BACnet Gateway /
Data Management Server
User & installation manual

VCTRL02P-1 / VCTRL09P-1

- Thank you for purchasing this Lennox Product.
- Before operating this unit, please read this manual carefully and retain it for future reference.
- For more information on using the product, download the user manual from the product and refer to it.

LENNOX Powered by SAMSUNG

Safety Precautions

California Proposition 65 Warning (US)

⚠ **WARNING:**   Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Cautions for operation

- *Before using the DMS, BACnet Gateway, read carefully these instructions.*
- *After reading the instructions, keep this user's manual in a handy and safe place.*
  If a user is changed, you must hand over the manuals.
- *Never attempt to install the air conditioning system or to move the product by yourself.*

⚠ **WARNING**
- ◆ Do not attempt to install or repair the product by yourself.
- ◆ The product contains no user-serviceable parts. Always consult authorized service personnel for repairs.
- ◆ When moving, consult authorized service personnel for disconnection and installation of the product.
- ◆ Ensure that the wall is strong enough to support the weight of the product.
- ◆ Must install the product with rated power supply.
- ◆ In the event of a malfunction (burning smell, etc.), immediately stop operation, turn off the electrical breaker, and consult authorized service personnel.

⚠ **CAUTION**
- ◆ Do not use inflammable gases near the product.
- ◆ Do not spill water into the product.
- ◆ Do not operate the product with wet hands.
- ◆ Do not install the product in a location where it will come into contact with the combustible gases, machine oil, sulphide gas, etc.
- ◆ Do not press buttons with a pointed thing.
- ◆ Do not pull or bend the product cable excessively.
- ◆ Do not use the product for other purpose.
- ◆ Do not spray an insecticide or other combustible things on the product.
- ◆ Do not clean the product with benzene, solvents or other chemicals.
- ◆ Do not give a shock to the product or disassemble it by yourself.

Cautions for installation

- *This user & installation manual describes how to install the DMS, BACnet Gateway.*
  For installation of other optional accessories, refer to the appropriate installation manual.

⚠ **WARNING**
- ◆ Read carefully this user & installation manual before installation and check if the product is installed correctly after installation.
- ◆ Do not attempt to install or repair this product by yourself.
- ◆ This product contains no user-serviceable parts. Always consult authorized service personnel for repairs.
- ◆ When moving, consult authorized service personnel for disconnection and installation of the product.
- ◆ Ensure that the wall is strong enough to support the weight of the product.
- ◆ Must install the product with rated power supply.
- ◆ The product must be installed according to the national electrical rules by an installation specialist.
- ◆ If you wish to uninstall the product, consult an authorized installation center.

⚠ **CAUTION**
- ◆ Do not use inflammable gases near the product.
- ◆ Do not install the product in a location where it will come into contact with combustible gases, machine oil, sulphide gas, etc.
- ◆ Avoid locations where acid/alkali solution or special spray is used.
- ◆ Choose a location that is dry and sunny, but not exposed to direct sunlight. Suitable temperature is between 32 ℉ (0℃) and 102.2℉ (39℃).
- ◆ Do not spill water into the product.
- ◆ Do not apply tensile strength to the cable to avoid cable damage.
- ◆ Do not press buttons with a sharp object.
- ◆ Do not connect the power cable to the control terminal.
- ◆ If the product is installed in a hospital or other special places, it should not affect other electronic devices.

Contents

Note ◆ The contents and pictures used in this user & installation manual may be changed without advance notice for the functional reinforcement and improvement of a product.

◆ This user & installation manual is for DMS, BACnet Gateway, installation.

◆ Refer to page 46~70 to check BACnet Gateway installation.

Federal Communication Commission Interference Statement
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

FCC Caution:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Before Installing the DMS

Checks before installation

1 DMS IP

◆ Basically, only Private IP can be set to IP address. To use Public IP, you must set Enable public IP as 'Enable' from the menu [System Settings] ➜ [System environment setting].

- Private IP range : 10.0.0.0 ~ 10.255.255.255, 172.16.0.0 ~ 172.31.255.255, 192.168.0.0 ~ 192.168.255.255

- Public IP range: IP except for Private IP range and 127.0.0.1(localhost)

◆ DMS supports DHCP. If Public IP must be assigned from DHCP, you must set Enable public IP as 'Enable' from the menu [System Settings] ➜ [System environment setting].

※ DHCP(Dynamic Host Configuration Protocol)
An Internet protocol for automating the configuration of computers that use TCP/IP. DHCP is used to automatically assign IP addresses.
In other words, the IP address of the host is supported only when the PC is on.

2 Network related equipments

※ DHCP(Dynamic Host Configuration Protocol)
An Internet protocol for automating the configuration of computers that use TCP/IP. DHCP is used to automatically assign IP addresses.
In other words, the IP address of the host is supported only when the PC is on.

3 Installation connection wire

◆ The LAN cable and the communication cables from interface modules must be installed in such a way that the wires can be connected to the DMS with ease.

Note ◆ *DMS supports Static IP or Dynamic IP. Web browser accesses DMS using its IP address. If the web browser which accesses to DMS are installed in a PC and the PC's IP is set to Public IP, you must register the Public IP to DMS to access.*

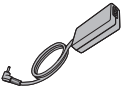◆ *A static IP from an internet service provider must be used if xDSL (ADSL, VDSL) is supported.*

⚠ **CAUTION**

◆ **Use this product only in a separate dedicated network. Lennox is not liable for any problems caused by connecting it to the Internet or an intranet.**

Accessories

Make sure you have each item. Supplied items may vary depending on your country or service provider.

Item	DMS	Adapter	Power cable	M4x16 Screw
Quantity	1	1	1	6
Shape				

User & Installation manual	Cable tie
1	1

⚠️ **CAUTION**

- ◆ *The DMS must be installed by a trained installer.*
- ◆ *Ensure the main power is turned off before installing the DMS.*
- ◆ *Be sure to use adapter and power cable we provide.*
- ◆ *The shape of power cable may differ depending on the model.*
- ◆ *The power cable and the communication cable must be installed according to the national electrical wiring regulations.*

Viewing the Parts

Main Parts

DMS Exterior

LCD Display

Shows current time and IP address. Various messages will be displayed depending on button input.

LCD operation button

There are 4 buttons(Menu, ▼(Down), ▲(Up), Set) and you can access menu and move, check the menu.

LED Indicator

Check 15 LED status such as Power, CPU-Alive, Ethernet-Linked/Active, COM1~5-TX/RX and Check

DMS Bottom cover

Unfasten 2 screws on the bottom and separate the bottom cover from DMS. Then check cable connection part.
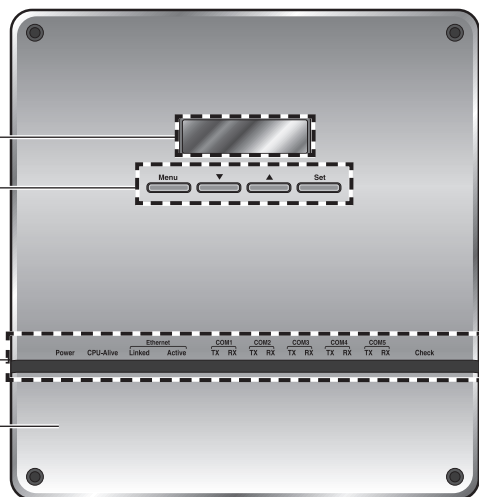
LED Indicator

Item	Name	Status
Power	Power indicator	Turns blue when the power is supplied.
CPU-Alive	CPU operation indicator	Blinks in orange with 1 second intervals during normal operation.
Ethernet–Linked	Internet connection indicator	Turns green during normal connection.
Ethernet–Active	Internet data transmission/reception indicator	Blinks in orange during normal transmission/reception.
COM1~5 – TX	Channel 1~5 Outdoor unit Data transmission Indicator	Blinks in green during normal transmission.
COM1~5 – RX	Channel 1~5 Outdoor unit Data reception Indicator	Blinks in green during normal reception,
Check	Indoor/Outdoor unit/Communication check Indicator	Turns green when notice occurs.

DMS Cable Connection Part

DI Terminal1   DI Terminal2   DO Terminal3   DO Terminal4
RS485 Communication Terminal
Reserved

Power Terminal
Reset Button
SD Card Socket
Ethernet Terminal
Cable tie groove
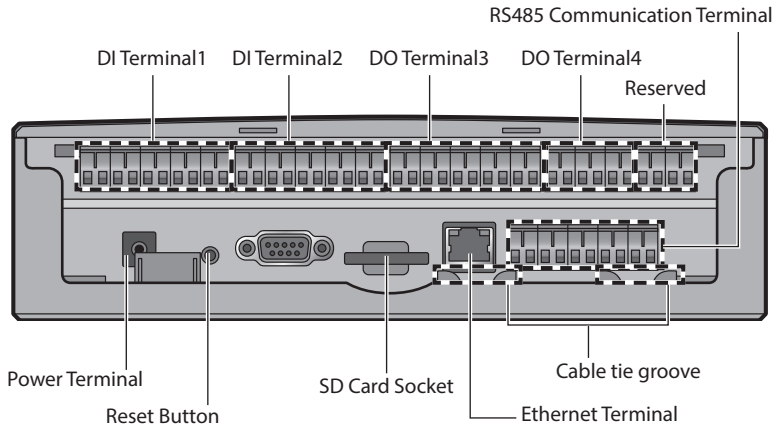
Name	Description
DI Terminal1	Digital Input connection terminal, Channel1~Channel5
DI Terminal2	Digital Input connection terminal, Channel6~Channel10
DO Terminal3	Digital Output connection terminal, Channel1~Channel5
DO Terminal4	Digital Output connection terminal, Channel6~Channel8
Reset Button	Reset DMS
Power Terminal	Connect DMS adapter
SD card socket	Sub memory (for program update and set information saving) socket
RS485 Communication Terminal	Connect for RS485 communication with devices such as Outdoor unit - COM1 ~ COM5
Ethernet Terminal	Connect LAN cable
Cable tie groove	Groove for arranging cables

Viewing the Parts (Continued)

Main Parts

DMS Interior

Display Board

20-pin Cable

40-pin Cable

Main Board

Sub Board
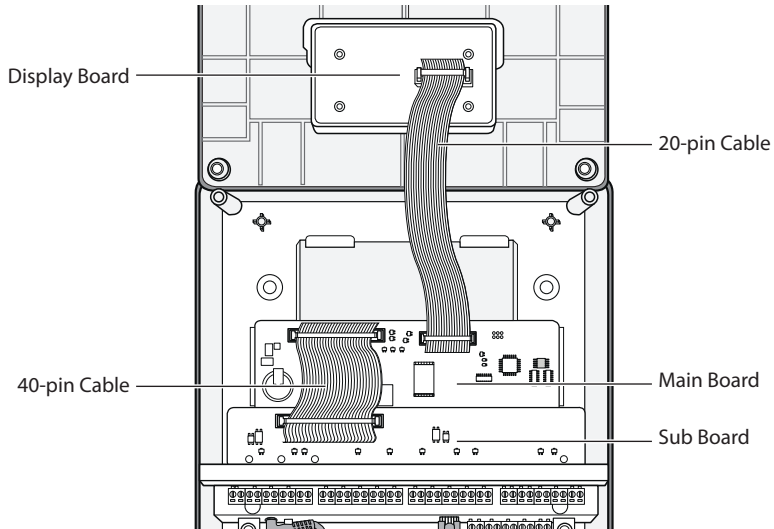
Note ◆ If you need external circuit configuration, consult with the manufacturer.
◆ Refer to page 17 for DI contact input operation.

