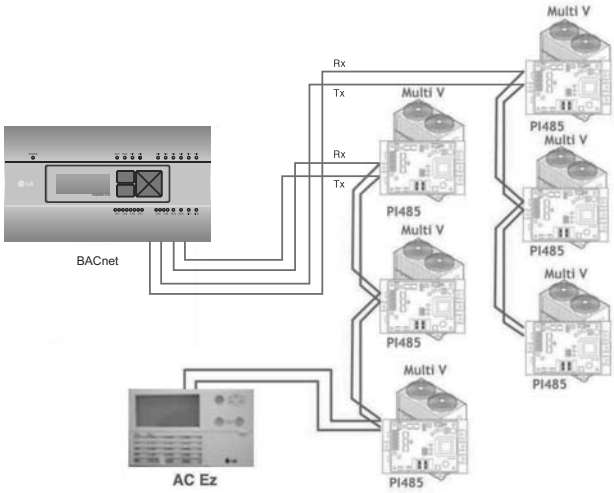
- First, among the connectors that can be connected to the ACP BACnet, connect the end of RS-485 cable connected to BUS-A of PI485 to Tx part. Next, connect the end of RS-485 cable connected to BUS-B of PI485 to Rx part.
- RS-485 cable that was connected to PI485 shall be connected to CH port (RS-485 port) of the ACP BACnet.
  - Plug the connector connecting RS-485 cable into one of CH1 ~ CH4 ports.
  - There are 1~6 CH ports, and it must be plugged into one of 1~4 ports for use.



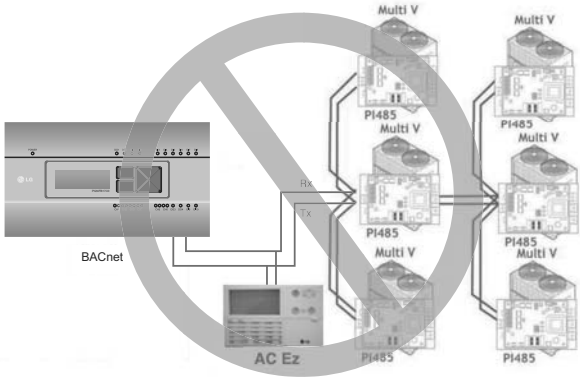
Information: Connecting RS-485 of the ACP BACnet

Up to 16 outdoor units can be connected to one RS-485 port of the ACP BACnet, and up to 256 indoor units can be connected to one ACP BACnet. If there are many outdoor units to connect, the outdoor unit connections shall be appropriately connected to CH1 to CH4 in BUS format. Otherwise, the ACP BACnet may malfunction.

The following is an example of dividing to CH1 and CH2 and connecting in BUS format.



The next shows the wrong example (STAR connection) of RS-485 connection of the ACP BACnet.



Caution

If a different type of connection is made other than BUS format as in the figure, the product may malfunction. So be careful during the installation.

Connecting Ethernet cable (LAN cable) to the ACP BACnet

After connecting the ACP BACnet and RS-485 cable, Ethernet cable shall be connected to the ACP BACnet.

ACP BACnet may be connected to hub through Ethernet cable, or directly to AC Manager.

Connecting the ACP BACnet and hub

It is the case of connecting the ACP BACnet to the basic internet network installed at the site, and it is generally connected to the hub.

In such case, Ethernet cable shall be connected as a direct cable.

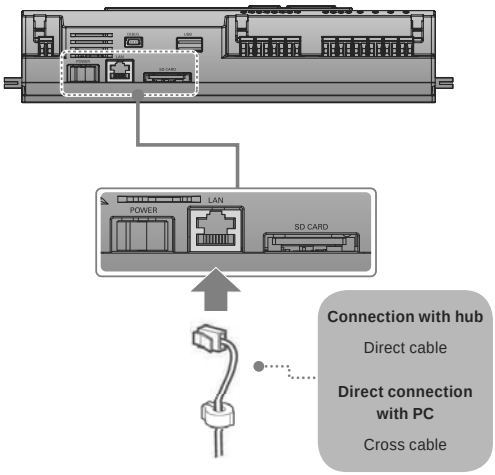
Use Ethernet cable (direct cable) to connect to LAN port of the ACP BACnet.

Connecting ACP BACnet and PC

It is the case of installing AC Manager in a separate PC and connecting ACP BACnet and PC directly.

In such case, Ethernet cable shall be connected as a cross cable.

Use Ethernet cable (cross cable) to connect to LAN port of the ACP BACnet.



Caution

Ethernet cable types

- You must distinguish if the Ethernet cable to connect is a direct cable or a cross cable.
- Also, connect after checking the existence of problem in the cable using LAN tester.

Setting the ACP BACnet network address

After connecting the ACP BACnet to various devices via the cable, the network environment of the ACP BACnet should be set by driving the ACP BACnet. The following information should be set for using the ACP BACnet.

- IP address of the ACP BACnet
- Gateway address
- Net mask

Caution

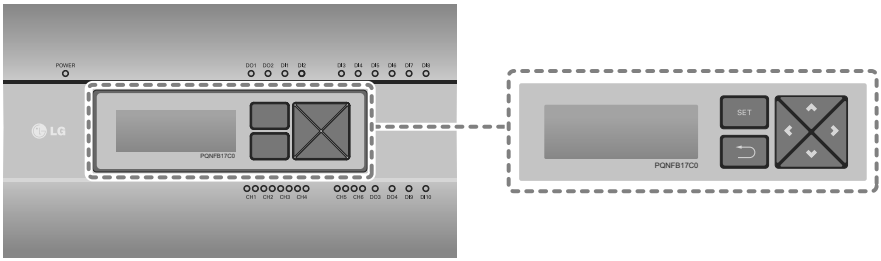
Setting the network environment information

If the above information is not entered, the communication error may be occurred or it may be impossible to control by the ACP BACnet. So, be careful to correctly input.

Before configuring the ACP BACnet environment

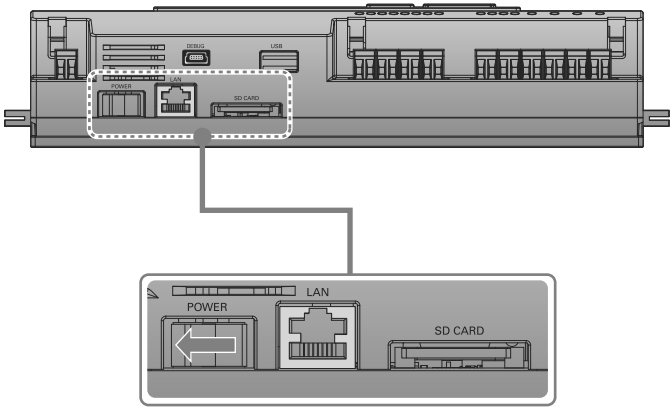
The network environment of the ACP BACnet can be set by the LCD and the buttons at the front side of the ACP BACnet.

The current ACP BACnet information and the menu are displayed on the LCD, and the menu can be changed and selected by pressing SET and ⮌ button and Up/Down/Left/Right (▲, ▼, ►, ◄) buttons.

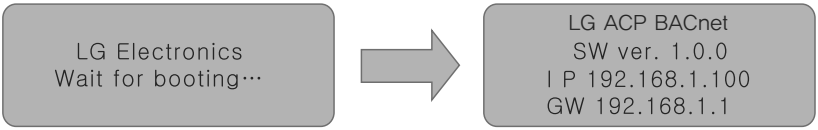


Turning on the ACP BACnet

Turn on the ACP BACnet to set the network environment of the ACP BACnet.



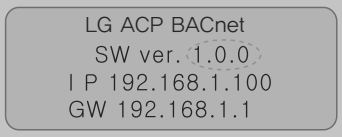
When the power switch is turned on, the ACP BACnet booting screen is displayed on the LCD as shown at the following figure, and when booting is completed, the initial ACP BACnet screen is displayed.



Notes

Software version

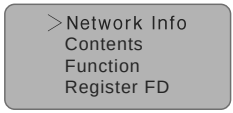
The software version of the current ACP BACnet is displayed at the initial ACP BACnet screen. Also, the software version may be different according to the manufacturing date of the ACP BACnet.



Entering into the environment setup mode

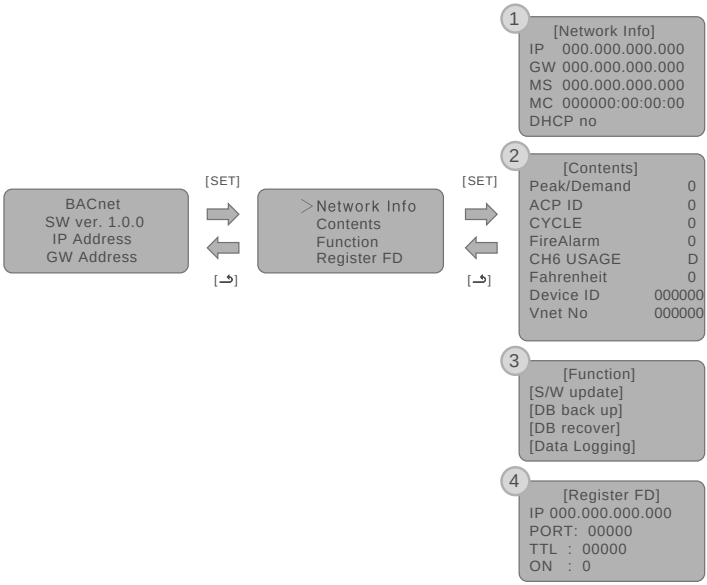
Press **[SET]** button of the ACP BACnet to enter into the environment setup mode of the ACP BACnet.

When the **[SET]** button is pressed for the first time, the menu to set the IP address is displayed as shown below.



Press up/down(▲, ▼) button to place the arrow on the desired function.

- When you select **[Network Info]** and press "SET" button, it enters the No. 1 menu in the following figure.
- In **[Network Info]** menu, input the network information such as IP address of the ACP BACnet.
- When you select **[Contents]** and press "SET" button, it enters the No. 2 menu in the following figure.
- In **[Contents]** menu, you can set the functions of the ACP BACnet and select language to use.
- When you select **[Function]** and press "SET" button, it enters the No. 3 menu in the following figure.
- In **[Function]** menu, ACP BACnet software service function is supported.
- When you select **[Register FD]** and press "SET" button, it enters the No. 4 menu in the following figure.
  For more information, please consult with the experts of BMS.



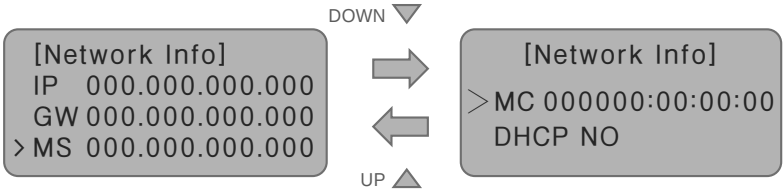
Caution

- **[Function]** menu is used by the system air conditioner service technician, so user shallnever use this function.
- If this function is incorrectly used, it may cause disorder of the ACP BACnet.

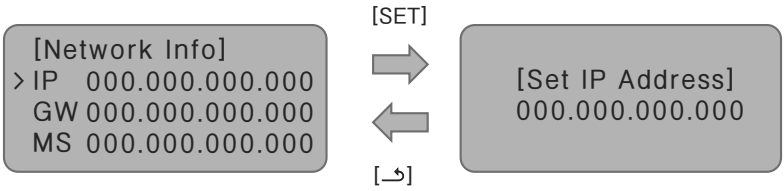
How to set network address

In [Network Info] menu, use the category to set using “up” and “down” (▲, ▼) buttons.

IP, Gateway, and Net mask settings are displayed in the initial screen of [Network Info] menu, and you can check MAC address and DHCP setting using “down” (▼) button.



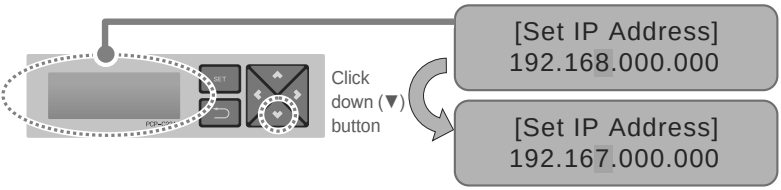
To change the network setting, locate the arrow on the corresponding setting position, and press **[SET]** button to enter the corresponding setting screen.



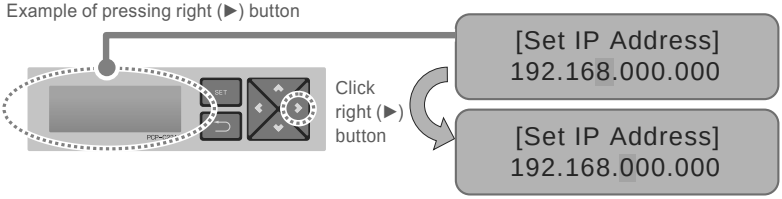
The network address consists of four 3-digit numbers. In case of setting the network address, the, name of the related address is displayed on the LCD of the ACP BACnet, and press Up/Down/Left/Right (▲, ▼, ◄, ►) button to set.

Press Up/Down (▲, ▼) button to increase/decrease the number of the digit where the cursor is on, and press Left/Right (◄, ►) button to move the digit of the network address to the left or right.

Example of pressing down (▼) button



Example of pressing right (►) button



Caution

Setting the network address

- The network address can be separated to 4 digits based on ., and each number shall be 255 or less.
- Number exceeding 255 may not be input.

Notes

Assigning the network address

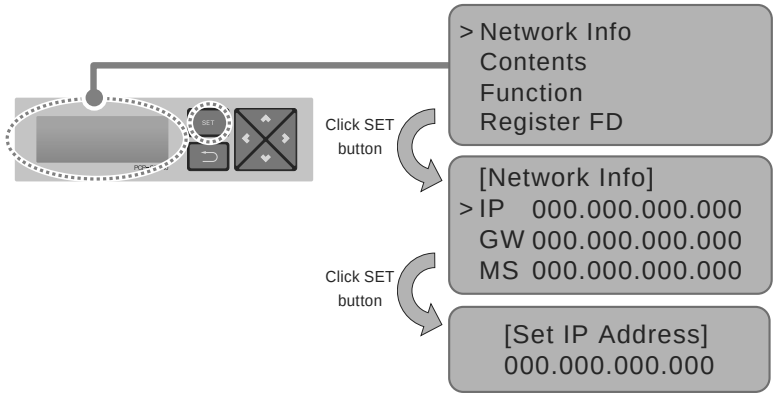
- Network address shall be assigned by the person in charge of the network of the corresponding site. (IP address, Gateway address, Net mask)
- ACP BACnet can use both fixed IP type and dynamic IP type, but fixed IP type is recommended, and if dynamic IP type is used, it may cause inconvenience of the customer.
- Please refer to “Using dynamic IP using DHCP” for details.
- If fixed IP type is used, network address (IP address, Gateway address, and Net mask) shall be assigned by the person in charge of the network of the corresponding site.

Setting IP address

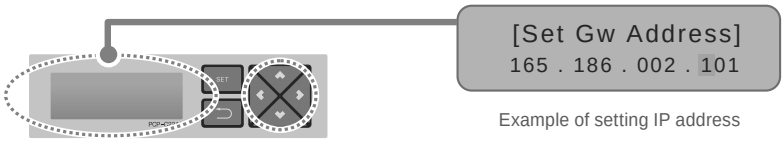
For user to use the functions of the ACP BACnet through the web, a unique IP address may be assigned to the ACP BACnet or dynamic IP setting may be used. The next is how to set fixed IP address.

Please proceed according to the order.

1. Press **[SET]** button of the ACP BACnet. The following menu screen will be displayed.
   - If you press **[SET]** button again, **[Network Info]** setting screen will be displayed.
   - While IP is selected, pressing **[SET]** button will display the screen to input IP address.



2. - Use up, down, left, right (▲, ▼, ◄, ►) buttons to input the desired IP address.



Example of setting IP address

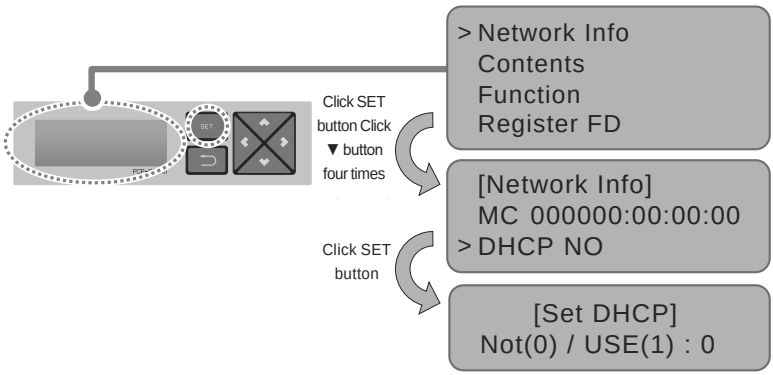
Using dynamic IP using DHCP

For user to use the functions of the ACP BACnet through the web, a unique IP address may be assigned to the ACP BACnet or dynamic IP setting may be used.

The next is how to set dynamic IP address.

Please proceed according to the order.

