INSTRUCTION MANUAL

•INSTALLATION •SETTING •OPERATING

System Controller Lite for VRF System

UTY-ALGX
UTY-PLGXA1
UTY-PLGXR1
UTY-PLGXE1

Ver. 2.7

PART NO. 9708870014-04

FUJITSU GENERAL LIMITED

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For

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Contents

1. Usage Precautions 12
1-1 Precautions when using the System Controller Lite 12
2. How To Use This Manual 14
2-1 Manual composition 14

Introduction

3. Overview 16
3-1 Features 16
3-2 System Controller Lite composition 17
3-3 Example of use 19
3-4 Function list 21
4. Materials To Be Prepared Beforehand 25

Server PC Installation

5. Installation (Server PC) 28
5-1 Installation flow 29
5-2 Hardware installation (transmission adaptor) 30
5-2-1 Transmission adaptor installation 30
5-2-2 Wiring and turning on the units power 31
5-3 Software installation (applications, drivers) 32
5-3-1 Installation notes 32
5-3-2 Software install 33
5-3-3 Installation completion and initial starting 38
5-4 Uninstall and version upgrade 40
5-4-1 System Controller Lite uninstall 41
5-4-2 WIBU-KEY driver uninstallation 42
5-4-3 Microsoft® SQL Server® uninstallation 43
5-4-4 Microsoft® SQL Server® Native Client uninstallation 48

Client PC Installation

Client PC Installation 50
6. Network Setting 51
6-1 Network setting (server PC side setting) 53
6-1-1 Incoming setting (for dial-up connection) 54
6-2 Network setting (client PC side setting) 60
6-2-1 LAN connection setting 61
6-2-2 Dial-up connection setting 65

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7. Installation (Client PC) 69
7-1 Installation flow 69
7-1-1 Software install 70
7-1-2 Initial starting 74
7-1-3 Object site setting 75
7-1-4 Master data acquisition 77
7-2 Uninstall and version upgrade 78
7-2-1 System Controller Lite uninstall 79

Settings

8. Basic Settings 82
8-1 User management settings 85
8-1-1 User Setting screen 85
8-1-2 New user registration 87
8-1-3 Registered user editing 88
8-2 System Time Settings 89
8-2-1 System Time Setting screen 89
8-3 Initial setting 91
8-3-1 Site name setting 92
8-3-2 Transmission adaptor setting 93
8-3-3 Unit registration 94
8-3-4 Unit name registration 97
8-3-5 Group setting 100
9. Error E-mail Notification Setting 106
9-1 E-mail Setting screen 106
9-2 Out going mail server setting 107
10. User Environment Setting 108
10-1 Environment Setting screen 109
10-1-1 Alarm sound setting 109
10-1-2 Temperature units setting 110

VRF Controller Operation

11. Starting And Ending The VRF Controller 112
11-1 VRF Controller starting method 112
11-2 Ending the VRF Controller 114
12. Task Tray Operation 115
12-1 VRF Explorer starting 115
12-2 Security setting 116
12-3 Port Setting 117
12-4 Data import/export 118
12-4-1 All data 118
12-4-2 Initial setting data only 122
12-4-3 Unit parameter definition data 126

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12-5 Version ····· 128
12-6 End ····· 129

VRF Explorer Operation

13. Overview Of VRF Explorer ····· 131
13-1 Composition of VRF Explorer ····· 131
13-1-1 Screens making up VRF Explorer ····· 131
13-1-2 Screen transition ····· 133
14. Starting And Ending The VRF Explorer ····· 134
14-1 Starting the VRF Explorer ····· 134
14-2 Ending the VRF Explorer ····· 135
15. Site Navigator ····· 136
15-1 Site Navigator ····· 138
15-1-1 Site Navigator ····· 138
15-1-2 Communication connection to site ····· 140
15-1-3 Disconnection of communication to site ····· 141
15-1-4 Site details display ····· 142
15-2 Site setting ····· 143
16. Basic Operation ····· 145
16-1 VRF Explorer screen composition ····· 145
16-1-1 Composition of main screen ····· 145
16-1-2 Function screens ····· 152
16-2 Overview of monitor screens ····· 153
16-3 List display ····· 154
16-4 Tree display ····· 158
16-5 Display Option setting ····· 160
17. Operation Control ····· 161
17-1 Quick operation ····· 161
17-2 Detail operation ····· 165
17-2-1 Basic operation ····· 165
17-2-2 Extended operation ····· 170
17-3 Memory operation ····· 173
17-3-1 Load operation pattern ····· 173
17-3-2 Save operation pattern ····· 174
17-4 Outdoor Unit operation ····· 175
17-4-1 Low noise setting operation ····· 175
18. Schedule Operation ····· 177
18-1 Schedule Setting screen ····· 177
18-2 Overview (flow) of schedule operation creation ····· 180
18-3 Operation pattern creation ····· 181
18-3-1 Pattern Setting screen ····· 181
18-3-2 Overview of operation pattern creation ····· 182
18-3-3 Operation pattern setting items ····· 184

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18-4 Pattern assignment to calendar 187
18-4-1 Selection of schedule operation target 187
18-4-2 Assigning operation pattern to calendar (daily) 188
18-4-3 Assigning operation pattern to calendar (every day of week) 189
18-4-4 Assigning the OFF day on the calendar 190
18-4-5 Calendar updating 192
18-5 Period Setting 193
18-6 Exceptional day (holiday, etc.) setting 194
18-6-1 Exceptional Day Setting screen 194
18-6-2 Overview of exceptional day creation 195
19. Error Monitoring 197
19-1 Overview of error notification 197
19-2 Status display 197
19-3 Error Notification screen 198
19-4 Unit error history 199
19-4-1 Error History screen display method 199
19-4-2 Error History screen 200
19-4-3 History display method 201
19-4-4 Writing of history 202
19-4-5 Sorting history display 202
20. Operation Management 203
20-1 Operation history 203
20-1-1 Operation History screen 203
20-1-2 History display method 206
20-1-3 Writing of history 207
20-1-4 History display sorting 207
21. Low Noise Operation 208
22. The Flow of the Process up to Operation 210
23. Creating an Electricity Meter System 211

Energy Saving Function

24. Energy Saving Function 215
24-1 Overview 215
24-2 Precautions on use 219
24-3 Before Using Energy Saving Function 221
25. Energy Saving Setting 222
25-1 Energy saving group setting 223
25-2 Indoor unit rotation operation 225
25-2-1 Indoor unit rotation operation setting 225
25-2-2 Rotation pattern display 227
25-2-3 Indoor unit rotation operation schedule setting 228
25-2-4 Indoor unit rotation operation setting display 229
25-3 Outdoor unit capacity save 230
25-3-1 Outdoor unit capacity save setting 230

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25-3-2 Outdoor unit capacity save schedule setting ····· 232
25-3-3 Outdoor unit capacity save display ····· 233
25-4 Peak cut operation ····· 234
25-4-1 Peak cut operation setting ····· 234
25-4-2 Peak cut operation display ····· 236
25-5 Electricity energy graph display ····· 238

Electricity Apportionment Function

26. Electricity Apportionment Function ····· 241
26-1 Overview ····· 241
27. Electricity Charge Apportionment Setting ····· 242
27-1 Overview ····· 243
27-2 Electricity charge apportionment main screen ····· 249
27-2-1 Main screen ····· 250
27-3 Basic Setting ····· 252
27-4 Indoor unit electricity calculation setting ····· 253
27-5 Parameter setting ····· 255
27-6 Contract setting ····· 258
27-6-1 Contract list creation ····· 258
27-6-2 New contract creation and editing ····· 259
27-7 Block setting ····· 261
27-7-1 Block schedule setting ····· 261
27-7-2 Specify Block screen ····· 263
27-7-3 Common block setting ····· 267
28. Electricity Charge Apportionment ····· 268
28-1 Electricity charge apportionment main screen ····· 268
28-1-1 Electricity Charge Apportionment main screen ····· 269
28-2 Apportionment calculation execution ····· 270
28-2-1 Apportionment Calculation screen ····· 270
28-2-2 Calculation result screen ····· 272
28-2-3 Calculation history ····· 274
28-3 Bill creation ····· 276
28-3-1 Bill setting ····· 276
28-3-2 Bill printing preview ····· 278

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Appendix

29. Product Specifications ····· 280

29-1 Operating condition ····· 280

29-2 Specifications ····· 281

30. Troubleshooting ····· 282

30-1 Troubleshooting ····· 282

30-2 Error code table ····· 284

31. FAQ ····· 285

31-1 Frequently asked questions and answers ····· 285

31-2 Questions and answers related to electricity charge apportionment ····· 287

32. Definition Of Terms ····· 288

33. Electricity Meter System ····· 290

34. Installation Restriction of Electricity Meter ····· 291

35. Installation Restriction of Energy Saving Units ····· 298

36. The Settings of Outdoor Unit and System Controller Lite ····· 299

37. Electrical Wiring ····· 302

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1. Usage Precautions

1-1 Precautions when using the System Controller Lite

1. Please read and agree to the LICENSE AGREEMENT FOR “System Controller Lite FOR VRF SYSTEM” at the beginning of this manual before using the System Controller Lite.

2. Please confirm that the PC for the System Controller Lite meets the operating condition of the “Product Specifications” described in the Appendix of this manual.

3. Please read and fully understand this manual before using the System Controller Lite.

4. Be careful not to shutdown or turn off the power supply of the server pc or unplug its transmission adaptor. Do not terminate the VRF Controller program unless necessary. Otherwise, normal operation of the System Controller Lite may not be performed.

5. To ensure continuous normal operation of this software, set the PC so that it would not go into an energy saving mode such as standby mode, sleep mode or execute hibernation. If the PC goes into a standby, sleep mode or execute hibernation, this software may not function properly. The method for releasing the energy saving or hibernation of the PC depends on the Windows versions.

6. The DVD for this software and the software protection key (WIBU-KEY) will not be reissued. Keep and handle them with great care after installing.

7. System Controller Lite programs perform schedules, operation recording and electricity apportionment data control based on date and time set in the personal computer. Please correct the time periodically to make the date will not be changed. Changing date and time may affect the functions listed above.

8. When program execution environment of Windows is corrupted or abnormal, or if other software is installed or running on the same PC, operation of System Controller Lite may be interfered and may not install or run properly. It is usually extremely difficult to detect such conditions, if it occurs. It is recommended that System Controller Lite be installed on a new PC, dedicated for the use of System Controller Lite.

9. System Controller Lite product is provided with software, drivers, components listed below. If the same kind of software, drivers, components with different version is installed on the same PC, System Controller Lite may not install or run properly.

(1) Microsoft® DirectX® 9.0c
(2) Microsoft® SQL Server®
(3) OpenLDV (U10 USB Network Interface driver)
(4) WIBU-KEY driver

10. The VRF Explorer is not guaranteed to work using the Remote Desktop.
Do not connect to the PC running VRF Explorer, using Remote Desktop.

11. This product may be updated without prior notice. If by chance you encounter any trouble with this product, check with your service personnel for updates.

12. The unit parameter definition file which supports your indoor/outdoor/RB units in your site is required.
Please import the latest parameter definition file into the System Controller Lite.Contact your service personnel for getting the parameter definition file.

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13. When Anti-Virus software is running, an error may occur in this software.
Set the Anti-Virus software to exclude this software from being monitored.
Please refer to your Anti-Virus software manual on how to do this.

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2. How To Use This Manual

2-1 Manual composition

This manual is made up of 9 sections.

- Introduction
- Server PC Installation
- Client PC Installation
- Settings
- VRF Controller Operation
- VRF Explorer Operation
- Energy saving function
- Electricity apportionment function
- Appendix

Before installing the software, first read the Introduction and check the overview of the System Controller Lite and the caution items. For technical terms, refer to the definition of terms in the Appendix.

When installing the System Controller Lite to the server PC, read the Server PC Installation and Settings sections. Complete installation to the server PC in accordance with the described procedure.

When installing to the client PC, read the Client PC Installation section. Finish installation to the client PC in accordance with the described procedure.

When performing operations related to the various functions of the System Controller Lite after installation, refer to the relevant parts of the operation sections (VRF Controller Operation and VRF Explorer Operation).

