

Functions and Specification

AC Smart 5

AC Smart 5 is a central controller that can manage individual or group of maximum of 128 units in one space.
AC Smart 5 can monitor or control the units installed in each room of a building from a place such as building management office or school administration office.

[AC Smart 5 Functions]

- ➔ Web Server Embedded Function
- ➔ Devices that can be interfaced

[AC Smart 5 Components]

- ➔ Components

[Name of Each Part of AC Smart 5]

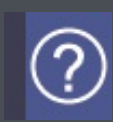
- ➔ Name of Each Part

[AC Smart 5 Hardware Specification]

- ➔ Hardware Specification

WARNING

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.



Web Server Embedded Function

Without installing a separate program, you can use web browser to input IP address of AC Smart 5 in the address window to access AC Smart 5 web server for device control and monitoring.

- Control of Max. of 128 air conditioner units
- Error and Operation Status Monitoring
- Peak/Demand Power Control
- System Setting Function

Devices that can be interfaced

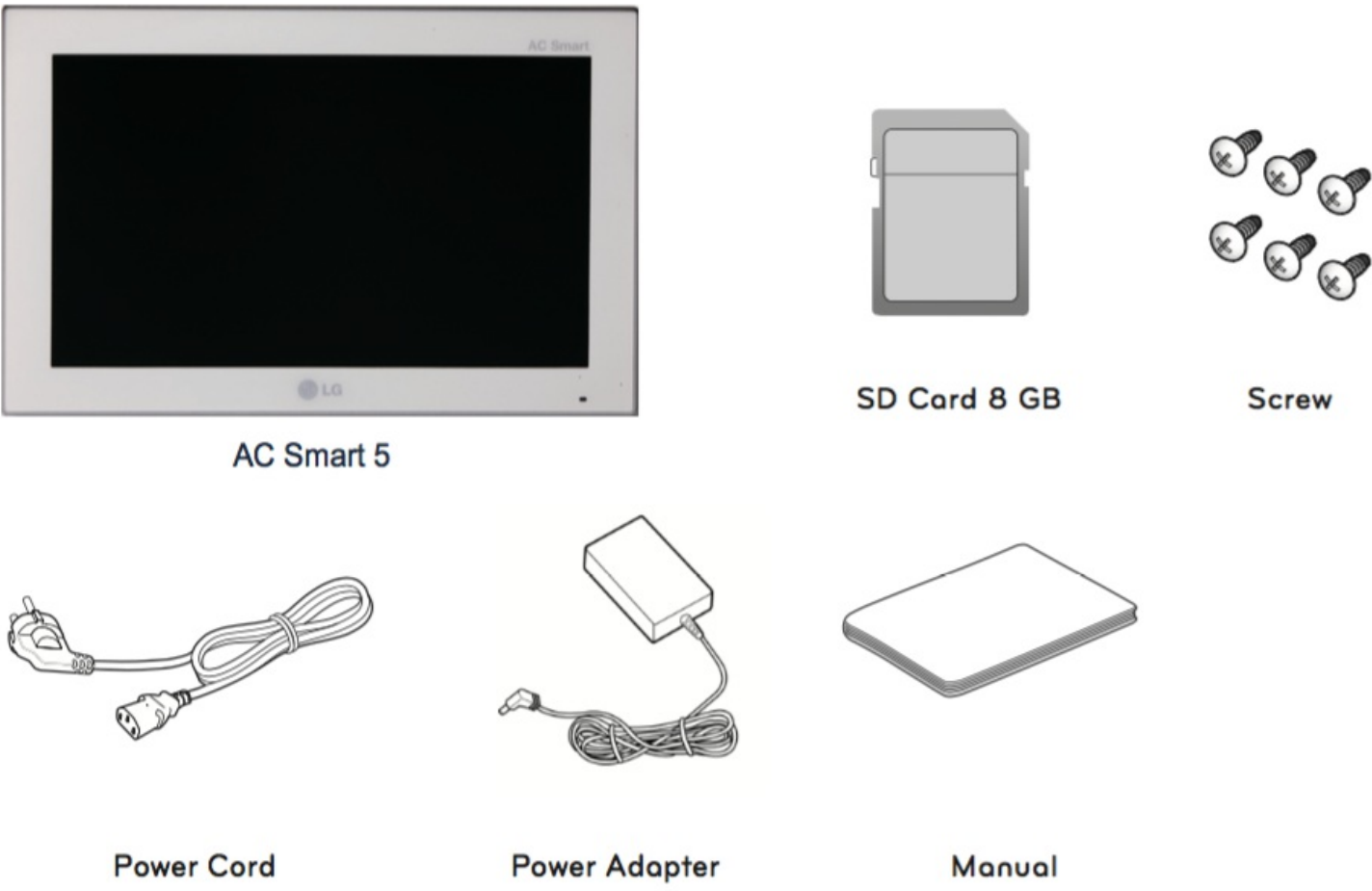
The devices of AC Smart 5 that can be interfaced are as follows.

Device	AC Smart 5
AC Ez(Touch)	o
Simple Central Controller	o
AC Manager 5	o
Air conditioner	o
ERV	o
Heating	o
AHU	o
Chiller	o (with chiller option S/W applied)
EXP. I/O	o
Air purifier	o

Components

The components of the following figure are included in AC Smart 5 package box.

Open the package box, and check if all corresponding components are included.



Note

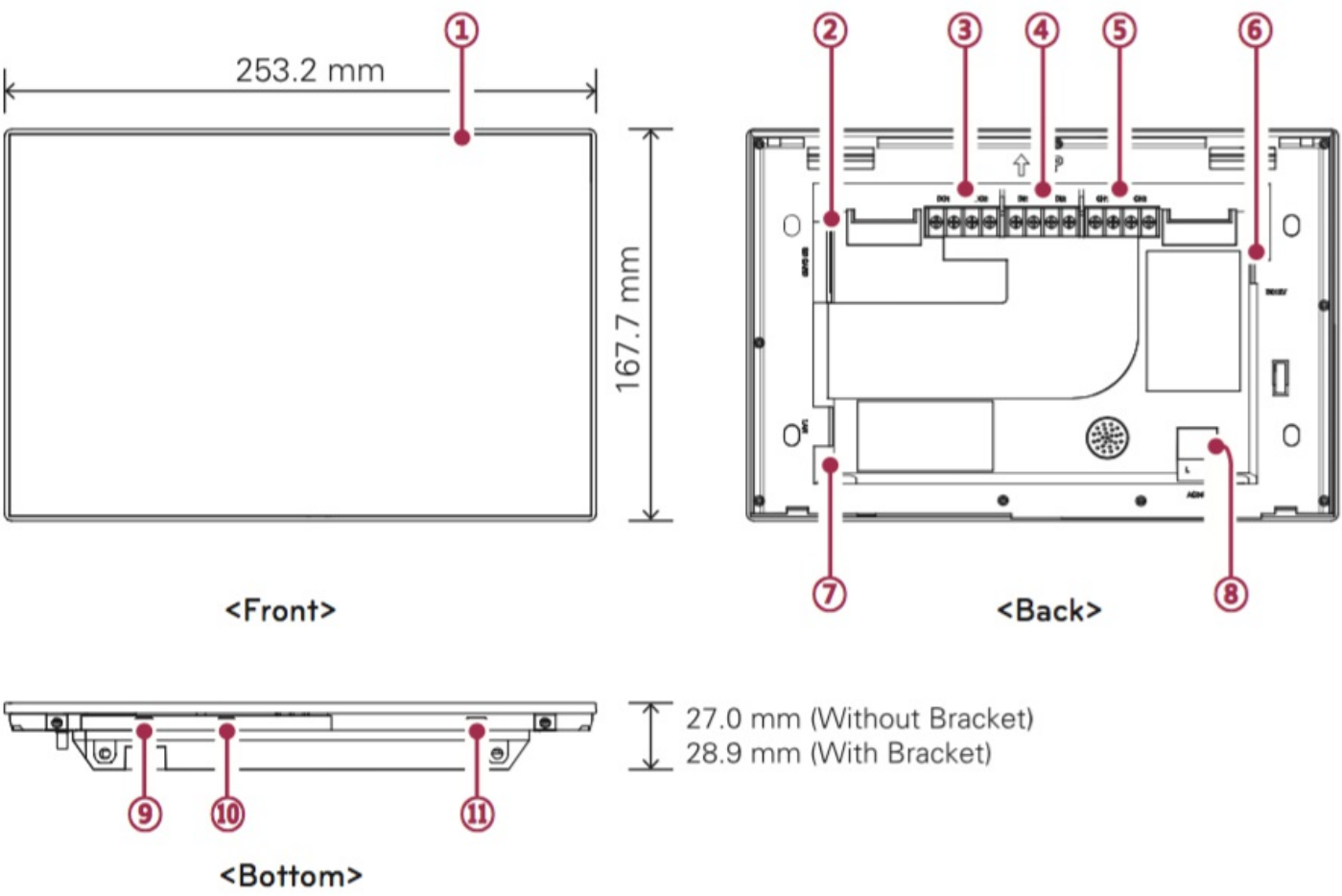
Components or options may differ from the actual product picture.

Caution

The SD card provided by our company is for backup and restoration of data when service is provided by qualified service engineer. Do not use on other purpose.

Name of Each Part

AC Smart 5 is composed as the following form.



No.	Category	Contents
①	Touch Screen	• 10 inch type LCD control panel • AC Smart 5 control and information display
②	SD Memory Slot	SD card memory slot
③	DO Port	2CH DO port
④	DI Port	2CH DI port
⑤	RS-485 Port	2CH 485 port (CH1: AHU, CH2: devices other than AHU) • CH1 default setting : LGAP_AHU / CH2 default setting : LGAP I • To change default setting, refer to the contents of 'Device Setting - AC Smart 5 Editing' in the user manual provided in [Help] category.
⑥	12 V  Input Port	12 V  power input port
⑦	LAN Port	LAN cable port for Ethernet connection (100Mbps/10Mbps)
⑧	24 V~ Input Port	24 V~ power input port
⑨	Micro USB Port (for service)	Port for upgrading software and storing floor plans, reports, statistics, etc. (It needs cable to connect USB memory sticks, supporting USB 2.0 or later)
⑩	Mini USB Port	PC port for debugging software
⑪	Power ON/OFF	• If you press less than 9 seconds, AC Smart 5 LCD backlight control • Push 10 seconds or more to reset AC Smart 5. • If you are not going to use AC Smart 5 for a long time, it is recommended that the product be turned off to prolong the LCD backlight's life.

Hardware Specification

AC Smart 5 hardware specification is as follows.

Category	Contents
CPU	• ARM Cortex A9 1 GHz • Dual Core
MEMORY	2 GB
Storage	16 GB
LCD	10 inch type(1024 x 600) TFT LCD
Speaker	Mono
RS-485	2 Port
USB/SD	• Micro USB 1EA (for external USB memory connection, for service) • Mini USB 1EA • SD Card 1EA
Ethernet	10 / 100 BASE-T
DI	2 Port
DO	2 Port
Touch Screen	C-Type Touch Panel
Button Key	Less than 9 seconds (LCD Power On/Off), 10 seconds (System reset)
POWER	12 V (3.33 A), 24 V~
Operating temperature	0 °C ~ 40 °C
Protection class	IP20

Installation and Setting

It describes AC Smart 5 Installation and Setting Method.

[Installation Order]

- ➔ Order of AC Smart 5 Installation

[Connect AC Smart 5]

- ➔ Connect AC Smart 5

Order of Installation

To use AC Smart 5, you need to establish environment for mutual communication between AC Smart 5 and devices (indoor unit, ERV, DI/DO, DOKIT, Heating, AHU, I/O module) and register the corresponding devices through the functions of AC Smart 5.

To use AC Smart 5, it shall be installed in the following order.

STEP 1. Installation environment inspection and device address setting

Before installing AC Smart 5, check network composition with interfacing devices and assign non-overlapping address to the connected devices.

STEP 2. PI485 setting

Install PI485 and set DIP switch.

STEP 3. PI485 and AC Smart 5 connection

Connect PI485 and AC Smart 5 through RS-485 cable.

STEP 4. Log-in and device registration

Log in to AC Smart 5 and register device with address set.

CAUTION

The installation of AC Smart 5 must be done by a professional. Be sure to contact a qualified engineer for the installation. If you have a question or request regarding the installation, contact an installation professional at an authorized LG service center or LG Electronics.

NOTE

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

- Multi V

Maximum of 16 nodes can be connected to 1 RS485 line.

- Multi/Single

Maximum of 32 nodes can be connected to 1 RS485 line.

- ERV

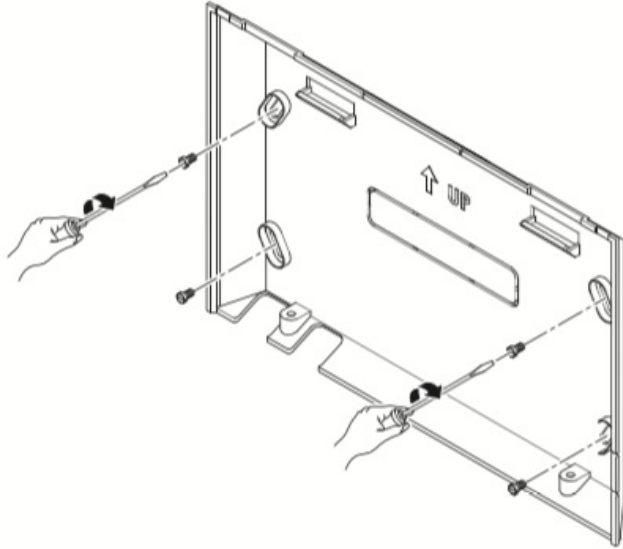
Maximum of 32 nodes can be connected to 1 RS485 line.



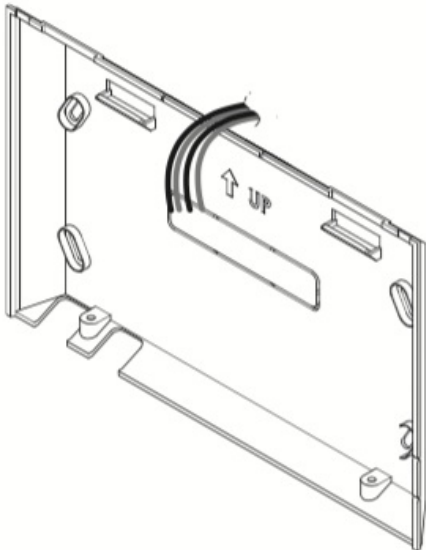
Connect AC Smart 5

You can install AC Smart 5 and its cables as follows.

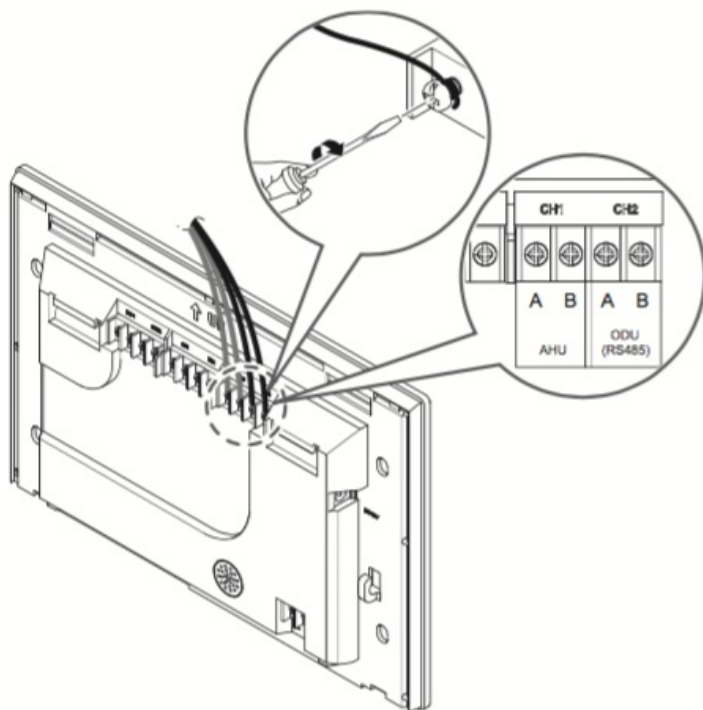
1. Choose a space for AC Smart 5.
- Prior to securing AC Smart 5, check if the space is suitable for installing AC Smart 5, an RS485 cable, power cord, and an Ethernet cable.
2. Secure the back panel of AC Smart 5 to the wall under which the RS485 cable is located.



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



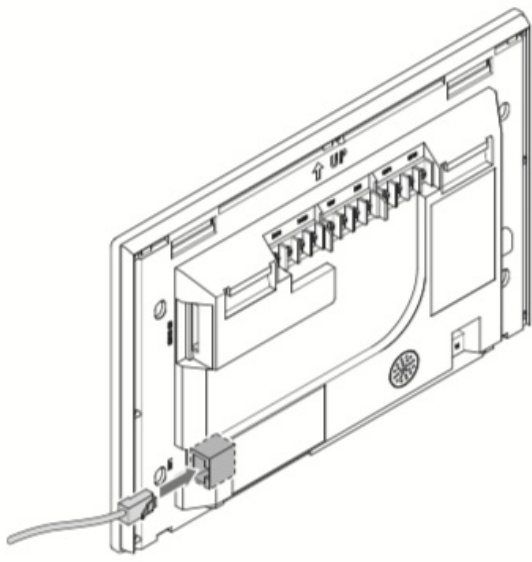
4. Connect the RS485 cable, which is located behind the AC Smart 5, to the RS485 terminal.



CAUTION

The RS485 cable has polarity, so be careful about keeping polarity when connecting the cables.

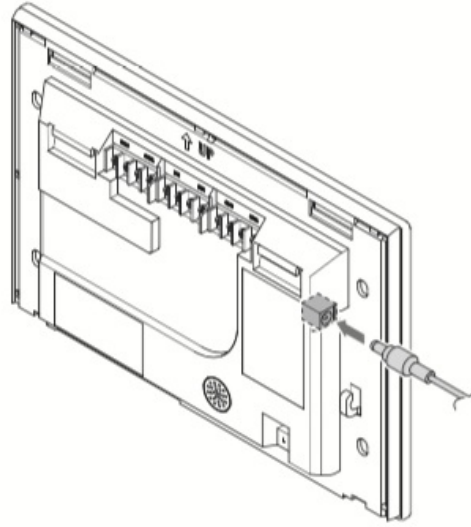
5. To use the network functions (email transmission and web control) provided by AC Smart 5, connect an Ethernet cable to the LAN port on the back of AC Smart 5.



6. Connect the power.

- For global models

- On the back of AC Smart 5, connect the power adapter to the power port.



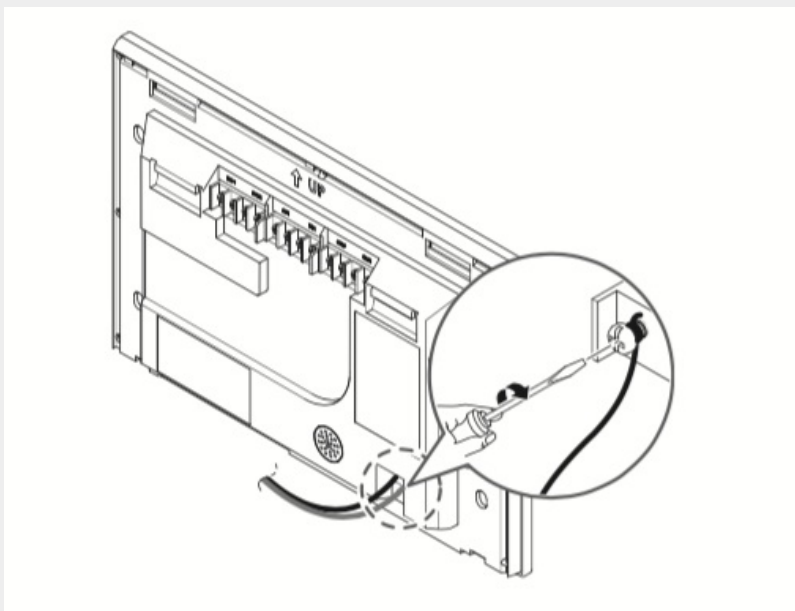
The adaptor is not provided with the AC Smart 5 package sold in the U.S.

NOTE

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

- For US models

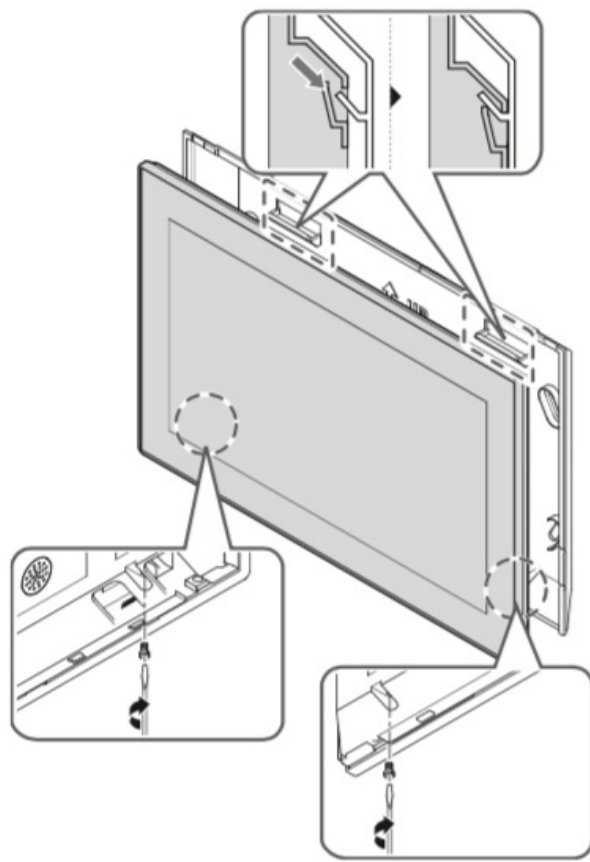
- At the bottom of AC Smart 5, connect the power cord to the power port.



NOTE

In some countries, except for the U.S, you can connect the DC 12 V power to the AC Smart 5 by using the provided adapter. If necessary, connect the AC 24 V power to the AC Smart 5.

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



CAUTION

Please screws 2 points from the bottom of the unit to prevent from falling.

NOTE

Product removal

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



Usage (PC)

- ➔ LogIn / LogOut
- ➔ Account
- ➔ Dashboard
- ➔ Indoor Fine Dust Monitoring

[Control]

- ➔ Device Control
- ➔ Schedule Control
- ➔ InterLocking
- ➔ Time limit control
- ➔ Hotel Solution(BACnet)

[Energy]

- ➔ Energy Usage
- ➔ Energy Navigation
- ➔ Peak control
- ➔ Energy Unit Cost

[History]

- ➔ Operation History
- ➔ Energy Navigation History
- ➔ Operation Trend
- ➔ Cycle

[Setting]

- ➔ Device setting
- ➔ Group Setting
- ➔ System Setting
- ➔ Network Setting
- ➔ Error Notice Setting
- ➔ Administrator Setting
- ➔ Additional User Setting
- ➔ Screen Setting
- ➔ Advance Setting
- ➔ TMS Setting
- ➔ BACnet/Modbus Setting
- ➔ Set Fine Dust Monitoring

Note

- AC Smart 5 may have different features on the web and devices.



You can access to the product with IP address in internet address window to use various central control functions.

Note

- Chrome browser is recommended for web control.
- For access to web, IP address needs to be set.
- At the time of the first access, you need to set password of the manager account.
- On every 90 days, popup is provided to change password.
For personal information protection and safe service usage, please change password periodically.

Login

Login method is as follows.

1. Please input IP address of the product in the internet address window.
2. Input ID and password in the login window and click **[Login]** button.

LogOut

Logout method is as follows.

1. In menu, click **[Account]** menu.
2. In Account information window, click **[Logout]** button.

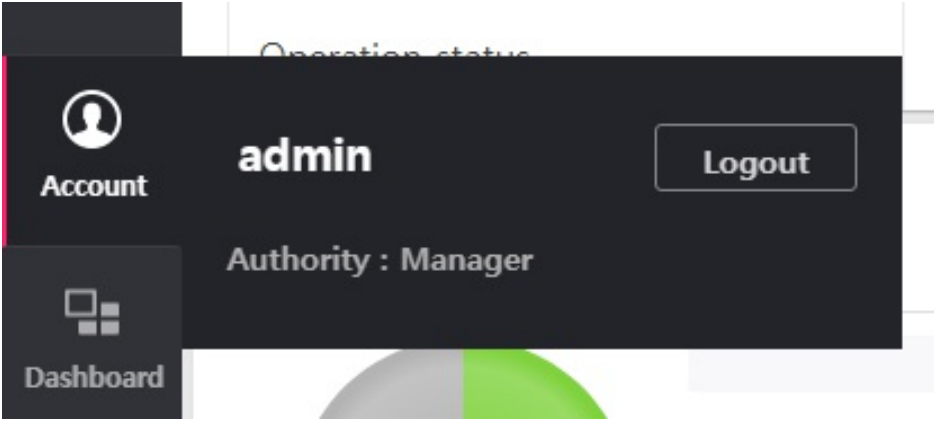
Automatic Login

Once you check the Automatic Login option, you will remain logged in until you delete the browser cookies or choose to log out.

- Automatic Login is deactivated when you log out.
- If you use the Internet via InPrivate Browsing which is provided in some browsers, this option cannot be used since cookies are not saved.
- The LCD screen does not provide the automatic login feature.

Account

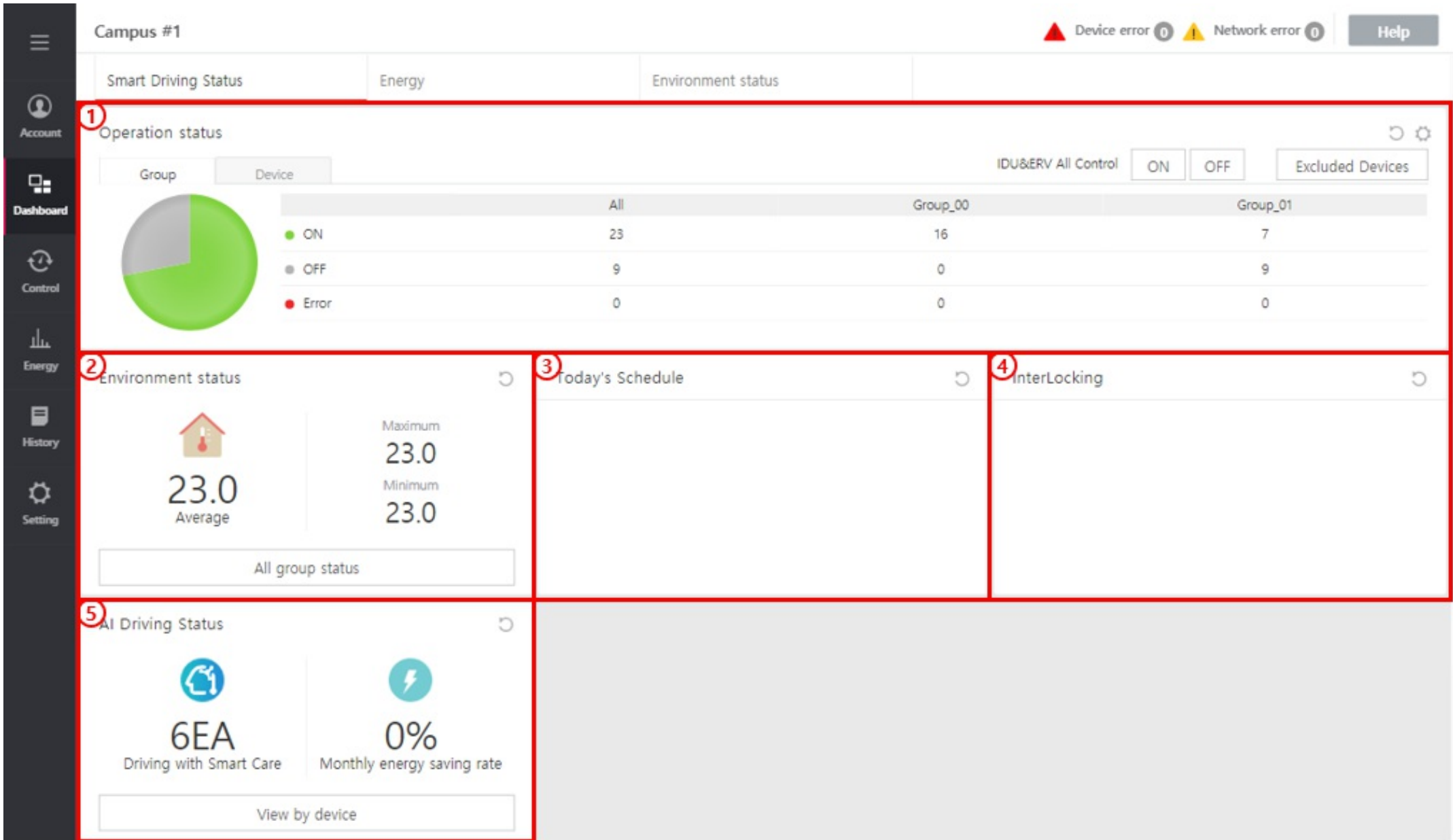
You can check the information of the currently logged in account.



You can check the current operation status and energy usage trend of the equipment installed in the product.

Operation status

It describes the dash board's current operation status tab composition and functions.



No.	Category	Contents
①	Operation status	Check operation status (ON/OFF/Error) of the equipment installed in the product [group] - Checking of operation status of each management group designated by user [device] - Check operation status of each device designated by the user All indoor units and ERV ON / OFF control - All indoor units and ERV ON / OFF control - When exception device is registered, it is excluded from overall control
②	Environment status	Checking of average indoor temperature, Max./Min. indoor temperature and group
③	Today's Schedule	Checking today's schedule list
④	InterLocking	Checking of InterLocking list
⑤	AI Driving Status	Check the number of devices running Smart Care and monthly energy saving rates Click View by Device to see the number of outdoor units running Smart Care and energy usage rate of each device

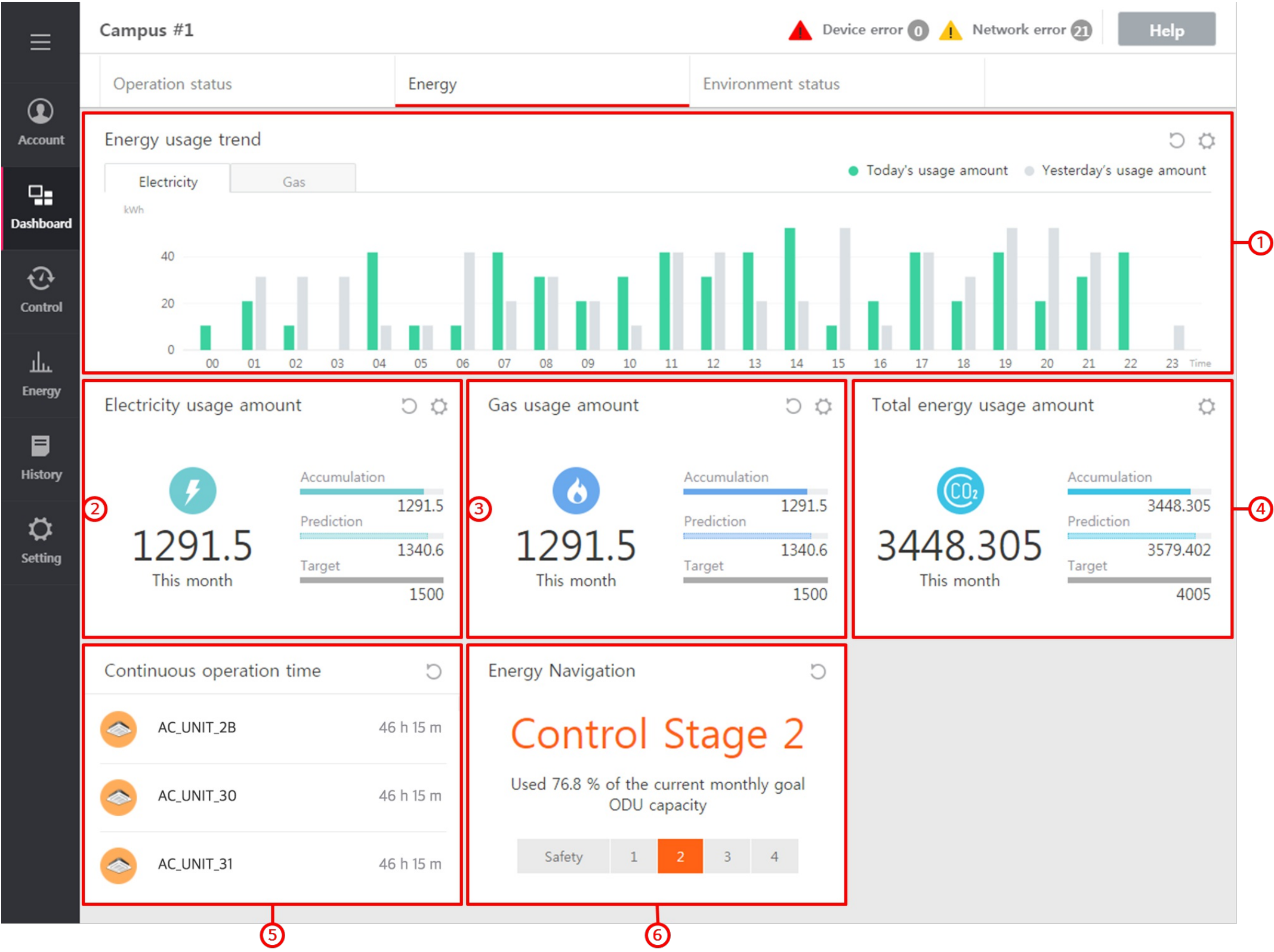
[Widget setting]

You can select the monitoring setting through each widget of the dash board.

➔ Operation status Widget

Energy

It describes the dash board's energy tab composition and functions.



No.	Category	Contents
①	Energy usage trend	Checking of daily, monthly, and yearly trend of electricity/gas usage amount The monthly/yearly energy use trends include data up to the previous date.
②	Electricity usage amount	Checking of electricity usage amount accumulation, forecast, and goal
③	Gas usage amount	Checking of gas usage amount accumulation, forecast, and goal
④	Total energy usage amount	Checking of total energy usage amount accumulation, forecast, and goal
⑤	Continuous operation time	Check continuous operation time ranking of indoor unit
⑥	Energy Navigation	Check energy navigation status

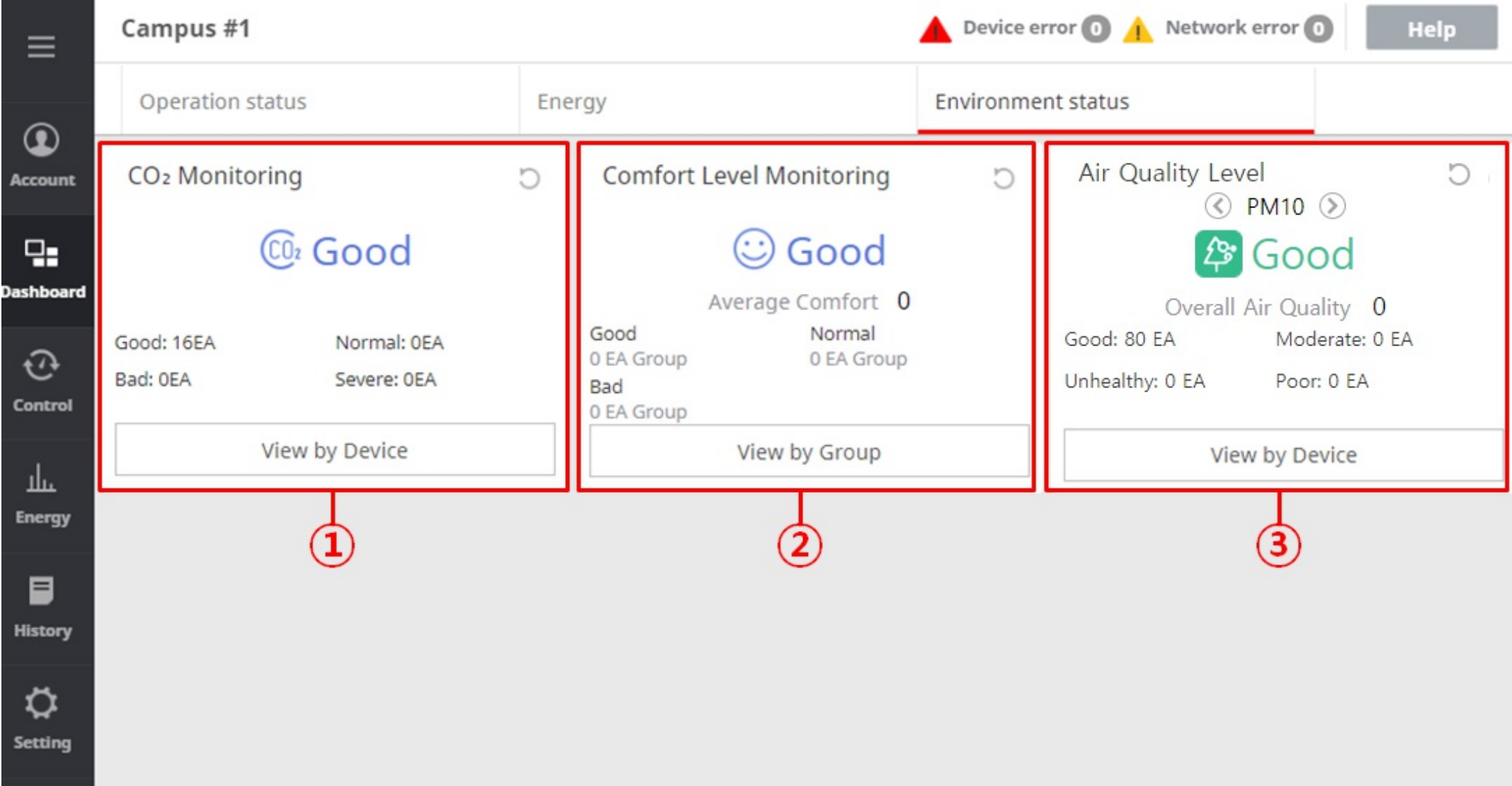
[Widget setting]

You can select the monitoring setting through each widget of the dash board.

- ➔ Energy usage trend Widget
- ➔ Electricity usage amount Widget
- ➔ Gas usage amount Widget
- ➔ Total energy usage amount Widget

Environment status

It describes the composition and functions of dash board environment status tab

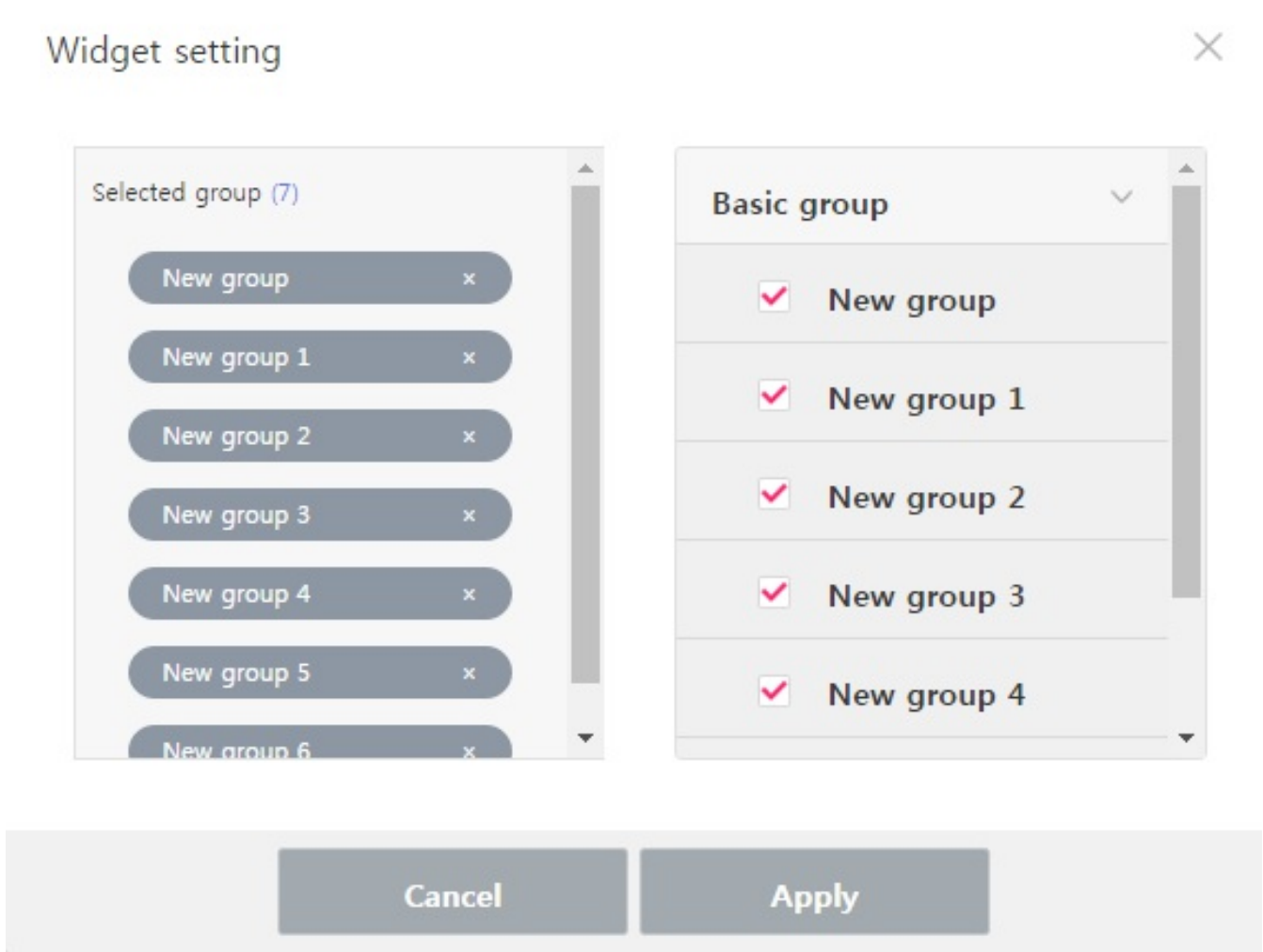


No.	Category	Contents
①	CO ₂ monitoring	Check CO ₂ status of registered ERV
②	Comfort Level Monitoring	Check registered indoor unit's pleasantness status
③	Fine dust monitoring	Check registered indoor unit, air purifier's fine dust status Fine dust is classified to PM10, PM2.5, and PM1.0, and it indicates each status and concentration

Operation status Widget

You can set the group to monitor the operation status.

1. In the left menu tab, click **[Dashboard] > [Operation status]** menu.
- The current operation status screen is displayed.
2. Click the current operation status screen's  button.
- The Widget setting screen is displayed.

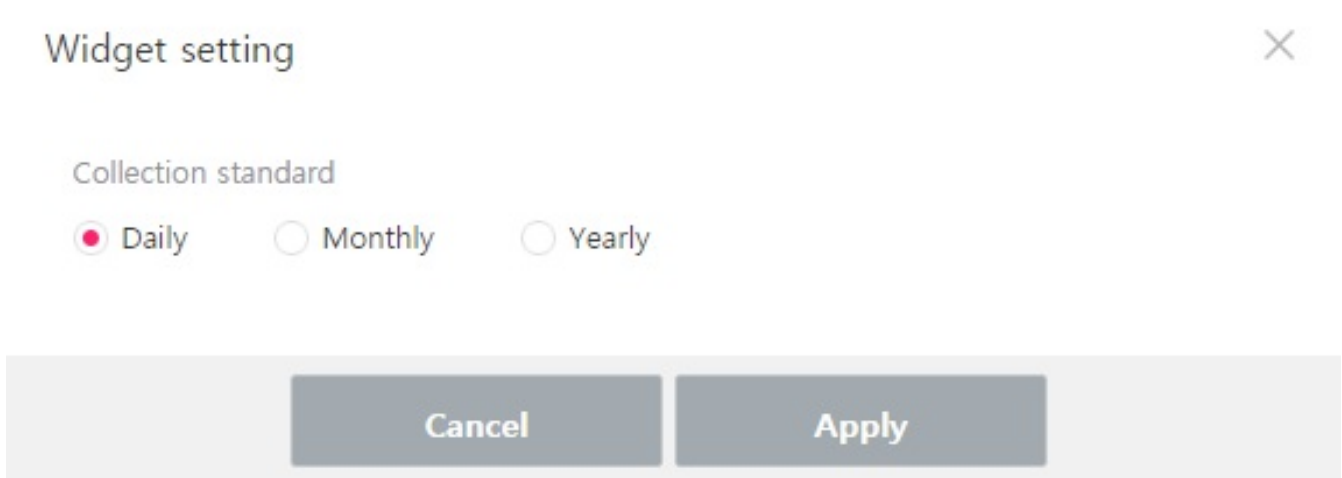


3. Select the group to monitor the operation status.
4. When selection is completed, click **[Apply]** button.

Energy usage trend Widget

You can select the standard for energy usage amount trend monitoring collection.

1. In the left menu tab, click **[Dashboard]** > **[Energy]** menu.
- The energy screen is displayed.
2. Click the energy usage trend screen's  button.
- The Widget setting screen is displayed.

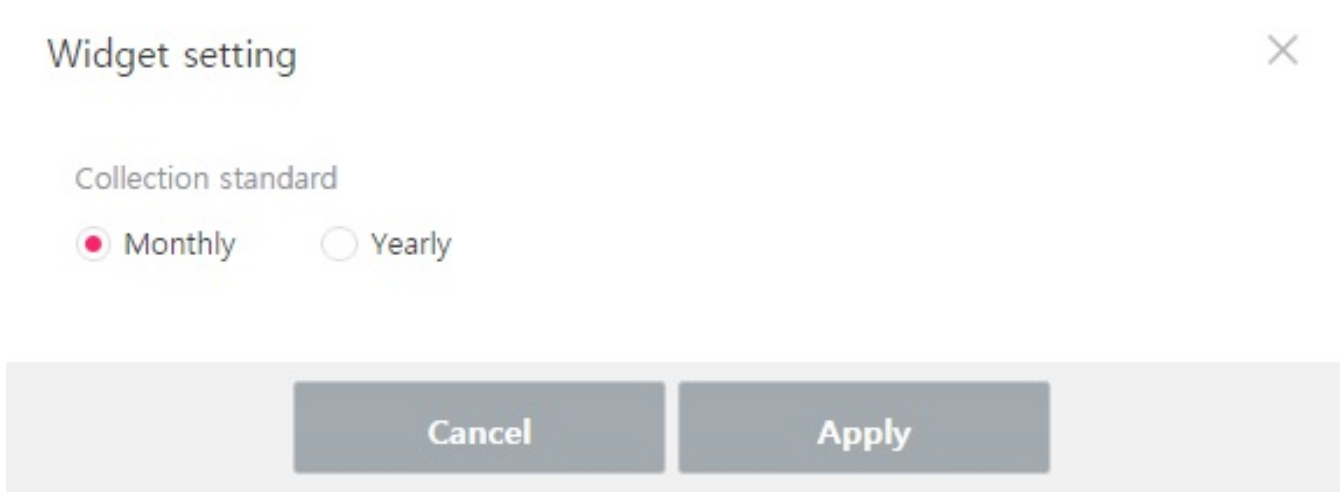


3. Select the collection standard(**Daily**/**Monthly**/**Yearly**).
4. When selection is completed, click **[Apply]** button.

Electricity usage amount Widget

You can select the standard for the electricity usage amount collection standard.

1. In the left menu tab, click **[Dashboard]** > **[Energy]** menu.
- The energy screen is displayed.
2. Click the electricity usage amount screen's ⚙ button.
- The Widget setting screen is displayed.

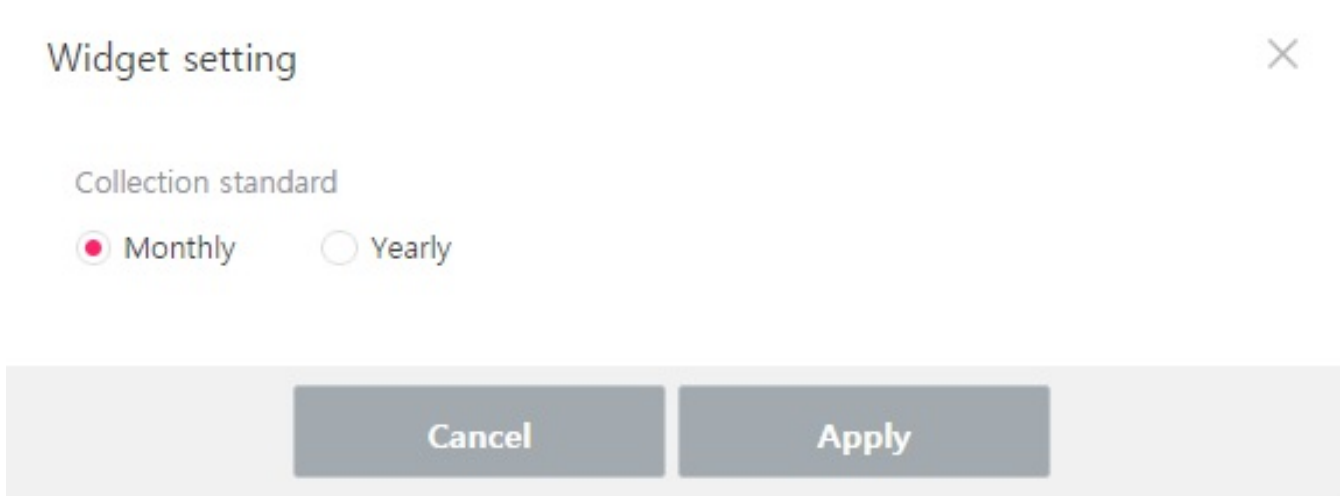


3. Select the collection standard(**Monthly/Yearly**).
4. When selection is completed, click **[Apply]** button.

Gas usage amount Widget

You can select the standard for gas usage amount collection.

1. In the left menu tab, click **[Dashboard]** > **[Energy]** menu.
- The energy screen is displayed.
2. Click the gas usage amount screen's  button.
- The Widget setting screen is displayed.



3. Select the collection standard(**Monthly/Yearly**).
4. When selection is completed, click **[Apply]** button.

Total energy usage amount Widget

You can select the display and collection standard for the total energy usage amount.

1. In the left menu tab, click **[Dashboard]** > **[Energy]** menu.
- The energy screen is displayed.
2. Click the total energy usage amount screen's  button.
- The Widget setting screen is displayed.

Widget setting

Display standard

kgCO2

kgoe

Collection standard

Monthly

Yearly

Cancel

Apply

3. Select the display standard(**kgCO₂**/**kgoe**) and the collection standard(**Monthly**/**Yearly**).
4. When selection is completed, click **[Apply]** button.

Indoor Fine Dust Monitoring

You can view the Fine Dust status on the indoor units and air purifiers connected to the product.

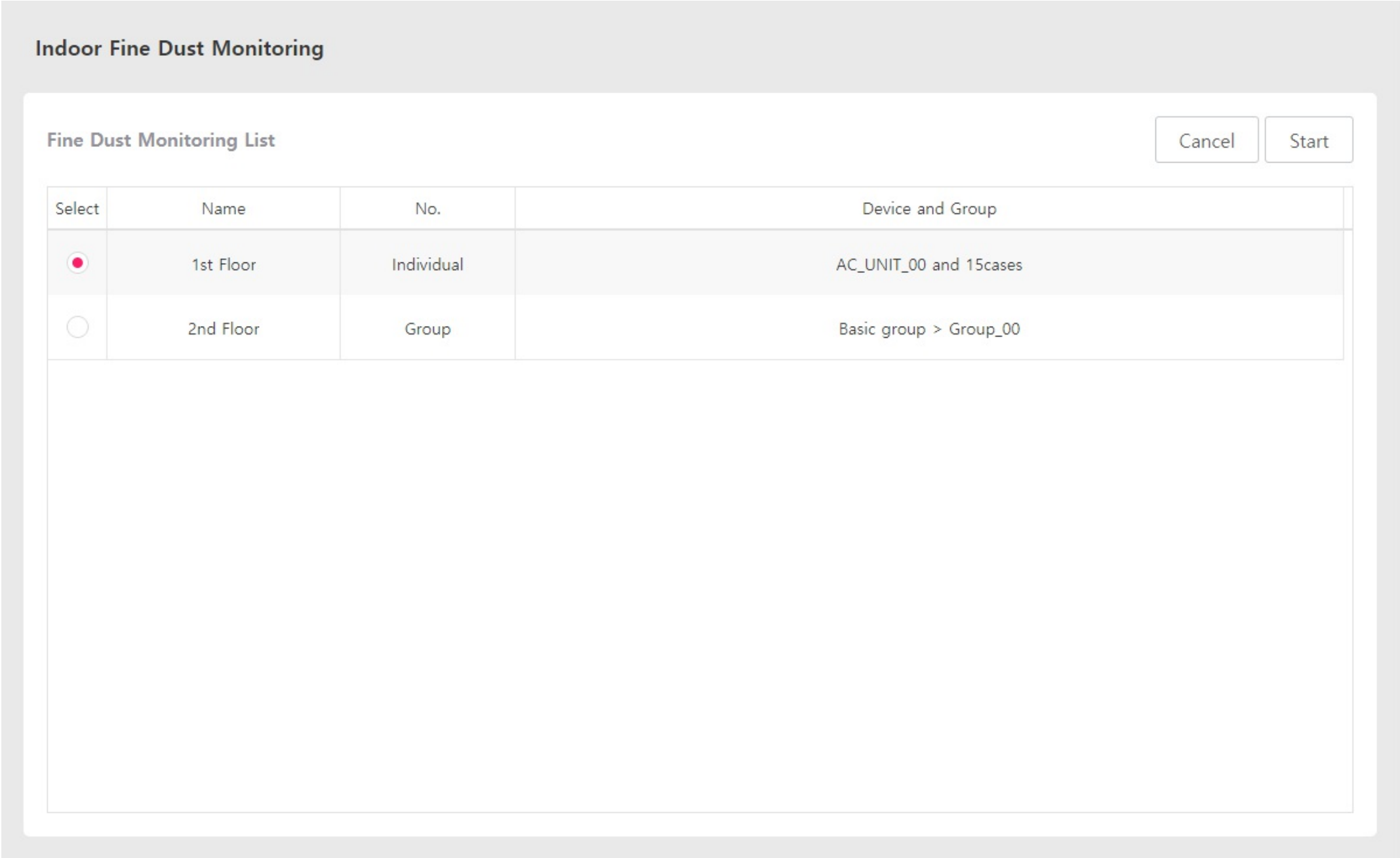
Connect to Indoor Fine Dust Monitoring

The method to connect to the Indoor Fine Dust Monitoring screen is as follows.

1.
- Input IP address of the product in internet address window.
2.
- On the login window, enter the ID and password and click the **[Indoor Fine Dust Monitoring]** button.

List of Indoor Fine Dust Monitoring

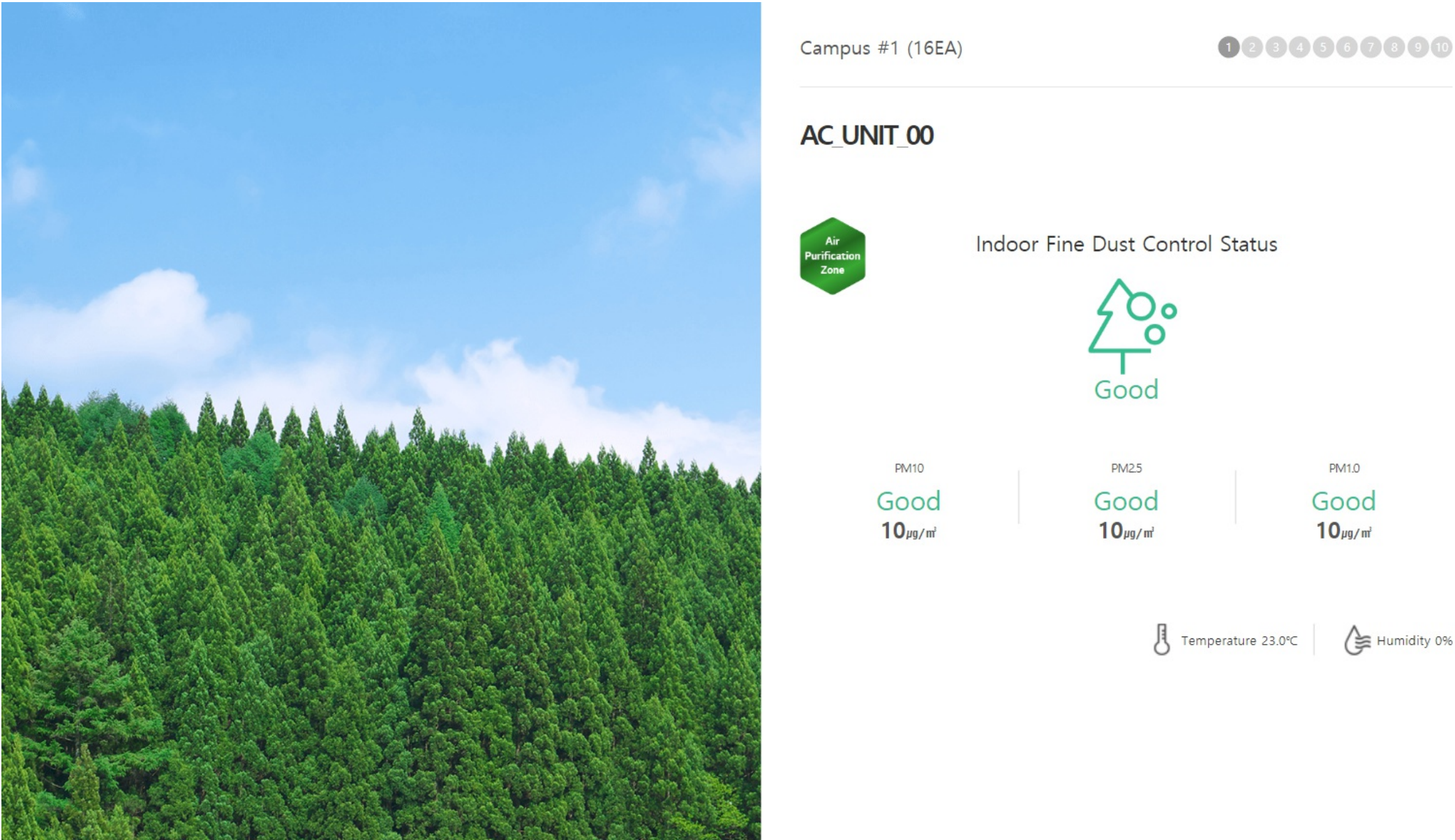
You can view the current list of Indoor Fine Dust Monitoring and start monitoring.