1. Press **[SET]** button of the ACP BACnet. The following menu screen will be displayed.
   - If you press **[SET]** button again, **[Network Info]** setting screen will be displayed.
   - While DHCP is selected, if you press **[SET]** button, you can input whether to use DHCP function.



2. Use up and down (▲, ▼) buttons to set whether to use DHCP function.
   - When you press up (▲) button, DHCP function is set to use, and if down (▼) button is pressed, DHCP is set for no-use.
3. To use dynamic IP, set to use DHCP function.

Example of setting to use DHCP function

Caution

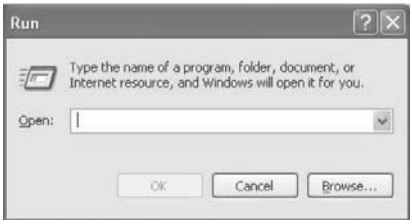
- If dynamic IP type is used, the IP in use is returned by DHCP server and may not be able to access the ACP BACnet.
  In such case, you can check the newly set IP address in the front LCD of the ACP BACnet.
- If you input the ACP BACnet IP address in the web browser, you can run the ACP BACnet program again.

Checking ACP BACnet access

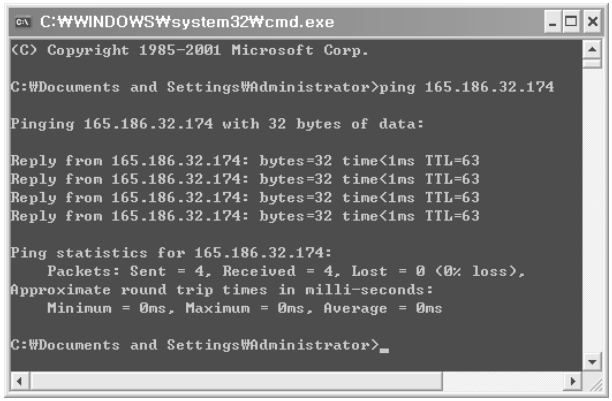
It checks whether the ACP BACnet network address setting is properly done.

You can check the possibility of accessing the ACP BACnet through PING test.

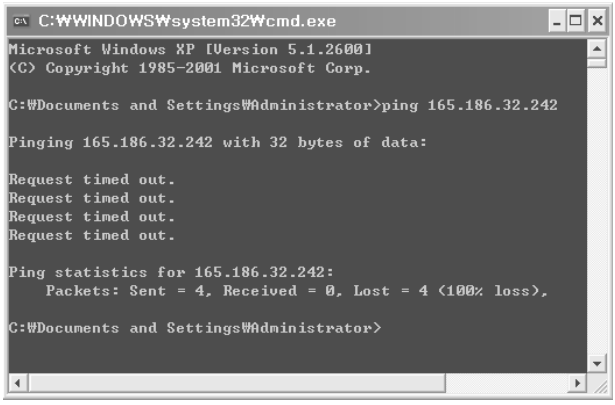
1. You can open the following DOS window through Windows "Start", "Run", "cmd" input.



2. In DOS screen, input "ping <ACP BACnet IP address>" as follows to run PING test.



When the network setting is properly done



When the network setting is not properly done

Notes

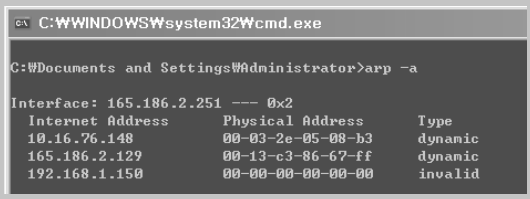
When you connected the ACP BACnet and PC through a cross cable, but you cannot access the ACP BACnet

- Check IP address of the ACP BACnet and IP address of the PC.
  Ex) If IP address of the ACP BACnet is 192.168.1.101 and Net mask is 255.255.255.0, check if the first three digits of the IP address of the PC is the same as the first three digits of the IP address of the ACP BACnet.
  In such case, the IP address of the PC shall start with 192.168.1, and it shall be different from the IP address of the ACP BACnet. Set as follows, and try again.
  - Setting of the ACP BACnet
    - IP address: 192.168.1.112
    - Gateway address: 192.168.1.1
    - Subnet Mask: 255.255.255.0
  - Setting of the PC
    - IP address: 192.168.1.113
    - Gateway address: 192.168.1.1
    - Subnet Mask: 255.255.255.0
- Check the status of the Ethernet cable (LAN cable).

Notes

When PC and ACP BACnet are connected together in a hub or a switch hub, and you cannot access the ACP BACnet.

- If it is right after changing the IP setting of the ACP BACnet, reset the power of the ACP BACnet.
- If it is right after connecting LAN cable to the hub or switch, it may take time for the hub or the switch to recognize the ACP BACnet. In such case, it may help to turn off and turn on the power of the hub or the switch.
- Check the status of the Ethernet cable (LAN cable).
- Check ARP table of the PC to see if the IP address of the ACP BACnet correctly corresponds to the MAC address. If duplicate MAC addresses correspond to one IP address, or if different address from the MAC address of the PC is output, there may be a host with the same IP address as the IP address of the ACP BACnet. In such case, the IP address of the ACP BACnet or the IP address of the corresponding host shall be changed.



How to check ARP table

Setting the functions of the ACP BACnet

The following functions can be set by using the menu of the ACP BACnet:

- Select Peak or Demand
- Setting the attributes of CH6
- Fire Alarm function
- Fahrenheit/Celsius setting function
- Device ID setting function
- Vnet number setting function
- Foreign Device register function

Before setting the functions of the ACP BACnet

The function setting of the ACP BACnet should be changed depending on the case that only the ACP BACnet is used or the case that the ACP BACnet is interconnected with the external devices such as AC Manager, power distribution indicator, and Demand controller.

In general, the function of the ACP BACnet should be set and used as follows:

	When only ACP BACnet is used	When ACP BACnet interfaces with AC Manager
Peak or demand selection function	Set to peak function	Set to demand function
Schedule function	Set to use schedule function	Set to no-use of schedule function
Power display function	Set to use if it interfaces with power distribution indicator, and set to no-use if it does not interface..	

Caution

Setting to use the power display

- If the ACP BACnet and the power distribution indicator are not connected, the power display function should be set to no-use.
- If it is set to use, be careful since the control speed of the ACP BACnet will be slower.

Selecting Peak or Demand

The ACP BACnet offers the function to manage the power consumed by the connected air conditioner, by which the electric charges can be effectively saved. The ACP BACnet offers two functions to limit the maximum power consumption of the air conditioner as follows:

- **Peak**: The maximum power consumption of the air conditioner can be managed by setting the maximum usage operation ratio in the ACP BACnet.
- **Demand**: It is set when it interfaces with AC Manager.
  When this function is set, the maximum usage operation ratio can be set in AC Manager to manage the maximum power consumption of the air conditioner.

One of these two methods can be selected and used in the ACP BACnet. And, if it is set by the menu of the ACP BACnet, the UI screen is differently displayed when accessing the web screen to set the function. The ACP BACnet should be set to the Demand function for the following cases:

- Interfacing with the AC Manager

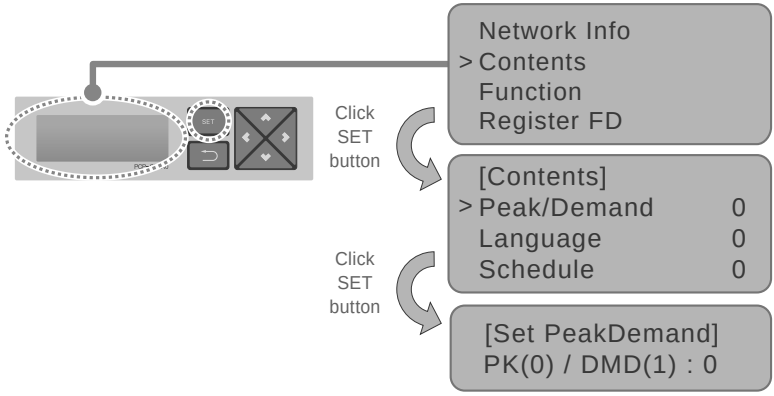
Notes

Default value

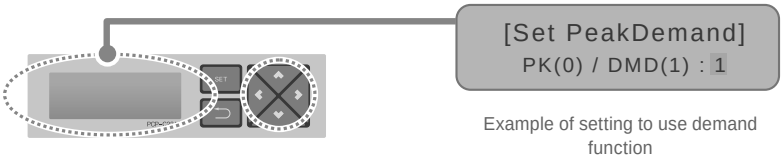
The default value at factory ship-out is set to Peak.

Change the power control method as follows:

1. When you press **[SET]** button, menu screen will be displayed. Use up and down (▲, ▼) buttons of the ACP BACnet to select **[Contents]**, and press **[SET]** button again. While **[Peak/Demand]** is selected, pressing **[SET]** button will display the screen to select peak or demand method.



2. Use up and down (▲, ▼) buttons to set the desired power management method. If you press up (▲) button, it is set to demand method, and if you press down (▼) button, it is set to peak method.



Example of setting to use demand function

Setting whether to use FireAlarm function

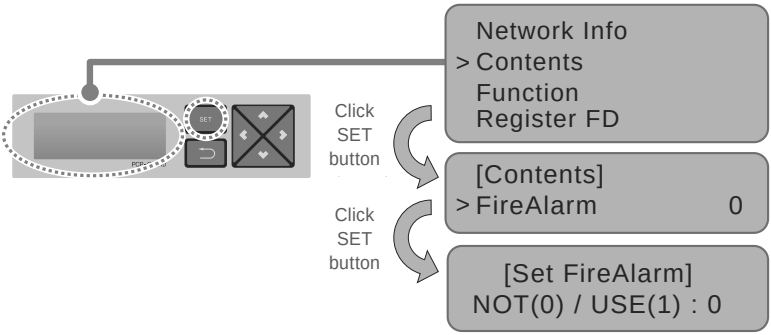
ACP BACnet provides Fire Alarm function.

After connecting the fire sensor to ACP BACnet DI1, if the fire sensor detects fire, it stops the operations of all connected equipments except the Chiller.

Caution

Fire Alarm interface

- To use the Fire Alarm function, fire sensor needs to be connected to ACP BACnet DI1.
- Please refer to each fire sensor product manual for detail usage of fire sensors.



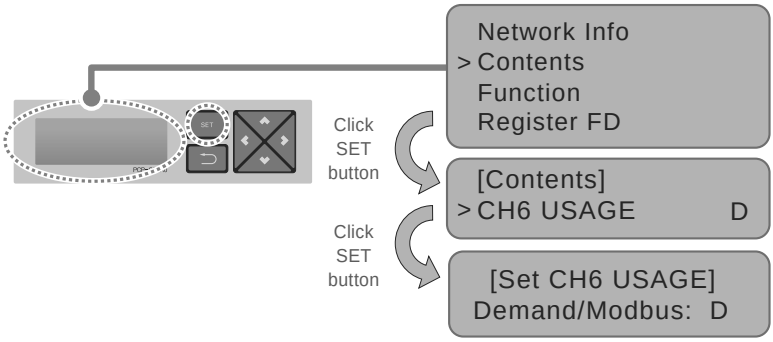
1. When you press the **[SET]** button of the ACP BACnet, menu screen will be displayed.
   Use up and down (▲, ▼) buttons to select [Contents], and press **[SET]** button again.
   - While **[FireAlarm]** is selected, if you press **[SET]** button, you can set whether to use the Fire Alarm.

Setting whether to use CH6 function

To connect to the Chiller from the ACP BACnet, M (Chiller) shall be selected in CH6 USAGE.

D (demand controller) setting is not used.

1. When you press the **[SET]** button of the ACP BACnet, menu screen will be displayed.
   Use up and down (▲, ▼) buttons to select [Contents], and press **[SET]** button again.
   - While **[CH6 USAGE]** is selected, if you press **[SET]** button, you can select one from D (Demand) or M (Modbus).



Software service function

The following software service function can be run using the menu of the ACP BACnet.

This function shall only be used by the specialized service technician, and negligent use may cause failure of the ACP BACnet system.

- Software update
- Data backup
- Data recovery
- RS-485 data logging

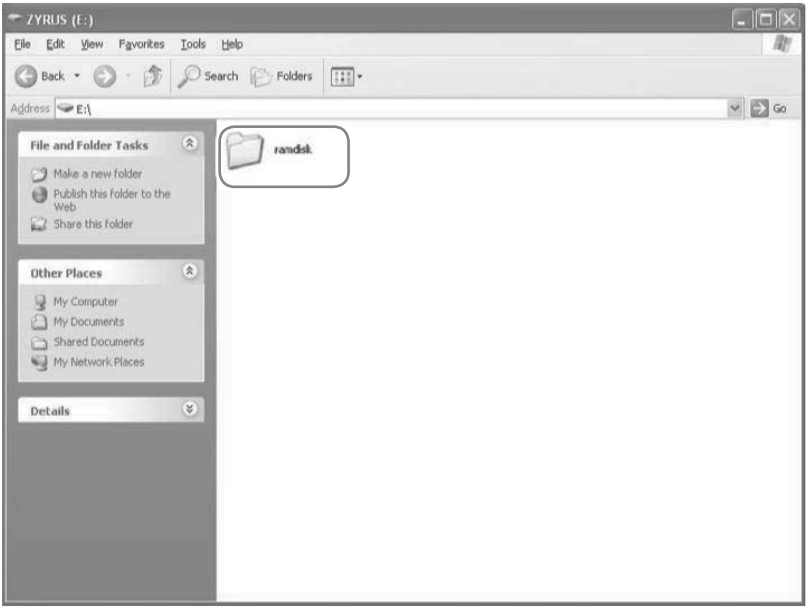
Software update

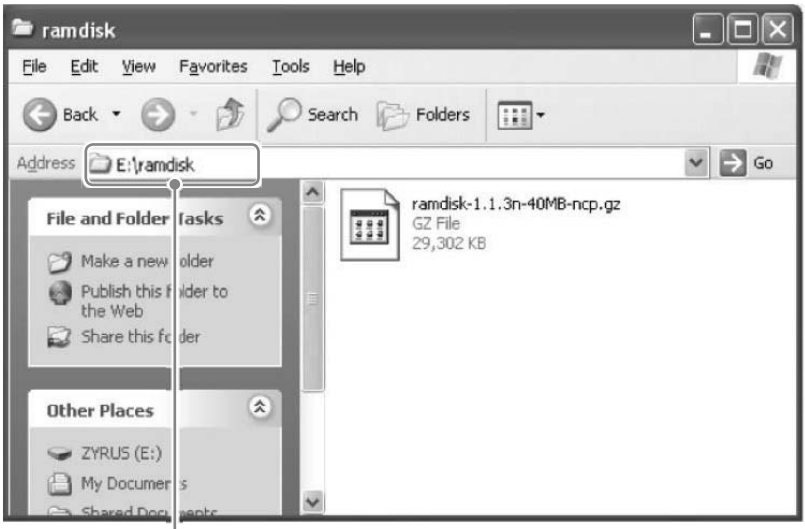
When it is necessary to update the ACP BACnet software, it must be carried out by the specialized service technician.

Software update can be done with USB memory.

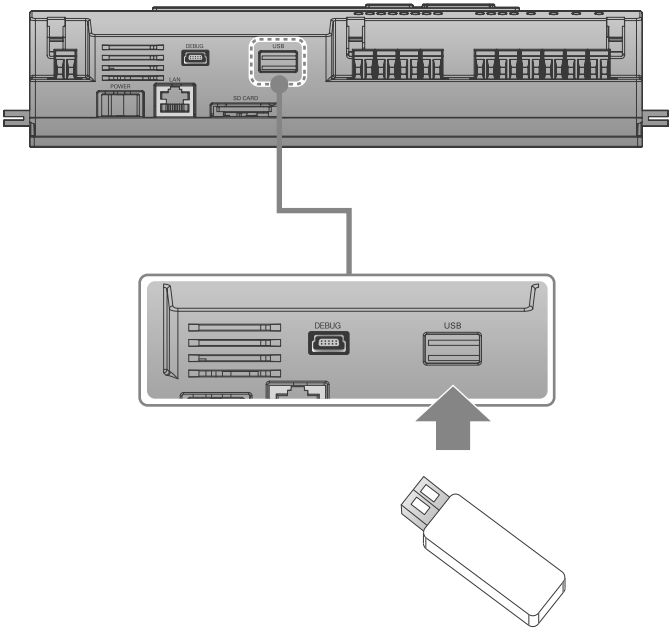
Proceed in the following order.

1. Create “ramdisk” folder in USB memory.
2. Put the S/W file to update in ‘ramdisk’ folder.
   - At this time, only one S/W file must be put.
     (New version software file can be downloaded from LG Electronics System Air Conditioner homepage.)

