LG
Life's Good

ENGLISH

Installation/User Manual

BECON HVAC touch BACnet

- 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.

Type: AC Smart BACnet
Model No.: PBACNA000

P/NO : MFL69023101

www.lg.com

EXPLANATORY NOTES

Copyrights

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Product Features

Convenience

- **Auto-changeover**
  Automatically switches the indoor unit into the correct mode to optimize space comfort.
- **Web access**
  Allows distributed control from a remote location.
- **Visual and e-mail alarm notification**
  Immediately indicates when a system is not operating at optimal conditions.
- **Visual Navigation**
  Allows for accessing unit data by navigating uploaded floorplans.

Energy Savings

- **Scheduling**
  Conditions the space only when necessary.
- **Setpoint Range Limit**
  Prevents the setpoint from being set to extremes that can result in overcooling or overheating of the space.
- **Remote Controller Lock**
  Prevents users from changing indoor unit operation.
- **Setback**
  Allows indoor units to be shut off during unoccupied periods with an override feature to keep interior temperatures from reaching extremes.
- **Time Limit**
  Allows a unit to be turned on during unoccupied times and automatically shut down after a specified amount of run time.
- **Peak/Demand Control**
  Allows for electronically limiting power usage.

Integration

- **Interlocking**
  Allows interlocked operation between devices or between digital inputs and outputs on the AC Smart and devices.

How to Use This Guide

Please read from beginning to end this User Manual before using AC Smart BACnet. Store this guide so that is also easily accessible.

Notations Used In This Guide

- Control buttons displayed within the system are marked by boldface text in square brackets (**[ ]**).

  Example: **[OK], [Save]**

- Option titles displayed in the program are marked by boldface text.

  Example: **Start, Programs**

- Keyboard strokes used by the system are marked by boldface text in angle brackets (< >).

  Example: **<Esc>**

MEMO

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MEMO

SAFETY PRECAUTIONS

- This product must be installed by an installation professional from an LG authorized service center.
- Any issues stemming from an installation by an unauthorized person is the responsibility of the user and will not be covered by warranty.
- The following safety precautions are to prevent any unforeseen dangers or damage.
- This product has been designed for business use, or for areas outside the home, and has passed the Electromagnetic Interference Test.

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

- **To reinstall the product, please contact the dealer from where you purchased the product, or a service center for reinstallation service.**
  - Installation of the product by an unauthorized person may result in fire, electric shock, explosion, injury, or a malfunctioning of the product.
- **Do not twist or damage the power cord.**
  - It may cause fire or electric shock.
- **For electrical work, please contact the dealer from where you purchased the product, or a service center.**
  - Disassembly or repair by an unauthorized person may result in fire or electric shock.
- **Install the product in an area shielded from rain.**
  - If water gets into the product, it may malfunction.
- **Do not install the product in a humid area.**
  - If the product is damp, it may malfunction.
- **For installation of the product, please contact the dealer from where you purchased the product, or a service center.**
  - Installation of the product by an unauthorized person may result in fire, electric shock, explosion, injury, or a malfunctioning of the product.

- **For electrical work, please have an electrician do the work based on the installation manual and specified circuit diagram.**
  - Using an unsuitable cord, or having a non-professional work on the electricals may result in fire or electrical shock.
- **Do not place the product near a fire source.**
  - It may result in the product catching fire.
- **If the product is installed in a hospital or a communication base station, provide sufficient protective equipment against electrical noise.**
  - The product may malfunction or other products may work abnormally.
- **Securely install the product.**
  - If the product is not secured during installation, it may fall or malfunction.
- **Read the manual thoroughly to correctly install the product.**
  - If not, an incorrect installation may cause fire or electric shock.
- **When wiring the product, do not use a non-standard cable, nor extend the cable excessively.**
  - It may cause a fire or electric shock.
- **Securely install the power cord and communication cable.**
  - An unsecure installation may result in a fire or electric shock.
- **Do not connect the power cord to the communication terminal.**
  - It may cause a fire, electric shock, or a product malfunction.
- **Do not install the product in an area near combustible gas.**
  - It may result in fire, electric shock, explosion, injury, or a malfunctioning of the product.

Use

- **Do not place a heavy object on the power cord.**
  - It may cause a fire or electric shock.
- **Do not change or extend the power cord arbitrarily.**
  - It may cause a fire or electric shock.
- **Use the cord specific to the product.**
  - Using an unauthorized non-standard cord may result in a fire or electric shock.
- **Do not use a heat device near the power cord.**
  - It may cause a fire or electric shock.
- **Ensure that water never gets into the product.**
  - It can result in an electric shock, or the product may malfunction.
- **Do not place any container with liquid on the product.**
  - The product may malfunction.

- **Do not touch the product with wet hands.**
  - It may cause a fire or electric shock.
- **Use standard components.**
  - Use of an unauthorized product may result in fire, electric shock, explosion, injury, or a malfunctioning of the product.
- **If the product has been submerged in water, you should contact a service center.**
  - It may cause a fire or electric shock.
- **Do not shock the product.**
  - The product may malfunction.
- **Do not store or use any combustible gas or flammable substances near the product.**
  - It may cause a fire, or a product malfunction.
- **Do not disassemble, repair, or revamp the product arbitrarily.**
  - It may cause a fire or electric shock.
- **Children and the elderly should use the product under the supervision of a guardian.**
  - Carelessness may cause an accident, or the product to malfunction.
- **The guardian should prevent children from accessing the product.**
  - The product may be damaged or it may fall, causing injury to children.
- **Keep in mind the operating temperature range specified in the manual.**
  if there is no operating temperature range in the manual, use the product between 0 and 40 °C (32 and 104 °F).
  - If the product is used outside this range, the product may be severely damaged.
- **Do not press the switch or button with a sharp object.**
  - It can result in an electric shock, or the product may malfunction.
- **Do not wire the product while it is turned on.**
  - It may cause a fire or electric shock.
- **If the product sounds or smells different, stop using the product.**
  - It may cause a fire or electric shock.
- **Do not place a heavy object on the product.**
  - The product may malfunction.
- **Do not spray water on the product, or clean it with a water-soaked cloth.**
  - It may cause a fire or electric shock.
- **Do not use the product for the preservation of animals and plants, precision instruments, art pieces, or for other special purposes.**
  - It may cause property damage.
- **Dispose the packing material safely.**
  - The packing material may result in personal injuries.

CAUTION

Installation

- **Securely install the product in an area where the weight of the product can be supported.**
  - The product may fall and be destroyed.
- **Do not use the product where there is oil, steam, or sulfuric gas.**
  - It may effect the product's performance, or damage it.
- **Check the rated power capacity.**
  - It may cause a fire, or a product malfunction.
- **Use the adapter provided with the product or power from a class 2 24 V~ transformer, depending on model.**
  - If a non-standard adapter is used, the product may malfunction. The adaptor is not provided with the AC Smart BACnet package sold in the U.S.
- **Be careful not to drop or damage the product when moving it.**
  - The product may malfunction or the person may sustain an injury.
- **Ensure that the cord is connected securely to prevent dew, water, or insects from getting into the product.**
  - If a foreign substance gets inside, it may cause an electric shock or the product may malfunction.

Use

- **Clean the product with a soft cloth, but not with a solvent-based detergent.**
  - The use of a solvent-based detergent may cause a fire or deform the product.
- **Do not touch the panel using a pointy or sharp object.**
  - It can result in an electric shock, or the product may malfunction.
- **Do not let the product come into contact with a metal substance.**
  - The product may malfunction.
- **When sterilizing or disinfecting, stop using the product.**
  - The product may work abnormally.
- **Do not touch inside the product.**
  - The product may malfunction.
- **Check the condition of the product after using the product for an extended period of time.**
  - If the product is used for an extended period of time, the product's condition may be worsen, causing injury to the user.
- **Do not leave the product near a flower base, water bottle, or any other liquids.**
  - It may cause a fire or electric shock.