When you want to see the corresponding description even in an operation case that used the System Controller Lite, refer to Standard Operation Case at the head of the VRF Explorer Operation Section.

When performing the setting for making electricity charge apportionment or energy saving, read the section of electricity charge apportionment function or energy saving function .

The appendix consists of Product Specifications, Troubleshooting, FAQ, Definition of Terms, and Installation Restriction of Electricity Meter. Read them, as required.

Note

In order to open the control panel in Windows 8, please right-click the bottom left corner of the start screen, and select the "control panel" from the menu appeared.

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Introduction

3. Overview
4. Materials To Be Prepared Beforehand

3. Overview

3-1 Features

1. Configuration and performance befitting the VRF highest level control/management functions

① Supports VRF Series S/V/V-II/V-III/VR-II/J-II/J-IIS

② Scalability to support small and medium-sized site.
- Supports up to 1 network system (equivalent to 400 indoor units).

③ Functional high level interchangeability with other VRF controllers

④ Remote monitoring and control function
- Remote monitoring and control function supports VRF system operation from up to 5 remote sites.
  * Note) Dedicated software must be installed at the remote site.
  * Note) Remote Access option is necessary.

⑤ Remote central management function
- Central management (up to 10 places) of VRF air conditioning system of multiple VRF sites supports building operation energy saving.
  * Note) Remote Access option is necessary.

⑥ Improvement of electricity charge apportionment function
- The apportionment function has been improved by adopting an electricity charge apportionment calculation method matched to V-II/V-III/VR-II/J-II/J-IIS Series refrigerant control.
  * Note) Electricity Charge Aportionment option is necessary.

⑦ Refined user interface
- The status of units can be monitored and operated for each site, group, or unit.

⑧ Refined group operation
- Hierarchal tree structure free group definition is possible. Status monitoring and operation that specified groups from a tree view on the screen are possible.

2. Adaptation for new PC environment

① Operation on Windows 7/8/8.1/10, is guaranteed.

② Supports compact and lightweight USB transmission adaptor (U10 USB Network Interface adaptor).

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3-2 System Controller Lite composition

The System Controller Lite consists of VRF Controller (Server software) and VRF Explorer (Client software).
Each software is used according to its role.

VRF Controller and VRF Explorer are installed to the Server PC.
VRF Explorer is installed to the Client PC.

Server PC	PC which is directly connected to the VRF System by using a U10 USB Network Interface. Server PC is the PC in which VRF Controller is installed and run. A VRF Explorer is also installed to the server PC, and the user can manage VRF System operation by server PC.
Client PC	PC which is connected to a server PC over an internet or other network and manages operation of the VRF System via the server PC. VRF Explorer is installed and run.
VRF Controller (Server software)	One of the 2 programs making up the System Controller Lite. It communicates with the VRF System and passes status information to the VRF Explorer and receives operation setting information from the VRF Explorer. Since the user provides service to the client software (VRF Explorer) used to actually manage operation, it is called server software. Since it is run in the background on the PC, it is difficult to realize that it is running and when running, an icon appears on the task tray. Operations which can be performed by the user related to the VRF Controller are related to menus which are displayed by right clicking the icons on the task tray. The VRF Controller must be used together with a WIBU-KEY packed with together with this product.
VRF Explorer (Client software)	One of the 2 programs making up the System Controller Lite. It is software used by the user to actually manage operation. Since it communicates with a server directly connected to the VRF network and is run by receiving service from the server, it is called client software. VRF Explorer mainly consists of two screens: Site Navigator screen for monitoring group site and VRF Explorer main screen related to a specified site in it. Using this product (VRF Explorer included on the server PC), VRF Explorer can be installed on an unlimited number of machines.

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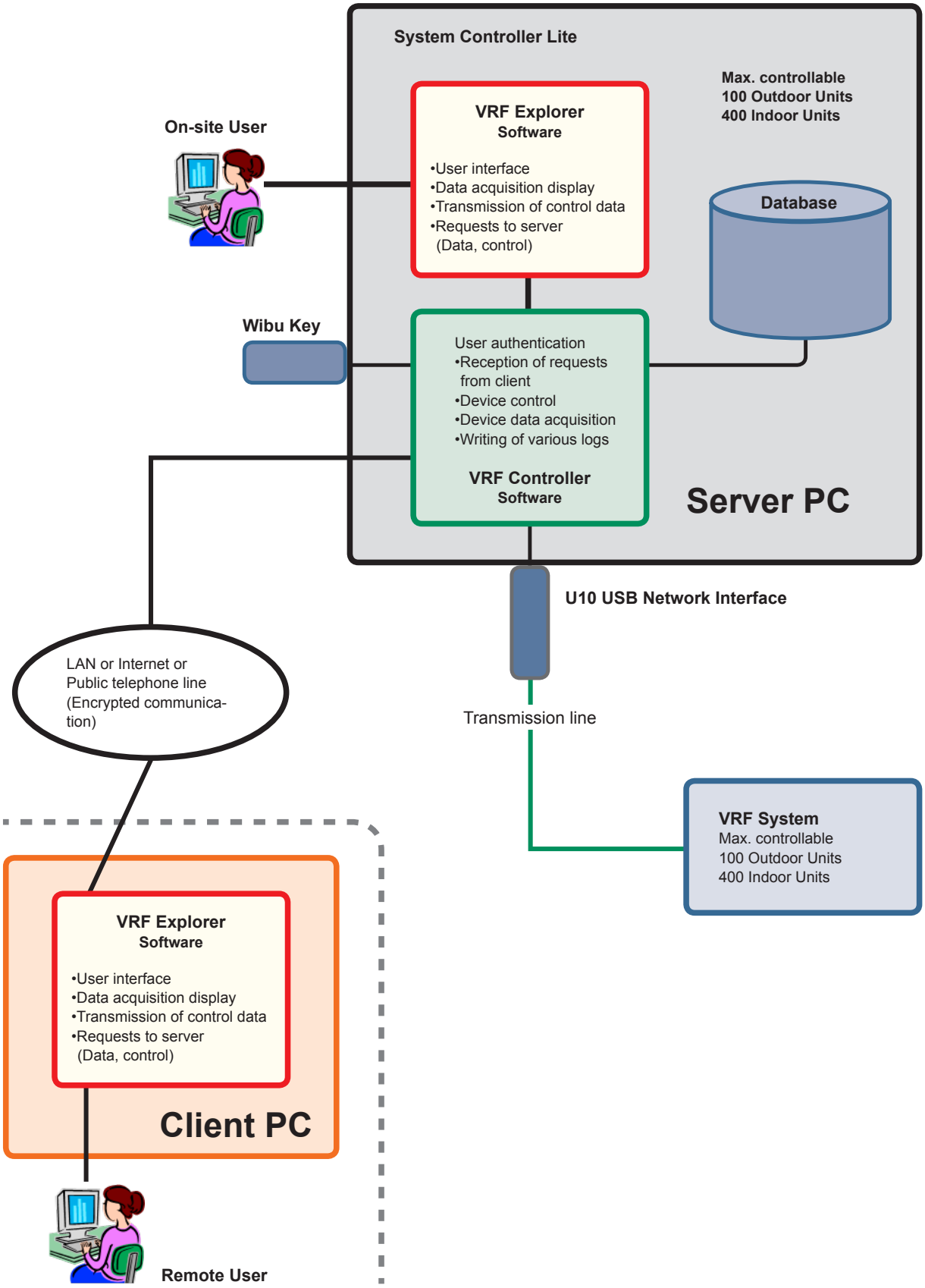

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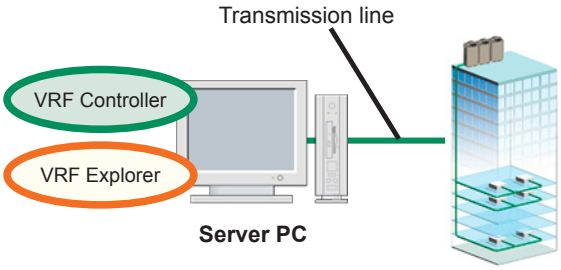
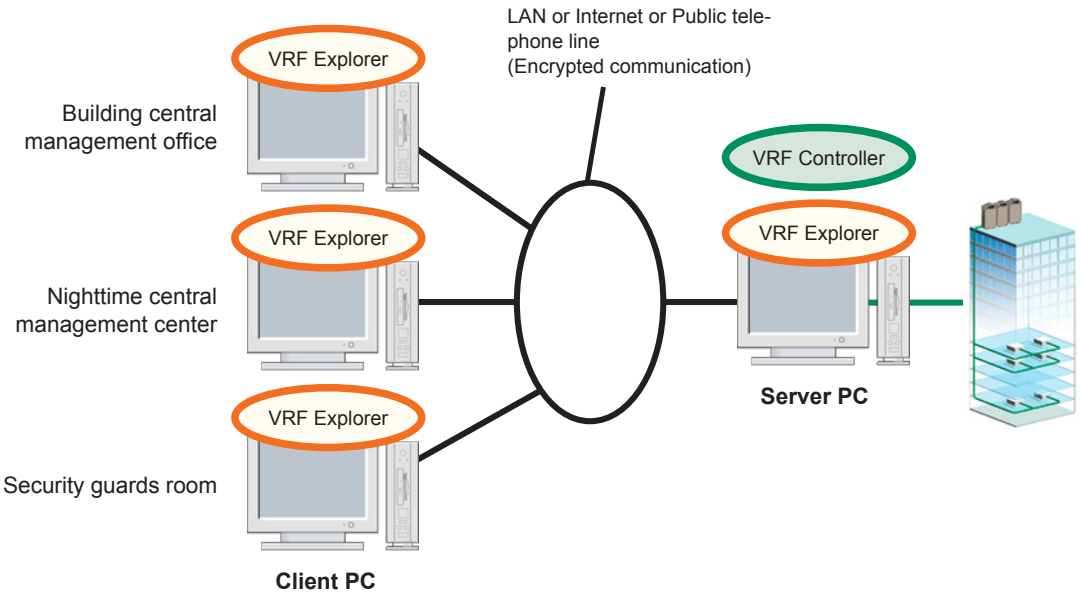
3-3 Example of use

1. Use with 1 server (1:1 connection)



2. Remote monitoring and control (n:1 connection)

Remote Access option is necessary.



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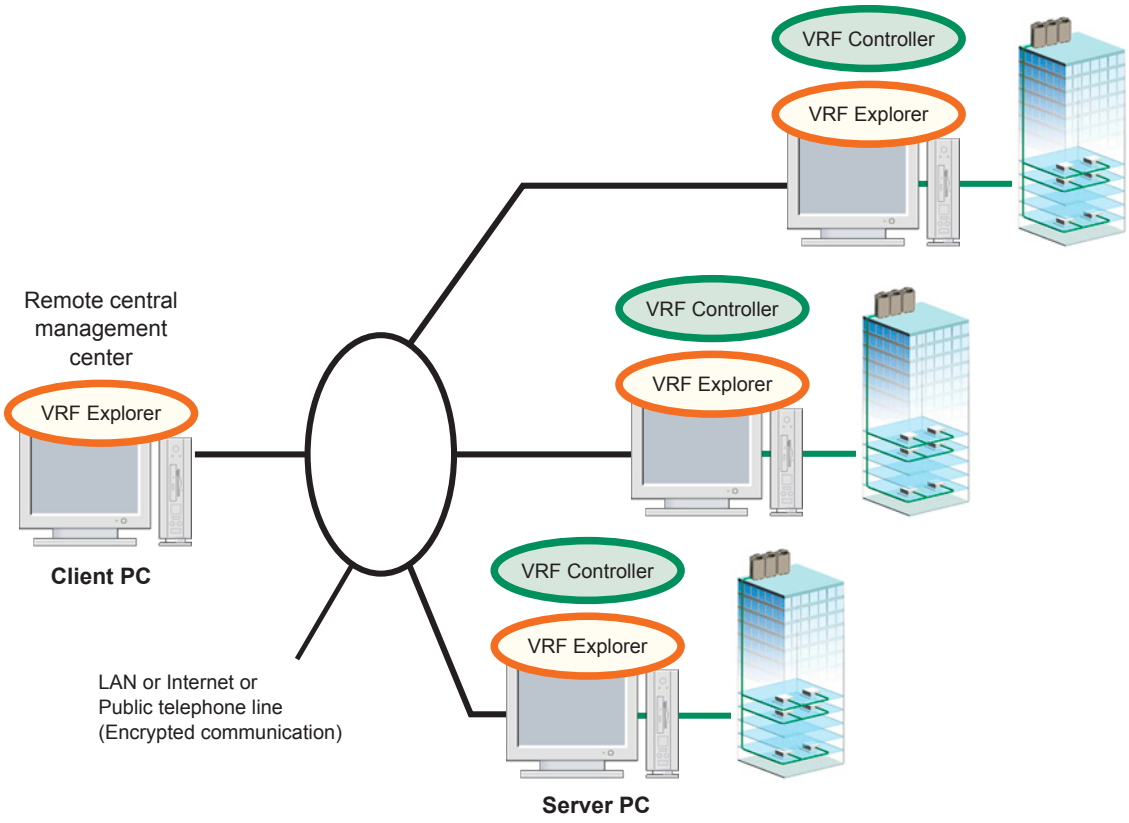
3. Remote central management (1:n connection)

Remote Access option is necessary.