Item	Description
Select	Select an item for Indoor Fine Dust Monitoring to run monitoring.
Start	Start the selected indoor Fine Dust monitoring task.
Cancel	Move back to the Login page.

Individual Device Monitoring

The following describes options and functions of Individual Device Monitoring.





Campus #1 (16EA) 1 2 3 4 5

AC_UNIT_00

Indoor Fine Dust Control Status



PM10
Good
10µg/m³

PM25
Good
10µg/m³

PM10
Good
10µg/m³



Temperature 23.0°C

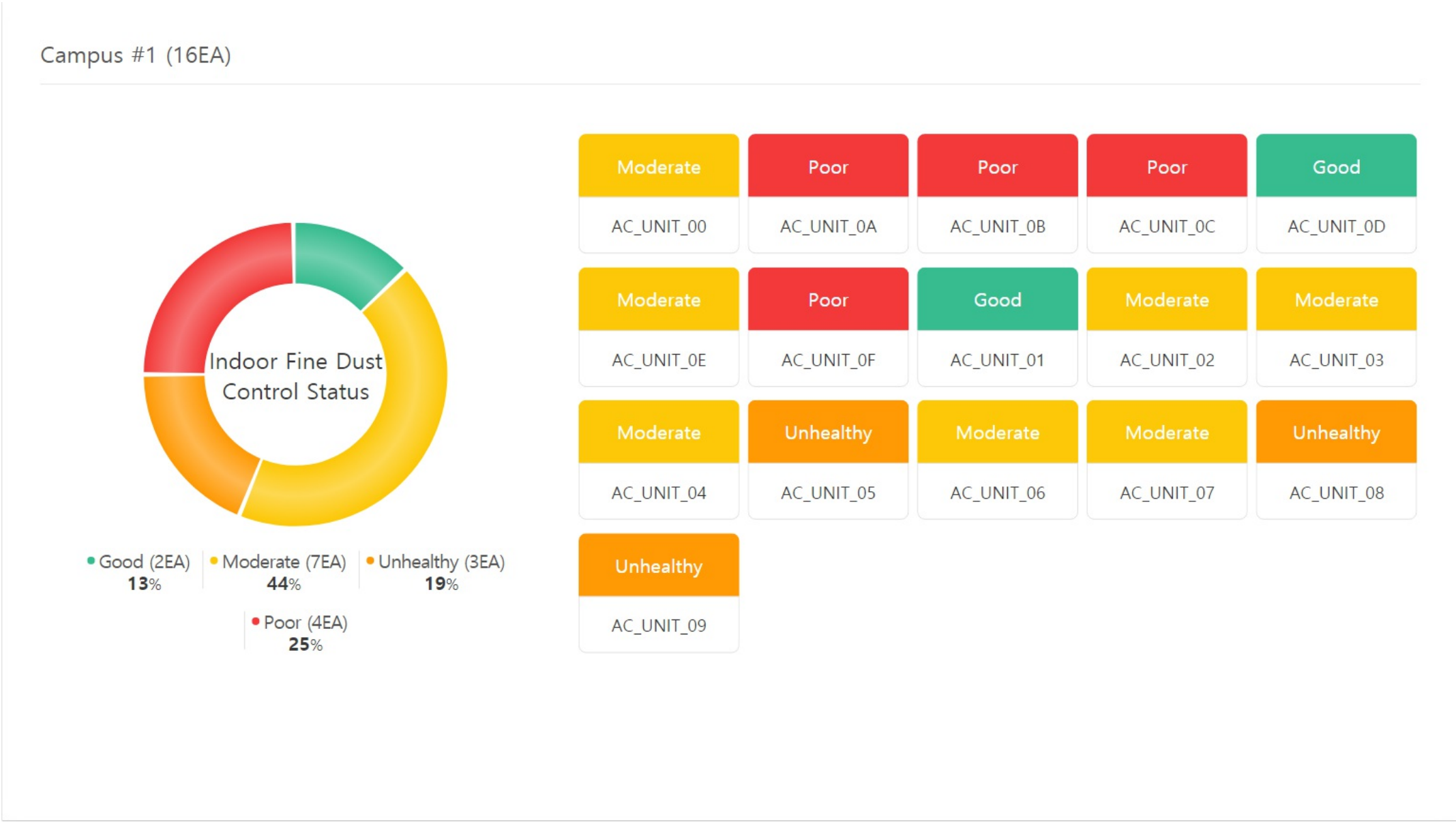


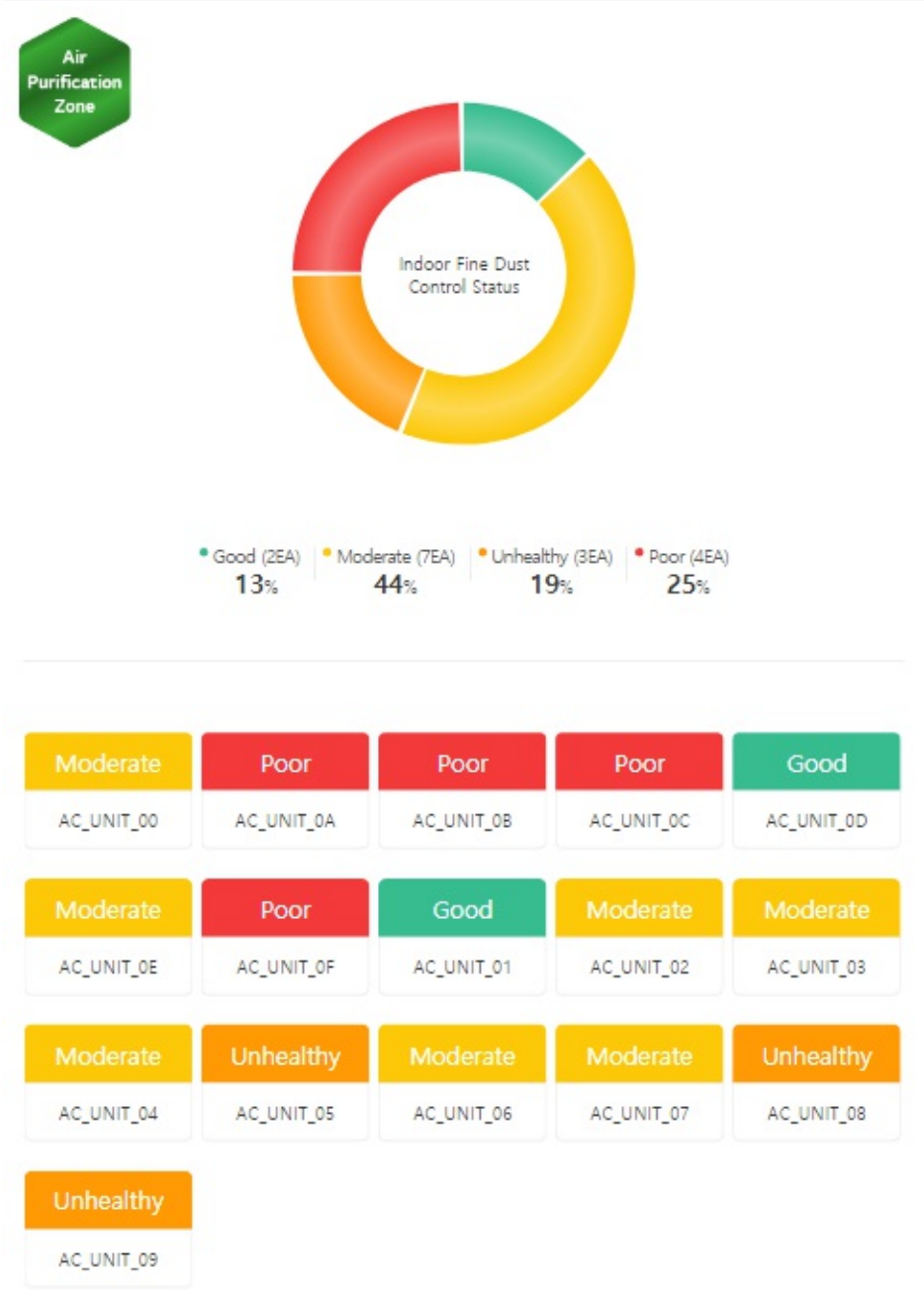
Humidity 0%

Item	Description
Indoor Fine Dust Management Status	Checks the Fine Dust status on the registered indoor units and air purifiers. Displays the total cleanliness, and displays the odor and density status for fine dust [pm10], fine Fine Dust [pm2.5], and ultra-fine Fine Dust [pm1.0]. Odor information is only displayed on air purifiers and only displays status information.
Temperature/Humidity	Displays current temperature and humidity Indoor units only
Fine Dust management zone	Displays the Fine Dust control areas that LG Whisen produces To make the settings, go to [Settings] > [Set Fine Dust Monitoring].
Image	To set the images to display, go to [Settings] > [Set Fine Dust Monitoring] . Up to 10 images can be set.

Group Monitoring

The following describes options and functions of group monitoring.





Item	Description
Indoor Fine Dust Control Status Statistics	Displays statistical data of group’s total cleanliness in a donut graph and information by item
Total cleanliness by device	Displays the total cleanliness for each device in the group.
Fine Dust management zone	Displays the Fine Dust control areas that LG Whisen produces To make the settings, go to [Settings] > [Set Fine Dust Monitoring].

Cancel Indoor Fine Dust Monitoring

The following describes how to cancel indoor Fine Dust monitoring.

1. Place the mouse pointer on the top of the screen.
 - The (⊗) button will appear on the top of the screen.
2. Click the ⊗ button.
 - You will be directed to the list of Indoor Fine Dust Monitoring.

Device Control

It describes the method to control the device and to monitor the device status.

[Screen and Icon]

- ➔ Screen Structure and Function
- ➔ Device Icon

[Control Window]

- ➔ Control of Each Device
- ➔ Device Information

[Control/Monitoring]

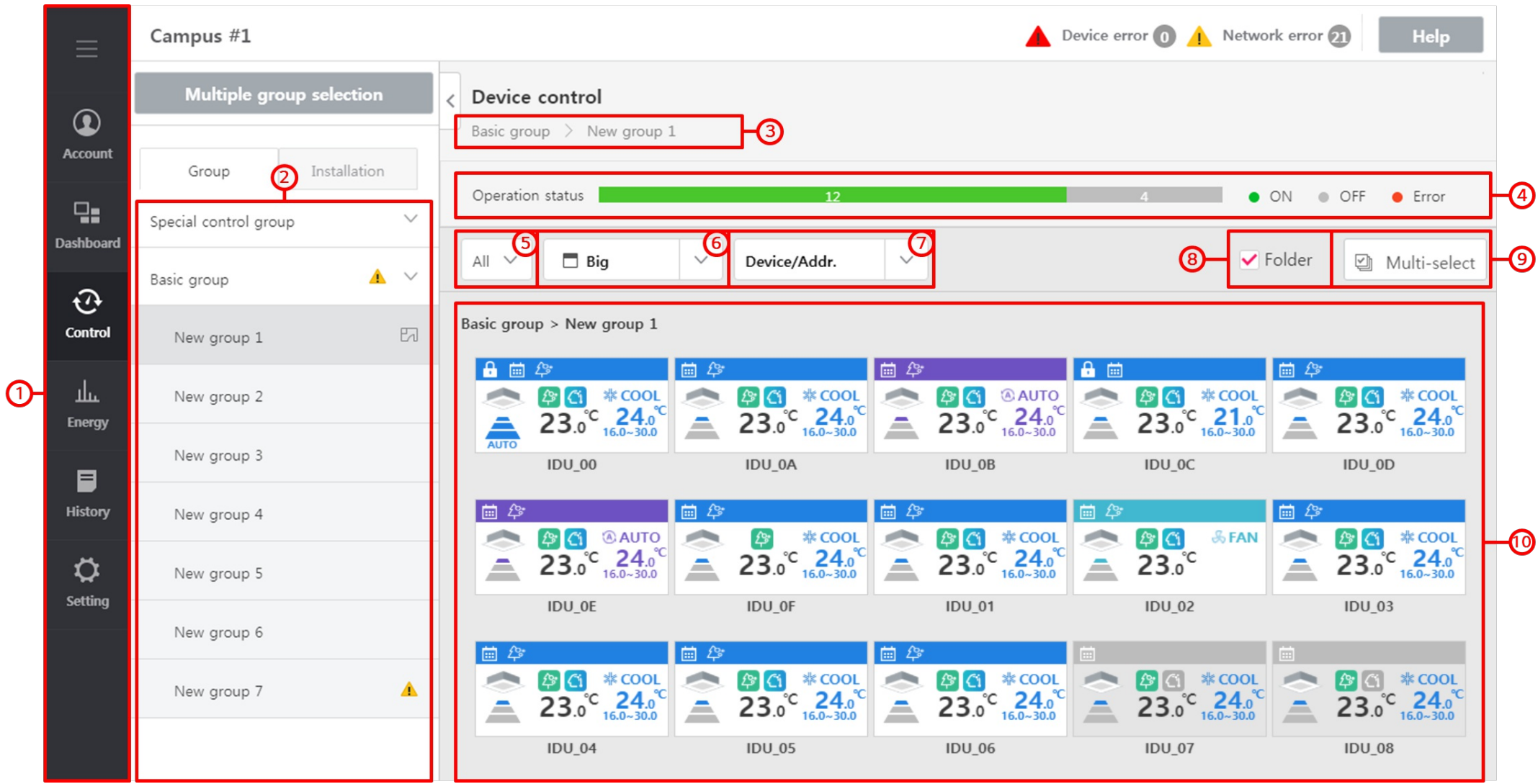
- ➔ Control
- ➔ Monitoring

[Drawing]

- ➔ Edit Drawing
- ➔ Delete Drawing

Screen Structure and Function

1. In the left menu tab, click [Control] > [Device control] menu.
- The device control screen is displayed.



No.	Category	Contents
①	Main Menu	Main Menu Tab
②	Group List	Check control group
③	Group Information	Group name and group location
④	Operation status	Check the devices' current operation status (ON/OFF/Error)
⑤	Filtering	Device category and device status filtering
⑥	Viewing method	Select viewing method of device icon : Big : Small : List : Drawing
⑦	Sorting device	Select the sorting method of the device • Name • Device/Name • Device/Addr. • Operation
⑧	View folder	Check the lower level group category of the current group when it is checked
⑨	Multi-select	Select multiple devices when it is clicked
⑩	Device section	Check the information of the devices set in the group

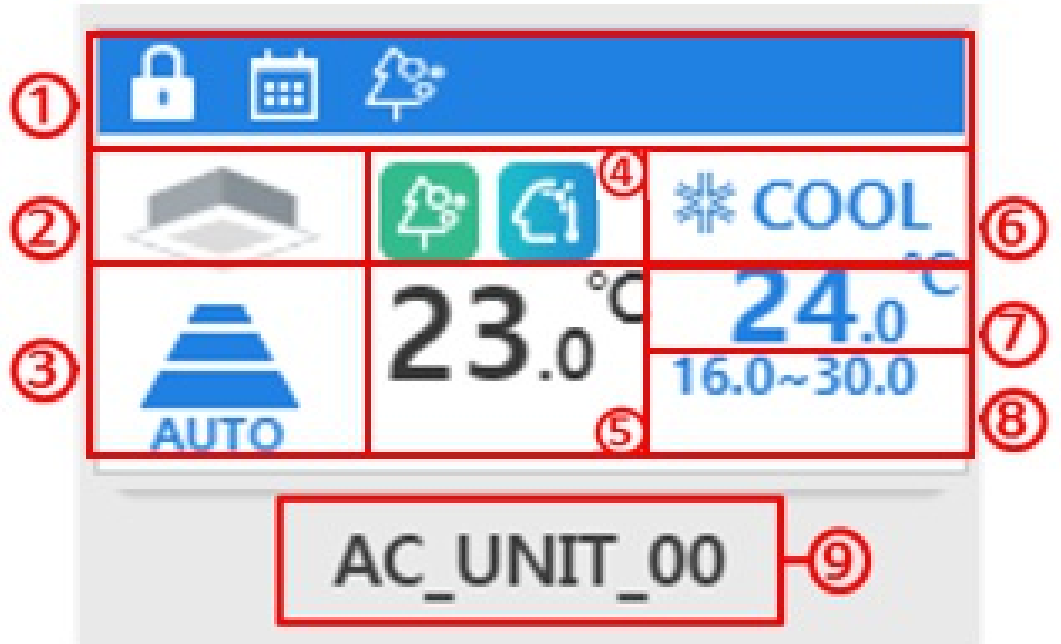
Management/installation group

1. Group
- management group set for convenience
2. Installation
- Provides the information of actually connected device

Device Icon

You can check important information of individual devices with icon.

1. Big icon



No.	Category	Contents
①	Device status indicating icon	Check Device Status Indicator Icon
②	Device Icon	Check device icon
③	Fan speed	Check device's Fan speed
④	Fine Dust status and Smart Care status	Check Fine Dust status and Smart Care operating status Blue (good), Green (normal), Orange (bad), Red (very bad)
⑤	Current temperature	Check current temperature
⑥	Mode	Check mode
⑦	Set temperature	Check set temperature
⑧	Set temp range	Check upper limit/lower limit temperature
⑨	Device name	Check device name

Device status indicating icon

Icon	Contents
	Lock
	Schedule
	Occupied
	Peak control
	Filter replacement alarm
	Oil replacement alarm
	Air cleaning
	Air quality sensor
	Multi-V Interlocking Energy Saving Control

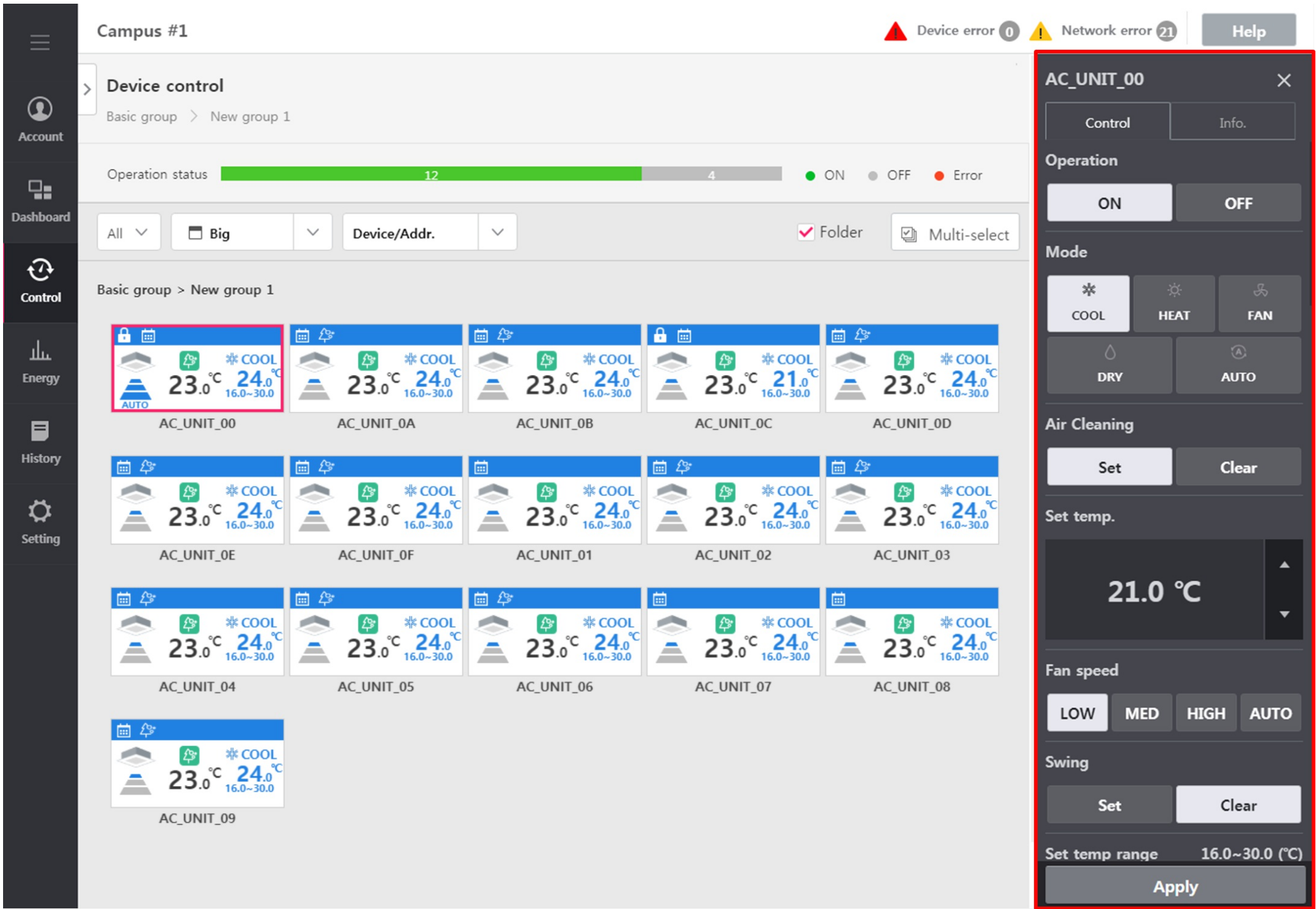
2. Small icon

- Check device icon/operation/mode/device name

3. View list

- indication of attribute of the device in the group (device name, operation status, operation mode, current temperature, set temperature, error code, ACP address, outdoor unit addres, device address, etc.).

When a devices selected in the device section, control window is created in the right side as in the following screen. You can control the selected device through the control window.



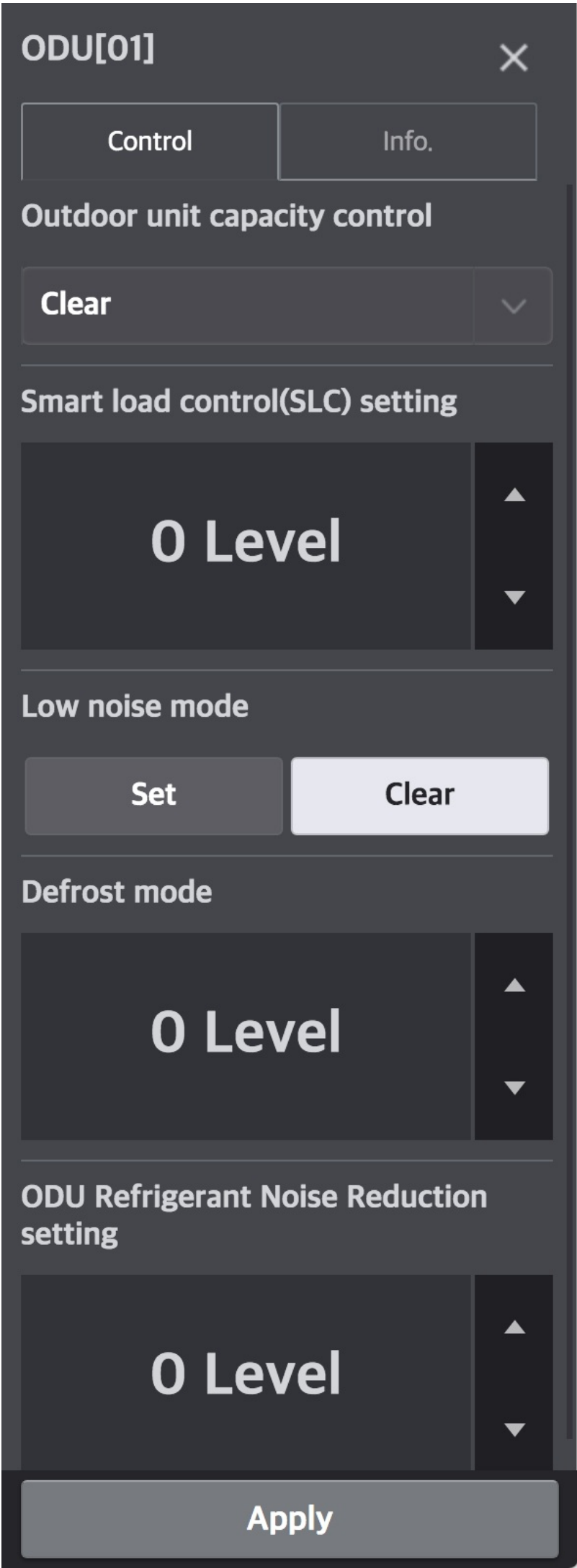
Note

- The detail control boundary for each device may be different from the actual device, so make sure to refer to the corresponding device's manual.
- Chiller interface is an optional function, and you need to separately purchase the option for chiller interface.
- ACS I/O devices may have different control tool name, unit, upper limit, lower limit, etc. according to the setting.

Control of Each Device

- ➔ Outdoor Unit
- ➔ IDU
 - IDU (2Set)
- ➔ ERV
- ➔ ERV DX
- ➔ Floor mounted vent
- ➔ Heating
- ➔ AHU
- ➔ Scroll chiller
- ➔ Screw chiller
- ➔ Turbo chiller
- ➔ Absorption Chiller
- ➔ Scroll Chiller Mini
- ➔ DOKIT
- ➔ DO
- ➔ AO
- ➔ Air purifier

Outdoor Unit



Category	Contents
Outdoor unit capacity control	Press [▼] button to set operation rate (%)
Smart load control function	Press [▲]/[▼] button to set smart load control stage (0stage, 1stage, 2stage, 3stage, 4stage)
Low noise operation	[Set/Clear] button: outdoor unit low noise operation Set/Clear
Defrost mode	Press [▲]/[▼] button to set defrost mode stage (0stage, 1stage, 2stage, 3stage)
ODU Refrigerant Noise Reduction setting	Press [▲]/[▼] button to set outdoor unit refrigerant noise reduction stage (0stage, 1stage, 2stage)

Note

In the central controller, if 'outdoor unit low noise operation' is used, in the installed indoor unit's remote controller, you need to set [Installer setting] > [Low noise mode] to 'ODU'. (Default value 'ODU')

IDU



Category	Contents
Operation	• [ON] button: starts the device operation • [OFF] button: Stops the device operation
Mode	• [COOL] button: Swtiches to cooling mode • [HEAT] button: Switches to heating mode • [FAN] button: Air purification operation. When FAN is selected, set temperature is not applied to the device • [DRY] button: Removes moisture during rainy season or when humidity is high. When DRY is selected, set temperature is not applied to the device • [AUTO] button: Switches to automatic mode
Air cleaning	Air cleaning control only for air cleaning function supporting indoor unit • Air cleaning single operation 1) In indoor unit stop state, in case of air cleaning [Set], air cleaning single operation with wind only (automatic wind) (During air cleaning single operation, mode lock and wind amount lock are not checked) 2) During air cleaning single operation, in case of operation [OFF] or air cleaning [Clear], air cleaning is cancelled to previous mode and previous wind amount (But, in case of mode or wind amount control together, control is done with controlled mode and wind amount) • Air cleaning additional operation 1) In indoor unit stop state, in case of operation status [ON] and air cleaning [Set], in current mode, air cleaning additional operation 2) In indoor unit operation state, in case of air cleaning [Set], in current mode, air cleaning additional operation 3) During air cleaning additional operation, in case of operation [OFF], operation stops 4) During air cleaning additional operation, in case of air cleaning [Clear], air cleaning is cancelled
Set temperature	Press [▲] / [▼] button to set the desired temperature
	Wind strength setting

Fan speed	• [LOW] button: Set the fan speed to slow • [MED] button: Set the fan speed to normal • [HIGH] button: Set the fan speed to fast • [AUTO] button: [LOW]-[MED]-[HIGH] automatic switching
Swing	• [Set/Clear] button: Set/Clear the Swing function
Set temp range	When user set the desired temperature individually, the desired temperature outside the designated temperature boundary cannot be set
Human detection mode - ON/OFF learned power saving	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - ON/OFF learned power saving Set/Clear
Human detection mode - Temperature power saving	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - temperature power saving Set/Clear
Human detection mode - Unoccupied time setting(minute)	Only for human detection mode - supporting indoor unit, human detection mode - control Set empty decision time to 5, 10, 15, 30, 60, or 90 min.
Human detection mode - Direct wind	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - direct wind Set/Clear
Human detection mode - Indirect wind	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - indirect wind Set/Clear
Comfortable Power Saving	• [Set/Clear] button: Comfortable Power Saving function Set/Clear • You can press [▲]/[▼] button to set stage Only when indoor unit is in cooling operation, Comfortable Power Saving control is possible
Filter replacement alarm	• [Clear] button: in case of filter replacement alarm, it cancels filter replacement alarm
HardLock	• [Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller
Mode lock	• [Set/Clear] button: Set/clear lock so that user cannot control mode setting with individual remote controller
Fan lock	• [Set/Clear] button: Set/clear lock so that user cannot control Fan speed setting with individual remote controller
TempLock	• [Set/Clear] button: Set/clear lock so that user cannot control temperature setting with individual remote controller
Auto change over(Occupied)	It is a function to automatically switch to cooling operation if indoor temperature exceeds upper limit temperature, to heating operation if it is less than lower limit temperature, and to wind only operation if it is between upper limit temperature and lower limit temperature (supported only in outdoor unit with both cooling/heating) • [Set/Clear] button: Set/clear Auto change over(Occupied)
Lower /Upper temp.	Auto change over(Occupied)'s lower limit temperature and upper limit temperature setting
Auto change over(Occupied) Fan speed	Select the Fan speed value to set in the indoor unit during Auto change over(Occupied) operation • [LOW] button: Set the fan speed to slow • [MED] button: Set the fan speed to normal • [HIGH] button: Set the fan speed to fast • [AUTO] button: [LOW]-[MED]-[HIGH] automatic switching
Setback(UnOccupied)	Function to maintain the temperature of the space where the device is installed in certain boundary (Only supported by cooling/heating simultaneous type outdoor unit) • [Set/Clear] button: Set/clear the Setback(UnOccupied)
Cool start	Press [▲] / [▼] button to set the cooling operation start temperature(21°C~40°C)
Heat start	Press [▲] / [▼] button to set the heating operation start temperature(1°C~20°C)
Combination heating control	(Supported for certain indoor and outdoor units only) [Set/Clear] button : Activates/deactivates control based on outdoor temperature.
Mode	It is activated only when combination heating control is set. • [AUTO] button : Sets the control mode to auto. • [Manual] button : Sets the control mode to manual. You can activate/deactivate control of the heat pump and the heater. You cannot deactivate control of both the heat pump and the heater.
Temp. 1	It is activated only in the auto mode. You can set Temp. 1 for the outdoor temperatures. According to the set temperatures, the heat pump and the heater operate automatically. Press [▲] / [▼] to set Temp. 1 (-23°C-16°C).
Temp. 2	It is activated only in the auto mode. You can set Temp. 2 for the outdoor temperatures. According to the set temperatures, the heat pump and the heater operate automatically. Press [▲] / [▼] to set Temp. 2 (-23°C-51°C).
Heat pump	It is activated only in the manual mode. [Set/Clear] button : Activates/Deactivates heat pump control.
Heater	It is activated only in the manual mode. [Set/Clear] button : Activates/deactivates heater control.
Smart Care	Activated only when an AI controller is connected [Set/Clear] button: Activate/Deactivate Smart Care
Cooperation control	Activated only when an AI controller is connected [Set/Clear] button: Activate/Deactivate cooperation control

IDU (2Set)

When 2Set function supporting outdoor unit/indoor unit/remote controller are used and in **[Setting]** > **[Installing]**, if ACP's 2Set automatic mode is selected as **IDU**, indoor unit 2Set control window is generated on the right side as in the following screen.



Category	Contents
Operation	• [ON] button: Starts the device operation • [OFF] button: Stops the device operation
Mode	• [COOL] button: Swtiches to cooling mode • [HEAT] button: Switches to heating mode • [FAN] button: Air purification operation. When FAN is selected, set temperature is not applied to the device • [DRY] button: Removes moisture during rainy season or when humidity is high. When DRY is selected, set temperature is not applied to the device • [AUTO] button: Switches to automatic mode
Air cleaning	Air cleaning control only for air cleaning function supporting indoor unit • Air cleaning single operation 1) In indoor unit stop state, in case of air cleaning [Set], air cleaning single operation with wind only (automatic wind) (During air cleaning single operation, mode lock and wind amount lock are not checked) 2) During air cleaning single operation, in case of operation [OFF] or air cleaning [Clear], air cleaning is cancelled to previous mode and previous wind amount (But, in case of mode or wind amount control together, control is done with controlled mode and wind amount) • Air cleaning additional operation 1) In indoor unit stop state, in case of operation status [ON] and air cleaning [Set], in current mode, air cleaning additional operation 2) In indoor unit operation state, in case of air cleaning [Set], in current mode, air cleaning additional operation 3) During air cleaning additional operation, in case of operation [OFF], operation stops 4) During air cleaning additional operation, in case of air cleaning [Clear], air cleaning is cancelled

Occupancy	Function to set the space with the corresponding indoor unit as occupied or empty • [Occupied] button: occupied setting • [Unoccupied] button: empty setting
Cooling set temperature	Press [▲]/[▼] button to set cooling set temperature
Heating setting temperature	Press [▲]/[▼] button to set heating set temperature
Cooling lower limit/upper limit temperature	Cooling lower limit temperature and upper limit temperature setting
Heating lower limit/upper limit temperature	Heating lower limit temperature and upper limit temperature setting
Fan speed	Wind strength setting • [LOW] button: Set the fan speed to slow • [MED] button: Set the fan speed to normal • [HIGH] button: Set the fan speed to fast • [AUTO] button: [LOW]-[MED]-[HIGH] automatic switching
Swing	• [Set/Clear] button: Set/Clear the Swing function
Human detection mode - ON/OFF learned power saving	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - ON/OFF learned power saving Set/Clear
Human detection mode - Temperature power saving	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - temperature power saving Set/Clear
Human detection mode - Unoccupied time setting(minute)	Only for human detection mode - supporting indoor unit, human detection mode - control Set empty decision time to 5, 10, 15, 30, 60, or 90 min.
Human detection mode - Direct wind	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - direct wind Set/Clear
Human detection mode - Indirect wind	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - indirect wind Set/Clear
Comfortable Power Saving	• [Set/Clear] button: Comfortable Power Saving function Set/Clear • You can press [▲]/[▼] button to set stage Only when indoor unit is in cooling operation, Comfortable Power Saving control is possible
Filter replacement alarm	• [Clear] button: In case of filter replacement alarm, it cancels filter replacement alarm
HardLock	• [Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller
Mode lock	• [Set/Clear] button: Set/clear lock so that user cannot control mode setting with individual remote controller
Fan lock	• [Set/Clear] button: Set/clear lock so that user cannot control Fan speed setting with individual remote controller
TempLock	• [Set/Clear] button: Set/clear lock so that user cannot control temperature setting with individual remote controller
Combination heating control	(Supported for certain indoor and outdoor units only) [Set/Clear] button : Activates/deactivates control based on outdoor temperature.
Mode	It is activated only when combination heating control is set. • [AUTO] button : Sets the control mode to auto. • [Manual] button : Sets the control mode to manual. You can activate/deactivate control of the heat pump and the heater. You cannot deactivate control of both the heat pump and the heater.
Temp. 1	It is activated only in the auto mode. You can set Temp. 1 for the outdoor temperatures. According to the set temperatures, the heat pump and the heater operate automatically. • Press [▲]/[▼] to set Temp. 1 (-23°C-16°C).
Temp. 2	It is activated only in the auto mode. You can set Temp. 2 for the outdoor temperatures. According to the set temperatures, the heat pump and the heater operate automatically. • Press [▲]/[▼] to set Temp. 2 (-23°C-51°C).
Heat pump	It is activated only in the manual mode. • [Set/Clear] button : Activates/Deactivates heat pump control.
Heater	It is activated only in the manual mode. • [Set/Clear] button : Activates/deactivates heater control.
Smart Care	Activated only when an AI controller is connected [Set/Clear] button: Activate/Deactivate Smart Care
Cooperation control	Activated only when an AI controller is connected [Set/Clear] button: Activate/Deactivate cooperation control

Note

2set automatic mode

- Only with 2Set automatic mode supporting indoor/outdoor air, the corresponding function can be used. (For whether each device supports 2Set, please refer to the manual of the corresponding device.)
- Override is a function that can be set from remote controller. For override function related contents, please refer to remote controller manual.
- In 2Set automatic mode, along with Auto icon, product's actual operation mode (cooling, heating) status is displayed.

Occupancy

- If occupancy sensor is interlinked to indoor unit, setting from the central control has priority over the corresponding occupancy sensor. For occupancy sensor related contents, please refer to indoor unit or Dry Contact manual.
- When occupied setting is changed, automatically set cooling set temperature and heating set temperature are the most recently run schedule's cooling set temperature and heating set temperature, and if there is no previously run schedule, it is set to default value.

(Example)

09:00 - 12:00: occupied / cooling set temperature 27°C / heating set temperature 18°C

12:00 - 13:00: occupied / cooling set temperature 29°C / heating set temperature 16°C

13:00 - 15:00: occupied / cooling set temperature 26°C / heating set temperature 19°C

If it is empty without schedule after 15:00, cooling set temperature is 29°C and heating set temperature is 16°C, and if it is occupied, cooling set temperature becomes 26°C and heating set temperature becomes 19°C.

ERV

VENT_UNIT_0A

Control

Info.

Operation

ON

OFF

Mode

NORMAL

HEX

AUTO

Fan speed

LOW

HIGH

Super

AUTO

Filter replacement alarm

Clear

Quick

Set

Clear

Drift

Set

Clear

Heater

Set

Clear

HardLock

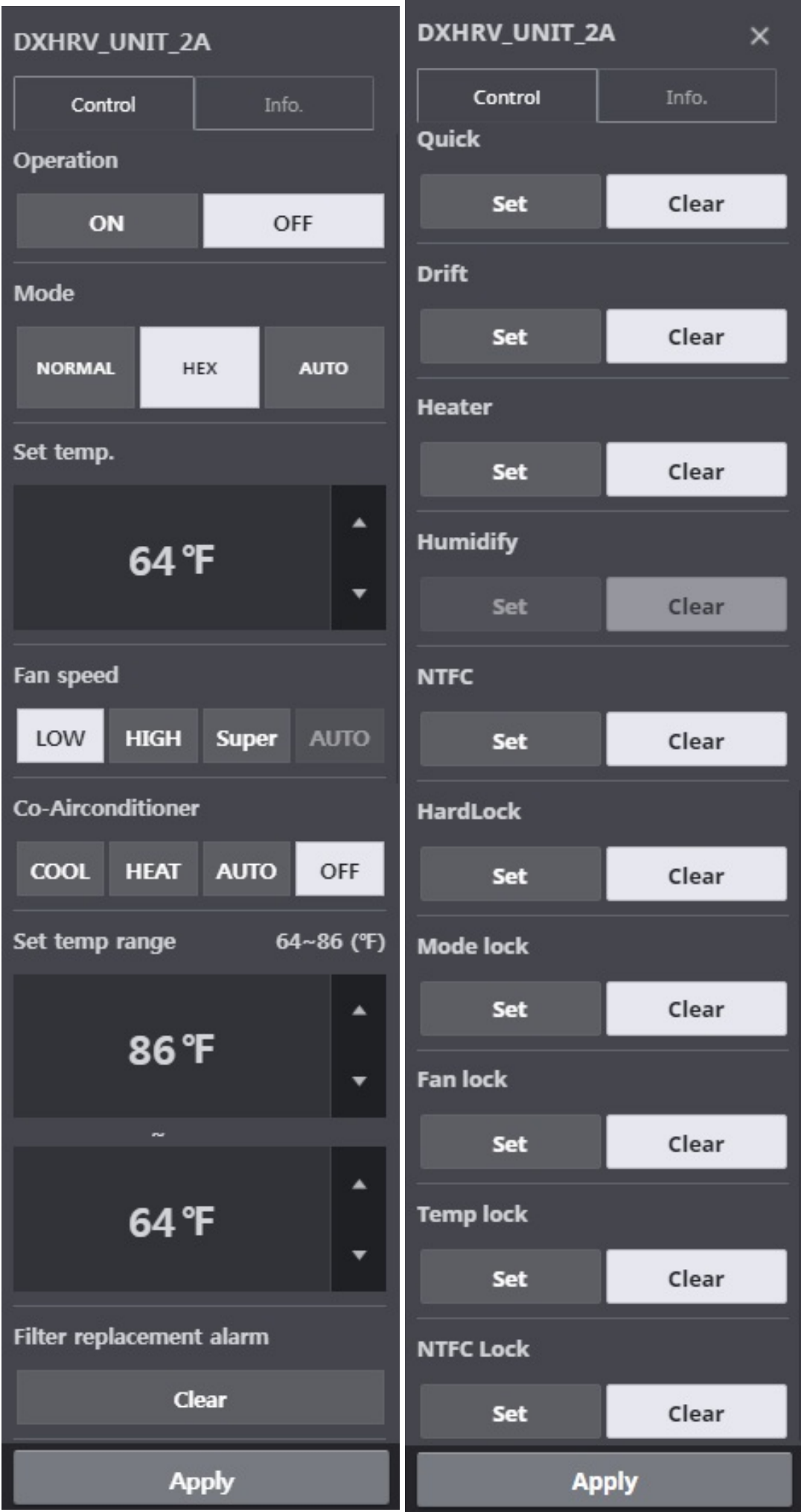
Set

Clear

Apply

Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	[NORMAL] button: Discharged air ventilates without going trough the electric heat exchanger [HEX] button: Both air supply/discharge ventilates through the electric heat exchanger [AUTO] button: Switches to four seasons mode
Fan speed	Wind strength setting [LOW] button: Set the fan speed to slow [HIGH] button: Set the fan speed to fast [SUPER] button: Set the fan speed to Max. speed [AUTO] button: [LOW]-[HIGH]-[SUPER] automatic switching - User setting is impossible - When Drift/Quick is set, [AUTO] Fan speed is selected - When Drift/Quick is cleared, [HIGH] Fan speed is selected - During [AUTO] operation, when [LOW]/[HIGH]/[SUPER] is selected, Drift/Quick function in operation is cleared
Filter replacement alarm	[Clear] button: in case of filter replacement alarm, it cancels filter replacement alarm
Additional function	- Quick [Set/Clear] button: Set/clear Quick function (When Quick function is selected, Drift function is cleared) - Drift [Set/Clear] button: Set/clear Drift function (When Drift function is selected, Quick function is cleared) - Heater [Set/Clear] button: Set/clear heater function
Midnight air cooling(NTFC)	[Set/Clear] button: Set/Clear Midnight air cooling(NTFC) function that can outdoor unit cooling when outdoor temperature is lower than the base temperature at night time
HardLock	[Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller

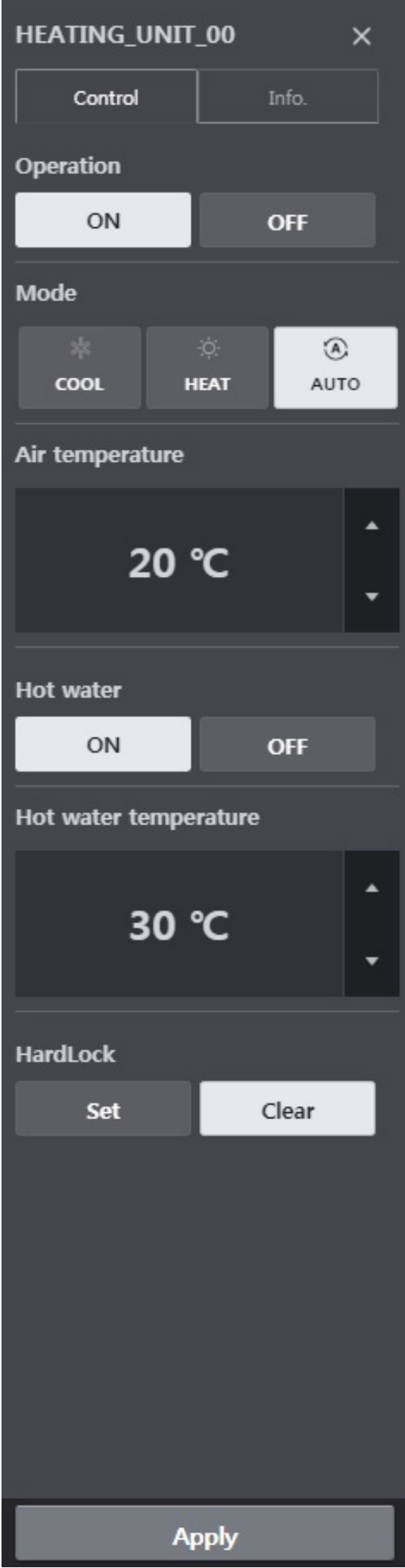
ERV DX



Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	[NORMAL] button: Discharged air ventilates without going trough the electric heat exchanger [HEX] button: Both air supply/discharge ventilates through the electric heat exchanger [AUTO] button: Switches to four seasons mode
Set temperature	Press [▲]/[▼] button to set the desired temperature
Fan speed	Wind strength setting [LOW] button: Set the fan speed to slow [HIGH] button: Set the fan speed to fast [SUPER] button: Set the fan speed to Max. speed [AUTO] button: [LOW]-[HIGH]-[SUPER] automatic switching - User setting is impossible - When Drift/Quick is set, [AUTO] Fan speed is selected - When Drift/Quick is cleared, [HIGH] Fan speed is selected - During [AUTO] operation, when [LOW]/[HIGH]/[SUPER] is selected, Drift/Quick function in operation is cleared
Air conditioner	[COOL] button: Operates the ERV DX in cooling mode [AUTO] button: Operates the ERV DX in auto mode [HEAT] button: Operates the ERV DX as heating mode [OFF] button: Stops the air conditioner of the ERV DX
Set temp range	When user set the desired temperature individually, the desired temperature outside the designated temperature boundary cannot be set
Filter replacement alarm	[Clear] button: in case of filter replacement alarm, it cancels filter replacement alarm
Additional function	- Quick [Set/Clear] button: Set/clear Quick function (When Quick function is selected, Drift function is cleared) - Drift [Set/Clear] button: Set/clear Drift function (When Drift function is selected, Quick function is cleared) - Heater [Set/Clear] button: Set/clear heater function - Humidify [Set] button: Set Humidify function (only for air conditioner heating mode)
Midnight air cooling(NTFC)	[Set/Clear] button: Set/Clear Midnight air cooling(NTFC) function that can outdoor unit cooling when outdoor temperature is lower than the base temperature at night time
HardLock	[Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller

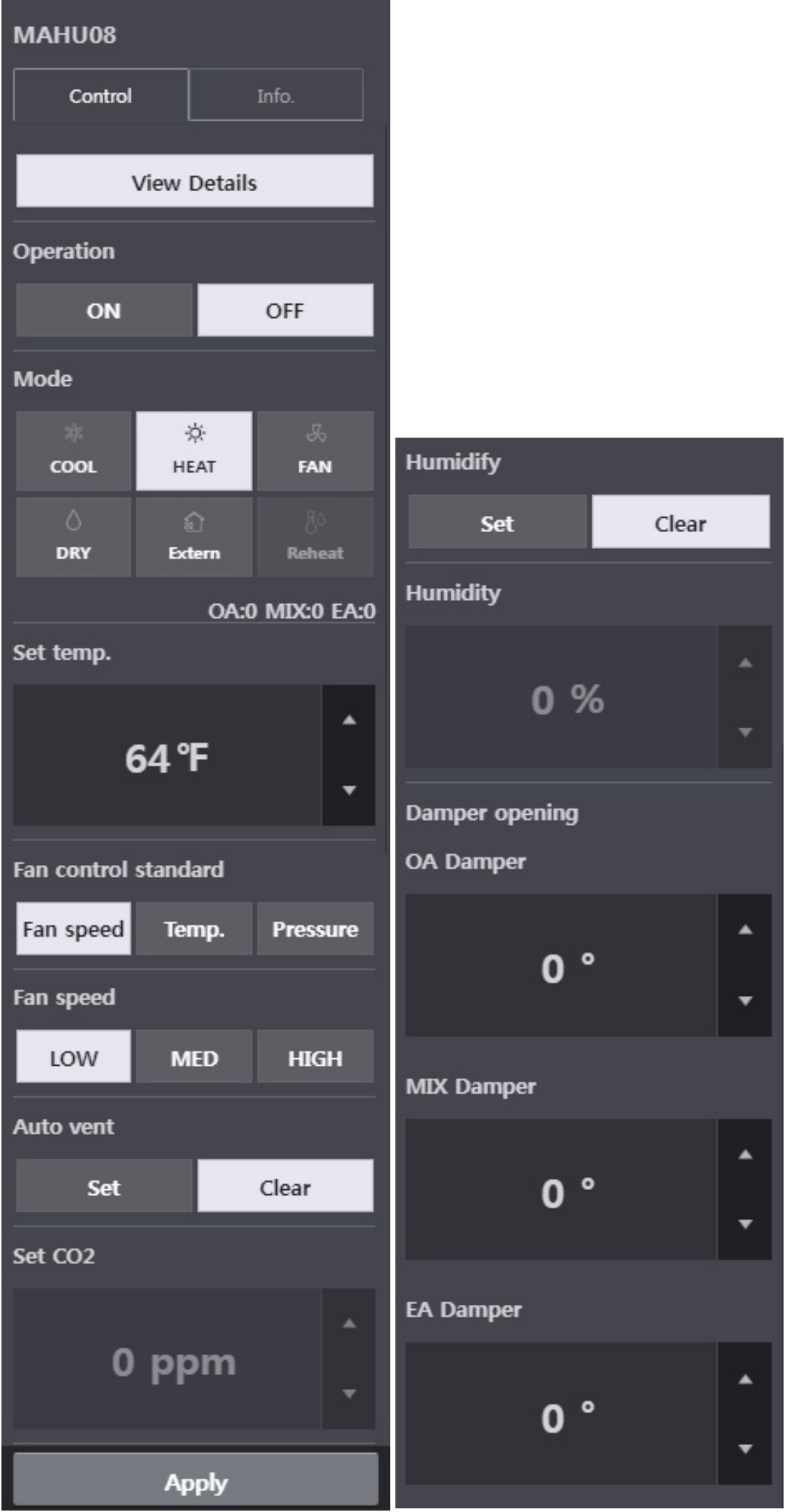
Mode lock	• [Set/Clear] button: Set/clear lock so that user cannot control mode setting with individual remote controller
Fan lock	• [Set/Clear] button: Set/clear lock so that user cannot control Fan speed setting with individual remote controller
TempLock	• [Set/Clear] button: Set/clear lock so that user cannot control temperature setting with individual remote controller
Midnight air cooling(NTFC) lock	• [Set/Clear] button: Set/Clear Midnight air cooling(NTFC) schedule set in the remote controller

Heating



Category	Contents
Operation	• [ON] button: starts the device operation • [OFF] button: Stops the device operation
Mode	• [COOL] button: Switches to cooling mode • [HEAT] button: Switches to heating mode • [AUTO] button: Switches to automatic mode
Air/Water in/out temperature	Press [▲]/[▼] button to set Air/Water in/out temperature It is displayed based on the set temperature selected in [Setting]-[Installing] • When [Water in/out] is selected, it is displayed as water in/out temperature • When [indoor] is selected, it is displayed as air temperature
Hot water	• [ON] button: Starts hot water operation - If hot water is operated while the device is in automatic/cooling operation, the corresponding mode and hot water are displayed in the icon of the contents display section - If hot water is operated while the device is stopped, the icon in the contents display section is enabled, and hot water is displayed • [OFF] button: Stops hot water operation
Hot water temperature	Press [▲]/[▼] button to set hot water temperature
HardLock	• [Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller

AHU

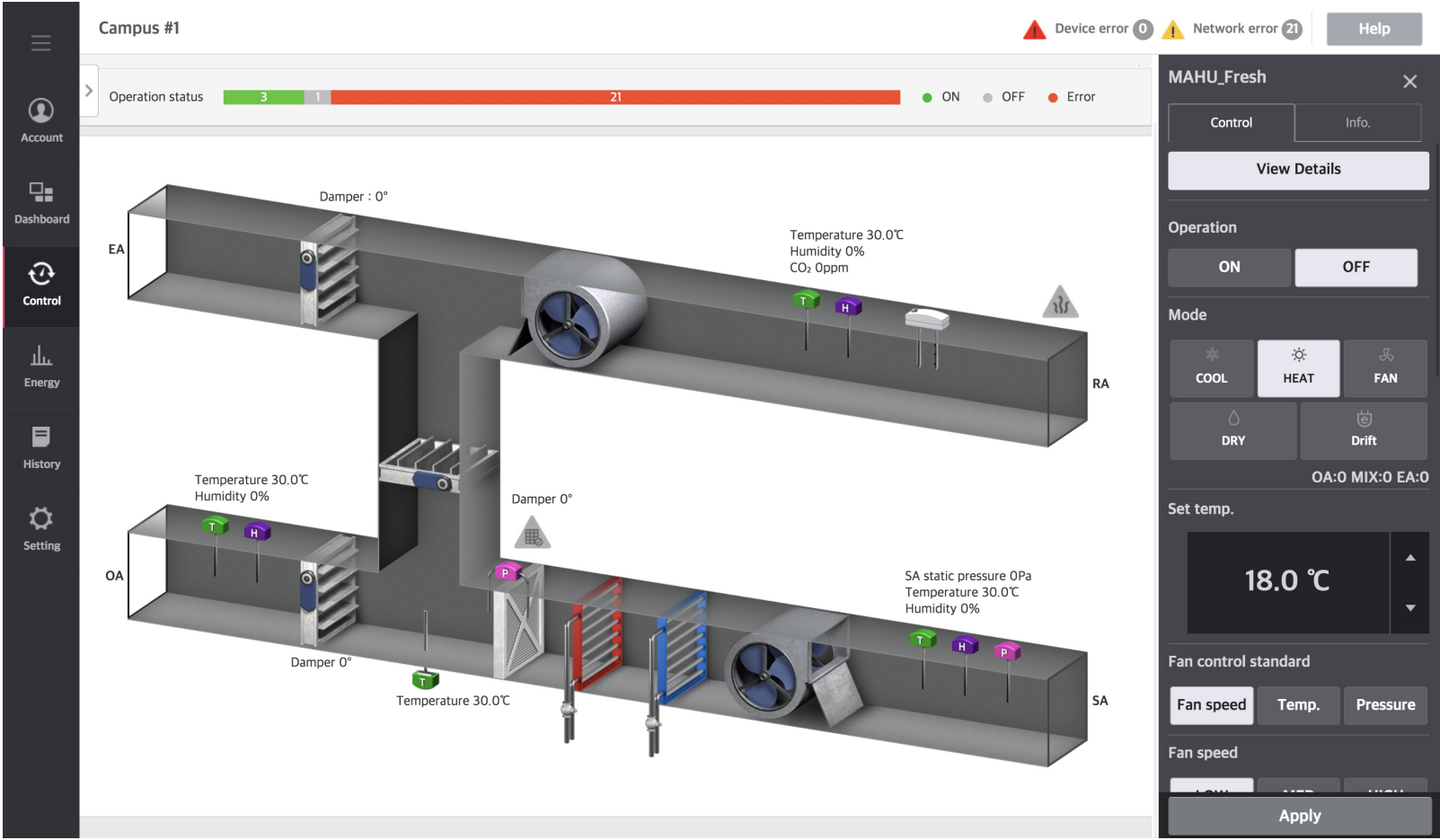


Category	Contents
View Details	Press [View Details] button to check detail information (But, mobile is excluded)
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	[COOL] button: Switches to cooling mode [HEAT] button: Switches to heating mode [FAN] button: Air purification operation. When FAN is selected, you cannot set the desired temperature [DRY] button: Removes moisture in rainy season or when humidity is high. When DRY is selected, you cannot set the desired temperature [Drift] button: Operation to find the operation point with the best ventilation system efficiency to save power consumption. It fluently discharges the contaminated indoor air by having bigger discharger Fan speed than air supply [Reheat] button : Maintains a constant temperature and humidity while the cooling/heating function is active. (Available only when the AHU reheat coil is in use.)
Set temperature	Press [▲]/[▼] button to set the temperature
Fan control standard	[Fan speed] button: Controls the fan based on Fan speed status [Temp] button: Controls the fan based on temperature status [Pressure] button: Controls the fan based on Pressure status
Fan speed	It is displayed only when fan control standard is Fan speed [LOW] button: Set the fan speed to slow [MED] button: Set the fan speed to normal [HIGH] button: Set the fan speed to fast
Automatic ventilation	It is displayed only when the additional function's automatic ventilation or automatic ventilation and Humidify are selected during AHU device registration Automatic ventilation [Set/Clear] button: Starts/stops automatic ventilation
Set CO ₂	It is enabled only when automatic ventilation function is set Press [▲]/[▼] button to set in the unit of 100ppm within 100 ppm ~ 2 000 ppm range
Humidify	It is displayed only when the additional function's Humidify or automatic ventilation and Humidify are selected during AHU device registration Humidify [Set/Clear] button: Starts/stops Humidify function
	It is enabled only when Humidify function is set

Humidity	Press [▲]/[▼] button to set the target humidity
Damper opening	- Press [OA Damper] : [▲]/[▼] button to set the outdoor unit air damper opening value in the unit of 1 ° within 0 ° ~ 90 ° range - Press [MIX Damper] : [▲]/[▼] button to set the mixer damper opening value in the unit of 1 ° within 0 ° ~ 90 ° range - Press [EA Damper] : [▲]/[▼] button to set the air discharge damper opening value in the unit of 1 ° within 0 ° ~ 90 ° range When you set [Setting]-[system setting]'s Apply damper opening formula as set, it operates as OA Damper = EA Damper, OA Damper = MIX Damper = 90
HardLock	[Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller

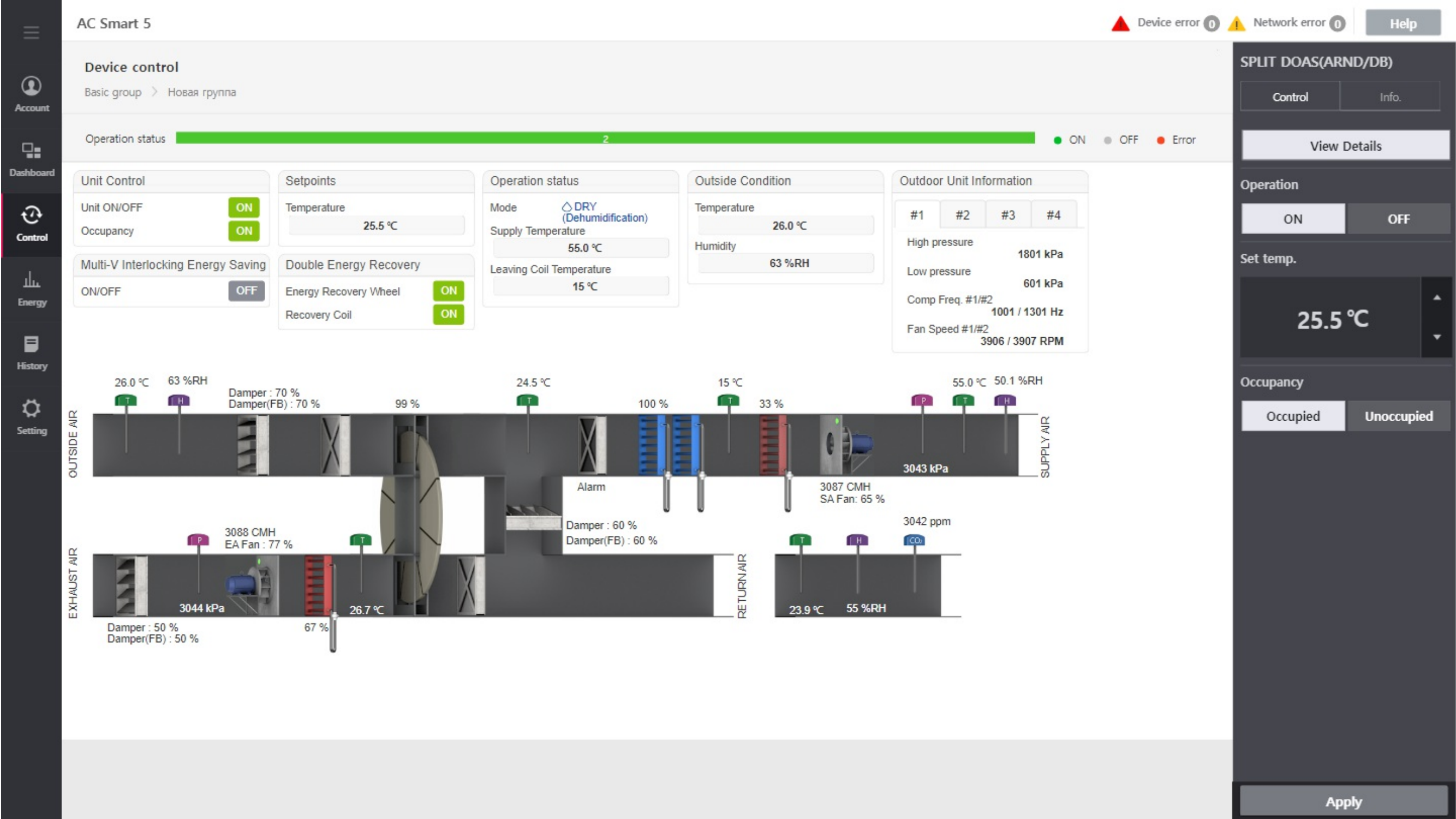
View AHU in detail

In AHU's control screen, you can press [View Details] button to check detail information.