- **Transformer selection:**
  - Select an insulating product that complies with IEC61558-2-6 and NEC Class 2.
  - In addition, consider the combined power consumption of the modules, accessories, and field devices installed for the selection of an appropriate transformer.
    Main module current: 24 V~, 850 mA
  - Use the provided adaptor when using DC 12 V. The adaptor is not provided with the AC Smart BACnet package sold in the U.S.

Class A device

NOTES

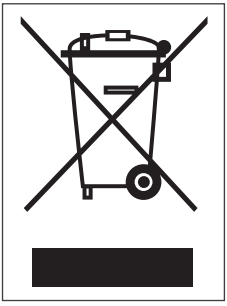
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

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 o!ce, waste disposal service or the shop where you purchased the product.

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PREPARATION

The following provides information on the AC Smart BACnet components, how to install and configure, and other required information necessary to use the product.

AC Smart BACnet Overview

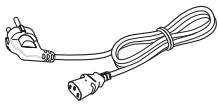
AC Smart BACnet is a central controller installed in the management office of a building, or in the administration office of a school, to monitor and operate, via touch screen or Web access, the indoor units, ERV (ERV: Energy Recovery Ventilator, ERV DX: Direct Expansion Energy Recovery Ventilator), DI/DOs, DOKITs, AWHPs, AHUs and I/O Modules installed inside the building. AC Smart BACnet can manage, collectively or individually, the indoor units, ERV, DI/DOs, DOKITs, AWHPs and AHUs for up to 128 devices. (Or the indoor units, ERV, DI/DOs, DOKITs, AWHPs and AHUs for up to 64 devices and 9 I/O Modules)

Components

The following components are included in the package box. Open the box and verify that all components are included.

AC Smart BACnet

AC Smart BACnet User's Manual



Power Cord

Power Adapter

Quick Guide

Power Cord, Power Adaptor and Quick Guide are not provided with the AC Smart BACnet package sold in the U.S.

NOTES

The figures of the components and optionally purchased products shown may differ from the actual components and products.

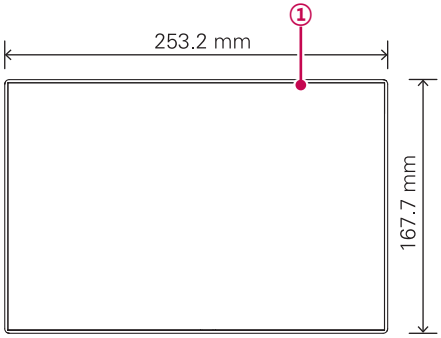
Product Specifications

The product specifications for AC Smart BACnet are as follows.

Item	Specifications
CPU	PCIMX5150D • ARM Cortex A8™ core • 800 MHz
MEMORY	128 x 4 MB (DDR2 SDRAM)
Storage	4GB (INAND FLASH)
LCD	10.2 inch WSVGA (1024 x 600) TFT LCD
Speaker	MONO 300 mW
RS485	2 Ports
USB/SD	• MICRO USB 1EA (for external USB memory) • MINI USB 1EA (for service) • SD Card 1EA
DI	2 Ports
DO	2 Ports
Touch Screen	C-Type Touch Panel
Button Key	Less than 9 seconds (LCD POWER ON/OFF), 10 seconds (SYSTEM RESET)
POWER	DC 12 V (3.33 A), 24 V~
OS	Linux

Features and Functions

The features and functions of AC Smart BACnet are as follows.



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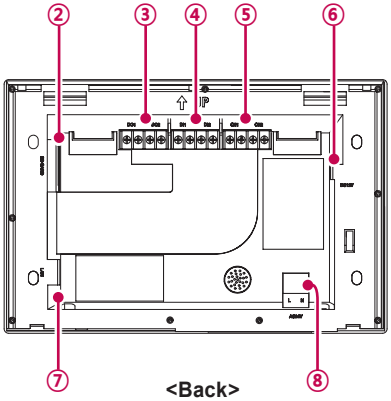

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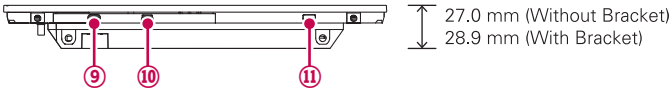

<Bottom>

Number	Item	Description
①	Touch Screen	• 10.2 inch LCD control panel • AC Smart BACnet control and information display
②	SD Memory Slot (for service)	SD card memory slot for software upgrade
③	DO Port	2CH DO port
④	DI Port	2CH DI port
⑤	485 Port	2CH 485 port (CH1: AHU, CH2: devices other than AHU)
⑥	DC 12 V Input Port	DC 12 V power input port
⑦	LAN Port	LAN cable port for Ethernet connection (100Mbps/10Mbps)
⑧	24 V~ Input Port	24 V~ power input port
⑨	Micro USB Port	USB 2.0 to connect USB memory sticks storing floor plans, reports, statistics, etc.
⑩	Mini USB Port (for service)	PC port for software upgrade
⑪	Power ON/OFF	• Push less than 10 seconds to control AC Smart BACnet LCD backlight. • Push 10 seconds or more to reset AC Smart BACnet. • If you are not going to use AC Smart BACnet for a long time, it is recommended that the product be turned off to prolong the LCD backlight's life.

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Installation and Configuration

This chapter explains how to install and configure AC Smart BACnet.

Installation

To use AC Smart BACnet, build an environment for which AC Smart BACnet can communicate with devices like the indoor unit, ERV, DI/DO, DOKIT, AWHP, AHU and I/O Module. Use AC Smart BACnet to register those devices.

AC Smart BACnet should be installed in the following order:

STEP 1. Check the installation environment and configure the device address.

Check the network configuration against the interfaced devices before installing AC Smart BACnet and allocate a unique central control address for each connected device.

STEP 2. Connect BECON devices with AC Smart BACnet.

Use an RS485 cable to connect BECON devices with AC Smart BACnet.

STEP 3. Login and register the devices.

Login to AC Smart BACnet and register those devices that have their address set.

CAUTION

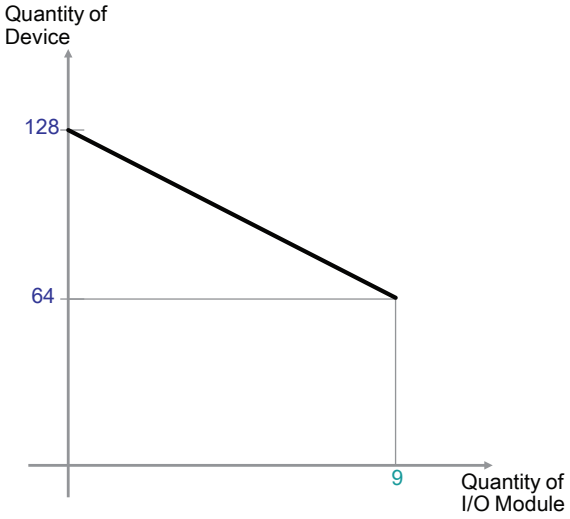
The installation of AC Smart BACnet must be done by a professional. Be sure to contact a qualified engineer for the installation. If you have a question or request regarding the installation, contact an installation professional at an authorized LG service center or LG Electronics.

Check the installation environment and configure the device address

AC Smart BACnet can connect up to 128 devices (including indoor units, ERV, DI/DOs, DOKITs, AWHPs, AHUs) or 64 devices (including indoor units, ERV, DI/DOs, DOKITs, AWHPs ans AHUs) and 9 I/O Modules.

BACnet protocol is not supported for Modular AHU and I/O module.