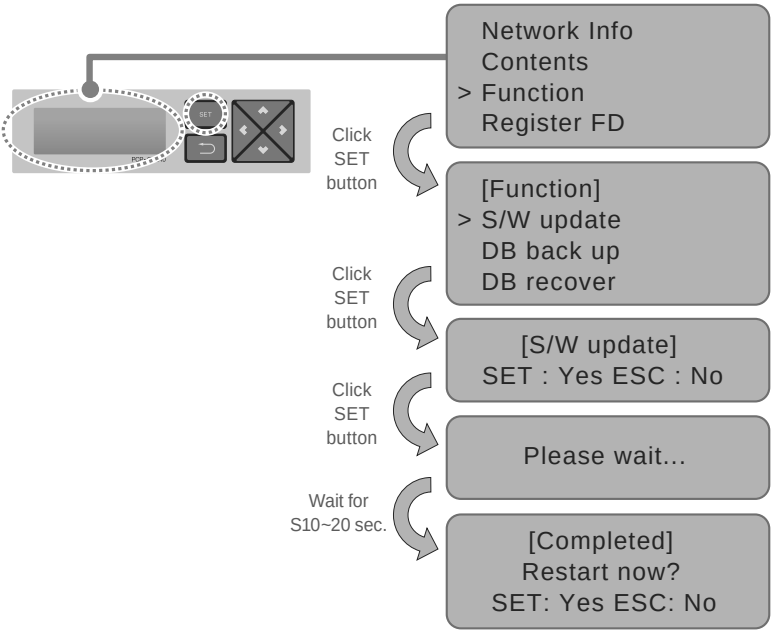




E: may be changed.



1. Press **[SET]** button of the ACP BACnet.
2. Select **[Function]** menu, and press **[SET]** button.
3. Select **[S/W update]** menu, and press **[SET]** button again.
4. To run the software update, press **[SET]** button again.
   - Wait while software is running.
5. After completing the update, press **[SET]** button to restart the ACP BACnet.
   - Even when you do not immediately restart, update will be applied only after rebooting the ACP BACnet in the future.



Caution

While software update is in progress and while “Please wait…” is displayed, turning off the power of the ACP BACnet or removing USB memory may cause severe disorder of the ACP BACnet.

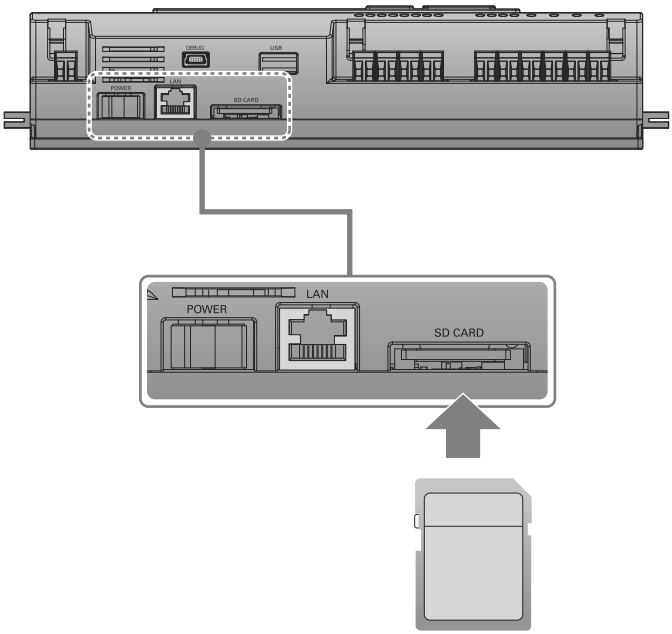
Data backup

If ACP BACnet data backup is necessary, it must be carried out by the specialized service technician.

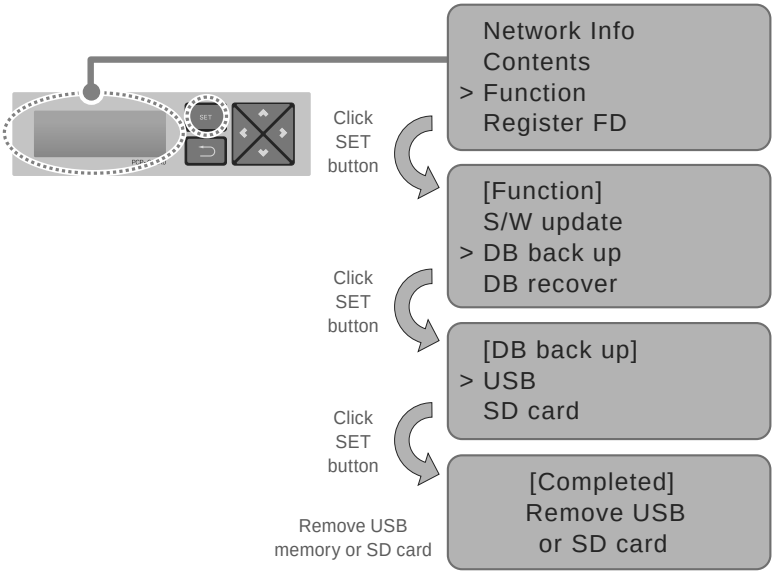
Data backup can be done with USB memory or SD card.

Proceed in the following or der.

1. Insert USB memory or SD card into the ACP BACnet.
   (Refer to software update for USB memory insertion.)



2. Press **[SET]** button of the ACP BACnet.
3. Select **[Function]** menu, and press **[SET]** button.
4. Select **[DB back up]** menu, and press **[SET]** button again.
5. Select **[USB]** or **[SD card]**, and press **[SET]** button.
6. After completing backup, remove USB memory.



Caution

Before data backup is completed, turning off the power of the ACP BACnet or removing USB memory or SD card may cause severe disorder of the ACP BACnet.

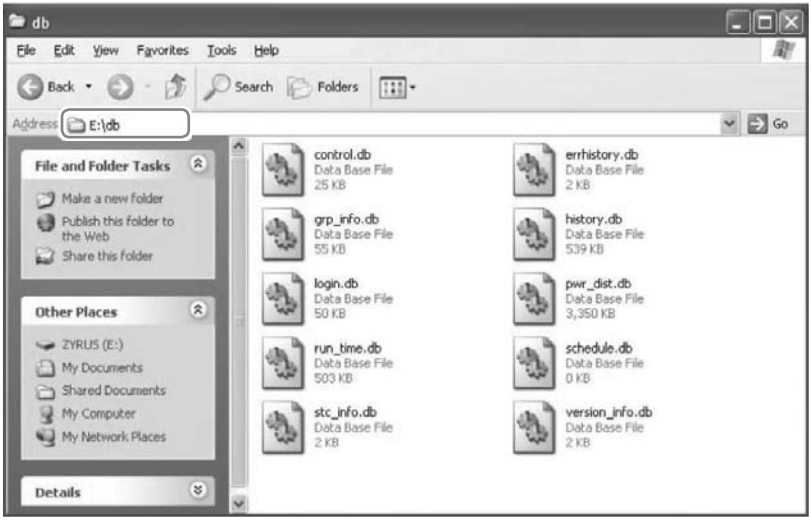
Data recovery

If ACP BACnet data recovery is necessary, it must be carried out by the specialized service technician.

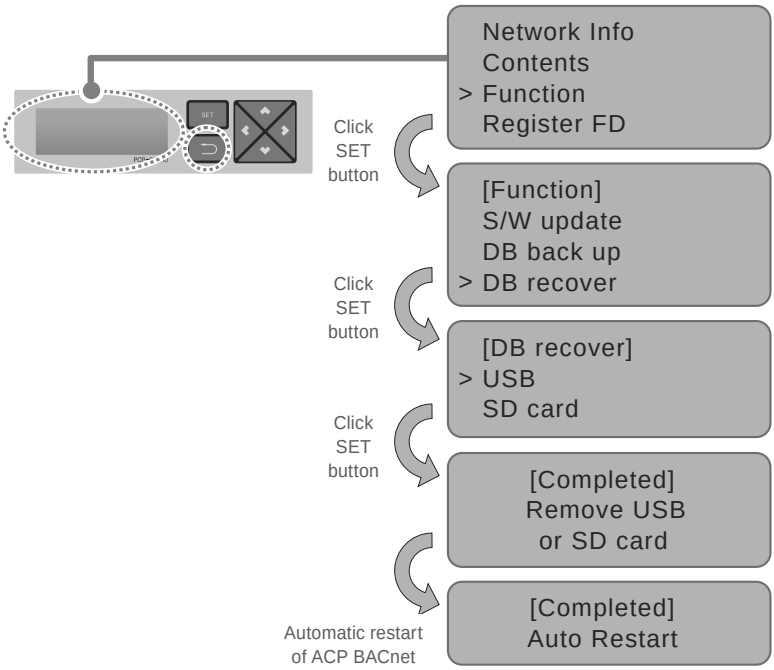
Data recovery can be done with USB memory or SD card.

Proceed in the following order.

1. Save the database file to recover in USB memory or SD card.
   - Save the files in “db” folder as follows.



2. Insert USB memory or SD card into the ACP BACnet. (Refer to software update and data backup)
3. Press **[SET]** button of the ACP BACnet.
4. Select **[Function]** menu, and press **[SET]** button.
5. Select **[DB recover]** menu, and press **[SET]** button again.
6. Select **[USB]** or **[SD card]**, and press **[SET]** button.
7. Remove USB memory after completing the data recovery.
   - ACP BACnet is automatically restarted for data recovery.



Caution

Before data recovery is completed, turning off the power of the ACP BACnet or removing USB memory or SD card may cause severe disorder of the ACP BACnet.

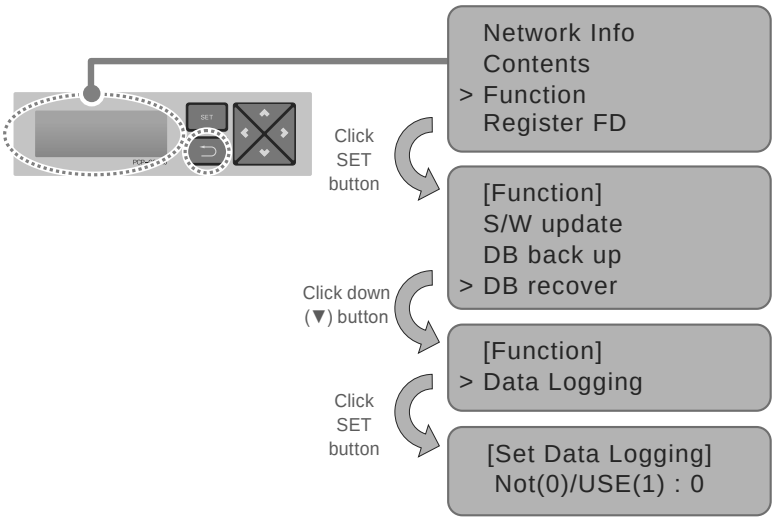
RS-485 data logging

If ACP BACnet RS-485 data logging is necessary, it must be carried out by the specialized service technician.

Data logging can be done with SD card.

Proceed in the following order.

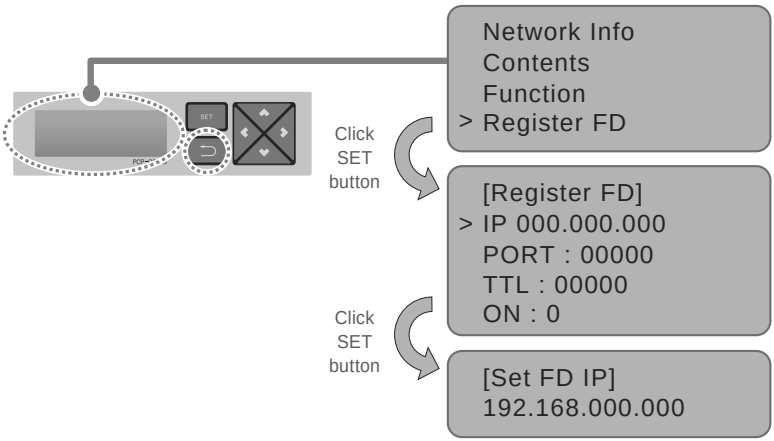
1. Insert SD card into the ACP BACnet. (Refer to data backup)
2. Press **[SET]** button of the ACP BACnet.
3. Select **[Function]** menu, and press **[SET]** button.
4. Select **[Data Logging]** menu, and press **[SET]** button again.
5. Select whether to set data logging.



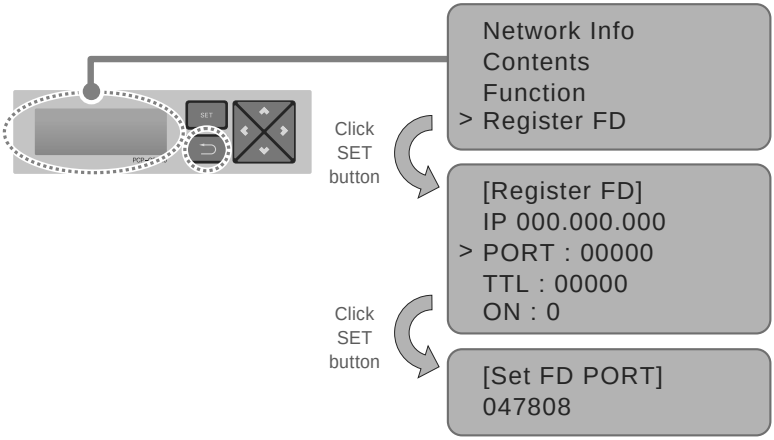
Register Foreign Device

1. In **[Register FD]** menu, use the category to set using “up” and “down” (▲, ▼) buttons.
2. IP, PORT, TTL, and Activate of Foreign Device are displayed in the initial screen of **[Register FD]** menu, and you can check IP, PORT, TTL, and Activate of Foreign Device using “down” (▼) button.
3. To change the Foreign Device setting, locate the arrow on the corresponding setting position, and press **[SET]** button to enter the corresponding setting screen.

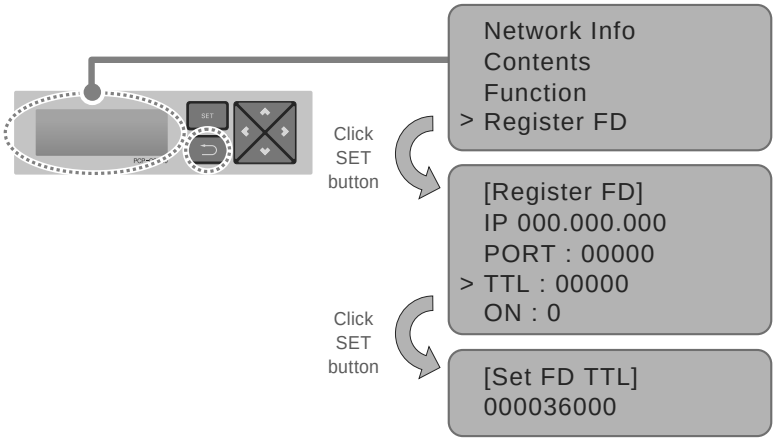
Example of IP setting



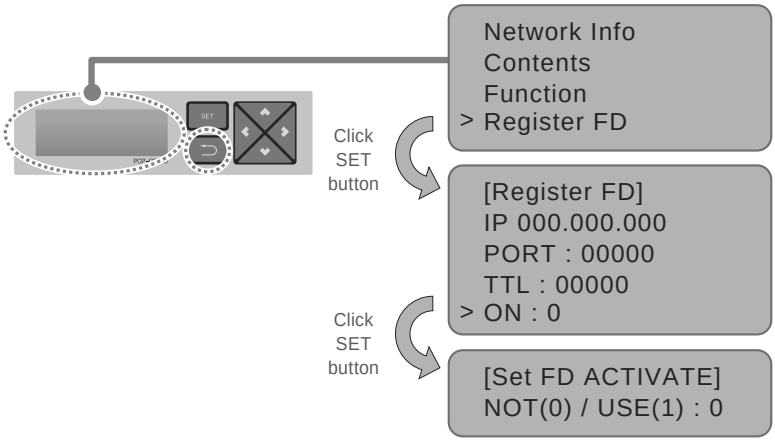
Example of PORT setting



Example of TTL setting



Example of Foreign Device Activate setting



Notes

For more information, please consult with the experts of BMS.

MEMO

LG's ACP BACnet Agreement

JMT (Joint Matching Test)

This is necessary for every independent BMS.

The case where a JMT is not necessary is where previously a successful JMT has been carried out and the BMS system has not been updated by software or hardware changes. In the case that the BMS has updated their system by either changes, a following JMT will be required.

ACP BACnet Diagnosis

Use of LG's ACP BACnet setup-tool is for confirming the operation/state of connected A/C units & address ID's, prior to connection with the BMS system.

BMS Engineering

Creating of the Points. This is NOT to be done by LG since it is directly related to the BMS side. The BMS engineer is to carry out the engineering of the Point, however LG is responsible for providing the method of how the Points are calculated.

Commission

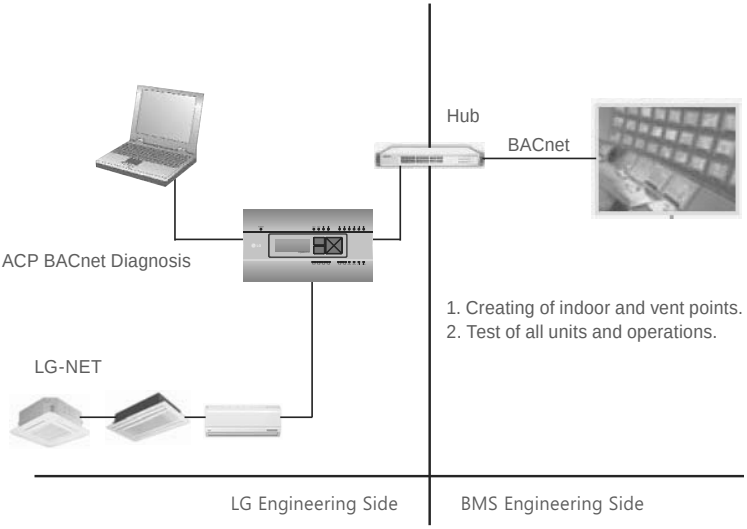
First step, only using LG's ACP BACnet, without connecting BMS. This is to be carried out by LG engineering staff with the use of the ACP BACnet set up tool.