Product Dimensions

9.44 (240)   2.55 (64.80)   [Unit : inch (mm)]

10 (255)

2024–09–20   오후 1:40:47

System Architecture

- Connecting outdoor unit and DMS.
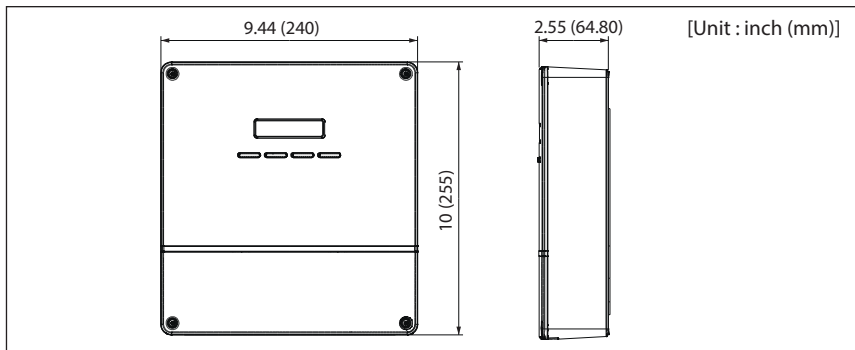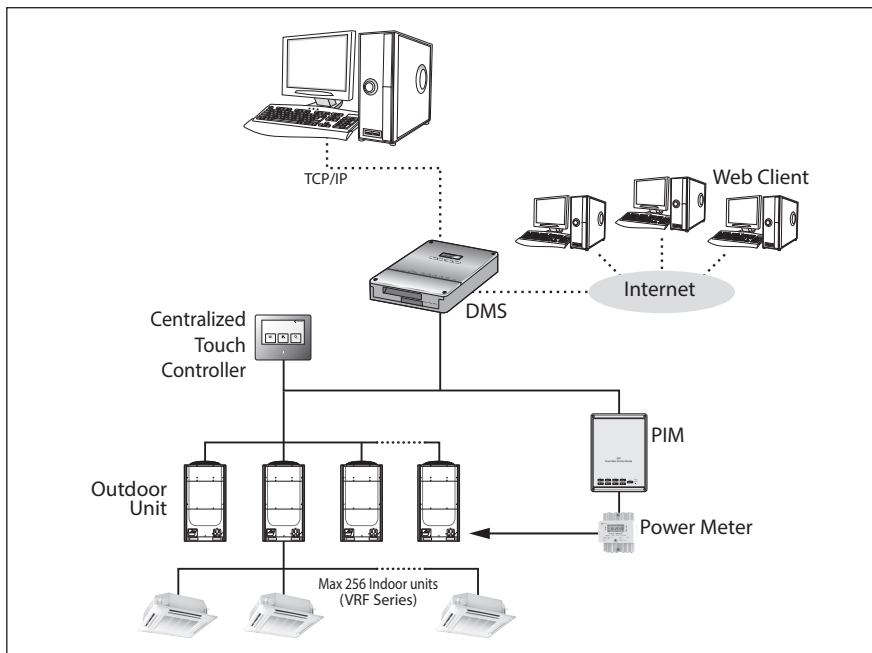 - You can control up to 80 outdoor units and 256 indoor units by using DMS.
    - ❊ You can connect up to 16 (outdoor) units per each communication channel of the DMS.
    - ❊ The maximum number of indoor units (including MSB) that can be connected to each communication channel of DMS RS485 is 128.
  - If the number of connected outdoor unit increases, it may take long time for tracking. (Max. 30 minutes)

⚠️ **CAUTION**

◆ *For devices that support new communication, you must set the communication mode of the channel to 'New' from 'System Settings ➔ Tracking' menu.*
  Set of Indoor/outdoor units, with conventional communication type, cannot be connected to DMS with new communication.

◆ *When 'New' is set as communication mode of the channel, virtual OnOff controller address will be assigned.*
  (Channel 0: Virtual OnOff controller 11, Channel 1: Virtual OnOff controller 12, Channel 2: Virtual OnOff controller 13, Channel 3: Virtual OnOff controller 14, Channel 4: Virtual OnOff controller 15)

Compatible Devices

No	Devices	Model	Note
1	Indoor Unit Outdoor Unit	VRF HR, VRF HP, Mini-VRF, Water-Cooled VRF only outdoor units and indoor units that can be connected to these outdoor units	VRF, Mini-Split indoor/outdoor units product groups that support NASA communication
2	Centralized Touch Controller	VCTRL01P-1	-
3	PIM	VCTRL08P-1	Needed for EHP power distribution
4*	Watt-hour Meter	Pulse type	Connected with PIM Pulse Width: 20~400(ms) Pulse: 1~10000(Wh/Pulse)

❈ Products with '*' are not Lennox products and must be purchased separately.
   (Only selected power meters may be used for protocol compatibility issues.)

Maximum Devices Attachable

Devices	Max.	Note
Indoor Unit	256	Tracking error occurs if exceeded The maximum number of indoor units (including MSB) that can be connected to each DMS communication channel is 128.
Centralized Touch Controller	75	Must not exceed 15 units per each RS485 communication terminal
Outdoor unit	80	Must not exceed 16 units per each RS485 communication terminal
PIM	8	
Watt-hour Meter	64	Maximum 8 units can be connected to 1 PIM.

⚠️ **CAUTION**

The sum of centralized touch controller, and PIM interface module that can be connected to each DMS communication channel should be 15 or less.

Installing the DMS

1 Separate the installation plate on the rear side of DMS.
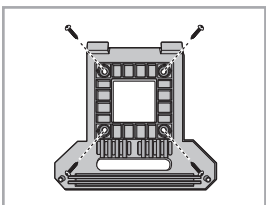
2 Fix the installation plate on the wall using 4 screws.
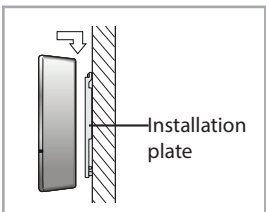
3 Hang the DMS on the groove which is on the top of the installation plate.

Installation plate
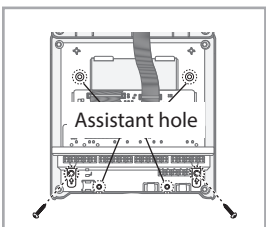
4 Fix the installation plate and DMS using 2 screws.
- ◆ Depending on the installation environment, fix DMS using assistant holes.
  (Screws for assistant hole are not provided by our company.)

Assistant hole
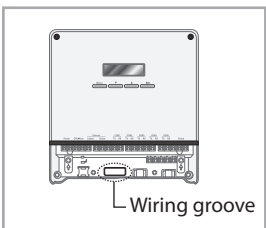
5 If you install DMS inside of the wall or wiring from the rear side is needed, use wiring groove on the bottom of DMS.

Wiring groove

⚠
CAUTION

To prevent breakdown and damage of DMS, and for safe usage, it is recommended to install DMS on the wall.

Connecting Outdoor Unit

1   Unfasten the 2 screws on the bottom of the DMS front cover. Hold the bottom 2 sides of the DMS and push downwards to slide open the cover.
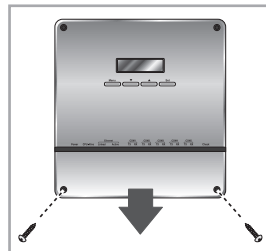
2   Connect the adapter to the power terminal.
◆ Arrange the adapter as the right figure.

Adapter
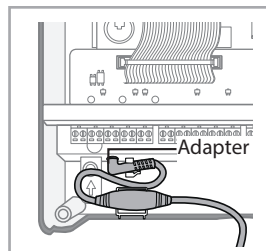
3   Separate 1 terminal block from 5 terminal blocks that are attached to RS485 communication terminal of the DMS. Then, connect outdoor unit communication cable (R1, R2)] to the terminal block.(R1↔A, R2↔B)
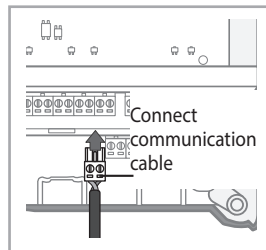
Connect communication cable

4   Connect LAN cable to the Ethernet terminal of DMS. Then arrange it using cable tie.

5   Fasten the bottom cover of DMS and fix it using 2 screws.

Cable tie

LAN cable

⚠
CAUTION
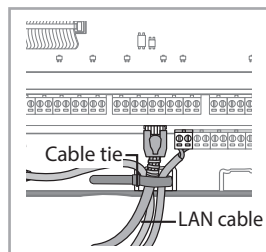
Maximum 80 Outdoor units can be connected to one DMS.

Installing the DMS (Continued)

▌▌ Connecting PIM
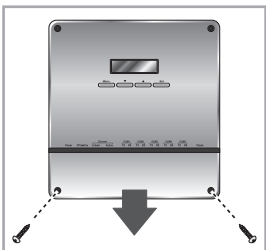
1 Unfasten the 2 screws on the bottom of the DMS front cover. Hold the bottom 2 sides of the DMS and push downwards to slide open the cover.
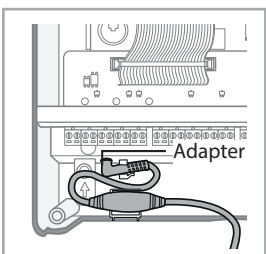
2 Connect the adapter to the power terminal.
   ◆ Arrange the adapter as the right figure.

Adapter
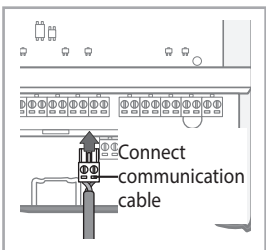
3 Separate 1 terminal block from 5 terminal blocks which are attached to RS485 communication terminal. Then, connect PIM communication cable to the terminal block.
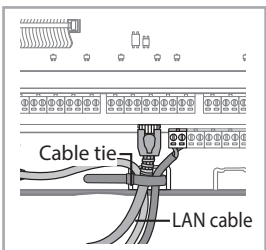
Connect communication cable

4 Connect LAN cable to the Ethernet terminal of DMS. Then arrange it using cable tie.

5 Fasten the bottom cover of DMS and fix it using 2 screws.

Cable tie

LAN cable

⚠ **CAUTION**

Maximum 8 PIM units can be connected to one DMS.

Using the DI External Contact Control (Optional)

Setting the External Contact Control Pattern

● You can set the system settings through contact control pattern.

1   Select [System Settings] menu and click [System environment setting].

2   Click [Edit] from 'Select the contact control pattern'.

3   Select the pattern you want to check.
   ◆ Pattern 1[No external input]: No operation will be made when inputting contact point control signal.
   ◆ Pattern 2[Level(Emergency stop)]: Commands that stop all indoor unit operation and disable remote control when inputting contact point control signal. In level emergency stop status, it will not be controlled even if the command is set from upper controller.
   ◆ Pattern 3[Level(Operation/Stop)]: Level signal input timing.
     It changes operation/stop status of all indoor units.
   ◆ Pattern 4[pulse (Operation/Stop, Disable/Enable)]:
     Pulse signal. It changes operation/stop status of all indoor units.

4   Click [Save] after setting is completed.

5   Click [OK] when "This information will be modified. Do you want to proceed?" message window appears.

6   "Reading data from DMS. Please wait." message appears and saving is completed. Then, system environment setting screen appears again with all items are disabled.

Note   *Pattern 1 is set as factory setting.*

⚠ **CAUTION**

◆ *DMS has total 10 DI ports. However, actually used DI ports are Ch1 and Ch2, and the rest of the ports (Ch3~Ch10) are for additional functions. Therefore, make sure to connect Ch1 or Ch2 when using it.*
◆ *For DO, Ch1 and Ch2 are currently used inside of DMS. Ch9 and Ch10 are reserved in case of need. Therefore you can only use Ch3~Ch8.*

Installing the DMS (Continued)

Contact control Pattern

Pattern	Control
Pattern1	▶ No external input (Factory default setting) 　When you input contact control signal in port 1, there will be no response.
Pattern2	▶ Level input (Emergency stop) 1. If the contact control signal is changed to ON, emergency stop status and all the indoor units are given 'Stop' command, and controlling using remote controller is impossible. 2. During the emergency stop, the DMS will ignore any request from the upper controllers. 3. During the emergency stop, the DMS will ignore previously set schedules. 4. When the contact control signal changes from ON to OFF, VRF goes into normal operation status and returns to the remote control status before emergency stop. 5. Even if the contact control signal of port 1 changes from ON to OFF, there will be no change to the indoor unit. 6. When you input contact control signal in port 2, there will be no response.
Pattern3	▶ Level input (Operation/Stop, Remote control Enable/Disable) 1. If the contact signal of port 1 changes from OFF to ON, all indoor units will be given 'Operation' command. 2. If the contact signal of port 1 changes from ON to OFF, all indoor units will be given 'Stop' command. 3. If the contact signal of port 2 is OFF, you cannot control all indoor units using remote controller. 4. If the contact signal of port 2 changes from OFF to ON, you can control all indoor units using remote controller. 5. If the contact signal of port 2 changes from ON to OFF, you cannot control all indoor units using remote controller. 6. Control command from the upper controller will be operated regardless of the contact point status. 7. VRF system control using Schedule control will be operated regardless of the contact point status.
Pattern4	▶ Pulse input (Operation/Stop) 1. Valid pulse duration for input signal is 0.5~1.0 second. DMS ignores the signal which has shorter than 0.5 second duration, longer than 1.0 second Pulse width. 2. When Pulse input signal is ON in Port 1. all indoor units will be given 'Operation' command. 3. When Pulse input signal is ON in Port 2. all indoor units will be given 'Stop' command. 4. VRF control command from the upper controller will be operated regardless of Pulse input signal. 5. VRF system control using Schedule control will be operated regardless of Pulse input signal.