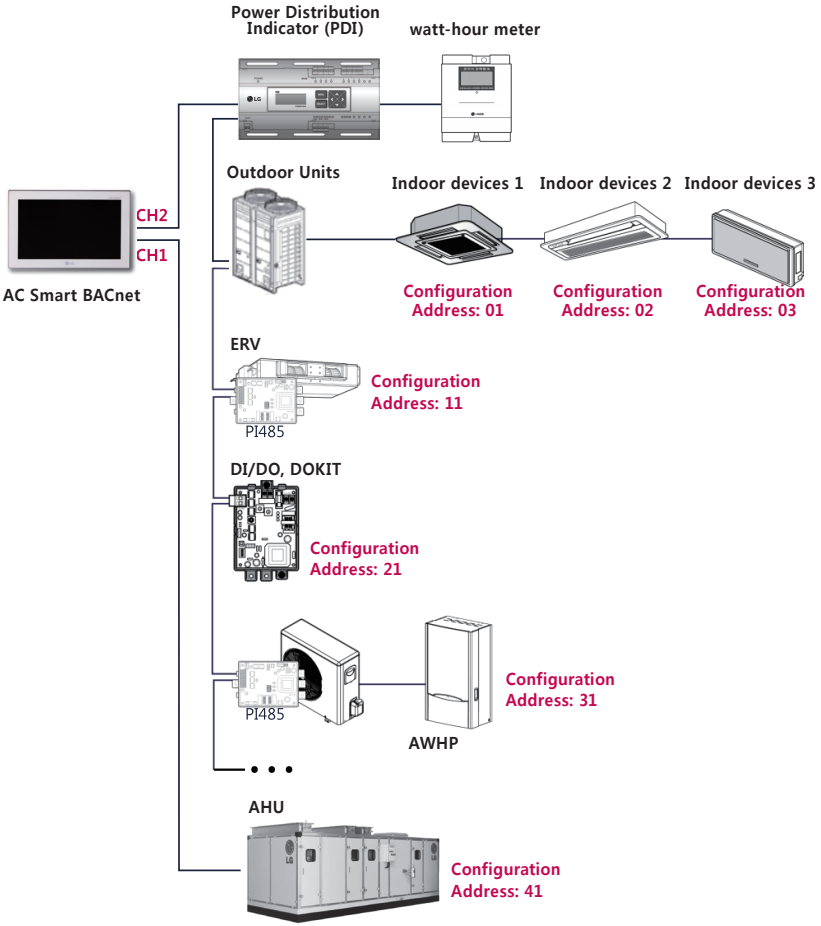
The following shows an example of connecting AC Smart BACnet with such devices.



Quantity of I/O Module	Quantity of Device
0	128
1	121
2	114
3	107
4	100
5	93
6	86
7	79
8	72
9	64

* Devices : Indoor units, ERV, DI/DOs, DOKITs, AWHPs, AHUs

AC Smart BACnet connects with PI485 and uses RS485 to communicate and exchange information. Allocate unique addresses to those devices (internal units, ERV, DI/DOs, DOKITs, AWHPs, AHUs, I/O Modules) that will connect with AC Smart BACnet. The addresses are hexadecimal numbers that can be chosen from 00 to FF.

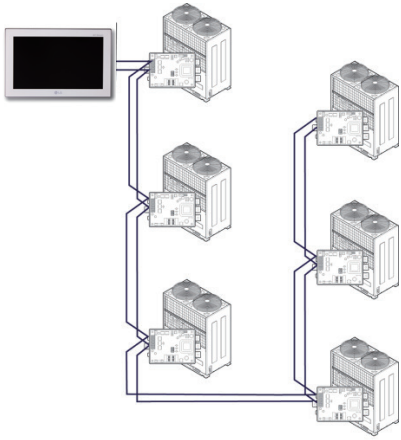


NOTES

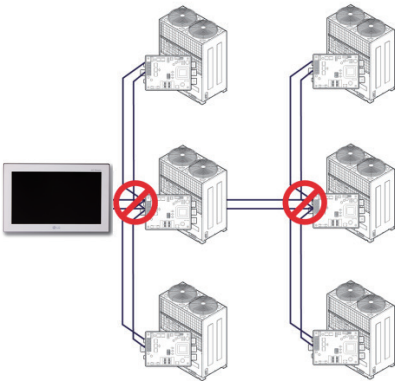
- The maximum allowed communication distance guaranteed by LG Electronics is 1,000 m. It means that the distance between AC Smart BACnet and the farthest device should not exceed 1,000 m. It is recommended that the communication cable use 0.75 mm square or more.
- For indoor units, ERV, DI/DOs, DOKITs, AWHPs, AHUs and I/O Modules, you cannot allocate identical addresses among devices of the same type. Allocate different addresses for devices of the same type. (the indoor unit and DOKIT cannot use the same address.)
- Each device which can be used with PDI must be set to a unique address when connected with PDI. For further information about the devices can be used with PDI, please refer to the PDI manual.
- Connecting I/O Module, address setting should not be 00 because 00 is used to Broadcast in MODBUS communication.

AC Smart BACnet's RS485 connection

An AC Smart BACnet can have up to 128 indoor units. If there are many outdoor units to be connected, connect them to a bus. If not, AC Smart BACnet may malfunction.



<Good example: RS485 BUS form connection>



<Bad example: RS485 STAR form connection>

NOTES

Maximum node numbers which can be connected to RS485 communication line.

- **Multi V**
  Maximum of 16 nodes can be connected to 1 RS485 line.
- **Multi/Single**
  Maximum of 32 nodes can be connected to 1 RS485 line.
- **ERV**
  Maximum of 32 nodes can be connected to 1 RS485 line.

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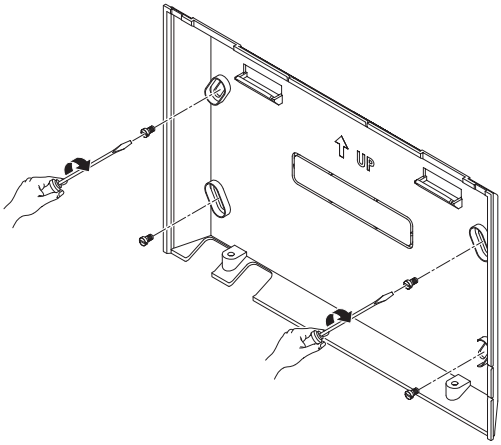
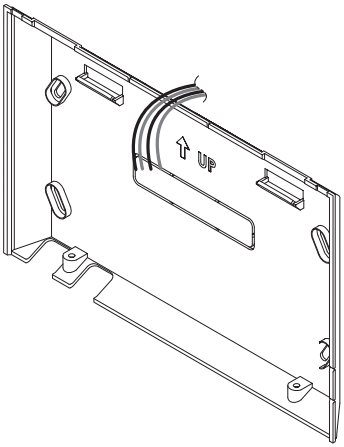
Connect AC Smart BACnet

You can install AC Smart BACnet and its cables as follows.

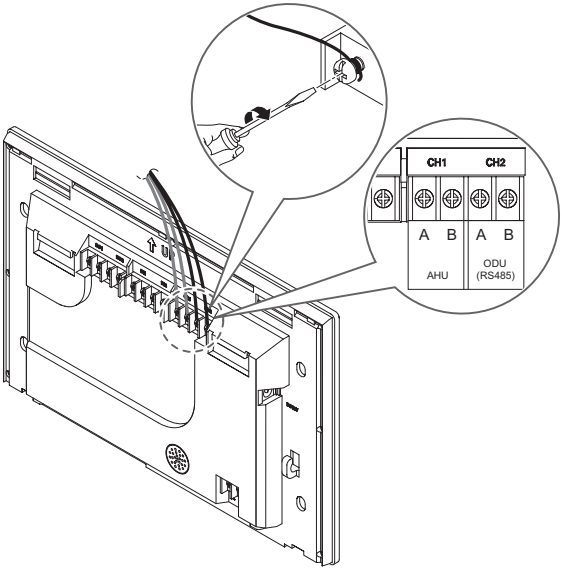
1. Choose a space for AC Smart BACnet.
   - Prior to securing AC Smart BACnet, check if the space is suitable for installing AC Smart BACnet, an RS485 cable, power cord, and an Ethernet cable.
2. Secure the back panel of AC Smart BACnet to the wall under which the RS485 cable is located.



3. Extend the RS485 cable through the top opening of the back panel.



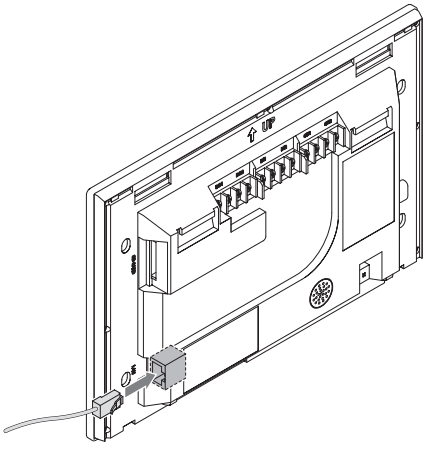
4. Connect the RS485 cable,which is located behind the AC Smart BACnet, to the RS485 terminal.