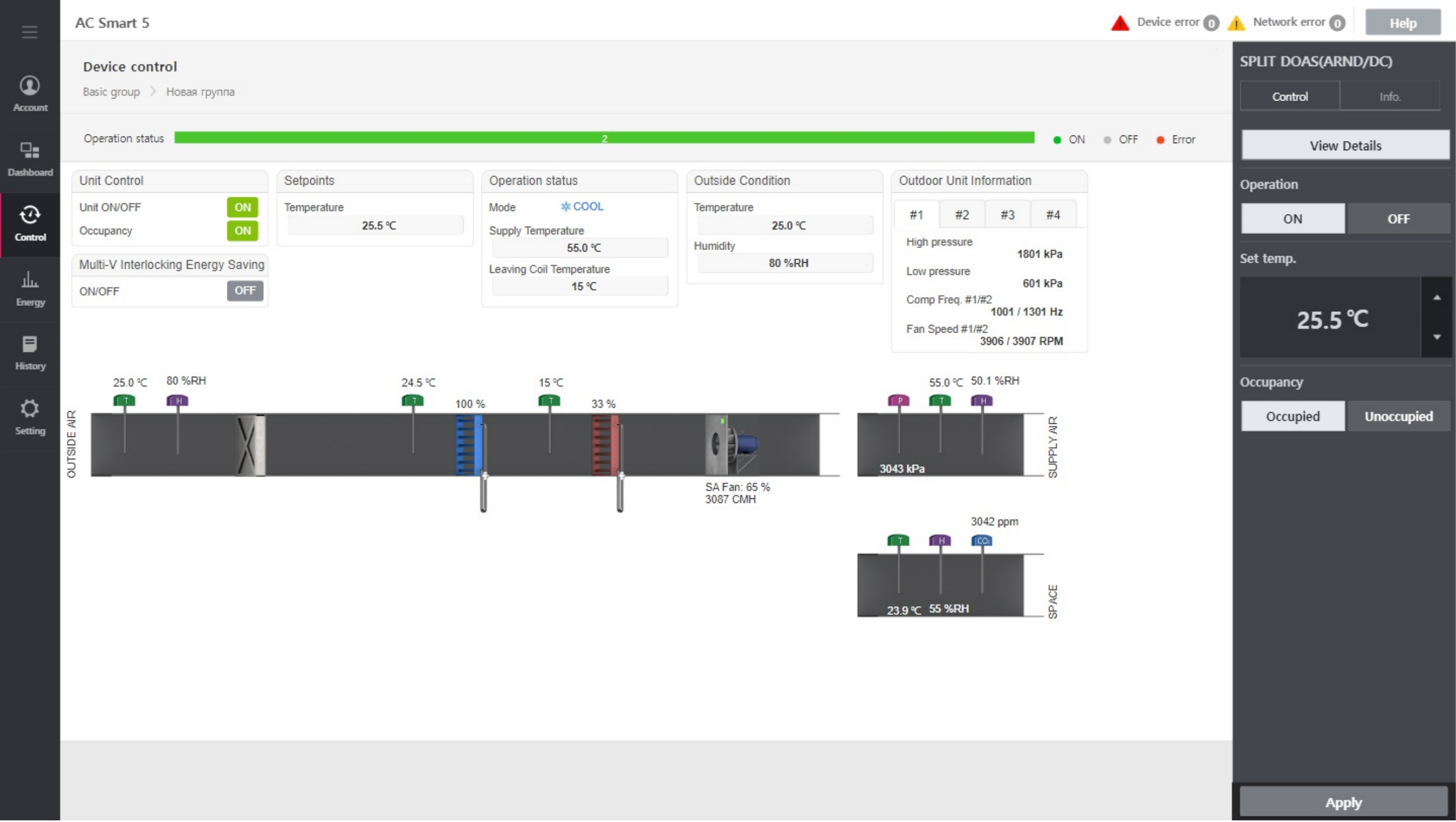
➔ SPLIT DOAS

SPLIT DOAS(ARND/DB)



Item	Description
View details	Click the [View Details] button to view detailed information (Not available on mobile)
Operating status	[Start Operation] button: Starts device operation [Stop Operation] button: Stops device operation
Target temperature	Press the [▲]/[▼] button to set target temperature
Occupied	Function to set the space managed by DOAS as occupied or vacant [Occupied] button: Set to Occupied [Vacant] button: Set to Vacant

SPLIT DOAS(ARND/DC)



Item	Description
View details	Click the [View Details] button to view detailed information (Not available on mobile)
Operating status	[Start Operation] button: Starts device operation [Stop Operation] button: Stops device operation
Target temperature	Press the [▲]/[▼] button to set target temperature
Occupied	Function to set the space managed by DOAS as occupied or vacant [Occupied] button: Set to Occupied [Vacant] button: Set to Vacant

Multi-V Interlocking Energy Saving Control

This is a function to control DOAS and Multi-V operation modes based on the operation status of Multi-V and indoor and outdoor air temperature/humidity in order to save the system’s energy.

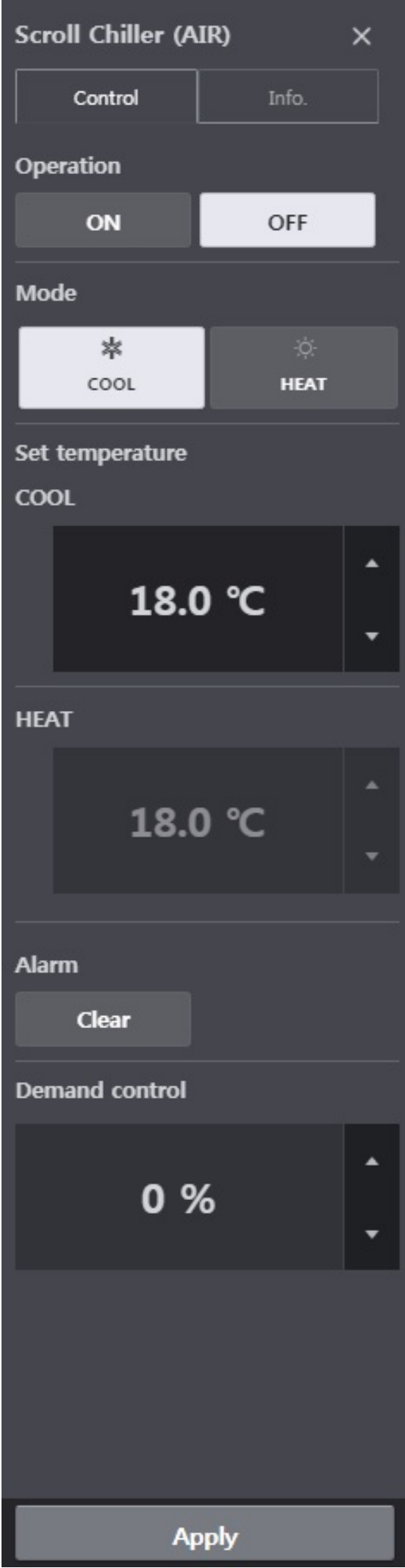
Energy saving operation can be run only under agreeable indoor conditions (for cooling, temperature of 28°C or lower and relative humidity of 60% or lower). You can adjust the degree of freshness and energy saving as preferred.

Note

- To use Multi-V Interlocking Energy Saving Control, you need a DOAS indoor humidity sensor.
- Energy saving operation can be run only when DOAS is running in the cooling or dehumidification mode and all indoor units are in cooling operation.
- Energy saving step: As you get closer to step 3, dehumidification weakens and energy saving increases.

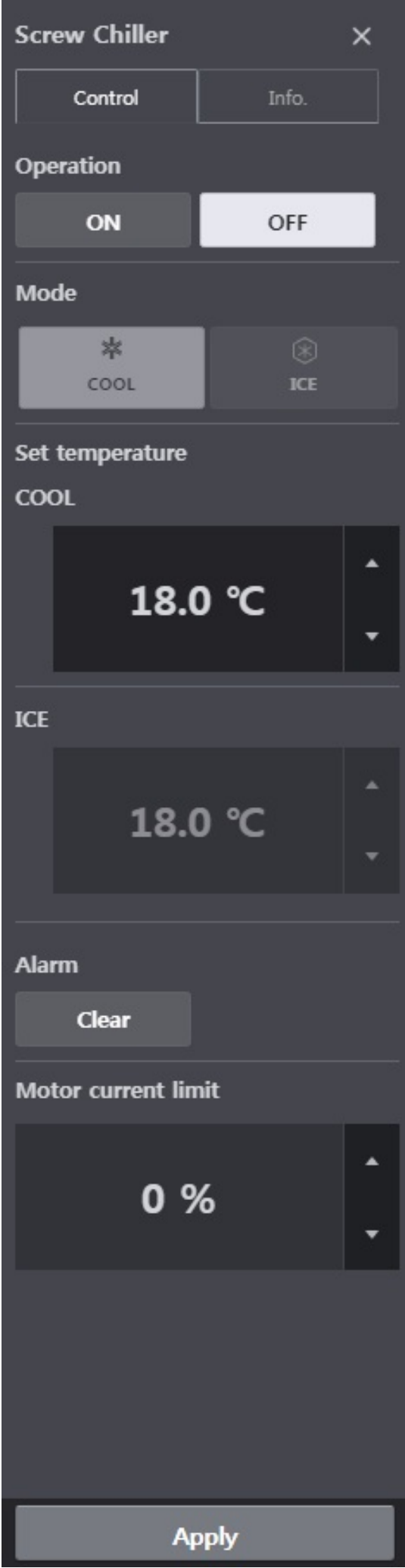
➡ Set Multi-V Interlocking Energy Saving Control

Scroll chiller



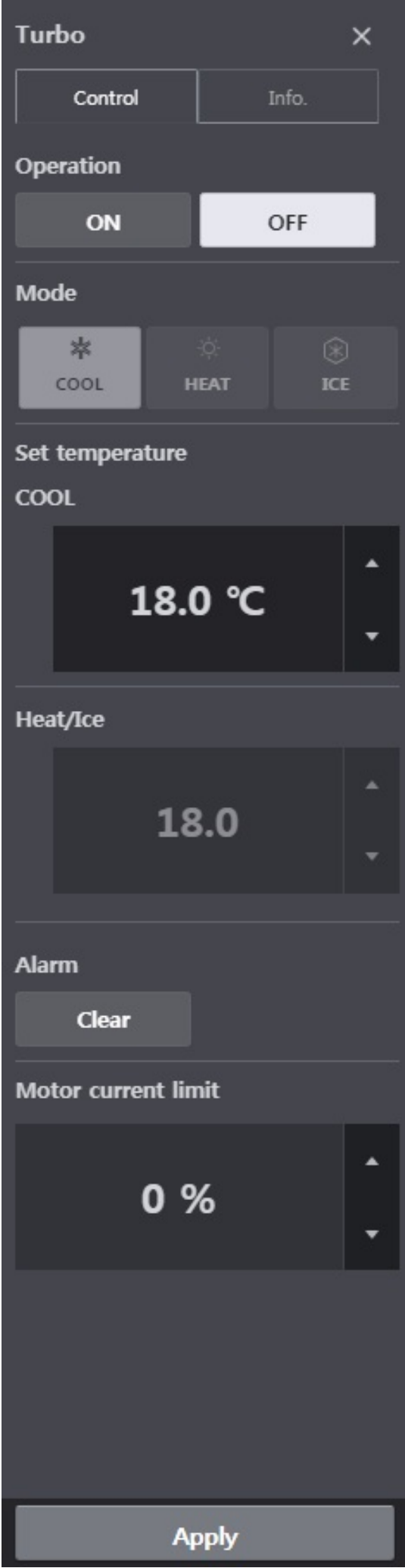
Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	(It is displayed only when device supports the corresponding mode) [COOL] button: Swtiches to cooling mode [HEAT] button: Switches to heating mode
Set temperature	Set the load water out temperature for indoor cooling/heating Press [▲]/[▼] button to set the temperature of cooling mode and heating mode
Alarm	[Clear] button: Clears Chiller alarm in case of Chiller alarm
Demand control	Press [▲]/[▼] button to set demand limit ratio

Screw chiller



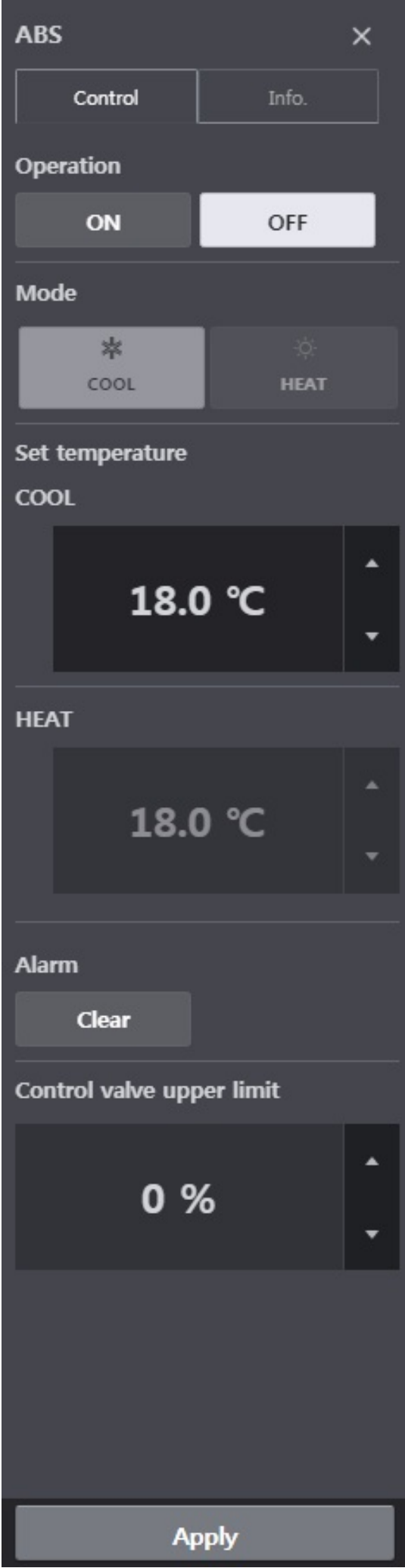
Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	Mode control is impossible. Controls monitored operation mode's set temperature
Set temperature	Set the load water out temperature for indoor cooling/ice making Press [▲]/[▼] button to set the temperature of cooling mode and ice making mode
Alarm	[Clear] button: Clears Chiller alarm in case of Chiller alarm
Motor current limit	Press [▲]/[▼] button to set motor current limit ratio

Turbo chiller



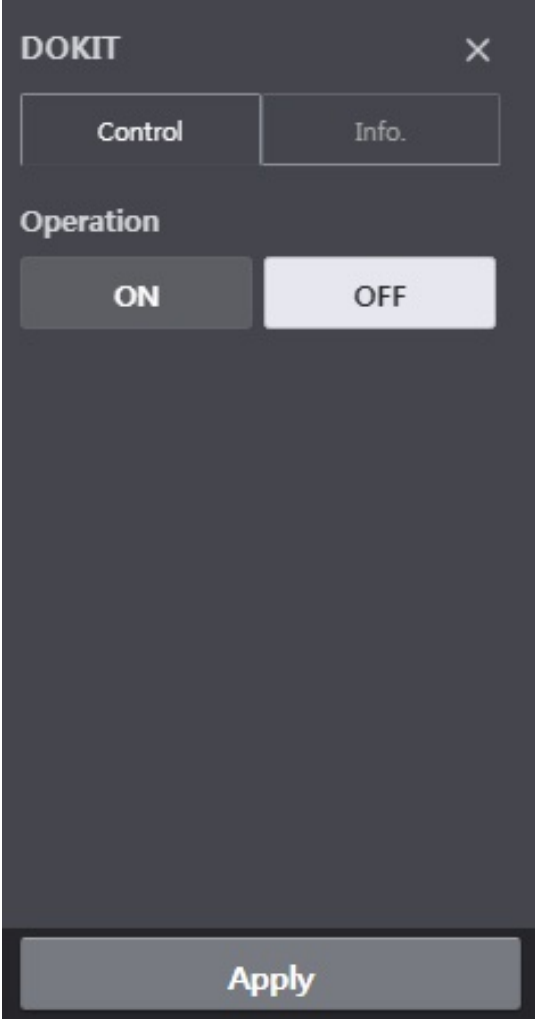
Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	Mode control is impossible. Controls monitored operation mode's set temperature
Set temperature	Set the load water out temperature for indoor cooling/heating/ice making Press [▲]/[▼] button to set the temperature of cooling mode and heating/ice making mode
Alarm	[Clear] button: Clears Chiller alarm in case of Chiller alarm
Motor current limit	Press [▲]/[▼] button to set motor current limit ratio

Absorption Chiller



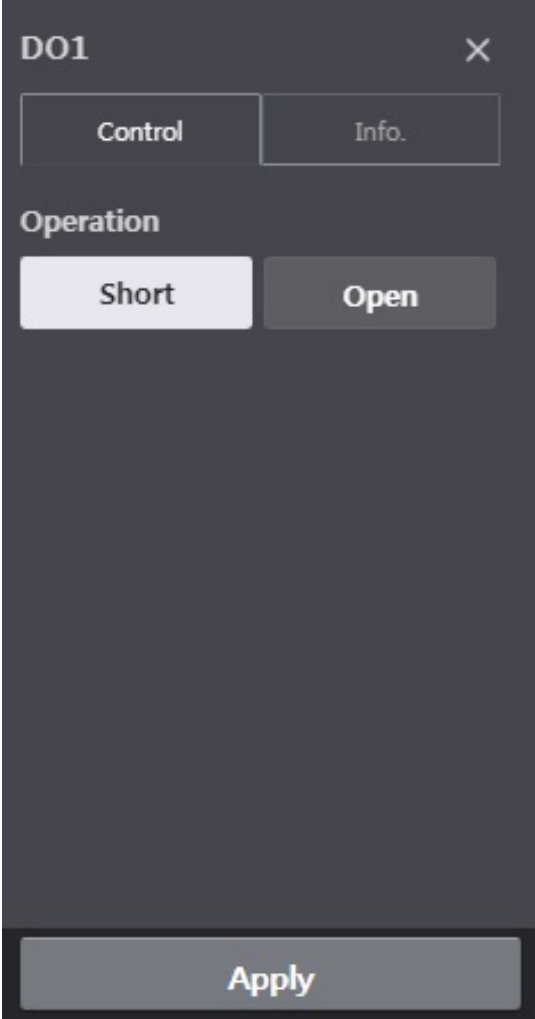
Category	Contents
Operation	• [ON] button: starts the device operation • [OFF] button: Stops the device operation
Mode	Mode control is impossible. Controls monitored operation mode's set temperature
Set temperature	Set the load water out temperature for indoor cooling/heating Press [▲]/[▼] button to set the temperature of cooling mode and heating mode
Alarm	[Clear] button: Clears Chiller alarm in case of Chiller alarm
Control valve upper limit	Press [▲]/[▼] button to set the control valve upper limit ratio

DOKIT



Category	Contents
Operation	• [ON] button: starts the device operation • [OFF] button: Stops the device operation

DO



Category	Contents
Operation	• [Short] button: Short signal output • [Open] button: Open signal output

AO

AO[F7/00]

Control

Info.

Temperature (°C)

20.00

Min 0 ~ Max 100

Apply

Category	Contents
Temperature	Set temperature value

Note

Unit symbol may change according to the usage set during device registration.

Device Information

When you click device information tab in the device's control screen, you can check the device information.

You can check device's basic information, operation information, schedule information, error information, and today's history.

AC_UNIT_00 Control Info. Basic information Name AC_UNIT_00 Address 00 Group New group 1 View drawing ODU ODU[00] Model AC Capacity 3 ODU model MULTIV ODU capa. 100 Operation information Schedule information (5) Error information History	AC_UNIT_00 Control Info. Basic information Operation information Operation ON Mode AUTO Air Cleaning Set Current temperature 23.0 °C Fine dust(PM10) 0µg/m³ (Good) Ultra fine dust(PM2.5) 0µg/m³ (Good) Super ultra fine dust(PM1.0) 0µg/m³ (Good) Occupancy Unoccupied Cool set temperature 30.0 °C Heating set temperature 18.0 °C Lowest/Highest Limits for Cooling Temperature 10.0 °C / 37.5 °C Lowest/Highest Limits for Heating Temperature 4.0 °C / 32.0 °C Fan speed	AC_UNIT_00 Control Info. Basic information Operation information Schedule information (5) Time Description 10:10 Schedule 10:10 Schedule 10:10 Schedule 10:10 Schedule 10:10 Schedule Error information History	AC_UNIT_00 Control Info. Basic information Operation information Schedule information (5) Error information Error No error Error code 0 Error description No error History	AC_UNIT_00 Control Info. Basic information Operation information Schedule information (5) Error information History Time Contents 2018-02-01 10:11 Control Mode: AUTO by Schedule
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Control

You can set the registered device to the desired status and control.

1. In the left side menu tab, click **[Control]** > **[Device control]** menu.
2. In the device list tab section, click the desired tab.

Category	Description
Group	List of group set for convenience
Installation	Provides actually connected device information

3. In the filter section, click the filter button of the device type or status to control.
- All filter buttons can be selected in multiple.

Only the corresponding information are selected and displayed.

All ^

Big

Name

☐ ODU

☐ IDU

☐ HRV

☐ Air purifier

☐ AWHP

☐ AHU

☐ Chiller

☐ DOKIT

☐ DI

☐ DO

☐ EXP. I/O

☐ ON

☐ OFF

☐ Hot water ON

☐ Hot water OFF

☐ Schedule

☐ Peak/Demand

☐ Error

☐ Filter replacement alarm

☐ Lock

☐ Oil replacement alarm

Initialization

Apply

Filter type	Detail category
Device	Outdoor unit, indoor unit, air purifier, AHU, chiller, ERV, Heating, ON/OFF device, DI, DO, Exp.I/O
Status	ON, OFF, Hot water ON, Hot water OFF, Schedule, Peak control, Error, Filter replacement alarm, Lock, Oil replacement alarm

4. In the device section, select the device to control.
- You can select several devices at once to control. To select all devices in certain group, click **[Multi-select]** button, and click **[Select All]** button. According to the multiple selected device types, the category to control is limited.

Campus #1

Device error 0Network error 0Help

Multiple group selection

Group

Installation

Special control group

Basic group

Group_00

Group_01

Device control

Basic group > Group_00

Select total of 5 devices

All

Big

Name

Folder

Multi-select

Basic group > Group_00

23.0°C24.0°C

COOL

16.0-30.0

23.0°C24.0°C

COOL

16.0-30.0

23.0°C24.0°C

COOL

16.0-30.0

23.0°C21.0°C

COOL

16.0-30.0

23.0°C24.0°C

COOL

16.0-30.0

IDU_00

IDU_0A

IDU_0B

IDU_0C

IDU_0D

23.0°C24.0°C

COOL

16.0-30.0

23.0°C24.0°C

COOL

16.0-30.0

23.0°C24.0°C

COOL

16.0-30.0

23.0°C24.0°C

COOL

16.0-30.0

23.0°C24.0°C

COOL

16.0-30.0

IDU_0E

IDU_0F

IDU_01

IDU_02

IDU_03

5. In the control window, set the corresponding equipment's control status.

6. When setting is completed, click **[Apply]** button.

Monitoring

You can check the registered device's control status.

1.
- In the left side menu tab, click **[Control] > [Device control]** menu.
2.
- In the device list tab section, click the desired tab.

Category	Description
Group	List of group set for convenience
Installation	Provides actually connected device information

3.
- In the filter section, click the filter button of the device type or status to check.
- All ^

Big

▼

Name▼

☐ ODU

☐ IDU

☐ HRV

☐ Air purifier

☐ AWHP

☐ AHU

☐ Chiller

☐ DOKIT

☐ DI

☐ DO

☐ EXP. I/O

☐ ON

☐ OFF

☐ Hot water ON

☐ Hot water OFF

☐ Schedule

☐ Peak/Demand

☐ Error

☐ Filter replacement alarm

☐ Lock

☐ Oil replacement alarm

Initialization

Apply
- Filter type

Detail category

Device

Outdoor unit, indoor unit, AHU, chiller, ERV, Heating, ON/OFF device, DI, DO, Exp.I/O

Status

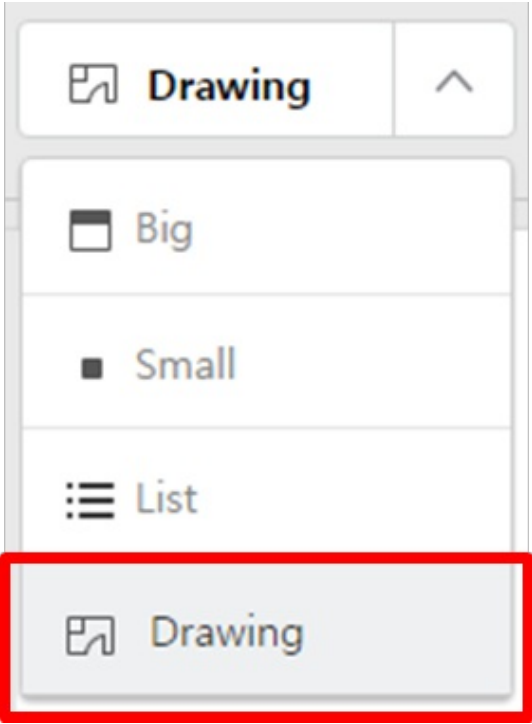
ON, OFF, Hot water ON, Hot water OFF, Schedule, Peak control, Error, Filter replacement alarm, Lock, Oil replacement alarm

4.
- In the device section, check the device information.
5.
- To check the device's detail control status, click the corresponding device icon.
- The corresponding device's control window is displayed.

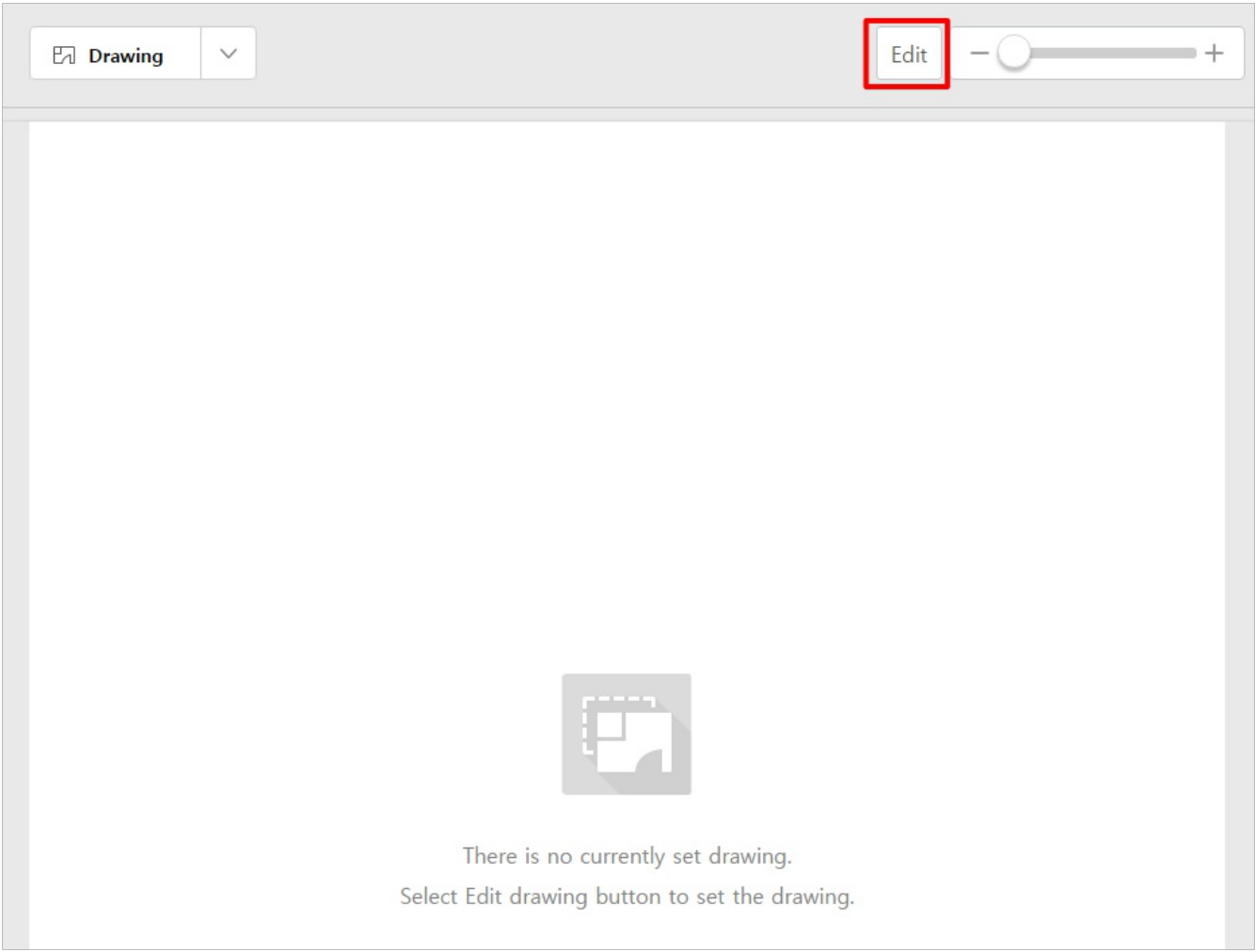
Edit Drawing

When [Setting] > [System setting]'s Use 'Drawing' is selected as **Set**, you can edit the drawing.

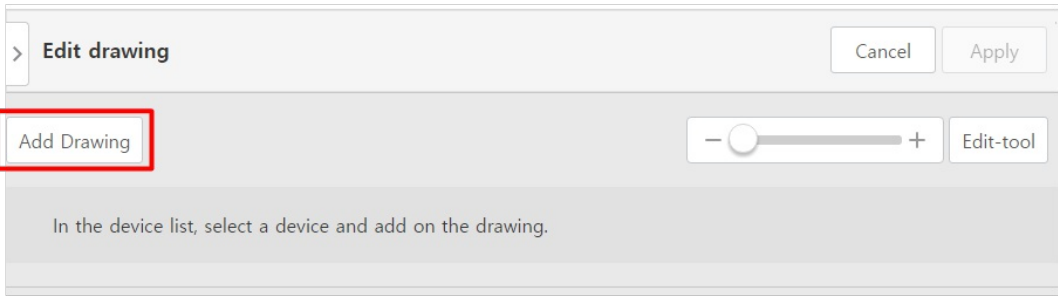
1. In the left side menu tab, click [Control] > [Device control] menu.
2. In device group tab area, click [Group] tab.
 - When you select [Installation] tab, the viewing method's [Drawing] is disabled.
3. In the viewing method, click [View Drawing].



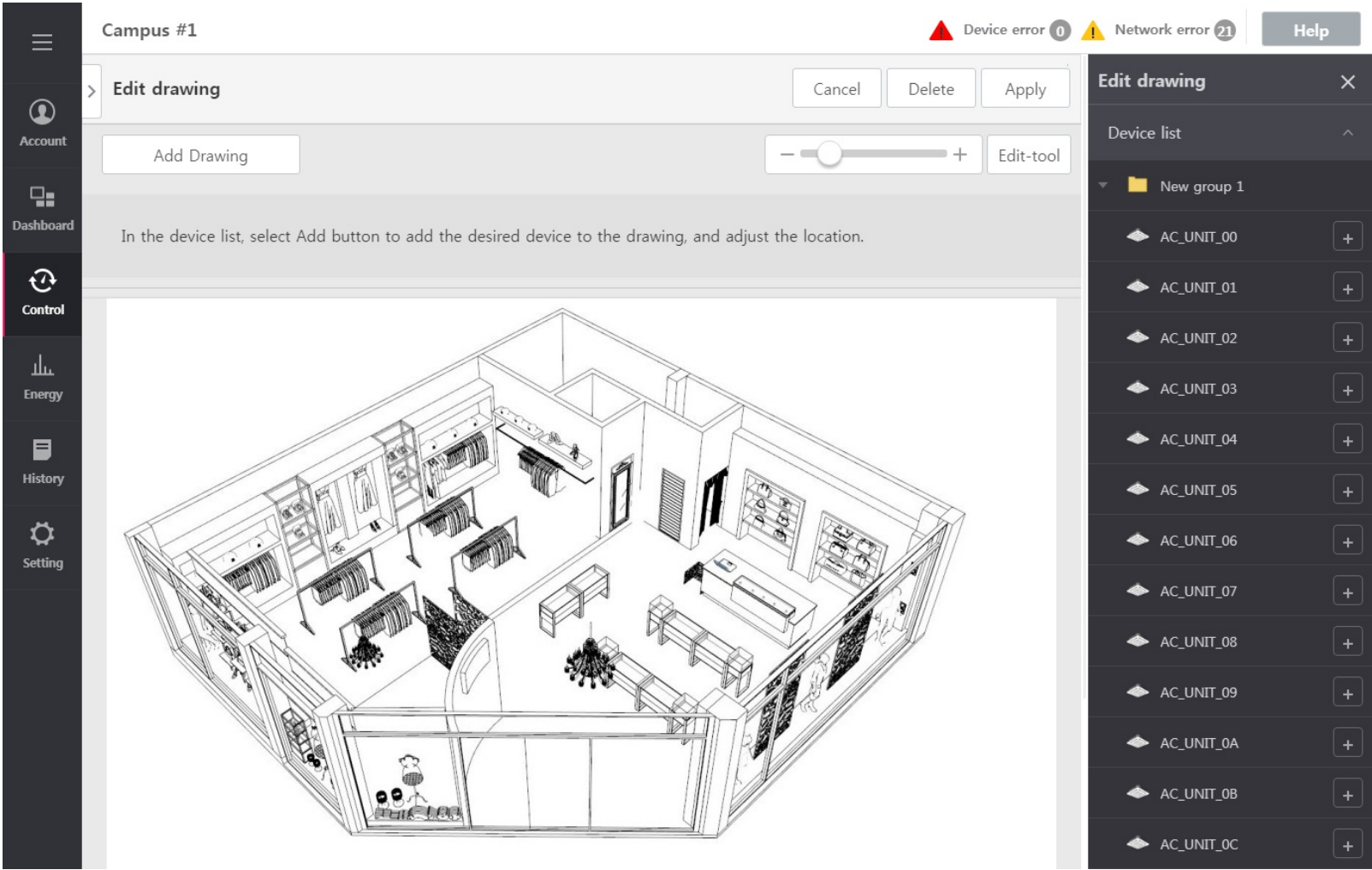
4. Click [Edit] button.



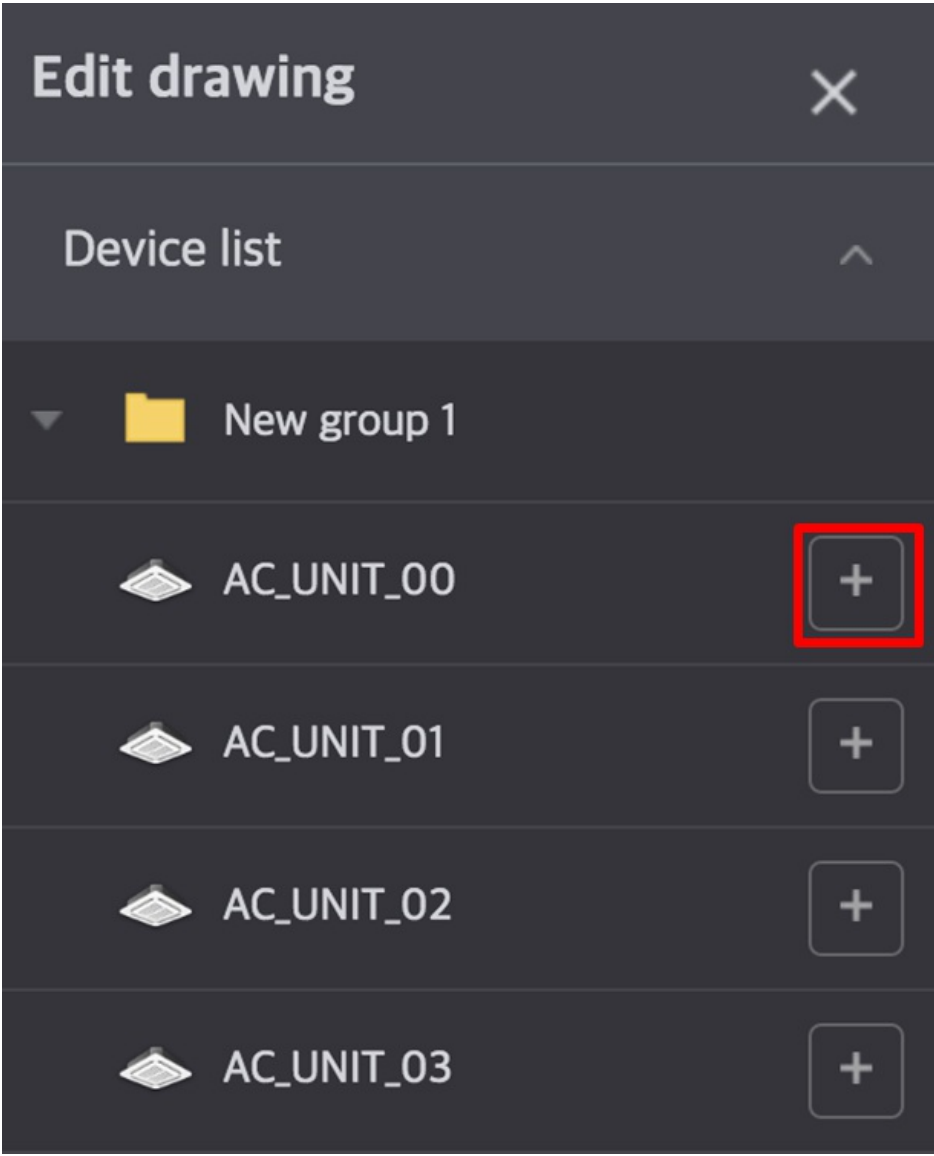
5. When you add or change drawing, click [Add Drawing] button.



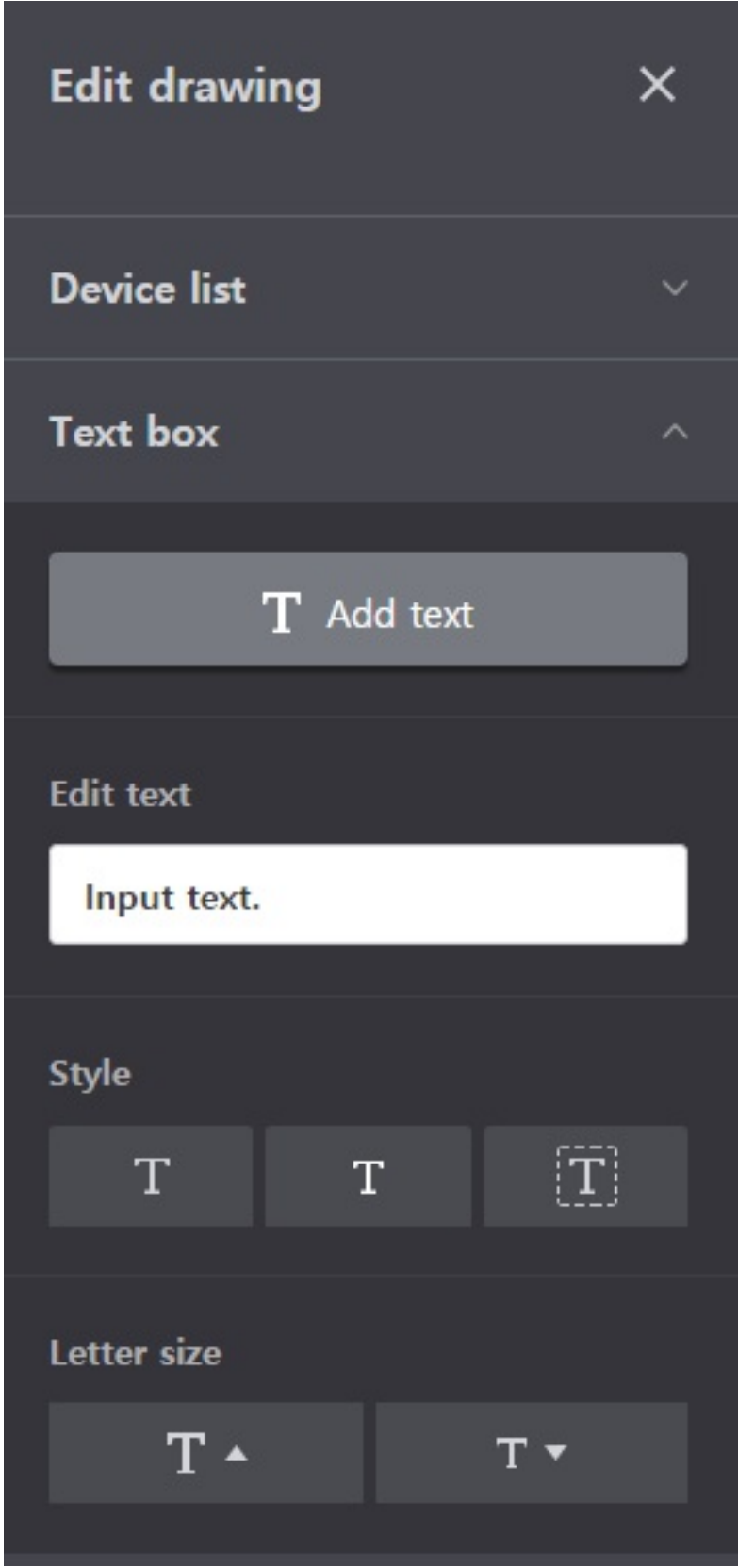
6. When file load window is displayed, select the drawing file to add and click [Open] button.
 - The selected drawing is displayed in the Edit drawing screen.



7. To add device in the drawing, select the desired device in the device list in the right side Edit drawing window, and click [+] button. The device is added in the drawing section.



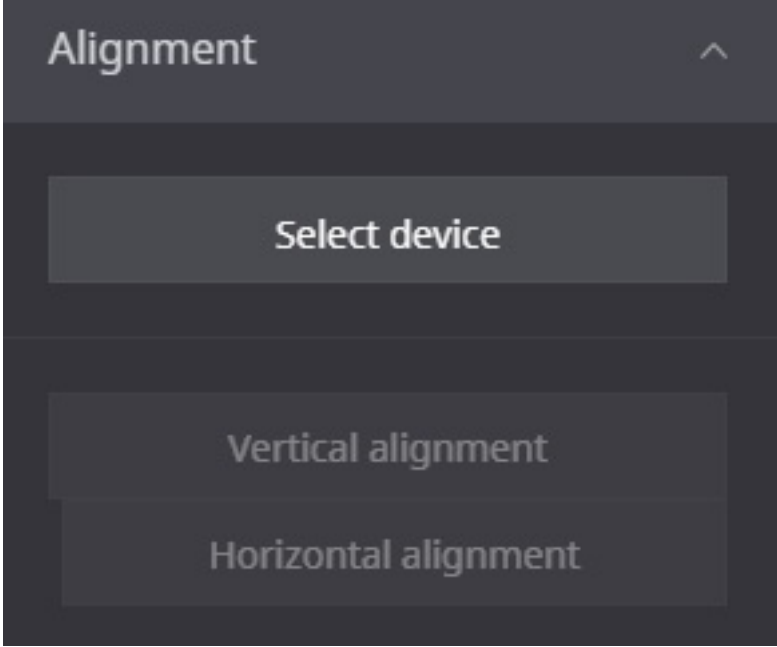
8. To add text or change text in the drawing, use text box.



Category	Description

Add text	Add text box in drawing section
Edit text	Edit text in text box
Style	T : Normal letter, thick, Italic, underline T : Display in normal letter T : Display in thick letter T : Display in Italic letter T : Display with underlined letter T : Change letter color T : Change letter background color
Letter size	T : Larger letter T : Smaller letter

9. To align the device icons on the drawing, use the Alignment Box.



Category	Description
Select device	Select a device to align on the drawing
Alignment	Vertical alignment : Aligns the selected device icons vertically. Horizontal alignment : Aligns the selected device icons horizontally.

10. When setting is completed, click [Apply] button.

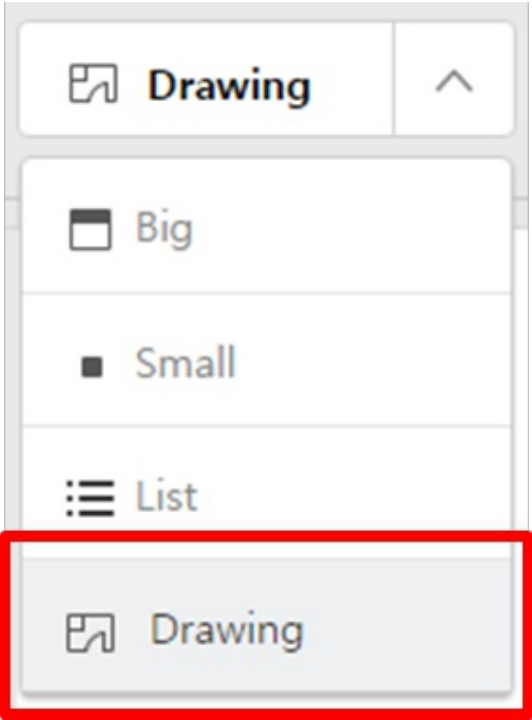
Note

- Part of drawing image with vertical resolution of 1000px or more may not be displayed, and please use image of adequate resolution according to the display resolution.
In environment with display resolution of 1920x1080, image of 1478x1000 or less is recommended.
- File format : jpg, png, bmp / Max size : 10MB
- During text add / edit, special symbol (^, "|\) may not be used.
- You can enter up to 40 characters.
- AC Smart 5 Device does not support the drawing editing function.

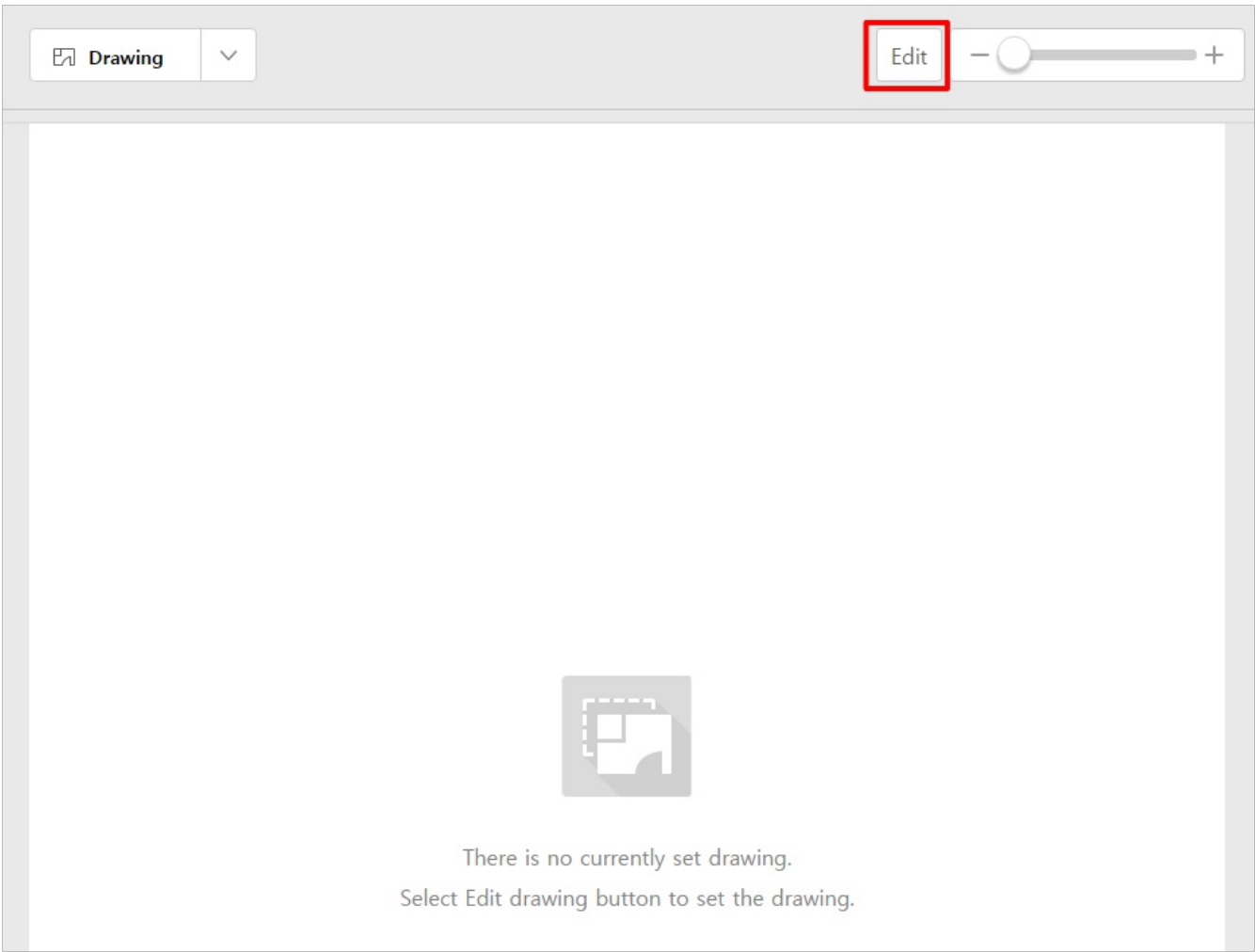
Delete Drawing

You can delete the added drawing.

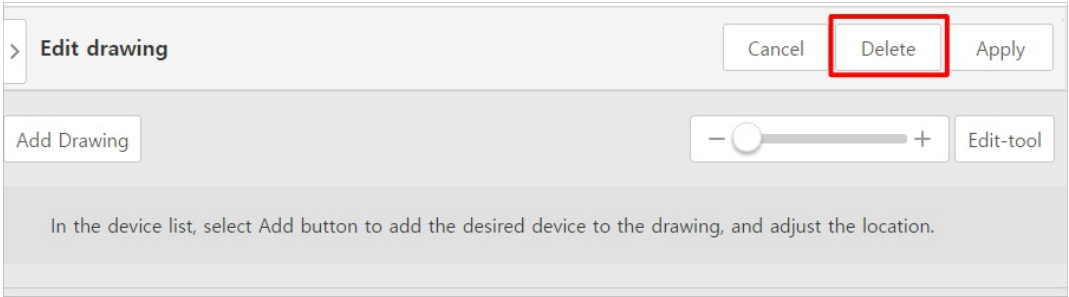
1. In the left side menu tab, click **[Control] > [Device control]** menu.
2. In device group tab area, click **[Group]** tab.
3. In the viewing method, click **[View Drawing]**.



4. Click **[Edit]** button.
 - The Edit drawing screen is displayed.



5. Click **[Delete]** button at the top.
 - The drawing is deleted.



Schedule Control

Schedule is the function to designate the device operation in advance and let the device perform the operation reserved at certain time. When you use this function, you can efficiently manage the device operation in time unit for excellent energy saving effect.

[Schedule]

- ➔ View entire schedule
- ➔ Add Schedule
- ➔ Delete schedule
- ➔ Copy schedule
- ➔ Edit schedule

[Exception Date]

- ➔ Load exception date
- ➔ Add exception date
- ➔ Delete exception date

Note

Recommended specification

- **Schedule: No. of all events included in entire schedule is 50**
- **If it is set to be over the recommended specification, performance degradation may occur.**

View entire schedule

You can see the list of schedule in the set period.

You can check whether the set schedule is applied, name, whether to repeat, start date, end date, and device list, and directly **[Set]** or **[Clear]** the desired schedule.

Account

Dashboard

Control

Energy

History

Setting

Campus #1

Device error0

Network error21

Help

Schedule control

Set all

Clear all

Add schedule

2017-02-01 ~ 2018-02-01

Operation	Name	Repeat	Start date	End date	Device	Edit
Set Clear	Schedule	Daily	2018-01-29	Not specified	All (69), IDU (16), HRV (16), AWHP (32), DO (2), EXP.DO (3)	

Add Schedule

You can add schedule category.

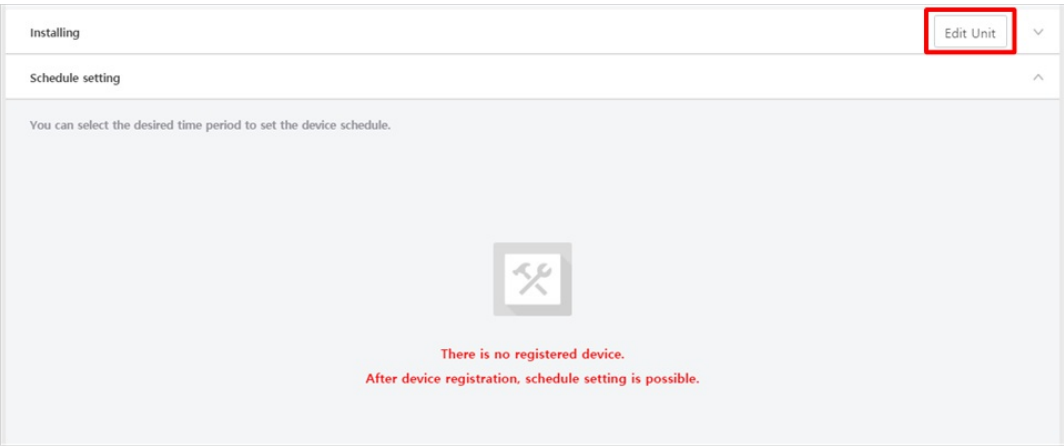
1. In the left menu tab, click **[Control]** > **[Schedule Control]** menu.
- The schedule control screen is displayed.
2. In the schedule list, click **[Add Schedule]** button.
- The Add schedule screen is displayed.
3. In the schedule name input field, input the desired schedule name.
4. Set whether to repeat the schedule.