Discrepancy of operation of Gateway by BMS

In the case that the BMS maker feels that the ACP BACnet is not functioning correctly via the BACnet Protocol, a test with the use of LG's ACP BACnet Client software can confirm this. (This test is generally not required)

Notes

After the LG's ACP BACnet agreement part, please consult with the experts of BMS.



ENGLISH

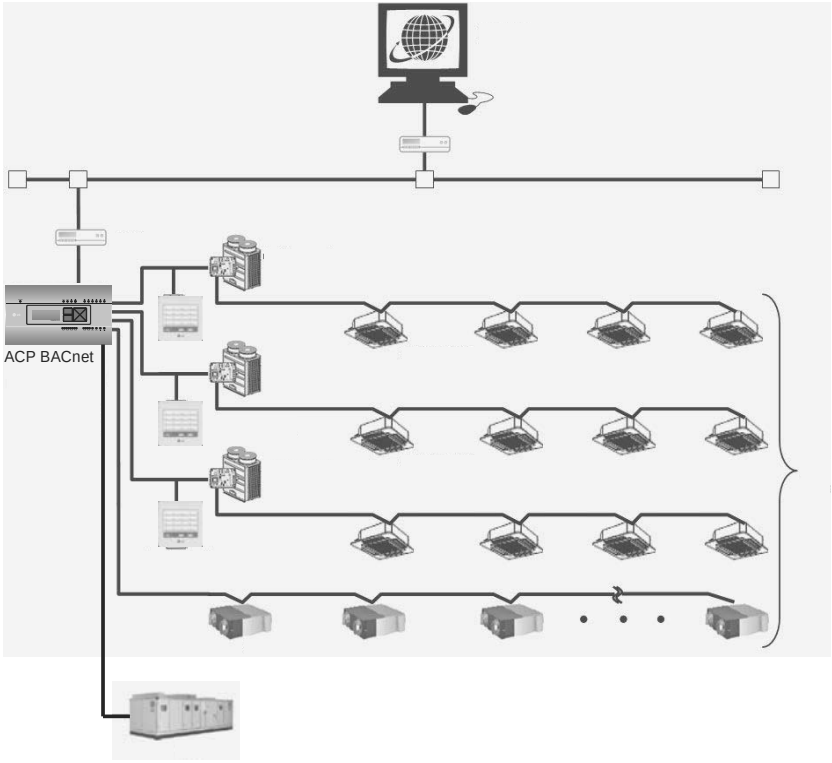
Functional Specifications ACP BACnet

Summary

The ACP BACnet, in response to the requests from the BMS (Building management system which supports BACnet-ANSI/ASHRAE135 protocol), status information of A/C/vent that are connected to the ACP BACnet's internal LG-NET will be sent in BACnet service form, and BACnet client provides a function that transmits control command to the A/C/vent system.

Configuration of Connection

A BACnet client that supports BACnet-ANSI/ASHRAE135 protocol allows direct connection via generally used HUBs or Ethernet. The image of its connection configuration is as shown below.



Objects - ACP BACnet/IP

ACP-BAC Point List : Indoor Unit

One indoor unit has a Point List as follows.

Point No.	Control/monitoring	ObjectName Product Name (XXX : Unit address)	Object Type	Unit						
				Inactive	Active					
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	
1	ON/OFF (Setting)	StartStopCommand_XXX	BO	Stop	Start					
2	ON/OFF (Status)	StartStopStatus_XXX	BI	Stop	Run					
3	Lock (Setting)	LockCommand_XXX	BO	Permit	Prohibit					
4	Lock (Status)	LockStatus_XXX	BI	Permit	Prohibit					
5	Filter Sign	Filter Sign_XXX	BI	Off	On					
6	Filter Sign Reset	Filter Sign Reset_XXX	BV	-	Reset					
7	Operation Mode (Setting)	ModeCommand_XXX	MO		Cool	Dry	Fan	Auto	Heat	
8	Operation Mode (Status)	ModeStatus_XXX	MI		Cool	Dry	Fan	Auto	Heat	
9	Swing (Setting)	SwingCommand_XXX	BO	Stop	Run					
10	Swing (Status)	SwingStatus_XXX	BI	Stop	Run					
11	Fan Speed (Setting)	FanSpeedCommand_XXX	MO		Low	Middle	High	Auto		
12	Fan Speed (Status)	FanSpeedStatus_XXX	MI		Low	Middle	High	Auto		
13	Set Room Temperature	SetRoomTemp_XXX	AV	°C						
14	Room Temperature	RoomTemp_XXX	AI	°C						
15	Alarm	Alarm_XXX	BI	Normal	Abnormal					

Point No.	Control/monitoring	ObjectName Product Name (XXX : Unit address)	Object Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
16	Error Code	MalfunctionCode_XXX		Reference LG Original Error Code					
17	-	-	-						
18	-	-	-						
19	Set Temperature Status	SetTempStatus_XXX	AI	°C					
20	Power Distribution	AccumPowerStatus_XXX	AI	Wattage values (Unit : 100Watt)					
27	Set Upper Temperature Setting	SetUpperTempCommand_XXX	AV	°C					
28	Set Lower Temperature Setting	SetLowerTempCommand_XXX	AI	°C					
29	Set Upper Temperature Status	SetUpperTempStatus_XXX	AI	°C					
30	Set Lower Temperature Status	SetLowerTempStatus_XXX	AI	°C					
31	Mode Lock Setting	ModeLockCommand_XXX	BO	Permit	Prohibit				
32	Mode Lock Status	ModeLockStatus_XXX	BI	Permit	Prohibit				
33	Fan Lock Setting	Fan LockCommand_XXX	BO	Permit	Prohibit				
34	Fan Lock Status	FanLockStatus_XXX	BI	Permit	Prohibit				

ACP-BAC Point List : Ventilation

One Ventilation unit has a Point List as follows.

Point No.	Control/monitoring	ObjectName Product Name (XXX : ventilation address)	Object Type	Unit						
				Inactive	Active					
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	
1	ON/OFF (Setting)	StartStopCommand_XXX	BO	Stop	Start					
2	ON/OFF (Status)	StartStopStatus_XXX	BI	Stop	Run					
3	Lock (Setting)	LockCommand_XXX	BO	Permit	Prohibit					
4	Lock (Status)	LockStatus_XXX	BI	Permit	Prohibit					
5	Filter Sign	Filter Sign_XXX	BI	Off	On					
6	Filter Sign Reset	Filter Sign Reset_XXX	BV	-	Reset					
7	Operation Mode (Setting)	ModeCommand_XXX	MO		Heat Exchange	Auto	Normal			
8	Operation Mode (Status)	ModeStatus_XXX	MI		Heat Exchange	Auto	Normal			
9	-	-								
10	-	-								
11	Fan Speed (Setting)	FanSpeedCommand_XXX	MO		Low	High	Super High	Auto		
12	Fan Speed (Status)	FanSpeedStatus_XXX	MI		Low	High	Super High	Auto		
13	-	-								
14	-	-								
15	Alarm	Alarm_XXX	BI	Off	On					

Point No.	Control/monitoring	ObjectName Product Name (XXX : ventilation address)	Object Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
16	Error Code	MalfunctionCode_XXX	AI	Reference LG Original Error Code					
17	User Mode(Setting)	UserModeCommand_XXX	MO	Quick Fresh	Energy Saving	Heater			
18	User Mode(Status)	UserModeStatus_XXX	MI	Quick Fresh	Energy Saving	Heater			
19				°C					
20	-	-	-						
21	AC Operation Mode (setting)	HrvModeCommand_XXX	MO		Cool	Auto	Heat		
22	AC Operation Mode (status)	HrvModeStatus_XXX	MI		Cool	Auto	Heat		
23	AC ON/OFF (setting)	HrvStartStopCommand_XXX	BO	Stop	Run				
24	AC ON/OFF (status)	HrvStartStopStatus_XXX	BI	Stop	Run				
25	AC Humidify (setting)	HrvHumidifyCommand_XXX	BO	Off	On				
26	AC Humidify (status)	HrvHumidifyStatus_XXX	BI	Off	On				

ACP-BAC Point List : AHU

One AHU unit has a Point List as follows.

Point No.	Control/ monitoring	ObjectName Product Name (XXX : AHU address)	Ob-ject Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
1	ON/OFF (Setting)	StartStopCommand_XXX	BO	Stop	Run				
2	ON/OFF (Status)	StartStopStatus_XXX	BI	Stop	Run				
3	Lock (Setting)	LockCommand_XXX	BO	Permit	Prohibit				
4	Lock (Status)	LockStatus_XXX	BI	Permit	Prohibit				
5	Filter Sign	Filter Sign_XXX	BI	Off	On				
6	Filter Sign Reset	Filter Sign Reset_XXX	BV	-	Reset				
7	Operation Mode (Setting)	ModeCommand_XXX	MO		Cool	Dry	Fan	Heat	
8	Operation Mode (Status)	ModeStatus_XXX	MI		Cool	Dry	Fan	Heat	
9	-	-							
10	-	-							
11	-	-							
12	-	-							
13	Set Room Temperature	SetRoomTemp_XXX	AV	°C					
14	Room Temperature	RoomTemp_XXX	AI	°C					
15	Alarm	Alarm_XXX	BI	Normal	Abnor-mal				
16	Error Code	MalfunctionCode_XXX	AI	Reference LG Original Error Code					

Point No.	Control/monitoring	ObjectName Product Name (XXX : AHU address)	Object Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
17	-	-							
18	-	-							
19	Set Temperature (Status)	SetTempStatus_XXX	AI	°C					
20	Fire Alarm (Setting)	FireAlarmCommand_XXX	BO	Stop	Run				
21	Fire Alarm (Status)	FireAlarmStatus_XXX	BI	Stop	Run				
22	Set Humidify (Setting)	SetHumidify Command_XXX	AV	40~60					
23	Set Humidify (Status)	SetHumidifyStatus_XXX	AI	40~60					
24	Humidify (Setting)	HumidifyCommand_XXX	BO	Stop	Run				
25	Humidify (Status)	HumidifyStatus_XXX	BI	Stop	Run				
26	Auto Ventilation (Setting)	AutoVentil Command_XXX	BO	Stop	Run				
27	Auto Ventilation (Status)	AutoVentilStatus_XXX	BI	Stop	Run				
28	Supply Temperature (Status)	SupplyTempStatus_XXX	AI	-127~127					
29	Outdoor Temperature (Status)	OutdoorTempStatus_XXX	AI	-127~127					
30	Mix Temperature (Status)	MixTempStatus_XXX	AI	-127~127					
31	Supply Humidity (Status)	SuppyHumidify Status_XXX	AI	30~90					
32	Outdoor Humidity (Status)	OutdoorHumidify Status_XXX	AI	30~90					
33	Ventilation Humidity (Status)	VentilHumidify Status_XXX	AI	30~90					
34	CO_2 Value (Status)	CO2ValueStatus_XXX	AI	0~255 (Real Value = Value*10, Example : In case Value is 20, CO_2 is 20*10=200ppm)					
35	Humidify Unit (Status)	HumidifyUnitStatus_XXX	BI	Stop	Run				
36	Heater Unit (Status)	HeaterUnitStatus_XXX	BI	Stop	Run				

Point No.	Control/ monitoring	ObjectName Product Name (XXX : AHU address)	Ob-ject Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
37	Ventilation FAN (Status)	VentilFANStatus_XXX	BI	Stop	Run				
38	Supply FAN (Status)	SupplyFANStatus_XXX	BI	Stop	Run				
39	Current OA Damper (Status)	CurOADamper Status_XXX	AI	0~90					
40	Current EA Damper (Status)	CurEADamper Status_XXX	AI	0~90					
41	Current MIX Damper (Status)	CurMixDamperStatus_XXX	AI	0~90					
42	Cool OA Damper (Setting)	OADamperCoolCommand_ XXX	AV	0~90					
43	Cool OA Damper (Status)	OADamperCoolStatus_XXX	AI	0~90					
44	Cool EA Damper (Setting)	EADamperCoolCommand_ XXX	AV	0~90					
45	Cool EA Damper (Status)	EADamperCoolStatus_XXX	AI	0~90					
46	Cool MIX Damper (Setting)	MixDamperCoolCommand_ XXX	AV	0~90					
47	Cool MIX Damper (Status)	MixDamperCoolStatus_XXX	AI	0~90					
48	Heat OA Damper (Setting)	OADamperHeatCommand_ XXX	AV	0~90					

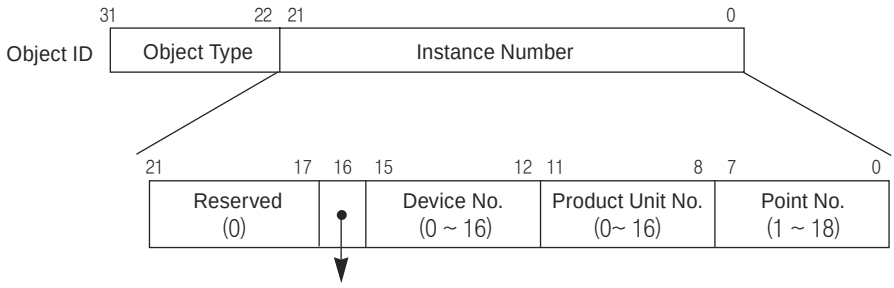
Point No.	Control/ monitoring	ObjectName Product Name (XXX : AHU address)	Ob-ject Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
49	Heat OA Damper (Status)	OADamperHeatStatus_XXX	AI	0~90					
50	Heat EA Damper (Setting)	EADamperHeatCommand_ XXX	AV	0~90					
51	Heat EA Damper (Status)	EADamperHeatStatus_XXX	AI	0~90					
52	Heat MIX Damper (Setting)	MixDamperHeatCommand_ XXX	AV	0~90					
53	Heat MIX Damper (Status)	MixDamperHeatStatus_XXX	AI	0~90					
54	Fan OA Damper (Setting)	OADamperFANCommand_ XXX	AV	0~90					
55	Fan OA Damper (Status)	OADamperFANStatus_XXX	AI	0~90					
56	Fan EA Damper (Setting)	EADamperFANCommand_ XXX	AV	0~90					
57	Fan EA Damper (Status)	EADamperFANStatus_XXX	AI	0~90					
58	Fan MIX Damper (Setting)	MixDamperFANCommand_ XXX	AV	0~90					
59	Fan MIX Damper (Status)	MixDamperFANStatus_XXX	AI	0~90					

One AWHP unit has a Point List as follows.

Point No.	Control/monitoring	ObjectName Product Name (XXX : AWHP address)	Object Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
1	Run/Stop (setting)	StartStopCommand_XXX	BO	Stop	Run				
2	Run/Stop (status)	StartStopStatus_XXX	BI	Stop	Run				
3	Lock (setting)	LockCommand_XXX	BO	Stop	Run				
4	Lock (status)	LockStatus_XXX	BI	Stop	Run				
5	Operation Mode (setting)	ModeCommand_XXX	MO		Cool	Heat	Auto		
6	Operation Mode (status)	ModeStatus_XXX	MI		Cool	Heat	Auto		
7	Set Room Temperature (setting)	SetRoomTempCommand_XXX	AO	℃					
8	Set Room Temperature (status)	SetRoomTempStatus_XXX	AI	℃					
9	Set Hot Water Temperature (setting)	SetHotWaterTempCommand_XXX	AO	℃					
10	Set Hot Water Temperature (status)	SetHotWaterTempStatus_XXX	AI	℃					
11	Set PipeOut Water Temperature (setting)	SetPipeOutWaterTempCommand_XXX	AO	℃					
12	Set PipeOut Water Temperature (status)	SetPipeOutWaterTempStatus_XXX	AI	℃					

Point No.	Control/monitoring	ObjectName Product Name (XXX : AWHP address)	Object Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
13	Setting Temperature Reference (Air/Water)	AirWaterFlag_XXX	BI	Air	Water				
14	Hot Water Only Mode	HotWaterOnlyFlag_XXX	BI	Normal	Hot Water Only				
15	Current Room Temperature	RoomTemp_XXX	AI	℃					
16	Alarm Event	Alarm_XXX	BI	No error	Error				
17	Malfunction Code	MalfunctionCode_XXX	AI	Reference LG Original Error Code					
18	HotWater On/Off (setting)	HotWaterCommand_XXX	BO	℃					
19	HotWater On/Off (status)	HotWaterStatus_XXX	BI	℃					
20	Pipe Inlet Temperature Status	PipeInTempStatus_XXX	AI	℃					
21	Water Tank Temperature Status	TankTempStatus_XXX	AI	℃					
22	Solar Temperature Status	SolarTempStatus_XXX	AI	℃					
23	Pipe Outlet Temperature Status	PipeOutTempStatus_XXX	AI	℃					

Local Definition of Object ID - The instance number is a pair, this consists of the indoor unit No. and item.