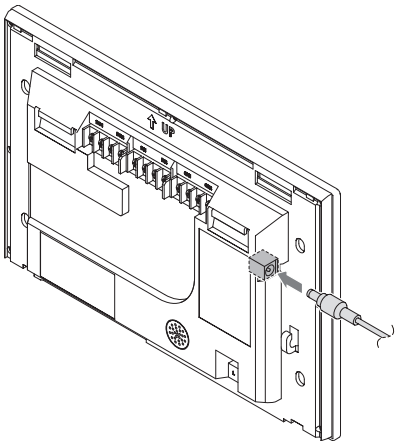
CAUTION

The RS485 cable is polarity sensitive, be careful about keeping polarity when connecting the cables.

5. To use the network functions (email transmission and web control) provided by AC Smart BACnet, connect an Ethernet cable to the LAN port on the back of AC Smart BACnet.



6. Connect the power.
   - For global models
     - On the back of AC Smart BACnet, connect the power adapter to the power port.

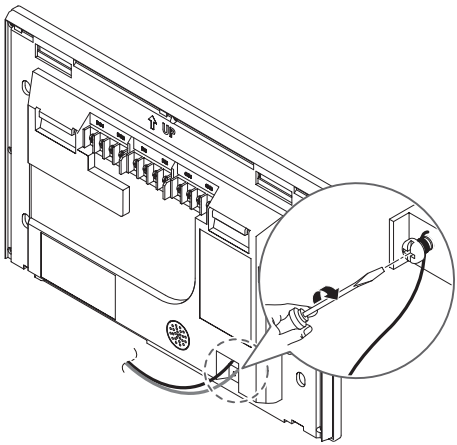


The adaptor is not provided with the AC Smart BACnet package sold in the U.S.

NOTES

You can hang the power cord on the power cord hanger located below the power port.

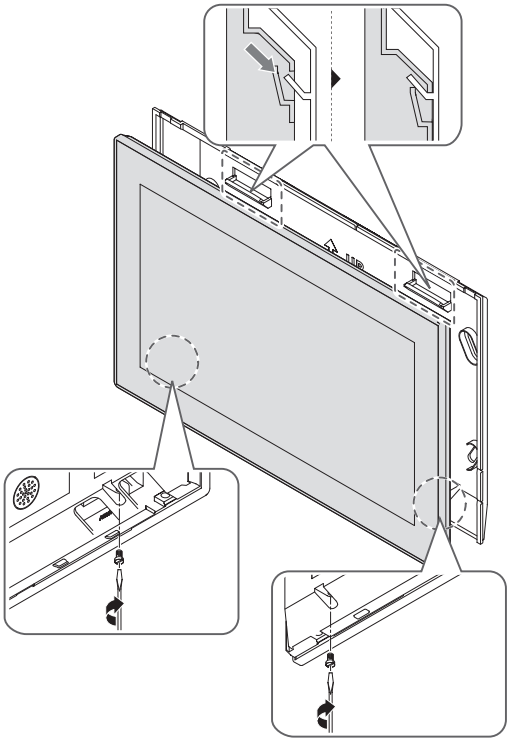
- For US models
  - At the bottom of AC Smart BACnet, connect the power cord to the power port.



NOTES

In some countries, except for the U.S, you can connect the DC 12 V power to the AC Smart BACnet by using the provided adapter. If necessary, connect the 24 V~ power to the AC Smart BACnet.

7. After attaching the hook on the top of the main body to the top of the rear panel installed on the wall, please push the top of the main body unit forward for firm attachment.



CAUTION

Secure two points on the bottom of the unit to prevent from falling.

NOTES

Product removal

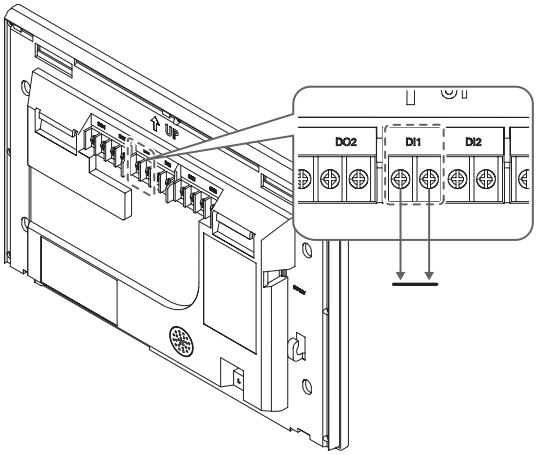
After removing 2 screws from the bottom of the body, slightly pull the body using the flatblade screwdriver and lift up the body to remove the product.

8. Connect the power cord of the power adapter to the power plug.

Configure Remote Shutdown Feature

Based on contact closure of Digital Input 1 the AC Smart BACnet can stop all connected devices (indoor units, ERV, DOKITs, AWHPs, and AHUs).

A non-voltage contact must be connected to terminals DI-1 to initiate Remote Shutdown as shown below.



CAUTION

The DI1 port should always be open except when an emergency occurs.

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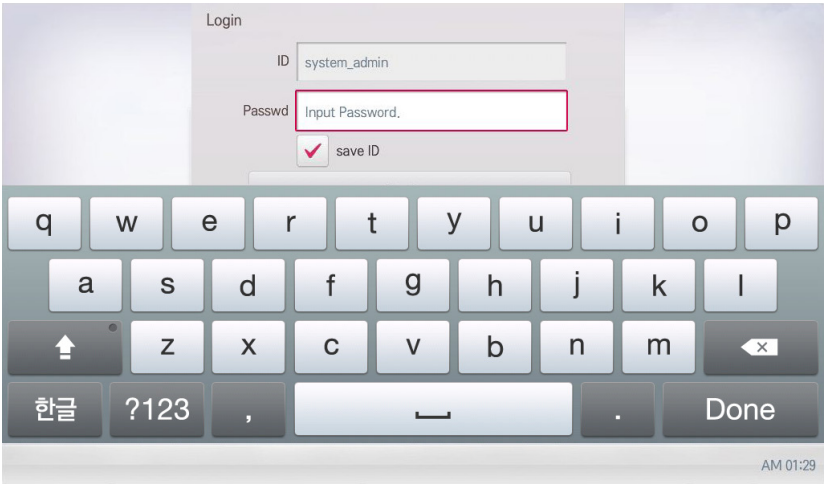
Information Input Method

Touch the AC Smart BACnet information input box and a touch keyboard at the bottom of the panel will appear. Use the touch keyboard to input information.



ENGLISH

STARTING

This section explains how to connect to the system and register devices to setup the environment (prior to using AC Smart BACnet).

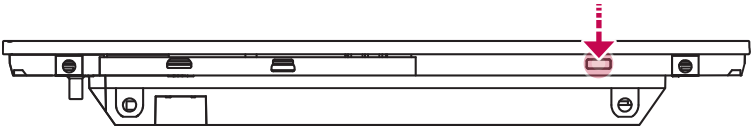
Turning on/off the screen

The following explains how to turn on or off the AC Smart BACnet screen.

Turning on the screen

You can turn on the screen as follows.

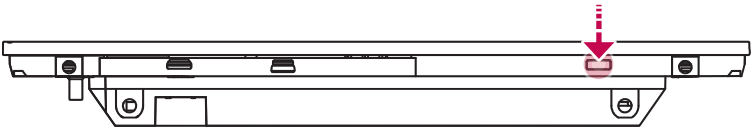
1. Press the power button on the bottom of the unit.
   - The screen turns on.



Turning off the screen

You can turn off the screen as follows.