Note

- Up to 5 client PC can connect to the server PC at the same time.
- Up to 10 server PC can be registered at a client PC.
- When a telephone line is used, the connection between server PC and client PC becomes 1:1.

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3-4 Function list

* Meaning of symbols of “Remote function” column.
○---Same function as local control
×---No function
△---Some function restrictions or setting only are possible.

To use an optional function, the following product corresponding to it is required.
(*1) Remote Access option (UTY-PLGXR1)
(*2) Electricity Charge Apportionment option (UTY-PLGXA1)
(*3) Energy Saving option (UTY-PLGXE1)

Type	Function	Overview	System Controller Lite		Objective Series		Remote function (Option) (*1)
			Basic	Option	S/V	V-II/V-III/VR-II/ J-II/J-IIS	
Centralized management	Multiple site display	Overall display of multiple sites so that forget to turn off/error generation can be monitored in site units. Allows registration of up to 10 sites.	×	○ (*1)	○	○	○
Status monitoring	List display	Displays the operation status of the indoor units and outdoor units in list format. Also allows operation control.	○	×	○	○	○
	Tree display	Displays the groups set by tree structure. Also allows display of operation status (On/Off/Error/Test/Emergency stop) and operation control in R/C group units from on a tree.			○	○	○
Error management	Error notification	Displays error information on a pop-up screen when an error occurs.	○	×	○	○	○
	Error e-mail notification	Notify the error information by e-mail when an error occurs.			○	○	×
History management	Error history	Allows display of the error history of each indoor unit and outdoor unit.	○	×	○	○	○
	Operation history	Display indoor- and outdoor-unit operating histories.			○	○	○

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Type	Function	Overview	System Controller Lite		Objective Series		Remote function (Option) (*1)
			Basic	Option	S/V	V-II/V-III/VR-II/ J-II/J-IIS	
Operation control	Control	Allows control of selected indoor units by the following operations: •On/Off •Operation mode •Room temperature setting •Air flow rate and direction •Economy (energy save)	○	×	○	○	○
	Management	Allows management of selected indoor units by the following operations: •R/C prohibition •Filter sign reset			○	○	○
	Memory operation	Saves 1 operation setting state of an entire site and reproduces it with 1 button. (Reproduction of special operation pattern at the start of work is assumed)			○	○	○
	Pattern operation	Saves 1 operation setting state of the operation control screen and reproduces it with 1 button. (Shot of setting reset when hotel room vacated is assumed)			○	○	○
	Temperature upper and lower limit setting	Sets the upper and lower limits of the indoor unit set temperature.			×	○	○
Schedule	Schedule timer	Yearly/weekly schedule setting is possible. Week of year, Day of month, Day of week, holiday/special day setting is possible.	○	×	○	○	○
	Low noise operation	The low noise mode set to the outdoor unit is executed by the weekly schedule.			×	○	○
Scanning	Adaptor setting	Communication adaptor (U10 USB NetWork Interface) used to set the connection to VRF Controller. The name setting and the connection status of the communication adaptor can be confirmed.	○	×	○	○	×
	Unit registration	Acquires model data of indoor units and outdoor units of a specified refrigerant system. (Model data: Node identification included).			○	○	×
	Unit name registration	Assigns a unique management No. to indoor units acquired by scanning and associates logical address and physical address. Presents 3 kinds of allocation: default name allocation, manual allocation, and automatic allocation in the order of indoor unit operation.			○	○	×
	Group setting	Performs allocation setting of up to 1,600 groups in 3 nodes.			○	○	○

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Type	Function	Overview	System Controller Lite		Objective Series		Remote function (Option) (*1)
			Basic	Option	S/V	V-II/V-III/VR-II/ J-II/J-IIS	
Electricity charge apportionment	Apportionment charge calculation	Calculates the power consumption charge for each tenant according to the apportionment related setting conditions and operation status of each indoor unit.	×	○ (*2)	○	○	○
	Apportionment charge bill creation	Allows issuance of predefined bills for charges for each tenant calculated at the calculated result screen of the electricity charge apportionment function.			○	○	○
	Tenant (block) setting	Allocates tenants and indoor units which are the objective of electricity charge apportionment.			○	○	○
	Common facilities apportionment setting	Allocates tenants (blocks) which become common facilities at electricity charge apportionment. Also allows apportionment of allocated tenant power consumption to tenants other than common facilities.			○	○	○
	Externally linked devices setting	Arbitrarily sets the various power consumptions (w) which are necessary at electricity charge apportionment. (Objective: Externally linked devices which are connected to indoor unit or outdoor unit)			×	○	○
	Apportioned power unit RB	Corresponds to RB unit electricity charge apportionment.			×	○	○
	Integration settings Meter	Registration and initial setting of the meter used in electricity charge apportionment are performed. (Panel input port assignment, units, name registration, etc.)			○	○	○
	Separate heating and cooling energy measurement function	Measures and displays the cooling/ heating electric amount for each indoor unit to be apportioned.			×	○	○

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Type	Function	Overview	System Controller Lite		Objective Series		Remote function (Option) (*1)
			Basic	Option	S/V	V-II/V-III/VR-II/ J-II/J-IIS	
Energy saving	Indoor unit rotation	Repeatedly switches indoor unit operation of an arbitrary indoor unit group On/Off by preset timer.	×	○ (*3)	×	○	○
	Energy saving information	Displays the energy saving operation control operation record. Also displays (graph) the electricity consumption (W) of each meter in month/year units (last month, last year).			×	○	○
	Peak cut control	Optimum peak cut is realized by combining the following 4 functions: •Indoor unit set temperature shift •Indoor unit forced thermostat Off •Outdoor unit capacity save •Outdoor unit forced stop			×	○	○
	Power Consumption Graph	Graphically displays the electricity consumption (w) from the related electricity meters. Also performs forecast display of the electricity consumption after 30 minutes from the present time and implements preset demand control when it appears that the meter threshold value will be exceeded after 30 minutes.			×	○	○
System control	System time setting	Performs common setting of the system time for peripheral devices (remote controller) that require the time.	○	×	×	○	△
Others	User management setting	Sets the user name and user authorization which become the operation objective.	○	×	○	○	○
	User environment setting	Performs display related environment setting.			○	○	○
	Import/export of database	Allows import/export of database for smooth environmental transition when a PC is replaced.			○	○	×

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4. Materials To Be Prepared Beforehand

Materials necessary at installation

- WIBU-KEY (packed together with product)
- WIBU-KEY for option (product packing)
- U10 USB Network Interface (adaptor with connection to VRF network work finished)
- Administrator ID and password (arbitrarily decided by the user)
- System Controller Lite setup DVD (For details, see the next page.)

When number of USB ports for WIBU-KEY and U10 USB Network Interface use is insufficient

- USB hub

In the case of remote connection (server PC continuously connected to local LAN)

- IP address for connection to server PC

In the case of remote connection (server PC continuously connected to internet)

- Server PC fixed IP address, or Host name when dynamic DNS used.
- Confirmation of opening to internet of ports used by System Controller Lite (port No:9983, 9984)

* When unknown, please contact the network administrator.

In the case of remote connection (dial-up)

- Telephone number for connection to server PC

When starting electricity charge apportionment data acquisition

- Group apportionment contents of tenant blocks
- Electricity charge contract information

When making settings which send e-mail notification when an error occurs

- E-mail address (sender, receiver)
- SMTP server name

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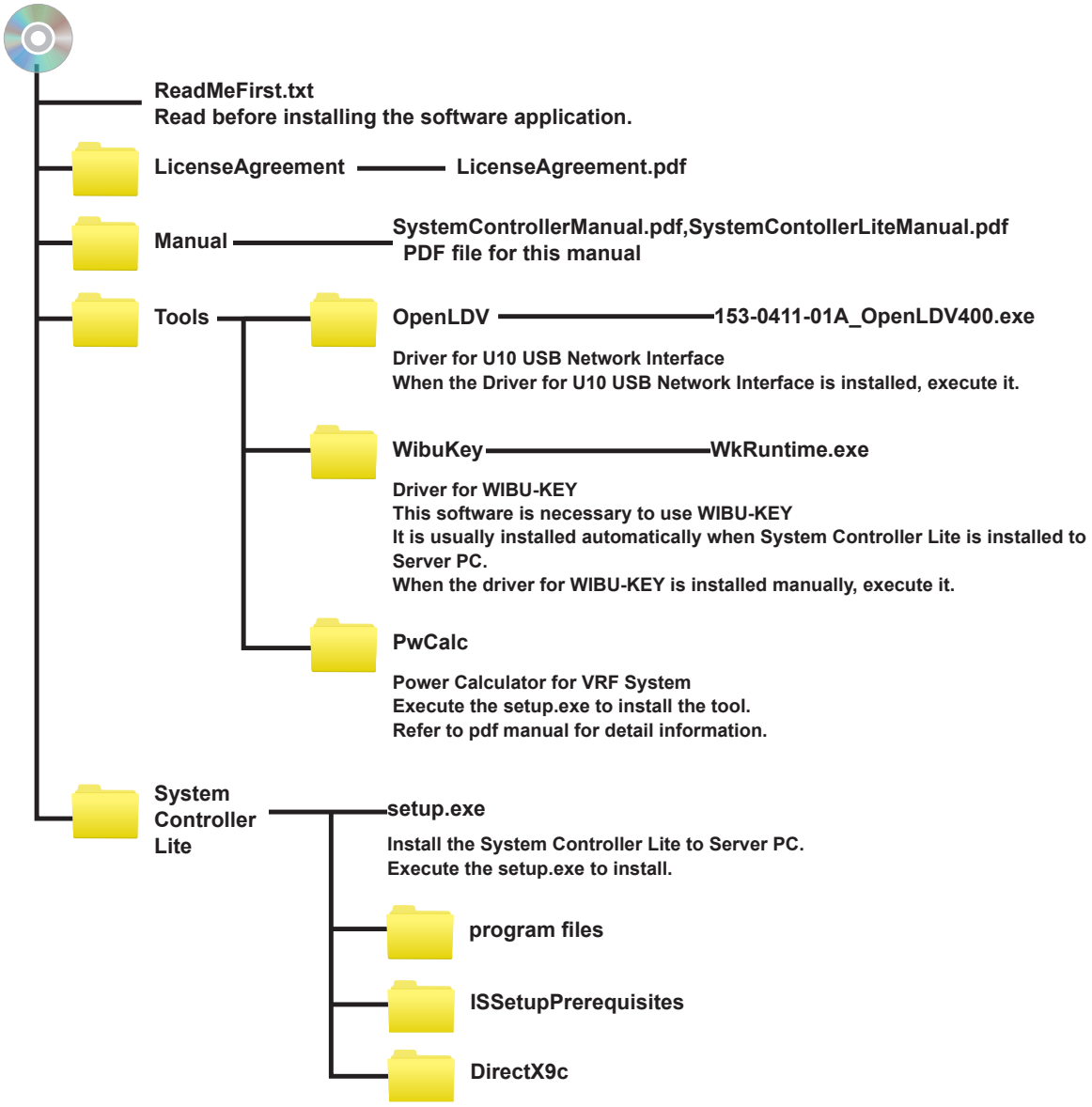
Setup DVD configuration (Reference)



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Server PC Installation

5. Installation (Server PC)

5. Installation (Server PC)

This section describes the procedure when installing the server software (VRF Controller), and client software (VRF Explorer), etc. of System Controller Lite to the server PC which connects directly to the VRF network. The server PC communicates directly with the indoor and outdoor units. Installation to a server PC is always necessary from the standpoint of System Controller Lite use.