Product Type(Indoor:0, Vent:1 AHU:2, ODU:3, AWHP:4)

**Device : Group of Product units(16EA)

Example of Point Table

The point table below is passed to BMS, and BMS registers the object.

Case Indoor

Address	Object Type	Device No.	Product No.	Point	Instance No.	Name
0	4	0	0	1	0×00001(1)	ON/OFF : setting
0	3	0	0	2	0×00002(2)	ON/OFF : status
1	4	0	1	1	0×00101(257)	ON/OFF : setting
1	3	0	1	2	0×00102(258)	ON/OFF : status
15	4	0	15	1	0×00F01(3841)	ON/OFF : setting
15	3	0	15	2	0×00F02(3842)	ON/OFF : status
16	4	1	0	1	0×01001(4097)	ON/OFF : setting
16	3	1	0	2	0×01002(4098)	ON/OFF : status
17	4	1	1	1	0×01101(4353)	ON/OFF : setting
17	3	1	1	2	0×01102(4354)	ON/OFF : status
31	4	1	15	1	0×01F01(7937)	ON/OFF : setting
31	3	1	15	2	0×01F02(7938)	ON/OFF : status
32	4	2	0	1	0×02001(8193)	ON/OFF : setting
32	3	2	0	2	0×02002(8194)	ON/OFF : status
33	4	2	1	1	0×02101(8449)	ON/OFF : setting
33	3	2	1	2	0×02102(8450)	ON/OFF : status

Address	Object Type	Device No.	Product No.	Point	Instance No.	Name
47	4	2	F	1	0×02F01(12033)	ON/OFF : setting
47	3	2	15	2	0×02F02(12034)	ON/OFF : status

Case Vent

Address	Object Type	Device No.	Product No.	Point	Instance No.	Name
0	4	0	0	1	0×10001(65537)	ON/OFF : setting
0	3	0	0	2	0×10002(65538)	ON/OFF : status
1	4	0	1	1	0×10101(65793)	ON/OFF : setting
1	3	0	1	2	0×10102(65794)	ON/OFF : status
15	4	0	15	1	0×10F01(69377)	ON/OFF : setting
15	3	0	15	2	0×10F02(69378)	ON/OFF : status
16	4	1	0	1	0×11001(69633)	ON/OFF : setting
16	3	1	0	2	0×11002(69634)	ON/OFF : status
17	4	1	1	1	0×11101(69889)	ON/OFF : setting
17	3	1	1	2	0×11102(69890)	ON/OFF : status
31	4	1	15	1	0×11F01(73473)	ON/OFF : setting
31	3	1	15	2	0×11F02(73474)	ON/OFF : status
32	4	2	0	1	0×12001(73729)	ON/OFF : setting
32	3	2	0	2	0×12002(73730)	ON/OFF : status
33	4	2	1	1	0×12101(73985)	ON/OFF : setting
33	3	2	1	2	0X12102(73986)	ON/OFF : status
47	4	2	F	1	0×12F01(77569)	ON/OFF : setting
47	3	2	15	2	0×12F02(77570)	ON/OFF : status

Case AHU

Address	Object Type	Device No.	Product No.	Point	Instance No.	Name
0	4	0	0	1	20001(131073)	ON/OFF : setting
0	3	0	0	2	20002 (131074)	ON/OFF : status
1	4	0	1	1	20101 (131329)	ON/OFF : setting
1	3	0	1	2	20102 (131330)	ON/OFF : status
15	4	0	15	1	20F01 (134913)	ON/OFF : setting
15	3	0	15	2	20F02 (134914)	ON/OFF : status

Detailed Explanation of Object

Common to All Objects

Objects related to the air conditioner in communication are treated on the ACP BACnet as described below.

- Air Conditioner in Normal Communication
  - Other ACP BACnet devices can access each object related to the air conditioner.
- Air Conditioner Unconnected
  - It seems to other ACP BACnet devices that no objects related to the air conditioner exist.
  - Therefore, when the ReadProperty/WriteProperty service is received, the following ErrorPDU will be returned.
  - Error class: OBJECT; Error type: UNKNOWN_PROPERTY
- Air Conditioner Communication Error
  - Other BACnet device can access the objects related to the air conditioners, but the Present_Value Property will be read in a value immediately before the communication error.

Run/Stop (Setting)

- Point number: 1
- Object name: StartStopCommand_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Output
- Meaning: This object is used to give Run/Stop commands to the air conditioner.
- Present_Value property:
- ACTIVE: Run command
- INACTIVE: Stop command
- **Remarks**:

  1. The command executed is transmitted to the A/C regardless of the status of the A/C.
  2. Present_Value property will not be used if a property has never been set in the past.

Run/Stop (Status)

- Point number: 2
- Object name: StartStopStatus_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Input
- Meaning: This object is used to monitor the Run/Stop status of the air conditioner.
- Present_Value property:
- ACTIVE: Run
- INACTIVE: Stop
- **Remarks**: If there is an operation error, the Present_Value property will be set to ACTIVE regardless of whether the A/C is in operation or not.

Lock (Setting)

- Point number: 3
- Object name: LockCommand_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Output
- Meaning: This object is used to set the Lock of the A/C's control authority.
- Present_Value property:
- ACTIVE: Lock (Restricted)
- INACTIVE: Unlock (Not restricted)

Lock (Status)

- Point number: 4
- Object name: LockStatus_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Input
- Meaning: This object is used to monitor the Lock of the A/C's control authority.
- Present_Value property:
- ACTIVE: Lock (Restricted)
- INACTIVE: Unlock (Not restricted)

Filter Sign

- Point number: 5
- Object name: FilterSign_XXX (XXX: Vent/AHU address)
- Object type: Binary Input
- Meaning: This object is used to monitor the status of the filters for vent.
- Present_Value property:
- ACTIVE: Filter sign information is turned ON.
- INACTIVE: Filter sign information is OFF.
- **Remarks**: This object supports the Intrinsic Reporting function. When the Present_Value property changes, the corresponding Event will be transmitted if the Event has been registered.

Filter Sign Reset

- Point number: 6
- Object name: FilterSignReset_XXX (XXX: Vent/AHU address)
- Object type: Binary Value
- Meaning: This object is used to reset the vent's limit indication.
- Present_Value property:
- INACTIVE: Filter indication information is reset.
- **Remarks**:
  1. During a read operation of the Present_Value property, the Fliter Limit Sign Reset will be always the same value as the Filter Limit Sign object.
  2. Only if INACTIVE is written to the Present_Value property during a write operation, the filter sign information resets ON signs and nothing will be executed even if ACTIVE is written.
  3. This object supports the Intrinsic Reporting function. When the Present_Value property changes, the corresponding Event will be transmitted if the Event has been registered.

Operation Mode (Setting)

- Point number: 7
- Object name: ModeCommand_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Multistate Output
- Meaning: This object is used to set the operation modes of the air conditioner.
- Present_Value property:

Indoor	Vent
1 : Cool	HEX
2 : Dry	Auto
3 : Fan	Normal
4 : Auto	-
5 : Heat	-

- **Remarks**:
  1. The Present_Value property will be set to "1: Cool" as the default value if property has never been set in the past.
  2. The air conditioner will ignore the command to an object that does not have right to select operation mode. Therefore, the controlled/monitored system must not use this object for the air conditioner without the right to select operation mode.

Operation Mode (Status)

- Point number: 8
- Object name: ModeStatus_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Multistate Input
- Meaning: This object is used to monitor the operation modes of the air conditioner.
- Present_Value property:

Indoor	Vent
1 : Cool	HEX
2 : Dry	Auto
3 : Fan	Normal
4 : Auto	-
5 : Heat	-

Swing (Setting)

- Point number: 9
- Object name: SwingCommand_XXX (XXX: Indoor address)
- Object type: Binary Output
- Meaning: This object is to set the air direction of the indoor unit.
- Present_Value property:
- ACTIVE: Run
- INACTIVE: Stop

Swing (Status)

- Point number: 10
- Object name: SwingStatus_XXX (XXX: Indoor address)
- Object type: Binary Input
- Meaning: This object is to monitor the air direction of the A/C.
- Present_Value property:
- ACTIVE: Swing_On
- INACTIVE: Swing_Off

Fan Speed (Setting)

- Fan Speed (Setting)
- Point number: 11
- Object name: FanSpeedCommand_XXX (XXX: Indoor/Vent address)
- Object type: Multistate Output
- Meaning: This object is to set the airflow of the A/C.
- Present_Value property:

Indoor	Vent
1 : Low	Low
2 : Middle	High
3 : High	Super High
4 : Auto	Auto

- **Remarks**: The A/C will disregard the command which the object which can't select the operation mode.
  Therefore, controlled/monitored system shouldn't use the object which can't select the operation mode.

Fan Speed (Status)

- Point number: 12
- Object name: FanSpeedStatus_XXX (XXX: Indoor/Vent addresss)
- Object type: Multistate Input
- Meaning: This object is to monitor the airflow of the A/C.
- Present_Value property:

Indoor	Vent
1 : Low	Low
2 : Middle	High
3 : High	Super High
4 : Auto	Auto

- **Remarks**: Present_value property will be set to "1:Low" as the default result if the property has not been set in the past.

Set Room Temperature

- Point number: 13
- Object name: SetRoomTemp_XXX (XXX: Indoor/AHU address)
- Object type: Analog Value
- Meaning: This object is used to set the room temperature for the air conditioner.
- Present_Value property:
- Temperature(°C)
- **Remarks**:
  1. This unit is for indoor units only, and the approximate set temperature range is 18 ~ 35°C.
  2. When COV registration is made, the COV will be reported the moment a temperature change of at least 1°C is detected.

Room Temperature

- Point number: 14
- Object name: RoomTemp_XXX (XXX: Indoor/AHU address)
- Object type: Analog Input
- Meaning: This object is used to monitor room temperature which the indoor unit is placed.
- Present_Value property:
- Temperature(°C)
- **Remarks**: This object is for indoor units only, and reports the room temperature data measured by the indoor units.

Alarm

- Point number: 15
- Object name: Alarm_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Input
- Meaning: This object is used to monitor the Alarm.
- Present_Value property:
- ACTIVE: Alarm_On
- INACTIVE: Alarm_Off

Error Code

- Point number: 16
- Object name: MalfunctionCode_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Analog Input
- Meaning: This object is used to monitor the details of the error status when the air conditioner
- has an error.
- Present_Value property:
- Error code(Range is 1 to 255)
- **Remarks**: This object's error code descriptions should be referred to the corresponding table at the "Reference LG original Error Code".

User Mode (Setting)

- Point number: 17
- Object name: UserModeCommand_XXX (XXX: Vent address)
- Object type: Multi-state Output
- Meaning: This object is used to set the basic operation mode in vent and also additional
- operation mode (quick fresh, energy efficiency, and heating).
- Present_Value property:

  1 : Quick

  2 : Saving

  3 : Heater

- **Remarks**: This object is for vent only, and will not apply if the property has not been set in the past.

User Mode (Status)

- Point number: 18
- Object name: UserModeStatus_XXX (XXX: Vent address)
- Object type: Multi-state Input
- Meaning : This object is used to monitor the basic operation mode in vent
- Property_Value property:

  1 : Quick

  2 : Saving

  3 : Heater

- **Reamark** : This object is for vent only, and will not apply if the property has not been in the past.

Set Temperature (Status)

- Point number: 19
- Object name: SetTempStatus_XXX (XXX: AHU address)
- Object type: Analog Input
- Meaning: This object is used to monitor the set temperature of the A/C's control authority.
- Present_Value property:
- Temperature(°C)
- **Remarks** : This object is for indoor units only, and reports the room temperature data measured by the indoor units.

Fire Alarm (Setting)

- Point number : 20
- Object name : FireAlarmCommand_XXX (XXX : AHU address)
- Object type : Binary Output
- Meaning : This object is used to set the fire detection function.
- Present Value property :
- ACTIVE : Run command
- INACTIVE : Stop command

Fire Alarm (Status)

- Point number : 21
- Object name : FireAlarmStatus_XXX (XXX:AHU address)
- Object type : Binary Input
- Meaning : This object is used to determine whether fire detection function settings.
- Present Value property :
- ACTIVE : Run Status
- INACTIVE : Stop Status

Set Humidify (Setting)

- Point number : 22
- Object name : SetHumidifyCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set desired humidity function.
- Present Value property : 40~60

Set Humidify (Status)

- Point number : 23
- Object name : SetHumidifyStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the desired humidity has been set.
- Present Value property : 40~60

Humidify (Setting)

- Point number : 24
- Object name : HumidifyCommand_XXX (XXX : AHU address)
- Object type : Binary Output
- Meaning : This object is used to activate the humidifier function.
- Present Value property :
- ACTIVE : Run Setting
- INACTIVE : Stop Setting

Humidify (Status)

- Point number : 25
- Object name : HumidifyStatus_XXX (XXX : AHU address)
- Object type : Binary Input
- Meaning : This object is used to monitor whether or not to enable the humidifying function.
- Present Value property :
- ACTIVE : Run Status
- INACTIVE : Stop Status

Auto ventilation (Setting)

- Point number : 26
- Object name : AutoVentilCommand_XXX (XXX : AHU address)
- Object type : Binary Output
- Meaning : This object is used to set ventilatory function to operate automatically.
- Present Value property :
- ACTIVE : Run Setting
- INACTIVE : Stop Setting

Auto ventilation (Status)

- Point number : 27
- Object name : AutoVentilStatus_XXX (XXX : AHU address)
- Object type : Binary Input
- Meaning : This object is used to monitor the presence or absence of the operation of the automatic ventilatory function.
- Present Value property :
- ACTIVE : Run Status
- INACTIVE : Stop Status

Supply temperature (Status)

- Point number : 28
- Object name : SupplyTempStatus_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to monitor the temperature of the air to be supplied.
- Present Value property : -127~127

Outdoor temperature (Status)

- Point number : 29
- Object name : OutdoorTempStatus_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to monitor the temperature of the outside air.
- Present Value property : -127~127

Mix Temperature (Status)

- Point number : 30
- Object name : MixTempStatus_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to monitor the temperature of the air that is mixed.
- Present Value property : -127~127

Supply Humidity (Status)

- Point number : 31
- Object name : SupplyHumidifyStatus_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to monitor the humidity of the air to be supplied.
- Present Value property : 30~90

Outdoor Humidity (Status)

- Point number : 32
- Object name : OutdoorHumidifyStatus_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to monitor the humidity of the outside air.
- Present Value property : 30~90

Ventilation Humidity (Status)

- Point number : 33
- Object name : VentilHumidifyStatus_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to monitor the humidity of the ventilation air is made.
- Present Value property : 30~90

CO_2 Value (Status)

- Point number : 34
- Object name : CO2ValueStatus_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to monitor the humidity of the ventilation air is made.
- Present Value property : 0~255
- (Real Value = Value*10, Example : In case Value is 20, CO2 is 20*10=200ppm)

Humidify Unit (Status)

- Point number : 35
- Object name : HumidifyUnitStatus_XXX (XXX : AHU address)
- Object type : Binary Input
- Meaning : This object is used to monitor the operating status of the humidifier.
- Present Value property :
- ACTIVE : Run Status
- INACTIVE : Stop Status

Heater Unit (Status)

- Point number : 36
- Object name : HeaterUnitStatus_XXX (XXX : AHU address)
- Object type : Binary Input
- Meaning : This object is used to monitor the operating state of the heater.
- Present Value property :
- ACTIVE : Run Status
- INACTIVE : Stop Status

Ventilation FAN (Status)

- Point number : 37
- Object name : VentilFANStatus_XXX (XXX : AHU address)
- Object type : Binary Input
- Meaning : This object is used to monitor the operating status of FAN ventilation.
- Present Value property :
- ACTIVE : Run Status
- INACTIVE : Stop Status

Supply FAN (Status)

- Point number : 38
- Object name : VentilFANStatus_XXX (XXX : AHU address)
- Object type : Binary Input
- Meaning : This object is used to monitor the operating status of the air supply FAN.
- Present Value property :
- ACTIVE : Run Status
- INACTIVE : Stop Status

Current OA Damper (Status)

- Point number : 39
- Object name : CurOADamperStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the current opening degree of OA damper.
- Present Value property : 0~90

Current EA Damper (Status)

- Point number : 40
- Object name : CurEADamperStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the current opening degree of the EA damper.
- Present Value property : 0~90

Current MIX Damper (Status)

- Point number : 41
- Object name : CurMixDamperStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of the damper current Mix.
- Present Value property : 0~90

Cool OA Damper (Setting)

- Point number : 42
- Object name : OADamperCoolCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set the opening degree of OA damper cooling.
- Present Value property : 0~90

Cool OA Damper (Status)

- Point number : 43
- Object name : OADamperCoolStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of OA damper cooling that has been set.
- Present Value property : 0~90

Cool EA Damper (Setting)

- Point number : 44
- Object name : EADamperCoolCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set the opening degree of the EA damper cooling.
- Present Value property : 0~90

Cool EA Damper (Status)

- Point number : 45
- Object name : EADamperCoolStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of the EA damper cooling that has been set.
- Present Value property : 0~90

Cool MIX Damper (Setting)

- Point number : 46
- Object name : MIXDamperCoolCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set the degree of opening of the MIX cooling damper.
- Present Value property : 0~90

Cool MIX Damper (Status)

- Point number : 47
- Object name : MIXDamperCoolStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of the MIX cooling damper has been set.
- Present Value property : 0~90

Heat OA Damper (Setting)

- Point number : 48
- Object name : OADamperHeatCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set the opening degree of OA damper Heating.
- Present Value property : 0~90

Heat OA Damper (Status)

- Point number : 49
- Object name : OADamperHeatStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of OA heating damper is set.
- Present Value property : 0~90

Heat EA Damper (Setting)

- Point number : 50
- Object name : EADamperHeatCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set the opening degree of the EA damper Heating.
- Present Value property : 0~90

Heat EA Damper (Status)

- Point number : 51
- Object name : EADamperHeatStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of the EA heating damper is set.
- Present Value property : 0~90

Heat MIX Damper (Setting)

- Point number : 52
- Object name : MIXDamperHeatCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set the degree of opening of the MIX damper Heating.
- Present Value property : 0~90

Heat MIX Damper (Status)

- Point number : 53
- Object name : MIXDamperHeatStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of the MIX heating damper is set.
- Present Value property : 0~90

Fan OA Damper (Setting)

- Point number : 54
- Object name : OADamperFANCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set the blower damper opening degree of OA.
- Present Value property : 0~90

Fan OA Damper (Status)

- Point number : 55
- Object name : OADamperFANStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of OA ventilation damper set.
- Present Value property : 0~90

Fan EA Damper (Setting)

- Point number : 56
- Object name : EADamperFANCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set the blower damper opening degree of the EA.
- Present Value property : 0~90

Fan EA Damper (Status)

- Point number : 57
- Object name : EADamperFANStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of the EA ventilation damper set.
- Present Value property : 0~90

Fan MIX Damper (Setting)

- Point number : 58
- Object name : MIXDamperFANCommand_XXX (XXX : AHU address)
- Object type : Analog Value
- Meaning : This object is used to set the blower damper opening degree of the MIX.
- Present Value property : 0~90

Fan MIX Damper :Status

- Point number : 59
- Object name : MIXDamperFANStatus_XXX (XXX : AHU address)
- Object type : Analog Input
- Meaning : This object is used to monitor the degree of opening of the MIX ventilation damper set.
- Present Value property : 0~90

Detailed attributes of each object, please refer to the table attributes **on page 203**

Objects (Modbus-TCP)

Supported Function Code

Monitoring and controlling items of air conditioners supported are assigned with general function codes specified by Modbus-TCP.