1. Briefly press the power button on the bottom of the unit.
   - The screen turns off.



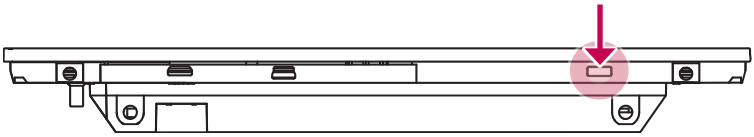
NOTES

If you are not going to use AC Smart BACnet for a long time, it is recommended that the screen be turned off.

Rebooting

You can reboot the device as follows.

1. Press the power button on the bottom of the unit for 10 or more seconds.
   - The device reboots.



Login and logout

The following explains how to log in and out of AC Smart BACnet.

AC Smart BACnet can control and monitor equipment by touch screen or Web access. If you enter the IP address of the AC Smart BACnet in the address bar of the Internet without the installation of another program, the central control program AC Smart BACnet, Web server will execute automatically, to use the functionality of the various content.

The manual will explain AC Smart BACnet standard equipment.

NOTES

- You will need the Adobe Flash Player installed for the Web control access. (Recommended specification: Adobe Flash Player 11)
- The special character (^), (‘) and (,) are not available.

LG'S AC Smart 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.

AC Smart BACnet Diagnosis

Use of LG's AC Smart 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

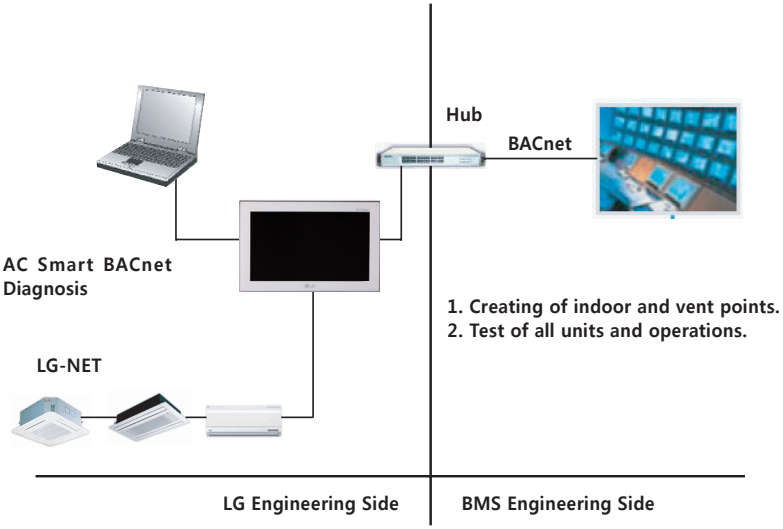
First step, only using LG's AC Smart BACnet , without connecting BMS. This is to be carried out by LG engineering staff with the use of the AC Smart BACnet set up tool.

Discrepancy of operation of Gateway by BMS

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

Notes

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



ENGLISH

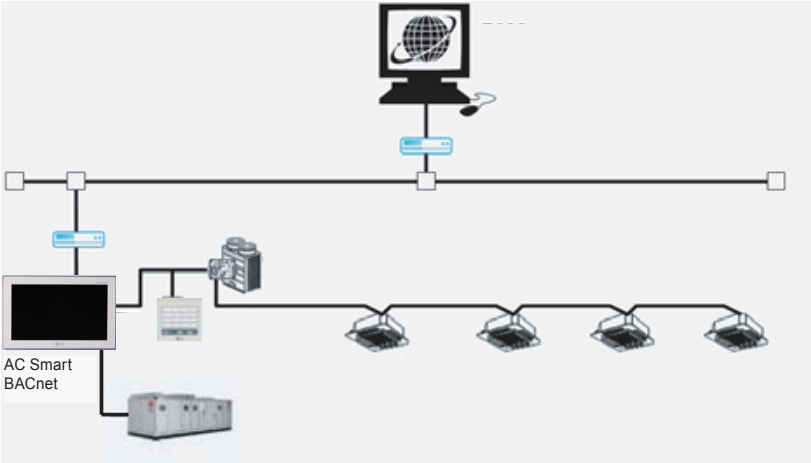
FUNCTIONAL SPECIFICATIONS AC Smart BACnet

Summary

The AC Smart 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 AC Smart 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 - AC Smart BACnet /IP

BACnet Point List : Indoor Unit

One indoor unit has a Point List as follows.

Some of IDU Points may not be supported depending on the product.

Point No.	Control/monitoring	Object 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	Object 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				

Point No.	Control/monitoring	Object Name (XXX : Unit address)	Object Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
35	Occupancy (Setting)	OccupancyCommand_XXX	BO	Unoccupied	Occupied				
36	Occupancy (Status)	OccupancyStatus_XXX	BI	Unoccupied	Occupied				
37	2Set Cooling Set Temperature (Setting)	2SetCoolingTempCommand_XXX	AV	°C					
38	2Set Cooling Set Temperature (Status)	2SetCoolingTempStatus_XXX	AI	°C					
39	2Set Heating Set Temperature (Setting)	2SetHeatingTempCommand_XXX	AV	°C					
40	2Set Heating Set Temperature (Status)	2SetHeatingTempStatus_XXX	AI	°C					
41	2Set Cooling Upper Temperature (Setting)	2SetCoolingUpperLimitCommand_XXX	AV	°C					
42	2Set Cooling Upper Temperature (Status)	2SetCoolingUpperLimitStatus_XXX	AI	°C					
43	2Set Heating Upper Temperature (Setting)	2SetHeatingUpperLimitCommand_XXX	AV	°C					
44	2Set Heating Upper Temperature (Status)	2SetHeatingUpperLimitStatus_XXX	AI	°C					
45	2Set Cooling Lower Temperature (Setting)	2SetCoolingLowerLimitCommand_XXX	AV	°C					
46	2Set Cooling Lower Temperature (Status)	2SetCoolingLowerLimitStatus_XXX	AI	°C					
47	2Set Heating Lower Temperature (Setting)	2SetHeatingLowerLimitCommand_XXX	AV	°C					
48	2Set Heating Lower Temperature (Status)	2SetHeatingLowerLimitStatus_XXX	AI	°C					
49	Thermo Status (Status)	ThermoStatus_XXX	BI	Off	On				

35 ~ 49 points are effective, in case 2Set Auto Mode of environment setting is enabled.

Remarks

• Point NO. 1

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.

• Point NO. 2

1. 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.

• Point NO. 7

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.

• Point NO. 11

1. 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.

• Point NO. 12

1. Present_value property will be set to “1:Low” as the default result if the property has not been set in the past.

• Point NO. 13

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 0.5 °C is detected.

• Point NO. 14/ 19

1. This object is for indoor units only, and reports the room temperature data measured by the indoor units.

• Point NO. 16

1. This object’s error code descriptions should be referred to the corresponding table at the “Reference LG original Error Code”.

• Point NO. 35 ~ 49

1. This objects are effective, in case 2Set Auto Mode of environment setting is enabled.

BACnet Point List : Ventilation

One Ventilation unit has a Point List as follows.

Point No.	Control/monitoring	Object 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	Object 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				

Remarks

• Point NO. 1

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.

• Point NO. 2

1. 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.

• Point NO. 5

1. 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.

• Point NO. 6

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.

• Point NO. 7

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.

• Point NO. 11

1. 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.

• Point NO. 12

1. Present_value property will be set to “1:Low” as the default result if the property has not been set in the past.

• Point NO. 16

1. This object’s error code descriptions should be referred to the corresponding table at the “Reference LG original Error Code”.

• Point NO. 17

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

• Point NO. 18

1. This object is for vent only, and will not apply if the property has not been in the past.

BACnet Point List : AHU

One AHU unit has a Point List as follows.

Point No.	Control/ monitoring	Object Name (XXX : AHU 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	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	Abnormal				
16	Error Code	MalfunctionCode_XXX	AI	Reference LG Original Error Code					

Point No.	Control/monitoring	Object 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	Emergency Sensor (Setting)	EmergencySensorCommand_XXX	BO	Stop	Run				
21	Emergency Sensor (Status)	EmergencySensorStatus_XXX	BI	Stop	Run				
22	Set Humidify (Setting)	SetHumidifyCommand_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)	AutoVentilCommand_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)	SuppyHumidifyStatus_XXX	AI	30~90					
32	Outdoor Humidity (Status)	OutdoorHumidifyStatus_XXX	AI	30~90					
33	Ventilation Humidity (Status)	VentilHumidifyStatus_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	Object Name (XXX : AHU address)	Object 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)	CurOADamperStatus_XXX	AI	0~90					
40	Current EA Damper (Status)	CurEADamperStatus_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	Object Name (XXX : AHU address)	Object 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					

Remarks

• Point NO. 1

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.