The server PC and VRF network are connected by a transmission adaptor (U10 USB Network Interface).

This section describes how to uninstall the software when server software is unnecessary and how to reinstall the installed software due to software upgrading or other reasons.

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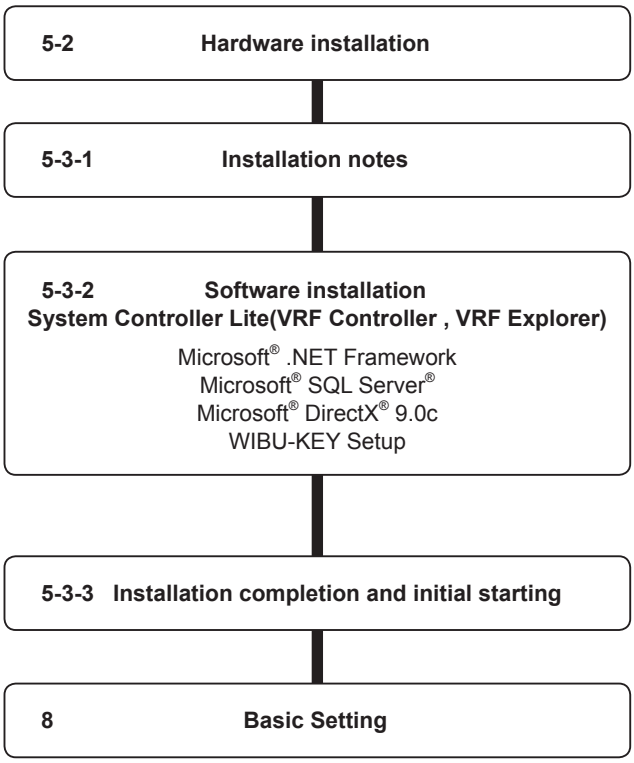
5-1 Installation flow

Installation/setting flow

Installation



⚠ WARNING!
① System Controller Lite is tested to install and operate under new Windows environment. When program executional environment of Windows is corrupted or abnormal, or other softwares that interfere with the operation of System Controller Lite is installed or running, System Controller Lite may not install or run properly. It is usually extremely difficult to detect such conditions, if it occurs.
② System Controller Lite product is provided with softwares, drivers, components listed below. If the same kind of softwares, drivers, components with different version is installed on the same PC, System Controller Lite may not install or run properly. (1) Microsoft® DirectX® 9.0c (2) Microsoft® SQL Server® (3) Open LDV (U10 USB Network Interface driver) (4) WIBU-KEY-driver
③ Do not insert U10 USB network interface adaptor to the USB slot of the PC BEFORE its driver is installed.
④ Do not turn on the power of indoor/outdoor units until all installation work is completed.
⑤ Do not insert WIBU-KEY to the USB slot of the PC until instructed.

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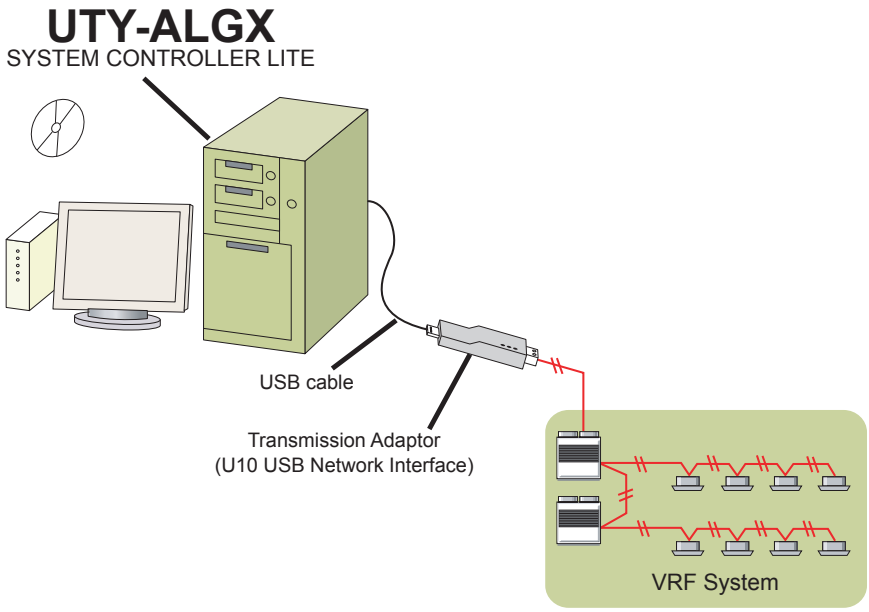
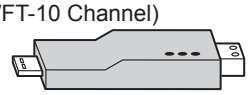
5-2 Hardware installation (transmission adaptor)

5-2-1 Transmission adaptor installation



The System Controller Lite can connect up to 1 VRF system.

Following chart shows the detail of the U10 USB Network Interface Adaptor. These adaptors are not included in the System Controller Lite product and must be procured in advance.

Name & Shapes	Q'ty	Remark
Transmission Adaptor (U10 USB Network Interface -TP/FT-10 Channel)  (Field Supply)	1 (1 Network System)	Model : 75010R (Echelon® Corporation)

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Installing U10 USB Network Interface Adaptor

To use this product, turn on the power of the PC and install necessary drivers/software for this product (BEFORE connecting it to any USB port), following the ”Quick Start Guide” enclosed with this product.
Connect the U10 USB Network Interface adaptor to the personal computer USB port.

Note

”OpenLDV 4.0 Network Driver” or newer is required

5-2-2 Wiring and turning on the units power

Once the wiring has been installed, the power can be turned on. Follow the procedure below for turning on the power.

① Connect VRF network cables to the corresponding U10 USB Network Interface adaptors.

② Turn on the power for all connected indoor units.

③ Turn on the power for all connected outdoor units.

Note

*1. Make sure that USB equipment (USB hub, etc.) that this product is connected to, is not overloaded (power supplied thru the interface does not exceeds the maximum limit).

④ Turn on the power for System Controller Lite PC, if it is not yet turned on.

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5-3 Software installation (applications, drivers)

5-3-1 Installation notes

Before starting the installation of this product, check each of the followings.

- Install Adobe Reader (Ver. 9.0 or later) prior to the installation. (Adobe Reader does not come with this product).
- Remove all program as described in “5-4 Uninstall and version upgrade” , if you have the same or previous version of System Controller Lite.
- Do NOT insert WIBU-KEY (Software protection key) enclosed with this product to the PC until product installation is completed.
- You are required to login to the computer as Administrator (or equivalent) to the PC to install this product.
- Stop all running programs before you start the installation.
- If Anti-Virus software product is installed, temporarily disable the software during the installation of this product.

Note

UTY-ALGX cannot coexist with UTY-APGX. When UTY-APGX is installed, uninstall it. Also UTY-ALGX cannot be used if UTY-APGX data remains in the database. Use the "DropDataBase.bat" tool in the Setup DVD to delete the data.

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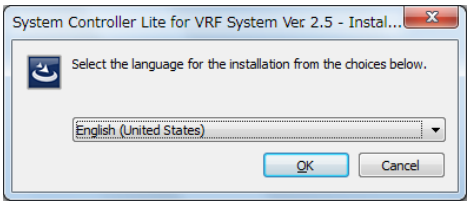
5-3-2 Software install

The following software is installed here.

- Microsoft® .NET Framework
- Microsoft® SQL Server®
- System Controller Lite (VRF Controller , VRF Explorer)
- Microsoft® DirectX® 9.0c
- WIBU-KEY driver

① Execute setup.exe in the System Controller Lite folder on the System Controller Lite setup DVD.

② Select the same language as that of the Windows® (If you select a different language, characters may not be displayed correctly).



③ Install .NET Framework using the chosen method (for Windows 8 (or later)).
This screen will not be displayed for Windows other than Windows 8 (or later). Even for Windows 8 (or later), it will not be displayed if .NET Framework has already been installed.

- Install Online (when the PC is connected to internet)
  Select "Install from Internet" and click “Install” button.
  .NET Framework 3.5 will be downloaded from Microsoft site and will be installed.

- Install Offline (when the PC is not connected to internet)
  When the PC is not connected to the internet, Windows 8 (or later) installation media is required to install .NET Framework 3.5. Please have the media ready before continuing the following steps.

  If you have Windows 8 (or later) installation DVD, select "Install using Windows 8 (or later) DVD installation media". If you have other types of Windows 8 (or later) installation media, check that the “sxs” folder that holds the .NET Framework components exists within that media, and select ”Specify the folder with .NET Framework installation files”.

  - Install using Windows 8 (or later) DVD installation media
    Insert Windows 8 (or later) installation DVD to the DVD drive.
    Select that drive and click “Install” button.
    When the installation of .NET Framework 3.5 completes, a message “Set the System Tool DVD installation media” is displayed. Insert the System Controller Lite DVD again.

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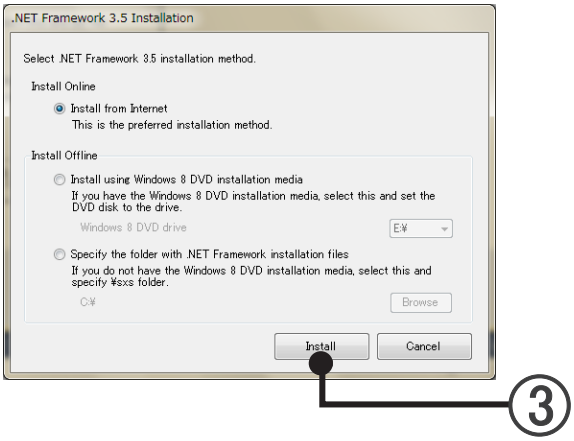
- Specify the folder with .NET Framework installation files
  Specify the "sxs" folder and click “Install” button.
  (The “sxs“ folder is where the .NET Framework components are stored).
  Ex. D:\windows8\sources\sxs



Note

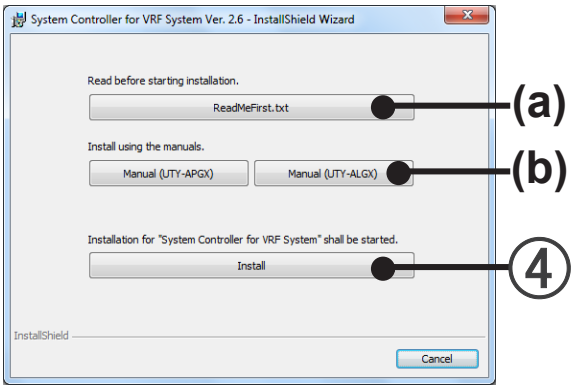
Installation of .NET Framework 3.5 requires few minutes to complete. Do no operate the screen until the installation is completed.

④ When “Install” is selected, installation begins.
a When “ReadMeFirst.txt” is selected, ReadMe is displayed.

Note

Be sure to read it for important information.

b When “Manual” is selected, the manual is displayed.