Category	Description
Once	Apply the corresponding schedule only to one day designated in [Period]
Day of week selection	Select the desired day of week, and apply the schedule only to the corresponding day of week from the start date to the end date

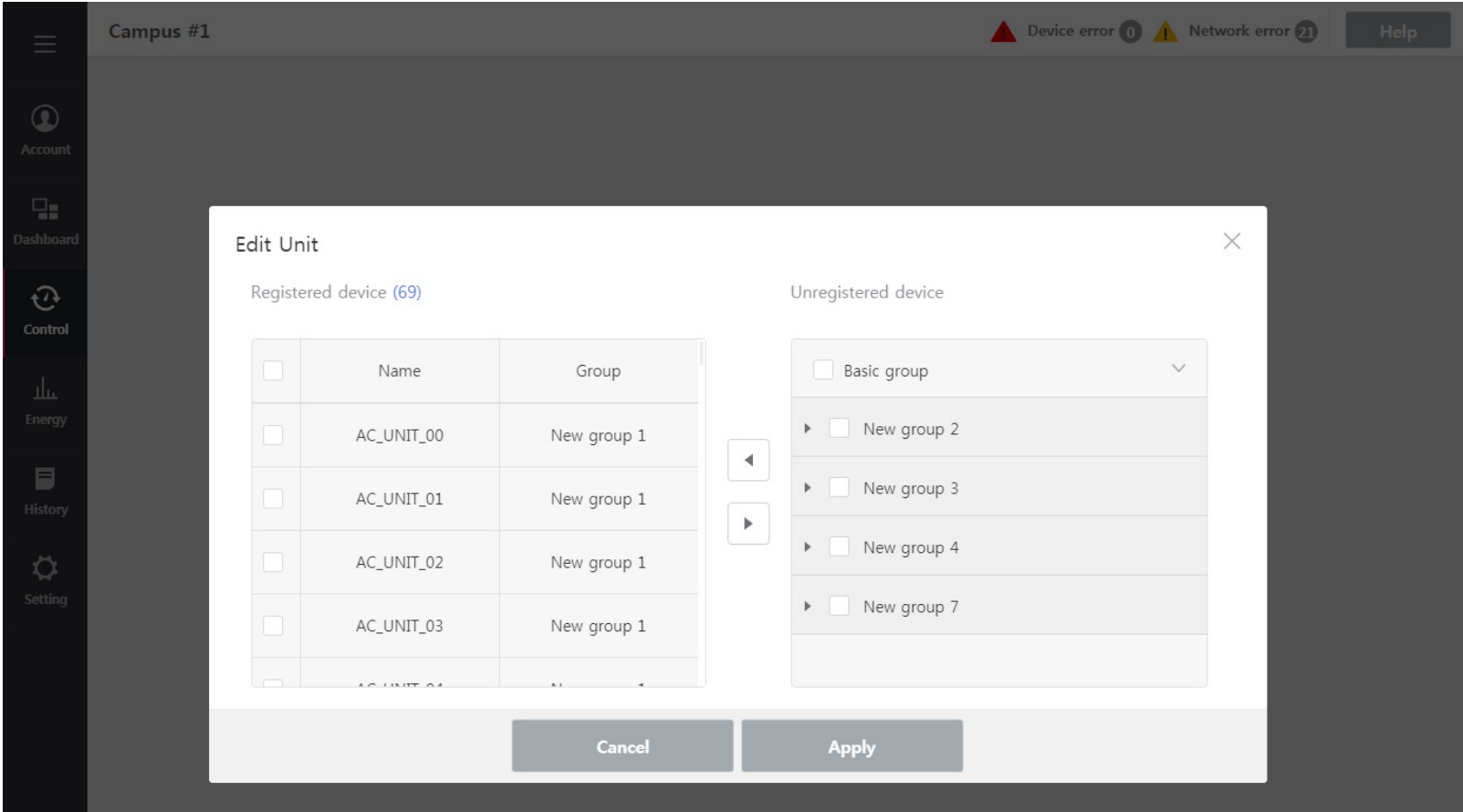
5. Set the desired period.
- When repetition is selected as **[Once]**, select only 1 day
- When repetition is selected as **[select day of week]**, select start and end date

Category	Description
Start Date	Select the desired start date in mini calendar Initial start date is selected as today's date
End date	Select the desired end date in mini calendar You cannot set the end date before the start date
End date not specified	Apply the schedule repeatedly without designating the end date

6. To apply the set exception date, click **[Load]** button.
- The exception date set in **[Setting]**-**[system setting]**'s **schedule exception date setting** is updated and displayed.
7. To apply the new exception date, click **[Add Exception Date]** button to set the exception date name and date to add.
8. In the device setting section, click **[Edit Unit]** button.
- The Edit Unit window is displayed.

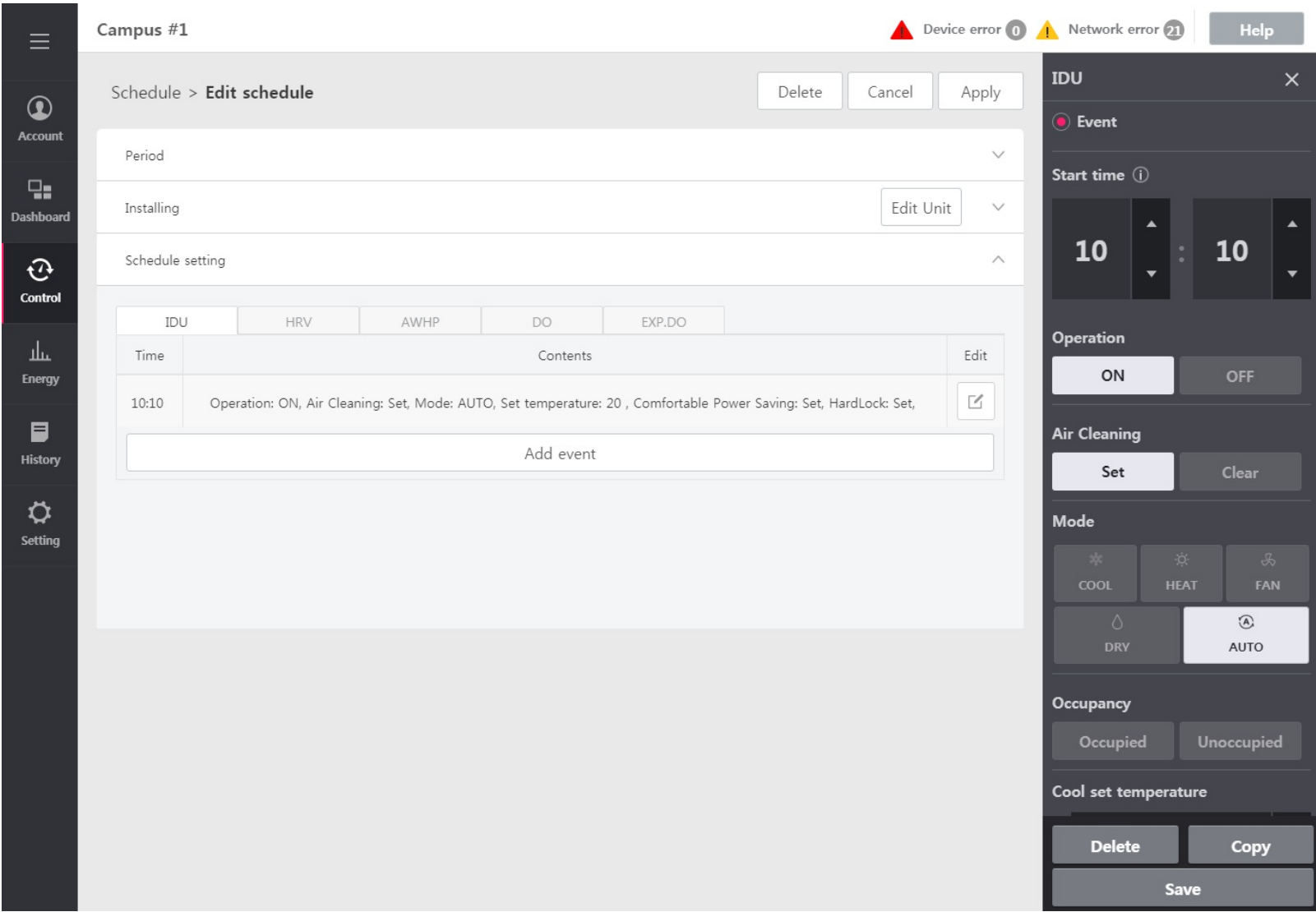


9. In the unregistered device list, click the checkbox of the device to register and click **[◀]** button.
- To register several groups at once, click the checkbox of the group to register and click **[◀]** button.
- The selected devices are added to the registered device list.



10. When device registration is completed, click **[Apply]** button.

11. To add schedule event, in **Schedule setting**, select device type tab, and click **[Add event]** button or edit button to set control status of the device in the right side control area.



12. When control setting is completed, click **[Save]** button.

13. When all settings are completed, click **[Apply]** button.

Delete schedule

You can delete already registered schedule.

1. In the left menu tab, click **[Control]** > **[Schedule Control]** menu.
 - The schedule control screen is displayed.
2. In the schedule list, click the Edit button of the schedule to delete.

Account

Dashboard

Control

Energy

History

Setting

Campus #1

Device error 0

Network error 21

Help

Schedule control

Set allClear allAdd schedule

2017-02-01 ~ 2018-02-01 ▼

Operation	Name	Repeat	Start date	End date	Device	Edit
Set Clear	Schedule	Daily	2018-01-29	Not specified	All (69), IDU (16), HRV (16), AWHP (32), DO (2), EXP.DO (3)	

Schedule

Schedule status

SetClear

Repeat

Mon., Tue., Wed., Thu., Fri., Sat., Sun.

Start date

2018-01-29

End date

Not specified

Registered device

All (69), IDU (16), HRV (16), AWHP (32), DO (2), EXP.DO (3)

Exception date

Not set

Set schedule

DeleteCopy

Edit

3. In the right side Edit window screen, click **[Delete]** button.
4. When notice popup window is created, click **[Check]** button.

Copy schedule

You can copy and use registered schedule.

1. In the left menu tab, click **[Control]** > **[Schedule Control]** menu.
 - The schedule control screen is displayed.
2. In schedule list, click edit button of the schedule to copy.

Account

Dashboard

Control

Energy

History

Setting

Campus #1

Device error 0

Network error 21

Help

Schedule control

Set allClear allAdd schedule

2017-02-01 ~ 2018-02-01 ▼

Operation	Name	Repeat	Start date	End date	Device	Edit
Set Clear	Schedule	Daily	2018-01-29	Not specified	All (69), IDU (16), HRV (16), AWHP (32), DO (2), EXP.DO (3)	

Schedule

Schedule status

SetClear

Repeat

Mon., Tue., Wed., Thu., Fri., Sat., Sun.

Start date

2018-01-29

End date

Not specified

Registered device

All (69), IDU (16), HRV (16), AWHP (32), DO (2), EXP.DO (3)

Exception date

Not set

Set schedule

DeleteCopy

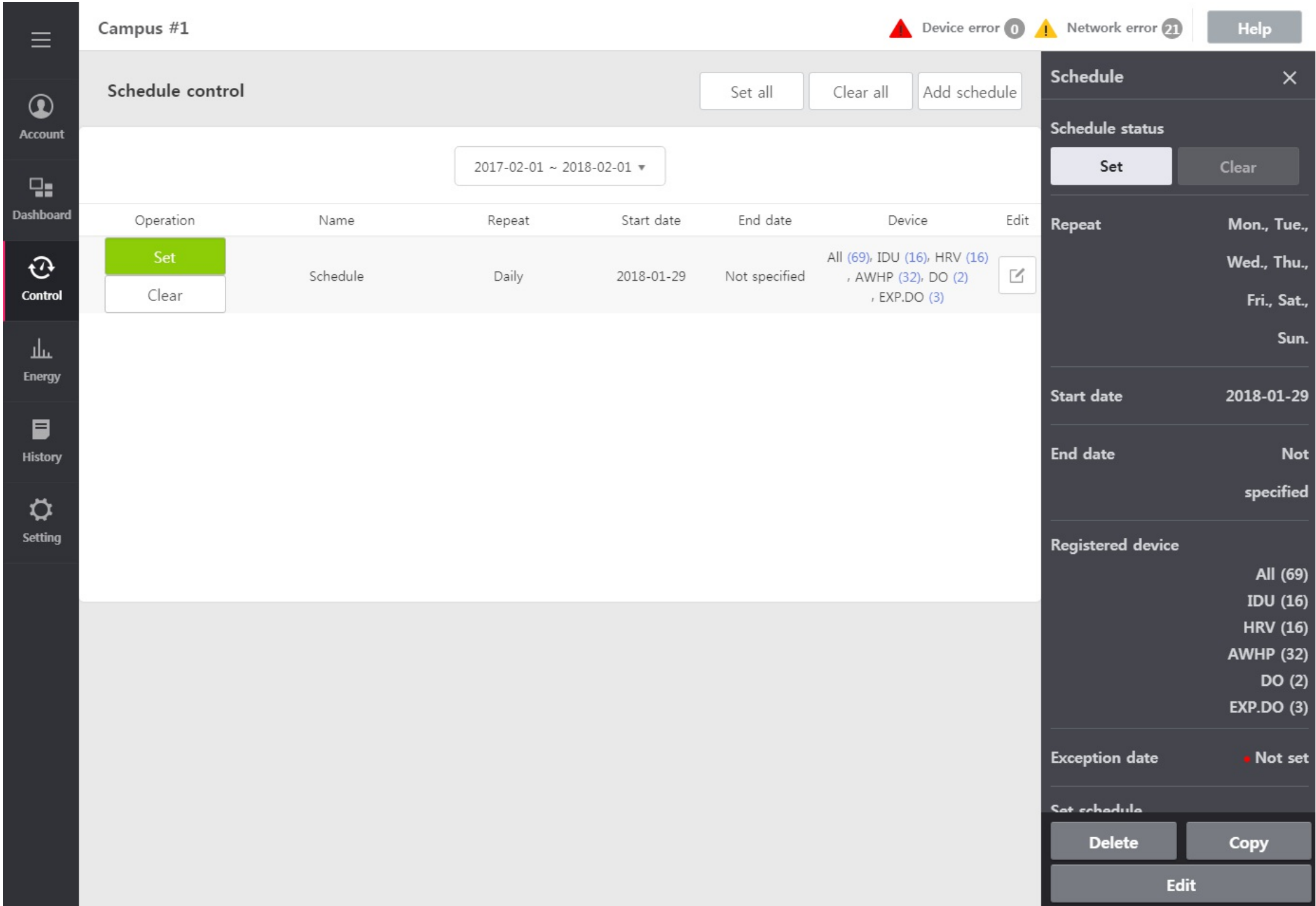
Edit

3. In the right side edit window screen, click **[Copy]** button.
4. When notice popup window is created, click **[Check]** button.

Edit schedule

You can change the set contents of the already registered schedule.

1. In the left menu tab, click **[Control]** > **[Schedule Control]** menu.
- The schedule control screen is displayed.
2. In the schedule list, click Edit buttoin of the schedule to edit.



3. In the right side edit window screen, click **[Edit]** button.
4. Edit the schedule contents.
- To check the detail contents, check 'Add Schedule' Category.

Load exception date

You can load already set exception date.

1. In the left menu tab, click **[Control] > [Schedule Control]** menu.
- The schedule control screen is displayed.
2. In the schedule list, click **[Add Schedule]** button.
- The Add schedule screen is displayed.
3. In the exception date tab, click **[Load]** button
- The exception date set in **[Setting]-[system setting]'s schedule exception date setting** is updated and displayed.

Exception date		Load	Add exception date	Delete all
2017-01-01	New Year's Day			
2017-12-25	Christmas Day			

Add exception date

You can add new exception date.

1. In the left menu tab, click **[Control] > [Schedule Control]** menu.
- The schedule control screen is displayed.
2. In the schedule list, click **[Add Schedule]** button.
- The Add schedule screen is displayed.
3. In the exception date tab, click **[Add Exception Date]** button
- The Add exception date screen is dispalyed.

Add exception date

Set exception date

Name

Input exception date name

<<

<

2017 January

>

>>

MON	TUE	WED	THU	FRI	SAT	SUN
26	27	28	29	30	31	01
02	03	04	05	06	07	08
09	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	01	02	03	04	05

Cancel

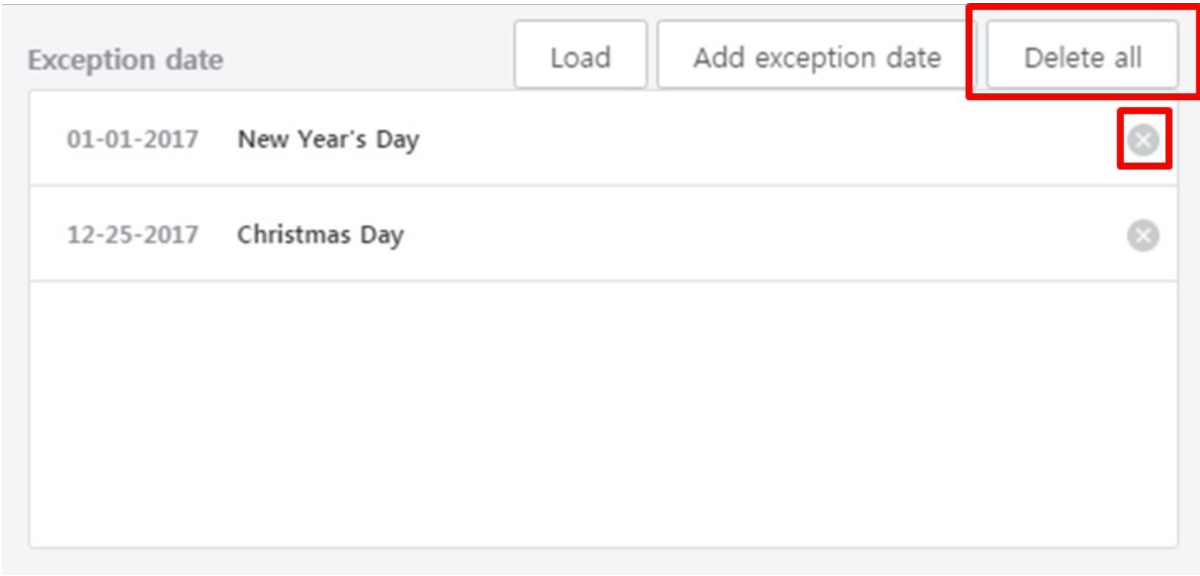
Apply

4. Input the desired exception date name.
5. Select the exception date to set.
6. When selection is completed, click **[Apply]** button.

Delete exception date

You can delete alreday registered exception date.

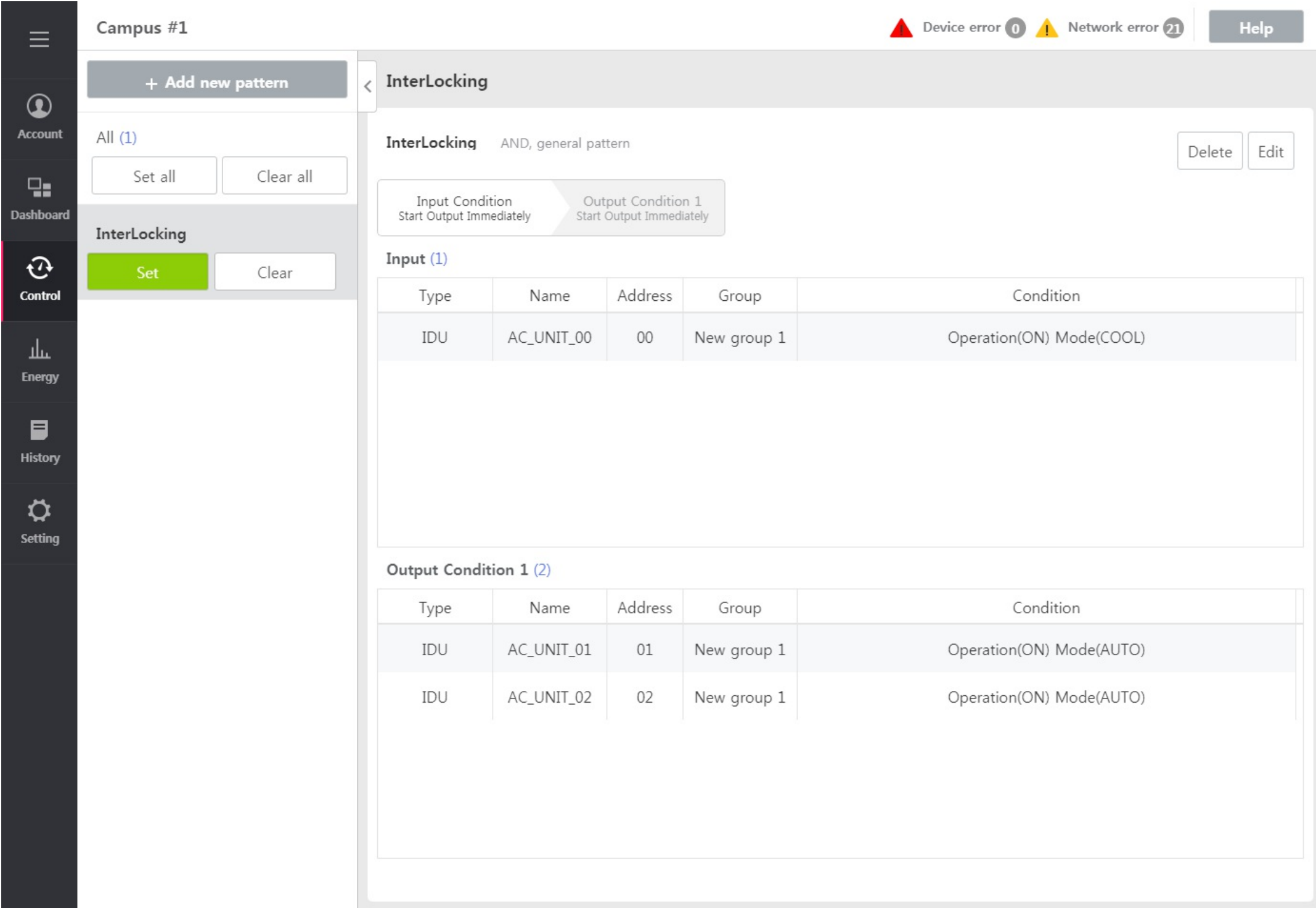
1.
- In the left menu tab, click **[Control]** > **[Schedule Control]** menu.
 - The schedule control screen is displayed.
2.
- In Edit schedule screen, click **[X]** button to delete exception date.
 - To delete the entire category, click **[Delete All]** button.



InterLocking

InterLocking is the function to interface with one or more equipment and to control output operation when input condition is satisfied. For InterLocking, you need to group the equipment to mutual interface in one group and apply the control setting. It describes the method to create and manage the group and equipment interface control method.

1. In the left menu tab, click **[Control]** > **[InterLocking]** menu.
- The InterLocking screen is displayed.



2. In the group list, select the group to check the setting.
- The the corresponding group's setting status is displayed in the screen.
3. In the group list, when you click **[Set]** / **[Clear]** button, you can set the InterLocking operation.
4. To start all the registered group, click **[Set All]** button, and to stop all, click **[Clear All]** button.

Note

Recommended specification

- Equipment interface control : No. of patterns is 20, No. of input devices is 500, and No. of output devices is 1000
- If it is set to be over the recommended specification, performance degradation may occur.

Add/edit InterLocking

You can add and edit new InterLocking.

1. In the left menu tab, click **[Control]** > **[InterLocking]** menu.
- The InterLocking screen is displayed.
2. Click **[+ Add new pattern]** button.
- Add InterLocking screen is displayed.

Account

Dashboard

Control

Energy

History

Setting

Campus #1

Device error 0Network error 21Help

InterLocking > Add new pattern

DeleteCancelApply

Name

General pattern

▼

Pattern that output control command is executed when the input condition is met.

Input Condition

Start Output Immediately

Output Condition 1

Start Output Immediately

+

Status

and OR NAND NOR

Maintenance Time

Cancel Setting

1Min.

▼

 later

Edit Unit

There is no registered device.
Register the device by selecting Edit device button.

3. In the InterLocking name input field, input the desired InterLocking name.

4. Select pattern type.

Category	Description
General pattern	The pattern that output control command is executed when the input condition is satisfied
Copy pattern	- The pattern that the output device follows the input device's status (Some control functions may not be copied.) - You can add only 1 device to input condition, and only the device with the same attribute with the added input device is registered to the output device
Emergency pattern	- The pattern that it recognizes as emergency situation when input condition is satisfied - When the input condition is satisfied, it tells the alarm with screen and sound
1:1 pattern	Pattern to conveniently register many devices if input device is the same as output device

5. Select whether to permit user control. (Only general pattern is possible)

- When check box is selected, even if the status is changed by the InterLocking, user may change the status of the equipment.

6. Set equipment interface condition. When you press [+] button, you can add up to 3 output conditions.

- It only appears when input condition tab is selected.

Category	Description
Status	- AND : all device conditions match - OR : one or more device conditions match - NAND : one or more device conditions do not match - NOR : no condition matches
Maintaining time	If it is set, while all input conditions are met, output condition control after maintaining time Press [▼] button to select maintaining time

- It only appears when output condition tab is selected.

Category	Description
Send e-mail	When check box is selected, if the corresponding event is executed in ACP, whether event occurred is sent to the e-mail set in Setting > Administrator Setting > receiving e-mail address ACP shall be connected to internet network that can send e-mail.
Delay time	If it is set, when input condition is met, output condition is controlled after the registered delay time Press [▼] button to select delay time If input condition is met, even if it becomes a status that does not meet the input condition during the delay time, output condition is controlled after delay time.

7. To add device, click [Edit Unit] button.

- The Edit Unit popup window appears.

8. In the selectable device list, click the checkbox of the device to register and click [◀] button.

- To register several groups at once, click the checkbox of the group to register and click [◀] button.

- The selected devices are added to the registered device list.

Edit Unit

Registered device (0)

Select device or group in non registered device.

Unregistered device

AC Smart

AC Smart

ODU[00]

ODU[01]

ODU[02]

ODU[03]

Cancel

Apply

9. When device registration is completed, click **[Apply]** button.

10. Click registered device's **[Condition]** button.

Status

and OR NAND NOR

Maintenance Time

Cancel Setting

1Min.

 later

Edit Unit

IDU (2)

Name	Address	Group	Condition	Batch
AC_UNIT_00	00	New group 1	Operation(ON) Mode(COOL)	Condition
AC_UNIT_00	00	New group 1		Condition

11. In the right side control window section, set the desired control status.

12. Select output condition tab, and run No. 7~11 processes in the order.

13. To save the set contents, click **[Apply]** button.

Note

Meaning of Odor Conditions by Level

- Reference Value 2 : Weak
- Reference Value 4 : Moderate
- Reference Value 5 : Strong
- Reference Value 6 : Very strong

Delete InterLocking

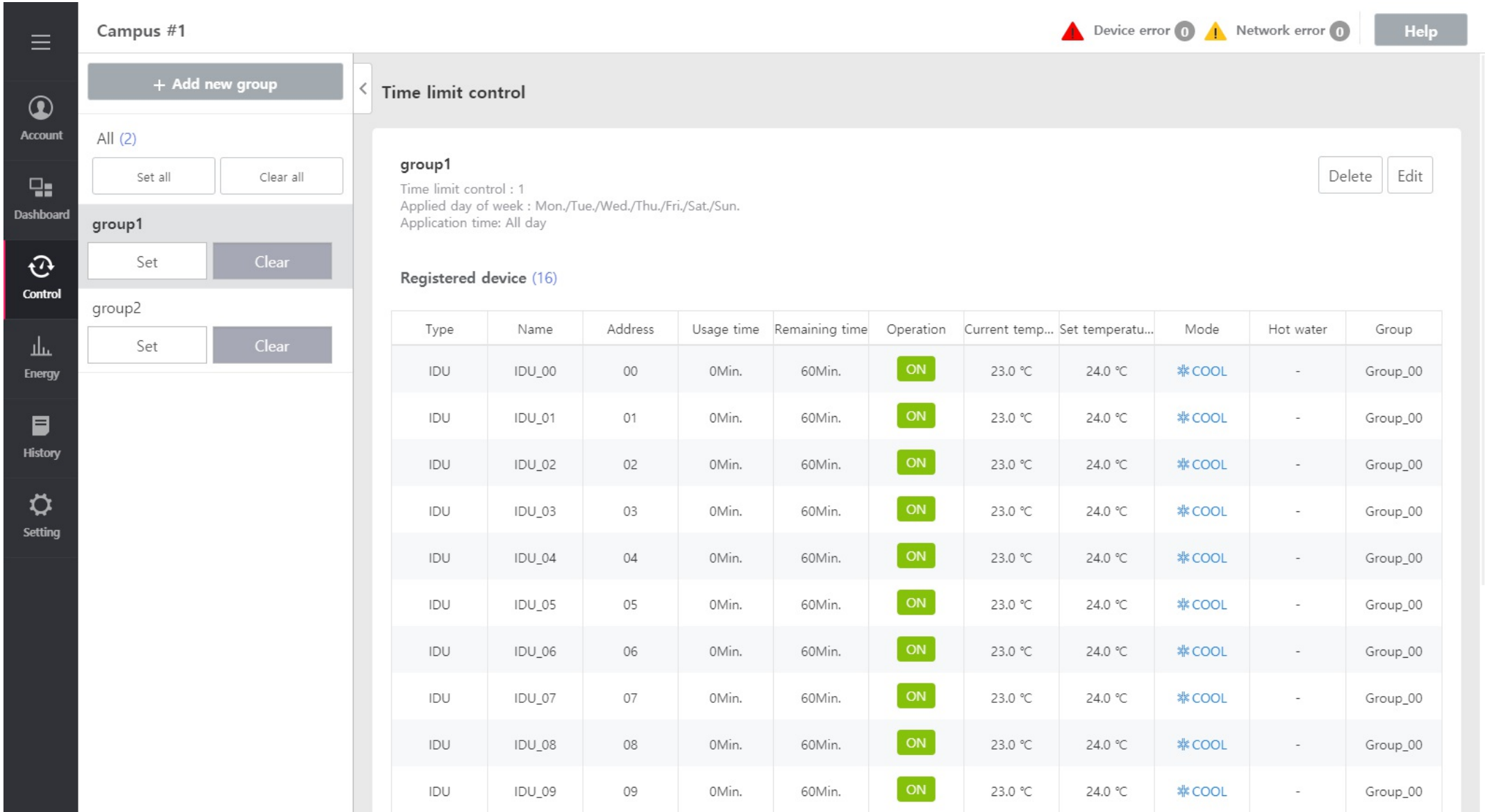
You can delete registerd InterLocking.

1. In the left menu tab, click **[Control]** > **[InterLocking]** menu.
- The InterLocking screen is displayed.
2. In the InterLocking list, select the group to delete, and click **[Delete]** button.
3. When InterLocking delete popup window appears, click **[Yes]** button.
- In the InterLocking list, the selected category is deleted.

Time limit control

You can control the device to operate for the set time and automatically stop.

1.
- In the left menu tab, click **[Control] > [Time limit control]** menu.
2.
- In the group list, select the group to check the setting.
 - The the corresponding group's setting status is displayed in the screen.
3.
- In the group list, you can click **[Set]** / **[Clear]** button to set the time limit operation.
4.
- To start all the registered group, click **[Set All]** button, and to stop all, click **[Clear All]** button.



Note

Recommended specification

- Time limited operation : No. of groups is 10
- If it is set to be over the recommended specification, performance degradation may occur.

Add/edit Time limit control group

You can add and edit Time limit control group.

1.
- In the left menu tab, click **[Control] > [Time limit control]** menu.
 - Time limit control screen is displayed.
2.
- Click **[+ Add New Group]** button.
 - Add new group screen is displayed.
 - During the edicting, when you select the group to edit and click **[Edit]** button, the following screen is displayed.

Account

Dashboard

Control

Energy

History

Setting

Campus #1

Device error0Network error0Help

Time limit control > Add new group

CancelApply

Group name

Continuous operation time

1 Hour

Applied day of week

☐ Mon.

☐ Tue.

☐ Wed.

☐ Thu.

☐ Fri.

☐ Sat.

☐ Sun.

Application time

☐ All day

☒ Section setting

Start time

00

:

00

End time

23

:

00

Registered device

Edit Unit

Type	Name	Address	Group
There is no registered device. Register the device by selecting Edit device button.			

3. Input group name.
4. Select continuous operation time, days of week for application and application time.

Category	Description
Continuous operation time	Press [▼] button, and set the desired continuous operation time (1 hour ~ 4 hours)
Applied day of week	Select checkbox to select day of week to run the time limit operation
Application time	Check box to select time to start time-limited operation - All Day: Runs time-limited operation for 24 hours - Set Period: Runs time-limited operation from start time to end time set by user

5. To add device, click [Edit Unit] button.
- The Edit Unit popup window appears.

Edit Unit

Registered device (16)

	Type	Name	Group
☐	IDU	AC_UNIT_10	New group 2
☐	IDU	AC_UNIT_11	New group 2
☐	IDU	AC_UNIT_12	New group 2
☐	IDU	AC_UNIT_13	New group 2
☐	IDU	AC_UNIT_14	New group 2

Unregistered device

ACPI[0]

☐ AC Smart

☐ ODU[00]

☐ ODU[03]

☐ HRV

☐ AWHHP

Cancel

Apply

6. In the selectable device list, click the checkbox of the device to register and click [◀] button.
- For time limited control, you can register all devices except DI, DO, ON/OFF, Chiller, and Exp.I/O device.
 - To register several groups at once, click the checkbox of the group to register and click [◀] button.
 - The selected devices are added to the registered device list.
7. Whelh device registration is completed, click Edit Unit popup window's [Apply] button.
8. Click [Apply] button at the top right side.

Delete Time limit control

You can delete Time limit control group.

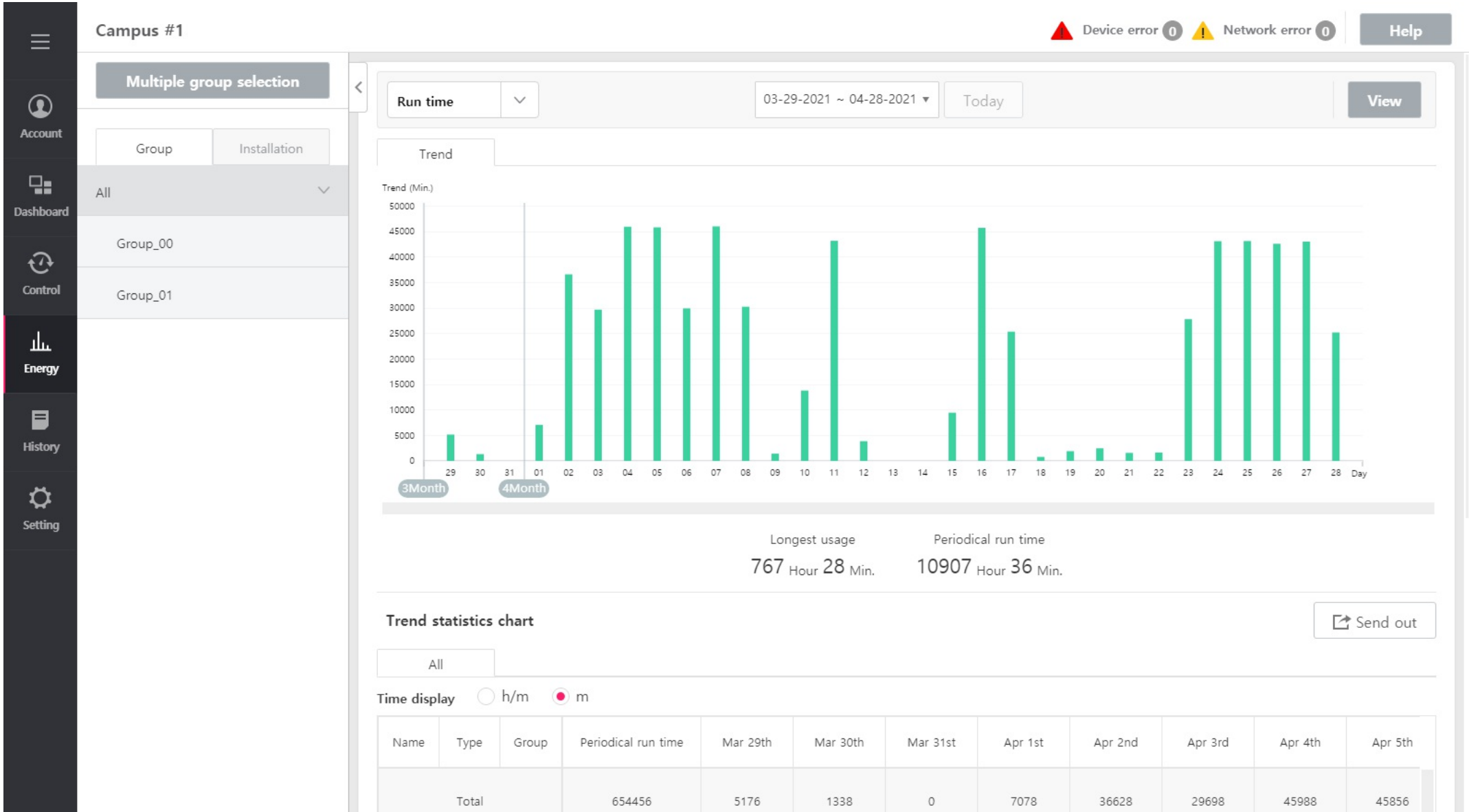
1. In the left menu tab, click [Control] > [Time limit control] menu.
- Time limit control screen is displayed.
2. In the group list, select the group to delete and click [Delete] button.

3. When Delete group popup window appears, click **[Yes]** button.

Energy Usage

It describes the method to check the device's operation time, electricity usage amount, electricity usage amount(total amount over time), gas usage amount, TOE, and CO₂ with values and graph.

1. In the left menu tab, click [Energy] > [Energy Usage] menu.
- Energy usage amount screen is displayed.



2. In the group list, select group to view.
3. In the top left side box, select the category to view.

Run time

Run time

Electricity

Electricity (total amount over time)

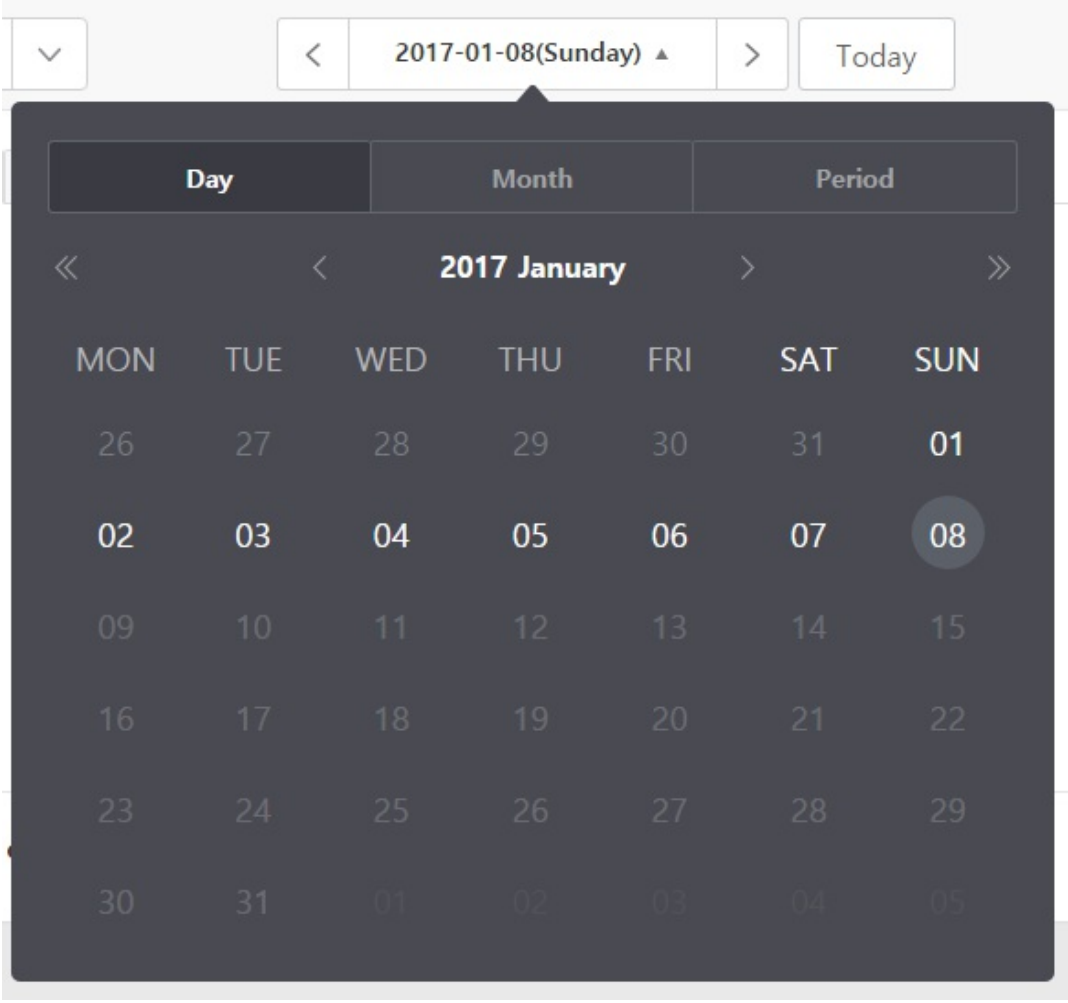
Gas

TOE

CO2

4. Set the viewing period.

Category	Description
Day	Set the desired day in mini calendar
Month	Set the desired month in mini calendar
Period	Set the desired period in mini calendar
Today	Set today's date as the base date



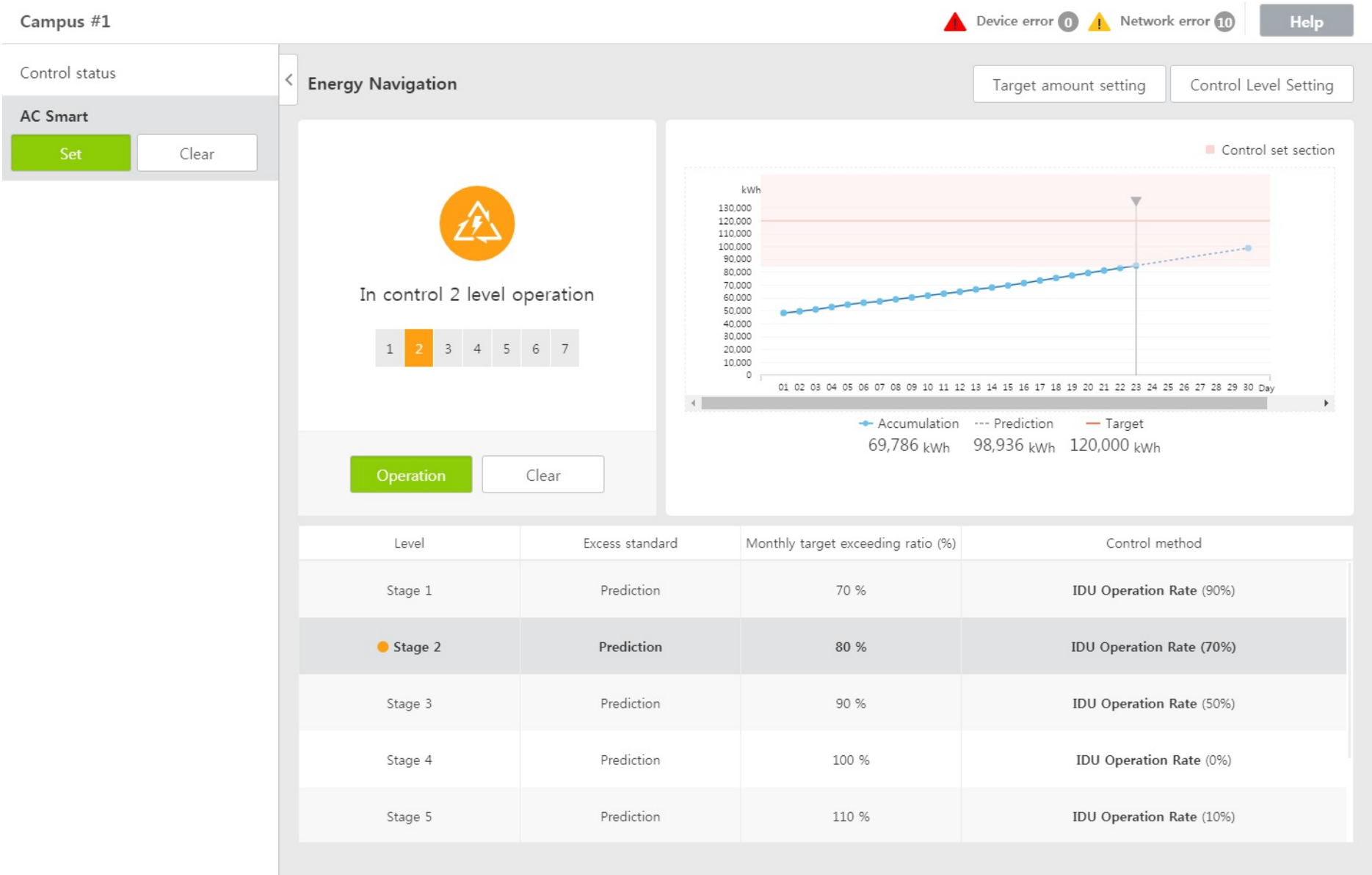
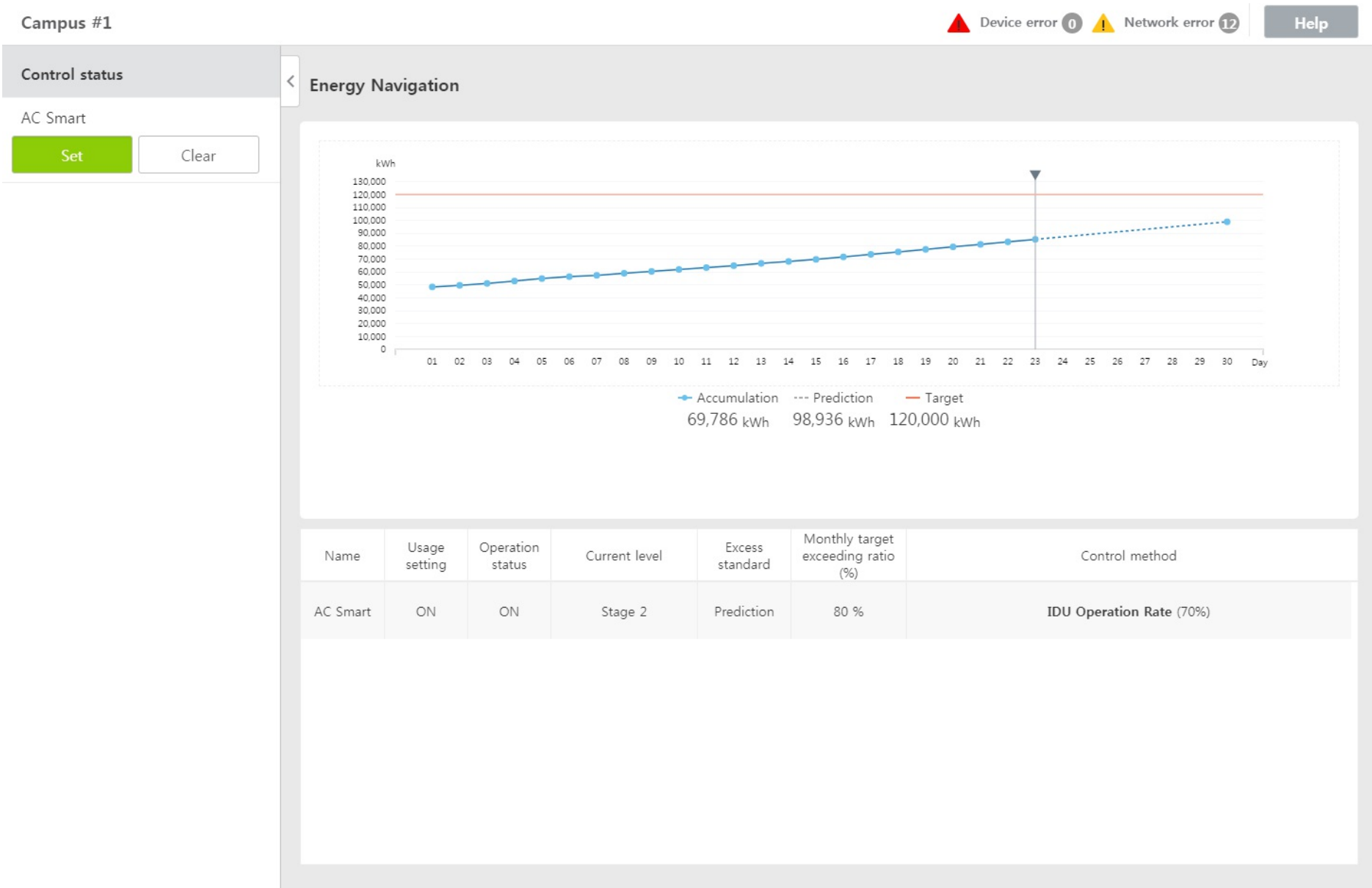
5. To view the set contents, click **[View]** button.
- Energy usage amount of the set period is displayed.
 - To save the viewed contents, click **[Send Out]** button.
- (In AC Smart 5 Device, it is stored in USB.)

Note

- Viewing power is possible only when PDI is installed.
- If PDI is installed, indoor unit, ERV DX, and Heating address shall be set to avoid overlapping.
- The power consumption amount appeared in the program may be a little different from the power consumption amount marked on actual bill.
- In [Setting]-[Installing], only ACP with [Electricity Usage Amount] set can be monitored.
- Viewing gas is possible only when GDI is installed.
- The gas amount appeared in the program may be a little different from the gas amount marked on actual bill.
- In [Setting]-[Installing], only ACP with [Gas usage amount] set can be monitored.
- Energy monitor maintains only the last 1 year's data.
- Hourly data is provided up to last 3 months.

Energy Navigation

Energy Navigation is the function that can control [ODU capacity]/[IDU Operation Rate]/[IDU] for each level according to the power usage amount forecast and current power usage amount to be able to manage the monthly power usage amount below the target amount.



Add target amount

You can add Energy Navigation's target amount.

- In the left menu tab, click [Energy] > [Energy Navigation] menu.
- In the control status tab, click the group to add target amount.
- Click [Target amount setting] button at the top right side.
 - Target amount setting window appears.

Energy target management(AC Smart)

CancelApply

Input method

Direct input

Decrease ratio compared to the previous year

Monthly target amount

Batch input

Apply

Month	Target value	Month	Target value
1Month	100000	7Month	100000
2Month	100000	8Month	100000
3Month	100000	9Month	100000
4Month	100000	10Month	100000
5Month	100000	11Month	100000
6Month	100000	12Month	100000

Total 1200000 kWh

Decrease ratio

100 %

Previous year

4. Input target amount in each month.
- To input in all months at once, input target amount in batch input field and click **[Apply]** button on the side.
5. When target amount input is completed, click **[Apply]** button at the top right side.
6. When Apply notice window appears, click **[Check]** button.

Control Level Setting

You can set control level of Energy Navigation.

1. In the left menu tab, click **[Energy]** > **[Energy Navigation]** menu.
2. In the control status tab, click the group to set the control level.
3. Click **[Control Level setting]** button at the top right side.
- Control Level Setting window appears.

Energy Navigation > Control Level Setting

CancelApply

Set control execution method

AUTO

Manual

Help

Control Level Setting

+ Add level

Level	Excess standard	Monthly target exceeding ratio (%)	Control method	Delete
1	Prediction	70 %	ODU capacity 90%	
2	Prediction	80 %	ODU capacity 70%	
3	Prediction	90 %	ODU capacity 50%	
4	Prediction	100 %	ODU capacity 0%	

4. Select control run method setting.

Category	Description
AUTO	At the time of the alarm, control method set for each level is automatically executed.
Manual	At the time of the alarm, you select whether to execute the control method set for each level.

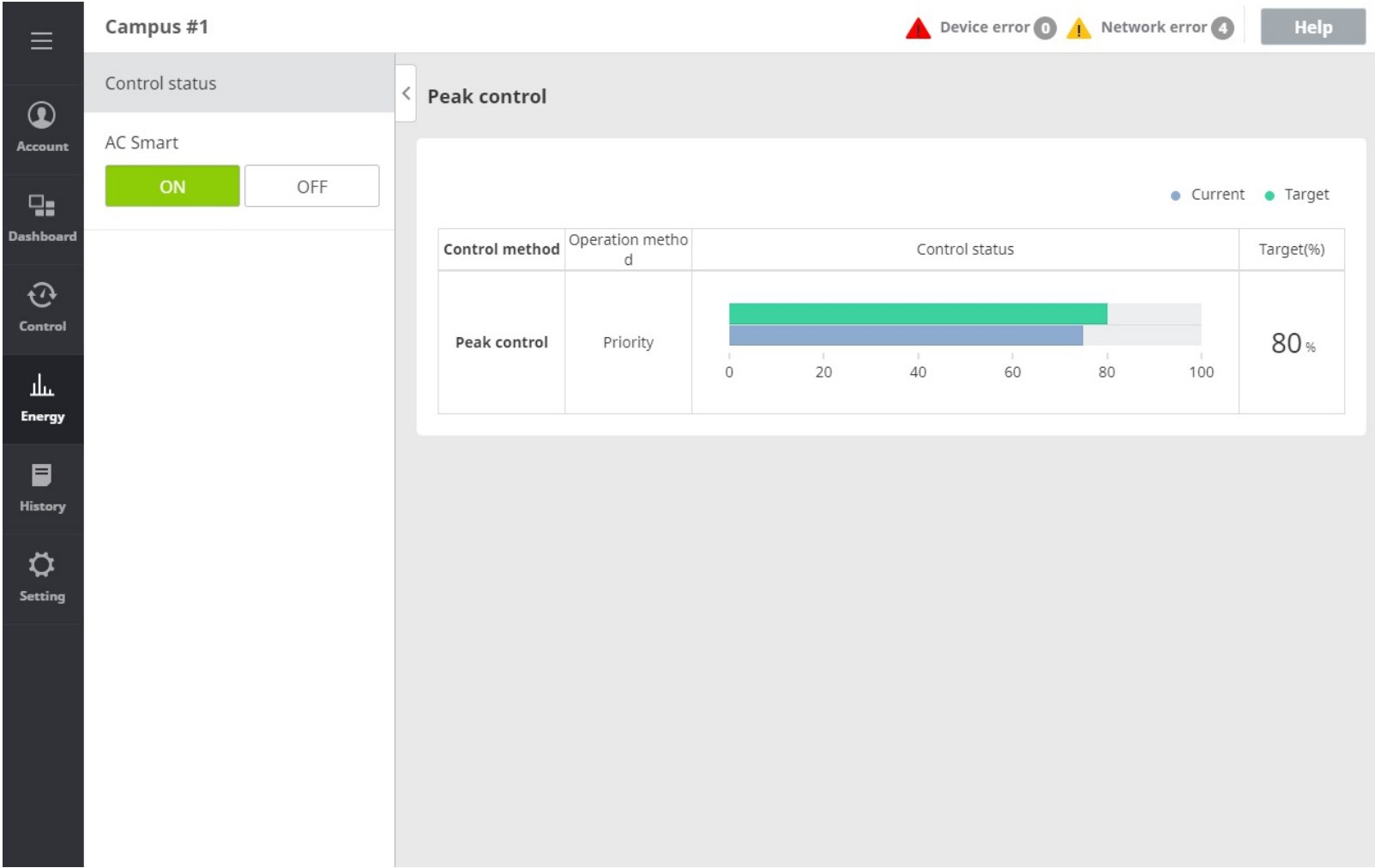
5. Click Control Level Setting window's **[+Add Level]** button.
6. Set the Control Level Setting categories.

Category	Description
Excess Standard	You can select between usage amount forecast and actual usage amount.
Monthly target excess ratio	You can set in 10% unit within 70~130%
Control method	ODU capacity: You can set in 10% unit within 0~100%. IDU operation ratio: You can set in 10% unit within 0~100%. IDU: IDU control

- 7. When setting is completed, click **[Apply]** button at the top right side.
- 8. When Apply notice window appears, click **[Check]** button.