Function Name	Code	Description
Read Single Coil	01h	Run/Stop(status), Lock(status), Swing(status), Alarm, Filter Sign(status), Mode Lock(status), Wind Flow Lock(status)
Read Holding Registers	03h	Operation Mode(status), Fan Speed(status), Room Temperature, Error Code, Set Room Temperature(status), Set Lower Temperature(status), Set Upper Temperature(status), User Mode(status)
Write Single Coil	05h	Run/Stop(setting), Lock(setting), Swing(setting), Filter Sign Reset, Mode Lock(setting), Wind Flow Lock(setting)
Write Single Registers	06h	Operation Mode(setting), Fan Speed(setting), Set Room Temperature(setting), Set Lower Temperature(setting), Set Upper Temperature(setting), User Mode(setting)

Register	Function	Name	Object Name (XXX : Unit address)	Inactive	Active
1	Read Single Coil	ON/OFF	StartStopStatus_XXX	Stop	Run
2		SWING	SwingStatus_XXX	Permit	Prohibit
3		LOCK	LockStatus_XXX	Permit	Prohibit
4		MODE LOCK	ModeLockStatus_XXX	Permit	Prohibit
5		FAN LOCK	WindFlowLockStatus_XXX	Permit	Prohibit
6		TEMP LOCK	SetTempStatus-XXX	Permit	Prohibit
7		ALARM	Alarm_XXX	Normal	Abnormal
1	Write Single Coil	ON/OFF	StartStopCommand_XXX	Stop	Run
2		SWING	SwingCommand_XXX	Permit	Prohibit
3		LOCK	LockCommand_XXX	Permit	Prohibit
4		MODE LOCK	ModeLockCommand_XXX	Permit	Prohibit
5		FAN LOCK	WindFlowLockCommand_XXX	Permit	Prohibit
6		TEMP LOCK	SetTempCommand-XXX	Permit	Prohibit

Function Code : 0x03 and 0x06

Register	Function	Name	Object Name (XXX : Unit address)	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
1	Read Holding Registers	OPERATION MODE	ModeStatus_XXX		Cool	Dry	Fan	Auto	Heat
2		FAN SPEED	FanSpeedStatus_XXX		Low	Middle	High	Auto	
3		SET ROOM TEMPERATURE	SetTempStatus_XXX	°C					
4		UP_SETTEMP	SetUpperTemp Status_XXX	°C					
5		LO_SETTEMP	SetLowerTemp Status_XXX	°C					
6		ROOM TEMPERATURE	RoomTemp_XXX		°C				
7		ERROR CODE	MalfunctionCode_XXX	Reference LG original Error Code					
1	Write Single Registers	OPERATION MODE	ModeCommand_XXX		Cool	Dry	Fan	Auto	Heat
2		FAN SPEED	FanSpeed Command_XXX		Low	Middle	High	Auto	
3		SET ROOM TEMPERATURE	SetTemp Command_XXX	°C					
4		UP_SETTEMP	SetUpperTemp Command_XXX	°C					
5		LO_SETTEMP	SetLowerTemp Command_XXX	°C					

Register	Function	Name	Object Name (XXX : Ventilation address)	Inactive	Active
1	Coil Read	ON/OFF	StartStopStatus_XXX	Stop	Run
2		LOCK	LockStatus_XXX	Permit	Prohibit
3		FILTER SIGN	FilterSign_XXX	Off	On
4		ALARM	Alarm_XXX	Stop	Run
5		HRV_AC_OPER	HrvStartStopStatus_XXX	Stop	Run
6		HRV_HUMIDIFY	HrvHumidifyStatus_XXX	Off	On
1	Write Single Coil	ON/OFF	StartStopCommand_XXX	Stop	Run
2		LOCK	LockCommand_XXX	Permit	Prohibit
3		FILTER SIGN RESET	FilterSignReset_XXX	Reset(Off)	Void(On)
5		HRV_AC_OPER	HrvStartStopCommand_XXX	Stop	Run
6		HRV_HUMIDIFY	HrvHumidifyCommand_XXX	Off	On

Register	Function	Name	Object Name (XXX : Ventilation address)	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
1	Read Holding Registers	OPERATION MODE	ModeStatus_XXX		Heat Exchange	Auto	Normal		
2		FAN SPEED	FanSpeedStatus_XXX		Low	High	Super High	Auto	
3		USER MODE	UserModeStatus_XXX		Quick Operation	Energy Saving	Heat		
4		ERROR CODE	MalfunctionCode_XXX	Reference LG original Error Code					
5		HRV_AC_MODE	HrvModeStatus_XXX		Cool	Auto	Heat		
6		HRV_SETTEMP	HrvSetTempstatus_XXX	°C					
1	Write Single Registers	OPERATION MODE	ModeCommand_XXX		Heat Exchange	Auto	Normal		
2		FAN SPEED	FanSpeed Command_XXX		Low	High	Super High	Auto	
3		USER MODE	UserModeStatus_XXX		Quick Operation	Energy Saving	Heat		
5		HRV_AC_MODE	HrvModeStatus_XXX		Cool	Auto	Heat		
6		HRV_SETTEMP	HrvSetTempstatus_XXX	°C					

Register	Function	Name	Object Name (XXX : AHU address)	Inactive	Active
1	Coil Read	ON/OFF	StartStopStatus_XXX	Stop	Run
2		LOCK	LockStatus_XXX	Permit	Prohibit
3		FILTER SIGN	FilterSign_XXX	Off	On
4		SMOKE	FireAlarmStatus_XXX	Stop	Run
5		HUMIDITY	HumidifyStatus_XXX	Stop	Run
6		AUTO VENT	AutoVentStatus_XXX	Stop	Run
7		HUMIDIFIER	HumidifiyUnitStatus-XXX	Stop	Run
8		HEATER	HeaterUnitStatus_XXX	Stop	Run
9		VENT FAN	VentFANStatus_XXX	Stop	Run
10		SUPPLY FAN	SupplyFANStatus_XXX	Stop	Run
11		ALARM	Alarm_XXX	Normal	Abnormal
1	Write Single Coil	ON/OFF	StartStopCommand_XXX	Stop	Run
2		LOCK	LockCommand_XXX	Permit	Prohibit
4		SMOKE	FireAlarmCommand_XXX	Stop	Run
5		HUMIDITY	HumidifyCommand_XXX	Stop	Run
6		AUTO VENT	AutoVentCommand_XXX	Stop	Run

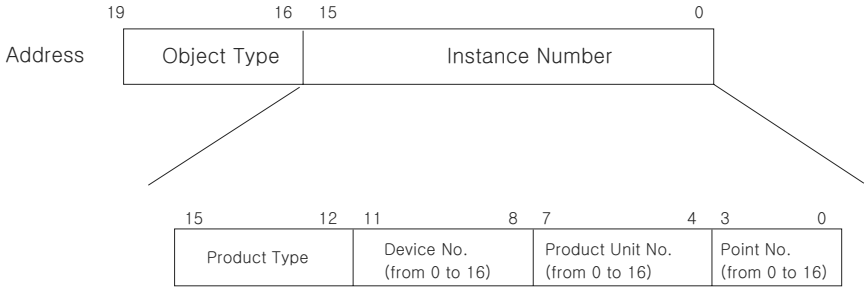
Register	Function	Name	Object Name (XXX : AHU address)	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
1	Read Holding Registers	MODE	ModeStatus_XXX		Cool	Dry	Fan	POWSAV	Heat
2		SET TEMP	SetTempStatus_XXX	°C					
3		SUPPLY TEMP	SupplyTempStatus_XXX	-127~127					
4		OUTDOOR TEMP	OutdoorTempStatus_XXX	-127~127					
5		VENT TEMP	VentTempStatus_XXX	-127~127					
6		MIXING TEMP	MixingTempStatus_XXX	-127~127					
7		SET HUMIDITY	SetHumidityStatus_XXX	40~60					
8		SUPPLY HUMIDITY	SupplyHumidityStatus_XXX	30~90					
9		OUTDOOR HUMIDITY	OutdoorHumidityStatus_XXX	30~90					
10		VENT HUMIDITY	VentHumidityStatus_XXX	30~90					
11		CO2 VALUE	CO_2ValueStatus_XXX	0~255					
12		ERROR CODE	MalfunctionCode_XXX	Reference LG original Error Code					
17		CURR_OA_DAMPER	CurOADamperStatus_XXX	0~90					
18		CURR_EA_DAMPER	CurEADamperStatus_XXX	0~90					
19		CURR_MIX_DAMPER	CurMixDamperStatus_XXX	0~90					
20		COOL_OA_DAMPER	OADamperCoolStatus_XXX	0~90					
21		COOL_EA_DAMPER	EADamperCoolStatus_XXX	0~90					
22		COOL_MIX_DAMPER	MixDamperCoolStatus_XXX	0~90					
23		HEAT_OA_DAMPER	OADamperHeatStatus_XXX	0~90					
24		HEAT_EA_DAMPER	EADamperHeatStatus_XXX	0~90					
25		HEAT_MIX_DAMPER	MixDamperHeatStatus_XXX	0~90					

Register	Function	Name	Object Name (XXX : AHU address)	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
26	Read Holding Registers	FAN_OA_DAMPER	OADamperFANStatus_XXX	0~90					
27		FAN_EA_DAMPER	EADamperFANStatus_XXX	0~90					
28		FAN_MIX_DAMPER	MixDamperFANStatus_XXX	0~90					
1	Write Single Registers	MODE	ModeCommand_XXX		Cool	Dry	Fan	POWSAV	Heat
2		SET TEMP	SetTempCommand_XXX	°C					
7		SET HUMIDITY	SetHumidityCommand_XXX	40~60					
20		COOL_OA_DAMPER	CoolOADamperCommand_XXX	0~90					
21		COOL_EA_DAMPER	CoolEADamperCommand_XXX	0~90					
22		COOL_MIX_DAMPER	CoolMixDamperCommand_XXX	0~90					
23		HEAT_OA_DAMPER	HeatOADamperCommand_XXX	0~90					
24		HEAT_EA_DAMPER	HeatEADamperCommand_XXX	0~90					
25		HEAT_MIX_DAMPER	HeatMixDamperCommand_XXX	0~90					
26		FAN_OA_DAMPER	FANOADamperCommand_XXX	0~90					
27		FAN_EA_DAMPER	FANEADamperCommand_XXX	0~90					
28		FAN_MIX_DAMPER	FANMixDamperCommand_XXX	0~90					

Local Definition of Object ID - The instance number is a pair, this consists of the indoor unit No. and item.

Example of Point Table

The point table below is passed to BMS, and BMS registers the object.



* Object Type (Coil : 0, Register : 4)
* Product Type (Indoor : 0, Vent : 4, AHU : 8)
** Device : Group of Product units (16EA)

Case Indoor

Function Code	Device No.	Product No.	Point	Instance No.	Name
1	0	0	0	0x00000	ON/OFF status
5	0	0	0	0x00000	ON/OFF Setting
1	0	1	0	0x00010	ON/OFF status
5	0	1	0	0x00010	ON/OFF Setting
1	1	0	0	0x00100	ON/OFF status
5	1	0	0	0x00100	ON/OFF Setting
3	0	0	0	0x40000	Mode status
6	0	0	0	0x40000	Mode Setting
3	0	1	0	0x40010	Mode status
6	0	1	0	0x40010	Mode Setting
3	1	0	0	0x40100	Mode status
6	1	0	0	0x40100	Mode Setting

Case Vent

Function Code	Device No.	Product No.	Point	Instance No.	Name
1	0	0	0	0x04000	ON/OFF status
5	0	0	0	0x04000	ON/OFF Setting
1	0	1	0	0x04010	ON/OFF status
5	0	1	0	0x04010	ON/OFF Setting
1	1	0	0	0x04100	ON/OFF status
5	1	0	0	0x04100	ON/OFF Setting
3	0	0	0	0x44000	Mode status
6	0	0	0	0x44000	Mode Setting
3	0	1	0	0x44010	Mode status
6	0	1	0	0x44010	Mode Setting
3	1	0	0	0x44100	Mode status
6	1	0	0	0x44100	Mode Setting

Case AHU

Function Code	Device No.	Product No.	Point	Instance No.	Name
1	0	0	0	0x08000	ON/OFF status
5	0	0	0	0x08000	ON/OFF Setting
1	0	1	0	0x08010	ON/OFF status
5	0	1	0	0x08010	ON/OFF Setting
1	1	0	0	0x08100	ON/OFF status
5	1	0	0	0x08100	ON/OFF Setting
3	0	0	0	0x48000	Mode status
6	0	0	0	0x48000	Mode Setting
3	0	1	0	0x48010	Mode status
6	0	1	0	0x48010	Mode Setting
3	1	0	0	0x48100	Mode status
6	1	0	0	0x48100	Mode Setting

Detailed Explanation of Object

Common to All Objects

Objects related to the air conditioner in communication are treated on the BACnet as described below.

- Air Conditioner in Normal Communication
  - Other BACnet devices can access each object related to the air conditioner.
- Air Conditioner Unconnected
  - It seems to other BACnet devices that no objects related to the air conditioner exist.
  - Therefore, when the ReadProperty/WriteProperty service is received, the following ErrorPDU will be returned.
  - Error class: OBJECT; Error type: UNKNOWN_PROPERTY
- Air Conditioner Communication Error
  - Other BACnet device can access the objects related to the air conditioners, but the Present_Value Property will be read in a value immediately before the communication error.

Run/Stop (Setting)

- Point number: 1
- Object name: StartStopCommand_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Output
- Meaning: This object is used to give Run/Stop commands to the air conditioner.
- Present_Value property:
- ACTIVE: Run command
- INACTIVE: Stop command
- **Remarks**:

  1. The command executed is transmitted to the A/C regardless of the status of the A/C.
  2. Present_Value property will not be used if a property has never been set in the past.

Run/Stop (Status)

- Point number: 2
- Object name: StartStopStatus_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Input
- Meaning: This object is used to monitor the Run/Stop status of the air conditioner.
- Present_Value property:
- ACTIVE: Run
- INACTIVE: Stop
- **Remarks**: If there is an operation error, the Present_Value property will be set to ACTIVE regardless of whether the A/C is in operation or not.

Lock (Setting)

- Point number: 3
- Object name: LockCommand_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Output
- Meaning: This object is used to set the Lock of the A/C's control authority.
- Present_Value property:
- ACTIVE: Lock (Restricted)
- INACTIVE: Unlock (Not restricted)

Lock (Status)

- Point number: 4
- Object name: LockStatus_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Input
- Meaning: This object is used to monitor the Lock of the A/C's control authority.
- Present_Value property:
- ACTIVE: Lock (Restricted)
- INACTIVE: Unlock (Not restricted)

Filter Sign

- Point number: 5
- Object name: FilterSign_XXX (XXX: Vent/AHU address)
- Object type: Binary Input
- Meaning: This object is used to monitor the status of the filters for vent.
- Present_Value property:
- ACTIVE: Filter sign information is turned ON.
- INACTIVE: Filter sign information is OFF.
- **Remarks**: This object supports the Intrinsic Reporting function. When the Present_Value property changes, the corresponding Event will be transmitted if the Event has been registered.