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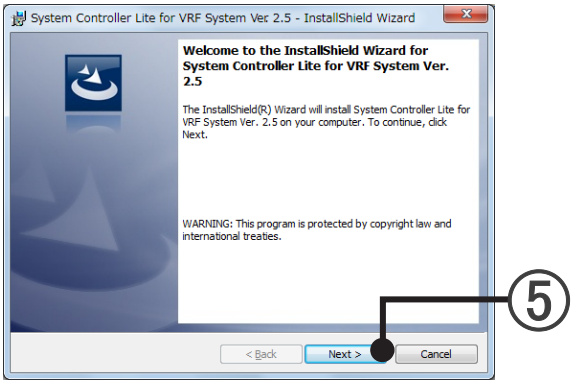
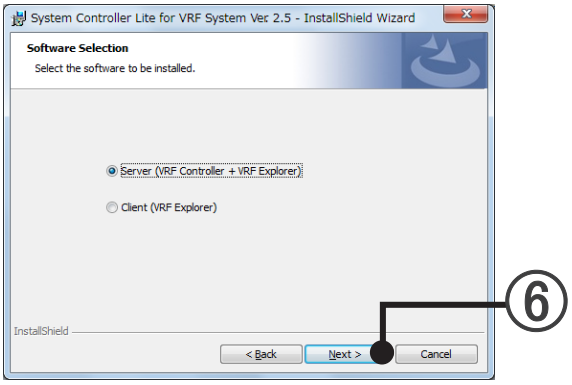
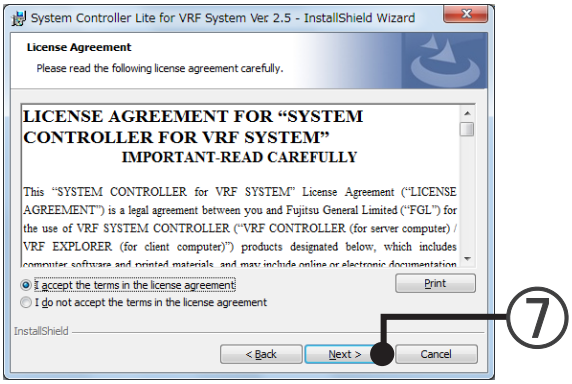
⑤ Install System Controller Lite. Click the [Next] button.



⑥ Select "Server (VRF Controller + VRF Explorer)" then Click the [Next] button.



⑦ If the System Controller Lite end user "licensing Agreement" is displayed, confirm the contents.
If you can agree to the terms of the licensing agreement, check “I accept the terms in the license agreement” and click the [Next] button.



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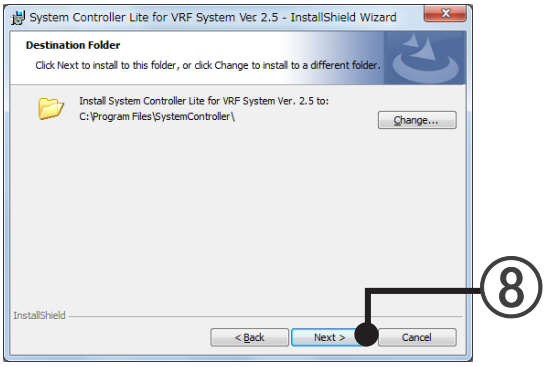
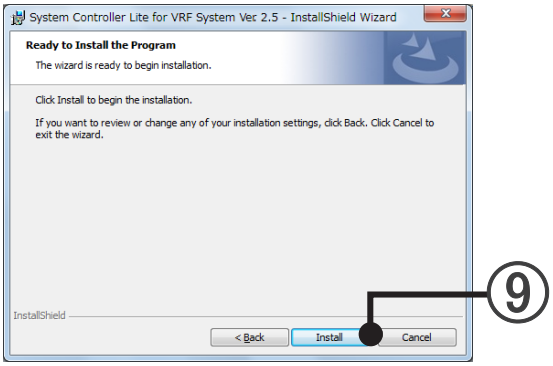
⑧ Specify the installation destination folder and click the [Next] button.



⑨ If the installation setting contents are correct, click the [Install] button.



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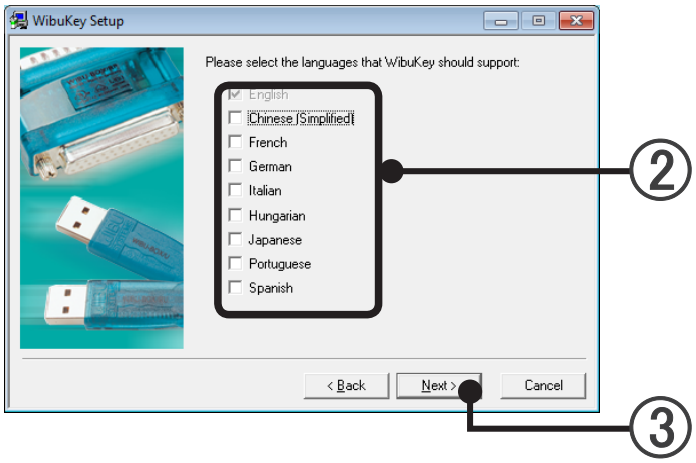
WIBU-KEY Setup

① A description of WIBU-KEY Setup is displayed. Confirm the contents.
Click the [Next] button.

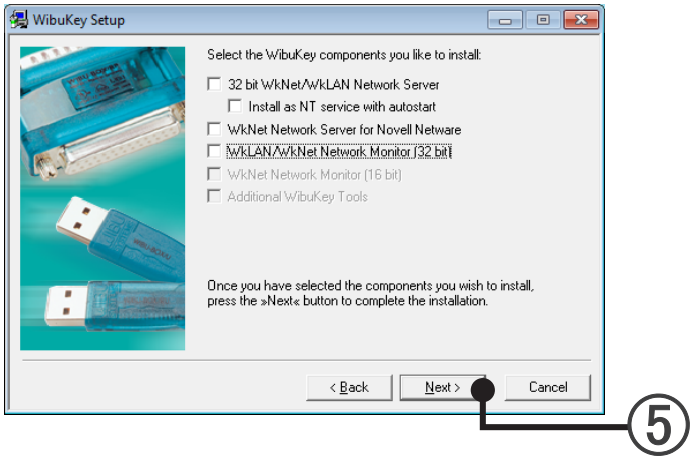
② Select the language.
Check the desired language.

③ Click the [Next] button.



④ When the screen to specify the installation destination folder is displayed, specify the installation destination folder and click the [Next] button.

⑤ The WIBU-KEY components selection screen is displayed.
Uncheck all the checkboxes and click the [Next] button.



⑥ If the WIBU-KEY driver installation contents are displayed, confirm the contents and click the [Next] button.

⑦ Installation starts.
When [Next] button is enabled, click the [Next] button.

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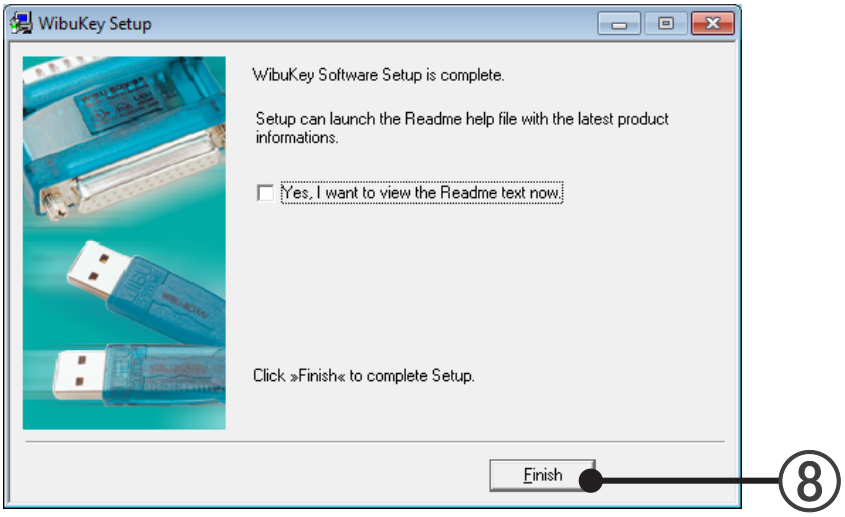
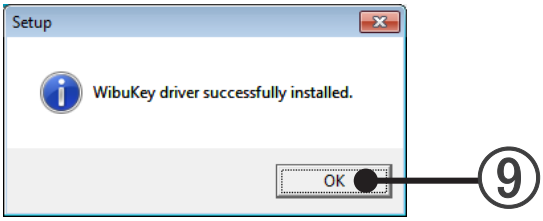
⑧ WIBU-KEY Setup is complete.
Uncheck the checkbox and click the [Finish] button.



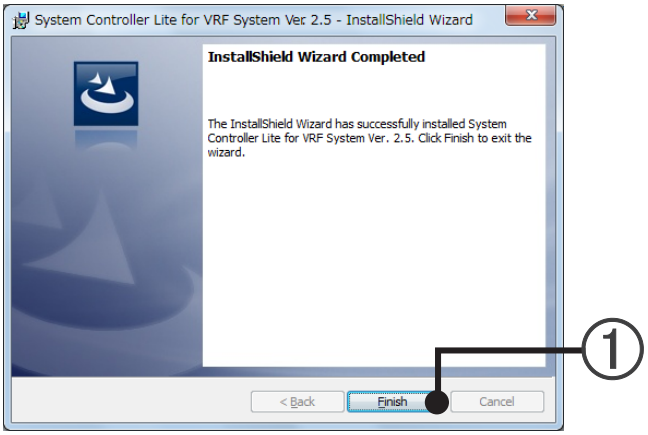
⑨ WIBU-KEY Setup was successful.
Click the [OK] button.



Necessary components for the System Controller Lite such as Microsoft® SQL Server® or Microsoft® DirectX® 9.0c etc will be automatically installed.

5-3-3 Installation completion and initial starting

① If this screen is displayed, installation of the System Controller Lite for VRF System (VRF Controller, VRF Explorer) to the Server PC is complete.
Click the [Finish] button.



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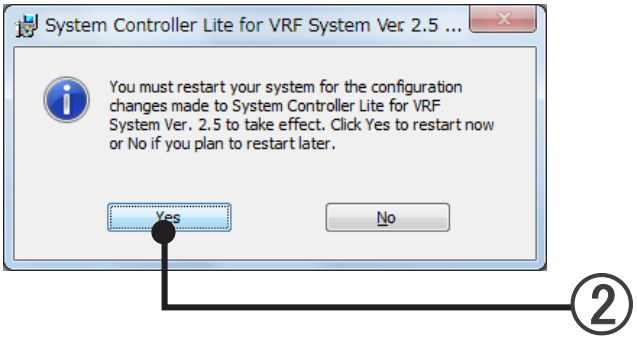
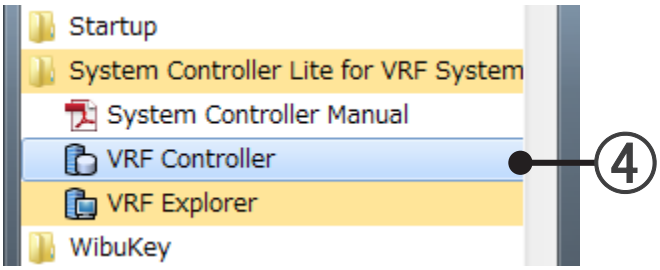
② If the Windows® restart confirmation screen opens, click the [Yes] button and restart the server PC.

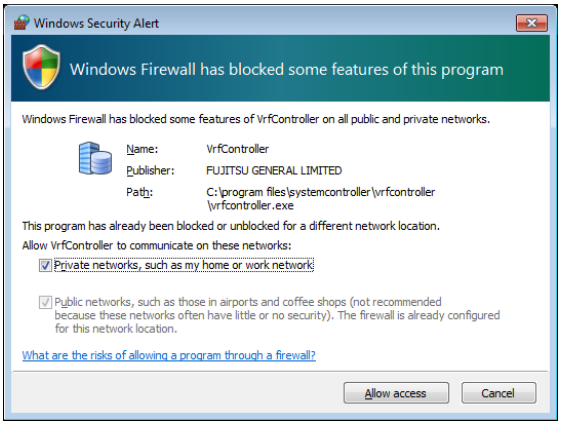


③ When server PC restarts, connect U10 USB Network Interface and WIBU-KEY to the USB port.

④ The VRF Controller starts.
Select “Start” → “All Programs” → “System Controller Lite for VRF System” → “VRF Controller”.



⑤ If “Windows Security Alert” is displayed, click the [Allow access] button.