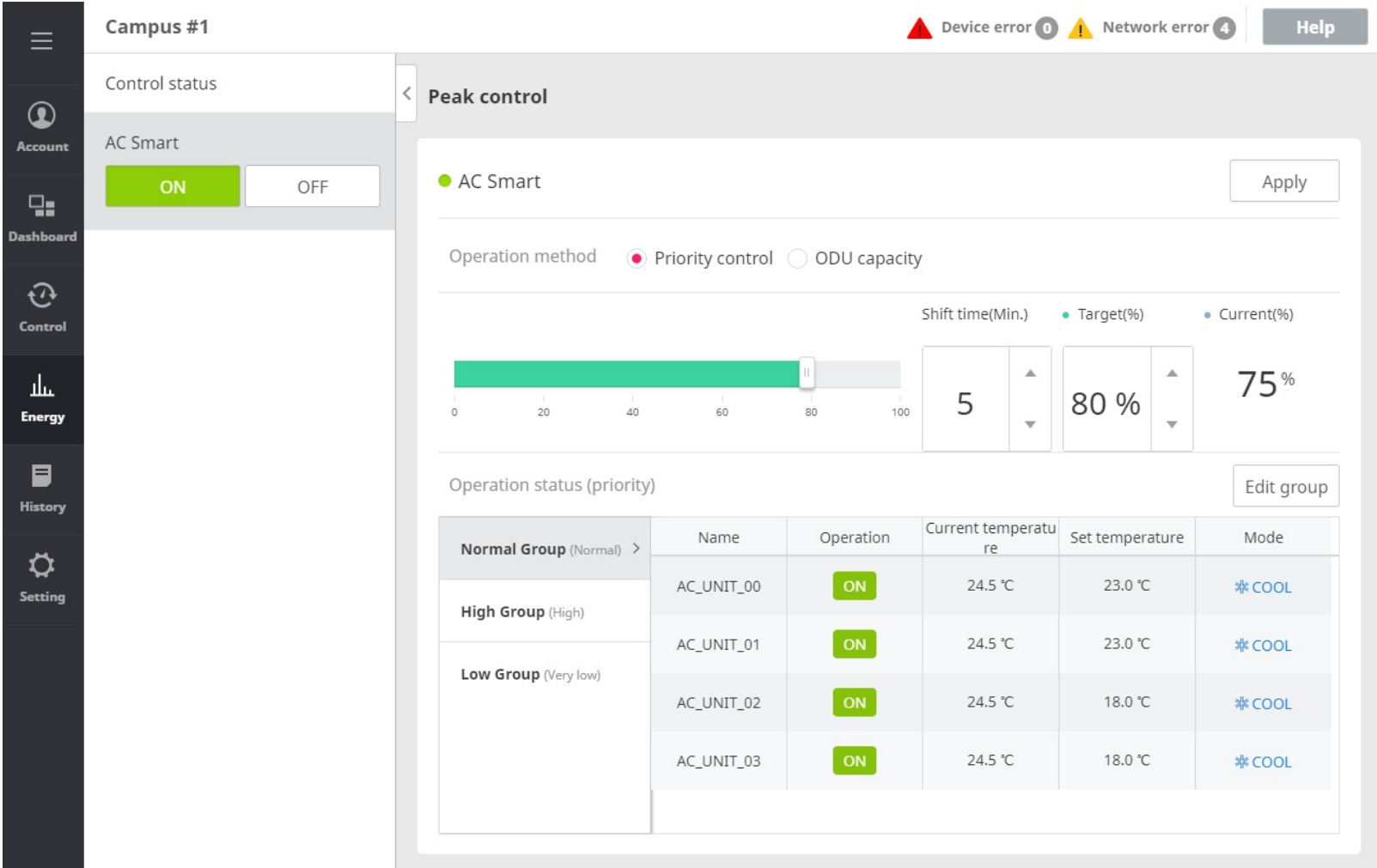
Peak control

In the control status, you can check ACP name, control method, operation method, control status, and target operation ratio.



Peak control is a function to set the target operation rate to limit the maximum power usage and to control total power usage not to exceed the target operation rate. To prevent total power usage from exceeding target operation rate, cooling mode is automatically converted to wind only mode according to the priority and heating mode automatically stops, so the power usage amount can be saved.

1. In the left menu tab, click [Energy] > [Peak control] menu.
- Peak control screen is displayed.
2. In ACP list, select ACP to control.
- The corresponding ACP's control setting status is displayed in the screen.



3. In the control information display, set the desired control status.

Category	Description
Operation Method	- Outdoor unit capacity control: Target operation ratio is applied in the units of outdoor unit to control outdoor unit capacity operation ratio - Priority control: Controls according to the priority of ACP lower level gropus
Operation ratio bar	- Indoor unit's target operation ratio is displayed as bar graph - You can drag the bar of the graph to set the target operation ratio
Current(%)	Among all of the selected ACP indoor units, it marks the % reached by the device currently in operation
Target(%)	Press [▲]/[▼] button to set the target operation ratio
Shift time(min.)	- Press [▲]/[▼] button to set the cycle of forced operation stop in min. unit - You can set to 5 ~ 15 min. range in the units of 1 min.
Operation status	It displays device name/whether operating/current temperature/set temperature/mode information

4. To apply the control setting, click [Apply] button.
- The set control status is saved.
5. To start the corresponding group with the set status, click the group list's [ON] button. To stop the corresponding group's operation, click the group list's [OFF] button.

Note

To change the control settings, stop the peak control operation first. (Stop peak control → Change and apply control settings → Operate peak control)

Add/edit peak group

You can add and edit peak control group.

1. In the left menu tab, click [Energy] > [Peak demand control] menu.
- Peak demand control screen is displayed.
2. Click [Edit Group] button.
- Edit group screen is displayed.

ODU[03] (16)

ODU[00] (16)

ODU[06] (4)

ODU[05] (16)

ODU[04] (16)

ODU[01] (16)

ODU[02] (16)

Add new group

Delete group

Load outdoor unit group

< Peak control > Edit group

Group name

ODU[03]

Priority

☒ Very low

☐ Low

☐ Normal

☐ High

☐ Very high

Registered device (16)

Edit Unit

Type	Name	Address	Group
IDU	AC_UNIT_30	30	-
IDU	AC_UNIT_31	31	-
IDU	AC_UNIT_32	32	-
IDU	AC_UNIT_33	33	-
IDU	AC_UNIT_34	34	-
IDU	AC_UNIT_35	35	-

Cancel

Apply

Category	Description
Group name	Input the name of the group to add
Priority	Select the desired priority among very low/low/normal/high/very high
[Edit Unit]	Open device edit window (add or delete device list)
Registered device	It displays the device list registered in the group
[Add New Group]	Add group for peak control
[Delete Group]	Delete the selected peak group
[Load outdoor unit group]	Applied in the units of outdoor unit registerd in ACP

3. Input the name of the corresponding group in the group name input field.
4. Select the desired priority.
- The control levels are as follows: Very Low → Low → Medium → High→ Very High
5. To register the device, click [Edit Unit] button.
- Edit Unit popup window appears.
5. In the unregistered device list, click the checkbox of the device to register and click [◀] button.
- For peak control, only indoor units can be registered.

• To register several devices at once, click the check boxes of the devices to register and click [◀] button.

• The selected devices are added to the registered device list.

Edit Unit

Registered device (13)

Unregistered device

☐	Name	Group
☐	AC_UNIT_03	New group 1
☐	AC_UNIT_04	New group 1
☐	AC_UNIT_05	New group 1
☐	AC_UNIT_06	New group 1
☐	AC_UNIT_07	New group 1

◀

▶

☐ AC Smart

▶ ☐ ODU[00]

Cancel

Apply

- 7. To apply in Edit Unit popup window, click **[Apply]** button.
- 8. To save the set contents, click Peak demand control screen's **[Apply]** button.

Energy Unit Cost

In the Energy Unit Cost menu, you can check the Priority Mode Total Control option and the electricity and gas fee states currently set.

Note

- **Energy Unit Cost** is an exclusive menu for a GHP Hybrid outdoor unit. It is not available when other outdoor units are linked.

Campus #1

Device error 0

Network error 0

Help

Energy unit cost

Energy unit cost

Cancel

Apply

Electricity fee

Gas fee

Comprehensive control at the priority operation mode

AUTO

Gas(GHP)

Electricity(EHP)

Name	Operation	Priority operation mode
ODU_00	OFF	

Electricity fee

Update date: 2020-12-09

Basic fee	Time period(Month)	Electricity fee(/kWh)											
		1	2	3	4	5	6	7	8	9	10	11	12
1000	Light load	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Medium load	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Maximum load	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Gas fee

Update date: 2020-12-09

Gas fee (/MJ, Month)													
1	2	3	4	5	6	7	8	9	10	11	12		
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		

Load

Send out

Electricity Fee

The Electricity Fee option allows you to set the monthly fee based on the load hour.

Monthly electricity fee must be determined based on the electricity fee table.

Campus #1

Device error

Network error

Help

Energy unit cost

Electricity fee

Gas fee

Electricity fee

Update date: 2020-12-09

Fee unit

/kWh

Basic fee

1000

Load type

Light load

Medium load

Maximum load

Add

Load time

Edit

Time period(Month)	1	2	3	4	5	
Light load	23:00~23:59	23:00~23:59	23:00~23:59	23:00~23:59	23:00~23:59	23
	00:00~00:59	00:00~00:59	00:00~00:59	00:00~00:59	00:00~00:59	00
	01:00~01:59	01:00~01:59	01:00~01:59	01:00~01:59	01:00~01:59	01
	02:00~02:59	02:00~02:59	02:00~02:59	02:00~02:59	02:00~02:59	02
	03:00~03:59	03:00~03:59	03:00~03:59	03:00~03:59	03:00~03:59	03
	04:00~04:59	04:00~04:59	04:00~04:59	04:00~04:59	04:00~04:59	04
	05:00~05:59	05:00~05:59	05:00~05:59	05:00~05:59	05:00~05:59	05
	06:00~06:59	06:00~06:59	06:00~06:59	06:00~06:59	06:00~06:59	06
Medium load	07:00~07:59	07:00~07:59	07:00~07:59	07:00~07:59	07:00~07:59	07
	08:00~08:59	08:00~08:59	08:00~08:59	08:00~08:59	08:00~08:59	08
	09:00~09:59	09:00~09:59	09:00~09:59	09:00~09:59	09:00~09:59	09
	12:00~12:59	12:00~12:59	12:00~12:59	12:00~12:59	12:00~12:59	12
	13:00~13:59	13:00~13:59	17:00~17:59	17:00~17:59	17:00~17:59	17
	14:00~14:59	14:00~14:59	18:00~18:59	18:00~18:59	18:00~18:59	18
	15:00~15:59	15:00~15:59	19:00~19:59	19:00~19:59	19:00~19:59	19
	16:00~16:59	16:00~16:59	20:00~20:59	20:00~20:59	20:00~20:59	20
Maximum load	20:00~20:59	20:00~20:59	21:00~21:59	21:00~21:59	21:00~21:59	21
	21:00~21:59	21:00~21:59	22:00~22:59	22:00~22:59	22:00~22:59	22
	10:00~10:59	10:00~10:59	10:00~10:59	10:00~10:59	10:00~10:59	10
	11:00~11:59	11:00~11:59	11:00~11:59	11:00~11:59	11:00~11:59	11
	17:00~17:59	17:00~17:59	13:00~13:59	13:00~13:59	13:00~13:59	13
	18:00~18:59	18:00~18:59	14:00~14:59	14:00~14:59	14:00~14:59	14
	19:00~19:59	19:00~19:59	15:00~15:59	15:00~15:59	15:00~15:59	15
	22:00~22:59	22:00~22:59	16:00~16:59	16:00~16:59	16:00~16:59	16

Monthly fee

Time period(Month)	1	2	3	4	5	
Light load	1.00	1.00	1.00	1.00	1.00	1.0
Medium load	1.00	1.00	1.00	1.00	1.00	1.0
Maximum load	1.00	1.00	1.00	1.00	1.00	1.0

1. You can edit the basic fee.
2. You can add or edit the load type.

3. You can edit the monthly fee.

Edit Load Hour

You can edit the load hour based on the month and load type.

Load time Edit

Time Select

☐ All (10)

☐ 23:00~23:59

☐ 00:00~00:59

☐ 01:00~01:59

☐ 02:00~02:59

Month Select

1

▼

Select load

Light Load

▼

☐ All

▼

◀

▶

Cancel

Apply

Category	Description
Select Month	Select a month to edit the load hours.
Select Load	Select a load type for the selected month.
Select Hour	Select hours to be applied to the selected month and load.

1. Select a month to edit the load hours.

2. Select a load type for the selected month.

3. Select hours to be applied to the selected month and load, click a checkbox, and press the > button.

Note

- If all the hours are not applied, the Apply button is not activated.
- For Monthly Fee, you can enter up to six digits, but the value cannot exceed 655.35.
- The update date is applied when you apply the Edit Electricity Fee option.

Gas Fee

The Gas Fee option allows you to set the monthly fee based on the load hour.

Monthly gas fee must be determined based on the gas fee table.

Campus #1

Energy unit cost

Electricity fee

Gas fee

Gas fee

Update date: 2020-12-09

Fee unit

/MJ

▼

Monthly fee

1	2	3	4	5	6
1.00	1.00	1.00	1.00	1.00	1.00

Note

- For Monthly Fee, you can enter up to six digits, but the value cannot exceed 65.535.
- The update date is applied when you apply the Edit Gas Fee option

Operation History

You can view user/automatic control's operation history and the connected device's status change or error status.

1. In the left menu tab, click **[History]** > **[Operation History]** menu.

- Operation history screen is displayed

Account

Dashboard

Control

Energy

History

Setting

Campus #1

Device error0

Network error21

Help

Operation history

<

2018-02-01(Thursday)

>

Today

Filter :

All history

No.	Occurred time	Name	Address	Device type	Main agent	History type	Detail contents	Group
1	2018-02-01 11:53	Campus #1	-	-	admin	Setting	System setting	-
2	2018-02-01 10:11	AC_UNIT_00	00	IDU	Schedule	Control	Mode: AUTO	New group 1
3	2018-02-01 10:11	AC_UNIT_03	03	IDU	Schedule	Control	Mode: AUTO	New group 1
4	2018-02-01 10:11	AC_UNIT_04	04	IDU	Schedule	Control	Mode: AUTO	New group 1
5	2018-02-01 10:11	AC_UNIT_05	05	IDU	Schedule	Control	Mode: AUTO	New group 1
6	2018-02-01 10:11	AC_UNIT_06	06	IDU	Schedule	Control	Operation: ON	New group 1

2. Set the period to view.

Category	Description
Viewing period	• Day: Views the history of the selected date • Today: Views today's history

3. In filter category, select device or history type.

- You can click the checkbox to select multiple information.
- You can initialize the selected contents through **[Initialization]** button.

4. When device and history type selection is completed, click **[Apply]** button.

- The operation history of the set period is displayed.

Operating unit details displayed	Operation details (central controller)	Operating unit details displayed	Operation details (Others than central controller)
ACS	Monitoring the result of the command sent by the central controller.	Remote control	History of control by units other than central controller (e.g. remote control/Drycontact/indoor and outdoor units’ automated logic)
Admin	User control details of central controller	BMS	Control by BACnet
Slave controller	Control by slave central controller	Lonworks	Control by LonWorks
ACM	Control by AC Manager	TMS EMS engine control	Control by EMS engine of TMS
Schedule	Control by central controller’s schedule	TMS energy saving control	Control by energy saving function of TMS
AutoChangeOver(Occupied)	Control by automatic switch operation of central controller	TMS Mobile	Control by TMS mobile user
Setback(UnOccupied)	Control by temperature limit operation of central controller	TMS Web	Control by TMS web user
Peak control	Control by peak control operation of central controller	KEPCO	Control by Korea Electric Power Corporation
Peak clear	Control by peak removal command of central controller		
Time limit control	Control by operation time limit command of central controller		
InterLocking	Control by device interlock command of central controller		

InterLocking	Control by device interlock copying pattern of central controller		
Emergency situation	Control by DI1 port's short-circuit signal of the central controller		
Energy Navigation	Control by energy navigation operation control of central controller		
Override	Control by 2-set override function of indoor unit of central controller		

Send out information

1. In the left menu tab, click [History] > [Operation History] menu.

- Operation history screen is displayed

Account

Dashboard

Control

Energy

History

Setting

Campus #1

Device error 0Network error 21Help

Operation history

<2018-02-01(Thursday)>Today

Filter : All history

No.	Occurred time	Name	Address	Device type	Main agent	History type	Detail contents	Group
1	2018-02-01 11:53	Campus #1	-	-	admin	Setting	System setting	-
2	2018-02-01 10:11	AC_UNIT_00	00	IDU	Schedule	Control	Mode: AUTO	New group 1
3	2018-02-01 10:11	AC_UNIT_03	03	IDU	Schedule	Control	Mode: AUTO	New group 1
4	2018-02-01 10:11	AC_UNIT_04	04	IDU	Schedule	Control	Mode: AUTO	New group 1
5	2018-02-01 10:11	AC_UNIT_05	05	IDU	Schedule	Control	Mode: AUTO	New group 1
6	2018-02-01 10:11	AC_UNIT_06	06	IDU	Schedule	Control	Operation: ON	New group 1

2. Set the period to view.

Category	Description
Viewing period	• Day: Views the history of the selected date • Today: Views today's history

3. Click [Send Out] button.

- Excel File, Max 20000 EA
- In AC Smart 5 Device, it is stored in USB.

Energy Navigation History

You can view history of Energy Navigation alarm and control operation.

1. In the left menu tab, click **[History]** > **[Energy Navigation History]** menu.
- Energy navigation screen is displayed.

Energy navigation history

Number of events : 53

2016-12-16 ~ 2017-01-16 ▾

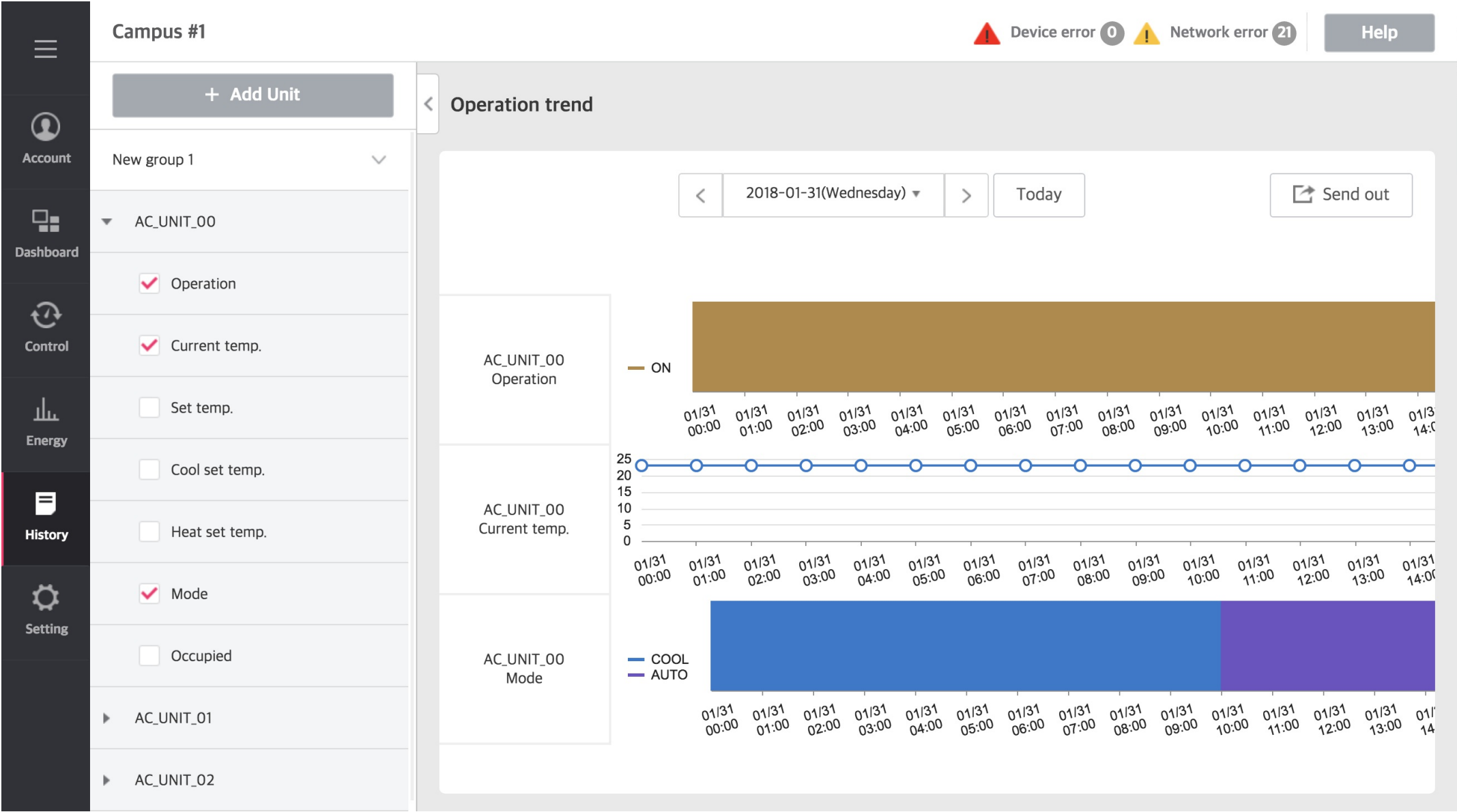
View

No.	Occurred time	Exceeding standard	Energy warning contents	Execution control option
1	2017-01-16 15:17:26	Prediction	Exceeded monthly target 70% amount	AUTO, ODU capacity, 90%
2	2017-01-16 15:17:21	Prediction	Exceeded monthly target 70% amount	AUTO, ODU capacity, Pause
3	2017-01-16 10:17:46	Prediction	Exceeded monthly target 70% amount	AUTO, ODU capacity, 90%
4	2017-01-16 10:00:39	Prediction	Exceeded monthly target 130% amount	AUTO, ODU capacity, 0%
5	2017-01-12 17:39:27	Prediction	Exceeded monthly target 70% amount	AUTO, ODU capacity, 90%
6	2017-01-11 04:07:15	Prediction	Exceeded monthly target 80% amount	AUTO, ODU capacity, 70%
7	2017-01-11 00:37:15	Prediction	Exceeded monthly target 90% amount	AUTO, ODU capacity, 50%
8	2017-01-10 09:37:13	Prediction	Exceeded monthly target 80% amount	AUTO, ODU capacity, 70%
9	2017-01-10 00:22:12	Prediction	Exceeded monthly target 90% amount	AUTO, ODU capacity, 50%
10	2017-01-09 15:12:11	Prediction	Exceeded monthly target 80% amount	AUTO, ODU capacity, 70%

2. Select device to view the history.
3. Set the start date and end date of the period to view history.
4. To view the set contents, click **[View]** button.
- Energy Navigation history of the set period is displayed.

Operation Trend

Operation trend function is the function to provide the past status change of the selected device to help establishing reasonable site operation plan.



Add Device

You can add unit to view operation trend.

- In the left menu tab, click **[History] > [Operation Trend]** menu.
 - Operation trend screen is displayed.
- Click **[+ Add Unit]** button.
 - Add device screen is displayed.
- In the unregistered device list, click the checkbox of the device to register and click **[◀]** button.
 - To register several devices at once, click the check boxes of the devices to register and click **[◀]** button.
 - The selected devices are added to the registered device list.
- To apply in Edit Unit popup window, click **[Apply]** button.

View Information

You can view the selected device's operation trend information.

- In the left menu tab, click **[History] > [Operation Trend]** menu.
 - Operation trend screen is displayed.
- In the device list tab section, select the category of the device to view.
- Select the period to view operation trend.

<2017-01-01 ~ 2017-01-08▲>

Today

Day

Period

Start day

End day

«<2017 January>»

«<2017 January>»

MONTUEWEDTHUFRISSATSUN

MONTUEWEDTHUFRISSATSUN

26272829303101

26272829303101

02030405060708

02030405060708

09101112131415

09101112131415

16171819202122

16171819202122

23242526272829

23242526272829

30310102030405

30310102030405

Category	Description
Period	[Day] button: Select the desired date in mini calendar and set as the base date [Period] button: Set the start date and end date of the period to view • The maximum period to view is 1 week. [Today] button: Set today's date as the base date

Send out information

You can send out the viewed device's operation trend information.

1. In the left menu tab, click [History] > [Operation Trend] menu.
- Operation trend screen is displayed.
2. In the left side category, select the category to send out and click [Send Out] button at the top right side.
- (In AC Smart 5 Device, it is stored in USB.)

Note

Each device stores the following information.

- Indoor unit : operation, current temperature, set temperature, cooling set temperature, heating set temperature, operation mode, occupancy, PM10, PM2.5, PM1.0

• ERV: operation, mode, current temperature (only for ERV DX), set temperature (only for ERV DX)

• AHU: operation, mode, set temperature, air supply temperature, air supply humidity, ventilation temperature, ventilation humidity

• Heating: Operation, Water inlet temperature, Water outlet temperature, Hot water temperature, Set temperature, Hot water set temp., Mode, Hot water operation

• Chiller: Operation, Water inlet temperature, Water outlet temperature, Mode

• DOKIT: Operation

• DI: Operation

• DO: Operation

• Exp.I/O's Port : value

• Air purifier : Operation, Odor, PM 10, PM 2.5, PM 1.0

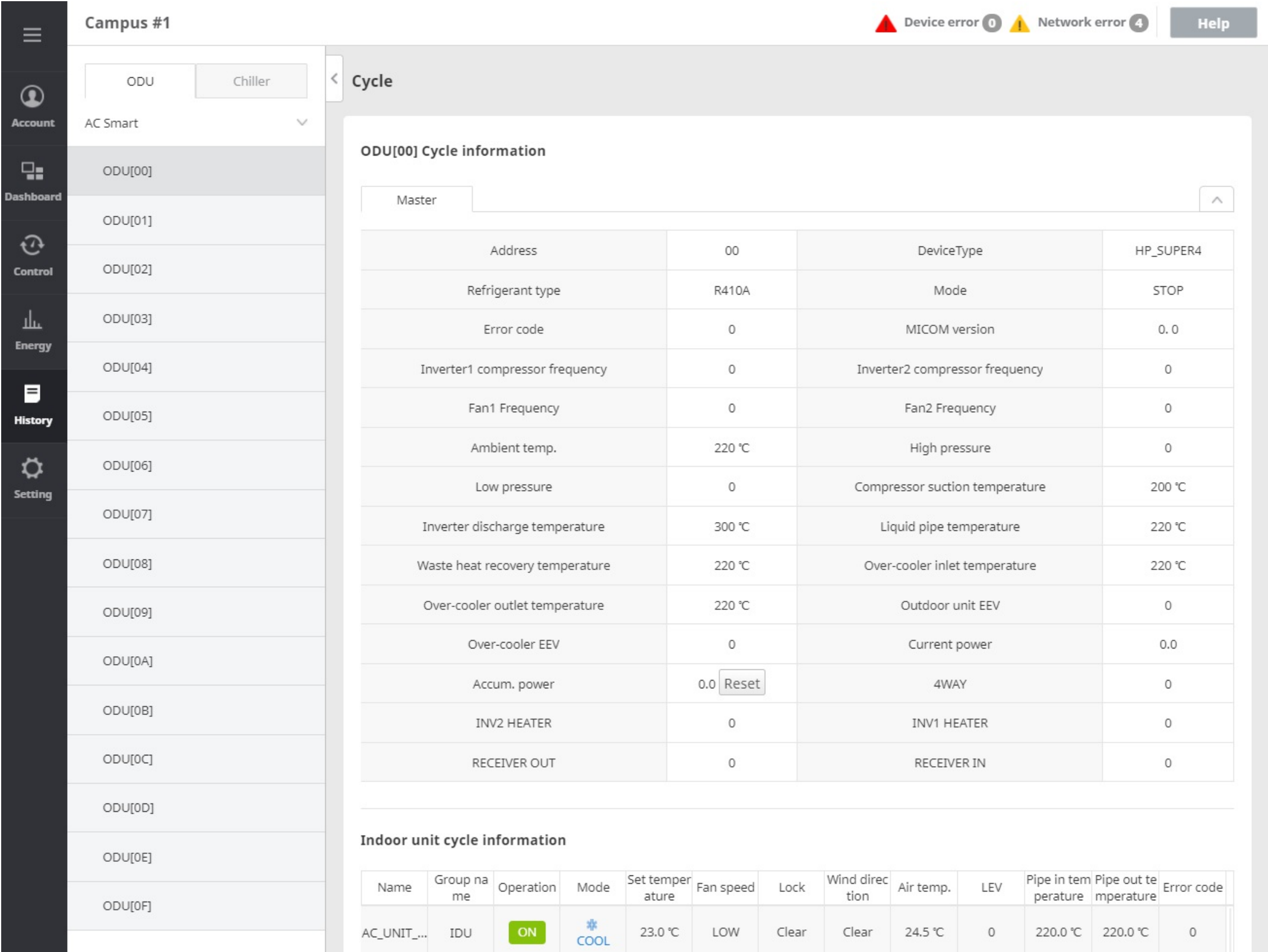
Cycle

You can view indoor/outdoor unit and chiller's cycle information.

Outdoor Unit

It provides the selected outdoor unit's cycle information data.

1. In the left menu tab, click [History] > [Cycle] menu.
- Cycle screen is displayed.



Category	Description
Outdoor unit cycle information	Master/slave outdoor unit information display
Indoor unit cycle information	Displays all indoor unit information connected to the outdoor unit

2. In the outdoor unit list, select the outdoor unit to check cycle information.
- The corresponding outdoor unit's cycle information is displayed.

Note

You can view only when the outdoor unit providing cycle information is installed.

Chiller

It provides the selected chiller's cycle information data.

1. In the left menu tab, click [History] > [Cycle] menu.
- Cycle screen is displayed.
2. In the chiller list, select the chiller to check cycle information.
- The corresponding chiller's cycle information is displayed.

SCROLL AIR Cycle information

Cycle 4



Operation	OFF	Heating set temperature	0.0 °C
Outside air temperature	0.0 °C	Chilled water leaving temp.	0.0 °C
Operation current	0 A	Chilled water entering temp.	0.0 °C
Start standby time	0 Sec	Chilled water flux switch	OFF
Mode	❄️ COOL	Chilled water pump output status	OFF
Demand limit ratio	0 %	Chilled water pump interface status	OFF
Cool set temperature	0.0 °C	Total Run time	0 Hours

Device setting

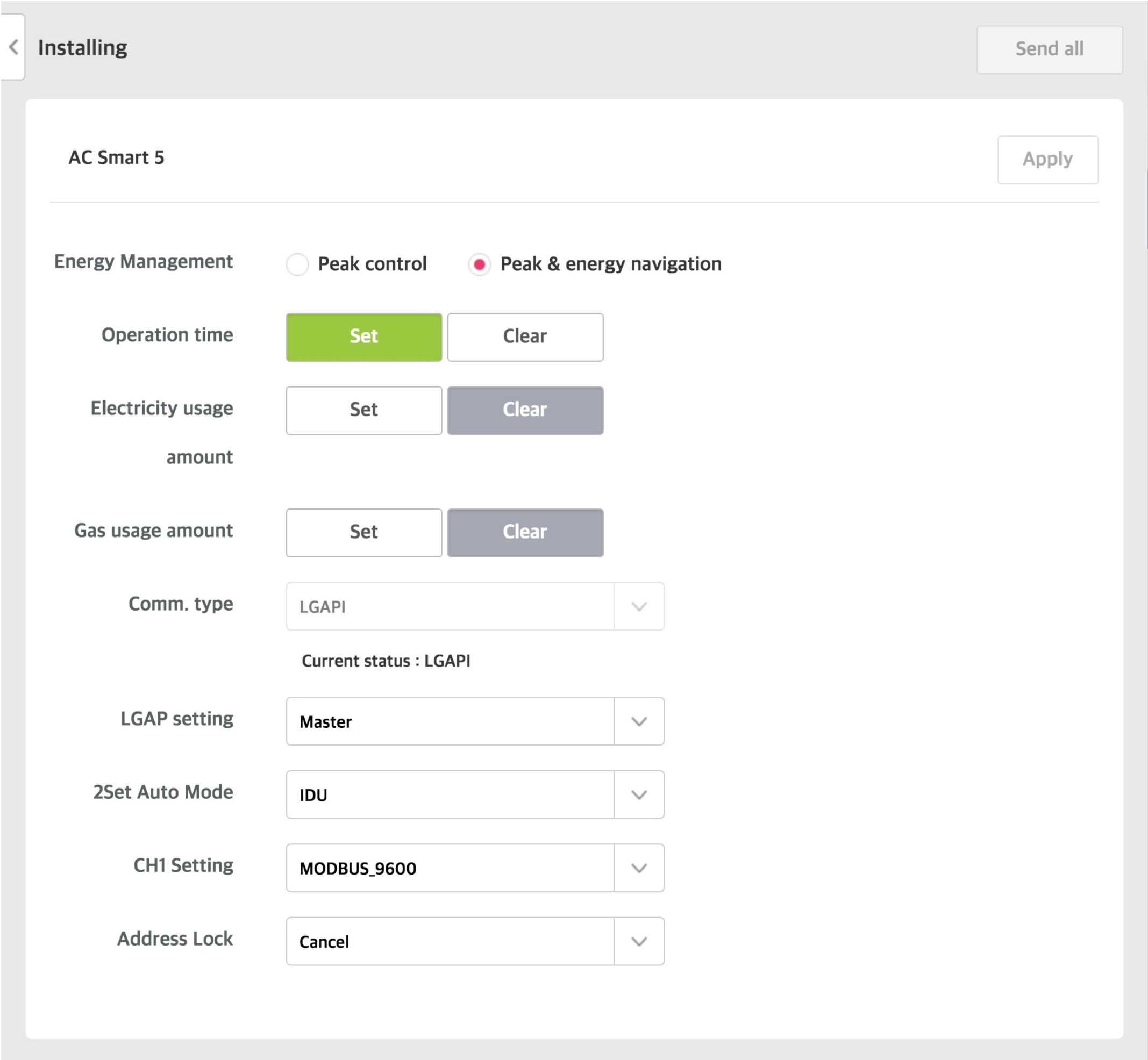
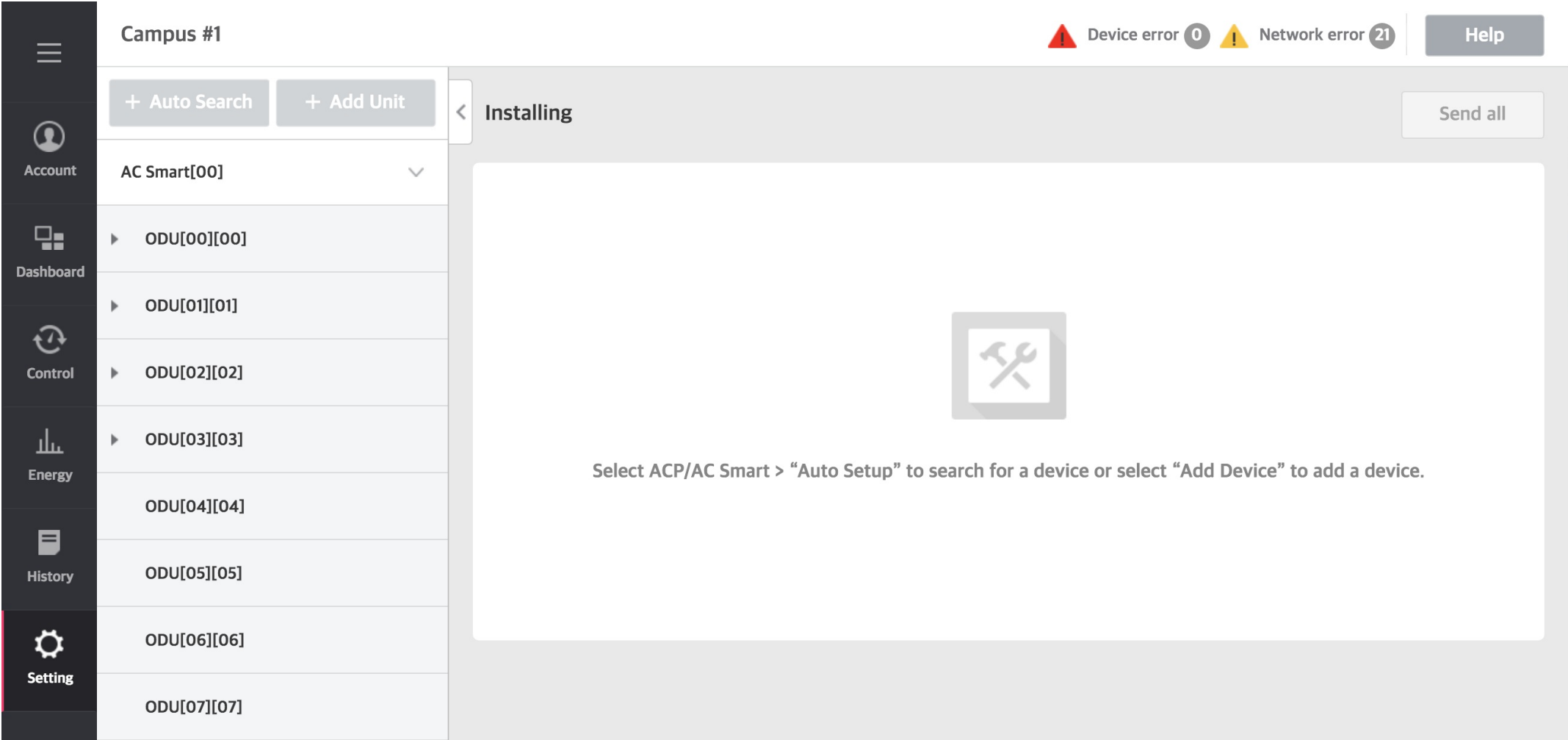
You can change AC Smart setting, add device, and change registered device's setting.

AC Smart 5 edit

You can change AC Smart setting.

1. In the left menu tab, click [Setting] > [Installing] menu.
- Device setting screen is displayed.
2. In device list, select AC Smart.
- AC Smart edit screen is displayed.

In device edit area, you can change AC Smart setting information.



Category	Description
----------	-------------

Energy Management	Select among peak control / peak control and energy navigation
Operation Time	Operation time collection and view Set/Clear
Electricity usage amount	Electricity usage amount collection and view Set/Clear
Gas usage amount	Gas usage amount collection and view Set/Clear
Communication method	LGAPI / LGAPII setting
LGAP setting	Communication Master / Slave setting
2Set automatic mode	Press [▼] button to select main agent of 2Set automatic mode Central controller / indoor unit
CH1 setting	Press [▼] button to select communication type of the device to connect to CH1 port - LGAP: for indoor unit, ERV, ERV DX, and Heating connection - LGAP_AHU: for AHU (general, all fresh air, waste heat recovery) connection - MODBUS_9600, MODBUS_19200: for AHU (modular air conditioner, modular all fresh air, DOAS), Exp.I/O, and chiller connection
Address lock	When it is set, you cannot change address in indoor unit and ERV remote controller

Note

- Some models do not support LGAPII.
- When the controller is set as slave, register the IDU or other devices to be controlled by the corresponding controller. At this time, it should not be registered in duplicate with other slave controllers.

- When input is completed, click [Apply] button.
- Click [Send All] button.

Automatic setting

You can automatically search device connected to AC Smart and register.

- In the left menu tab, click [Setting] > [Installing] menu.
 - Device setting screen is displayed.
- In device list, select AC Smart, and click [Auto Search] button.
- To overwrite AC Smart device setting on the existing setting, click [Check] button.
 - AC Smart device setting status is applied.
- When automatic setting is finished, before device edit, click [Send All] button.

Note

- Automatic setting takes about 10 min.
- Some AHU (modular air conditioner, modular all fresh air, DOAS), chiller, and Exp.I/O do not support automatic setting function.
- Exp.I/O is activated when you check 'use' in device edit window after device registration.

Add Device

You can additionally register new device to the device list.

- In the left menu tab, click [Setting] > [Installing] menu.
 - Device setting screen is displayed.
- Click [+ Add Unit] button.
 - Add device screen is displayed.

CancelApply

Select device type to add to ACP

☒ ODU

☐ HRV

☐ AWHP

☐ AHU

☐ Chiller

☐ DOKIT

☐ DI

☐ DO

☐ EXP. I/O

☐ Air purifier

ACP name

ACP

Address

Name

Model

ODU

Capacity

3

Activate device

☐ Set

☒ Clear

control(Icon)

☐ Add all

EA

3. In the device list, select upper level group to add device.
- When you select AC Smart in device list, you can add outdoor unit, ERV, Heating, AHU, Chiller, ON/OFF device, DI, DO, and Exp.I/O.

In the device list, when outdoor unit is selected, you can add only indoor units.
4. In Add device section, input the setting information of the device to add.
- According to the selected device, the setting category according to the corresponding device is displayed differently. For the setting information of each device, refer to the next page.
5. To save the set contents, click **[Apply]** button.
6. To complete adding device, click **[Send All]** button.

Note

- AC Smart 5 Slave does not support the air purifier and ODU control/monitoring.

Device edit

In device list, you can edit registered device.

1. In the left menu tab, click **[Setting] > [Installing]** menu.
- Device setting screen is displayed.
2. In device list, select device to edit.
3. Device setting screen is displayed.
4. Edit device setting information.
- According to the selected device, the setting category according to the corresponding device is displayed differently. For the setting information of each device, refer to the next page.
5. To save the set contents, click **[Apply]** button.
6. To complete device edit, click **[Send All]** button.

Delete Device

In the device list, you can delete registered device.

1. In the left menu tab, click **[Setting] > [Installing]** menu.
- Device setting screen is displayed.
2. In device list, select device to delete, and click **[Delete]** button.
3. When device delete popup window appears, click **[Yes]** button.
- In device list, selected item is deleted.
4. To complete device deleting, click **[Send All]** button.

Setting information of each device

Setting information of each device is as follows.

- ➔ Outdoor Unit
- ➔ IDU
- ➔ ERV
- ➔ Heating
- ➔ AHU
- ➔ Chiller
- ➔ DOKIT
- ➔ DI/DO
- ➔ Exp.I/O
- ➔ Exp.I/O's lower level setting
- ➔ Air purifier

Outdoor Unit

CancelApply

Select device type to add to AC Smart

☒ ODU

☐ HRV

☐ AWHP

☐ AHU

☐ Chiller

☐ DOKIT

☐ DI

☐ DO

☐ EXP. I/O

ACP name

AC Smart

Address

Name

Model

ODU

Capacity

3

☐ Add all

EA

Category	Description
ACP name	The corresponding device's upper level ACP name
Address	Device address
Name	Device name to be displayed in the system For batch add, it is displayed as “Name_device address” form
Model	Product model name
Capacity	Product capacity
Activate device control(Icon)	Set whether to activate ODU device icon ODU device is displayed in Group setting, Device control, Device error and Operation history only when ODU activate device control(Icon) is set.
Add All	When checkboxes are selected, all selected devices are added

IDU

CancelApply

Select device type to add to ODU[00]

IDU

ACP name

AC Smart

ODU name

ODU[00]

Address

Name

Model

IDU

Type

FCU

▼

Capacity

3

☐ Add all

EA

Category	Description
ACP name	The corresponding device's upper level ACP name
ODU name	Name of the outdoor unit connected to the corresponding device
Address	Device address
Name	Device name to be displayed in the system For batch add, it is displayed as “Name_device address” form
Model	Product model name
Type	Indoor unit type selection
Capacity	Product capacity
Add All	When checkboxes are selected, all selected devices are added

ERV

CancelApply

Select device type to add to AC Smart

☐ ODU

☐ Chiller

☐ EXP. I/O

☒ ERV

☐ DOKIT

☐ Air purifier

☐ Heating

☐ DI

☐ AHU

☐ DO

ACP name

AC Smart

Type

 ERV

▼

Address

Name

Model

VENT

Capacity

3

☐ Add all

EA

Category	Description
ACP name	The corresponding device's upper level ACP name
Type	ERV type selection
Address	Device address
Name	Device name to be displayed in the system For batch add, it is displayed as “Name_device address” form
Model	Product model name
Capacity	Product capacity
Add All	When checkboxes are selected, all selected devices are added

Heating

CancelApply

Select device type to add to AC Smart

☐ ODU☐ ERV☒ Heating☐ AHU☐ Chiller

☐ DOKIT☐ DI☐ DO☐ EXP. I/O☐ Air purifier

ACP nameAC Smart

Address

Name

ModelAWHP

Capacity3

Control method

☒ Hot water control☐ Water in/out control☐ All

Current Temp 1

☒ Water out☐ Water in☐ Air☐ Hot water☐ Do not use

Current Temp 2

☐ Water out☒ Water in☐ Air☐ Hot water☐ Do not use

Current Temp 3

☐ Water out☐ Water in☐ Air☐ Hot water☒ Do not use

Set temperature

☒ Water in/out☐ Air

☐ Add all

EA

Category	Description
ACP name	The corresponding device's upper level ACP name
Address	Device address
Name	Device name to be displayed in the system For batch add, it is displayed as “Name_device address” form
Model	Product model name
Capacity	Product capacity
Control method	Select control method
Current Temp 1	Type of the current temperature to be displayed first
Current Temp 2	Type of the current temperature to be displayed second
Current Temp 3	Type of the current temperature to be displayed third
Set temperature	Type of the set temperature to control
Add All	When checkboxes are selected, all selected devices are added

AHU

CancelApply

Select device type to add to AC Smart

☐ ODU

☐ Chiller

☐ EXP. I/O

☐ ERV

☐ DOKIT

☐ Air purifier

☐ Heating

☐ DI

☒ AHU

☐ DO

ACP name

AC Smart

Address

Name

Model

AHU

AHU Type

☒ Normal

☐ All outside air device

☐ Multi-fan general

☐ Multi-fan all outside air unit

☐ DOAS(AR-DE)

☐ DOAS(AR-DR)

☐ DOAS(AR-ND)

☐ Comm.Kit(SA)

Additional function

☒ None

☐ Automatic ventilation

☐ Humidify

☐ Automatic ventilation, humidification

Room Temp

☐ Air supply standard

☒ Ventilation standard

☐ Add all

EA

Category	Description
ACP name	The corresponding device's upper level ACP name
Address	Device address
Name	Device name to be displayed in the system For batch add, it is displayed as “Name_device address” form
Model	Product model name
AHU type	Select AHU type
Additional function	Select function to add
Room Temp	Between air supply or ventilation, selecte the desired indoor temperature setting standard
Add All	When checkboxes are selected, all selected devices are added

Set Multi-V Interlocking Energy Saving Control

AHU Type

☐ Normal

☐ All outside air device

☐ Multi-fan general

☐ Multi-fan all outside air unit

☐ DOAS(AR-DE)

☐ DOAS(AR-DR)

☐ DOAS(AR-ND)

☐ Comm.Kit(SA)

☒ SPLIT DOAS(ARND/DB)

☐ SPLIT DOAS(ARND/DC)

Room Temp

☒ Air supply standard

☐ Ventilation standard

Multi-V Interlocking

☒ Set

☐ Clear

Energy Saving

Energy saving step

3 Level

▼

Select device

Edit Unit

Type	Name	Address	Group
ODU	ODU_00	00	-
ODU	ODU_01	01	-

☐ Add all

EA

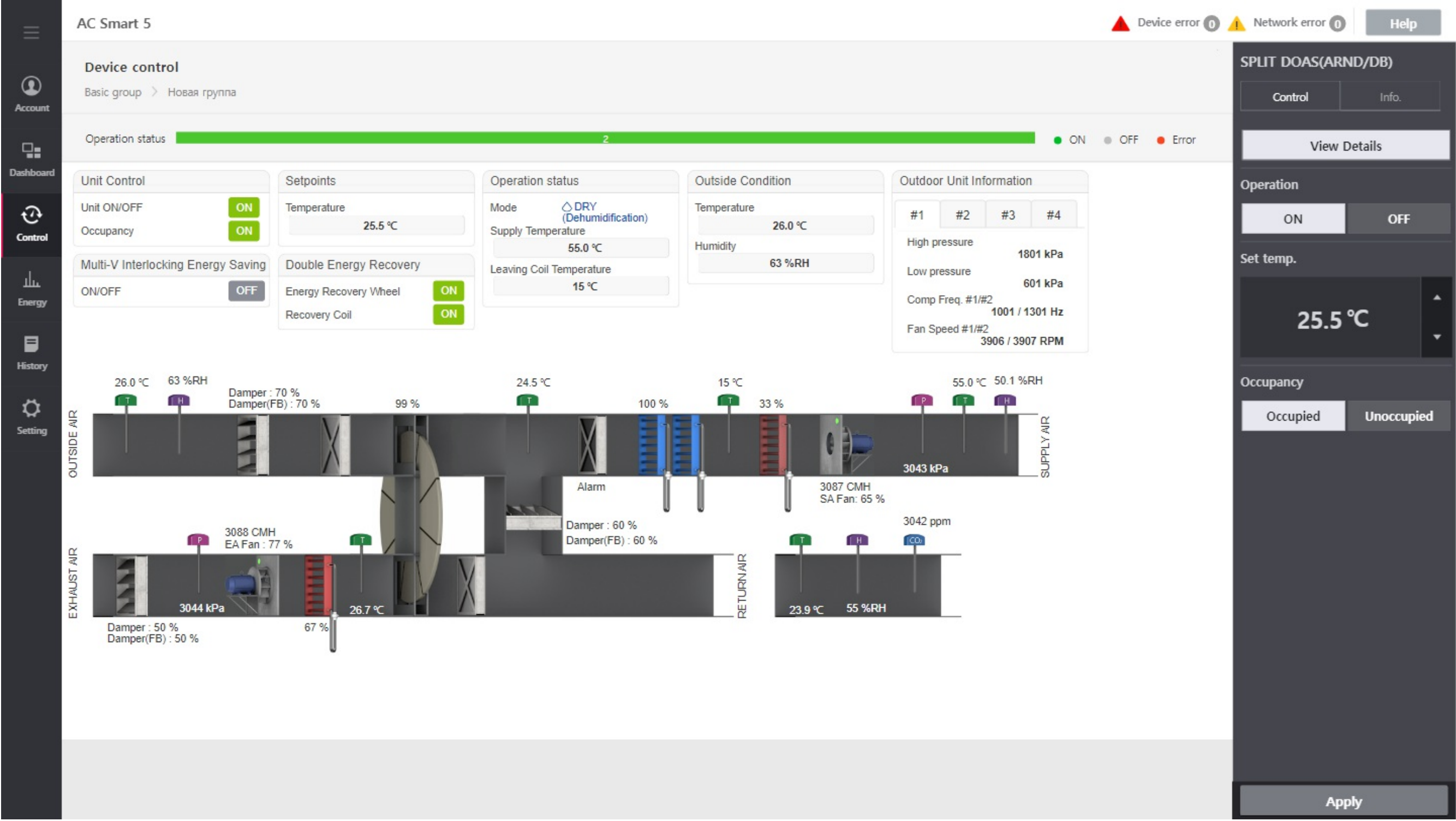
Category	Description
Set Multi-V Interlocking Energy Saving Control	Activate/Deactivate Multi-V Interlocking Energy Saving Control Setting Multi-V Interlocking Energy Saving Control activates the energy saving step and device selection options.
Energy saving step	Select energy saving steps among steps 1~3
Select a device	Select an outdoor device to which to apply Multi-V Interlocking Energy Saving Control

Note

- Only SPLIT DOAS(ARND/DB) is available for Multi-V Interlocking Energy Saving Control.
- When Multi-V Interlocking Energy Saving Control is in operation, the main coil, reheat coil, and energy recovery wheel may turn off and on automatically.

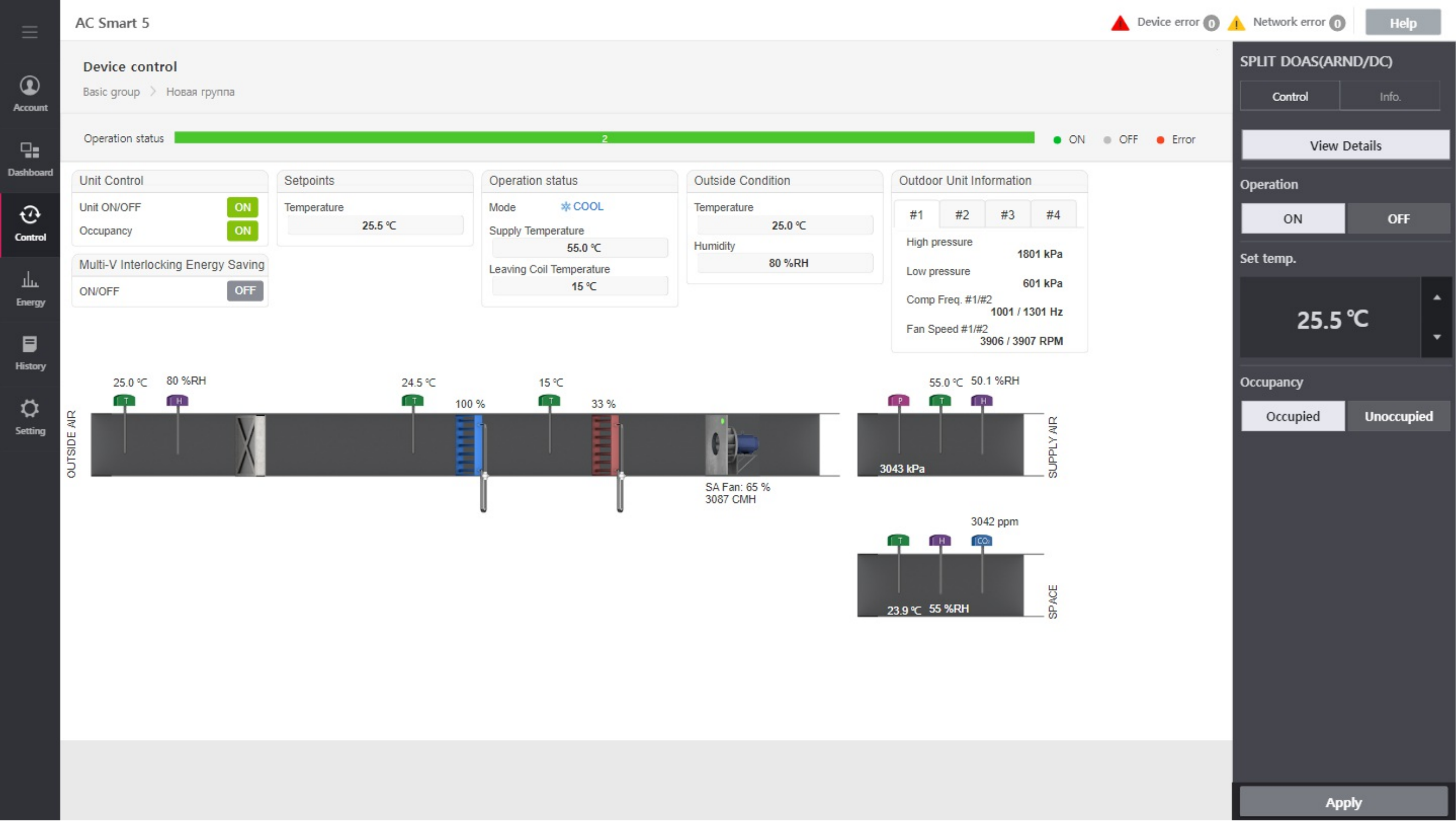
➔ Multi-V Interlocking Energy Saving Control

SPLIT DOAS(ARND/DB)



Item	Description
View details	Click the [View Details] button to view detailed information (Not available on mobile)
Operating status	[Start Operation] button: Starts device operation [Stop Operation] button: Stops device operation
Target temperature	Press the [▲]/[▼] button to set target temperature
Occupied	Function to set the space managed by DOAS as occupied or vacant [Occupied] button: Set to Occupied [Vacant] button: Set to Vacant

SPLIT DOAS(ARND/DC)



Item	Description
View details	Click the [View Details] button to view detailed information (Not available on mobile)
Operating status	[Start Operation] button: Starts device operation [Stop Operation] button: Stops device operation
Target temperature	Press the [▲]/[▼] button to set target temperature
Occupied	Function to set the space managed by DOAS as occupied or vacant [Occupied] button: Set to Occupied [Vacant] button: Set to Vacant

Multi-V Interlocking Energy Saving Control

This is a function to control DOAS and Multi-V operation modes based on the operation status of Multi-V and indoor and outdoor air temperature/humidity in order to save the system’s energy.

Energy saving operation can be run only under agreeable indoor conditions (for cooling, temperature of 28°C or lower and relative humidity of 60% or lower). You can adjust the degree of freshness and energy saving as preferred.

Note

- To use Multi-V Interlocking Energy Saving Control, you need a DOAS indoor humidity sensor.
- Energy saving operation can be run only when DOAS is running in the cooling or dehumidification mode and all indoor units are in cooling operation.
- Energy saving step: As you get closer to step 3, dehumidification weakens and energy saving increases.

➡ Set Multi-V Interlocking Energy Saving Control

Chiller

CancelApply

Select device type to add to AC Smart

☐ ODU☒ Chiller☐ EXP. I/O

☐ ERV☐ DOKIT☐ Air purifier

☐ Heating☐ DI

☐ AHU☐ DO

ACP name

AC Smart

Address

Name

Type

 Scroll Chiller Mini (Air Cooli

▼

☐ Add all

EA

Category	Description
ACP name	The corresponding device's upper level ACP name
Address	Device address
Name	Device name to be displayed in the system For batch add, it is displayed as “Name_device address” form
Type	Select chiller type
Add All	When checkboxes are selected, all selected devices are added

DOKIT

CancelApply

Select device type to add to AC Smart

☐ ODU

☐ Chiller

☐ EXP. I/O

☐ ERV

☒ DOKIT

☐ Air purifier

☐ Heating

☐ DI

☐ AHU

☐ DO

ACP name

AC Smart

Address

Name

☐ Add all

EA

Category	Description
ACP name	The corresponding device's upper level ACP name
Address	Device address
Name	Device name to be displayed in the system For batch add, it is displayed as “Name_device address” form
Add All	When checkboxes are selected, all selected devices are added

DI/DO

CancelApply

Select device type to add to AC Smart

☐ ODU☐ ERV☐ Heating☐ AHU

☐ Chiller☐ DOKIT☒ DI☐ DO

☐ EXP. I/O☐ Air purifier

ACP name

AC Smart

Address

Name

☐ Add all

EA

Category	Description
ACP name	The corresponding device's upper level ACP name
Address	Device address
Name	Device name to be displayed in the system For batch add, it is displayed as “Name_device address” form
Add All	When checkboxes are selected, all selected devices are added

Note

- DI1 port can only be used for emergency purpose and cannot be configured for other purposes.
- DI1 port must always be in open state except the emergency situation.
- If DI1 port is short-circuited, an alarm sounds and all devices linked to the port stop.