DI(Digital Input) Circuitry according to Contact control Pattern

● Pattern 2 (May be used for connection with a fire sensor)

```
DMS        Emergency Stop/Resume Operation
   CH1        ○   ○

   CH2        No Connection
```
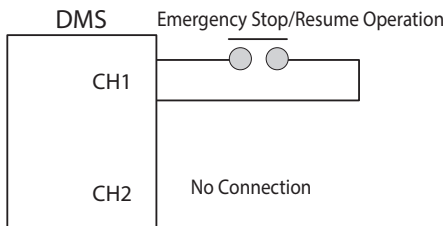
● Pattern 3 (External contact signal control)

```
DMS        Operation/Stop A/C
   CH1        ○   ○

              Enable/Disable remote control
   CH2        ○   ○
```
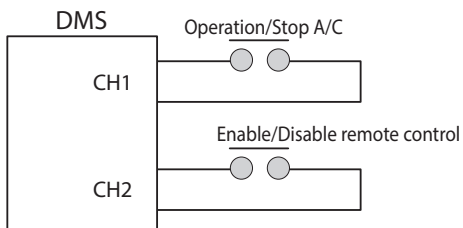
● Pattern 4 (Pulse signal control)

```
DMS
   CH1     A/C   ⊓   Operation

   CH2     A/C   ⊓   Stop
```
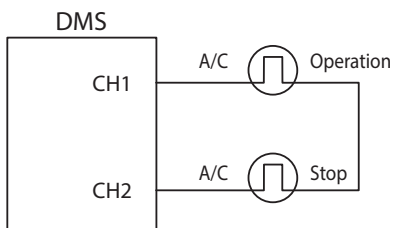
Setting the Computer Environment

1 Device related to network (Purchase separately)
- ◆ Computer with a LAN Card
- ◆ HUB or network cable(Cross·Direct cable)

2 Computer web browser specification
- ◆ Chrome 86 or later version

Note ◆ *A cross cable is used when connecting to PC directly.*
It is produced as transmission and reception cables are crossed. Cable 1, 2, 3,
and 6 are crossed each other.

Connect DMS and Computer

Connect DMS and Computer directly

DMS

Cross cable
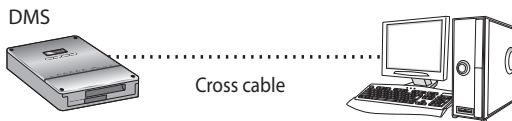
Connect DMS and Computer using HUB

HUB

DMS

LAN cable
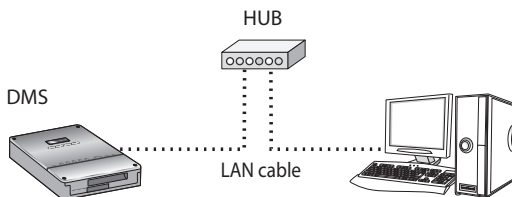
▌Computer Settings for DMS Connection

- All settings of DMS will be arranged in web page which built in DMS. You should access to DMS IP to use DMS web page.
  Set your computer settings as follows.
- DMS Factory default setting
  DMS IP : 192.168.0.100

▌IP Setting (Recommended)

- To access to DMS IP, set the network information of DMS connected computer as follows.
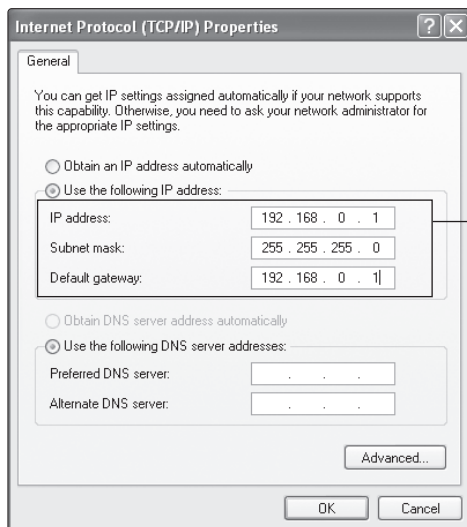
- IP address : 192.168.0.1 (~253)
  Except 100
- Subnet mask : 255.255.255.0
- Default gateway : 192.168.0.1

1	Select [My network Settings] icon and click [Properties] using right button.
2	Select [Local area connection] icon and click [Properties] using right button from the network connection folder.
3	[Internet protocol(TCP/IP)] and click [Properties] using right button from the local area connection property window.
4	Enter "192.168.0.1" in IP address field, "255.255.255.0" for subnet mask address, and "192.168.0.1" for default gateway.
5	Click [OK] after setting.

Setting the DMS

DMS Connection and Login
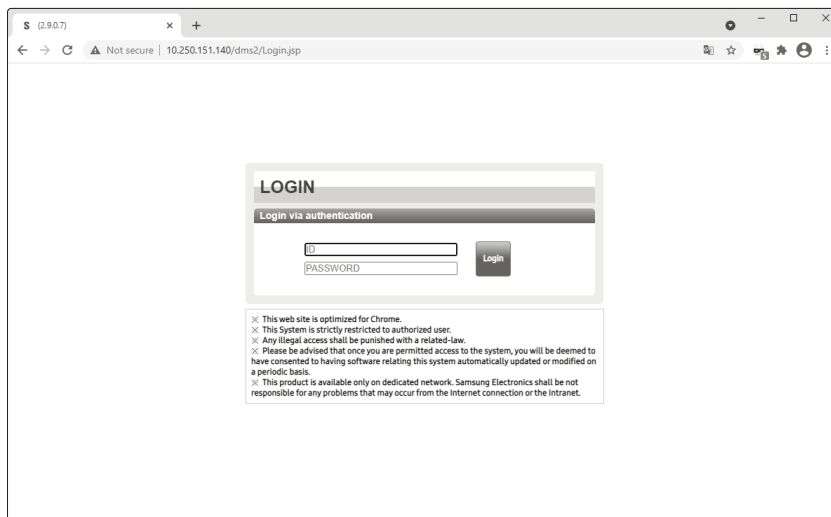
1 From the computer desktop, double-click the Chrome icon.

2 When the Chrome window appears, enter IP (https://192.168.0.100) in the address input field and press [ENTER].

   ◆ When you access DMS for the first from the Chrome browser on your computer, a security certificate warning screen appears. In the displayed screen, press the 'Advanced' button and click the 192.168.0.100 (Not secure) link to access the login screen.
   - The following security certificate warning screen appears when you access the solution for the first time. This screen is displayed using the certificate embedded in DMS, and does not appear after registering the DMS certificate to your web browser. If you do not register the DMS certificate, the following warning screen will continue to appear. Before using DMS, make sure to register the DMS certificate to ensure safe use. You should also register the DMS certificate to all computers that will be used to access DMS.
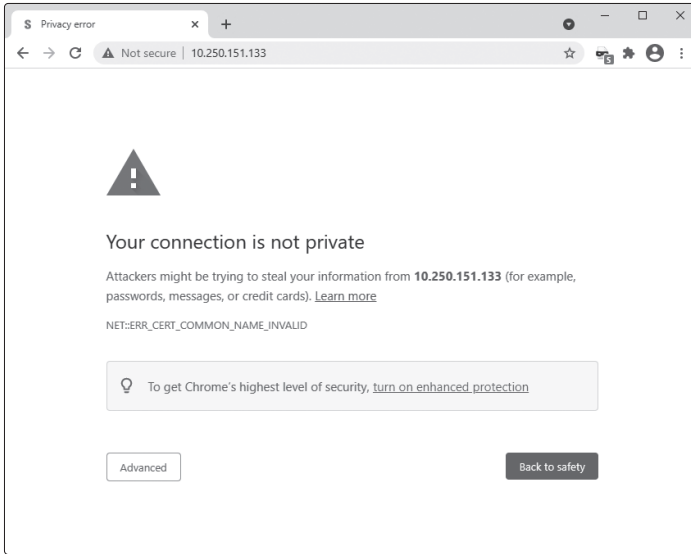
⚠️ **CAUTION**

 If the screen above appears again although you have registered the DMS certificate, stop accessing the solution. There is a risk that a security issue may occur.

Setting the DMS (Continued)

3   How to register the DMS certificate to a web browser
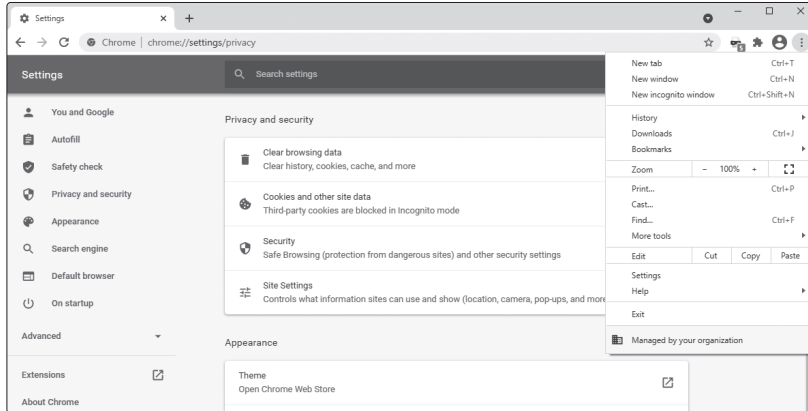
A. At the top right of the Chrome browser, click the three-dot button and select 'Settings' to access the Settings page.

B. From the Settings page, access the 'Privacy and security' menu and click Security.
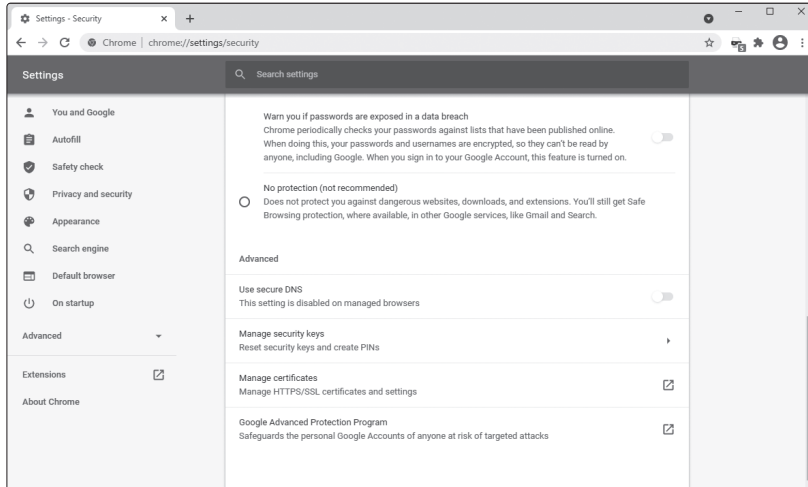
C. Select 'Manage certificates' under the 'Advanced' menu.
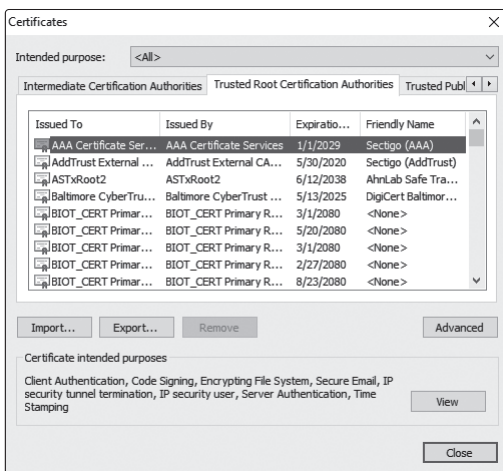
D. In the Certificates dialogue box, select the 'Trusted Root Certification Authorities' tab and then the 'Import' button.
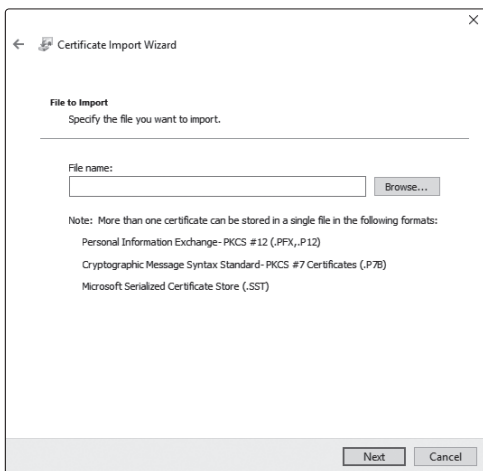
E. Load the saved certificate and click 'Next'.
The DMS certificate can be downloaded from [System environment setting]
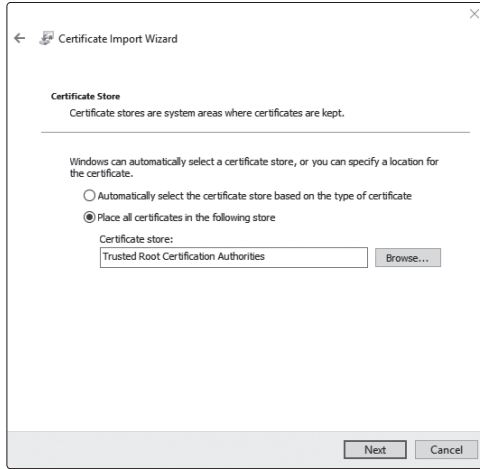
F. Select the 'Place all certificates in the following store' option, set Certificate store to 'Trusted Root Certification Authorities' and then click 'Next'.
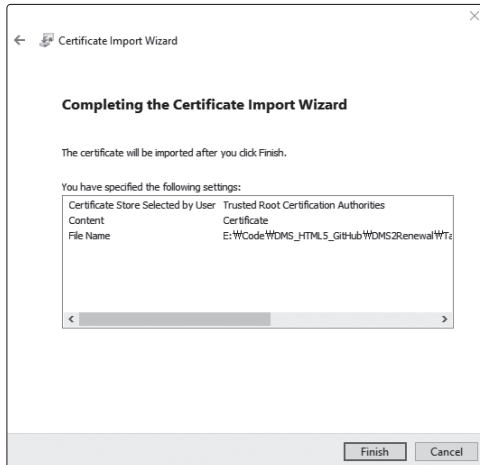
G. Read the details, and click 'Finish' to complete certificate registration.