⑥ If the “Login Setting” screen opens, perform the initial starting setting.
→ 8. Basic Settings

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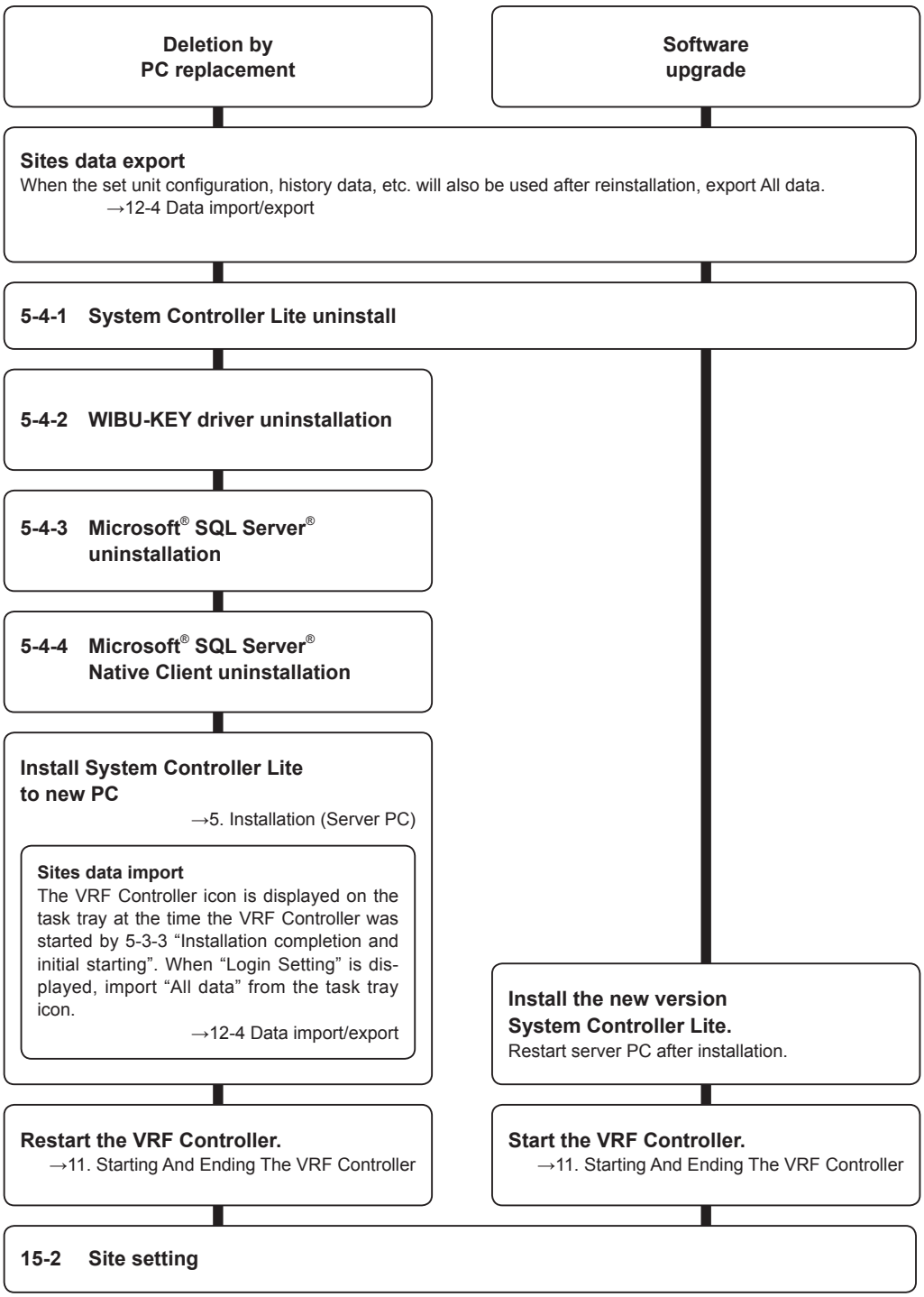
5-4 Uninstall and version upgrade

For uninstallation and version upgrade in the server PC, follow the procedures shown below.

Note

For upgrade, when the method of upgrading is supplied with the new version of the System Controller Lite, give it priority.

Flowchart for uninstallation and upgrade



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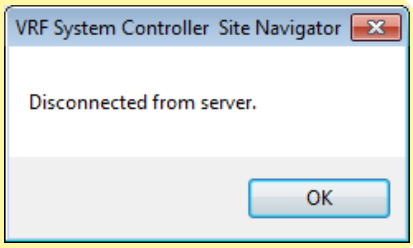
Note

When import is performed for PC replacement, the VRF Controller is disconnected and an error message at the right may be displayed. However, restart the VRF Controller as is.

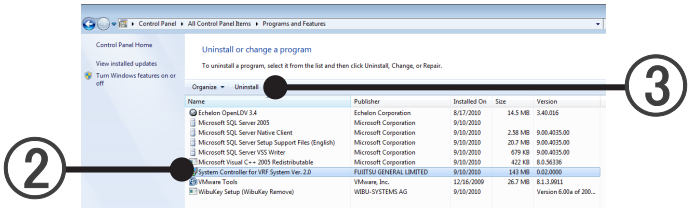


5-4-1 System Controller Lite uninstall

Note

- When the site data during use is expected to be used, export the data before uninstalling the System Controller Lite.
  Write all the data by exporting. → 12-4 Data import/export.

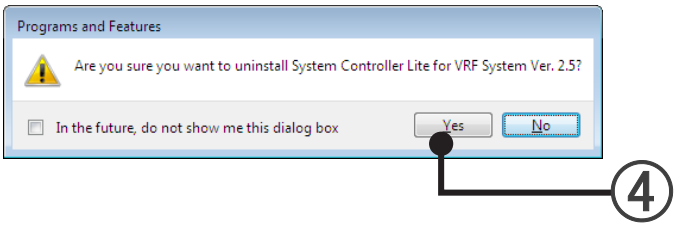
① Display “start” → “Control Panel” → “Programs and Features”.



② Select “System Controller Lite for VRF System”.

③ Click the [Uninstall] button.

④ When the [Yes] button is clicked, uninstallation begins.



⑤ When the screen displaying the uninstallation process closes, uninstallation is complete.

⑥ Close the “Programs and Features” screen by clicking the [×] at the top right-hand corner of the screen.

* A folder named System Controller Lite remains in the folder designated the System Controller Lite installation folder at installation even though uninstallation is performed.
There is no problem even if this folder remains as is, but it doesn’t matter if the folder is deleted.

* This completes uninstallation of the System Controller Lite server software (VRF Controller, VRF Explorer), but “WIBU-KEY Setup” and “Microsoft® SQL Server®” remain installed. There is no problem even if they remain, but when you know that other programs will not use “WIBU-KEY Setup” and “Microsoft® SQL Server®”, they can also be uninstalled.

* When uninstalled even if used by other programs, the other programs will not run properly.

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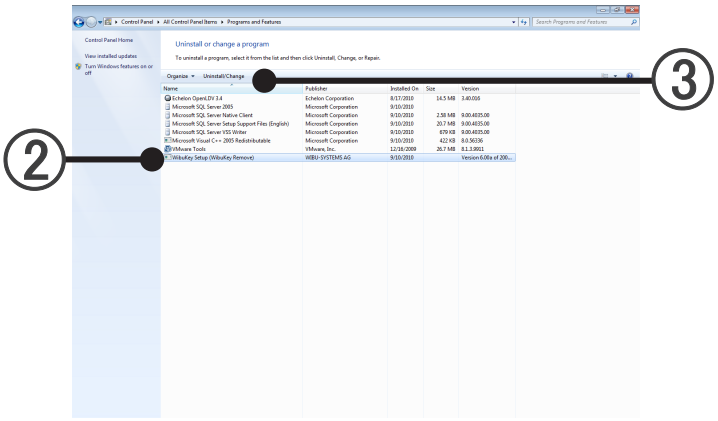
5-4-2 WIBU-KEY driver uninstallation

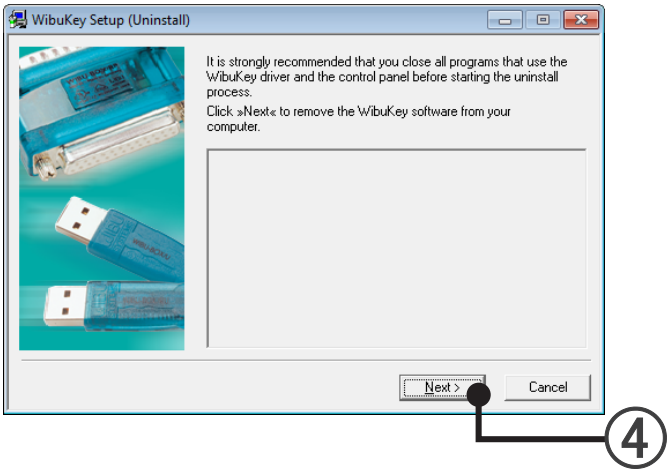
Execute only when you know for certain that the WIBU-KEY driver is not used by programs other than the System Controller Lite.
If unknown, do not uninstall the WIBU-KEY driver
Remove WIBU-KEY from server PC before uninstalling it.

① Display “start” → “Control Panel” → “Programs and Features”.



② Delete WIBU-KEY driver.
Select “WIBU-KEY Setup (WIBU-KEY Remove)”.

③ Click the [Uninstall/Change] button.



④ Click the [Next] button.

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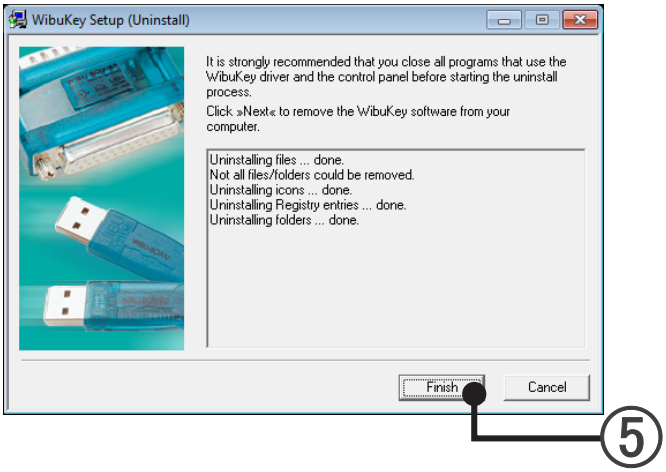


⑤ When this screen is displayed, uninstallation of the WIBU-KEY driver is complete.
Click the [Finish] button.

5-4-3 Microsoft® SQL Server® uninstallation

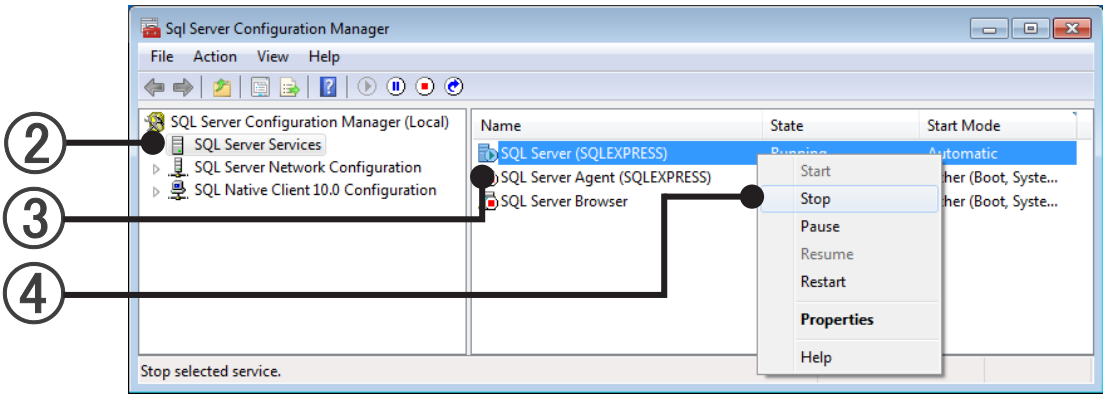
Execute only when you know for certain that Microsoft® SQL Server® is not used by programs other than the System Controller Lite.
If unknown, do not uninstall the program.

① Select the menu items in order of “start”→“All Programs”→“Microsoft SQL Server 2008 R2”→“Configuration Tools”→“SQL Server Configuration Manager”.

② Select SQL Server Services.