Filter Sign Reset

- Point number: 6
- Object name: FilterSignReset_XXX (XXX: Vent/AHU address)
- Object type: Binary Value
- Meaning: This object is used to reset the vent's limit indication.
- Present_Value property:
- INACTIVE: Filter indication information is reset.
- **Remarks**:
  1. During a read operation of the Present_Value property, the Fliter Limit Sign Reset will be always the same value as the Filter Limit Sign object.
  2. Only if INACTIVE is written to the Present_Value property during a write operation, the filter sign information resets ON signs and nothing will be executed even if ACTIVE is written.
  3. This object supports the Intrinsic Reporting function. When the Present_Value property changes, the corresponding Event will be transmitted if the Event has been registered.

Operation Mode (Setting)

- Point number: 7
- Object name: ModeCommand_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Multistate Output
- Meaning: This object is used to set the operation modes of the air conditioner.
- Present_Value property:

Indoor	Vent
1 : Cool	HEX
2 : Dry	Auto
3 : Fan	Normal
4 : Auto	-
5 : Heat	-

- **Remarks**:
  1. The Present_Value property will be set to "1: Cool" as the default value if property has never been set in the past.
  2. The air conditioner will ignore the command to an object that does not have right to select operation mode. Therefore, the controlled/monitored system must not use this object for the air conditioner without the right to select operation mode.

Operation Mode (Status)

- Point number: 8
- Object name: ModeStatus_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Multistate Input
- Meaning: This object is used to monitor the operation modes of the air conditioner.
- Present_Value property:

Indoor	Vent
1 : Cool	HEX
2 : Dry	Auto
3 : Fan	Normal
4 : Auto	-
5 : Heat	-

Swing (Setting)

- Point number: 9
- Object name: SwingCommand_XXX (XXX: Indoor address)
- Object type: Binary Output
- Meaning: This object is to set the air direction of the indoor unit.
- Present_Value property:
- ACTIVE: Run
- INACTIVE: Stop

Swing (Status)

- Point number: 10
- Object name: SwingStatus_XXX (XXX: A/C unit address)
- Object type: Binary Input
- Meaning: This object is to monitor the air direction of the A/C.
- Present_Value property:
- ACTIVE: Swing_On
- INACTIVE: Swing_Off

Fan Speed (Setting)

- Point number: 11
- Object name: FanSpeedCommand_XXX (XXX: A/C unit address)
- Object type: Multistate Output
- Meaning: This object is to set the airflow of the A/C.
- Present_Value property:

Indoor	Vent
1 : Low	Low
2 : Middle	High
3 : High	Super High
4 : Auto	Auto

- **Remarks**: The A/C will disregard the command which the object which can't select the operation mode. Therefore, controlled/monitored system shouldn't use the object which can't select the operation mode.

Fan Speed (Status)

- Point number: 12
- Object name: FanSpeedStatus_XXX (XXX: Indoor/Vent addresss)
- Object type: Multistate Input
- Meaning: This object is to monitor the airflow of the A/C.
- Present_Value property:

Indoor	Vent
1 : Low	Low
2 : Middle	High
3 : High	Super High
4 : Auto	Auto

- **Remarks**: Present_value property will be set to "1:Low" as the default result if the property has not been set in the past.

Set Room Temperature

- Point number: 13
- Object name: SetRoomTemp_XXX (XXX: Indoor/AHU address)
- Object type: Analog Value
- Meaning: This object is used to set the room temperature for the air conditioner.
- Present_Value property:
- Temperature(°C)
- **Remarks**:
  1. This unit is for indoor units only, and the approximate set temperature range is 18 ~ 35°C.
  2. When COV registration is made, the COV will be reported the moment a temperature change of at least 1°C is detected.

Room Temperature

- Point number: 14
- Object name: RoomTemp_XXX (XXX: Indoor/AHU address)
- Object type: Analog Input
- Meaning: This object is used to monitor room temperature which the indoor unit is placed.
- Present_Value property:
- Temperature(°C)
- **Remarks**: This object is for indoor units only, and reports the room temperature data measured by the indoor units.

Alarm

- Point number: 15
- Object name: Alarm_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Binary Input
- Meaning: This object is used to monitor the Alarm.
- Present_Value property:
- ACTIVE: Alarm_On
- INACTIVE: Alarm_Off

Error Code

- Point number: 16
- Object name: MalfunctionCode_XXX (XXX: Indoor/Vent/AHU address)
- Object type: Analog Input
- Meaning: This object is used to monitor the details of the error status when the air conditioner
- has an error.
- Present_Value property:
- Error code(Range is 1 to 255)
- **Remarks**: This object's error code descriptions should be referred to the corresponding table at the "Reference LG original Error Code".

User Mode (Setting)

- Point number: 17
- Object name: UserModeCommand_XXX (XXX: Vent address)
- Object type: Multi-state Output
- Meaning: This object is used to set the basic operation mode in vent and also additional
- operation mode (quick fresh, energy efficiency, and heating).
- Present_Value property:

  1: Quick

  2: Saving

  3: Heater

- **Remarks**: This object is for vent only, and will not apply if the property has not been set in the past.

User Mode (Status)

- Point number: 18
- Object name: UserModeStatus_XXX (XXX: Vent address)
- Object type: Multi-state Input
- Meaning : This object is used to monitor the basic operation mode in vent
- Property_Value property:

  1: Quick

  2: Saving

  3: Heater

- **Reamark** : This object is for vent only, and will not apply if the property has not been in the past.

Set Temperature (Status)

- Point number: 19
- Object name: SetTempStatus_XXX (XXX: AHU address)
- Object type: Analog Input
- Meaning: This object is used to monitor the set temperature of the A/C's control authority.
- Present_Value property:
- Temperature(°C)
- **Remarks** : This object is for indoor units only, and reports the room temperature data measured by the indoor units.

Accumulator Power Distribution (Status)

- Point number: 20
- Object name: AccumPowerStatus_XXX (XXX: A/C unit address)
- Object type: Analog Input
- Meaning: This object is used to monitor the accumulator power distribution of the A/C's control
- authority.
- Present_Value property:
- Power Distribution(count * 100Watt)

AC Operation Mode (Setting)

- Point number: 21
- Object name: HrvModeCommand_XXX (XXX: DXHRV unit address)
- Object type: Multistate Output
- Meaning: This object is used to set the A/C operation mode of the DXHRV.
- Present_Value property:
  1 : Cool
  2 : Auto
  3 : Heat

AC Operation Mode (Status)

- Point number: 22
- Object name: HrvModeStatus_XXX (XXX: DXHRV unit address)
- Object type: Multistate Input
- Meaning: This object is used to monitor the A/C operation mode of the DXHRV.
- Present_Value property:
  1 : Cool
  2 : Auto
  3 : Heat

AC Run/Stop (Setting)

- Point number: 23
- Object name: HrvStartStopCommand_XXX (XXX: DXHRV unit address)
- Object type: Binary Output
- Meaning: This object is used to set the A/C Run/Stop status of the DXHRV.
- Present_Value property:
- ACTIVE: Run command
- INACTIVE: Stop command

AC Run/Stop (Setting)

- Point number: 24
- Object name: HrvStartStopStatus_XXX (XXX: DXHRV unit address)
- Object type: Binary Input
- Meaning: This object is used to monitor the A/C Run/Stop status of the DXHRV.
- Present_Value property:
- ACTIVE: Run
- INACTIVE: Stop

AC Humidify (Setting)

- Point number: 25
- Object name: HrvHumidifyCommand_XXX (XXX: DXHRV unit address)
- Object type: Binary Output
- Meaning: This object is used to set the A/C humidify status of the DXHRV.
- Present_Value property:
- ACTIVE: ON command
- INACTIVE: OFF command

AC Humidify (Status)

- Point number: 26
- Object name: HrvStartStopStatus_XXX (XXX: DXHRV unit address)
- Object type: Binary Input
- Meaning: This object is used to monitor the A/C humidify status of the DXHRV.
- Present_Value property:
- ACTIVE: ON
- INACTIVE: OFF

Set Upper Temperature (Setting)

- Point number: 27
- Object name: SetUpperTempCommand_XXX (XXX: A/C unit address)
- Object type: Analog Value
- Meaning: This object is used to set the upper temperature for the air conditioner.
- Present_Value property:
- Temperature(°C)
- **Remarks**: .

  1. This unit is for indoor units only, and the approximate set upper temperature range is 18 ~ 30°C.
  2. 1°C is detected.

Set Upper Temperature (Status)

- Point number: 28
- Object name: SetUpperTempStatus_XXX (XXX: A/C unit address)
- Object type: Analog Input
- Meaning: This object is used to monitor set upper temperature which the indoor unit is placed.
- Present_Value property:
- Temperature(°C)
- **Remarks**: This object is for indoor units only, and reports the set upper temperature data measured by the indoor units.

Set Lower Temperature (Setting)

- Point number: 29
- Object name: SetLowerTempCommand_XXX (XXX: A/C unit address)
- Object type: Analog Value
- Meaning: This object is used to set the lower temperature for the air conditioner.
- Present_Value property:
- Temperature(°C)
- **Remarks**:

  1. This unit is for indoor units only, and the approximate set lower temperature range is 18 ~ 30°C.
  2. 1°C is detected.

Set Lower Temperature (Status)

- Point number: 30
- Object name: SetLowerTempStatus_XXX (XXX: A/C unit address)
- Object type: Analog Input
- Meaning: This object is used to monitor set lower temperature which the indoor unit is placed.
- Present_Value property:
- Temperature(°C)
- **Remarks**: This object is for indoor units only, and reports the set lower temperature data measured by the indoor units.

Mode Lock (Setting)

- Point number: 31
- Object name: ModeLockCommand_XXX (XXX: A/C unit address)
- Object type: Binary Output
- Meaning: This object is used to set the mode lock of the A/C's control authority.
- Present_Value property:
- ACTIVE: Lock (Restricted)
- INACTIVE: Unlock (Not restricted)

Mode Lock (Status)

- Point number: 32
- Object name: ModeLockStatus_XXX (XXX: A/C unit address)
- Object type: Binary Input
- Meaning: This object is used to monitor the mode lock of the A/C's control authority.
- Present_Value property:
- ACTIVE: Lock (Restricted)
- INACTIVE: Unlock (Not restricted)

Initialization at the Start Up

The system is designed to automatically recognize the connected air conditioners. Therefore, a period of approximately one minute will be required to recognize all the air conditioners after the system is turn on. During this period, the following error PDU may be returned when an object corresponding to an air conditioner is accessed.

ErrorClass = Object; ErrorCode = Unknown_Object

If an attempt is made to read the Object List property of the Device object from an air conditioner during the above period of recognition, the following error PDU will be returned, unless the air conditioner has been recognize:

ErrorClass = Device; ErrorCode = Configuration_In_Progress

Communication error response of ACP BACnet, please refer to **ACP-BACnet Error Response Table on page 205**.

Clock Setting

The Timesynchronization service allows clock settings by the local time.

Furthermore, the UTCTimesycchronization allows clock settings by UTC

Report Function

Event Notification

1) Registration of Event Notification Destination

It is possible to use the AddListElement service to register notification destination information on the Recipient List property of the Notification Class object.

2) Deletion of Event Notification Destination

The RemoveListElement service can be used to delete notification destination information from the Notification Class object.

3) Event Notification Destination in Memory

The registered event notification destination is stored in the memory. When the system is turned on, the event notification destination will be initialized with the stored information. The Event notification destination will be stored five seconds after the registration or deletion.

COV(Change of Value) Notification

A request for COV registration is accepted through the SubscribeCOV service.

1) Setting of Confirmed or Unconfirmed COV

This item is supported according to the BACnet Specifications.

2) Setting of the desired lifetime of the subscription

This item is supported according to the BACnet Specifications.

When COV notification is made at the time of status change, the difference between the registered time and present time will be calculated. If the difference is greater than the registered lifetime of the subscription, the subscription will be judged expired and deleted. Therefore, if a clock time change is made, the lifetime of the subscription may differ from the value that has been set.

3) Memory after Interruption of Power Supply to System

This item is not supported. Registration information is not stored in the memory, and will be lost when the power is turned off. According to the BACnet Specifications, It is not required to guarantee preservation of subscriptions across power failure.

* Supported COV service is shown in the follow table

Service	Object	Product
On/Off (status)	Binary Input object property	Indoor / vent
Lock On/Off (status)	Binary Input object property	Indoor / vent
Mode Lock (status)	Binary Input object property	Indoor
Wind Flow Lock (status)	Binary Input object property	Indoor
Set Upper Temperature (status)	Analog Input object property	Indoor
Set Lower Temperature (status)	Analog Input object property	Indoor
Operation mode (status)	Multistate Input object property	Indoor / vent
Swing (status)	Binary Input object property	Indoor
Filter Sign	Binary Input object property	vent
Fan Speed (status)	Multistate Input object property	Indoor / vent
Set Room Temperature	Analog Value object property	Indoor
Room Temperature	Analog Input object property	Indoor
Alarm	Binary Input object property	Indoor / vent
Error Code	Analog Input object property	Indoor / vent
User mode	Multistate Input object property	vent

NOTES

Troubleshooting

During the use of the ACP BACnet, if unexpected problem occurs, please find the solution by studying the following list. If there is no solution, please access www.lgservice.co.kr to report the problem.

When Tx or Rx LED of CH1~4 port is not blinking during the product installation

When Tx or Rx LED of CH1~4 port is not blinking during the product installation, run it after setting the indoor and outdoor unit groups.

When GUI cannot be operated in Web GUI, which is the operation program of the ACP BACnet

1. When GUI cannot be operated in Web GUI, which is the operation program of the ACP BACnet, close Explorer window, and run new Explorer to access again.
2. Close all iexplorer.exe process in Task Manager, and access to the ACP BACnet again.
   - After running Task Manager, you can select 'Task Manager' in the popup menu window displayed by clicking the right button of the mouse on the menu bar of the window.

When the ventilation equipment is displayed as a network error state (code 242) in LG Web GUI of the ACP BACnet

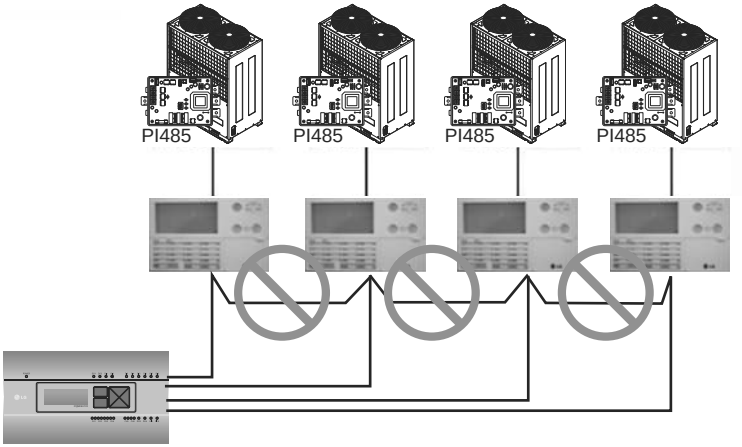
When the ventilation equipment is displayed as a network error state (code 242) as followed, in Web GUI, which is the web server program of the ACP BACnet, please check the following categories.

- Check if the BUS-A and BUS-B of RS-485 cable are incorrectly connected.
- Check if there is a communication defect between the remote controller and the indoor unit.
- Check if the PI485 DIP switch is incorrectly set.
- Check if the indoor unit address for the central control is not set.

The CH242 (network error) keeps occurring and disappearing in the ACP BACnet controller.

Case of incorrect connection of RS-485 communication line

If each communication line is connected altogether as in the following figure, the communication line must be separated.



ACP BACnet

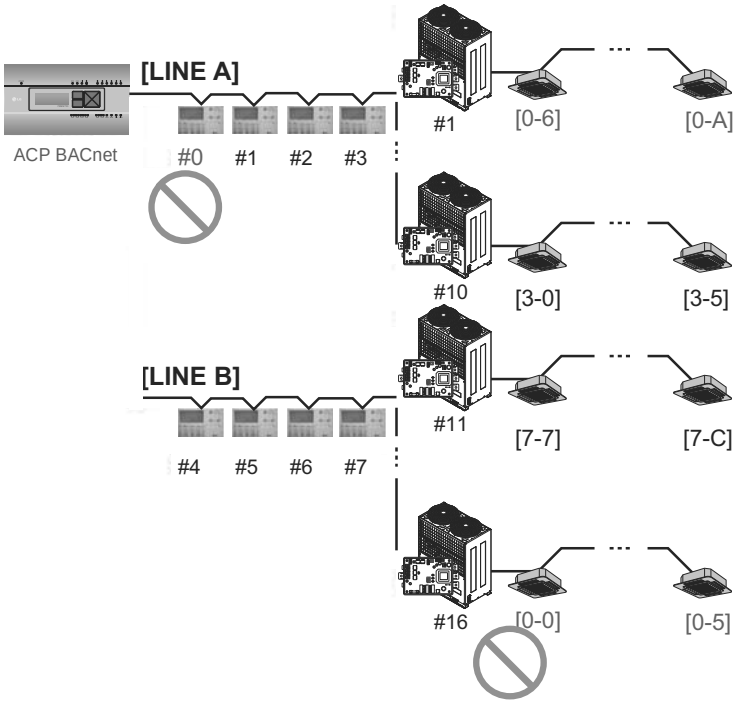
Duplicate setting of the indoor unit address

It is the case of two or more indoor units are set with the same address. It may be the case of several indoor units having the default address 00 by not setting the central control address from the beginning for some indoor units.