LOGIN

Login via authentication

ID

PASSWORD

Login

※ This web site is optimized for Chrome.
※ This System is strictly restricted to authorized user.
※ Any illegal access shall be punished with a related-law.
※ Please be advised that once you are permitted access to the system, you will be deemed to have consented to having software relating this system automatically updated or modified on a periodic basis.
※ This product is available only on dedicated network. Samsung Electronics shall be not responsible for any problems that may occur from the Internet connection or the Intranet.

4 When the initial screen of the DMS website appears, enter your ID and password and click [Login].

◆ Access to some functions may be restricted, depending on the user authorisation setting configured by the administrator.

◆ To change your user authorization setting, select System Settings > User authorization management. The default DMS user ID and password are 'admin' and 'ac0530'.

Note   ◆ *Only authorised users can access the website.*
◆ *It is recommend that no more than five users access the website at any given time. Access speeds may decrease.*
◆ *For security and maintenance, the DMS administrator must change the ID and password.*
◆ *How to log out: To log out, press the [LOGOUT] button above the menu bar. DMS will be closed.*

Setting the DMS (Continued)

DMS System Environment Setting (Network settings)

● You can set and check information about DMS installation operation.

DMS Network Information Setting

1	Select [System Settings] menu and click [System environment setting].
2	Click [Edit] from DMS network information window.
3	When text boxes of IP address, subnet mask address, default gateway and DNS server are enabled, enter values for each item.
	◆ 15 letters can be entered for each item.
	◆ Each item should match with the network address form.
	When checking DHCP
	◆ If you check the 'DHCP', the text boxes of IP address, subnet mask address, default gateway and DNS server will be disabled.
	◆ If you want manual setting, uncheck 'DHCP' and then enter network information manually.
4	After clicking [Save], click [OK] when the message window appears.
	◆ If you click [OK] after setting network information as 'Edit', current web browser will be closed. And when you access DMS again, you can access DMS using manually setting IP.
	◆ If you click [OK] after setting network information as 'DHCP', current web browser will be closed. And when you access DMS again, you can access DMS using the IP displayed in LCD Display.

◆ *Factory setting is as follows.*
- IP address: 192.168.0.100   - Subnet mask address: 255.255.255.0
- Default gateway: 192.168.0.1 - DNS server: 0.0.0.0

◆ *If you enabled the function by checking 'DHCP', you can check changed network information on the external LCD display.*

◆ *If 'DHCP' is set, IP address from DHCP server will be displayed.*

◆ *Data Management Server gets automatically set IP address when you activate DHCP function.*
However, the auto setting IP address can be changed by events such as network environment of restart.
In this case, it may cause communication failure.

◆ *Refer to the user manual if you want to check other items of the system environment setting, tracking which collects information about indoor and outdoor units connected to DMS, and setting for power distribution. To download the user manual, select [User manual] after selecting [System settings] menu.*

⚠️
CAUTION

◆ **This product must be used in a dedicated network because it cannot respond to network attacks such as hacking and viruses. When it is connected to the Internet or an intranet (ex: an office LAN), it could be a risk of illegal approach. Also, this may change it to a harmful connection for other network devices. This is not the responsibility of Lennox and not included in compensation for the damage.**

Setting the DMS (Continued)

System Time Setting

1   Select [System Settings] menu and click [System environment setting].

2   Click [Edit] from system time setting.

3   Enter system time(year/month/day/hour/minute/second).
- ◆ You can enter only numbers.
- ◆ Year: You can enter from 1980 to 2035.
- ◆ Month: You can enter from 1 to 12.
- ◆ Day: You can enter from 1 to 31.
- ◆ Hour: You can enter from 0 to 23.
- ◆ Minute: You can enter from 0 to 59.
- ◆ Second: You can enter from 0 to 59.

4   Click [Save] and message window appears. Then click [OK].
- ◆ "Reading data from DMS. Please wait." message appears and saving is completed. Then, system environment setting screen appears again as all items are disabled.

Note   *System time reflects set current time.*

Setting the Language

1   Select [System Settings] menu and click [System environment setting].

2   Click [Edit] from language selection.

3   Select a language you want then click [Save].

4   Click [OK] when "This operation needs DMS to be restarted. Do you want to apply the setting?" message appears.
- ◆ Click [OK] and current web browser will be closed. DMS will restart and it may take approximately 1 minute.

DMS Name Setting

1 Select [System Settings] menu and click [System environment setting].

2 Click [Edit] from DMS name setting window.

3 Enter name of DMS when DMS name field enabled.
  ◆ You can use maximum 30 letters including English alphabets and special symbols.
  ◆ When DMS name is set, the name will be displayed on the top title bar of web browser.

4 Click [Save] after setting is completed.

5 Click [OK] when "This information will be modified. Do you want to proceed?" message window appears.

6 "Reading data from DMS. Please wait." message appears and saving is completed. Afterwards, system environment setting screen appears again as all items are disabled.
  ◆ You can check new DMS name on the title bar of web browser.

Note   *Name of DMS is set to blank as factory default.*

Setting the DMS (Continued)

Error Mail Forwarding Setting

1 Select [System Settings] menu and click [System environment setting].

2 Click [Edit] from error mail forwarding setting.

3 Set all the items as the value you want when all items fields are enabled.
  ◆ If you select 'Apply', you should enter e-mail address, SMTP server ID, password, and SMTP server address.
  ◆ If you select 'Not apply', E-mail, ID, PW and SMTP server items will not affect.

4 Click [Save] after setting is completed.

5 Click [OK] when "This information will be modified. Do you want to proceed?" message window appears.

6 "Reading data from DMS. Please wait." message appears and saving is completed. Afterwards, system environment setting screen appears again with all items are disabled.

Note ◆ *In factory setting, 'Not apply' is checked and item fields (E-mail, ID, PW, SMTP server) are blank.*
◆ *E-mail forwarding function deals with the server supporting SSL.*

Setting Enable public IP

1   Select [System Settings] menu and click [System environment setting].

2   Click [Edit] on Enable public IP section.

3   Select whether to use Public IP or not.
- ◆ When you select 'Enable', you must register the Public IP of PCs or network devices to access DMS from the PCs or network devices.

4   Click [Save].

Setting Public IP of upper controller

1   Select [System Settings] menu and click [System environment setting].

2   Click [Edit] on Public IP of upper controller section.

3   Register the Public IP of PCs or network devices to access DMS from the PCs or network devices.
- ◆ Select 'Apply' after entering the Public IP to access DMS.

4   Click [Save].

Setting the DMS (Continued)

System setting initialization

```
192.168.0.100
06:12:13(AM)
```

1 Press [Menu], [▲], [▼] or [Set] on LCD if IP and current time are displayed on LCD screen.
   ◆ Main menu screen appears.
   ◆ Initialization is not possible in the screen which time information is displayed.

```
MAIN MENU
1.IP Config
```

2 Press [Menu] ➜ [▼] ➜ [▲] ➜ [▼] ➜ [Menu] buttons in order in main menu screen.
   ◆ Caution will be displayed on LCD Display.

```
Are you sure?
YES:Set, NO:Menu
```

3 Initialize DMS by clicking [Set] when caution phrase appears.
   ◆ If you press [Menu] button, turns back to main menu without initialization.

⚠ **CAUTION**

When initializing system setting, all saved data in DMS will be deleted.
After initialization, saved data and IP address will be same as factory setting.

Tracking

◆ **What is tracking?**

Tracking is an operation that finds devices which are connected to DMS.
Through tracking operation, devices which are connected to DMS can recognize if they are connecting to DMS.
To supervise and control system air conditioner using DMS, tracking should be done first.

◆ **Things you can do through tracking**

Checking the number of devices installed, setting communication mode for each channel, VRF tracking, Renaming is possible through tracking.

◆ **Execute tracking**

(1) Connect VRF device
   - Connect the device to COM1~COM5.

(2) Set communication mode for each channel.
   - Set proper communication mode which fits to the devices connected in step (1).
   - Be careful that if communication mode is not properly set, the device will not be found through tracking.

(3) Execute tracking - Execute VRF tracking.
   - VRF tracking is an operation that finds system air conditioner devices such as indoor/outdoor unit and watt-hour meter.

(4) Name setting for each device.
   - Name setting for each device is a function that sets the name of connected devices. Set the name which shows installation location of the device.

◆ **Communication mode setting for each channel**

Roles
- It records what devices are connected to COM1~ COM5 of DMS.
- Through tracking, DMS searches proper devices which fits to user's setting.
- Select proper communication mode which fits to connected device.

What is communication mode?
- Outdoor unit, PIM can be connected to DMS.

- Following is the list of devices that can be communicated through each communication mode.
   ▶ NEW mode: Outdoor units, and PIM which support new communication mode.

   ▶ IM mode: IM mode cannot be set, but it can be used for function change or new function with an updated version.

Tracking (Continued)

Setting Communication Mode for Each Channel

1   Select [System Settings] menu and click [Tracking].

2   Click [Edit] from communication mode for each channel setting.
- ◆ [Edit] will change to [Cancel].
- ◆ Selection buttons are enabled. However, the channels which have searched device maintains its selection button disabled.

3   When each channel is enabled, check the communication mode you want to set for each channel.
- ◆ You cannot change the communication mode of channel which has currently connected device.
- ◆ When 'New' is set as communication mode, setting will allow tracking, monitoring and controlling devices that support NEW communication mode.
- ◆ IM mode cannot be set, but it can be used for function change or new function with an updated version.

4   Click [Save] after setting is completed.
- ◆ "Reading data from DMS. Please wait." message appears and saving is completed. After that, tracking page with disabled items will be displayed again.
- ◆ If you click [Cancel], check boxes will be disabled and [Cancel] will change to [Edit].

VRF Tracking

1   Select [System Settings] menu and click [Tracking].

2   Click [VRF Tracking].

3   Enter administrator's password and then click [OK].

4   Tracking information window pops up. Check it and click [OK] to continue.
      ◆ Execute tracking depending on the communication mode set by communication mode setting for each channel.

5   "Tracking is in progress. Please wait." message appears.
      ◆ Tracking takes from few seconds to several ten minutes.
      However, it may vary depending on the number of installed controllers. (Max. 30 minutes)

6 Tracking completed message will appear.
Select Zone initialization mode you want.
◆ No initialization: No zone information initialization will be made.
◆ Individual initialization: Initialize zone information as individual mode.
  - Individual mode: Arrange by indoor unit main address on monitoring page.
◆ Group initialization: Initialize zone information as group mode.
  - Group mode: Create group by indoor unit group address (RMC) on monitoring
    page.
❊ Individual mode and group mode can be changed in [Zone Setting & Edit].

7 Page will be refreshed by clicking [OK]. Then you can check tracking result.

Note   ◆ *If tracking is executed successfully while 'New' is set as communication mode for each channel, virtual OnOff controller will be assigned to each channel.*
◆ *If there is no searched oudoor unit, PIM, it is regarded as VRF tracking failure.*
◆ *If there are devices which have same address, first searched device will be registered only.*
  ※*Searching order is not fixed.*
◆ *Total number of indoor units includes general indoor units, AHU, Outdoor Air Concealed Ducted Indoor Unit, Hydro Unit, Hydro Unit HT, VRF CHILLER and Chiller Fan Coil Control Kit.*

⚠ CAUTION

◆ *If you execute tracking, system setting will be initialized.*
◆ *If tracking result does not match with actual installation information, there can be critical error in additional functions such as power distribution.*
◆ *Make sure that tracking information matches to actual installation information after tracking.*
◆ *If there are errors on indoor and outdoor units while tracking, the units may not be matched.*

Disconnect All Devices

Function

Initialize searched device status in DMS.
Monitoring and controlling of all the connected devices to DMS will be stopped when you use this function.

◆ Connect searched device to the other channel and execute tracking.
 If the other device is searched in the channel you want to use, use 'Disconnect all devices' function.

◆ If you use this function, DMS device connection status will be initialized.

Disconnect All Devices

1 Select [System Settings] menu and click [Tracking].

2 Click [Disconnect all devices].

3 Enter administrator's password and then click [OK].

4 Disconnect all devices information window pops up. Check it and click [OK] to continue.

5 "Reading data from DMS. Please wait." message appears.
 After completing disconnect all devices operation, page will be refreshed.

Note
◆ *After executing disconnect all devices function, device search status of DMS will be initialized.*
◆ *You should execute tracking again after using disconnect all devices function.*

Tracking (Continued)

Renaming the Device

1   Select [System Settings] menu and click [Tracking].

2   Click [Edit] on the bottom of tracking device list.
- ◆ [Edit] will change to [Cancel].
- ◆ When the type of the device is displayed, NEW communication address will be shown with it.

Note   *If you press [Cancel] button, [Cancel] will change to [Edit], and the changed name of device will be restored to original name.*

3   Enter the device name, which is saved in the PBA of indoor unit and outdoor unit, in the Device name field or enter the name, which is saved in the DMS, in the Name field.
- ◆ You cannot use special symbols as Device name and Name.
- ◆ Select the check box beside 'Device name' if you want to use the name of the device (that supports NEW communication) which is saved in the PBA

4   Click [Save] after setting is completed.
- ◆ "Reading data from DMS. Please wait." message appears and saving is completed. After that, tracking page with disabled items will be displayed again.
- ◆ If you click [Cancel], input fields are disabled and [Cancel] will change to [Edit].