Exp.I/O

CancelApply

Select device type to add to AC Smart

☐ ODU

☐ Chiller

☒ EXP. I/O

☐ ERV

☐ DOKIT

☐ Air purifier

☐ Heating

☐ DI

☐ AHU

☐ DO

ACP name

AC Smart

Type

ACS I/O(14)

▼

Address

※ For detailed address range for each type, refer to [Usage (PC)] > [Device Setting] > [EXP.IO] page in the Help (User Manual).

Name

☐ Add all

EA

Category	Description
ACP name	The corresponding device's upper level ACP name
Type	Select DeviceType
Address	Device address - Address Range of ACS I/O : 01 ~ F7 - Address Range of ACU UIO : 60 ~ 67 - Address Range of ACU UI : 70 ~ 77 - Address Range of ACU UO : 80 ~ 87
Name	Device name to be displayed in the system For batch add, it is displayed as “Name_device address” form
Add All	When checkboxes are selected, all selected devices are added

Exp.I/O's lower level setting

AO[01/02]

Delete

Apply

Whether used

☒ Use

☐ Do not use

ACP name

AC Smart

Device type

AO

Address

12

Name

AO[01/02]

Icon

 Basic icon

▼

I/O Type

☒ VOL

Signal boundary

0~10V

▼

Usage

☐ Temperature

☐ Humidity

☒ Opening

☐ Water level

☐ Operation ratio

☐ Concentration

☐ Pressure

Unit symbol

☐ %

☒ °

Display boundary

Min

0

Max

100

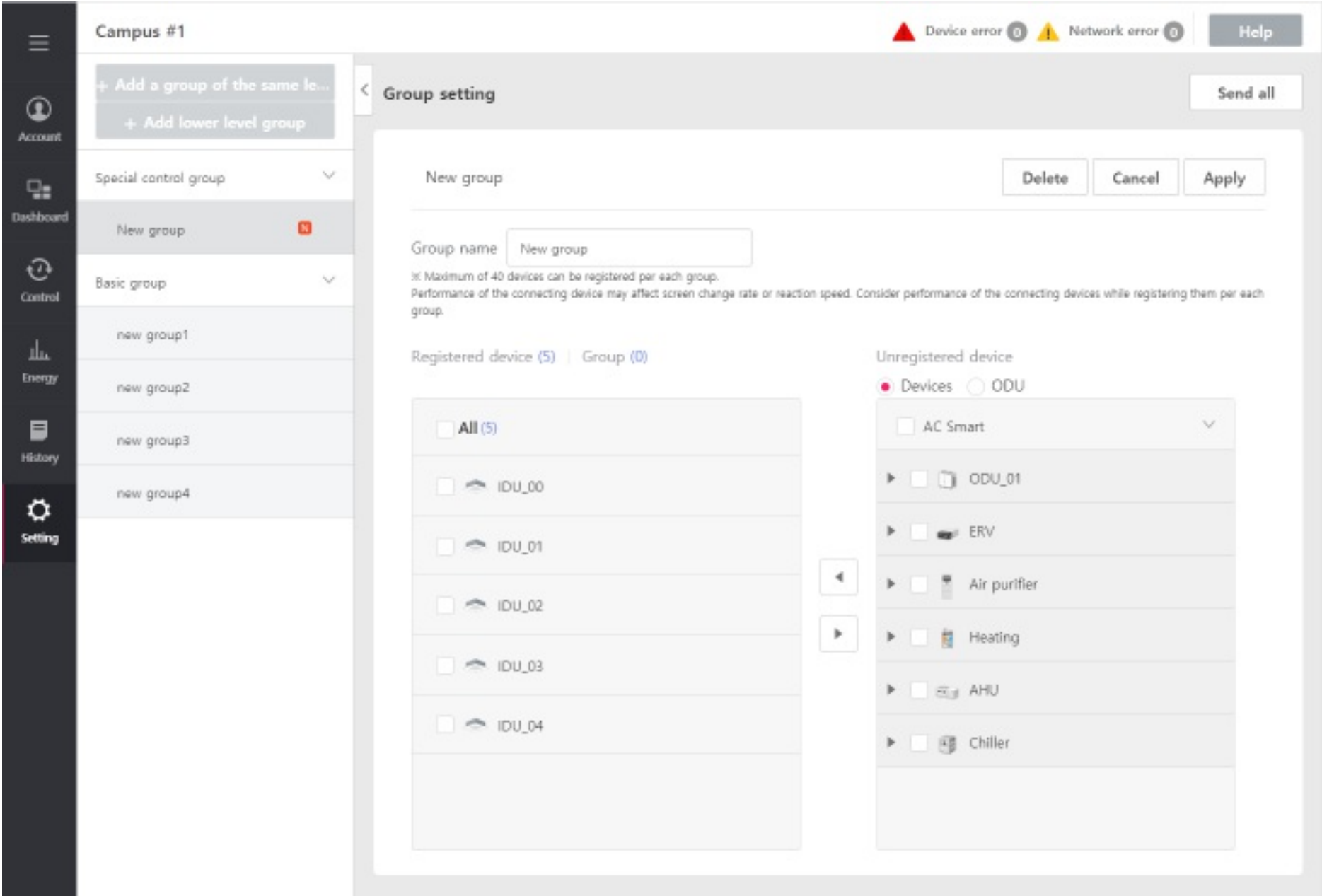
Correction value

0

Category	Description
Whether used	Select whether to use the device
ACP name	The corresponding device's upper level ACP name
Device type	Device type
Address	Device address
Name	Device name
Icon	Select icon type
I/O type	Select I/O type - AO: VOL - UI: BI, VOL, CUR, PT1000, NTC10K, NI1000 (But, when EXP/IO type is ACU UIO, ACU UI, it can be selected from BI or VOL.) - DO: BI - DI: BI
Signal boundary	Select signal boundary
Usage	Select usage of the device (Usage selection is different according to I/O type) - Status information: On/Off, short/Open, Warning/Normal, Close/Open, On/Off, Occupied/Unoccupied, 1/0 - Value information: Temperature, Humidity, Opening, Water level, Operation ratio, Concentration, Pressure
Unit Symbol	Select unit symbol Flexibly changed according to the usage selection
Display boundary	Max./Min. value input
Correction value	Correction value input

Group Setting

You can add/delete management group created according to user's usage.



Add Group

You can add new group.

- In the left menu tab, click [**Setting**] > [**Group Setting**] menu.
 - Group setting screen is displayed.
- Select a group and click the Add Group button.
 - Select [**+ Add Sub-group**] to create a sub-group.
 - Select [**+ Add Same-level Group**] to create a same-level group.
- Input group name in the group name input field.
- To register new device in the device list, in the unregistered device list, click the checkbox of the device to register and click [**◀**] button.
- To save the set contents, click [**Apply**] button.
- To complete group addition, click [**Send All**] button.

Group edit

You can edit group.

- In the left menu tab, click [**Setting**] > [**Group Setting**] menu.
 - Group setting screen is displayed.
- In group list, select group to edit.
- Edit group information.
- To save the set contents, click [**Apply**] button.
- To complete group addition, click [**Send All**] button.

Delete group

In the group list, you can select and delete the desired group.

- In the left menu tab, click [**Setting**] > [**Group Setting**] menu.
 - Group setting screen is displayed.
 - In the group list, select the group to delete and click [**Delete**] button.
- When Delete group popup window appears, click [**Yes**] button.

- The selected group is deleted.

3. To complete group deletion, click [**Send All**] button.

System Setting

You can change the system setting.

1. In the left menu tab, click [Setting] > [System Setting] menu.
 - System setting screen is displayed.
2. Set the system.

System setting

Cancel

Apply

Title

ACP 5

Language

English

▼

Air quality index

Global

▼

Day format

MM-DD-YYYY

▼

Time format

24 Time

▼

Temperature

Celsius 0.5°C

▼

Set the lowest temperature for COOL/HEAT

18 °C

▼

Applies only when the mode is COOL/HEAT.

Use energy navigation

☒ Set

☐ Clear

Power usage statistics base date

1Day

▼

Category	Description
Title	Input the desired name in the input field
Language	Press [▼] button to select the desired language (한국어/ English/ Español/ Português/ Italiano/ Deutsch/ Türkçe/ Polski/ русский/ Français/ 中文/ Čeština)
Air quality index	Select the reference country for the fine dust level display. (한국/Global/USA/中国/India)
Day format	You can set the Day format. (YYYY-MM-DD / MM-DD-YYYY / DD-MM-YYYY)
Time format	You can set the Time format. (12 / 24)
Temperature	Press [▼] button to select the desired control temperature unit (Celsius 0.5°C / Celsius 1°C / Fahrenheit 1°F)
Set the lowest temperature for COOL/HEAT	Press [▼] button to select the desired cooling/heating lower limit temperature (16°C / 18°C)
Use Energy Navigation	Select wehther to use Energy Navigation
Energy navigation base date	Press [▼] button to select the desired date - Energy navigation monthly power usage amount base date setting - Calculate the days to the one day before in the next month from the set date

Use 'Drawing'

Set

Clear

Use CO₂ concentration widget

Set

Clear

Use comfort widget

Set

Clear

Use finedust widget

Set

Clear

Use AI Driving Status widget

Set

Clear

Enable Automatic Switching and Temperature Limit

Set

Clear

Apply damper opening formula

Set

Clear

Comfort - Season setting

Summer

Winter

Category	Description
Use 'Drawing'	Select wehther to use 'Drawing'
Use CO ₂ concentration widget	When it is set, dash board CO ₂ concentration widget is activated
Use pleasantness widget	When it is set, dash board pleasantness widget is activated
Use fine dust widget	When it is set, dash board fine dust widget is activated
Use AI Driving Status widget	Setting this option activates the AI Driving Status Widget on the dashboard.
Enable Automatic Switching and Temperature Limit	Enables the automatic central control switching and the temperature limit function.
Apply damper opening formula	- Select whether to apply damper opening formula - When damper opening is set, it operates at OA=EA and OA+MIX=90
Pleasantness season setting	Winter/summer setting for pleasantness calculation When summer is set, pleasantness range is formed in lower temperature

Energy target management

Set

Schedule exception date setting

Set

To register schedule exception device

Set

Back up Setting Data

Backup

Apply backup file

System restart

Restart

Send out installation status

Send out

Category	Description
Energy target amount setting	Target energy amount setting for energy(Dashboard) management
Schedule exception date setting	Set exception date for schedule setting
To register schedule exception device	Set the device to except in schedule setting in advance
Setting data backup	- Backup: backup of data to PC (In AC Smart 5 Device, it is stored in USB.) - Backup file application: overwrite data with backup file stored in PC
System restart	Restart the entire system
Send out installation status	Save installation status to PC (In AC Smart 5 Device, it is stored in USB.)

System time

2018-06-18 11:50

Date setting

2018-06-18 ▼

Time setting

11

▲▼

50

▲▼

If you change the system date or time, the system reboots and you need to log on again.

Daylight Saving Time

☐ Set

☒ Clear

Start date

1Month ▼

1st ▼

Mon.Days ▼

1:00 ▼

End date

1Month ▼

1st ▼

Mon.Days ▼

1:00 ▼

Version

Ver.1.40.0
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Category	Description
System time	Check system time
Date setting	You can set the date.
Time setting	You can set the time.
Daylight saving time setting	Daylight saving time (summer time) start and end date Set/Clear
Version	You can check the version.

3. When setting is completed, click **[Apply]** button.

- ➔ Setting the exception date
- ➔ Delete exception date
- ➔ Register schedule exception device

Note

- When system time or date is changed, it can be logged out, and you need to log in again.

Network Setting

You can set or change network information.

1. In the left menu tab, click [Setting] > [Network Setting] menu.
 - Network setting screen is displayed.
2. Set the network information.

Network setting

Cancel

Apply

IPv4 enable

SettingCancel

IPv4 address setting

AUTOManual

If device set as DHCP, it is possible to change IP address.

IPv4 information

IP address

10.175.191.199

Subnet mask

255.255.255.0

Basic gateway

10.175.191.254

IPv6 enable

SettingCancel

IPv6 address setting

Auto ConfigurationDHCP

Manual

If device set as DHCP, it is possible to change IP address.

IPv6 information

IPv6 address

fe80:dc81:e7ff:fe96:cc5a/64

IP address

subnet prefix length

DNS setting

AUTOManual

Main DNS

165.186.85.11

Sub DNS

165.243.137.34

MAC address

MAC address

de:81:e7:96:cc:5a

Web Port Set

Port number

443

※ Unusable port is a port defined as Public Port, or a port used by AC Smart 5.

Category	Description
IPv4 enable	IPv4 usage address Set/Clear
IPv4 address setting	Check IPv4 address setting AUTO(DHCP)/Manual If you use AUTO(DHCP), the IP address may be changed. So we recommend using the manual IP address configuration.
IPv4 information	Check IPv4 address
IPv6 enable	IPv6 usage address Set/Clear
IPv6 address setting	Check IPv6 address setting Auto Configuration/DHCP/Manual If you use DHCP, the IP address may be changed. So we recommend using the automatic or manual IP address configuration.
IPv6 information	Check IPv6 address
DNS setting	[AUTO] : Automatically sets main DNS and secondary DNS [Manual] : User sets main DNS and secondary DNS
MAC address	Check MAC address
Web Port setting	Port setting (range: 2~65535)

Note

Network setting can be set in Device, and only some settings may be changed in Web.

3. When setting is completed, click [Apply] button.

Error Notice Setting

You can set or change error notice.

1. In the left menu tab, click **[Setting]** > **[Error Notice Setting]** menu.
 - Error notice setting screen is displayed.
2. Set the error notice.

Error notice setting

Cancel

Apply

e-mail usage setting

☐ Set

☒ Clear

e-mail title

Receiving e-mail address

Add address

Sending cycle when error occurs

60Min.

▼

Repeat sending when error occurs

☐ Once

☒ Repeat

Automatic daily error-notification mail

☐ Set

☒ Clear

Category	Description
e-mail usage setting	Selection of set/clear of whether to send the error occurred device's address and error No. through e-mail
e-mail title	e-mail title setting
Receiving e-mail address	Input receiving e-mail address
Sending cycle when error occurs	Set transmission cycle in case of error (10/20/30/40/50/60 min.)
Repeat sending when error occurs	Once: Sending once same error alarm when error occur. Repeat: Sending same error alarm repeatedly every cycle.
Automatic daily error-notification mail	Automatic sending of e-mail once a day when no error occurs

3. To save the set contents, click **[Apply]** button.

Note

Before e-mail usage setting, check the following categories.

- [Setting] > [Network setting]'s DNS server shall be set.
- [Setting] > [Administrator setting]'s mail server and sending e-mail shall be set.

Administrator Setting

You can set or change the user management environment when the user logs in with manager authority.

1. In the left menu tab, click [Setting] > [Administrator Setting] menu.
- Administrator setting screen is displayed. You can change the manager information or set the system usage environment.

Administrator setting

Cancel

Apply

Set password

Current password

New password

Verify new password

Set receiving e-mail

E-mail

※When you add 'new InterLocking', if you select Send e-mail with output condition You can receive InterLocking execution information to the set manager e-mail.

Set mail server

Connection test

SMTP Server

Port

587

Scope 2~65535

※ While editing the email server settings or the incoming/outgoing email settings, you cannot perform [Test Connection]. Click the [Apply] button to save the changes, and then try it again.

※ To perform [Test Connection] in the email server settings or to receive/send emails through the central controller, you first need to set the [Network setting] > [DNS setting].

Set sending e-mail

ID

Password

※ You need to save the mail server (SMTP server) ID and password that connection test succeeded to send e-mail through mail server.

Set menu

☒ Dash board

☒ Control

☒ Device control☒ Schedule control☒ InterLocking☒ Time limit control

☒ Hotel Solution (BACnet)

☒ Energy

☒ Energy Usage☒ Energy Navigation☒ Peak demand control☒ Energy unit cost

☒ History

☒ Operation history☒ Energy navigation history☒ Operation trend☒ Cycle

☒ Set

☒ Installing☒ Group setting☒ System setting☒ Network setting

☒ Error notice setting☒ Administrator setting☒ Additional user setting☒ Screen Setting

☒ Advance Setting☒ TMS Setting☒ BACnet/Modbus Setting☒ Indoor Fine Dust Monitoring

Category	Description
Set password	Set the password to use during login - Current password: Input password used currently for login - New password: Input new password - New password verification: Input the same new password one more time
Set receiving e-mail	Input e-mail address
Set Mail server	Manager mail server setting - SMTP server: Input SMTP server address - Port: Input port No. - Connection test: Input mail account test (network shall be connected)
Set sending e-mail	- ID: Input user ID - Password: Input user password
Set Menu	Click checkbox to select the desired manager menu (you can select multiple) - Dashboard - Control: device control, schedule control, InterLocking, Time limit control, Hotel Solution(BACnet) - Energy: Energy usage, Energy Navigation, Peak demand control, Energy Unit Cost - History: operation history, Energy Navigation history, operation trend, cycle - Setting: Installing, Group setting, System setting, Network setting, Error notice setting, Administrator setting, Additional user setting, Screen Setting, Advance Setting, TMS Setting, BACnetModbus Setting, Innenraum-Feinstaub-Überwachung, Set Fine Dust Monitoring

2. To save the set contents, click **[Apply]** button.

Additional User Setting

You can manage the additional user list when you login with manager authority.

1. In the left menu tab, click **[Setting] > [Additional User Setting]** menu.
- Additional user setting screen is displayed. You can add user or edit or delete registered user information.

Additional user setting

General user list

Add user

ID	E-mail	Group authority	Edit	Delete
Tester	tester@lge.com	Basic group		

Add User

You can add secondary manager and general user.

1. In the left menu tab, click **[Setting] > [Additional User Setting]** menu.
- Additinal user setting screen is displayed.
2. Click **[Add User]** button.
- Add user screen is displayed.
3. Set each category.

Add user

Cancel

Apply

Info

User authority

☒ Secondary manager

☐ General user

(During the general user setting, only indoor unit easy controls are provided)

Set password

ID

New password

Verify new password

Group authority

Menu authority

☒ Control

☒ Device control

☒ Schedule control

☒ InterLocking

☒ Time limit control

☐ Hotel Solution (BACnet)

☒ Energy

☒ Energy Usage

☒ History report

☒ Operation history

☒ Set

☒ Additional user setting

Category	Description
Info	[User authority] - Secondary manager: Provides authority assigned menu - General user: Provides only indoor unit simple controls
Set password	[ID] : input ID to use [password] : input password to use [Verify password] : input password to use again
Group Authority	Assign additional user's group authority When group is selected, only the corresponding group can control

Menu Authority	ASsign menu authority used by additional user For general user, only [Control]-[Device Control], [Setting]-[Additional User Setting] menu authorities are assigned
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4. When setting is completed, click **[Apply]** button.

Delete User

You can delete registered user.

- In the left menu tab, click **[Setting] > [Additional User Setting]** menu.
 - Additinal user setting screen is displayed.
- Click **[Delete]** button of the user to delete.
 - Delete user screen is displayed.
- Click **[Yes]** button

Screen Setting

You can set product screen related usage environment.

1. In the left side menu tab, click **[Setting]** > **[Screen Setting]** menu.
- Screen setting screen is displayed.

2. Set screen information.

Screen Setting

Cancel

Apply

Use Turn off Monitor

☒ Set

☐ Clear

Time before Turning off the Monitor (Minute)

10Min.

▼

Category	Description
Screen saver setting	- Monitor OFF usage: use of monitor power OFF function Set/Clear - Monitor OFF standby time (min.): set standby time until monitor power OFF (10/20/30/40/50/60 min.)

3. When setting is completed, click **[Apply]** button.

Advance Setting

You can set functions required for device operation.

1. In the left side menu tab, click [Setting] > [Advance Setting] menu.
- Advance Setting screen is displayed.

Advance Setting

Cancel

Apply

Set connected device

Cycle monitor

☒ Set

☐ Clear

Cycle control

☒ Set

☐ Clear

Slave controller

☒ Set

☐ Clear

Slave controller lock

☐ Set

☒ Clear

Configuring DI1 Port Normal Status

☒ Open

☐ Short

Differential

0.5

▼

Outdoor Unit Oil-Return Operation

Use

☐ Set

☒ Clear

Type

☒ Concurrent

☐ Sequential

!

Time

Daily

0

▲

▼

o`clock

Category	Description
Set connected device	- Outdoor unit cycle monitoring: set whether to use cycle information monitoring - Outdoor unit cycle control: set whether to run cycle control - Slave controller: set whether slave controller control is possible - Slave controller lock: set whether slave controller control is possible for indoor unit with all lock set (Use: Slave controller control is not possible) - Configuring DI1 Port Normal Status: Configures the DI1 port normal status.
Differential	Press [▼] button to set temperature difference for automatic switching operation
Outdoor Unit Oil-Return Operation	- Set whether to run Outdoor Unit Oil-Return Operation - Set outdoor unit oil recovery to Concurrent/Sequential operation. - Concurrent operation: Operates outdoor unit oil recovery at the same time. - Sequential operation: Operates outdoor unit oil recovery sequentially at a 10-minute interval - Press [▲]/[▼] button to set Outdoor Unit Oil-Return Operation time

2. To save the set contents, click [Apply] button.

TMS Setting

You can set remote service that can manage the system remotely.

1. In the left side menu tab, click [Setting] > [TMS Setting] menu.
- TMS Setting screen is displayed.

TMS Setting

Cancel

Apply

TMS configuration

☐ Set

☒ Clear

☒ TMS 2.0

☐ TMS 3.0

TMS 3.0 should be set after checking with a professional TMS engineer.

Information TMS service

TMS server address

tms2.lge.com

TMS server port

23

Update Cycle (Second)

10Seconds

▼

ODU Cycle monitoring boost

☐ Set

☒ Clear

ODU Cycle monitoring boost should be set after checking with a professional TMS engineer.

Site information

Site address

Site name

Site code

Request a site code

0000000000

Category	Description
TMS configuration	- Set whether to use remote service - Sets the server type for remote service. [TMS 2.0] button : Connect to TMS 2.0 server [TMS 3.0] button: Connect to TMS 3.0 server
Information TMS service	- Service server address: input remote service server address - Service server port: input remote service server port number - Update cycle (sec.):Press [▼] button to select remote service update cycle 10 / 30 / 60 / 90 / 120 seconds - ODU Cycle monitoring boost: Sets whether to ODU Cycle monitoring boost
Site information	- Site address: remote site address input - Site name: input remote site name - Site code: Press [Request a site code] button to input site code

2. To save the set contents, click [Apply] button.

BACnet/Modbus Setting

Guide on BTL authentication

You need to set BACnet to Type C to make the devices operate using the functions authenticated by BTL.

BACnet Type A/B exists to maintain compatibility with existing products. If you set BACnet to Type A/B, the devices may use the functions not authenticated by BTL, making them to operate differently from the standard.

Operation method according to BACnet type

- Type A: It creates multiple devices, and the objects are included in the device of each equipment. Multiple devices respond using the same MAC address for their physical addresses.
- Type B: It creates multiple devices, and the objects are included in the device of each equipment. Devices respond with unique physical addresses.
- **Type C: It creates only one device, which includes all objects.**

※ **Caution: If you change the type, the device number may be changed, making it necessary to perform additional engineering with the BMS.**

You can change BACnet/Modbus Setting.

1. In the left side menu tab, click [Setting] > [BACnet/Modbus Setting] menu.
- BACnet/Modbus Setting screen is displayed.
2. Set BACnet/Modbus information.

BACnet/Modbus Setting

Cancel

Apply

BACnet enable

Set

Clear

Temperature Unit Setting

°C

°F

Device ID Setting

9000

Network Number Setting

0

Register as Foreign Device

Set

Clear

IP

192.168.0.1

Port

47808

TTL

36000

Only Monitoring Setting

Set

Clear

BACnet Port Setting

ACP Port

47808

BMS Port

47808

BACnet Type Setting

A Type

B Type

C Type

Time sync setting

Set

Clear

Modbus TCP enable

Set

Clear

Vnet Number Setting

10

Category	Description
BACnet enable	BACnet enable Set/Clear
Temperature unit setting	Select temperature unit type (°C/°F)
	Device ID setting to designate Device Instance Number • Air conditioner: Device ID

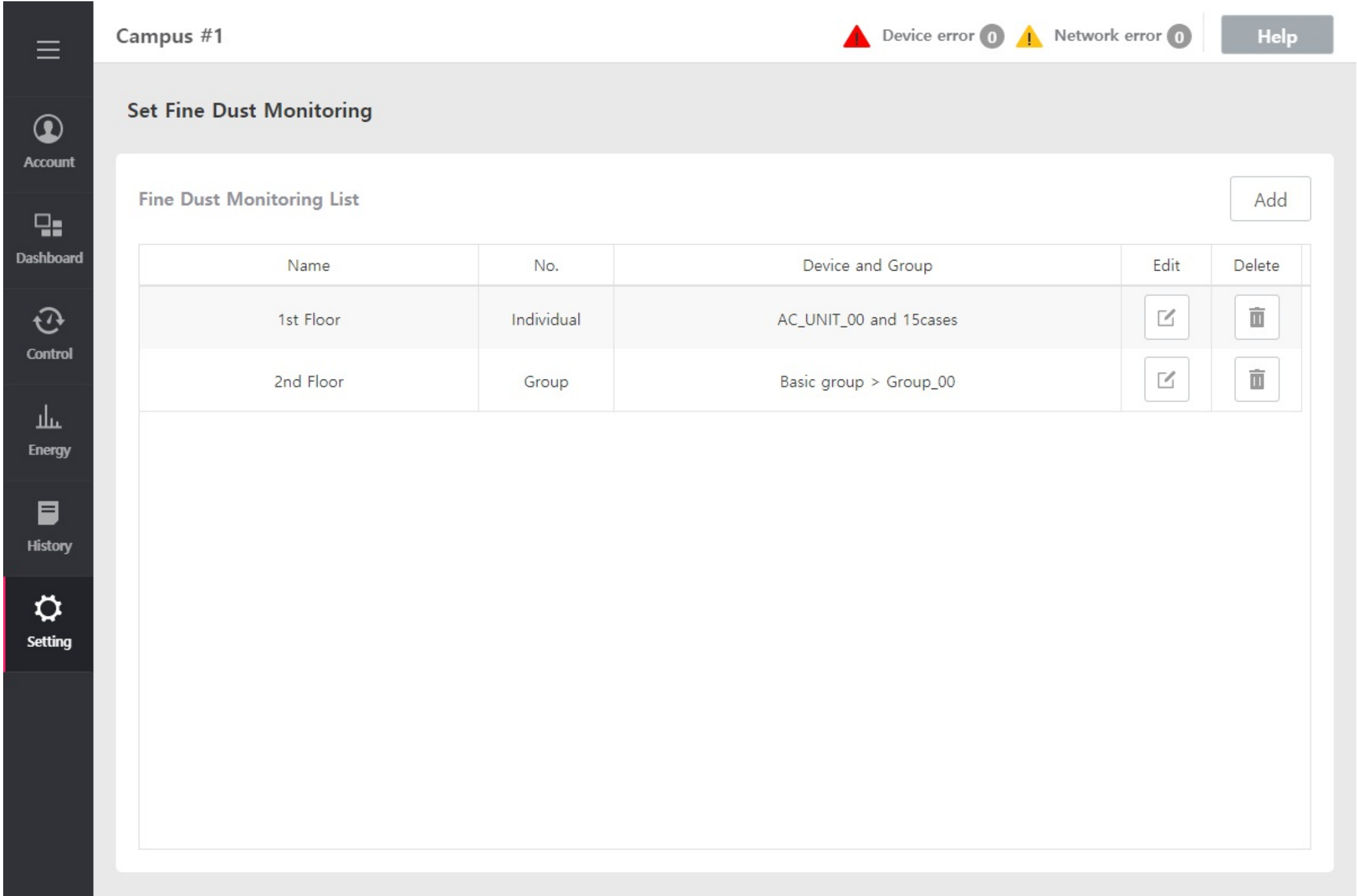
Device ID setting	• ERV: Device ID + 1 • AHU: Device ID + 2 • Outdoor unit cycle information: Device ID + 3 • Heating: Device ID + 4 • Normal : Device ID + 5
Network Number Setting	Network Number Setting
Register as Foreign Device	Foreign Device Set/Clear
Only Monitoring setting	Only Monitoring Set/Clear
BACnet Port setting	BACnet Port setting
BACnet Type setting	BACnet Type selection (A/B/C)
Time sync setting	Time sync setting Set/Clear
Modbus TCP enable	Modbus TCP enable Set/Clear
Vnet Number setting	Vnet Number setting to use Modbus TCP function Set Vnet Number value operates as Modbus TCP's Slave ID Address

3. When setting is completed, click **[Apply]** button.

Set Fine Dust Monitoring

This option allows you to set and manage Fine Dust monitoring.

1. On the left menu tab, click **[Settings]** > **[Set Fine Dust Monitoring]**.
- The screen for setting Fine Dust monitoring will appear. You can add Fine Dust monitoring tasks and edit or delete the listed tasks.



Add/edit Fine Dust monitoring task

You can add or edit Fine Dust monitoring tasks.

1. On the left menu tab, click **[Settings]** > **[Set Fine Dust Monitoring]**.
- The screen for setting Fine Dust monitoring will appear.
2. Click the **[Add]** button.
- The screen for adding Fine Dust monitoring task will appear.
3. Set the items on the screen.

Account

Dashboard

Control

Energy

History

Setting

Campus #1

Device error 0Network error 0Help

Set Fine Dust Monitoring

CancelApply

Name

Input name.

Type

☒ Group Monitoring

☐ Individual Device Monitoring

Switching Frequency for Device Page

30 Seconds

▼

Display Clean Air Area Certification ⓘ

☒ Cancel

☐ Use

Image

Basic_Image.png

Load

(Size: 3MB, Ratio: 8:9 recommended)

Reset

Add

Image Switching Frequency

60 Seconds

▼

Select device

Edit Unit

Type	Name	Address	Group
There is no registered device. Register the device by selecting Edit device button.			

Account

Dashboard

Control

Energy

History

Setting

Campus #1

Device error0Network error0Help

Set Fine Dust Monitoring

CancelApply

Name

Input name.

Type

Group Monitoring

Individual Device Monitoring

Device Switching Frequency

30 Seconds

Use Alternative Text for Bad Status

Display Clean Air Area Certification

Cancel

Use

Image

Basic_Image.png

Load

Reset

Add

(Size: 3MB, Ratio: 8:9 recommended)

Image Switching Frequency

60 Seconds

Select device

Edit Unit

Type	Name	Address	Group
There is no registered device. Register the device by selecting Edit device button.			

Item	Setup
Name	Set the name of Fine Dust monitoring
Device Page Switching Cycle/Device Switching Cycle	Set the Device Page Switching Cycle/Device Switching Cycle
Type	Set the monitoring type - Group Monitoring: Provides total cleanliness level and statistical data of group - Individual Device Monitoring: Provides total cleanliness level and images for each device
Use Alternative Text for Bad Status	Provides alternative text and images for total cleanliness status of Bad or lower Available only for individual device monitoring
Display Clean Air Area Certification	Display or hide the Clean Air Area Certification sticker
Image	Set the image to be displayed during monitoring. Up to 10 images can be set. [Import]: Import an image to use. When the Import window appears, select the image file to add and click the [Open] button. [Add]: Adds an image setting tab. [Delete]: Deletes an image setting tab. [Reset]: Resets the added image. - Available only for individual device monitoring
Image Switching Frequency	Set Image Switching Frequency Available only for individual device monitoring
Device edit	Select the device or group for which to perform Fine Dust monitoring - Click the [Device edit] button to bring up the pop-up window for editing the device. - On the list of non-registered devices, check the box for the device or group to register and click the [◀] button. - Once the device is registered successfully, click the [Apply] button.

4. Once the setting is completed, click the [Apply] button.

Delete Fine Dust Monitoring

You can delete the listed particulate monitoring setting.

1. On the left menu tab, click [Settings] > [Set Fine Dust Monitoring].

- The screen for setting Fine Dust monitoring will appear.
2. Click the [**Delete**] button next to the item to delete.
 - The pop-up window for deleting will appear.
 3. Click the [**Yes**] button.

Note

Recommended image size (for 1920x1080 resolution)

- **Horizontal: 960x1080px**
- **Vertical: 1080x840px**



Usage (Mobile, Tablet)

- ➔ LogIn / LogOut
- ➔ Dashboard
- ➔ Device Control
- ➔ Schedule Control

You can access to the product with IP address in internet address window to use various central control functions.

Note

- Chrome browser is recommended for web control.
- For access to web, IP address needs to be set.

Login

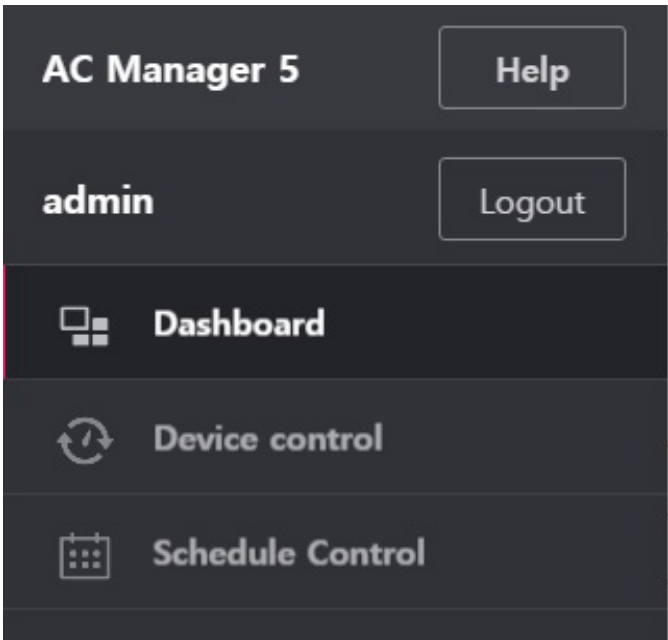
Login method is as follows.

1. Please input IP address of the product in the internet address window.
2. Input ID and password in the login window and click [**Login**] button.

LogOut

Logout method is as follows.

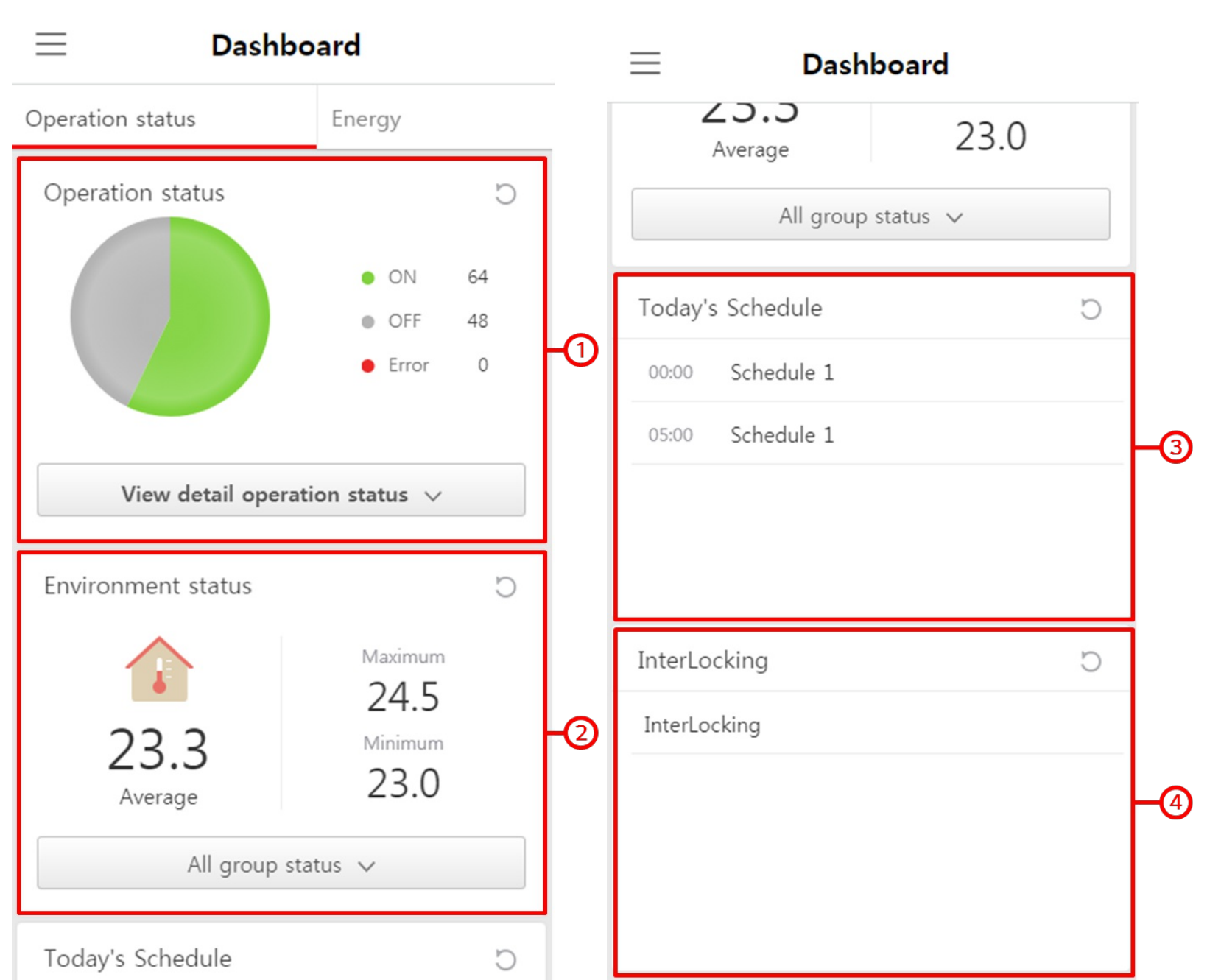
1. In the menu, click [**LogOut**] button.



You can check the current operation status and energy usage trend of the equipment installed in the product.

Operation status

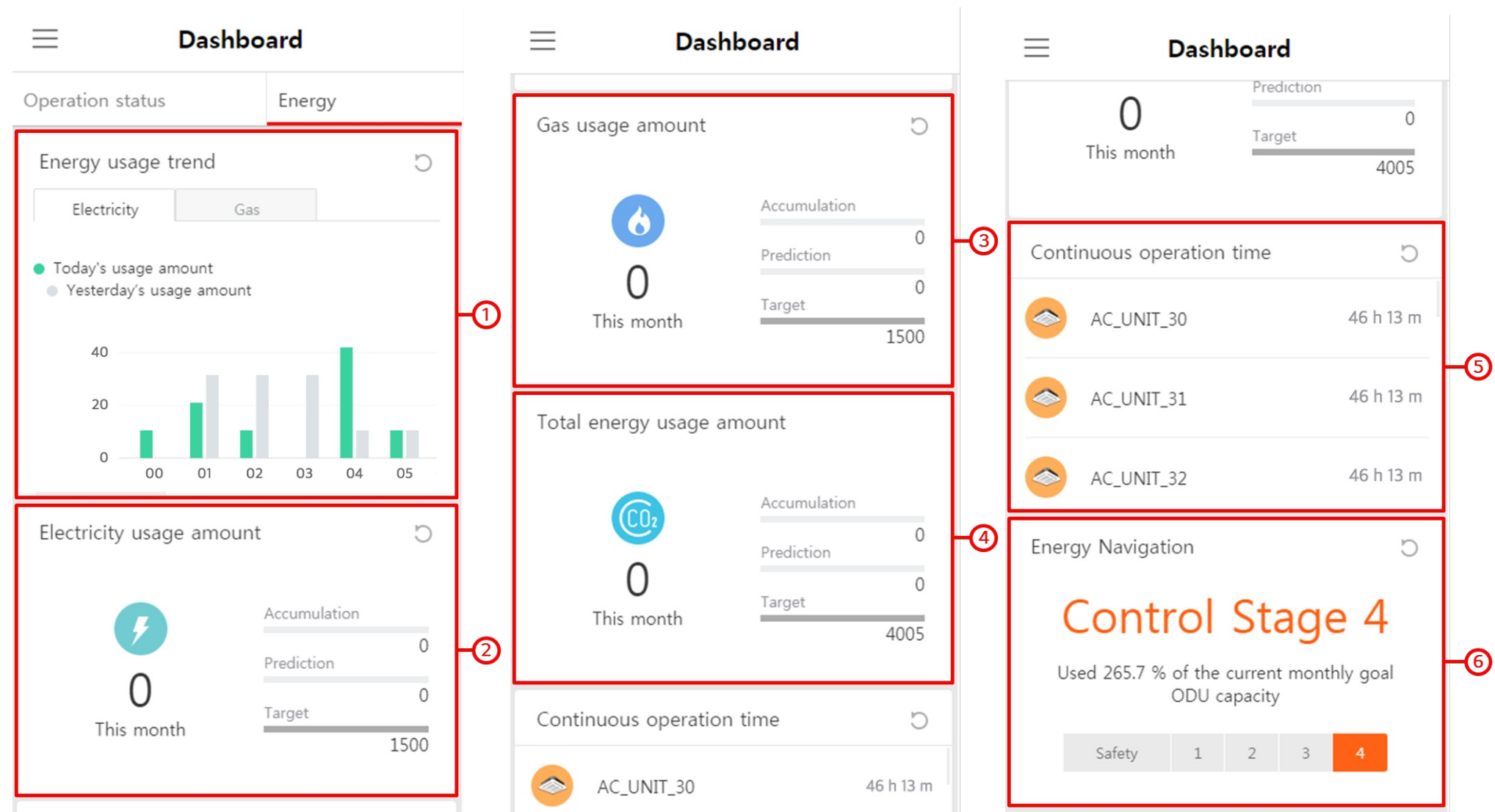
It describes the dash board's current operation status tab composition and functions.



No.	Category	Contents
①	Operation status	Check operation status (start/stop/error) of the equipment installed in the product [group] - Checking of operation status of each management group designated by user [device] - Checking of operation status of each device
②	Environment status	Checking of average indoor temperature, Max./Min. indoor temperature and group
③	Today's Schedule	Checking today's schedule list
④	InterLocking	Checking of InterLocking list

Energy

It describes the dash board's energy tab composition and functions.

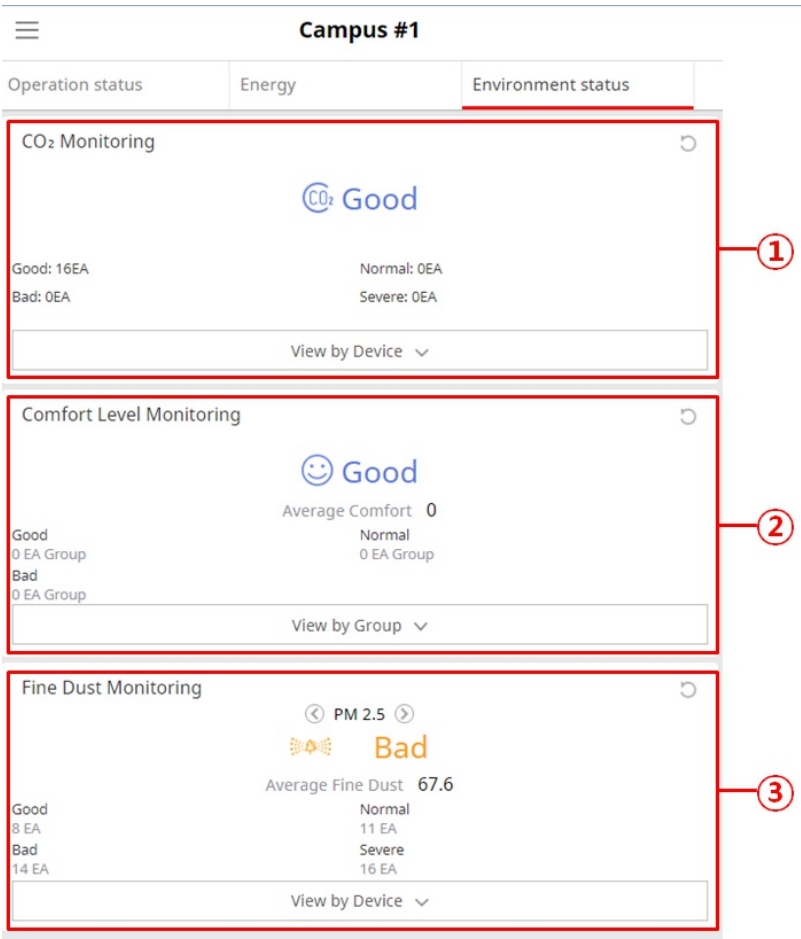


No.	Category	Contents
①	Energy usage trend	Checking of daily, monthly, and yearly trend of electricity/gas usage amount

②	Electricity usage amount	Checking of electricity usage amount accumulation, forecast, and goal
③	Gas usage amount	Checking of gas usage amount accumulation, forecast, and goal
④	Total energy usage amount	Checking of total energy usage amount accumulation, forecast, and goal
⑤	Continuous operation time	Checking of continuous operation time rank of indoor unit
⑥	Energy Navigation	Check energy navigation status

Environment status

It describes the composition and functions of dash board environment status tab



No.	Category	Contents
①	CO ₂ monitoring	Check CO ₂ status of registered ERV
②	Comfort Level Monitoring	Check registered indoor unit's pleasantness status
③	Fine dust monitoring	Check registered indoor unit, air purifier's fine dust status Fine dust is classified to PM10, PM2.5, and PM1.0, and it indicates each status and concentration

Device Control

It describes the method to control the device and to monitor the device status.

[Screen]

- ➔ Screen Structure and Function

[Control Window]

- ➔ Control of Each Device
- ➔ Device Information

Screen Structure and Function

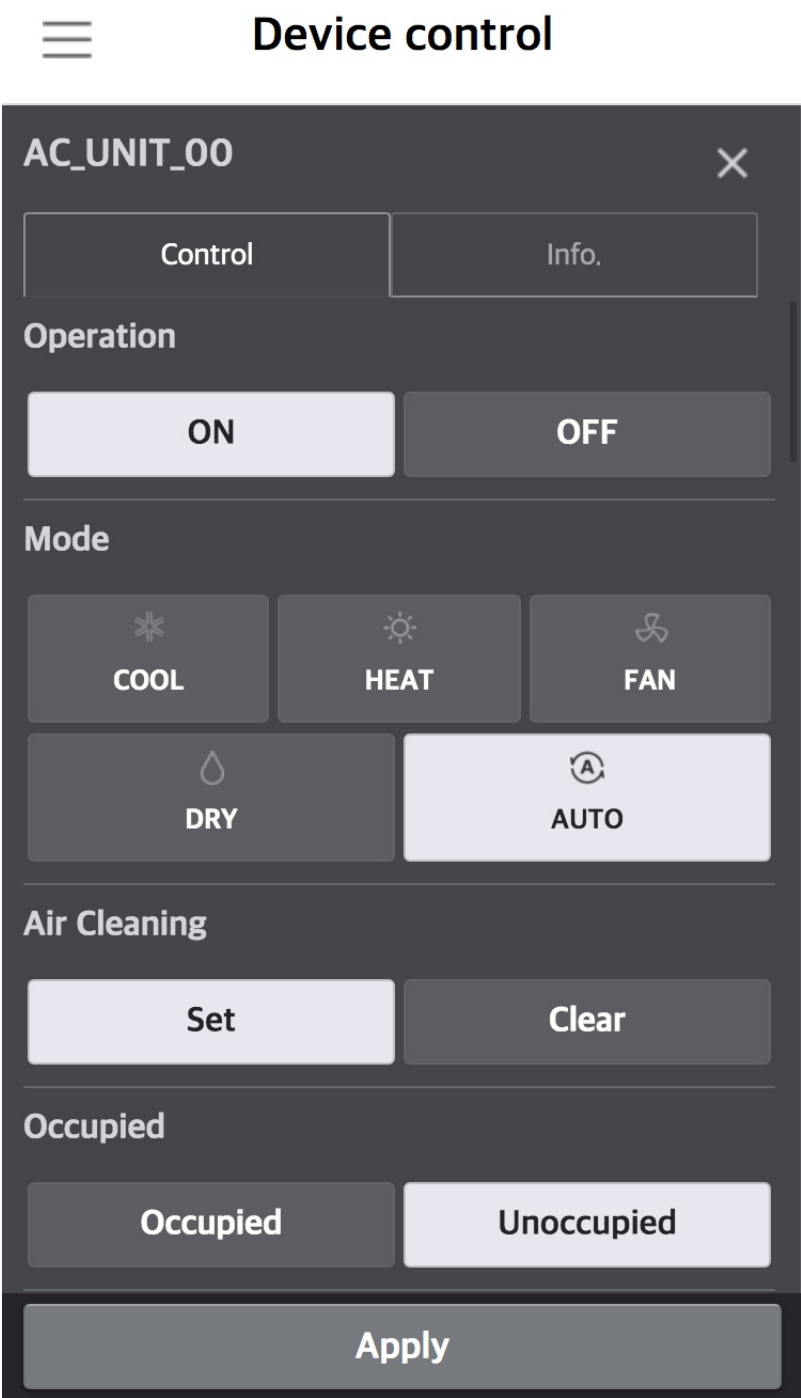
1. In the left menu tab, click [Control] > [Device Control] menu.
- The device control screen is displayed.



No.	Category	Contents
①	Group Information	Group name and group location
②	Filtering	Device category filtering
③	Multi-select	Select multiple devices when it is clicked
④	Device section	Check the information of the devices set in the group

Control of Each Device

When a device is selected in the device section, control window is created as in the following screen. Through the control window, you can control the selected device.



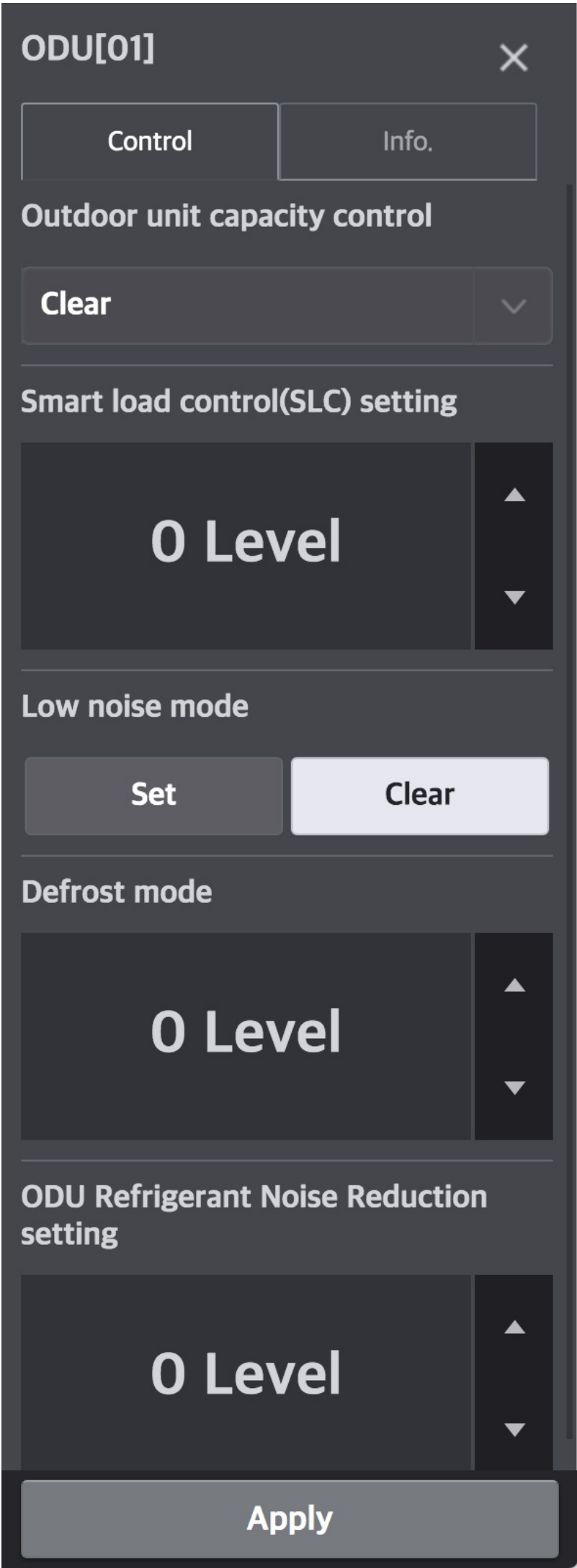
Note

- The detail control boundary for each device may be different from the actual device, so make sure to refer to the corresponding device's manual.
- Chiller interface is an optional function, and you need to separately purchase the option for chiller interface.
- ACS I/O devices may have different control tool name, unit, upper limit, lower limit, etc. according to the setting.

Detail controls for each device

- ➔ Outdoor Unit
- ➔ IDU
 - IDU (2Set)
- ➔ ERV
- ➔ ERV DX
- ➔ Floor mounted vent
- ➔ Heating
- ➔ AHU
- ➔ Scroll chiller
- ➔ Screw chiller
- ➔ Turbo chiller
- ➔ Scroll Chiller Mini
- ➔ Absorption Chiller
- ➔ DOKIT
- ➔ DO
- ➔ AO
- ➔ Air purifier

Outdoor Unit



Category	Contents
Outdoor unit capacity control	Press [▼] button to set operation rate (%)
Smart load control function	Press [▲]/[▼] button to set smart load control stage (0stage, 1stage, 2stage, 3stage, 4stage)
Low noise operation	[Set/Clear] button: outdoor unit low noise operation Set/Clear
Defrost mode	Press [▲]/[▼] button to set defrost mode stage (0stage, 1stage, 2stage, 3stage)
ODU Refrigerant Noise Reduction setting	Press [▲]/[▼] button to set outdoor unit refrigerant noise reduction stage (0stage, 1stage, 2stage)

Note

In the central controller, if 'outdoor unit low noise operation' is used, in the installed indoor unit's remote controller, you need to set [Installer setting] > [Low noise mode] to 'ODU'. (Default value 'ODU')

IDU



Category	Contents
Operation	• [ON] button: starts the device operation • [OFF] button: Stops the device operation
Mode	• [COOL] button: Swtiches to cooling mode • [HEAT] button: Switches to heating mode • [FAN] button: Air purification operation. When FAN is selected, set temperature is not applied to the device • [DRY] button: Removes moisture during rainy season or when humidity is high. When DRY is selected, set temperature is not applied to the device • [AUTO] button: Switches to automatic mode
Air cleaning	Air cleaning control only for air cleaning function supporting indoor unit • Air cleaning single operation 1) In indoor unit stop state, in case of air cleaning [Set], air cleaning single operation with wind only (automatic wind) (During air cleaning single operation, mode lock and wind amount lock are not checked) 2) During air cleaning single operation, in case of operation [OFF] or air cleaning [Clear], air cleaning is cancelled to previous mode and previous wind amount (But, in case of mode or wind amount control together, control is done with controlled mode and wind amount) • Air cleaning additional operation 1) In indoor unit stop state, in case of operation status [ON] and air cleaning [Set], in current mode, air cleaning additional operation 2) In indoor unit operation state, in case of air cleaning [Set], in current mode, air cleaning additional operation 3) During air cleaning additional operation, in case of operation [OFF], operation stops 4) During air cleaning additional operation, in case of air cleaning [Clear], air cleaning is cancelled
Set temperature	Press [▲]/[▼] button to set the desired temperature
	Wind strength setting

Fan speed	• [LOW] button: Set the fan speed to slow • [MED] button: Set the fan speed to normal • [HIGH] button: Set the fan speed to fast • [AUTO] button: [LOW]-[MED]-[HIGH] automatic switching
Swing	• [Set/Clear] button: Set/Clear the Swing function
Set temp range	When user set the desired temperature individually, the desired temperature outside the designated temperature boundary cannot be set
Human detection mode - ON/OFF learned power saving	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - ON/OFF learned power saving Set/Clear
Human detection mode - Temperature power saving	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - temperature power saving Set/Clear
Human detection mode - Unoccupied time setting(minute)	Only for human detection mode - supporting indoor unit, human detection mode - control Set empty decision time to 5, 10, 15, 30, 60, or 90 min.
Human detection mode - Direct wind	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - direct wind Set/Clear
Human detection mode - Indirect wind	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - indirect wind Set/Clear
Comfortable Power Saving	• [Set/Clear] button: Comfortable Power Saving function Set/Clear • You can press [▲]/[▼] button to set stage Only when indoor unit is in cooling operation, Comfortable Power Saving control is possible
Filter replacement alarm	• [Clear] button: in case of filter replacement alarm, it cancels filter replacement alarm
HardLock	• [Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller
Mode lock	• [Set/Clear] button: Set/clear lock so that user cannot control mode setting with individual remote controller
Fan lock	• [Set/Clear] button: Set/clear lock so that user cannot control Fan speed setting with individual remote controller
TempLock	• [Set/Clear] button: Set/clear lock so that user cannot control temperature setting with individual remote controller
Auto change over(Occupied)	It is a function to automatically switch to cooling operation if indoor temperature exceeds upper limit temperature, to heating operation if it is less than lower limit temperature, and to wind only operation if it is between upper limit temperature and lower limit temperature (supported only in outdoor unit with both cooling/heating) • [Set/Clear] button: Set/clear Auto change over(Occupied)
Lower /Upper temp.	Auto change over(Occupied)'s lower limit temperature and upper limit temperature setting
Auto change over(Occupied) Fan speed	Select the Fan speed value to set in the indoor unit during Auto change over(Occupied) operation • [LOW] button: Set the fan speed to slow • [MED] button: Set the fan speed to normal • [HIGH] button: Set the fan speed to fast • [AUTO] button: [LOW]-[MED]-[HIGH] automatic switching
Setback(UnOccupied)	Function to maintain the temperature of the space where the device is installed in certain boundary (Only supported by cooling/heating simultaneous type outdoor unit) • [Set/Clear] button: Set/clear the Setback(UnOccupied)
Cool start	Press [▲] / [▼] button to set the cooling operation start temperature(21°C~40°C)
Heat start	Press [▲] / [▼] button to set the heating operation start temperature(1°C~20°C)
Combination heating control	(Supported for certain indoor and outdoor units only) [Set/Clear] button : Activates/deactivates control based on outdoor temperature.
Mode	It is activated only when combination heating control is set. • [AUTO] button : Sets the control mode to auto. • [Manual] button : Sets the control mode to manual. You can activate/deactivate control of the heat pump and the heater. You cannot deactivate control of both the heat pump and the heater.
Temp. 1	It is activated only in the auto mode. You can set Temp. 1 for the outdoor temperatures. According to the set temperatures, the heat pump and the heater operate automatically. Press [▲] / [▼] to set Temp. 1 (-23°C-16°C).
Temp. 2	It is activated only in the auto mode. You can set Temp. 2 for the outdoor temperatures. According to the set temperatures, the heat pump and the heater operate automatically. Press [▲] / [▼] to set Temp. 2 (-23°C-51°C).
Heat pump	It is activated only in the manual mode. [Set/Clear] button : Activates/Deactivates heat pump control.
Heater	It is activated only in the manual mode. [Set/Clear] button : Activates/deactivates heater control.
Smart Care	Activated only when an AI controller is connected [Set/Clear] button: Activate/Deactivate Smart Care
Cooperation control	Activated only when an AI controller is connected [Set/Clear] button: Activate/Deactivate cooperation control

IDU (2Set)

When 2Set function supporting outdoor unit/indoor unit/remote controller are used and in **[Setting]** > **[Installing]**, if ACP's 2Set automatic mode is selected as **IDU**, indoor unit 2Set control window is generated on the right side as in the following screen.