③ Right-click on SQL Server (SQLEXPRESS).

④ Select Stop.



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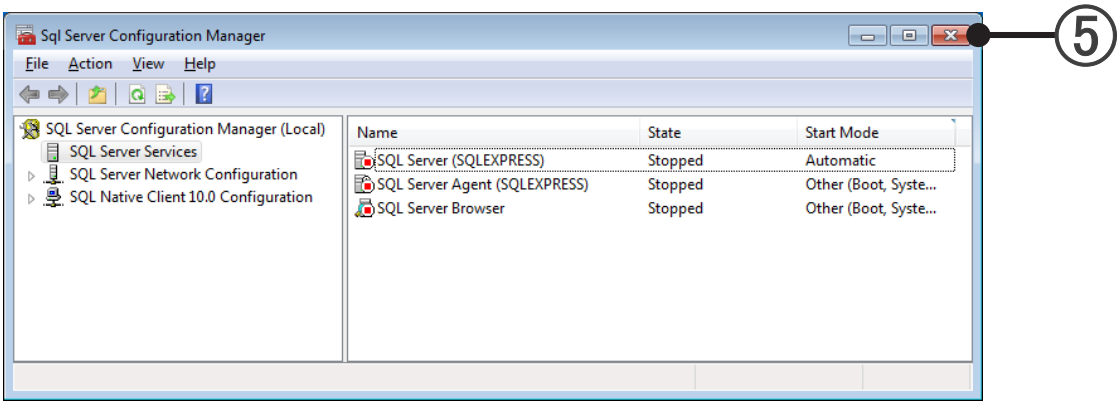
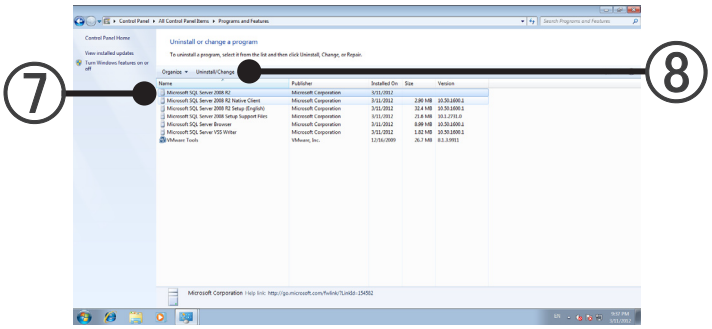
⑤ Close SQL Server Configuration Manager with [X].



⑥ Display “start” → “Control Panel” → “Programs and Features”.



⑦ Select “Microsoft SQL Server 2008 R2”.

⑧ Click the [Uninstall/change] button.

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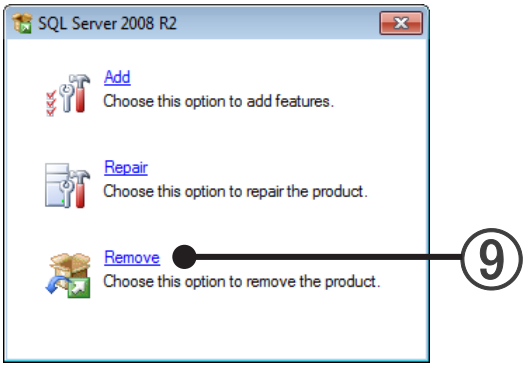
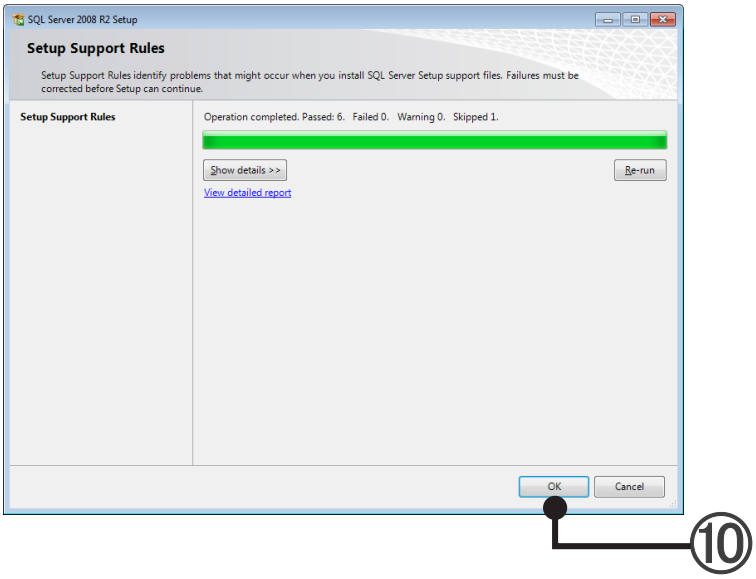
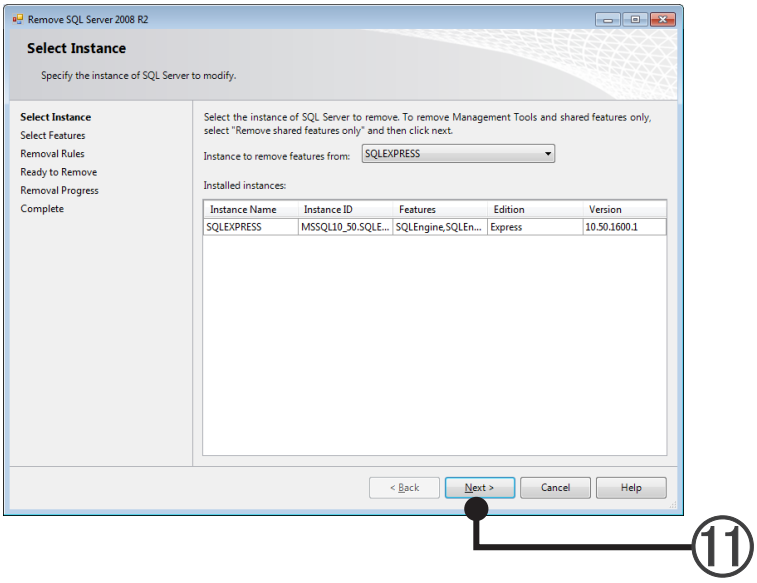
⑨ Click the [Remove].



⑩ Click the [OK] button.



⑪ Click the [Next] button.



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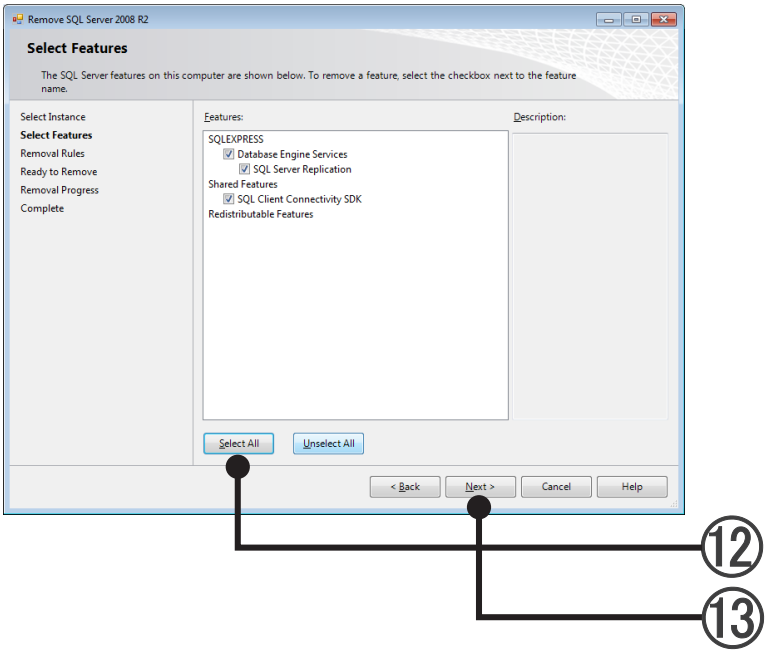
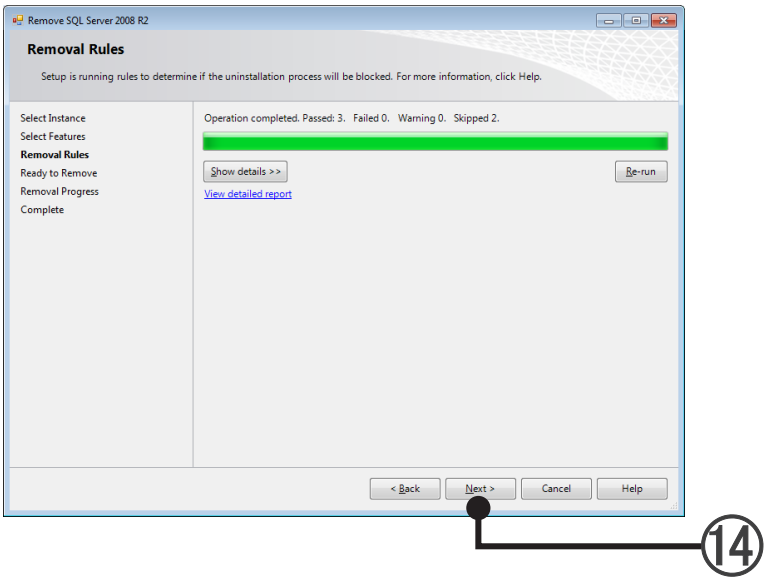
⑫ Click the [Select All] button.



⑬ Click the [Next] button.

⑭ Click the [Next] button.



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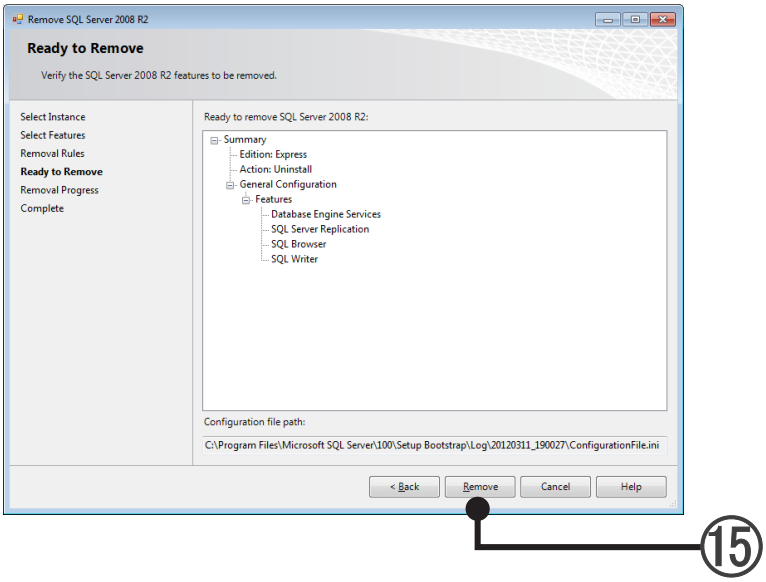
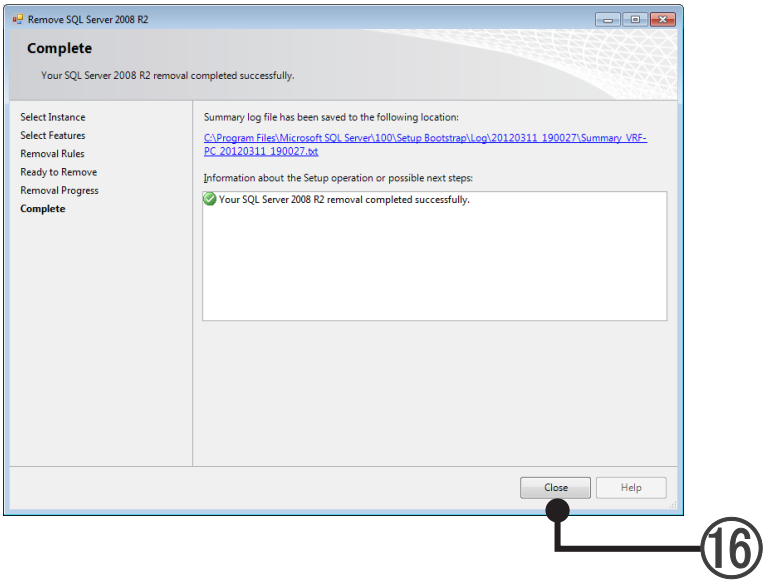
⑮ Click the [Remove] button.