DMS DI•DO Port Setting

1   Select [System Settings] and then click [Tracking].

2   Click [Setting] which is next to DMS DI•DO of device list.

3   Click [Edit] which is on the bottom of DMS DI•DO setting page.
    ◆ [Edit] will change to [Cancel].

4   Edit each item when DMS DI•DO selection and input fields are activated.
    ◆ Device type : DI or DO
    ◆ Short name – Input short name of the device.
    ◆ Full name – Input full name of the device.
    ◆ Minimum value / Maximum value – MIN value is fixed as OFF and MAX value is fixed as ON.

5   Click [Save].
    ◆ After the saving is complete, DMS DI•DO setting page with all inactivated items will appear.
    ◆ If you press [Cancel], webpage will refresh and it goes back to the state before the modification.

Tracking (Continued)

PIM Setting

1   Click [System Settings] ➔ [Tracking] when DMS web page menu screen appears.

2   Click [Setting] which is next to PIM of device list.
     ◆ Enter administrator's password and then click [OK].

3   Click [Edit] which is on the bottom of PIM setting page.
     ◆ [Edit] will change to [Cancel].

4   Select a field you want to change.
     ◆ Meter Value (0~999999.9, to one decimal place)
     ◆ Meter Type / Pulse rate
       - Electricity (1~10000)
       - Water (1~10000)
       - Gas (0.001~10, to three decimal places)
     ◆ Channel Status
     ◆ Time Setting
     ◆ PIM Password (Number)

> ⚠️ **CAUTION**
>
> ◆ *You should tick the check box of the channel you want to change.*

5   Click the check boxes to select the channel applying for the setting.

6   Click [Save].
     ◆ If you press [Cancel], webpage will refresh and it goes back to the state before the modification.

Setting the Power Distribution

◆ When doing power distribution, set PIM channel for each indoor unit.

Channel Setting by Indoor Unit

1 Click [EHP Power Consumption Inspection] ➔ [Channel setting by indoor unit] when DMS web page menu screen appears.

2 Click [Edit] when the setting channel by indoor unit screen appears.

3 Check the address and channel information of PIM which is connected to watt-hour meter.
◆ If 0~7 PIM units execute tracking, it will be displayed as 16~23 in DMS.

4 Check the information of indoor/outdoor unit which is connected to watt-hour meter.

5 Check the PIM channel(watt-hour meter) information of indoor/outdoor unit.
◆ You can set the channel when PIM is installed in DMS.
◆ When bringing indoor unit's power from outdoor unit, set the 'Outdoor unit PIM channel' information only.
('Outdoor unit PIM channel' is referring to watt-hour meter which is connected to outdoor unit.)
◆ When bringing indoor unit's power from the other device, not from outdoor unit, set the 'Outdoor unit PIM channel' and 'Indoor unit PIM channel' information.
('Indoor unit PIM channel' is referring to watt-hour meter which is connected to indoor unit.)
◆ Power distribution will be executed automatically. The user does not need to check the value of watt-hour meter.
◆ The maximum number of PIM channels for an outdoor unit is 4.

Setting the Power Distribution (Continued)

6 Check the virtual channel information of indoor/outdoor unit.

◆ To execute power distribution without PIM, you should set virtual channel.

◆ When bringing indoor unit's power from outdoor unit, set the 'Outdoor unit virtual channel' information only.
('Outdoor unit virtual channel' is referring to watt-hour meter which is connected to outdoor unit.)

◆ When bringing indoor unit's power from the other device, not from outdoor unit, set the 'Outdoor unit virtual channel' and 'Indoor unit virtual channel' information. ('Indoor unit virtual channel' is referring to watt-hour meter which is connected to indoor unit.)

◆ The number of virtual channel varies depending on the number of outdoor unit.

◆ To execute power distribution, you need to check watt-hour meter value manually.

◆ Power distribution using PIM is more accurate than using indoor/outdoor unit virtual channel. Therefore, it is recommended to execute power distribution using PIM.

7 Set indoor unit to execute power distribution.

◆ If you do not set the watt-hour meter information, the power distribution result of the indoor unit will be displayed as '0'.

8 Click [Save].

◆ Set channel information will be saved in DMS.

◆ If you do not click [Save], changed setting will not be saved.

⚠️
CAUTION

◆ *Information of watt-hour meter connected to indoor/outdoor unit should be accurate. If the watt-hour meter information is not accurate when you set channel information of indoor unit, error may occur in the power distribution result.*

◆ *You should set PIM channel information in the indoor unit if you want to execute power distribution using PIM. If not, it means that you do not execute power distribution. In this case, the power distribution result of the indoor unit will be '0'.*

◆ *If the information of watt-hour meter connected to indoor/outdoor unit is changed, consult with installation engineer.*

◆ *DMS executes power distribution based on set information.*

Appendix

IP Terminology

● DMS needs IP address to contact other computers.

1. Public IP	1-1. **Static IP**
	1-2. **Dynamic IP**
2. Private IP	2-1. **Static IP**
	2-2. **Dynamic IP**
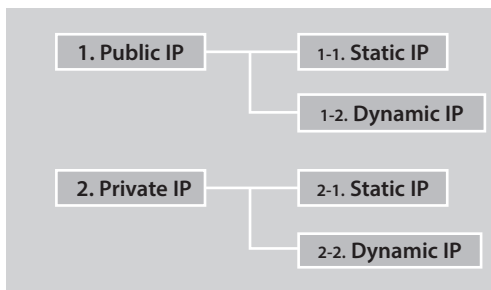
1. Public IP : Ordinary IP used to connect internet is called public IP.

    1-1. Static IP : Static IP is a number that is assigned to a computer by an Internet service provider (ISP) to be its permanent address on the Internet.

    1-2. Dynamic IP : Dynamic IP is a number, which changes every time when computer or model has restarted.

2. Private IP : This is a local IP which can not be used for internet connection. If you share internet connection through router, internet sharing software or, through OS, you may check the Client IP and they will be similar to below number system.

**10.0.0.0 ~ 10.255.255.255,
172.16.0.0 ~ 172.31.255.255,
192.168.0.0 ~ 192.168.255.255**

    2-1. Static IP : Designated IP assigned by user.

    2-2. Dynamic IP : User sets up to obtain their IP automatically.

Examples of DMS Installation with DSL

Local Management without External Control : Use Private IP

◆ Direct connection between DMS and computer or controller

DMS

Cross cable

Private IP : 192.168.0.100
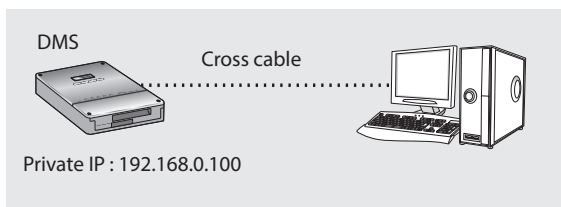
◆ Direct connection between DMS and computer or controller through HUB

HUB

DMS

Private IP :
192.168.0.100
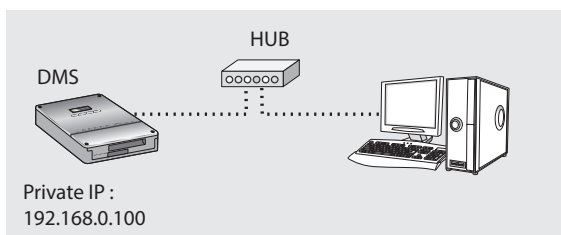
Initial Connection Error (for Private IP)

Several DMSs are Connected to the Same Network

Computer

Computer cannot distinguish which DMS has 192.168.0.100 IP.

DMS ①
Initial IP : 192.168.0.100

DMS ②
Initial IP : 192.168.0.100

DMS ③
Initial IP : 192.168.0.100

DMS ④
Initial IP : 192.168.0.100
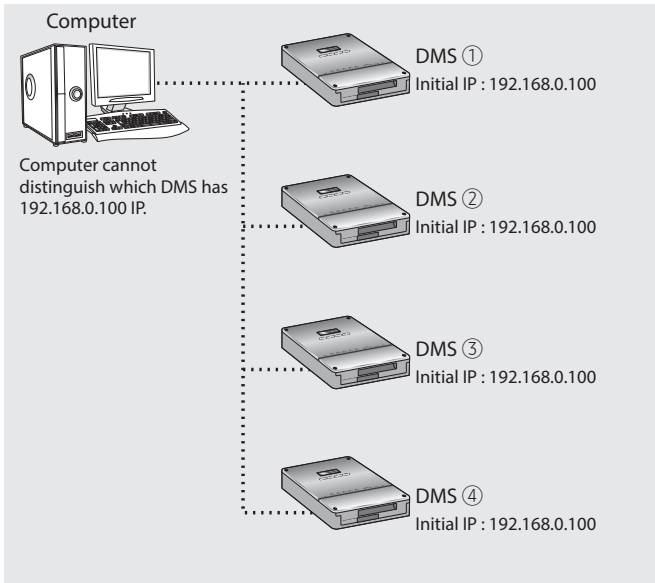
◆ In factory setting, all IP of DMS is same. Therefore, if you connect several DMS to the same network, the computer cannot distinguish which DMS has 192.168.0.100 IP address.

◆ Solution
- Connect only 1 DMS to the same network.
- Connect the power to only one DMS you want to use and cut the power for the rest of DMS.
- Disconnect from the network and set the IP again per each DMS. Then connect to the network again.

BACnet Gateway setting

System Architecture

BMS system

Internet — BMS Engineering / Lennox

BACnet Gateway

Centralized Touch Controller

Outdoor Unit

Max 256 Indoor units (VRF Series)
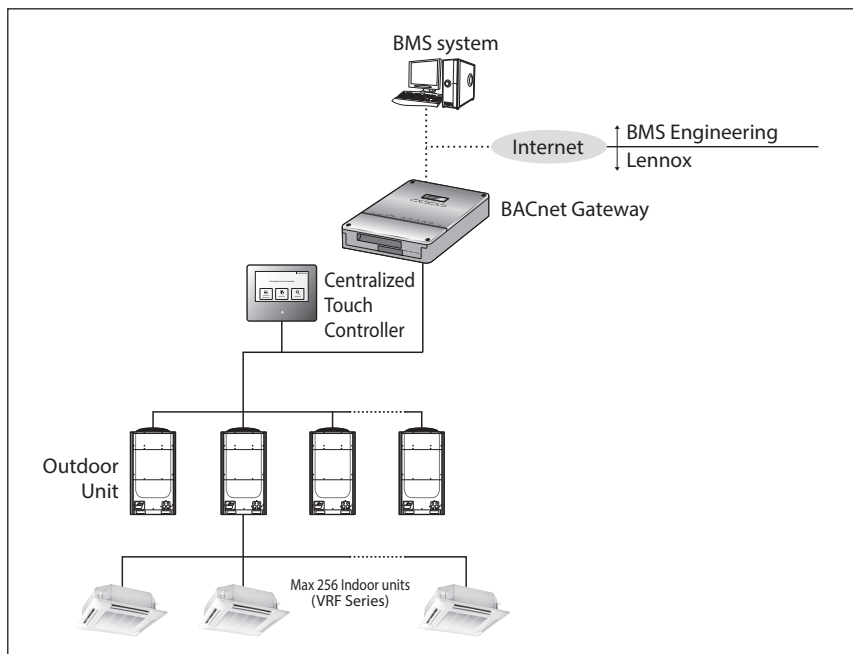
- Connecting outdoor units and BACnet Gateway
  - You can control up to 80 outdoor units and 256 indoor units using BACnet Gateway.
    ❄ Each communication channel of BACnet Gateway can be connected with 16 outdoor units.
    ❄ The maximum number of indoor units (including MSB) that can be connected to each communication channel of BACnet Gateway RS485 is 128.
  - The more outdoor units are connected, the longer time takes for tracking. (Max. 30 minutes)

⚠ CAUTION

◆ *For devices that support new communication, you must set the communication mode of the channel to 'New' from 'System Settings → Tracking' menu. Set of Indoor/outdoor units, with conventional communication type, cannot be connected to BACnet Gateway with new communication.*

◆ *When setting communication channel mode as 'New', the address of virtual centralized control will be assigned.*
Channel 0: Virtual OnOff controller 11, Channel 1: Virtual OnOff controller 12,
Channel 2: Virtual OnOff controller 13, Channel 3: Virtual OnOff controller 14,
Channel 4: Virtual OnOff controller 15

Compatible Devices

No	Devices	Model	Note
1	Indoor Unit Outdoor Unit	Outdoor unit: VRF HR, VRF HP, Mini-VRF, Water-Cooled VRF Indoor unit: Models that can be connected with above outdoor units	You should check that your indoor unit supports BACnet Gateway. (Refer to BACnet point list.)
2	Centralized Touch Controller	VCTRL01P-1	-
3	PIM	VCTRL08P-1	Needed for EHP power distribution
4*	Watt-hour Meter	Pulse type	Connected with PIM Pulse Width: 20~400(ms) Pulse: 1~10000(Wh/Pulse)

❋ Products with '*' are not Lennox products and must be purchased separately. (Only selected power meters may be used for protocol compatibility issues.)