Category	Contents
Operation	• [ON] button: Starts the device operation • [OFF] button: Stops the device operation
Mode	• [COOL] button: Swtiches to cooling mode • [HEAT] button: Switches to heating mode • [FAN] button: Air purification operation. When FAN is selected, set temperature is not applied to the device • [DRY] button: Removes moisture during rainy season or when humidity is high. When DRY is selected, set temperature is not applied to the device • [AUTO] button: Switches to automatic mode
Air cleaning	Air cleaning control only for air cleaning function supporting indoor unit • Air cleaning single operation 1) In indoor unit stop state, in case of air cleaning [Set], air cleaning single operation with wind only (automatic wind) (During air cleaning single operation, mode lock and wind amount lock are not checked) 2) During air cleaning single operation, in case of operation [OFF] or air cleaning [Clear], air cleaning is cancelled to previous mode and previous wind amount (But, in case of mode or wind amount control together, control is done with controlled mode and wind amount) • Air cleaning additional operation 1) In indoor unit stop state, in case of operation status [ON] and air cleaning [Set], in current mode, air cleaning additional operation 2) In indoor unit operation state, in case of air cleaning [Set], in current mode, air cleaning additional operation 3) During air cleaning additional operation, in case of operation [OFF], operation stops 4) During air cleaning additional operation, in case of air cleaning [Clear], air cleaning is cancelled

Occupancy	Function to set the space with the corresponding indoor unit as occupied or empty • [Occupied] button: occupied setting • [Unoccupied] button: empty setting
Cooling set temperature	Press [▲]/[▼] button to set cooling set temperature
Heating setting temperature	Press [▲]/[▼] button to set heating set temperature
Cooling lower limit/upper limit temperature	Cooling lower limit temperature and upper limit temperature setting
Heating lower limit/upper limit temperature	Heating lower limit temperature and upper limit temperature setting
Fan speed	Wind strength setting • [LOW] button: Set the fan speed to slow • [MED] button: Set the fan speed to normal • [HIGH] button: Set the fan speed to fast • [AUTO] button: [LOW]-[MED]-[HIGH] automatic switching
Swing	• [Set/Clear] button: Set/Clear the Swing function
Human detection mode - ON/OFF learned power saving	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - ON/OFF learned power saving Set/Clear
Human detection mode - Temperature power saving	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - temperature power saving Set/Clear
Human detection mode - Unoccupied time setting(minute)	Only for human detection mode - supporting indoor unit, human detection mode - control Set empty decision time to 5, 10, 15, 30, 60, or 90 min.
Human detection mode - Direct wind	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - direct wind Set/Clear
Human detection mode - Indirect wind	Only for human detection mode - supporting indoor unit, human detection mode - control • [Set/Clear] button: human detection mode - indirect wind Set/Clear
Comfortable Power Saving	• [Set/Clear] button: Comfortable Power Saving function Set/Clear • You can press [▲]/[▼] button to set stage Only when indoor unit is in cooling operation, Comfortable Power Saving control is possible
Filter replacement alarm	• [Clear] button: In case of filter replacement alarm, it cancels filter replacement alarm
HardLock	• [Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller
Mode lock	• [Set/Clear] button: Set/clear lock so that user cannot control mode setting with individual remote controller
Fan lock	• [Set/Clear] button: Set/clear lock so that user cannot control Fan speed setting with individual remote controller
TempLock	• [Set/Clear] button: Set/clear lock so that user cannot control temperature setting with individual remote controller
Combination heating control	(Supported for certain indoor and outdoor units only) [Set/Clear] button : Activates/deactivates control based on outdoor temperature.
Mode	It is activated only when combination heating control is set. • [AUTO] button : Sets the control mode to auto. • [Manual] button : Sets the control mode to manual. You can activate/deactivate control of the heat pump and the heater. You cannot deactivate control of both the heat pump and the heater.
Temp. 1	It is activated only in the auto mode. You can set Temp. 1 for the outdoor temperatures. According to the set temperatures, the heat pump and the heater operate automatically. • Press [▲]/[▼] to set Temp. 1 (-23°C-16°C).
Temp. 2	It is activated only in the auto mode. You can set Temp. 2 for the outdoor temperatures. According to the set temperatures, the heat pump and the heater operate automatically. • Press [▲]/[▼] to set Temp. 2 (-23°C-51°C).
Heat pump	It is activated only in the manual mode. • [Set/Clear] button : Activates/Deactivates heat pump control.
Heater	It is activated only in the manual mode. • [Set/Clear] button : Activates/deactivates heater control.
Smart Care	Activated only when an AI controller is connected [Set/Clear] button: Activate/Deactivate Smart Care
Cooperation control	Activated only when an AI controller is connected [Set/Clear] button: Activate/Deactivate cooperation control

Note

2set automatic mode

- Only with 2Set automatic mode supporting indoor/outdoor air, the corresponding function can be used. (For whether each device supports 2Set, please refer to the manual of the corresponding device.)
- Override is a function that can be set from remote controller. For override function related contents, please refer to remote controller manual.
- In 2Set automatic mode, along with Auto icon, product's actual operation mode (cooling, heating) status is displayed.

Occupancy

- If occupancy sensor is interlinked to indoor unit, setting from the central control has priority over the corresponding occupancy sensor. For occupancy sensor related contents, please refer to indoor unit or Dry Contact manual.
- When occupied setting is changed, automatically set cooling set temperature and heating set temperature are the most recently run schedule's cooling set temperature and heating set temperature, and if there is no previously run schedule, it is set to default value.

(Example)

09:00 - 12:00: occupied / cooling set temperature 27°C / heating set temperature 18°C

12:00 - 13:00: occupied / cooling set temperature 29°C / heating set temperature 16°C

13:00 - 15:00: occupied / cooling set temperature 26°C / heating set temperature 19°C

If it is empty without schedule after 15:00, cooling set temperature is 29°C and heating set temperature is 16°C, and if it is occupied, cooling set temperature becomes 26°C and heating set temperature becomes 19°C.

ERV

VENT_UNIT_0A

Control

Info.

Operation

ON

OFF

Mode

NORMAL

HEX

AUTO

Fan speed

LOW

HIGH

Super

AUTO

Filter replacement alarm

Clear

Quick

Set

Clear

Drift

Set

Clear

Heater

Set

Clear

HardLock

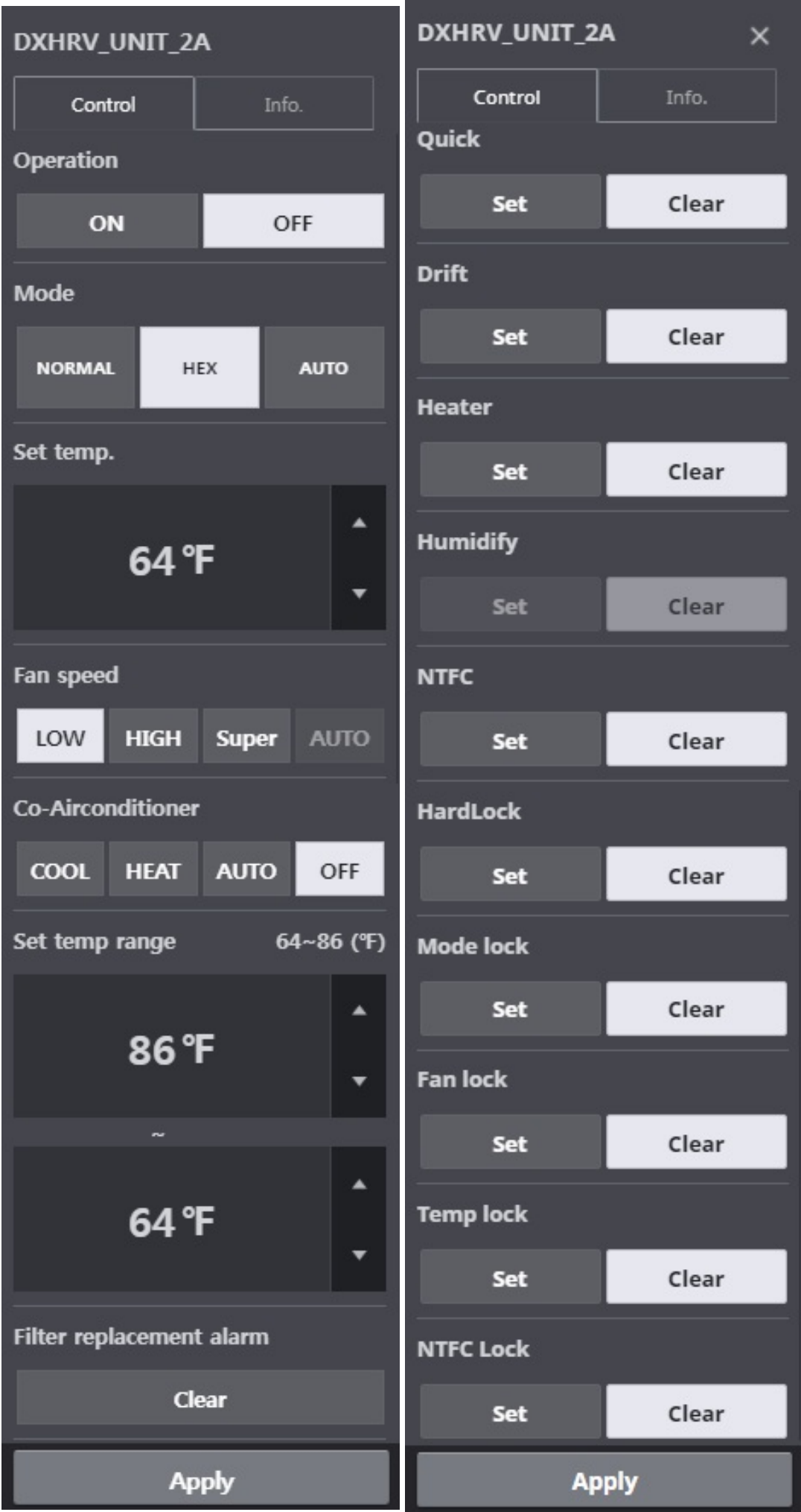
Set

Clear

Apply

Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	[NORMAL] button: Discharged air ventilates without going trough the electric heat exchanger [HEX] button: Both air supply/discharge ventilates through the electric heat exchanger [AUTO] button: Switches to four seasons mode
Fan speed	Wind strength setting [LOW] button: Set the fan speed to slow [HIGH] button: Set the fan speed to fast [SUPER] button: Set the fan speed to Max. speed [AUTO] button: [LOW]-[HIGH]-[SUPER] automatic switching - User setting is impossible - When Drift/Quick is set, [AUTO] Fan speed is selected - When Drift/Quick is cleared, [HIGH] Fan speed is selected - During [AUTO] operation, when [LOW]/[HIGH]/[SUPER] is selected, Drift/Quick function in operation is cleared
Filter replacement alarm	[Clear] button: in case of filter replacement alarm, it cancels filter replacement alarm
Additional function	- Quick [Set/Clear] button: Set/clear Quick function (When Quick function is selected, Drift function is cleared) - Drift [Set/Clear] button: Set/clear Drift function (When Drift function is selected, Quick function is cleared) - Heater [Set/Clear] button: Set/clear heater function
Midnight air cooling(NTFC)	[Set/Clear] button: Set/Clear Midnight air cooling(NTFC) function that can outdoor unit cooling when outdoor temperature is lower than the base temperature at night time
HardLock	[Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller

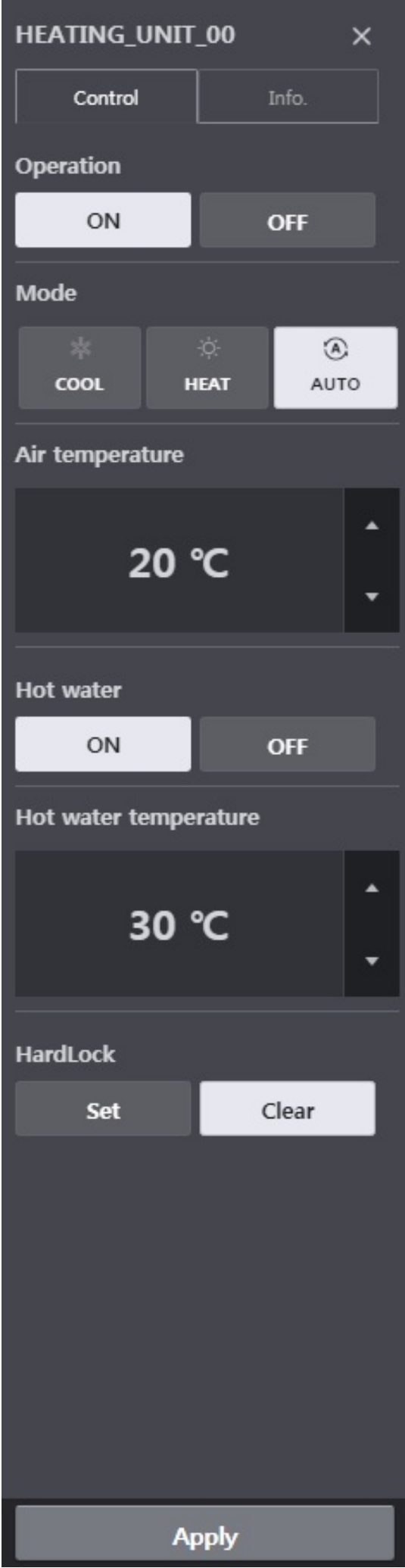
ERV DX



Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	[NORMAL] button: Discharged air ventilates without going trough the electric heat exchanger [HEX] button: Both air supply/discharge ventilates through the electric heat exchanger [AUTO] button: Switches to four seasons mode
Set temperature	Press [▲]/[▼] button to set the desired temperature
Fan speed	Wind strength setting [LOW] button: Set the fan speed to slow [HIGH] button: Set the fan speed to fast [SUPER] button: Set the fan speed to Max. speed [AUTO] button: [LOW]-[HIGH]-[SUPER] automatic switching - User setting is impossible - When Drift/Quick is set, [AUTO] Fan speed is selected - When Drift/Quick is cleared, [HIGH] Fan speed is selected - During [AUTO] operation, when [LOW]/[HIGH]/[SUPER] is selected, Drift/Quick function in operation is cleared
Air conditioner	[COOL] button: Operates the ERV DX in cooling mode [AUTO] button: Operates the ERV DX in auto mode [HEAT] button: Operates the ERV DX as heating mode [OFF] button: Stops the air conditioner of the ERV DX
Set temp range	When user set the desired temperature individually, the desired temperature outside the designated temperature boundary cannot be set
Filter replacement alarm	[Clear] button: in case of filter replacement alarm, it cancels filter replacement alarm
Additional function	- Quick [Set/Clear] button: Set/clear Quick function (When Quick function is selected, Drift function is cleared) - Drift [Set/Clear] button: Set/clear Drift function (When Drift function is selected, Quick function is cleared) - Heater [Set/Clear] button: Set/clear heater function - Humidify [Set] button: Set Humidify function (only for air conditioner heating mode)
Midnight air cooling(NTFC)	[Set/Clear] button: Set/Clear Midnight air cooling(NTFC) function that can outdoor unit cooling when outdoor temperature is lower than the base temperature at night time
HardLock	[Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller

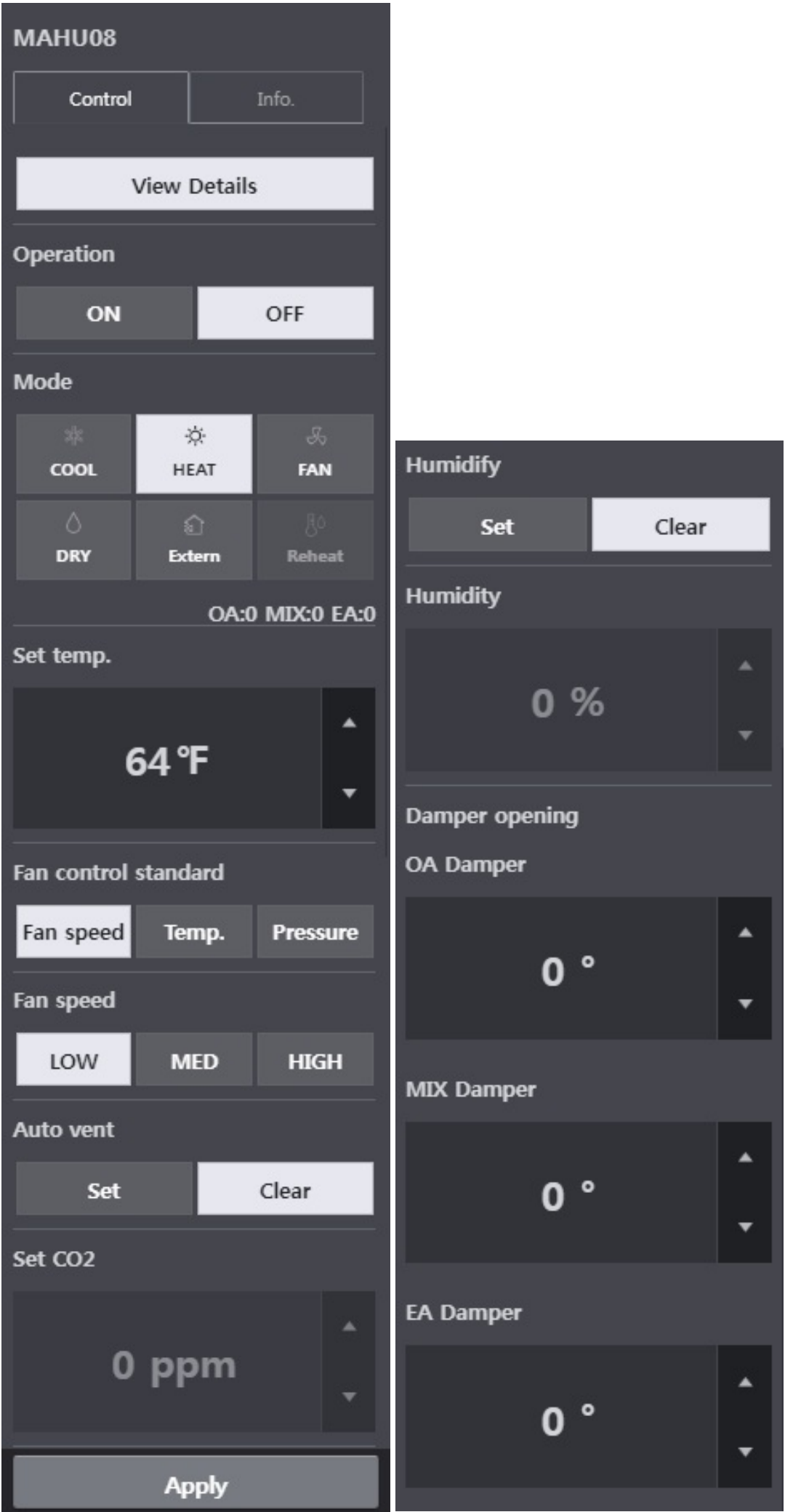
Mode lock	• [Set/Clear] button: Set/clear lock so that user cannot control mode setting with individual remote controller
Fan lock	• [Set/Clear] button: Set/clear lock so that user cannot control Fan speed setting with individual remote controller
TempLock	• [Set/Clear] button: Set/clear lock so that user cannot control temperature setting with individual remote controller
Midnight air cooling(NTFC) lock	• [Set/Clear] button: Set/Clear Midnight air cooling(NTFC) schedule set in the remote controller

Heating



Category	Contents
Operation	• [ON] button: starts the device operation • [OFF] button: Stops the device operation
Mode	• [COOL] button: Switches to cooling mode • [HEAT] button: Switches to heating mode • [AUTO] button: Switches to automatic mode
Air/Water in/out temperature	Press [▲]/[▼] button to set Air/Water in/out temperature It is displayed based on the set temperature selected in [Setting]-[Installing] • When [Water in/out] is selected, it is displayed as water in/out temperature • When [indoor] is selected, it is displayed as air temperature
Hot water	• [ON] button: Starts hot water operation - If hot water is operated while the device is in automatic/cooling operation, the corresponding mode and hot water are displayed in the icon of the contents display section - If hot water is operated while the device is stopped, the icon in the contents display section is enabled, and hot water is displayed • [OFF] button: Stops hot water operation
Hot water temperature	Press [▲]/[▼] button to set hot water temperature
HardLock	• [Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller

AHU

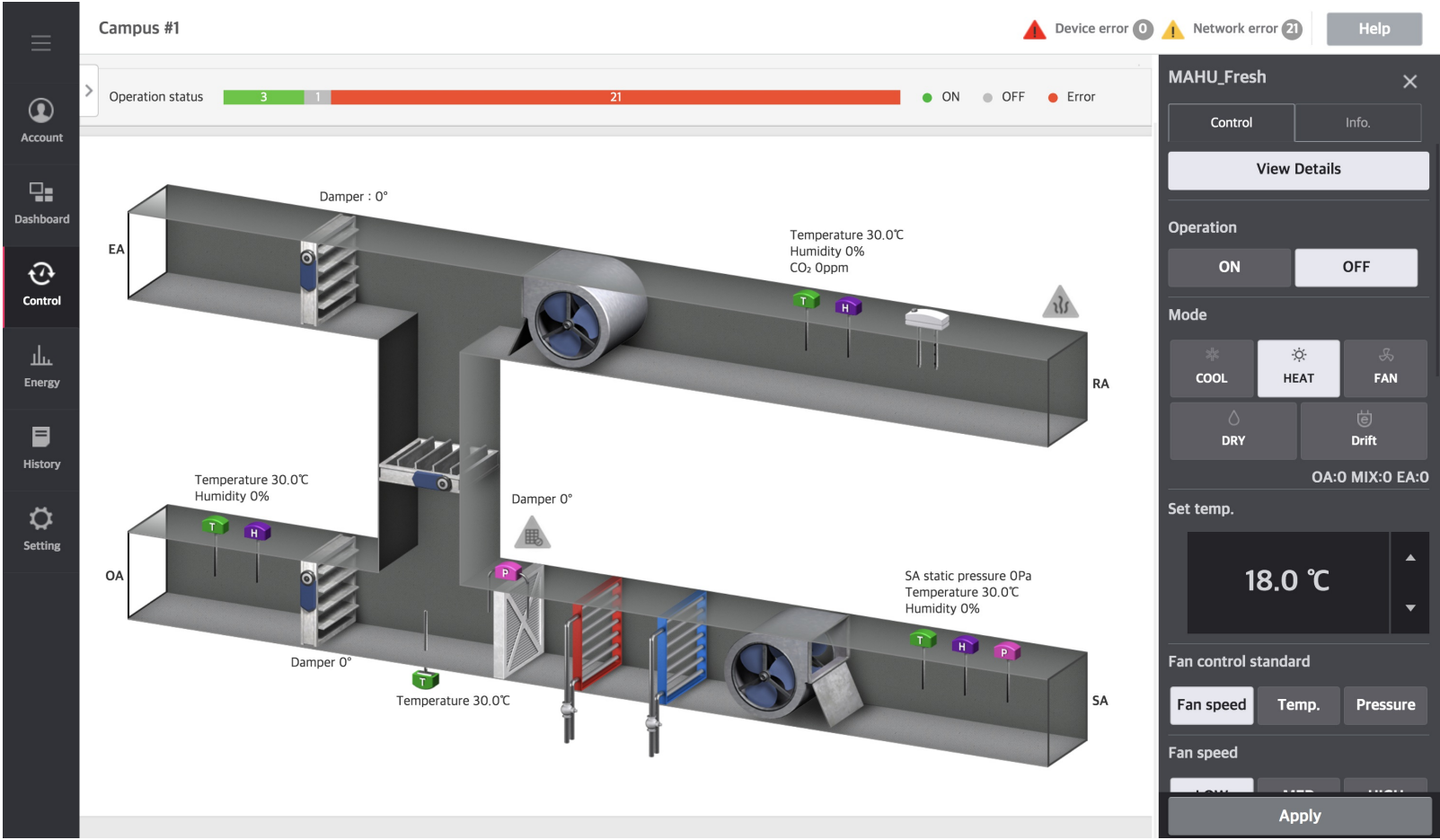


Category	Contents
View Details	Press [View Details] button to check detail information (But, mobile is excluded)
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	[COOL] button: Switches to cooling mode [HEAT] button: Switches to heating mode [FAN] button: Air purification operation. When FAN is selected, you cannot set the desired temperature [DRY] button: Removes moisture in rainy season or when humidity is high. When DRY is selected, you cannot set the desired temperature [Drift] button: Operation to find the operation point with the best ventilation system efficiency to save power consumption. It fluently discharges the contaminated indoor air by having bigger discharger Fan speed than air supply [Reheat] button : Maintains a constant temperature and humidity while the cooling/heating function is active. (Available only when the AHU reheat coil is in use.)
Set temperature	Press [▲]/[▼] button to set the temperature
Fan control standard	[Fan speed] button: Controls the fan based on Fan speed status [Temp] button: Controls the fan based on temperature status [Pressure] button: Controls the fan based on Pressure status
Fan speed	It is displayed only when fan control standard is Fan speed [LOW] button: Set the fan speed to slow [MED] button: Set the fan speed to normal [HIGH] button: Set the fan speed to fast
Automatic ventilation	It is displayed only when the additional function's automatic ventilation or automatic ventilation and Humidify are selected during AHU device registration Automatic ventilation [Set/Clear] button: Starts/stops automatic ventilation
Set CO ₂	It is enabled only when automatic ventilation function is set Press [▲]/[▼] button to set in the unit of 100ppm within 100 ppm ~ 2 000 ppm range
Humidify	It is displayed only when the additional function's Humidify or automatic ventilation and Humidify are selected during AHU device registration Humidify [Set/Clear] button: Starts/stops Humidify function
	It is enabled only when Humidify function is set

Humidity	Press [▲]/[▼] button to set the target humidity
Damper opening	- Press [OA Damper] : [▲]/[▼] button to set the outdoor unit air damper opening value in the unit of 1 ° within 0 ° ~ 90 ° range - Press [MIX Damper] : [▲]/[▼] button to set the mixer damper opening value in the unit of 1 ° within 0 ° ~ 90 ° range - Press [EA Damper] : [▲]/[▼] button to set the air discharge damper opening value in the unit of 1 ° within 0 ° ~ 90 ° range When you set [Setting]-[system setting]'s Apply damper opening formula as set, it operates as OA Damper = EA Damper, OA Damper = MIX Damper = 90
HardLock	[Set/Clear] button: Set/clear HardLock so that user cannot control any function with individual remote controller

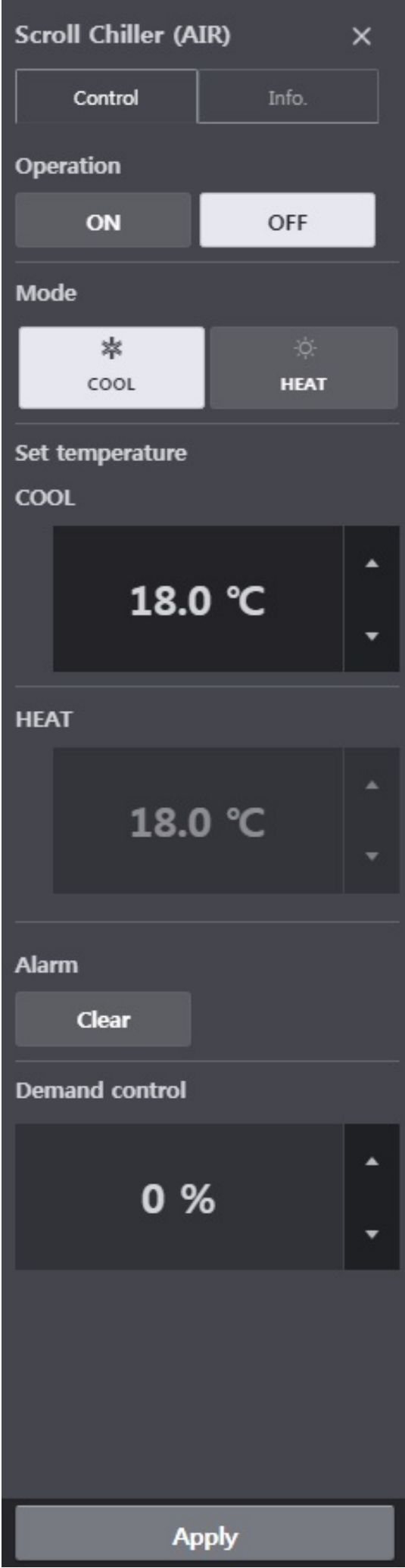
View AHU in detail

In AHU's control screen, you can press [View Details] button to check detail information.



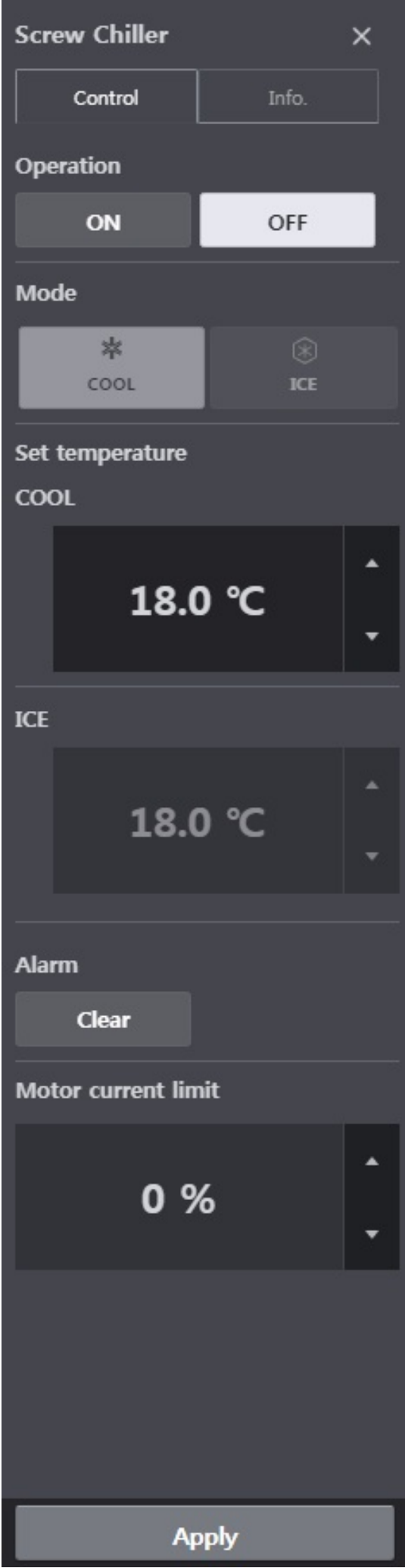
➔ SPLIT DOAS

Scroll chiller



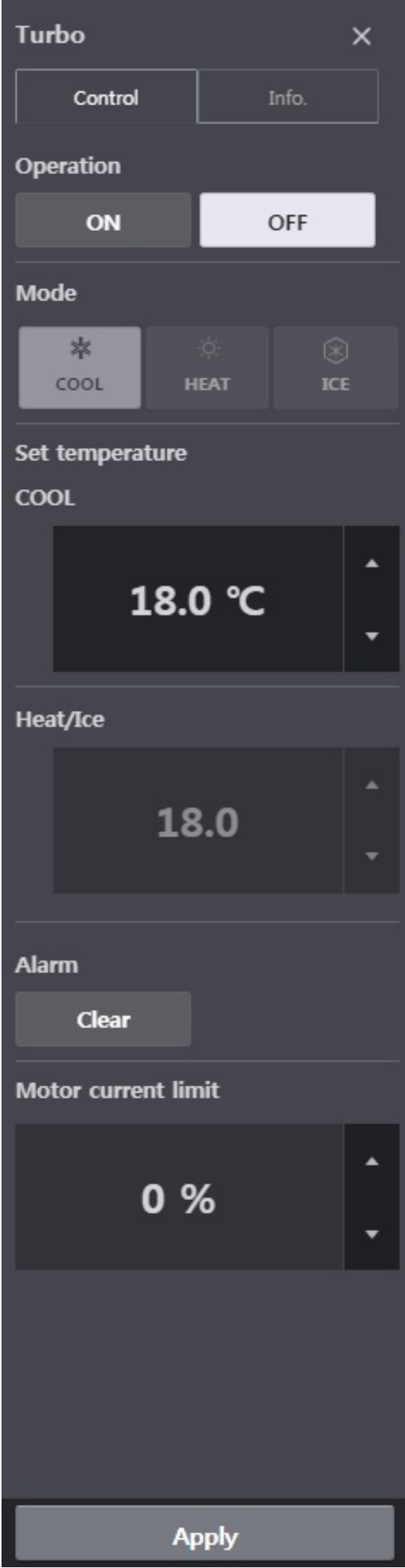
Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	(It is displayed only when device supports the corresponding mode) [COOL] button: Swtiches to cooling mode [HEAT] button: Switches to heating mode
Set temperature	Set the load water out temperature for indoor cooling/heating Press [▲]/[▼] button to set the temperature of cooling mode and heating mode
Alarm	[Clear] button: Clears Chiller alarm in case of Chiller alarm
Demand control	Press [▲]/[▼] button to set demand limit ratio

Screw chiller



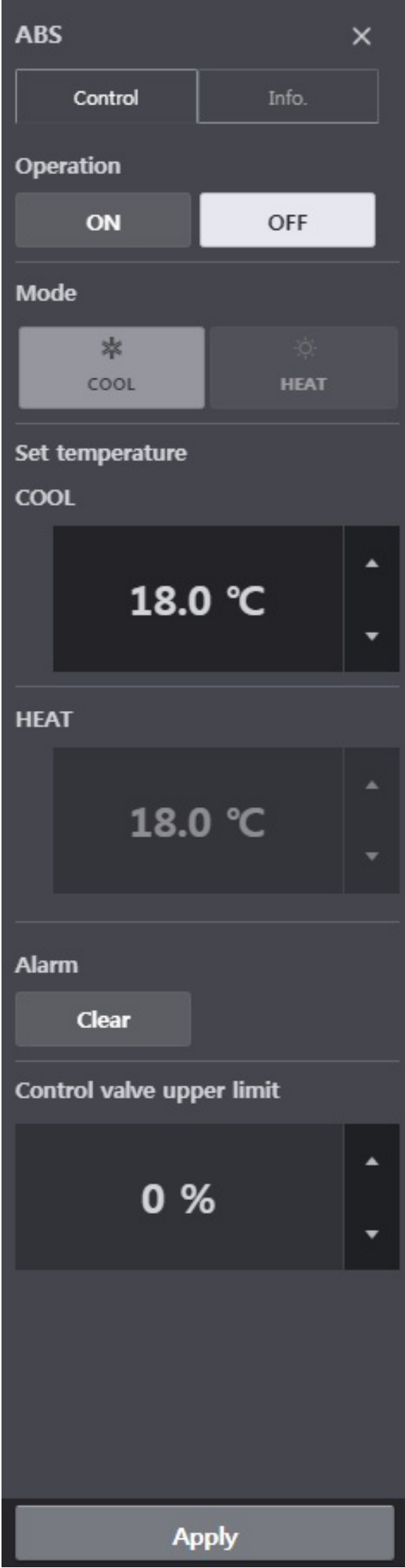
Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	Mode control is impossible. Controls monitored operation mode's set temperature
Set temperature	Set the load water out temperature for indoor cooling/ice making Press [▲]/[▼] button to set the temperature of cooling mode and ice making mode
Alarm	[Clear] button: Clears Chiller alarm in case of Chiller alarm
Motor current limit	Press [▲]/[▼] button to set motor current limit ratio

Turbo chiller



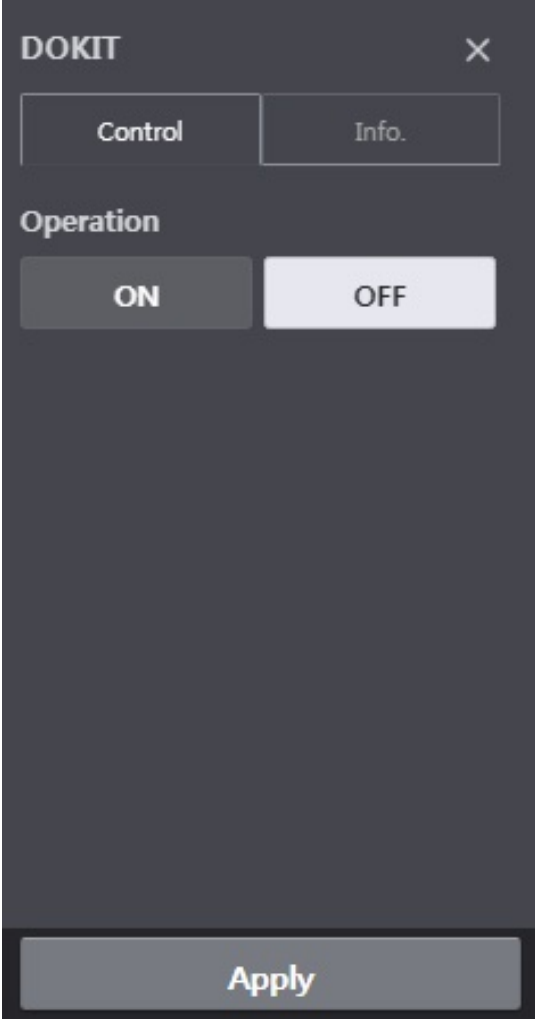
Category	Contents
Operation	[ON] button: starts the device operation [OFF] button: Stops the device operation
Mode	Mode control is impossible. Controls monitored operation mode's set temperature
Set temperature	Set the load water out temperature for indoor cooling/heating/ice making Press [▲]/[▼] button to set the temperature of cooling mode and heating/ice making mode
Alarm	[Clear] button: Clears Chiller alarm in case of Chiller alarm
Motor current limit	Press [▲]/[▼] button to set motor current limit ratio

Absorption Chiller



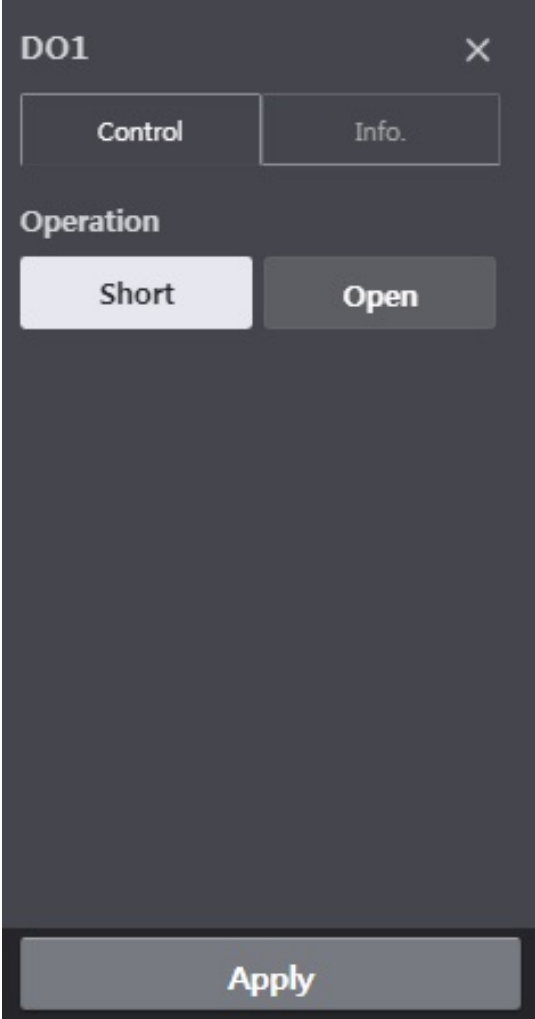
Category	Contents
Operation	• [ON] button: starts the device operation • [OFF] button: Stops the device operation
Mode	Mode control is impossible. Controls monitored operation mode's set temperature
Set temperature	Set the load water out temperature for indoor cooling/heating Press [▲]/[▼] button to set the temperature of cooling mode and heating mode
Alarm	[Clear] button: Clears Chiller alarm in case of Chiller alarm
Control valve upper limit	Press [▲]/[▼] button to set the control valve upper limit ratio

DOKIT



Category	Contents
Operation	• [ON] button: starts the device operation • [OFF] button: Stops the device operation

DO



Category	Contents
Operation	• [Short] button: Short signal output • [Open] button: Open signal output

AO

AO[F7/00]

Control

Info.

Temperature (°C)

20.00

Min 0 ~ Max 100

Apply

Category	Contents
Temperature	Set temperature value

Note

Unit symbol may change according to the usage set during device registration.

Device Information

When you click device information tab in the device's control screen, you can check the device information.

You can check device's basic information, operation information, schedule information, error information, and today's history.

☰Device control

AC_UNIT_00

×

ControlInfo.

Basic information^

NameAC_UNIT_00

Address00

GroupNew group

ODUODU[00]

ModelAC

Capacity3

ODU model

☰Device control

AC_UNIT_00

×

ControlInfo.

Basic informationv

Operation information^

OperationON

ModeAUTO

Current temperature23.0 °C

Set temperature23.0 °C

Fan speedHIGH

Swing

☰Device control

AC_UNIT_00

×

ControlInfo.

Basic informationv

Operation informationv

Schedule information (2)^

TimeDescription

10:00ON Schedule

19:00OFF Schedule

Error informationv

Historyv

☰Device control

AC_UNIT_00

×

ControlInfo.

Basic informationv

Operation informationv

Schedule information (2)v

Error information^

ErrorNo error

Error code0

Error descriptionNo error

Historyv

☰Device control

AC_UNIT_00

×

ControlInfo.

Basic informationv

Operation informationv

Schedule information (2)v

Error informationv

History^

TimeContents

07-31-2018Control Mode: AUTO
PM 04:20ACS

07-31-2018Control Set temp range (lower limit): 20°C
PM 04:20by admin

07-31-2018Control Set temp range (upper limit): 28°C
PM 04:20by admin

07-31-2018Control Mode: AUTO
PM 04:20by admin

Schedule Control

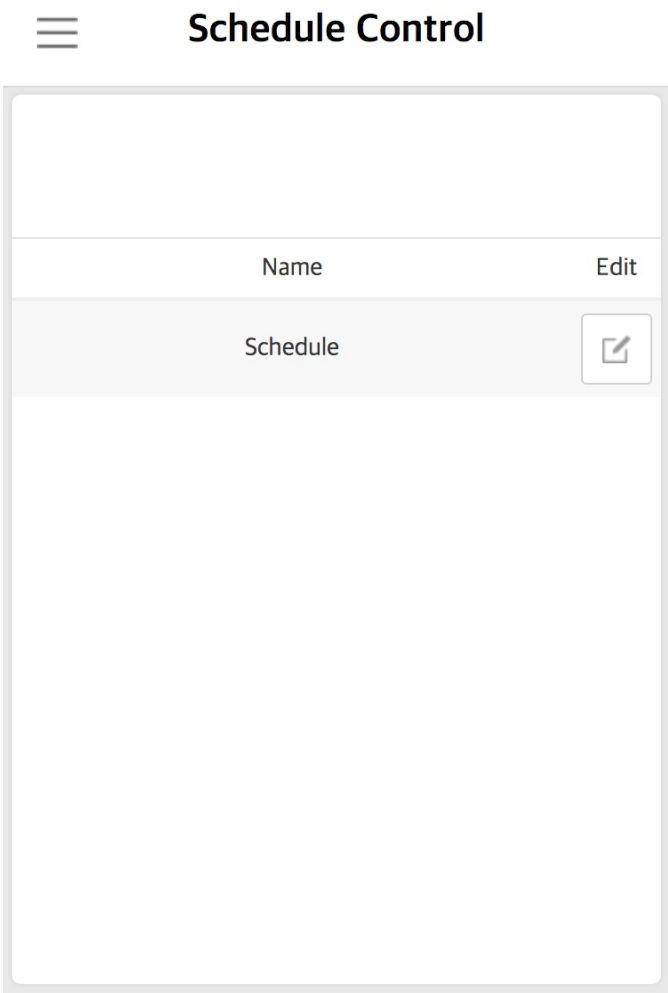
Schedule is a function for device to perform reserved operation at certain time by designating device operation in advance. When this function is used, device operation can be managed in time unit efficiently and energy saving effect is excellent.

[Schedule]

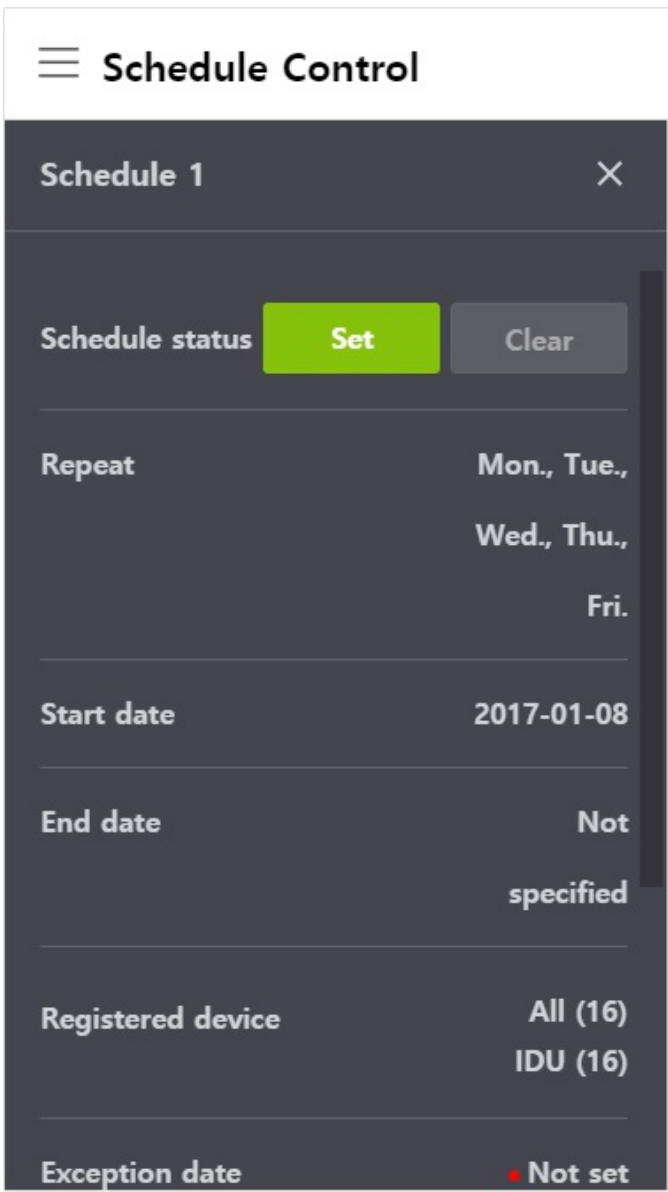
➡ Check schedule

Check schedule

You can see all set schedules.



When you click Edit icon, you can check detail contents of the chedule.



BACnet/Modbus Protocol

Guide on BTL authentication

You need to set BACnet to Type C to make the devices operate using the functions authenticated by BTL.

BACnet Type A/B exists to maintain compatibility with existing products. If you set BACnet to Type A/B, the devices may use the functions not authenticated by BTL, making them to operate differently from the standard.

For BACnet Type settings, go to **[Usage (PC)] > [BACnet/Modbus Setting]** menu.

Operation method according to BACnet type

- Type A: It creates multiple devices, and the objects are included in the device of each equipment. Multiple devices respond using the same MAC address for their physical addresses.
- Type B: It creates multiple devices, and the objects are included in the device of each equipment. Devices respond with unique physical addresses.
- **Type C: It creates only one device, which includes all objects.**

※ **Caution: If you change the type, the device number may be changed, making it necessary to perform additional engineering with the BMS.**

AC Smart 5 can be linked with the BMS (Building Management System) that supports the BACnet IP/Modbus TCP protocol.
The functions that can be controlled or monitored by the BMS vary depending on the protocol.

[BACnet]

- ➔ Commission
- ➔ Object List
- ➔ BIBBs
- ➔ PICS

[Modbus]

- ➔ Commission
- ➔ Function code
- ➔ Register List



BACnet Commission

Commissioning is the process of verifying the subsystems to achieve the owner's project requirements as intended by the building owner and as designed by the building architects and engineers.

After AC Smart 5 installation, you can check the operation status of the device by using the web function before connection with the BMS system.

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

Precautions

- To use BACnet feature, you must select [**Settings**] > [**BACnet/Modbus Setting**] > [**BACnet enable**] as **Set**.
- In case of installing 2 or more AC Smart 5, you must change [**Settings**] > [**BACnet/Modbus Setting**] > [**Device ID Setting**] so that the Device IDs are not duplicate among AC Smart 5. It is recommended that you keep a difference of 10 or more for different Device IDs.
- If Device Discover doesn't work well, change [**Settings**] > [**BACnet/Modbus Setting**] > [**BACnet Type Setting**].
- It is recommended that you request ReadProperty/WriteProperty at an interval of 200 ms or more for each property.
- It is recommended that you request ReadPropertyMultiple/WritePropertyMultiple at an interval of 500 ms or more for each property.
- SubscribeCOV can be registered up to 1024.
- If AC Smart 5 and BMS are located on different networks, BBMD (BACnet/IP Broadcast Management Device) is needed.
- As AC Smart 5 does not support the BBMD function, a separate BBMD is required. You can register AC Smart 5 as a foreign device in BBMD using [**Settings**] > [**BACnet/Modbus Setting**] > [**Register as Foreign Device**] function.



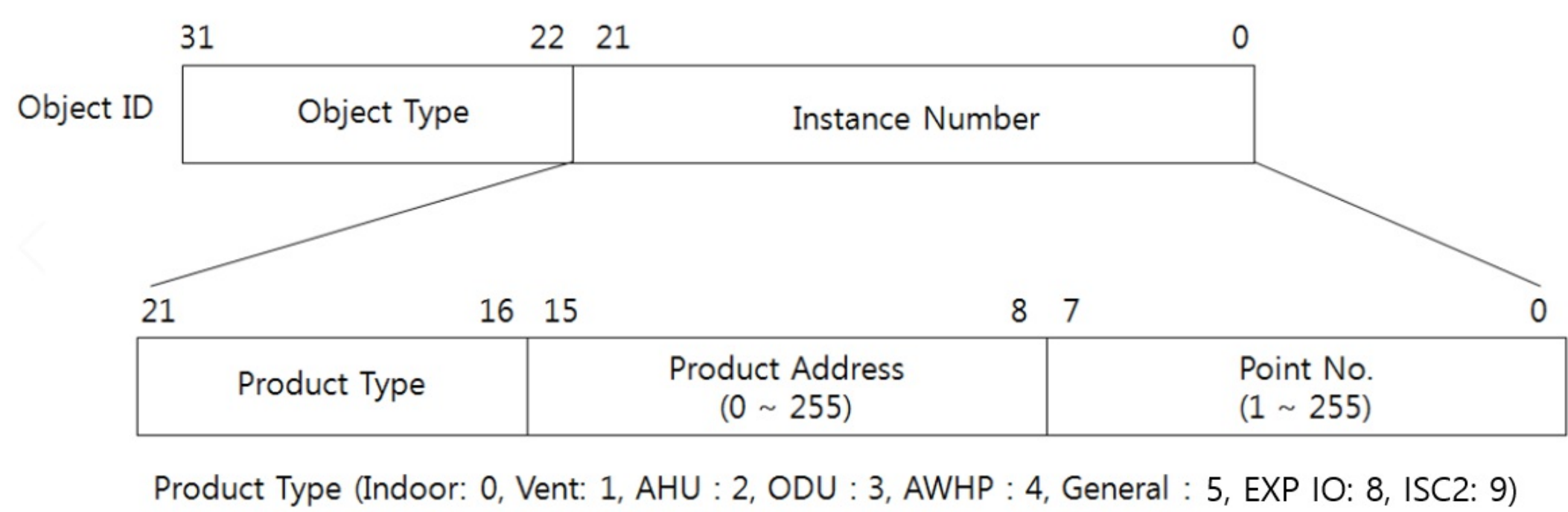
BACnet Object List

It describes the BACnet object list provided by AC Smart 5.

- ➔ Instance Number
- ➔ Indoor Unit Object List
- ➔ ERV Object List
- ➔ AHU Object List
- ➔ Outdoor Unit Object List
- ➔ Heating Object List
- ➔ General Object List
- ➔ EXP.I/O object list
- ➔ Scroll Chiller(Air Cooling) object list

Definition of Instance Number

The instance number of each device is assigned as follows



Example of Instance Number

Description	Product Type	Product Address	Point	Instance Number
IDU Address 0x00, On/Off (Setting)	0	0	1	1
IDU Address 0x00, Operation Mode (Setting)	0	0	7	7
IDU Address 0x1B, On/Off (Setting)	0	27	1	6913
IDU Address 0x1B, Operation Mode (Setting)	0	27	7	6919
ERV Address 0x00, On/Off (Setting)	1	0	1	65537
ERV Address 0x00, Operation Mode (Setting)	1	0	7	65543
ERV Address 0x1B, On/Off (Setting)	1	27	1	72449
ERV Address 0x1B, Operation Mode (Setting)	1	27	7	72455
AHU Address 0x00, On/Off (Setting)	2	0	1	131073
AHU Address 0x00, Operation Mode (Setting)	2	0	7	131079
AHU Address 0x0F, On/Off (Setting)	2	15	1	134913
AHU Address 0x0F, Operation Mode (Setting)	2	15	7	134919
ODU Address 0x00, Compressor Operation	3	0	1	196609
ODU Address 0x00, Operation Mode	3	0	14	196622
ODU Address 0x0F, Compressor Operation	3	15	1	200449
ODU Address 0x0F, Operation Mode	3	15	14	200462
Heating Address 0x00, On/Off (Setting)	4	0	1	262145
Heating Address 0x00, Operation Mode (Setting)	4	0	5	262149
Heating Address 0x0F, On/Off (Setting)	4	15	1	265985
Heating Address 0x0F, Operation Mode (Setting)	4	15	5	265989
Scroll-Air-Inv-Gen2 Address 0x00, On/Off (Setting)	9	0	1	589825
Scroll-Air-Inv-Gen2 Address 0x00, Operation Mode (Setting)	9	0	39	589863
Scroll-Air-Inv-Gen2 Address 0x0F, On/Off (Setting)	9	15	1	595201
Scroll-Air-Inv-Gen2 Address 0x0F, Operation Mode (Setting)	9	15	39	595239
General Object, All Unit Run/Stop (Setting)	5	0	1	327681
General Object, All Unit Set Room Temperature (Setting)	5	0	2	327682

Indoor Unit Object List

One Indoor unit has the following list of points. Some points may not be supported depending on the product.