• Point NO. 2

1. 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.

• Point NO. 5

1. 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.

• Point NO. 6

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.

• Point NO. 7

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.

• Point NO. 13

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 0.5 °C is detected.

• Point NO. 14

1. This object is for indoor units only, and reports the room temperature data measured by the indoor units.

• Point NO. 16

1. This object’s error code descriptions should be referred to the corresponding table at the “Reference LG original Error Code”.

BACnet Point List : ODU

One ODU unit has a Point List as follows.

AC Smart BACnet ODU Point List may not be supported depending on the product.

If an ODU system has two or more outdoor units then the point list of only the master unit is supported - not any of the slave units.

Some points may display only zero (0) value depending on the ODU product model.

Point No.	Control/monitoring	Object Name (XXX : ODU address)	Object Type	Unit						
				Inactive	Active					
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	
1	Compressor Operation Status	CompOperStatus_XXX	BI	Stop	Run					
2	Refrigent Type	RefrigentType_XXX	MI		R407C	422	R410A			
3	Inverter Fan 1 frequency	InverterFanFreq_XXX	AI	-						
4	High Pressure	HighPressure_XXX	AI	-						
5	Low Pressure	LowPressure_XXX	AI	-						
6	Sunction Temperature	SunctionTemp_XXX	AI	℃						
7	Liquid Pipe Temperature	LiquidPipeTemp_XXX	AI	℃						
8	Heat Exchanger Temperature	HexTemp_XXX	AI	℃						
9	Outdoor EEV	OutdoorEEV_XXX	AI	-						
10	Subcool EEV	SubCoolEEV_XXX	AI	-						
11	Hot Gas Valve	HotgasValue_XXX	BI	Stop	Run					
12	InverterDischarge Temperature	InverterDischarge Temp_XXX	AI	℃						
13	Outdoor Temperature	OutdoorTemp_XXX	AI	℃						
14	Operation Mode	OperationMode_XXX	MI		Stop	Cool	Heat			

One AWHP unit has a Point List as follows.

Point No.	Control/monitoring	Object 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)	SetHotWaterTemp Command_XXX	AO						
10	Set Hot Water Temperature (status)	SetHotWaterTempStatus_XXX	AI						
11	Set PipeOut Water Temperature (setting)	SetPipeOutWater Temp Command_XXX	AO						
12	Set PipeOut Water Temperature (status)	SetPipeOutWater TempStatus_XXX	AI						

Point No.	Control/monitoring	Object 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						

BACnet Point List : GENERAL

AC Smart BACnet has a GENERAL Point List as follows.

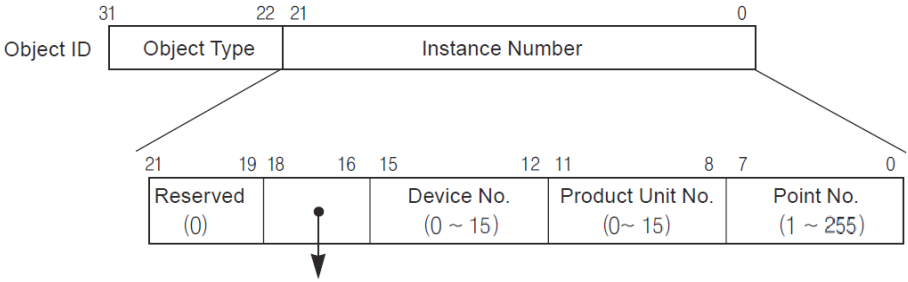
Some of GENERAL Points may not be supported depending on the product.

The product should be rebooted when temperature unit setting is modified.

Point No.	Control/monitoring	Object Name (XXX : Unit address)	Object Type	Unit					
				Inactive	Active				
				Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
1	All Unit Run/Stop (Setting)	AllStartStopCommand	BO	Stop	Run				
2	All Unit Set Room Temperature (Setting)	AllSetRoomTempCommand	AV	°C					
3	All Unit Temperature Lock (Setting)	AllTempLockCommand	AV	°C					
4	Total Accumulated Power (Status)	TotalAccumulatedPower	AI						
5	Peak Control Operation (Setting)	PeakStartStopCommand	BO	Stop	Run				
6	Peak Control Operation (Status)	PeakStartStopStatus	BI	Stop	Run				
7	Peak Shift Time(Setting)	PeakShiftTimeCommand	AV	Minute					
8	Peak Shift Time(Status)	PeakShiftTimeStatus	AI	Minute					
9	Peak Target Ratio(Setting)	PeakTargetCommand	AV	%					
10	Peak Target Ratio(Status)	PeakTargetStatus	AI	%					
11	Peak Current Running Ratio(Status)	PeakCurrentStatus	AI	%					
12	Remote Shutdown(Setting)	RemoteShutDownCommand	BO	Normal	Shutdown				
13	Temperature Unit Setting (Setting)	TempUnitCommand	BO	°C	°F				
14	Temperature Unit Setting (Status)	TempUnitStatus	BI	°C	°F				

ENGLISH

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, GENERAL:5)
**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

Address	Object Type	Device No.	Product No.	Point	Instance No.	Name
33	3	2	1	2	0×02102(8450)	ON/OFF : status
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

Address	Object Type	Device No.	Product No.	Point	Instance No.	Name
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

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

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					

Remarks

• StartStopStatus_XXX

1. 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.

• SetTempStatus-XXX / SetLowerTempStatus_XXX / RoomTemp_XXX

1. This object is for indoor units only, and reports the room temperature data measured by the indoor units.

• WrStartStopCommand_XXX

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

• FanSpeedStatus_XXX

1. The Present_value property will be set to “1:Low” as the default value if the property has never been set in the past.

• SetUpperTempStatus_XXX

1. This object is for indoor units only, and reports the set upper temperature data measured by the indoor units.

• MalfunctionCode_XXX

1. This object’s error code descriptions should be referred to the corresponding table at the “Reference LG original Error Code”.

• ModeCommand_XXX

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.

• FanSpeed Command_XXX

1. 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.

• SetUpperTempCommand_XXX / SetLowerTempCommand_XXX

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

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

Function Code : 0x03 and 0x06

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					

Remarks

• StartStopStatus_XXX

1. 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.

• FilterSign_XXX

1. 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.

• StartStopCommand_XXX

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.

• FilterSignReset_XXX

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.

• FanSpeedStatus_XXX

1. Present_value property will be set to “1:Low” as the default result if the property has not been set in the past.

• UserModeStatus_XXX

1. This object is for vent only, and will not apply if the property has not been in the past.

• MalfunctionCode_XXX

1. This object’s error code descriptions should be referred to the corresponding table at the “Reference LG original Error Code”.

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	EmergencySensorStatus_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	EmergencySensorCommand_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					

Function Code : 0x03 / 0x06

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					

Remarks

• StartStopStatus_XXX

1. 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.

• FilterSign_XXX

1. 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.

• StartStopCommand_XXX

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.

• MalfunctionCode_XXX

1. This object's error code descriptions should be referred to the corresponding table at the "Reference LG original Error Code".

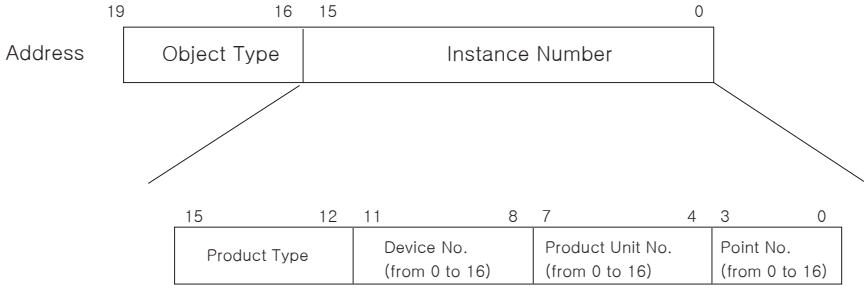
• ModeCommand_XXX

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.