❋ Lennox is not responsible for BMS engineering which creates each device and objects. For further directions regarding on BMS engineering, consult with specialized BMS related vendor.

BACnet Gateway setting (Continued)

▌Maximum Devices Attachable

Devices	Max.	Note
Indoor Unit	256	Tracking error occurs if exceeded The maximum number of indoor units (including MSB) that can be connected to each communication channel is 128.
Centralized Touch Controller	75	Must not exceed 15 units per each RS485 communication terminal
Outdoor unit	80	Must not exceed 16 units per each RS485 communication terminal
PIM	8	
Watt-hour Meter	64	Maximum 8 units can be connected to 1 PIM.

⚠ CAUTION

◆ *The sum of centralized touch controller, and PIM interface module that can be connected to each communication channel should be 15 or less.*

Setting the BACnet Gateway

BACnet Gateway Connection and Login

1 Click web browser (chrome) twice on your computer.

2 When web browser window appears, enter IP address
(https://192.168.0.100) on the address bar then press [ENTER].

3 Enter ID and password when BACnet Gateway main web page appears, Then click
[Login].
  ◆ If you use accounts with general authorization level to login, you cannot use the
     BACnet Gateway settings.
  ◆ Depending on authorization level set by the administrator, access to some
     functions may be restricted.
  ◆ You can change authorization level settings from **System Settings ➔
     User authorization management**.
  ◆ To use the BACnet Gateway functions, you must login with the ID that is included
     in administration group. Factory default BACnet Gateway ID is 'admin' and
     password is 'ac0530'.

Note
  ◆ *Only authorized users can access web page.*
  ◆ *Connection speed may slow down. Fewer than 5 concurrent users are
     recommended.*
  ◆ *BACnet Gateway manager should change ID and password for security and
     management.*
  ◆ *Logout: If you want to logout, click [**LOGOUT**] on the top of the menu. BACnet
     Gateway will be ended.*

⚠️
CAUTION

◆ **If you use accounts with authorization level lower than management group or accounts with general authorization level, you cannot access BACnet Gateway settings.**
◆ **If you cannot access BACnet Gateway, consult the manager.**

4 If you login successfully, 'Control and Monitoring' screen will appear.
Click [System Settings] ➔ [BACnet configuration] menu to switch to BACnet Gateway.

⚠️
CAUTION

◆ **If you use accounts with authorization level lower than management group or accounts with general authorization level, BACnet configuration will not be displayed on the menu.**
◆ **If the BACnet configuration menu does not appear, consult the manager.**

5 If you access BACnet Gateway, 'Device Configuration' screen will appear initially.
◆ If you click [DMS Connect] button, screen will be switched to initial screen.

Reading EHP Watt-hour Meter

Setting and checking watt-hour meter

1 Click [System and Checking Watt-hour meter].
- ◆ You can change settings on watt-hour meter only when PIM interface module is connected.

2 Click [Edit] from the 'Setting and checking Watt-hour meter' screen.
- ◆ CT proportion is set to '1' as factory default value.

3 Set the [Name] and [CT proportion] for the watt-hour meter.
- ◆ You can use maximum 16 letters for name and only available special characters are ".", ",", " _ ", " - ", and "space".
- ◆ Value for CT proportion should be integer between range of 1 ~ 5000.

4 Click [Save].
- ◆ CT proportion value will be saved to the BACnet Gateway.
- ◆ If you do not click [Save] changed setting will not be saved.

5 Watt-hour meter value will display the actual value of electricity on the corresponding watt-hour meter. Value will be updated automatically.

⚠️
CAUTION

When using CT watt-hour meter, be careful that there can be difference with actual power consumption as much as CT ratio error.

BACnet Gateway setting (Continued)

Monthly baseline setting

1   Click [System and Checking Watt-hour meter].

2   Click [Edit] from the 'Monthly baseline setting' screen.
◆ You can make changes when list box enables.

3   Set the Monthly baseline setting.
◆ You can select from 1 ~ 31.
◆ If you select the last day of the month, it will automatically set the last day of corresponding month as baseline.
Ex) Last day of February: 28th or 29th
◆ Power consumption is calculated for a month before monthly baseline.
Ex) Monthly baseline: 28th
Today: 19th Nov.
Time period for power consumption and operation: 29th Sep. ~ 28th Oct.

4   Click [Save].
◆ Changed settings will be saved to the BACnet Gateway.
◆ If you do not click [Save] changed setting will not be saved.

Period setting

1   Click [System and Checking Watt-hour meter].

2   Click [Edit] from the 'Period setting' screen.
◆ You can select checkbox to set period in daily or monthly unit.
◆ If you select daily period setting, text box will be enabled and you can enter the period in daily unit.
◆ If you select monthly period setting, you can select the period in monthly unit.

3   Set the period
◆ If you set period in daily unit, you can set up to maximum 90 days.
◆ If you set period in monthly unit, you can set up to maximum 1 months.

4   Click [Save].
◆ Changed setting will be saved to BACnet Gateway.
◆ If you do not click [Save], changed setting will not be saved.

System Settings

◆ You can set and check information about BACnet Gateway installation and operation.

BACnet Gateway network information

1 Click [System Settings].

2 Click [Edit] from the 'BACnet network information' section.

3 When text boxes of IP, Subnet mask, Default gateway, DNS server, BBMD IP, BBMD PORT, Network No., and BACnet PORT are enabled, enter the address values for each item.
- ◆ 15 letters can be entered for each item.
- ◆ Each item should match with the network address form.
- ◆ You can enter from 1 to 40 for Network No.
- ◆ If you want to use multiple BACnet Gateway in the same network, you should set up "Network No." differently.
- ◆ You can edit BBMD PORT. You can enter from 0 to 65535.
- ◆ You can edit BACnet PORT. You can enter from 0 to 65535.

4 Click [Save] button on the 'BACnet network information' section.

5 When the pop-up window appears, click [OK].

6 If you click [OK], current web browser will be closed. Then you may run the web browser again and access BACnet Gateway by entering the IP set and saved manually.

⚠
CAUTION

- ◆ *Default value of BACnet PORT is 47808.*
- ◆ *Check the communication with external BACnet device when changing BACnet PORT.*
- ◆ *Set default value of BBMD PORT when not using BBMD function.*
- ◆ *Default value of BBMD PORT is 0 (Not used).*
- ◆ *Check the communication with external BACnet device when using BBMD function.*
- ◆ *Local network does not work when changing BBMD PORT.*
- ◆ *Default value of network number is 9.*
- ◆ *Set the network number that is not repeated when communicating externally.*

BACnet Gateway setting (Continued)

BACnet gateway information and initialization

1   Click [System Settings].

2   You can check the basic BACnet gateway information from 'BACnet gateway information' section.

3   Click [Edit] from the 'BACnet gateway information' section.

4   If you want to initialize 'Recipient_list', Check and click [Save].

5   When the pop-up window appears, click [OK]. BACnet Gateway will restart and the system will initialize 'Recipient_list'.

BACnet point provision type

After updating the DMS firmware, you can select a BACnet point provision type to keep the compatibility of Instance Numbers between existing BACnet devices. Depending on the selected BACnet point provision type, the point list for each device provided by the BACnet Gateway varies. In addition, because the Instance Numbers vary for each device, you need to be careful when setting them. You can check the points for each provision type by referring to the BACnet point list.

1   Click [System Settings].

2   Click [Edit] in the 'BACnet point provision type' section.

3   Select one of the following BACnet point provision types:
   - Basic: Reflects the default points.
   - Advanced: Reflects updated points.

4   Click [Save] in the 'BACnet point provision type' section.

5   When the "This task requires a restart of the DMS. The BACnet point list may vary depending on the selected provision type. Do you want to continue?" message appears, click [OK].

6   When you click [OK], the current web browser is closed. After the DMS reboots, BACnet points are provided according to the provision type you selected.

Device Configuration

Checking device information

1 Click one of the Object ID from 'Object ID' column.
Detail information of the selected device will be displayed in device information.

2 Analog data of the selected device will be displayed in Analog data.
◆ Object ID: Displays ID of the corresponding object.
◆ Type: Displays type of the corresponding object.
  - AI: Input (Read Only)
  - AO: Output (Read/Write)
  - AV: Value (Read/Write)
◆ Object Name: Displays the name of the corresponding object.
◆ Value: Displays the current value of the corresponding object.
  - Unit will be displayed between [ ].

3 Binary data of the selected device will be displayed in Binary data.
◆ Object ID: Displays ID of the corresponding object.
◆ Type: Displays type of the corresponding object.
  - BI: Input (Read Only)
  - BO: Output (Read/Write)
  - BV: Value (Read/Write)
◆ Object Name: Displays the name of the corresponding object.
◆ Value: Displays the current value of the corresponding object.
  - It will be displayed either On or Off

4 Multi-state Data of the selected device will be displayed in Multi-state data.
◆ Object ID: Displays ID of the corresponding object.
◆ Type: Displays type of the corresponding object.
  - MI: Input (Read Only)
  - MO: Output (Read/Write)
  - MV: Value (Read/Write)
◆ Object Name: Displays the name of the corresponding object.
◆ Value: Displays the current value of the corresponding object.

Note   *Please refer to BACnet Point List to check the device configuration data for each device (Refer to page 61~69).*

BACnet Gateway setting (Continued)

BACnet Protocol Implementation Conformance Statement

Date: _____2024. 09. 05_____

Vendor Name: _____Lennox International Inc._____

Product Name: _____BACnet Gateway_____

Product Model Number: _____VCTRL02P-1_____

Application Software Version: __1.20__ **Firmware Revision:** __1.35__
BACnet Protocol Revision: __12__

Product Description:

__This product supports BACnet/IP and provide functions to monitor and control status of__
__air conditioners._____

BACnet Standardized Device Profile (Annex L):

☐ **BACnet Operator Workstation (B-OWS)**

☐ **BACnet Advanced Operator Workstation (B-AWS)**

☐ **BACnet Operator Display (B-OD)**

☐ **BACnet Building Controller (B-BC)**

☐ **BACnet Advanced Application Controller (B-AAC)**

■ **BACnet Application Specific Controller (B-ASC)**

☐ **BACnet Smart Sensor (B-SS)**

☐ **BACnet Smart Actuator (B-SA)**

List all BACnet Interoperability Building Blocks Supported (Annex K):_____

	SUPPORTED BIBBS	BIBB NAME	SUPPORTED	REMARKS
Data Sharing	DS-RP-A	Data Sharing-ReadProperty-A	☐	
	DS-RP-B	Data Sharing-ReadProperty-B	■	
	DS-RPM-A	Data Sharing-ReadPropertyMultiple-A	☐	
	DS-RPM-B	Data Sharing-ReadPropertyMultiple-B	■	
	DS-RPC-A	Data Sharing-ReadPropertyConditional-A	☐	
	DS-RPC-B	Data Sharing-ReadPropertyConditional-B	☐	
	DS-WP-A	Data Sharing-WriteProperty-A	☐	
	DS-WP-B	Data Sharing-WriteProperty-B	■	
	DS-WPM-A	Data Sharing-WritePropertyMultiple-A	☐	
	DS-WPM-B	Data Sharing-WritePropertyMultiple-B	■	
	DS-COV-A	DataSharing-COV-A	☐	
	DS-COV-B	DataSharing-COV-B	■	
	DS-COVP-A	DataSharing-COVP-A	☐	
	DS-COVP-B	DataSharing-COVP-B	☐	
	DS-COVU-A	DataSharing-COV-Unsolicited-A	☐	
	DS-COVU-B	DataSharing-COV-Unsolicited-B	☐	

	SUPPORTED BIBBS	BIBB NAME	SUPPORTED	REMARKS
Alarm and Event Management	AE-N-A	Alarm&Event-Notification-A	☐	
	AE-N-I-B	Alarm&Event-Notification Internal-B	☐	
	AE-N-E-B	Alarm&Event-Notification External-B	☐	
	AE-ACK-A	Alarm&Event-ACK-A	☐	
	AE-ACK-B	Alarm&Event-ACK-B	☐	
	AE-ASUM-A	Alarm&Event-Summary-A	☐	
	AE-ASUM-A	Alarm&Event-Summary-B	☐	
	AE-ESUM-A	Alarm&Event-Enrollment Summary-A	☐	
	AE-ESUM-B	Alarm&Event-Enrollment Summary-B	☐	
	AE-INFO-A	Alarm&Event-Information-A	☐	
	AE-INFO-B	Alarm&Event-Information-B	☐	
	AE-LS-A	Alarm&Event-LifeSafety-A	☐	
	AE-LS-B	Alarm&Event-LifeSafety-B	☐	
Scheduling	SCHED-A	Scheduling-A	☐	
	SCHED-I-B	Scheduling-Internal-B	☐	
	SCHED-E-B	Scheduling-External-B	☐	
Trending	T-VMT-A	Viewing and Modifying Trends-A	☐	
	T-VMT-I-B	Viewing and Modifying Trends Internal-B	☐	
	T-VMT-E-B	Viewing and Modifying Trends External-B	☐	
	T-ATR-A	Automated Trend Retrieval-A	☐	
	T-ATR-B	Automated Trend Retrieval-B	☐	
	T-VMMV-A	Viewing and Modifying Multiple Values-A	☐	
	T-VMMV-I-B	View and Modifying Multiple Values Internal-B	☐	
	T-VMMV-E-B	View and Modifying Multiple Values External-B	☐	
	T-AMVR-A	Automated Multiple Value Retrieval-A	☐	
	T-AMVR-B	Automated Multiple Value Retrieval-B	☐	
Device and Network Management	DM-DDB-A	Dynamic Device Binding-A	☐	
	DM-DDB-B	Dynamic Device Binding-B	■	
	DM-DOB-A	Dynamic Object Binding-A	☐	
	DM-DOB-B	Dynamic Object Binding-B	■	
	DM-DCC-A	DeviceCommunicationControl-A	☐	
	DM-DCC-B	DeviceCommunicationControl-B	■	
	DM-TM-A	Text Message-A	☐	
	DM-TM-B	Text Message-B	☐	
	DM-TS-A	Time Synchronization-A	☐	
	DM-TS-B	Time Synchronization-B	■	
	DM-UTC-A	UTCTime Synchronization-A	☐	
	DM-UTC-B	UTCTime Synchronization-B	■	
	DM-RD-A	ReinitializeDevice-A	☐	
	DM-RD-B	ReinitializeDevice-B	■	
	DM-BR-A	Backup&Restore-A	☐	
	DM-BR-B	Backup&Restore-B	☐	