Point	Description	Object Name(_XXX : Address)	Object Type	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
1	On/Off (Setting)	StartStopCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
2	On/Off (Status)	StartStopStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
3	Lock (Setting)	LockCommand_XXX	BO	-	Permit (0)	Prohibit (1)	-	-	-	-	-
4	Lock (Status)	LockStatus_XXX	BI	-	Permit (0)	Prohibit (1)	-	-	-	-	-
5	Filter Sign	FilterSign_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
6	Filter Sign reset	FilterSignReset_XXX	BV	-	-	Reset (1)	-	-	-	-	-
7	Operation Mode (Setting)	AirConModeCommand_XXX	MO	-	-	Cool (1)	Dry (2)	Fan (3)	Auto (4)	Heat (5)	-
8	Operation Mode (Status)	AirConModeStatus_XXX	MI	-	-	Cool (1)	Dry (2)	Fan (3)	Auto (4)	Heat (5)	-
9	Swing (Setting)	SwingCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
10	Swing (Status)	SwingStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
11	Fan Speed (Setting)	FanSpeedCommand_XXX	MO	-	-	Low (1)	Middle (2)	High (3)	Auto (4)	-	-
12	Fan Speed (Status)	FanSpeedStatus_XXX	MI	-	-	Low (1)	Middle (2)	High (3)	Auto (4)	-	-
13	Set Room Temperature	SetRoomTemp_XXX	AV	℃(°F)	16 °C ~ 30 °C (60 °F ~ 86 °F)						
14	Set Temperature (Status)	RoomTemp_XXX	AI	℃(°F)							
15	Alarm	Alarm_XXX	BI	-	Normal (0)	Abnormal (1)	-	-	-	-	-
16	Error Code	MalfunctionCode_XXX	AI	-	Please refer to LG error code list.						
17	-	-	-	-	-						
18	-	-	-	-	-						
19	Room Temperature	SetTempStatus_XXX	AI	℃(°F)	16 °C ~ 30 °C (60 °F ~ 86 °F)						
20	Accumulated Power Distribution (Status)	Accumulated power(100 Watt)_XXX	AI	100 Watt	Wattage values						
21	-	-	-	-	-						
22	-	-	-	-	-						
23	-	-	-	-	-						
24	-	-	-	-	-						
25	-	-	-	-	-						
26	-	-	-	-	-						
27	Set Upper Temperature (Setting)	TempRangeUpperLimitCommand_XXX	AV	℃(°F)	18 °C ~ 30 °C (64 °F ~ 86 °F)						
28	Set Upper Tempaerature (Status)	TempRangeLowerLimitCommand_XXX	AV	℃(°F)	16 °C ~ 30 °C (60 °F ~ 86 °F)						
29	Set Lower Temperature (Setting)	TempRangeUpperLimitStatus_XXX	AI	℃(°F)	18 °C ~ 30 °C (64 °F ~ 86 °F)						
30	Set Lower Temperature (Status)	TempRangeLowerLimitStatus_XXX	AI	℃(°F)	16 °C ~ 30 °C (60 °F ~ 86 °F)						
31	Mode Lock (Setting)	ModeLockCommand_XXX	BO	-	Permit (0)	Prohibit (1)	-	-	-	-	-
32	Mode Lock (Status)	ModeLockStatus_XXX	BI	-	Permit (0)	Prohibit (1)	-	-	-	-	-
33	Fan Lock (Setting)	FanLockCommand_XXX	BO	-	Permit (0)	Prohibit (1)	-	-	-	-	-
34	Fan Lock (Status)	FanLockStatus_XXX	BI	-	Permit (0)	Prohibit (1)	-	-	-	-	-
35	Occupancy (Setting)	OccupancyCommand_XXX	BO	-	Unoccupied (0)	Occupied (1)	-	-	-	-	-
36	Occupancy (Status)	OccupancyStatus_XXX	BI	-	Unoccupied (0)	Occupied (1)	-	-	-	-	-

37	2Set Cooling Set Temperature (Setting)	2SetCoolingTempCommand_XXX	AV	°C(°F)	10 °C ~ 37.5 °C (50 °F ~ 99 °F)						
38	2Set Cooling Set Temperature (Status)	2SetCoolingTempStatus_XXX	AI	°C(°F)	10 °C ~ 37.5 °C (50 °F ~ 99 °F)						
39	2Set Heating Set Temperature (Setting)	2SetHeatingTempCommand_XXX	AV	°C(°F)	4 °C ~ 32 °C (40 °F ~ 90 °F)						
40	2Set Heating Set Temperature (Status)	2SetHeatingTempStatus_XXX	AI	°C(°F)	4 °C ~ 32 °C (40 °F ~ 90 °F)						
41	2Set Cooling Upper Temperature (Setting)	2SetCoolingUpperLimitCommand_XXX	AV	°C(°F)	10 °C ~ 37.5 °C (50 °F ~ 99 °F)						
42	2Set Cooling Upper Temperature (Status)	2SetCoolingUpperLimitStatus_XXX	AI	°C(°F)	10 °C ~ 37.5 °C (50 °F ~ 99 °F)						
43	2Set Cooling Lower Temperature (Setting)	2SetHeatingUpperLimitCommand_XXX	AV	°C(°F)	4 °C ~ 32 °C (40 °F ~ 90 °F)						
44	2Set Cooling Lower Temperature (Status)	2SetHeatingUpperLimitStatus_XXX	AI	°C(°F)	4 °C ~ 32 °C (40 °F ~ 90 °F)						
45	2Set Heating Upper Temperature (Setting)	2SetCoolingLowerLimitCommand_XXX	AV	°C(°F)	10 °C ~ 37.5 °C (50 °F ~ 99 °F)						
46	2Set Heating Upper Temperature (Status)	2SetCoolingLowerLimitStatus_XXX	AI	°C(°F)	10 °C ~ 37.5 °C (50 °F ~ 99 °F)						
47	2Set Heating Lower Temperature (Setting)	2SetHeatingLowerLimitCommand_XXX	AV	°C(°F)	4 °C ~ 32 °C (40 °F ~ 90 °F)						
48	2Set Heating Lower Temperature (Status)	2SetHeatingLowerLimitStatus_XXX	AI	°C(°F)	4 °C ~ 32 °C (40 °F ~ 90 °F)						
49	Thermo Status (Status)	ThermoStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
50	Accumulated Gas Distribution (Status)	AccumulatedGas(100 Watt)_XXX	AI	100 Liter	Gas values						
51	Dust Sensor Available (Status)	DustSensorAvail_XXX	BI	-	Disabled (0)	Enabled (1)	-	-	-	-	-
52	Air Cleaning Opereration (Setting)	AirCleaningOperCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
53	Air Cleaning Opereration (Status)	AirCleaningOperStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
54	PM10 (Status)	FineDustStatus_XXX	AI	µg/m³							
55	PM2.5 (Status)	UltraFineDustStatus_XXX	AI	µg/m³							
56	PM1.0 (Status)	SuperUltraFineDustStatus_XXX	AI	µg/m³							
57	Humidity (Status)	HumidityStatus_XXX	AI	%							
58	Comfort Cooling Available (Status)	ComfortCoolingAvail_XXX	BI	-	Disabled (0)	Enabled (1)	-	-	-	-	-
59	Comfort Cooling Opereration (Setting)	ComfortCoolingOperCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
60	Comfort Cooling Opereration (Status)	ComfortCoolingOperStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
61	Comfort Cooling Step (Setting)	ComfortCoolingStepCommand_XXX	AV	-	1 step ~ 3 step						
62	Comfort Cooling Step (Status)	ComfortCoolingStepStatus_XXX	AI	-	1 step ~ 3 step						
63	Human Detection Available (Status)	HumanDetectionAvail_XXX	BI	-	Disabled (0)	Enabled (1)	-	-	-	-	-
64	Human Detection Opereration (Setting)	HumanDetectionOperCommand_XXX	MO	-	-	Stop (1)	OnOffSaving (2)	TempSaving (3)	-	-	-
65	Human Detection Opereration (Status)	HumanDetectionOperStatus_XXX	MI	-	-	Stop (1)	OnOffSaving (2)	TempSaving (3)	-	-	-
66	Human Detection Wind (Setting)	HumanDetectionWindCommand_XXX	MO	-	-	Stop (1)	Direct (2)	Indirect (3)	-	-	-
67	Human Detection Wind (Status)	HumanDetectionWindStatus_XXX	MI	-	-	Stop (1)	Direct (2)	Indirect (3)	-	-	-
68	Human Detection Time (Setting)	HumanDetectionTimeCommand_XXX	MO	-	-	5 min (1)	10 min (2)	15 min (3)	30 min (4)	60 min (5)	90 min (6)
69	Human Detection Time (Status)	HumanDetectionTimeStatus_XXX	MI	-	-	5 min (1)	10 min (2)	15 min (3)	30 min (4)	60 min (5)	90 min (6)
70	Hotel Check In (Setting)	HotelCheckinCommand_XXX	BO	-	Check_out (0)	Check_in (1)	-	-	-	-	-
71	Hotel Mode (Setting)	HotelModeCommand_XXX	MO	-	-	Comfort (1)	Pre_comfort (2)	Economy (3)	-	-	-

ERV Object List

One ERV has the following list of points. Some points may not be supported depending on the product.

[illegible]

36	NTFC Available (Status)	NtfcAvail_XXX	BI	-	Disabled (0)	Enabled (1)	-	-	-	-	-
37	NTFC Operation (Setting)	NtfcOperCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
38	NTFC Operation (Status)	NtfcOperStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
39	NTFC Lock (Setting)	NtfcLockCommand_XXX	BO	-	Permit (0)	Prohibit (1)	-	-	-	-	-
40	NTFC Lock (Status)	NtfcLockStatus_XXX	BI	-	Permit (0)	Prohibit (1)	-	-	-	-	-

AHU Object List

One AHU has the following list of points. Some points may not be supported depending on the product.

Point	Description	Object Name(_XXX : Address)	Object Type	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
1	On/Off (Setting)	StartStopCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
2	On/Off (Status)	StartStopStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
3	Lock (Setting)	LockCommand_XXX	BO	-	Permit (0)	Prohibit (1)	-	-	-	-	-
4	Lock (Status)	LockStatus_XXX	BI	-	Permit (0)	Prohibit (1)	-	-	-	-	-
5	Filter Sign	FilterSign_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
6	-	-	-	-	-						
7	Operation Mode (Setting)	AirConModeCommand_XXX	MO	-	-	Cool (1)	Dry (2)	Fan (3)	Heat (4)	Energy saving (5)	-
8	Operation Mode (Status)	AirConModeStatus_XXX	MI	-	-	Cool (1)	Dry (2)	Fan (3)	Heat (4)	Energy saving (5)	-
9	-	-	-	-	-						
10	-	-	-	-	-						
11	Fan Speed (Setting)	FanSpeedCommand_XXX	MO	-	-	High (1)	Middle (2)	Low (3)	-	-	-
12	Fan Speed (Status)	FanSpeedStatus_XXX	MI	-	-	High (1)	Middle (2)	Low (3)	-	-	-
13	Set Room Temperature	SetRoomTemp_XXX	AV	°C(°F)	18 °C ~ 30 °C (64 °F ~ 86 °F)						
14	Set Temperature (Status)	RoomTemp_XXX	AI	°C(°F)							
15	Alarm	Alarm_XXX	BI	-	Normal (0)	Abnormal (1)	-	-	-	-	-
16	Error Code	MalfunctionCode_XXX	AI	-	Please refer to LG error code list.						
17	-	-	-	-	-						
18	-	-	-	-	-						
19	Room Temperature	SetTempStatus_XXX	AI	°C(°F)	18 °C ~ 30 °C (64 °F ~ 86 °F)						
20	FireAlarm (Setting)	FireAlarmCommand_XXX	BO	-	Off (0)	On (1)	-	-	-	-	-
21	FireAlarm (Status)	FireAlarmStatus_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
22	Humidity (Setting)	SetHumidityCommand_XXX	AV	%	40 % ~ 60 %						
23	Humidity (Status)	SetHumidityStatus_XXX	AI	%	40 % ~ 60 %						
24	Humidify ON/OFF (Setting)	HumidifyCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
25	Humidify ON/OFF (Status)	HumidifyStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
26	Auto Ventilation ON/OFF (Setting)	AutoVentilCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
27	Auto Ventilation ON/OFF (Status)	AutoVentilStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
28	Supply Unit Temperature (Status)	SupplyTempStatus_XXX	AI	°C(°F)							
29	Outdoor Unit Temperature (Status)	OutdoorTempStatus_XXX	AI	°C(°F)							
30	Mix Unit Temperature (Status)	MixTempStatus_XXX	AI	°C(°F)							
31	Supply Unit Humidity (Status)	SupplyHumidifyStatus_XXX	AI	%							
32	Outdoor Unit Humidity (Status)	OutdoorHumidifyStatus_XXX	AI	%							
33	Ventilation Unit Humidity (Status)	VentilHumidifyStatus_XXX	AI	%							
34	CO2 Value (Status)	CO2ValueStatus_XXX	AI	-	0~255 (Real Value = Value*10, Example : In case Value is 20, CO2 is 20*10=200ppm)						
35	Humidity Unit ON/OFF (Status)	HumidifyUnitStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
36	Heating Unit ON/OFF (Status)	HeaterUnitStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
37	Ventilator FAN ON/OFF (Status)	VentilFanStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
38	Supply Unit FAN ON/OFF (Status)	SupplyFanStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
39	Current OA Damper (Status)	CurrOADamperStatus_XXX	AI	°	0 ° ~ 90 °						
40	Current EA Damper (Status)	CurrEADamperStatus_XXX	AI	°	0 ° ~ 90 °						
41	Current Mix Damper (Status)	CurrMixDamperStatus_XXX	AI	°	0 ° ~ 90 °						
42	Cooling OA Damper (Setting)	OADamperCoolCommand_XXX	AV	°	0 ° ~ 90 °						
43	Cooling OA Damper (Status))	OADamperCoolStatus_XXX	AI	°	0 ° ~ 90 °						
44	Cooling EA Damper (Setting)	EADamperCoolCommand_XXX	AV	°	0 ° ~ 90 °						
45	Cooling EA Damper (Status))	EADamperCoolStatus_XXX	AI	°	0 ° ~ 90 °						

46	Cooling Mix Damper (Setting)	MixDamperCoolCommand_XXX	AV	°	0 ° ~ 90 °
47	Cooling Mix Damper (Status))	MixDamperCoolStatus_XXX	AI	°	0 ° ~ 90 °
48	Heating OA Damper (Setting)	OADamperHeatCommand_XXX	AV	°	0 ° ~ 90 °
49	Heating OA Damper (Status))	OADamperHeatStatus_XXX	AI	°	0 ° ~ 90 °
50	Heating EA Damper (Setting)	EADamperHeatCommand_XXX	AV	°	0 ° ~ 90 °
51	Heating EA Damper (Status))	EADamperHeatStatus_XXX	AI	°	0 ° ~ 90 °
52	Heating Mix Damper (Setting)	MixDamperHeatCommand_XXX	AV	°	0 ° ~ 90 °
53	Heating Mix Damper (Status))	MixDamperHeatStatus_XXX	AI	°	0 ° ~ 90 °
54	FAN OA Damper (Setting)	OADamperFanCommand_XXX	AV	°	0 ° ~ 90 °
55	FAN OA Damper (Status))	OADamperFanStatus_XXX	AI	°	0 ° ~ 90 °
56	FAN EA Damper (Setting)	EADamperFanCommand_XXX	AV	°	0 ° ~ 90 °
57	FAN EA Damper (Status))	EADamperFanStatus_XXX	AI	°	0 ° ~ 90 °
58	FAN Mix Damper (Setting)	MixDamperFanCommand_XXX	AV	°	0 ° ~ 90 °
59	FAN Mix Damper (Status))	MixDamperFanStatus_XXX	AI	°	0 ° ~ 90 °

Outdoor unit Object List

One outdoor unit has the following list of points. Some points may not be supported depending on the product.

Point	Description	Object Name(_XXX : Address)	Object Type	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
1	Compressor Operation	CompressorOperation_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
2	Refrigerant Type	RefrigerantType_XXX	MI	-	-	R407C (1)	R22 (2)	R410A (3)	-	-	-
3	Fan1 Frequency	Fan1Frequency_XXX	AI	rpm							
4	High Pressure	HighPressure_XXX	AI	kPa							
5	Low Pressure	LowPressure_XXX	AI	kPa							
6	Compressor Suction Temp	CompressorSunctionTemp_XXX	AI	°C(°F)							
7	Liquid Pipe Temp	LiquidPipeTemp_XXX	AI	°C(°F)							
8	Heat Exchange Temp	HeatExchangeTemp_XXX	AI	°C(°F)							
9	Outdoor Unit EEV	OutdoorUnitEEV_XXX	AI	-							
10	Over-cooler EEV	Over-coolerEEV_XXX	AI	-							
11	Hot Gas Valve	HotGasValue_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
12	Inverter Discharge Temp	InverterDischargeTemp_XXX	AI	°C(°F)							
13	Air Temp	AirTemp_XXX	AI	°C(°F)							
14	Operation Mode	OperationMode_XXX	MI	-	-	Stop (1)	Cool (2)	Heat (3)	-	-	-
15	Error Code	ErrorCode_XXX	AI	0~255							
16	Inverter1 Compressor Frequency	Inverter1CompressorFrequency_XXX	AI	rpm							
17	Inverter2 Compressor Frequency	Inverter2CompressorFrequency_XXX	AI	rpm							
18	Fan2 Frequency	Fan2Frequency_XXX	AI	rpm							
19	Inverter2 Discharge Temp	Inverter2DischargeTemp_XXX	AI	°C(°F)							
20	Std1 Discharge Temp	Std1DischargeTemp_XXX	AI	°C(°F)							
21	Std2 Discharge Temp	Std2DischargeTemp_XXX	AI	°C(°F)							
22	Upper Hex Temp	UpperHexTemp_XXX	AI	°C(°F)							
23	Lower Hex Temp	LowerHexTemp_XXX	AI	°C(°F)							
24	Sub Cool Pipe In Temp	SubCoolPipeInTemp_XXX	AI	°C(°F)							
25	Sub Cool Pipe Out Temp	SubCoolPipeOutTemp_XXX	AI	°C(°F)							
26	Sub EEV Pulse	SubEevPulse_XXX	AI	-							
27	Oil Equalizing EEV	OilEqualizingEEV_XXX	AI	-							
28	Vapor Injection EEV1	ViEev1_XXX	AI	-							
29	Vapor Injection EEV2	ViEev2_XXX	AI	-							
30	Inverter1 Heater	Inverter1Heater_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
31	Inverter2 Heater	Inverter2Heater_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
32	Inverter1 Oil Sensor	Inverter1OilSensor_XXX	BI	-	Not Detect Oil (0)	Detect Oil (1)	-	-	-	-	-
33	Inverter2 Oil Sensor	Inverter2OilSensor_XXX	BI	-	Not Detect Oil (0)	Detect Oil (1)	-	-	-	-	-
34	Inverter1 Backup	Inverter1Backup_XXX	BI	-	Not Used (0)	Used (1)	-	-	-	-	-
35	Inverter2 Backup	Inverter2Backup_XXX	BI	-	Not Used (0)	Used (1)	-	-	-	-	-
36	DDC	DDC_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
37-64	Additional Point for Master Outdoor Unit										
65	(Slave1) Compressor Operation	CompressorOperation_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
66	(Slave1) Refrigerant Type	RefrigerantType_XXX	MI	-	-	R407C (1)	R22 (2)	R410A (3)	-	-	-
67	(Slave1) Fan1 Frequency	Fan1Frequency_XXX	AI	rpm							
68	(Slave1) High Pressure	HighPressure_XXX	AI	kPa							
69	(Slave1) Low Pressure	LowPressure_XXX	AI	kPa							

70	(Slave1) Compressor Suction Temp	CompressorSunctionTemp_XXX	AI	℃(°F)														
71	(Slave1) Liquid Pipe Temp	LiquidPipeTemp_XXX	AI	℃(°F)														
72	(Slave1) Heat Exchange Temp	HeatExchangeTemp_XXX	AI	℃(°F)														
73	(Slave1) Outdoor Unit EEV	OutdoorUnitEEV_XXX	AI	-														
74	(Slave1) Over-cooler EEV	Over-coolerEEV_XXX	AI	-														
75	(Slave1) Hot Gas Valve	HotGasValue_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-							
76	(Slave1) Inverter Discharge Temp	InverterDischargeTemp_XXX	AI	℃(°F)														
77	(Slave1) Air Temp	AirTemp_XXX	AI	℃(°F)														
78	(Slave1) Operation Mode	OperationMode_XXX	MI	-	-	Stop (1)	Cool (2)	Heat (3)	-	-	-							
79	(Slave1) Error Code	ErrorCode_XXX	AI	0~255														
80	(Slave1) Inverter1 Compressor Frequency	Inverter1CompressorFrequency_XXX	AI	rpm														
81	(Slave1) Inverter2 Compressor Frequency	Inverter2CompressorFrequency_XXX	AI	rpm														
82	(Slave1) Fan2 Frequency	Fan2Frequency_XXX	AI	rpm														
83	(Slave1) Inverter2 Discharge Temp	Inverter2DischargeTemp_XXX	AI	℃(°F)														
84	(Slave1) Std1 Discharge Temp	Std1DischargeTemp_XXX	AI	℃(°F)														
85	(Slave1) Std2 Discharge Temp	Std2DischargeTemp_XXX	AI	℃(°F)														
86	(Slave1) Upper Hex Temp	UpperHexTemp_XXX	AI	℃(°F)														
87	(Slave1) Lower Hex Temp	LowerHexTemp_XXX	AI	℃(°F)														
88	(Slave1) Sub Cool Pipe In Temp	SubCoolPipeInTemp_XXX	AI	℃(°F)														
89	(Slave1) Sub Cool Pipe Out Temp	SubCoolPipeOutTemp_XXX	AI	℃(°F)														
90	(Slave1) Sub EEV Pulse	SubEevPulse_XXX	AI	-														
91	(Slave1) Oil Equalizing EEV	OilEqualizingEEV_XXX	AI	-														
92	(Slave1) Vapor Injection EEV1	ViEev1_XXX	AI	-														
93	(Slave1) Vapor Injection EEV2	ViEev2_XXX	AI	-														
94	(Slave1) Inverter1 Heater	Inverter1Heater_XXX	BI	-								Off (0)	On (1)	-	-	-	-	-
95	(Slave1) Inverter2 Heater	Inverter2Heater_XXX	BI	-								Off (0)	On (1)	-	-	-	-	-
96	(Slave1) Inverter1 Oil Sensor	Inverter1OilSensor_XXX	BI	-	Not Detect Oil (0)	Detect Oil (1)	-	-	-	-	-							
97	(Slave1) Inverter2 Oil Sensor	Inverter2OilSensor_XXX	BI	-	Not Detect Oil (0)	Detect Oil (1)	-	-	-	-	-							
98	(Slave1) Inverter1 Backup	Inverter1Backup_XXX	BI	-	Not Used (0)	Used (1)	-	-	-	-	-							
99	(Slave1) Inverter2 Backup	Inverter2Backup_XXX	BI	-	Not Used (0)	Used (1)	-	-	-	-	-							
100	(Slave1) DDC	DDC_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-							
101-128	Additional Point for Slave1 Outdoor Unit																	
129	(Slave2) Compressor Operation	CompressorOperation_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-							
130	(Slave2) Refrigerant Type	RefrigerantType_XXX	MI	-	-	R407C (1)	R22 (2)	R410A (3)	-	-	-							
131	(Slave2) Fan1 Frequency	Fan1Frequency_XXX	AI	rpm														
132	(Slave2) High Pressure	HighPressure_XXX	AI	kPa														
133	(Slave2) Low Pressure	LowPressure_XXX	AI	kPa														
134	(Slave2) Compressor Suction Temp	CompressorSunctionTemp_XXX	AI	℃(°F)														
135	(Slave2) Liquid Pipe Temp	LiquidPipeTemp_XXX	AI	℃(°F)														
136	(Slave2) Heat Exchange Temp	HeatExchangeTemp_XXX	AI	℃(°F)														
137	(Slave2) Outdoor Unit EEV	OutdoorUnitEEV_XXX	AI	-														
138	(Slave2) Over-cooler EEV	Over-coolerEEV_XXX	AI	-														
139	(Slave2) Hot Gas Valve	HotGasValue_XXX	BI	-								Off (0)	On (1)	-	-	-	-	-
140	(Slave2) Inverter Discharge Temp	InverterDischargeTemp_XXX	AI	℃(°F)														
141	(Slave2) Air Temp	AirTemp_XXX	AI	℃(°F)														
142	(Slave2) Operation Mode	OperationMode_XXX	MI	-	-	Stop (1)	Cool (2)	Heat (3)	-	-	-							
143	(Slave2) Error Code	ErrorCode_XXX	AI	0~255														

144	(Slave2) Inverter1 Compressor Frequency	Inverter1CompressorFrequency_XXX	AI	rpm							
145	(Slave2) Inverter2 Compressor Frequency	Inverter2CompressorFrequency_XXX	AI	rpm							
146	(Slave2) Fan2 Frequency	Fan2Frequency_XXX	AI	rpm							
147	(Slave2) Inverter2 Discharge Temp	Inverter2DischargeTemp_XXX	AI	°C(°F)							
148	(Slave2) Std1 Discharge Temp	Std1DischargeTemp_XXX	AI	°C(°F)							
149	(Slave2) Std2 Discharge Temp	Std2DischargeTemp_XXX	AI	°C(°F)							
150	(Slave2) Upper Hex Temp	UpperHexTemp_XXX	AI	°C(°F)							
151	(Slave2) Lower Hex Temp	LowerHexTemp_XXX	AI	°C(°F)							
152	(Slave2) Sub Cool Pipe In Temp	SubCoolPipeInTemp_XXX	AI	°C(°F)							
153	(Slave2) Sub Cool Pipe Out Temp	SubCoolPipeOutTemp_XXX	AI	°C(°F)							
154	(Slave2) Sub EEV Pulse	SubEevPulse_XXX	AI	-							
155	(Slave2) Oil Equalizing EEV	OilEqualizingEEV_XXX	AI	-							
156	(Slave2) Vapor Injection EEV1	ViEev1_XXX	AI	-							
157	(Slave2) Vapor Injection EEV2	ViEev2_XXX	AI	-							
158	(Slave2) Inverter1 Heater	Inverter1Heater_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
159	(Slave2) Inverter2 Heater	Inverter2Heater_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
160	(Slave2) Inverter1 Oil Sensor	Inverter1OilSensor_XXX	BI	-	Not Detect Oil (0)	Detect Oil (1)	-	-	-	-	-
161	(Slave2) Inverter2 Oil Sensor	Inverter2OilSensor_XXX	BI	-	Not Detect Oil (0)	Detect Oil (1)	-	-	-	-	-
162	(Slave2) Inverter1 Backup	Inverter1Backup_XXX	BI	-	Not Used (0)	Used (1)	-	-	-	-	-
163	(Slave2) Inverter2 Backup	Inverter2Backup_XXX	BI	-	Not Used (0)	Used (1)	-	-	-	-	-
164	(Slave2) DDC	DDC_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
165-192	Additional Point for Slave2 Outdoor Unit										
193	(Slave3) Compressor Operation	CompressorOperation_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
194	(Slave3) Refrigerant Type	RefrigerantType_XXX	MI	-	-	R407C (1)	R22 (2)	R410A (3)	-	-	-
195	(Slave3) Fan1 Frequency	Fan1Frequency_XXX	AI	rpm							
196	(Slave3) High Pressure	HighPressure_XXX	AI	kPa							
197	(Slave3) Low Pressure	LowPressure_XXX	AI	kPa							
198	(Slave3) Compressor Suction Temp	CompressorSunctionTemp_XXX	AI	°C(°F)							
199	(Slave3) Liquid Pipe Temp	LiquidPipeTemp_XXX	AI	°C(°F)							
200	(Slave3) Heat Exchange Temp	HeatExchangeTemp_XXX	AI	°C(°F)							
201	(Slave3) Outdoor Unit EEV	OutdoorUnitEEV_XXX	AI	-							
202	(Slave3) Over-cooler EEV	Over-coolerEEV_XXX	AI	-							
203	(Slave3) Hot Gas Valve	HotGasValue_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
204	(Slave3) Inverter Discharge Temp	InverterDischargeTemp_XXX	AI	°C(°F)							
205	(Slave3) Air Temp	AirTemp_XXX	AI	°C(°F)							
206	(Slave3) Operation Mode	OperationMode_XXX	MI	-	-	Stop (1)	Cool (2)	Heat (3)	-	-	-
207	(Slave3) Error Code	ErrorCode_XXX	AI	0~255							
208	(Slave3) Inverter1 Compressor Frequency	Inverter1CompressorFrequency_XXX	AI	rpm							
209	(Slave3) Inverter2 Compressor Frequency	Inverter2CompressorFrequency_XXX	AI	rpm							
210	(Slave3) Fan2 Frequency	Fan2Frequency_XXX	AI	rpm							
211	(Slave3) Inverter2 Discharge Temp	Inverter2DischargeTemp_XXX	AI	°C(°F)							
212	(Slave3) Std1 Discharge Temp	Std1DischargeTemp_XXX	AI	°C(°F)							
213	(Slave3) Std2 Discharge Temp	Std2DischargeTemp_XXX	AI	°C(°F)							
214	(Slave3) Upper Hex Temp	UpperHexTemp_XXX	AI	°C(°F)							
215	(Slave3) Lower Hex Temp	LowerHexTemp_XXX	AI	°C(°F)							
216	(Slave3) Sub Cool Pipe In Temp	SubCoolPipeInTemp_XXX	AI	°C(°F)							

217	(Slave3) Sub Cool Pipe Out Temp	SubCoolPipeOutTemp_XXX	AI	°C(°F)							
218	(Slave3) Sub EEV Pulse	SubEevPulse_XXX	AI	-							
219	(Slave3) Oil Equalizing EEV	OilEqualizingEEV_XXX	AI	-							
220	(Slave3) Vapor Injection EEV1	ViEev1_XXX	AI	-							
221	(Slave3) Vapor Injection EEV2	ViEev2_XXX	AI	-							
222	(Slave3) Inverter1 Heater	Inverter1Heater_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
223	(Slave3) Inverter2 Heater	Inverter2Heater_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
224	(Slave3) Inverter1 Oil Sensor	Inverter1OilSensor_XXX	BI	-	Not Detect Oil (0)	Detect Oil (1)	-	-	-	-	-
225	(Slave3) Inverter2 Oil Sensor	Inverter2OilSensor_XXX	BI	-	Not Detect Oil (0)	Detect Oil (1)	-	-	-	-	-
226	(Slave3) Inverter1 Backup	Inverter1Backup_XXX	BI	-	Not Used (0)	Used (1)	-	-	-	-	-
227	(Slave3) Inverter2 Backup	Inverter2Backup_XXX	BI	-	Not Used (0)	Used (1)	-	-	-	-	-
228	(Slave3) DDC	DDC_XXX	BI	-	Off (0)	On (1)	-	-	-	-	-
229-256	Additional Point for Slave3 Outdoor Unit										

Heating Object List

One Heating has the following list of points. Some points may not be supported depending on the product.

Point	Description	Object Name(_XXX : Address)	Object Type	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
1	On/Off (Setting)	StartStopCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
2	On/Off (Status)	StartStopStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
3	Lock (Setting)	LockCommand_XXX	BO	-	Permit (0)	Prohibit (1)	-	-	-	-	-
4	Lock (Status)	LockStatus_XXX	BI	-	Permit (0)	Prohibit (1)	-	-	-	-	-
5	Operation Mode (Setting)	AirConModeCommand_XXX	MO	-	-	Cool (1)	Heat (2)	Auto (3)	-	-	-
6	Operation Mode (Status)	AirConModeStatus_XXX	MI	-	-	Cool (1)	Heat (2)	Auto (3)	-	-	-
7	Set Room Temperature (Setting)	SetRoomTempCommand_XXX	AV	℃(°F)	16 °C ~ 30 °C (60 °F ~ 86 °F)						
8	Set Room Temperature (Status)	SetRoomTempStatus_XXX	AI	℃(°F)	16 °C ~ 30 °C (60 °F ~ 86 °F)						
9	Set Hot Water Temperature (Setting)	SetHotWaterTempCommand_XXX	AV	℃(°F)	30 °C ~ 80 °C (86 °F ~ 176 °F)						
10	Set Hot Water Temperature (Status)	SetHotWaterTempStatus_XXX	AI	℃(°F)	30 °C ~ 80 °C (86 °F ~ 176 °F)						
11	Set PipeOut Water Temperature (Setting)	SetPipeOutWaterTempCommand_XXX	AV	℃(°F)	6 °C ~ 80 °C (42 °F ~ 176 °F)						
12	Set PipeOut Water Temperature (Status)	SetPipeOutWaterTempStatus_XXX	AI	℃(°F)	6 °C ~ 80 °C (42 °F ~ 176 °F)						
13	Setting Temperature Reference (Air/Water)	AirWaterFlag_XXX	BI	-	Air (0)	Water (1)	-	-	-	-	-
14	Hot Water Only Mode	HotWaterOnlyFlag_XXX	BI	-	Normal (0)	Hot Water Only (1)	-	-	-	-	-
15	Set Temperature (Status)	RoomTemp_XXX	AI	℃(°F)							
16	Alarm	Alarm_XXX	BI	-	Normal (0)	Abnormal (1)	-	-	-	-	-
17	Error Code	MalfunctionCode_XXX	AI	-	Please refer to LG error code list.						
18	HotWater On/Off (Setting)	HotWaterCommand_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
19	HotWater On/Off (Status)	HotWaterStatus_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
20	Pipe Inlet Temperature Status	PipeInTempStatus_XXX	AI	℃(°F)							
21	Water Tank Temperature Status	TankTempStatus_XXX	AI	℃(°F)							
22	Solar Temperature Status	SolarTempStatus_XXX	AI	℃(°F)							
23	Pipe Outlet Temperature tatus	PipeOutTempStatus_XXX	AI	℃(°F)							
24	Accumulated Power Distribution (Status)	Accumulated power(100 Watt)_XXX	AI	100 Watt	Wattage values						

General Object List

This is the list of BACnet objects provided for the general information. Some points may not be supported depending on the product.

Point	Description	Object Name(_XXX : Address)	Object Type	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
1	All Unit Run/Stop (Setting)	AllStartStopCommand	BO	-	Stop (0)	Start (1)	-	-	-	-	-
2	All Unit Set Room Temperature (Setting)	AllSetRoomTempCommand	AV	°C(°F)	18 °C ~ 30 °C (64 °F ~ 86 °F)						
3	All Unit Temperature Lock (Setting)	AllTempLockCommand	BO	-	Permit (0)	Prohibit (1)	-	-	-	-	-
4	Total Accumulated Power (Status)	TotalAccumulatedPower	AI	100 Watt	Wattage values						
5	Peak Control Operation (Setting)	PeakStartStopCommand	BO	-	Stop (0)	Start (1)	-	-	-	-	-
6	Peak Control Operation (Status)	PeakStartStopStatus	BI	-	Stop (0)	Start (1)	-	-	-	-	-
7	Peak Shift Time(Setting)	PeakShiftTimeCommand	AV	min	5 min ~ 15 min						
8	Peak Shift Time(Status)	PeakShiftTimeStatus	AI	min	5 min ~ 15 min						
9	Peak Target Ratio(Setting)	PeakTargetCommand	AV	%	0 % ~ 100 %						
10	Peak Target Ratio(Status)	PeakTargetStatus	AI	%	0 % ~ 100 %						
11	Peak Current Running Ratio(Status)	PeakCurrentStatus	AI	%	0 % ~ 100 %						
12	Remote Shutdown(Setting)	RemoteShutDownCommand	BO	-	Normal (0)	Shutdown (1)	-	-	-	-	-
13	Temperature Unit Setting (Setting)	TempUnitCommand	BO	-	°C (0)	°F (1)	-	-	-	-	-
14	Temperature Unit Setting (Status)	TempUnitStatus	BI	-	°C (0)	°F (1)	-	-	-	-	-

Scroll-Air-Inv-Gen2 object list

Scroll-Air-Inv-Gen2 has a point list as shown below. Some points may not be supported depending on the product.

Point	Description	Object Name(_XXX : Address)	Object Type	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
1	On/Off (Setting)	Operation_XXX	BO	-	Stop (0)	Start (1)	-	-	-	-	-
2	Chilled Water Flow Switch	ChilledWaterFlowSwitch_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
3	Chilled Water Pump Output	ChilledWaterPumpOutput_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
4	Chilled Water Pump Output	ChilledWaterPumpInterlock_XXX	BI	-	Stop (0)	Start (1)	-	-	-	-	-
5	Main PCB Version	MainPCB_Version_XXX	AI	-							
6	Total Current Consumption	CurrentConsumption_XXX	AI	-							
7	Outside Air Temp	OutsideAirTemp_XXX	AI	°C(°F)							
8	Chilled Water Leaving Temp	ChilledWaterLeavingTemp_XXX	AI	°C(°F)							
9	Chilled Water Entering Temp	ChilledWaterEnteringTemp_XXX	AI	°C(°F)							
10	Error Cycle	ErrorCycle_XXX	AI	-							
11	Error Code	ErrorCode_XXX	AI	-							
12	Left To Start Time	LeftToStartTime_XXX	AI	sec							
13	Total Operation Time(high)	TotalOperationTime(high)_XXX	AI	min							
14	Total Operation Time(low)	TotalOperationTime(low)_XXX	AI	min							
15	Cycle1_1 Water Leaving Temp	Cycle1_1WaterLeavingTemp_XXX	AI	°C(°F)							
16	Cycle1_2 Water Leaving Temp	Cycle1_2WaterLeavingTemp_XXX	AI	°C(°F)							
17	Cycle1_1 Inverter Comp Freq	Cycle1_1InvCompFreq_XXX	AI	Hz							
18	Cycle1_2 Inverter Comp Freq	Cycle1_2InvCompFreq_XXX	AI	Hz							
19	Cycle1_1 HighPressure	Cycle1_1HighPressure_XXX	AI	kPa							
20	Cycle1_2 HighPressure	Cycle1_2HighPressure_XXX	AI	kPa							
21	Cycle1_1 LowPressure	Cycle1_1LowPressure_XXX	AI	kPa							
22	Cycle1_2 LowPressure	Cycle1_2LowPressure_XXX	AI	kPa							
23	Cycle2_1 Water Leaving Temp	Cycle2_1WaterLeavingTemp_XXX	AI	°C(°F)							
24	Cycle2_2 Water Leaving Temp	Cycle2_2WaterLeavingTemp_XXX	AI	°C(°F)							
25	Cycle2_1 Inverter Comp Freq	Cycle2_1InvCompFreq_XXX	AI	Hz							
26	Cycle2_2 Inverter Comp Freq	Cycle2_2InvCompFreq_XXX	AI	Hz							
27	Cycle2_1 HighPressure	Cycle2_1HighPressure_XXX	AI	kPa							
28	Cycle2_2 HighPressure	Cycle2_2HighPressure_XXX	AI	kPa							
29	Cycle2_1 LowPressure	Cycle2_1LowPressure_XXX	AI	kPa							
30	Cycle2_2 LowPressure	Cycle2_2LowPressure_XXX	AI	kPa							
31	Cycle3_1 Water Leaving Temp	Cycle3_1WaterLeavingTemp_XXX	AI	°C(°F)							
32	Cycle3_2 Water Leaving Temp	Cycle3_2WaterLeavingTemp_XXX	AI	°C(°F)							
33	Cycle3_1 Inverter Comp Freq	Cycle3_1InvCompFreq_XXX	AI	Hz							
34	Cycle3_1 Inverter Comp Freq	Cycle3_2InvCompFreq_XXX	AI	Hz							
35	Cycle3_1 HighPressure	Cycle3_1HighPressure_XXX	AI	kPa							
36	Cycle3_2 HighPressure	Cycle3_2HighPressure_XXX	AI	kPa							
37	Cycle3_1 LowPressure	Cycle3_1LowPressure_XXX	AI	kPa							
38	Cycle3_2 LowPressure	Cycle3_2LowPressure_XXX	AI	kPa							
39	Mode(Setting)	ModeCommand_XXX	MO	-	-	Cool	-	-	-	Heat	-
40	Mode(Status)	ModeStatus_XXX	MI	-	-	Cool	-	-	-	Heat	-
41	Set Cool Water Temp	SetCoolWaterTemp_XXX	AV	°C(°F)							
42	Set Hot Water Temp	SetHotWaterTemp_XXX	AV	°C(°F)							

BIBBs

BACnet Interoperability Building Blocks

Alarm and Event Management, Scheduling, Trending and Network Security BIBBs are not supported.

Data Sharing BIBBs

(□:Not supported, ■: Supported)

BIBB Type		Supported	Service	Initiate	Execute
DS-RP-A	Data Sharing-ReadProperty-A	□	ReadProperty	X	
DS-RP-B	Data Sharing-ReadProperty-B	■	ReadProperty		X
DS-RPM-A	Data Sharing-ReadPropertyMultiple-A	□	ReadPropertyMultiple	X	
DS-RPM-B	Data Sharing-ReadPropertyMultiple-B	■	ReadPropertyMultiple		X
DS-RPC-A	Data Sharing-ReadPropertyConditional-A	□	ReadPropertyConditional	X	
DS-RPC-B	Data Sharing-ReadPropertyConditional-B	□	ReadPropertyConditional		X
DS-WP-A	Data Sharing-WriteProperty-A	□	WriteProperty	X	
DS-WP-B	Data Sharing-WriteProperty-B	■	WriteProperty		X
DS-WPM-A	Data Sharing-WritePropertyMultiple-A	□	WritePropertyMultiple	X	
DS-WPM-B	Data Sharing-WritePropertyMultiple-B	■	WritePropertyMultiple		X
DS-COV-A	Data Sharing-Change Of Value-A	□	SubscribeCOV	X	
			ConfirmedCOVNotification		X
			UnconfirmedCOVNotification		X
DS-COV-B	Data Sharing-Change Of Value-B	■	SubscribeCOV		X
			ConfirmedCOVNotification	X	
			UnconfirmedCOVNotification	X	
DS-COVP-A	Data Sharing-Change Of Value Property-A	□	SubscribeCOVProperty	X	
			ConfirmedCOVNotification		X
			UnconfirmedCOVNotification		X
DS-COVP-B	Data Sharing-Change Of Value Property-B	□	SubscribeCOVProperty		X
			ConfirmedCOVNotification	X	
			UnconfirmedCOVNotification	X	
DS-COVU-A	Data Sharing-Change Of Value Unsubscribed-A	□	UnconfirmedCOVNotification		X
DS-COVU-B	Data Sharing-Change Of Value Unsubscribed-B	□	UnconfirmedCOVNotification	X	

Device and Network Management BIBBs

(□:Not supported, ■: Supported)

BIBB Type		Supported	Service	Initiate	Execute
DM-DDB-A	Device Management-Dynamic Device Binding-A	□	Who-Is	X	
			I-Am		X
DM-DDB-B	Device Management-Dynamic Device Binding-B	■	Who-Is		X
			I-Am	X	
DM-DOB-A	Device Management-Dynamic Object Binding-A	□	Who-Has	X	
			I-Have		X
DM-DOB-B	Device Management-Dynamic Object Binding-B	■	Who-Has		X
			I-Have	X	
DM-DCC-A	Device Management-DeviceCommunicationControl-A	□	DeviceCommunicationControl	X	
DM-DCC-B	Device Management-DeviceCommunicationControl-B	■	DeviceCommunicationControl		X
DM-TS-A	Device Management-TimeSynchronization-A	□	TimeSynchronization	X	
DM-TS-B	Device Management-TimeSynchronization-B	■	TimeSynchronization		X

PICS

BACnet Protocol Implementation Conformance Statement

Vendor Name

LG Electronics Inc.

Product Name

AC Smart 5

Product Description

This gateway converts between BACnet IP and RS-485 LGAP (LG Aircon protocol) allowing third party control and monitoring of the LG A/C system.

It has a built in web server that does not require any additional software.

BACnet Standardized Device Profile (Annex L)

BACnet Application Specific Controller (B-ASC)

Segmentation Capability

Segmented responses supported Window Size - 64

Standard Object Types Supported

Object-Type	Dynamically Creatable	Dynamically Deletable	Optional Properties Supported	Writable Properties
Device	No	No	Location, Description, Max Segments Accepted, APDU Segment Timeout, Active COV Subscriptions, Profile Name	N/A
Analog Input	No	No	Description, Reliability, Min Pres Value, Max Pres Value, Resolution, COV Increment	N/A
Analog Value	No	No	Description, Reliability, Resolution, COV Increment	Present_Value
Binary Input	No	No	Description, Reliability, Inactive Text, Active Text	N/A
Binary Output	No	No	Description, Reliability, Inactive Text, Active Text	Present_Value
Binary Value	No	No	Description, Reliability, Inactive Text, Active Text	Present_Value
Multi-State Input	No	No	Description, Reliability, State Text	N/A
Multi-State Output	No	No	Description, Reliability, State Text	Present_Value

Data Link Layer Options

BACnet IP, (Annex J), Foreign Device - IPv4 only, IPv6 not supported

Device Address Binding

Static device binding is not supported.

Character Sets Supported

ANSI x 3.4



Modbus Commission

Commissioning is the process of verifying the subsystems to achieve the owner's project requirements as intended by the building owner and as designed by the building architects and engineers.

After AC Smart 5 installation, you can check the operation status of the device by using the web function before connection with the BMS system.

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

Precautions

- To use the Modbus feature, you must select [**Settings**] > [**BACnet/Modbus Setting**] > [**Modbus TCP enable**] as **Set**.
- In case of installing 2 or more AC Smart 5, you must change [**Settings**] > [**BACnet/Modbus Setting**] > [**Vnet Number Setting**] so that the Vnet Numbers are not duplicate among AC Smart 5.
- The Vnet number is used as a Slave ID of the Modbus protocol and can be set to a value from 1 to 247.
- The Read Single Coils command (Function Code 1) can read up to 2,000 commands at a time. The Read Holding Registers command (Function Code 3) can read up to 125 at a time.



Supported Function Codes

The Modbus function codes supported by AC Smart 5 are as follows:

Refer to the Register List page for controlled/monitored items supported by each function code.

- 0x01
- 0x03
- 0x05
- 0x06



Modbus Register List

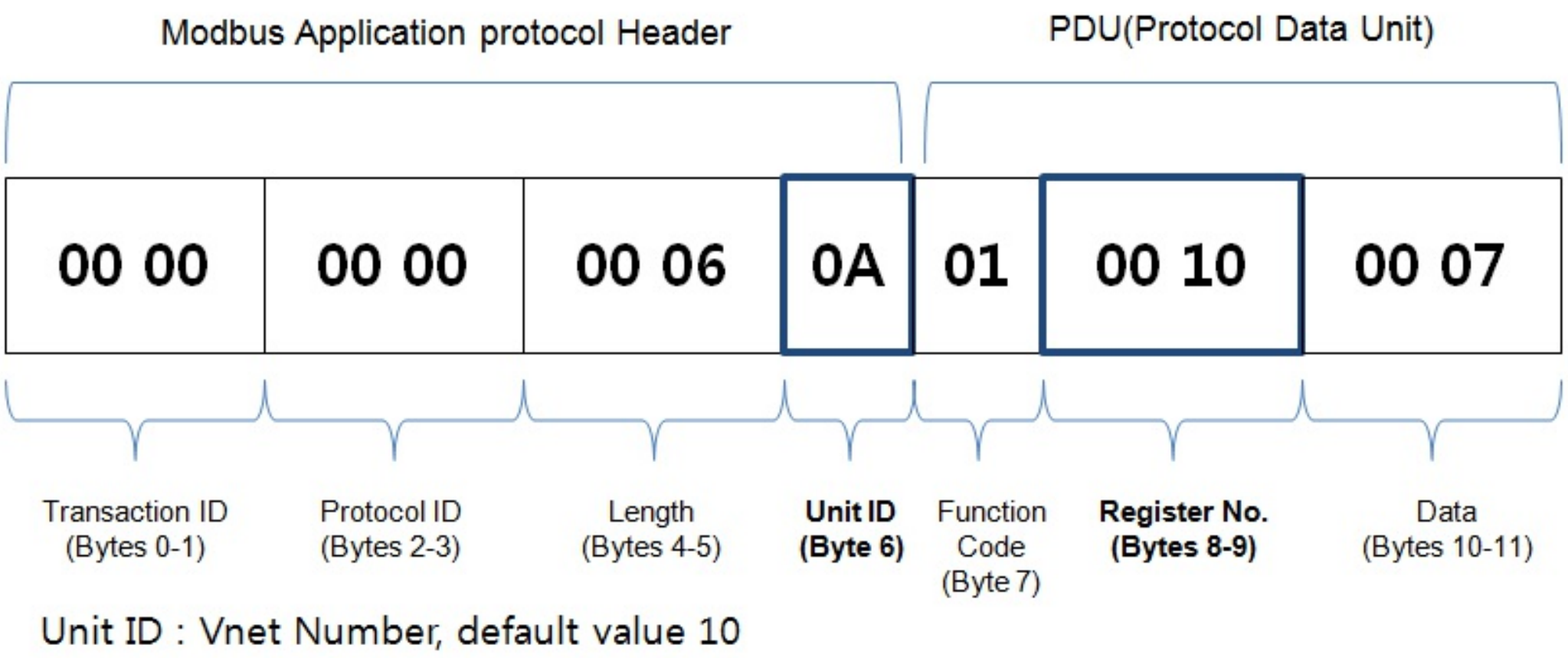
It describes the Modbus Register List provided by AC Smart 5.

- ➔ Definition of Register Address
- ➔ Indoor Unit Register List
- ➔ ERV Register List
- ➔ AHU Register List
- ➔ Heating Register List

Definition of Register Address

The Register Address of each device is assigned as follows.

- Protocol Configuration



- Register No.



Example of Register Address

Description of Register	Product Type (Hexadecimal)	Product Address (Hexadecimal)	Point (Hexadecimal)	Function Code(Hexadecimal)	Register Address (Hexadecimal)
IDU Address 0x00, On/Off	0x0	0x00	0x1	0x1 / 0x5	0x0000
IDU Address 0x00, Operation Mode	0x0	0x00	0x1	0x3 / 0x6	0x0000
IDU Address 0x1B, On/Off	0x0	0x1B	0x1	0x1 / 0x5	0x01B0
IDU Address 0x1B, Operation Mode	0x0	0x1B	0x1	0x3 / 0x6	0x01B0
ERV Address 0x00, On/Off	0x4	0x00	0x1	0x1 / 0x5	0x4000
ERV Address 0x00, Operation Mode	0x4	0x00	0x1	0x3 / 0x6	0x4000
ERV Address 0x1B, On/Off	0x4	0x1B	0x1	0x1 / 0x5	0x41B0
ERV Address 0x1B, Operation Mode	0x4	0x1B	0x1	0x3 / 0x6	0x41B0
AHU Address 0x00, On/Off	0x8	0x00	0x1	0x1 / 0x5	0x8000
AHU Address 0x00, Operation Mode	0x8	0x00	0x1	0x3 / 0x6	0x8000
AHU Address 0x00, Current OA Damper	0x8	0x01	0x1	0x3	0x8010
AHU Address 0x0F, On/Off	0x8	0x1E	0x1	0x1 / 0x5	0x81E0
AHU Address 0x0F, Operation Mode	0x8	0x1E	0x1	0x3 / 0x6	0x81E0
AHU Address 0x0F, Current OA Damper	0x8	0x1F	0x1	0x3	0x81F0
Heating Address 0x00, On/Off	0xC	0x00	0x1	0x1 / 0x5	0xC000
Heating Address 0x00, Operation Mode	0xC	0x00	0x1	0x3 / 0x6	0xC000
Heating Address 0x0F, On/Off	0xC	0x0F	0x1	0x1 / 0x5	0xC0F0
Heating Address 0x0F, Operation Mode	0xC	0x0F	0x1	0x3 / 0x6	0xC0F0

Indoor Unit Register List

One Indoor unit has the following list of points. Some points may not be supported depending on the product.

Point	Description	Function Code	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
1	On/Off	01/05	-	Stop (0)	Start (1)	-	-	-	-	-
2	Swing	01/05	-	Stop (0)	Start (1)	-	-	-	-	-
3	Lock	01/05	-	Permit (0)	Prohibit (1)	-	-	-	-	-
4	Mode Lock	01/05	-	Permit (0)	Prohibit (1)	-	-	-	-	-
5	Fan Lock	01/05	-	Permit (0)	Prohibit (1)	-	-	-	-	-
6	Temp Lock	01/05	-	Permit (0)	Prohibit (1)	-	-	-	-	-
7	Alarm	01	-	Normal (0)	Abnormal (1)	-	-	-	-	-
1	Operation Mode	03/06	-	-	Cool (1)	Dry (2)	Fan (3)	Auto (4)	Heat (5)	-
2	Fan Speed	03/06	-	-	Low (1)	Middle (2)	High (3)	Auto (4)	-	-
3	Set Room Temperature	03/06	°C	16 °C ~ 30 °C (60 °F ~ 86 °F)						
4	Set Upper Temperature	03/06	°C	18 °C ~ 30 °C (64 °F ~ 86 °F)						
5	Set Lower Temperature	03/06	°C	16 °C ~ 30 °C (60 °F ~ 86 °F)						
6	Room Temperature	03	°C							
7	Error Code	03	-	Please refer to LG error code list.						
8	Accumulated Power(LOW)	03	-	Accumulated Power Value(100 Watt) = Accumulated Power(HIGH) X 65536 + Accumulated Power(LOW)						
9	Accumulated Power(HIGH)	03	-							
10	Accumulated Gas(LOW)	03	-	Accumulated Gas Value(100 Liter) = Accumulated Gas(HIGH) X 65536 + Accumulated Gas(LOW)						
11	Accumulated Gas(HIGH)	03	-							

One AHU has the following list of points. Some points may not be supported depending on the product.

Point	Description	Function Code	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5
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Point	Description	Function Code	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
Product Address X 2										
1	On/Off	01/05	-	Stop (0)	Start (1)	-	-	-	-	-
2	Lock	01/05	-	Permit (0)	Prohibit (1)	-	-	-	-	-
3	Filter	01	-	Off (0)	On (1)	-	-	-	-	-
4	FireAlarm	01/05	-	Off (0)	On (1)	-	-	-	-	-
5	Humidity Oper	01/05	-	Stop (0)	Start (1)	-	-	-	-	-
6	Auto Ventilation ON/OFF	01/05	-	Stop (0)	Start (1)	-	-	-	-	-
7	Humidify ON/OFF Status	01	-	Stop (0)	Start (1)	-	-	-	-	-
8	Heater ON/OFF Status	01	-	Stop (0)	Start (1)	-	-	-	-	-
9	Ventilator FAN ON/OFF	01	-	Stop (0)	Start (1)	-	-	-	-	-
10	Supply Unit FAN ON/OFF	01	-	Stop (0)	Start (1)	-	-	-	-	-
11	Alarm	01	-	Normal (0)	Abnormal (1)	-	-	-	-	-
1	Operation Mode	03/06	-	-	Cool (1)	Dry (2)	Fan (3)	Energy saving (4)	Heat (5)	-
2	Set Room Temperature	03/06	°C	16 °C ~ 30 °C (60 °F ~ 86 °F)						
3	Supply Unit Temperature	03	°C							
4	Outdoor Unit Temperature	03	°C							
5	Ventilation UnitTemperature	03	°C							
6	Mix Unit Temperature	03	°C							
7	Set Humidity	03/06	%	40 % ~ 60 %						
8	Supply Unit Humidity	03	%							
9	Outdoor Unit Humidity	03	%							
10	Ventilation Unit Humidity	03	%							
11	CO2 Value	03	-	0~255 (Real Value = Value*10, Example : In case Value is 20, CO2 is 20*10=200ppm)						
12	Error Code	03	-	Please refer to LG error code list.						
Product Address X 2 + 1										
1	Current OA Damper	03	°							
2	Current EA Damper	03	°							
3	Current Mix Damper	03	°							
4	Cooling OA Damper	03/06	°	0 ° ~ 90 °						
5	Cooling EA Damper	03/06	°	0 ° ~ 90 °						
6	Cooling Mix Damper	03/06	°	0 ° ~ 90 °						
7	Heating OA Damper	03/06	°	0 ° ~ 90 °						
8	Heating EA Damper	03/06	°	0 ° ~ 90 °						
9	Heating Mix Damper	03/06	°	0 ° ~ 90 °						
10	FAN OA Damper	03/06	°	0 ° ~ 90 °						
11	FAN EA Damper	03/06	°	0 ° ~ 90 °						
12	FAN Mix Damper	03/06	°	0 ° ~ 90 °						

Heating Register List

One Heating has the following list of points. Some points may not be supported depending on the product.

Point	Description	Function Code	Unit	Text-0	Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
1	On/Off	01/05	-	Stop (0)	Start (1)	-	-	-	-	-
2	Lock	01/05	-	Permit (0)	Prohibit (1)	-	-	-	-	-
3	Setting Temperature Reference (Air/Water)	01	-	Air (0)	Water (1)	-	-	-	-	-
4	Set Hot Water Temperature	01	-	Normal (0)	Hot Water Only (1)	-	-	-	-	-
5	Alarm	01	-	Normal (0)	Abnormal (1)	-	-	-	-	-
6	HotWater On/Off	01/05	-	Stop (0)	Start (1)	-	-	-	-	-
1	Operation Mode	03/06	-	-	Cool (1)	Heat (2)	Auto (3)	-	-	-
2	Set Room Temperature	03/06	°C	16 °C ~ 30 °C (60 °F ~ 86 °F)						
3	Hot Water Only Mode	03/06	°C	30 °C ~ 80 °C (86 °F ~ 176 °F)						
4	Set PipeOut Water Temperature	03/06	°C	6 °C ~ 80 °C (42 °F ~ 176 °F)						
5	Room Temperature	03	°C							
6	Error Code	03	-	Please refer to LG error code list.						
7	Pipe Inlet Temperature Status	03	°C							
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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

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2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) The modified work must itself be a software library.
- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it) under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you

you may copy and distribute the Library (or a portion or derivative of it), under Section 2, in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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That's all there is to it!

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3) You do not have to provide a copy of the libwebsockets license with programs that are linked to the libwebsockets library, nor do you have to identify the libwebsockets license in your program or documentation as required by section 6 of the LGPL.

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"[program] is based in part on the work of the libwebsockets project
"....."

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- test-apps/*.c
- test-apps/*.h
- minimal-examples/*
- lws/*

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Version 2.1, February 1999

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When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

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Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

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2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

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If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in

the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

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