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

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 AC Smart BACnet , please refer to **refer to AC Smart BACnet Error Response Table on page 69.**

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.

NOTES

BIBBs

AC Smart BACnet Interoperability Building Blocks Supported(BIBBs)

Data Sharing BIBBS

(□:Not supported,■: Support)

BIBB Type		Supported	AC Smart 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		×

BIBB Type		Supported	AC Smart BACnet Service	Initiate	Execute
DS-COV-B	Data Sharing-COV-B	■	SubscribeCOV		×
			Confirmed COVNotification	×	
			Unconfirmed COVNotification	×	
DS-COVP-A	Data Sharing-COVP-A	□	SubscribeCOV	×	
			Confirmed COVNotification		×
			Unconfirmed COVNotification		×
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	AC Smart 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	AC Smart 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	AC Smart 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	AC Smart 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	AC Smart 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	AC Smart 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	AC Smart 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	AC Smart BACnet
Object_Identifier	BACnetObjectIdentifier	R
Object_Name	CharacterString	R
Object_Type	BACnetObjectType	R
Present_Value	Unsigned	R1
Description	CharacterString	O
Device_Type	CharacterString	O
Status_Flags	BACnetStatusFlags	R
Event_State	BACnetEventState	R
Reliability	BACnetReliability	O2
Out_Of_Service	Boolean	R
Number_Of_States	Unsigned	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	AC Smart BACnet
Object_Identifier	BACnetObjectIdentifier	R
Object_Name	CharacterString	R
Object_Type	BACnetObjectType	R
Present_Value	Unsigned	W

Property Identifier	Property Datatype	AC Smart BACnet
Description	CharacterString	O
Device_Type	CharacterString	O
Status_Flags	BACnetStatusFlags	R
Event_State	BACnetEventState	R
Reliability	BACnetReliability	O
Out_Of_Service	Boolean	R
Number_Of_States	Unsigned	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

AC Smart 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)

Troubleshoot

Control Codes

AC Smart BACnet may display the following control codes during usage

Control Code	Description
S	Displayed when the device status has changed due to the control
M	Displayed when the system settings have changed
E	Displayed when there is an error

Error Codes

The following error codes may appear while using AC Smart BACnet.

Indoor Device, ERV or ERV DX, AWHP(Hydro kit), AHU error

Error Code	Indoor Device	ERV or ERV DX	AWHP(Hydro kit)	AHU
0	No error	No error	No error	
1	Indoor sensor air) open/short	Air intake sensor malfunction	Indoor air thermometer malfunction	
2	Indoor sensor (intake pipe) open/ short	Refrigerant intake thermometer malfunction	Refrigerant intake thermometer malfunction	Communication PCB indoor sensor (intake pipe) error
3	Remote control malfunction	Remote control malfunction	Remote control malfunction	The remote control is not functioning for 3 minutes or longer.
4	Drain pump malfunction	Drain pump malfunction		Communication PCB is not functioning for 3 minutes or or longer.
5	Communication error (indoor ↔ outdoor)	Communication error (indoor ↔ outdoor)	Communication error (indoor ↔ outdoor)	Communication error (communication PCB ↔ outdoor)
6	Indoor sensor (outtake pipe) open/ short	Refrigerant outtake thermometer malfunction	Refrigerant outtake thermometer malfunction	Communication PCB indoor sensor (outtake pipe) error
7	Atypical operation	Atypical operation	Atypical operation	

Error Code	Indoor Device	ERV or ERV DX	AWHP(Hydro kit)	AHU
8			Hot water thermometer malfunction	Operate smoke control through smoke detection.
9	EEPROM ERROR (indoor unit)	EEPROM ERROR (indoor unit)	EEPROM ERROR (indoor unit)	
10	Indoor fan LOCK (operation error)	Indoor fan Lock (operation error)		
11			HHU/boiler communication error (HHU)	
12	Indoor mid-pipe sensor error		Boiler error (HHU)	
13	Heater terminal block sensor (A-PAC)		Solar heat temperature sensor error	Temperature (ERV, air supply, external air, Mix) is outside acceptable range.
14			Indoor unit flow switch operation error	Humidity (ERV, air supply, external air) is outside acceptable range
15	O-ROTOR (BLDC FAN driver) communication error		Water pipe overheating	CO_2 value is within acceptable range
16			Simultaneous AWHP temperature sensor error	Pressure (pressure change, static pressure) is outside acceptable range
17		ERV DX air out sensor	Inlet water temperature sensor error	Speed (ERV and air supply flow) is outside acceptable range.
18		ERV DX air return sensor	Outlet water temperature sensor error	
19		ERV DX Main PCB ← Sub PCB communication error	Elec/Heater outlet water temperature sensor error	
20		ERV DX Main PCB → Sub PCB communication error	Elec/heater error	

Outdoor Unit Errors

Error Code	Description
21	DC peak
22	Max ct (CT 2): Maximum current error
23	DC link voltage (low)
24	High voltage/heat plate SW
25	Under-voltage/over-voltage
26	DC comp position error
27	PSC fault error
28	DC link voltage (high)
29	Comp over-current
30	Surge in static speed #2 compressor discharge temperature
31	CT err (low current)
32	Inverter discharge temperature error (high)
33	Surge in static speed #1 compressor discharge temperature
34	Surge in high voltage
35	Drop in low voltage
36	Low compression ratio error
37	Compression ratio limit exceeded
39	Communication error (inverter ↔ PFC)
40	Inverter CT sensor open/short
41	Inverter discharge temperature sensor open/short
42	Low voltage sensor open/short
43	Heat exchanger temperature sensor (top)
44	Outdoor air temperature sensor open/short
45	Outdoor pipe (top) sensor open/short
46	Compressor suction temperature sensor open/short
47	Static speed #1 compressor discharge temperature sensor error
48	Heat exchanger temperature sensor (bottom) (SUPER3: Static speed #2 compressor discharge temperature sensor error)
49	Outdoor voltage sensor error (SUPER3: IPM temperature sensor error)
50	Missing phase of outdoor 3-phase power
51	Over-capacity error (indoor unit capacity limit exceeded)
52	Communication error (inverter board → main board)
53	Communication error (indoor device → outdoor unit)
54	RST reverse phase detection

Error Code	Description
55	Communication error (central to main controller)
56	Communication error (main to central controller)
57	Communication error (main board to inverter board)
58	Incorrect connection of tax product (tax-exempt indoor unit to taxed outdoor unit)
59	Mixed installation of slave outdoor unit
60	PCB EEPROM error (MULTI V: inverter PCB EEPROM error)
61	Inverter discharge temperature error (high)
62	Heatsink error (high)
63	Outdoor pipe temperature error (low)
65	Heatsink Th error (open/short)
66	Bad connection/piping (incorrect connection of wire, pipe, LEV, etc.)
67	Outdoor fan lock error (with BLDC)
68	Static speed comp CT open (add MPS)
69	Static #1 CT sensor error
70	Static #2 CT sensor error
71	Input CT sensor error
72	Communication error (louver ↔ fan)
73	Input instant over-current (peak)
74	Inverter PCB phase unbalance
75	Fan CT sensor error
76	Fan DC link over-voltage error
77	Fan over-current error
78	Fan hall sensor error
79	Fan start failure error
80	Louver motor over-current
81	Louver limit SW error
82	A-cycle low pressure error
83	B-cycle low pressure error
84	A-cycle high pressure error
85	B-cycle high pressure error
86	Main PCB EEPROM error
87	Fan PCB EEPROM error
88	PFC PCB EEPROM error
89	Detachable type distributor communication error