	SUPPORTED BIBBS	BIBB NAME	SUPPORTED	REMARKS
Device and Network Management	DM-R-A	Restart-A	☐	
	DM-R-B	Restart-B	☐	
	DM-LM-A	List Manipulation-A	☐	
	DM-LM-B	List Manipulation-B	■	
	DM-OCD-A	Object Creation & Deletion-A	☐	
	DM-OCD-B	Object Creation & Deletion-B	☐	
	DM-VT-A	Virtual Terminal-A	☐	
	DM-VT-B	Virtual Terminal-B	☐	
	NM-CE-A	Connection Establishment-A	☐	
	NM-CE-B	Connection Establishment-B	☐	
	NM-RC-A	Router Configuration-A	☐	
	NM-RC-B	Router Configuration-B	■	

Segmentation Capability:

☐ Segmented requests supported Window Size _____

☐ Segmented responses supported Window Size _____

Standard Object Types Supported:

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

Data Link Layer Options:

■ **BACnet IP, (Annex J)**

■ **BACnet IP, (Annex J), Foreign Device**

☐ **ISO 8802-3, Ethernet (Clause 7)**

☐ **ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)**

☐ **ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s)** _____

☐ **MS/TP Main (Clause 9), baud rate(s):** _____

☐ **MS/TP Sub (Clause 9), baud rate(s):** _____

☐ **Point-To-Point, EIA 232 (Clause 10), baud rate(s):** _____

☐ **Point-To-Point, modem, (Clause 10), baud rate(s):** _____

☐ **LonTalk, (Clause 11), medium:** _____

☐ **BACnet/ZigBee (ANNEX O)**

☐ **Other:** _____

Device Address Binding:

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP sub and certain other devices.) ☐Yes　　■ No

Networking Options:

☐ Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.

☐ Annex H, BACnet Tunneling Router over IP

☐ BACnet/IP Broadcast Management Device (BBMD)

　　　Does the BBMD support registrations by Foreign Devices? ☐ Yes　　☐ No

　　　Does the BBMD support network address translation?　　☐ Yes　　☐ No

Character Sets Supported:

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

■ ISO 10646 (UTF-8)　　☐ IBM™/Microsoft™ DBCS　　☐ ISO 8859-1

☐ ISO 10646 (UCS-2)　　☐ ISO 10646 (UCS-4)　　　☐ JIS 0208

If this product is a communication gateway, describe the types of non-BACnet equipment/ networks(s) that the gateway supports:

　This gateway switches LENNOX air conditioner protocol to BACnet protocol to make RS-485 communication possible with the air conditioners connected to gateway.

BACnet Gateway setting (Continued)

Detail Description of Object

Device

Following table shows regulation of device ID and they are created automatically.

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

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

DNET (Gateway number)　　　　　　　　　Indoor Unit Individual address

9　417　32

400 + 1x16 + 1 = 417

Centralized Touch　　　　Interface Module
Controller address　　　　(Outdoor Unit) address
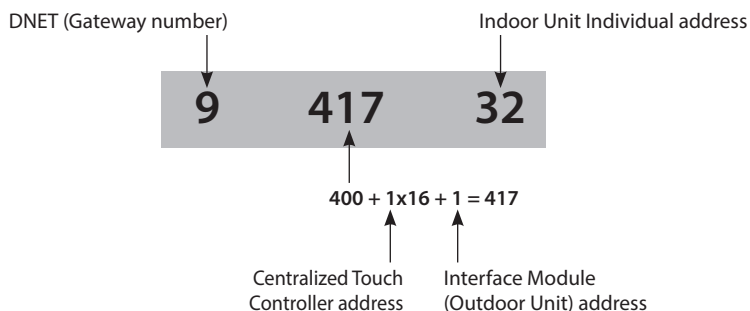
◆ **Object of device**
   Refer to BACnet point List

◆ **Command Priorities**
   - Supports 1 ~ 16 Priority Level
   - Recommends 8 Priority Level

BACnet Point List

The BACnet point list varies depending on which [BACnet point provision type] is selected in the [System Settings] menu.
There are two BACnet point provision types:
    (1) Basic: Reflects the default points.
    (2) Advanced: Reflects updated points.
       For details, refer to the point list below.

Indoor Unit [Basic]

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

Instance Number	Object	Object Type	Object Name	Unit	Status value			
				Inactive	Active			
				Text-1	Text-2	Text-3	Text-4	Text-5
* 24	Discharge current temperature	AI	AC_DisCurrentTemp_xx_xxxxxx	°C(°F)				
** 25	AC Indoor Notify	NC	AC_Notify_xx_xxxxxx	When the error occurred, send event to list of destination in the recipient_list. (Max : 8)				

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

Auto: 18 ˚C~30 ˚C
Cool: 18 ˚C~30 ˚C
Heat: 16 ˚C~30 ˚C
Fan: Temperature cannot be adjusted
Dry: 18 ˚C~30 ˚C

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

Indoor Unit [Advanced]

Single indoor unit has following point list.

Instance Number	Object	Object Type	Object Name	Unit	Status value			
				Inactive	Active			
				Text-1	Text-2	Text-3	Text-4	Text-5
1	Indoor Temperature	AI	AC_RoomTemp_xx_xxxxxx	°C				
2	Set temperature	AV	AC_Temp_Set_xx_xxxxxx	°C				
3	Setting lower temperature limit	AV	AC_Cool_LimitTemp_xx_xxxxxx	°C				
4	Setting upper temperature limit	AV	AC_Heat_LimitTemp_xx_xxxxxx	°C				
5	The power value of an indoor unit after the basic date	AI	AC_Baseline_kWh_xx_xxxxxx	kWh				
6	The number of hours usage of an indoor unit after the basic date	AI	AC_Baseline_Minute_xx_xxxxxx	Minute				
7	Power value within period	AI	AC_Period_kWh_xx_xxxxxx	kWh				
8	The number of hours usage of an indoor unit within period	AI	AC_Period_Minute_xx_xxxxxx	Minute				
** 9	Power On/Off	BV	AC_Power_xx_xxxxxx	Off	On			
10	Applying lower temperature limit setting	BV	AC_Cool_Limit_set_xx_xxxxxx	False	True			
11	Applying upper temperature limit setting	BV	AC_Heat_Limit_set_xx_xxxxxx	False	True			
** 12	Filter sign status	BI	AC_FilterSign_xx_xxxxxx	False	True			
** 13	Filter sign reset	BO	AC_FilterSign_Reset_xx_xxxxxx	False	True			
** 14	Operation mode status	MV	AC_Operation_Mode_xx_xxxxxx	Auto	Cool	Heat	Fan	Dry
* 15	Fan speed status	MV	AC_FanSpeed_xx_xxxxxx	Auto	Low	Mid	High	Turbo
* 16	Air flow direction status	MV	AC_FanFlow_xx_xxxxxx	1: None, 2: Vertical, 3: Horizon, 4: All, 5: Spot, 6: Mid, 7: Wide, 8: Swing				
** 17	Operation mode limit status	MV	AC_Mode_Limit_xx_xxxxxx	No Limit	Cool Only	Heat Only		
** 18	Remote controller limit status	MV	AC_Remocon_Limit_xx_xxxxxx	Enable RC	Disable RC	Conditional RC		

Instance Number	Object	Object Type	Object Name	Unit / Inactive / Text-1	Status value / Active / Text-2	Text-3	Text-4	Text-5
** 19	Integrated error code of both indoor unit and outdoor unit	AI	AC_Error_Code_xx_xxxxxx	Refer to list of error code				
* 20	SPI setting	BV	AC_SPI_xx_xxxxxx	False	True			
* 21	HumanSensor setting	BV	AC_MDS_xx_xxxxxx	False	True			
* 22	Discharge cooling set temperature	AV	AC_DisCoolTemp_Set_xx_xxxxxx	℃(℉)				
* 23	Discharge heating set temperatrue	AV	AC_DisHeatTemp_Set_xx_xxxxxx	℃(℉)				
* 24	Discharge current temperature	AI	AC_DisCurrentTemp_xx_xxxxxx	℃(℉)				
*25	Wind-Free	BV	AC_WindFree_xx_xxxxxx	False	True			
*26	MDS air-flow direction	MV	AC_MDS_Opt_Direction_xx_xxxxx	Indirect	direct			
27	Cooling temperature upper limit	AV	AC_Cool_Upper_LimitTemp_xx_xxxxx	℃(℉)				
28	Heating temperature lower limit	AV	AC_Heat_Lower_LimitTemp_xx_xxxxx	℃(℉)				
29	Use of cooling temperature upper limit	BV	AC_Cool_Upper_Limit_set_xx_xxxxx	False	True			
30	Use of heating temperature lower limit	BV	AC_Heat_Lower_Limit_set_xx_xxxxx	False	True			
*31	Automatic Cooling Set Temperature	AV	AC_DualSetPoint_CoolTemp_xx_xxxxx	℃(℉)				
*32	Automatic Heating Set Temperature	AV	AC_DualSetPoint_HeatTemp_xx_xxxxx	℃(℉)				
*33	Comprehensive air cleanliness	MI	AC_Air_Total_Clean_Level_xx_xxxxx	1: None, 2: Level 1 (Good), 3: Level 2 (Moderate), 4: Level 3 (Bad), 5: Level 4 (Very bad), 6: Level 5 (Very very bad), 7: Level 6 (Very very very bad)				
*34	PM10.0 value	AI	AC_Dust_Sensor_PM_10_0	$\mu g/m^3$				
*35	PM2.5 value	AI	AC_Dust_Sensor_PM_2_5	$\mu g/m^3$				
*36	PM1.0 value	AI	AC_Dust_Sensor_PM_1_0	$\mu g/m^3$				
*47	Long	BV	AC_BV_1_Reserved_xx_xxxxxx	False	True			
*48	Power Saving (MDS)	BV	AC_BV_2_Reserved_xx_xxxxxx	False	True			
** 54	AC Indoor Notify	NC	AC_Notify_xx_xxxxxx	When the error occurred, send event to list of destination in the recipient_list. (Max : 8)				

Of the BACnet points, Reserved points (Instance Numbers 37 to 53) are points for future use.

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

Auto: 18 ˚C~30 ˚C
Cool: 18 ˚C~30 ˚C
Heat: 16 ˚C~30 ˚C
Fan: Temperature cannot be adjusted
Dry: 18 ˚C~30 ˚C

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

BACnet Gateway setting (Continued)

AHU Kit [Basic]

Single AHU unit has following point list.