In such case, assign unique address to each indoor unit not to have indoor unit with a duplicate address.

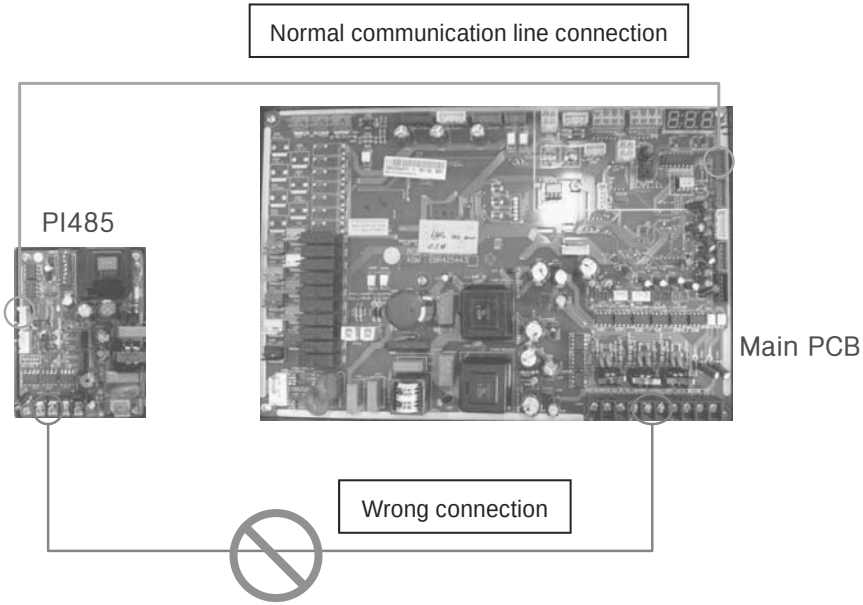
It is installed by interfacing 16 room central controller and the ACP BACnet, but some indoor units are not recognized, or not properly performing the central control commands

- It is the case of incorrect setting of the simple central controller (16 room central controller) DIP switch.
  Set all simple central controllers to Slave mode, and reset the power.
- If the indoor unit to control with simple central controller is in another physical line as in the following figure, the simple central controller cannot recognize the corresponding indoor unit. Therefore, the connections need to be modified to have the simple central controller to be in the same RS-485 communication line with the indoor unit to control.



When the outdoor unit is Multi V Super Ⅱ, and central control is not well performed with 16 room central controller or ACP BACnet, and the indoor units malfunction such as some indoor units automatically becoming locked state or automatically converting to cooling during heating operation

1. PI485 and outdoor unit may not be doubly connected. Please refer to the following picture to check the connection status of the communication line.



When the image of Web GUI is broken and you cannot see the screen such as the temperature well

1. Close Web GUI, and rerun.

Caution

- If PC is used for a long period of time, or several application programs are used at the same time, PC performance may be degraded and may affect the ACP BACnet UI.
- When you use Web GUI, it is recommended to close other application programs.
- It is recommended to use Web GUI only during the control and monitoring.
  (Maximum of 3 hours of usage is recommended according to the PC environment.)

Guide to Open Source Software

The following GPL/LGPL execution file and libraries used for this product follows GPL/LGPL license contract.

GPL execution file

Linux kernel 2.4	fdisk	lrzsz
Sysvinit	Inetutils	e2fsprogs
Bash	net-tools	boa http server
busybox	stupid-ftpd	
tinylogin	traceroute	

LGPL library

glibc	linuxthreads	ncurses	zlib

If you request source code to LG Electronics through the following e-mail, we will send them in CD-ROM with the payment necessary for medium and transportation.

da-opensource@lge.com

This suggestion is valid for 3 years after you received this product from LG Electronics.
You can receive the original GPL/LGPL license from http://www.systemaircon.com.

BIBBs

ACP BACnet Interoperability Building Blocks Supported(BIBBs)

Data Sharing BIBBS

(□:Not supported,■: Support)

BIBB Type		Supported	ACP BACnet Service	Initiate	Execute
DS-RP-A	Data Sharing-ReadProperty-A	□	ReadProperty	×	
DS-RP-B	Data Sharing-ReadProperty-B	■	ReadProperty		×
DS-RPM-A	Data Sharing-ReadPropertyMultiple-A	□	ReadPropertyMultiple	×	
DS-RPM-B	Data Sharing-ReadPropertyMultiple-B	■	ReadPropertyMultiple		×
DS-RPC-A	Data Sharing-ReadPropertyConditiona-A	□	ReadPropertyConditional	×	
DS-RPC-B	Data Sharing-ReadPropertyConditiona-B	□	ReadPropertyConditional		×
DS-WP-A	Data Sharing-WriteProperty-A	□	WriteProperty	×	
DS-WP-B	Data Sharing-WriteProperty-B	■	WriteProperty		×
DS-WPM-A	Sharing-WritePropertyMultiple-A	□	WritePropertyMultiple	×	
DS-WPM-B	Data Sharing-WritePropertyMultiple-B	■	WritePropertyMultiple		×
DS-COV-A	Data Sharing-COV-A	□	SubscribeCOV	×	
			Confirmed COVNotification		×
			Unconfirmed COVNotification		×
DS-COV-B	Data Sharing-COV-B	■	SubscribeCOV		×
			Confirmed COVNotification	×	
			Unconfirmed COVNotification	×	
DS-COVP-A	Data Sharing-COVP-A	□	SubscribeCOV	×	
			Confirmed COVNotification		×
			Unconfirmed COVNotification		×

BIBB Type		Supported	ACP BACnet Service	Initiate	Execute
DS-COVP-B	Data Sharing-COVP-B	□	SubscribeCOV		×
			Confirmed COVNotification	×	
			Unconfirmed COVNotification	×	
DS-COVU-A	Data Sharing-COV-Unsolicited-A	□	Unconfirmed COVNotification		×
DS-COVU-B	Data Sharing-COV-Unsolicited-B	□	Unconfirmed COVNotification	×	

Alarm and Event Management BIBBS

(□:Not supported,■: Support)

BIBB Type		Supported	ACP BACnet Service	Initiate	Execute
AE-N-A	Alarm and Event-Notification-A	□	Confirmed EventNotification		×
			Unconfirmed EventNotification		×
AE-N-I-B	Alarm and Event-Notification Internal-B	■	Confirmed EventNotification	×	
			Unconfirmed EventNotification	×	
AE-N-E-B	Alarm and Event-Notification External-B	□	Confirmed EventNotification	×	
			Unconfirmed EventNotification	×	
AE-ACK-A	Alarm and Event-ACK-A	□	AcknowledgeAlarm	×	
AE-ACK-B	Alarm and Event-ACK-B	□	AcknowledgeAlarm		×
AE-ASUM-A	Alarm and Event-Summary-A	□	GetAlarmSummary	×	
AE-ASUM-B	Alarm and Event-Summary-B	□	GetAlarmSummary		×
AE-ESUM-A	Event-Summary-A	□	GetEnrollment Summary	×	
AE-ESUM-B	Event-Summary-B	□	GetEnrollment Summary		×
AE-INFO-A	Alarm and Event-Information-A	□	GetEventInformation	×	
AE-INFO-B	Alarm and Event-Information-B	□	GetEventInformation		×
AE-LS-A	Alarm and Event-LifeSafety-A	□	LifeSafetyOperation	×	
AE-LS-B	Alarm and Event-LifeSafety-B	□	LifeSafetyOperation		×

Scheduling BIBBS

(□:Not supported,■: Support)

BIBB Type		Supported	ACP BACnet Service	Initiate	Execute
SCHED-A	Scheduling-A (must support DS-RP-A and DS-WP-A)	□			
SCHED-I-B	Scheduling-Internal-B (shall support DS-RP-B and DS-WP-B) (shall also support ether DM-TS-B or DS-UTC-B)	□			
SCHED-E-B	Scheduling-External-B (shall support SCHED-I-B and DS-WP-A)	□			

Trending BIBBS

(□:Not supported,■: Support)

BIBB Type		Supported	ACP BACnet Service	Initiate	Execute
T-VMT-A	Trending - Viewing and Modifying Trends-A	□	ReadRange	×	
T-VMT-I-B	Trending-Viewing and Modifying Trends Internal-B	□	ReadRange		×
T-VMT-E-B	Trending-Viewing and Modifying Trends External-B	□	ReadRange		×
T-ATR-A	Trending - Automated Trend Retrieval-A	□	ConfirmedEvent Notification		×
			edEventNoti	×	
T-ATR-B	Trending - Automated Trend Retrieval-B	□	ConfirmedEvent Notification	×	
			edEventNoti		×

Device Management BIBBS

(□:Not supported,■: Support)

BIBB Type		Supported	ACP BACnet Service	Initiate	Execute
DM-DDB-A	Device Management - Dynamic Device, Binding-A	■	Who-Is	×	
			I-Am		×
DM-DDB-B	Device Management - Dynamic Device, Binding-B	■	Who-Is		×
			I-Am	×	
DM-DOB-A	Device Management - Dynamic Object, Binding-A	□	Who-Has	×	
			I-Have		×
DM-DOB-B	Device Management - Dynamic Object, Binding-B	■	Who-Has		×
			I-Have	×	
DM-DCC-A	Device Management - DeviceCommunication Control-A	□	DeviceCommunication Control	×	
DM-DCC-B	Device Management - DeviceCommunication Control-B	□	DeviceCommunication Control		×
DM-PT-A	Device Management - PrivateTransfer-A	□	ConfirmedPrivate Transfer	×	
			UnconfirmedPrivate Transfer	×	
DM-PT-B	Device Management - PrivateTransfer-B	□	ConfirmedPrivate Transfer		×
			UnconfirmedPrivate Transfer		×
DM-TM-A	Device Management - Text Message-A	□	ConfirmedPrivate Transfer	×	
			UnconfirmedPrivate Transfer	×	
DM-TM-B	Device Management - Text Message-B	□	ConfirmedPrivate Transfer		×
			UnconfirmedPrivate Transfer		×
DM-TS-A	Device Management - TimeSynchronization-A	□	TimeSynchronization	×	
DM-TS-B	Device Management - TimeSynchronization-B	■	TimeSynchronization		×
DM-UTC-A	Device Management - UTCTimeSynchronization-A	□	UTCTime Synchronization	×	

BIBB Type		Supported	ACP BACnet Service	Initiate	Execute
DM-UTC-B	Device Management - UTCTimeSynchronization-B	□	UTCTime Synchronization		×
DM-RD-A	Device Management - ReinitializeDevice-A	□	ReinitializeDevice	×	
DM-RD-B	Device Management - ReinitializeDevice-B	□	ReinitializeDevice		×

Device Management BIBBS

(□:Not supported,■: Support)

BIBB Type		Supported	ACP BACnet Service	Initiate	Execute
DM-BR-A	Device Management - Backup and Restore-A	□	AtomicReadFile	×	
			AtomicWriteFile	×	
			CreateObject	×	
			ReinitializeDevice	×	
DM-BR-B	Device Management - Backup and Restore-B	□	AtomicReadFile		×
			DMAtomicWriteFile		×
			ReinitializeDevice		×
DM-R-A	Device Management - Restart-A	□	Unconfimed COVNotification		×
DM-R-B	Device Management - Restart-B	□	Unconfimed COVNotification	×	
DM-LM-A	Device Management - List Manipulation-A	□	AddListElement	×	
			RemoveListElement	×	
DM-LM-B	Device Management - List Manipulation-B	□	AddListElement		×
			RemoveListElement		×
DM-OCD-A	Device Management - Object Creation and Deletion-A	□	CreateObject	×	
			DeleteObject	×	
DM-OCD-B	Device Management - Object Creation and Deletion-B	□	CreateObject		×
			DeleteObject		×
DM-VT-A	Device Management - Virtual Terminal-A	□	VT-Open	×	
			VT-Close	×	×
			VT-Data	×	×
DM-VT-B	Device Management - Virtual Terminal-B	□	VT-Open		×
			VT-Close	×	×
			VT-Data	×	×

Network Management BIBBS

(□:Not supported,■: Support)

BIBB Type		Supported	ACP BACnet Service	Initiate	Execute
NM-CE-A	Network Management - Connection Establishment-A	□	Establish-Connection-To-Network	×	
			Disconnect-Connection-To-Network	×	
NM-CE-B	Network Management - Connection Establishment-B	□	Establish-Connection-To-Network		×
			Disconnect-Connection-To-Network		×
DM-BR-A	Network Management - Router Configuration-A	□	Who-Is-Router-To-Network	×	
			I-Am-Router-To-Network		×
			I-Could-Be-Router-To-Network		×
			Initialize-Routing-Table	×	
			Initialize-Routing-Table-Ack		×
NM-RC-B	Network Management - Router Configuration-B	□	Who-Is-Router-To-Network	×	×
			I-Am-Router-To-Network	×	×
			Initialize-Routing-Table		×
			Initialize-Routing-Table-Ack	×	

Multi - state Input Object Type

Property Identifier	Property Datatype	ACP BACnet	BNU-BAC
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	Unsigned	R1	R
Description	CharacterString	O	R
Device_Type	CharacterString	O	-
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O2	-
Out_Of_Service	Boolean	R	R
Number_Of_States	Unsigned	R	R
State_Text	BACnetARRAY[N] of CharacterString	O	-
Time_Delay	Unsigned	O3	-
Notification_Class	Unsigned	O3	-
Alarm_Values	List of Unsigned	O3	-
Fault_Values	List of Unsigned	O3	-
Event_Enable	BACnetEventTransitionBits	O3	-
Acked_Transitions	BACnetEventTransitionBits	O3	-
Notify_Type	BACnetNotifyType	O3	-
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O3	-

Multi - state Output Object Type

Property Identifier	Property Datatype	ACP BACnet	BNU-BAC
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	Unsigned	W	W
Description	CharacterString	O	R
Device_Type	CharacterString	O	-

Property Identifier	Property Datatype	ACP BACnet	BNU-BAC
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	-
Out_Of_Service	Boolean	R	R
Number_Of_States	Unsigned	R	R
State_Text	BACnetARRAY[N] of CharacterString	O	-
Priority_Array	BACnetPriorityArray	R	-
Relinquish_Default	Unsigned	R	-
Time_Delay	Unsigned	O1	-
Notification_Class	Unsigned	O1	-
Feedback_Value	Unsigned	O1	-
Event_Enable	BACnetEventTransitionBits	O1	-
Acked_Transitions	BACnetEventTransitionBits	O1	-
Notify_Type	BACnetNotifyType	O1	-
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O1	-
Profile_Name	CharacterString	O	-

ACP-BACnet Error Response Table

Error PDU

Error PDU	Error Class	Error Code
Reading of the object list during the initialization of the LG-NET	Device(0)	Configuration_In_Progress(2)
Request to access to an object not installed.	Object(1)	Unknown_Object(31)
Request to access to a property not installed.	Property(2)	Unknown_Property(32)
Request to write to a prohibited area.	Property(2)	Write_Access_Denied(40)
Request to write in a format different from the property.	Property(2)	Invalid_Datatype(9)
Request to access to a specified index outside the array index range.	Property(2)	Invalid_Array_Index(42)
Request to write a value outside the permissible range.	Property(2)	Value_Out_Of_Range(37)
A COV registration request of more than 10 registration items.	Resource(3)	Other(0)
An Event registration request of more than 10 registration items.	Resource(3)	No_Space_To_Add_List_Element(19)
Request for the deletion of an element not existing in the list.	Service(5)	Other(0)
Request for the execution of the AddListElement/ RemoveListElement for a property that is not of List type.	Service(5)	Property_Is_Not_List(22)

Reject PDU

Reject PDU	Reject Reason
A propertyID or value overflow or underflow occurred during WritePropertyMultiple operation.	Inconsistent_Parameter(2)
The type of parameter for the execution of the service is different in type.	Invalid_Parameter_Data_Type(3)
An error was detected during tag decoding.	Invalid_Tag(4)
A parameter shortage occurred during the execution of the service.	Missing_Required_Parameter(5)
Too many arguments for the execution of the service.	Too_Many_Arguments(7)
An attempt to execute an unsupported service with confirmation.	Unrecognized_Service(9)

Abort PDU

Reject PDU	Reject Reason
Unable to process due to too many requests beyond the capacity.	Buffer_Overflow(1)
The processing of segments was aborted because an expected APDU was received.	Invalid_APDU_In_This_State(2)
The response side does not support the segment.	Segmentation_Not_Supported(4)

Class A device

Notes

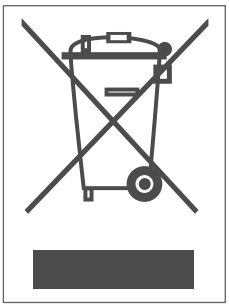
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Caution

Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.



Disposal of your old appliance

1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.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