MultiV 20 Hp, 30 Hp, 40 Hp, error

Error Code	Description
100	SLAVE1 static speed compressor 1 discharge temperature surge error
101	SLAVE1 static speed compressor 2 discharge temperature surge error
102	SLAVE2 static speed compressor 1 discharge temperature surge error
103	SLAVE2 static speed compressor 2 discharge temperature surge error
104	Communication error with outdoor unit (slave to master)
105	Fan board communication error (fan to outdoor unit)
106	Fan board (IPM fault)
107	Fan board (low voltage error)
108	Communication error (outdoor unit to fan)
109	SLAVE1 (high voltage SW error)
110	SLAVE1 (reverse phase error)
111	SLAVE1 (communication error: master to slave)
112	Master outdoor unit sensor (oil pipe temperature sensor error)
113	Master outdoor unit sensor (fluid pipe temperature sensor error)
114	Master outdoor unit sensor (overcooling inlet temperature sensor error)
115	Master outdoor unit sensor (overcooling outlet temperature sensor error)
116	SLAVE1 outdoor unit sensor (high voltage sensor error)
117	SLAVE1 outdoor unit sensor (low voltage sensor error)
118	SLAVE1 outdoor unit sensor (low voltage sensor error)
119	SLAVE1 outdoor unit sensor (oil pipe temperature sensor error)
120	SLAVE1 outdoor unit sensor (suction temperature sensor error)
121	SLAVE1 outdoor unit sensor (static speed compressor 1 discharge temperature error)
122	SLAVE1 outdoor unit sensor (static speed compressor 2 discharge temperature error)
123	SLAVE1 outdoor unit sensor (heat exchanger temperature sensor A error)
124	SLAVE1 outdoor unit sensor (heat exchanger temperature sensor B error)
125	SLAVE1 outdoor unit (fluid pipe temperature sensor error)
126	SLAVE1 outdoor unit (overcooling inlet temperature sensor error)
127	SLAVE1 outdoor unit (overcooling outlet temperature sensor error)
128	SLAVE2 outdoor unit sensor (high voltage sensor error)
129	SLAVE2 outdoor unit sensor (low voltage sensor error)
130	SLAVE2 outdoor unit sensor (air temperature sensor error)
131	SLAVE2 outdoor unit sensor (oil pipe temperature sensor error)
132	SLAVE2 outdoor unit sensor (suction temperature sensor error)

Error Code	Description
133	SLAVE2 outdoor unit sensor (static speed compressor 1 discharge temperature error)
134	SLAVE2 outdoor unit sensor (static speed compressor 2 discharge temperature error)
135	SLAVE2 outdoor unit sensor (heat exchanger temperature sensor A error)
136	SLAVE2 outdoor unit sensor (heat exchanger temperature sensor B error)
137	SLAVE2 outdoor unit (fluid pipe temperature sensor error)
138	SLAVE2 outdoor unit (overcooling inlet temperature sensor error)
139	SLAVE2 outdoor unit (overcooling outlet temperature sensor error)
140	Fluid pipe sensor error of heat recovery unit
141	Overcooling inlet sensor error of heat recovery unit
142	Overcooling outlet sensor error of heat recovery unit
143	Heat recovery unit communication error
144	Heat recovery unit reserve 1
145	Heat recovery unit reserve 2
146	Heat recovery unit reserve 3
147	Heat recovery unit reserve 4
148	Heat recovery unit reserve 5
176	SLAVE2 static speed 1 compressor over-current/under-current
177	SLAVE2 static speed 2 compressor over-current/under-current
178	SLAVE3 static speed 1 compressor over-current/under-current
179	SLAVE3 static speed 2 compressor over-current/under-current
180	Anti-Freeze (water-cooling)
181	Water temperature sensor error (water-cooling)
182	Sub Micom communication error
183	Oil supply failure
184	Inverter oil pipe temperature sensor error
185	Static #1 oil pipe temperature sensor error
186	Static #2 oil pipe temperature sensor error
193	Fan board heat plate temperature surge
194	Fan board heat plate temperature sensor error

Super Errors

Error Code	Description
200	Fan board heat plate temperature sensor error
201	Fluid pipe sensor error (fluid pipe sensor of HR Unit1 open/short)
202	Overcooling inlet sensor error (overcooling inlet sensor of HR Unit1 open/short)
203	Overcooling outlet sensor error (overcooling outlet sensor of HR unit1 open/short)
204	Overcooling outlet sensor error (overcooling outlet sensor of HR unit1 open/short)
205	Fluid pipe sensor error (fluid pipe sensor of HR Unit2 open/short)
206	Overcooling inlet sensor error (overcooling inlet sensor of HR Unit2 open/short)
207	Overcooling outlet sensor error (overcooling outlet sensor of HR unit2 open/short)
208	Communication error (no outdoor unit signal for 3 min from HR unit2)
209	Fluid pipe sensor error (fluid pipe sensor of HR Unit3 open/short)
210	Overcooling inlet sensor error (overcooling inlet sensor of HR Unit3 open/short)
211	Overcooling outlet sensor error (overcooling outlet sensor of HR unit3 open/short)
212	Communication error (no outdoor unit signal for 3 min from HR unit3)
213	Fluid pipe sensor error (fluid pipe sensor of HR Unit4 open/short)
214	Overcooling inlet sensor error (overcooling inlet sensor of HR Unit4 open/short)
215	Overcooling outlet sensor error (overcooling outlet sensor of HR unit4 open/short)
216	Communication error (no outdoor unit signal for 3 min from HR unit4)
217	Fluid pipe sensor error (fluid pipe sensor of HR Unit5 open/short)
218	Overcooling inlet sensor error (overcooling inlet sensor of HR Unit5 open/short)
219	Overcooling outlet sensor error (overcooling outlet sensor of HR unit5 open/short)
220	Communication error (no outdoor unit signal for 3 min from HR unit5)
221	Fluid pipe sensor error (fluid pipe sensor of HR Unit6 open/short)
222	Overcooling inlet sensor error (overcooling inlet sensor of HR Unit6 open/short)
223	Overcooling outlet sensor error (overcooling outlet sensor of HR unit6 open/short)
224	Communication error (no outdoor unit signal for 3 min from HR unit6)
225	Fluid pipe sensor error (fluid pipe sensor of HR Unit7 open/short)
226	Overcooling inlet sensor error (overcooling inlet sensor of HR Unit7 open/short)
227	Overcooling outlet sensor error (overcooling outlet sensor of HR unit7 open/short)
228	Communication error (no outdoor unit signal for 3 min from HR unit7)
229	Fluid pipe sensor error (fluid pipe sensor of HR Unit8 open/short)
230	Overcooling inlet sensor error (overcooling inlet sensor of HR Unit 8 open/short)
231	Overcooling outlet sensor error (overcooling outlet sensor of HR unit8 open/short)
232	Communication error (no outdoor unit signal for 3 min from HR unit8)

Error Code	Description
233	Fluid pipe sensor error (fluid pipe sensor of HR Unit9 open/short)
234	Overcooling inlet sensor error (overcooling inlet sensor of HR Unit9 open/short)
235	Overcooling outlet sensor error (overcooling outlet sensor of HR unit9 open/short)
236	Communication error (no outdoor unit signal for 3 min from HR unit9)

Central Controller Errors

Error Code	Description
240	Communication error (PC central controller ↔ I-GW)
242	Communication error (central controller ↔ indoor unit)
246	Data in time out error from central controller
247	Communication error (ACM Client ↔ ACM Server)
248	Communication error (ACP Client ↔ ACP Server)
250	Checksum error
251	Communication error (AC Smart to 128-room expansion kit)

Pre-Tech Support Checklist

If the product malfunctions, please check the following before calling the service center.

Symptom	Check	Actions
The alarm sound does not stop.	• Is the demand controller working normally? • Is the LAN cable connected to the product?	• Check if the demand controller is normal. • Check if the LAN cable is connected correctly to the device.
All products continue to turn off.	Is DI1 CH short-circuited?	Check if DI1 CH is open or short circuited. (DI1 CH should be always open except when an emergency occurs.)
The product was reset at midnight.	The product is automatically reset every morning at 02:05 am.	
The device is not controlled.	Is the device you want to control not locked?	Check if the lock is on and if so, disable the lock.
The device icon has an error mark.	Is the device with errors connected correctly?	If devices are not correctly connected, the error sign is displayed. Check the connection status of the devices.

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