Instance Number	Object	Object Type	Object Name	Unit	Status value				
				Inactive	Active				
				Text-1	Text-2	Text-3	Text-4	Text-5	
1	Indoor Temperature	AI	AHU_RoomTemp_xx_xxxxxx	°C					
2	Set temperature	AV	AHU_Temp_Set_xx_xxxxxx	°C					
3	Setting lower temperature limit	AV	AHU_Cool_LimitTemp_xx_xxxxxx	°C					
4	Setting upper temperature limit	AV	AHU_Heat_LimitTemp_xx_xxxxxx	°C					
5	The power value of an indoor unit after the basic date	AI	AHU_Baseline_kWh_xx_xxxxxx	kWh					
6	The number of hours usage of an indoor unit after the basic date	AI	AHU_Baseline_Minute_xx_xxxxxx	Minute					
7	Power value within period	AI	AHU_Period_kWh_xx_xxxxxx	kWh					
8	The number of hours usage of an indoor unit within period	AI	AHU_Period_Minute_xx_xxxxxx	Minute					
9	Power On/Off	BV	AHU_Power_xx_xxxxxx	Off	On				
10	Applying lower temperature limit setting	BV	AHU_Cool_Limit_set_xx_xxxxxx	False	True				
11	Applying upper temperature limit setting	BV	AHU_Heat_Limit_set_xx_xxxxxx	False	True				
12	Filter sign status	BI	AHU_FilterSign_xx_xxxxxx	False	True				
13	Filter sign reset	BO	AHU_FilterSign_Reset_xx_xxxxxx	False	True				
14	Operation mode status	MV	AHU_Operation_Mode_xx_xxxxxx	Auto	Cool	Heat	Fan	Dry	
15	Operation mode limit status	MV	AHU_Mode_Limit_xx_xxxxxx	No Limit	Cool Only	Heat Only			
16	Remote controller limit status	MV	AHU_Remocon_Limit_xx_xxxxxx	Enable RC	Disable RC	Conditional RC			
17	Integrated error code of both indoor unit and outdoor unit	AI	AHU_Error_Code_xx_xxxxxx	Refer to list of error code					
* 18	Discharge cooling set temperature	AV	AHU_DisCoolSetTemp_xx_xxxxxx	°C					
* 19	Discharge heating set temperature	AV	AHU_DisHeatSetTemp_xx_xxxxxx	°C					
* 20	Discharge current temperature	AI	AHU_Dis_CurrentTemp_xx_xxxxxx	°C					
* 21	Humidification setting	BV	AHU_Humidification_xx_xxxxxx	Off	On				
* 22	Outdoor air intake setting	BV	AHU_OAIntake_xx_xxxxxx	Off	On				
* 23	Outdoor cooling setting	BV	AHU_OutdoorCool_xx_xxxxxx	Off	On				
* 24	Fan speed status	MV	AHU_FanSpeed_xx_xxxxxx	Low	Mid	High			
* 25	Set humidity status	MV	AHU_SetHumidity_xx_xxxxxx	Low	Mid	High			
* 26	Current humidity status	MI	AHU_CurrentHumidity_xx_xxxxxx	Low	Mid	High			
27	AHU Notify	NC	AHU_Notify_xx_xxxxxx	When the error occurred, send event to list of destination in the recipient_list. (Max : 8)					

(*) Mark is optionally supported.

AHU Kit [Advanced]

Single AHU unit has following point list.

Instance Number	Object	Object Type	Object Name	Unit	Status value				
				Inactive	Active				
				Text-1	Text-2	Text-3	Text-4	Text-5	
1	Indoor Temperature	AI	AHU_RoomTemp_xx_xxxxxx	°C					
2	Set temperature	AV	AHU_Temp_Set_xx_xxxxxx	°C					
3	Setting lower temperature limit	AV	AHU_Cool_LimitTemp_xx_xxxxxx	°C					
4	Setting upper temperature limit	AV	AHU_Heat_LimitTemp_xx_xxxxxx	°C					
5	The power value of an indoor unit after the basic date	AI	AHU_Baseline_kWh_xx_xxxxxx	kWh					
6	The number of hours usage of an indoor unit after the basic date	AI	AHU_Baseline_Minute_xx_xxxxxx	Minute					
7	Power value within period	AI	AHU_Period_kWh_xx_xxxxxx	kWh					
8	The number of hours usage of an indoor unit within period	AI	AHU_Period_Minute_xx_xxxxxx	Minute					
9	Power On/Off	BV	AHU_Power_xx_xxxxxx	Off	On				
10	Applying lower temperature limit setting	BV	AHU_Cool_Limit_set_xx_xxxxxx	False	True				
11	Applying upper temperature limit setting	BV	AHU_Heat_Limit_set_xx_xxxxxx	False	True				
12	Filter sign status	BI	AHU_FilterSign_xx_xxxxxx	False	True				
13	Filter sign reset	BO	AHU_FilterSign_Reset_xx_xxxxxx	False	True				
14	Operation mode status	MV	AHU_Operation_Mode_xx_xxxxxx	Auto	Cool	Heat	Fan	Dry	
15	Operation mode limit status	MV	AHU_Mode_Limit_xx_xxxxxx	No Limit	Cool Only	Heat Only			
16	Remote controller limit status	MV	AHU_Remocon_Limit_xx_xxxxxx	Enable RC	Disable RC	Conditional RC			
17	Integrated error code of both indoor unit and outdoor unit	AI	AHU_Error_Code_xx_xxxxxx	Refer to list of error code					
* 18	Discharge cooling set temperature	AV	AHU_DisCoolSetTemp_xx_xxxxxx	°C					
* 19	Discharge heating set temperature	AV	AHU_DisHeatSetTemp_xx_xxxxxx	°C					
* 20	Discharge current temperature	AI	AHU_Dis_CurrentTemp_xx_xxxxxx	°C					
* 21	Humidification setting	BV	AHU_Humidification_xx_xxxxxx	Off	On				
* 22	Outdoor air intake setting	BV	AHU_OAIntake_xx_xxxxxx	Off	On				
* 23	Outdoor cooling setting	BV	AHU_OutdoorCool_xx_xxxxxx	Off	On				
* 24	Fan speed status	MV	AHU_FanSpeed_xx_xxxxxx	Low	Mid	High			
* 25	Set humidity status	MV	AHU_SetHumidity_xx_xxxxxx	Low	Mid	High			
* 26	Current humidity status	MI	AHU_CurrentHumidity_xx_xxxxxx	Low	Mid	High			
27	Cooling temperature upper limit	AV	AHU_Cool_Upper_LimitTemp_xx_xxxx	°C(°F)					
28	Heating temperature lower limit	AV	AHU_Heat_Lower_LimitTemp_xx_xxxx	°C(°F)					

Instance Number	Object	Object Type	Object Name	Unit	Status value				
				Inactive	Active				
				Text-1	Text-2	Text-3	Text-4	Text-5	
29	Use of cooling temperature upper limit	BV	AHU_Cool_Upper_Limit_set_xx_xxxxx	False	True				
30	Use of heating temperature lower limit	BV	AHU_Heat_Lower_Limit_set_xx_xxxxx	False	True				
*31	Automatic Cooling Set Temperature	AV	AHU_DualSetPoint_CoolTemp_xx_xxxxx	°C(°F)					
*32	Automatic Heating Set Temperature	AV	AHU_DualSetPoint_HeatTemp_xx_xxxxx	°C(°F)					
33	AHU Notify	NC	AHU_Notify_xx_xxxxxx	When the error occurred, send event to list of destination in the recipient_list. (Max : 8)					

(*) Mark is optionally supported.

VRF CHILLER [Basic, Advanced]

Single VRF CHILLER Unit has following point list.

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

BACnet Device Object does not support main function of VRF CHILLER.
Demand control setting range is as follows:
50,55,60,65,70,75,80,85,90,95,100(%)

PIM [Basic, Advanced]

Single PIM has following point list.

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

BACnet Gateway setting (Continued)

▌ Interface Module (Outdoor Unit) [Basic]

Single Interface Module (Outdoor Unit) has following point list.

Instance Number	Object	Object Type	Object Name	Unit	Status value			
				Inactive	Active			
				Text-1	Text-2	Text-3	Text-4	Text-5
1	Outside temperature	AI	ODU_Outside_Temp_xx_xxxx	℃				
* 2	Cool capacity compensation	AV	ODU_Cool_Compensation_xx_xxxx	0 : 5~7 ℃ / 1 : 7~9 ℃ / 2 : 9~11 ℃ / 3 : 10~12 ℃ / 4 : 11~13 ℃ / 5 : 12~14 ℃ / 6 : 13~15 ℃ / 14 : Auto control (from ODU)				
* 3	Heat capacity compensation	AV	ODU_Heat_Compensation_xx_xxxx	0 : 25 kg/cm^2 / 1 : 26 kg/cm^2 / 2 : 27 kg/cm^2 / 3 : 28 kg/cm^2 / 4 : 29 kg/cm^2 / 5 : 30 kg/cm^2 / 6 : 31 kg/cm^2 / 7 : 32 kg/cm^2 / 8 : 33 kg/cm^2 / 14 : Auto control (from ODU)				
4	Compressor status	BI	ODU_Comp_Status_xx_xxxx	False	True			
5	Interface Module (Outdoor Unit) error code	AI	Repeater_Error_Code_xx_xxxx	Refer to the list of the integrated error code				
6	Interface Module (Outdoor Unit) notify	NC	IM_Notify_xx_xxxx	When the error occurred, send event to list of destination in the recipient_list. (Max : 8)				

(*) Mark is optionally supported.

▌ Interface Module (Outdoor Unit) [Advanced]

Single Interface Module (Outdoor Unit) has following point list.

Instance Number	Object	Object Type	Object Name	Unit	Status value			
				Inactive	Active			
				Text-1	Text-2	Text-3	Text-4	Text-5
1	Outside temperature	AI	ODU_Outside_Temp_xx_xxxx	℃				
* 2	Cool capacity compensation	AV	ODU_Cool_Compensation_xx_xxxx	0 : 5~7 ℃ / 1 : 7~9 ℃ / 2 : 9~11 ℃ / 3 : 10~12 ℃ / 4 : 11~13 ℃ / 5 : 12~14 ℃ / 6 : 13~15 ℃ / 14 : Auto control (from ODU)				
* 3	Heat capacity compensation	AV	ODU_Heat_Compensation_xx_xxxx	0 : 25 kg/cm^2 / 1 : 26 kg/cm^2 / 2 : 27 kg/cm^2 / 3 : 28 kg/cm^2 / 4 : 29 kg/cm^2 / 5 : 30 kg/cm^2 / 6 : 31 kg/cm^2 / 7 : 32 kg/cm^2 / 8 : 33 kg/cm^2 / 14 : Auto control (from ODU)				
4	Compressor status	BI	ODU_Comp_Status_xx_xxxx	False	True			
5	Interface Module (Outdoor Unit) error code	AI	Repeater_Error_Code_xx_xxxx	Refer to the list of the integrated error code				
*6	Water temperature	AI	ODU_Water_Temp_xx_xxxxx	℃(℉)			Only valid for the DVM water outdoor unit	
*7	Hot gas charging valve	BI	ODU_HotGas_Charging_Valve_xx_xxxxx	False	True	Only valid for the DVM water outdoor unit		
8	Interface Module (Outdoor Unit) notify	NC	IM_Notify_xx_xxxx	When the error occurred, send event to list of destination in the recipient_list. (Max : 8)				

(*) Mark is optionally supported.

BACnet Gateway [Basic, Advanced]

BACnet Gateway has following point list.

Instance Number	Control and Monitoring	Object Type	Object Name	Status Value
1	All device OFF	BO	ALL_OFF_xx	Inactive : All devices Off
2	DMS Status	AI	DMS_Status_xx	0: Normal, 8: Emergency stop, 105 : Tracking in progress, 108 : Tracking failed 109 : DMS ↔ BACnet Communication failed
3	BACnet error code	AI	BACnetApp_Error_Code_xx	BACnet error code
4	Gateway Notify	NC	GW_Notify_xx	When the error occurred, send event to list of destination in the recipient_list. (Max : 8)

DDC [Basic, Advanced]

DDC has following point list.

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

⚠️ CAUTION

◆ **If communication error occurs on devices such as PIM/Interface Module (Outdoor Unit) etc, other functions such as power distribution may also create a problem. You must have BMS system to check the errors and you must take action immediately.**

Other Information

Object setting when there is communication error

If any communication error occurs between the air conditioner devices, the property will be set as below.

1. Reliability property will be set as COMMUNICATION_FAILURE.
2. Fault / Alarm flag of Status_Flags property will be set as TRUE.
3. Present_Value property is readable but the value is not guaranteed.

Object setting when there is general error

If any air conditioner related error occurs, the property will be set as below.

1. The Reliability property value of each object will be set as UNRELIABLE_OTHER.
2. FAULT / Alarm flag of Status Flags property will be set as TRUE.

Main service

Time setting
Time synchronization Service is a service that allows the time of BACnet Gateway to be synchronized with the time of PC.

COV (Change Of Value)
COV service is supported and you can set confirmed or unconfirmed COV.
You can set lifetime value.

⚠️
CAUTION

◆ *COV registration information will disapper when a BACnet gateway is switched off. The reserved value caused by the power supply problem is not guaranteed according to the BACnet regulation.*
◆ *When BMS system is sending control command, don't send it repeatedly in a very short time.*
◆ *If BMS system is sending control command repeatedly in a very short time, DMS may be stopped due to overload.*

Specifications

Items		Description
Exterior		
Size		240 X 255 X 64.8 mm (Width X Length X Height)
Weight		1.48 Kg
Power	Source	DC ADAPTOR
	INPUT Voltage	100-240V 50/60Hz 1.0A
	OUTPUT Voltage	12V 3A
Inter-face	RS-485	5 Channels
	Ethernet	10/100Mbps 1 Port
	SD CARD	Option (Purchase SD card separately)
	DI	12V Digital Input 10 Channels
	DO	12V Digital Output 8 Channels
	Etc.	Serial Port, Reset Button
Display		16-Character X 2-Line Character LCD
Input method		Menu/Up/Down/Set 4-Tact Button

License

Open Source Announcement

The software included in this product contains open source software. You may obtain the complete corresponding source code for a period of three years after the last shipment of this product by contacting our support team via http://opensource.samsung.com (Please use the "Inquiry" menu.)

It is also possible to obtain the complete corresponding source code in a physical medium such as a CD-ROM; a minimal charge will be required.

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Memo