⑯ Click the [Close] button.



⑰ Close the “Programs and Features” screen by clicking the [×] at the top right-hand corner of the screen.

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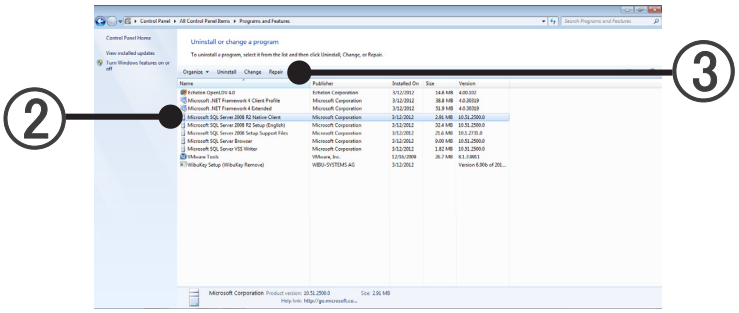
5-4-4 Microsoft® SQL Server® Native Client uninstallation

Execute only when you know for certain that Microsoft® SQL Server® is not used by programs other than the System Controller Lite.
When unknown, do not execute.
In addition, do not execute when Microsoft® SQL Server® products other than “Microsoft SQL Server” are installed.

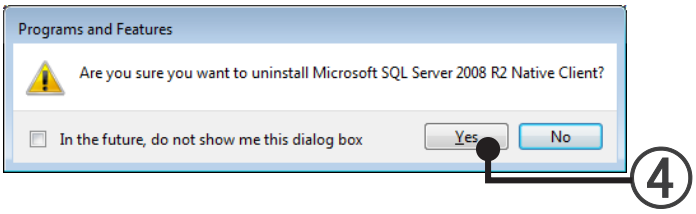
① Display “start” → “Control Panel” → “Programs and Features”.



② Select “Microsoft SQL Server 2008 R2 Native Client”.

③ Click the [Uninstall] button.

④ Click the [Yes] button.



When the screen displaying the uninstall process closes, uninstallation is complete.

⑤ Close the “Programs and Features” screen by clicking the [×] at the top right-hand corner of the screen.

Note

When installing the System Controller Lite, some of “Microsoft®.NET Framework” may be installed at the same time.
Since the Frameworks may also be used by other programs, if it is uninstalled, the other programs may not run properly.
If not inconvenient, do not uninstall the Frameworks and let it remain as is.

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Client PC Installation

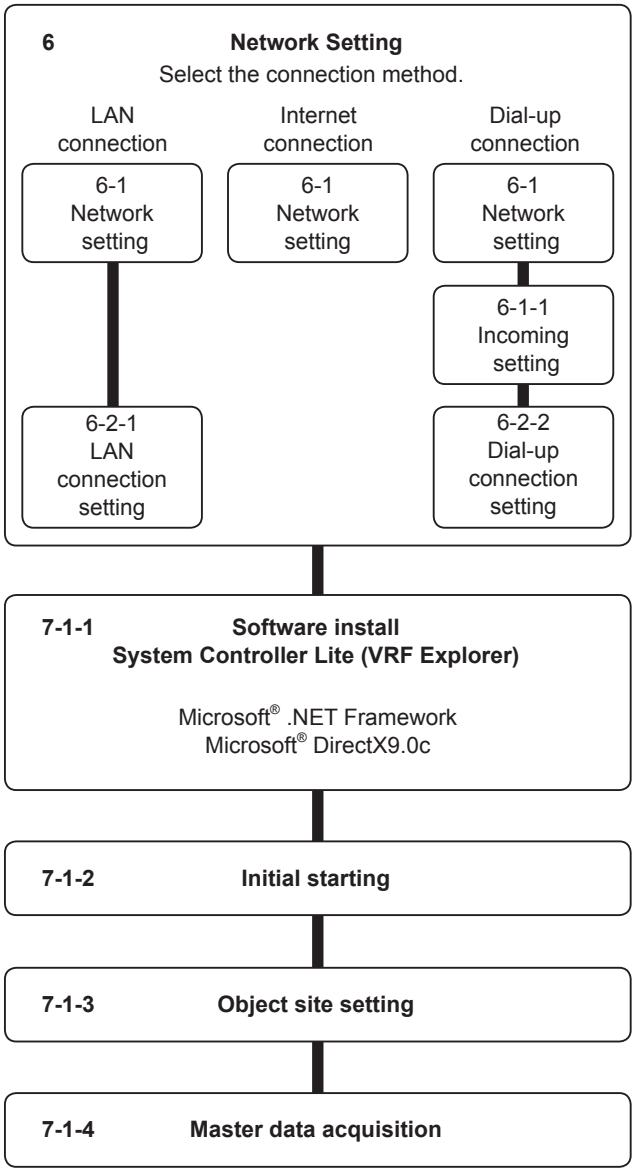
6. Network Setting
7. Installation (Client PC)

Client PC Installation

This section describes the procedure when installing the System Controller Lite client software (VRF Explorer), etc. to a PC different from the server PC. Generally, this installation is performed when you want to manage and operate sites using a PC at a location separated from the server PC.

This section also describes how to uninstall the software when the client software has become unnecessary and how to reinstall software that has already been installed due to upgrading of the software version or other reason.

Installation flow



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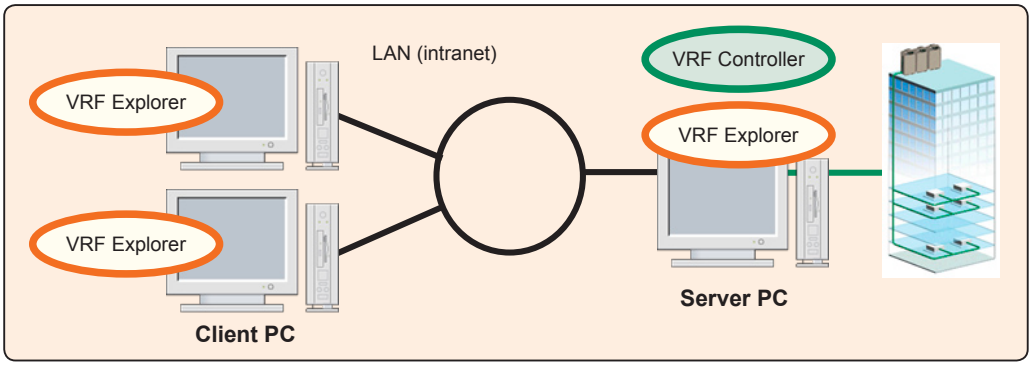
6. Network Setting

The description of this section is necessary when using the Remote Access option.
To use by installing the System Controller Lite (VRF Explorer only) to a client PC, connection of the network to a System Controller Lite (VRF Controller) installed to a server PC is necessary.
Remote connection is not available between UTY-APGX and UTY-ALGX.
There are 3 connection methods.

1. LAN connection (intranet connection)

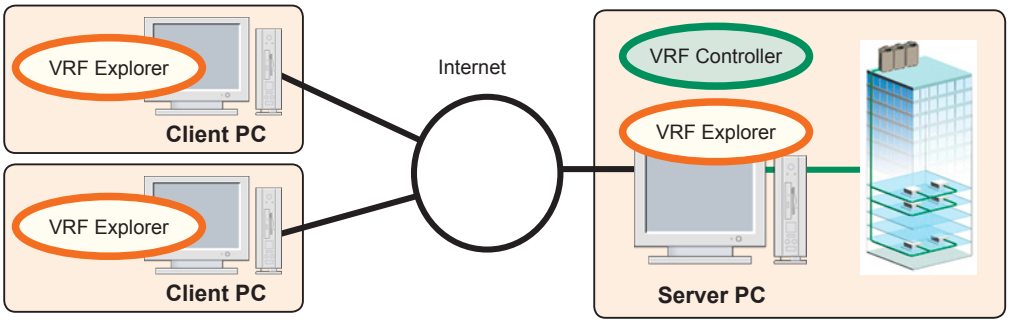
This method connects the client PC and server PC over a LAN (intranet)



→6-2-1 LAN connection setting

2. Internet connection

This method connects the client PC and server PC over the internet. There is a method which connects to the internet through an intranet and a method which connects to the internet directly through a provider using an access router, etc. without going through an intranet.



Note

Since a public line internet is used, care must be given to security. A fixed IP which can specify the server PC from the client PC is necessary. When connecting through an intranet, firewall setting is necessary. For details, contact your network administrator.

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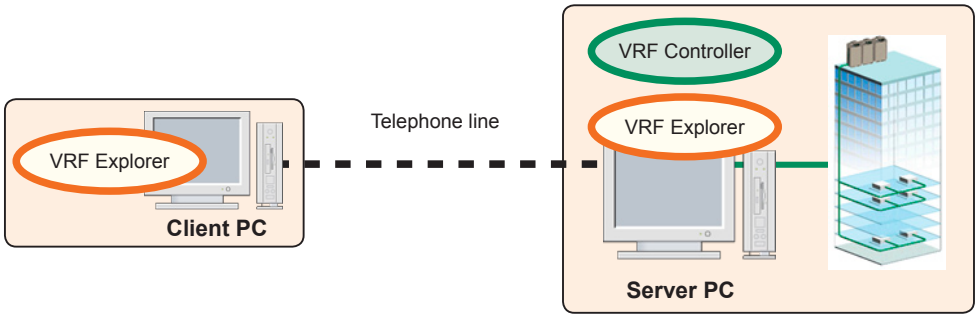
3. Dial-up connection

This method connects the client PC and server PC by calling a telephone using a telephone line and placing it into the talk state.



→ 6-1-1 Incoming setting
6-2-2 Dial-up connection setting

Note

Telephone charges are generated. Since the connection is 1:1, simultaneous connection from multiple client PC or connection to multiple server PC are impossible. Constant monitoring is impossible as long as the telephone is not connected.

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6-1 Network setting (server PC side setting)

To exchange data between server and client, perform the following settings (necessary with all connection methods).

Security software setting

When introducing security software, register “VrfController.exe” and “VrfExplorer.exe” at the security software. The setting method differs with the security software.

Regarding the following setting, the necessary settings differ with the server and client connection method. Perform setting after confirming the connection method

1. Internet connection

The permission of the network administrator may be necessary to communicate outside the intranet. Please contact both the server side and client side network administrator.
When connecting through a provider, establishment of a line with the provider is necessary. For details, please contact the provider used. In any case, a fixed IP address is necessary at the server side PC.

2. Dial-up connection

Incoming setting is necessary. → 6-1-1 Incoming setting.

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6-1-1 Incoming setting (for dial-up connection)

When the client performs the connecting by dial-up, make the following settings.

■ Modem setting

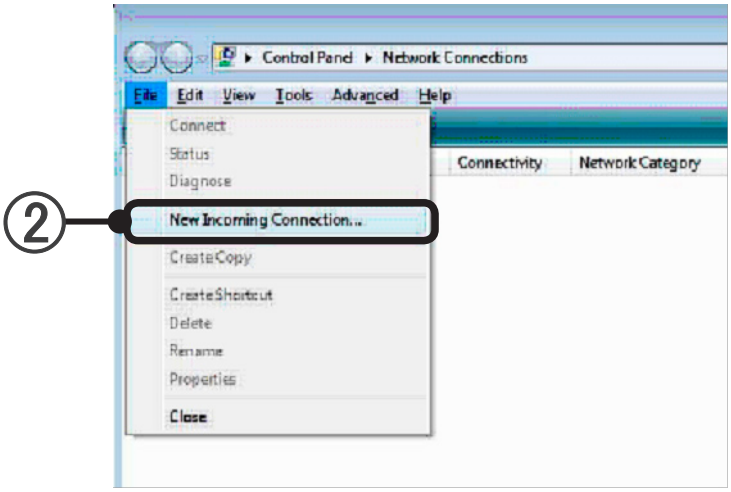
Perform connection setting based on the connection procedure of the modem to be used.

■ Remote connection setting

Windows Vista

① Display the network setting screen by sequentially selecting the menus as follows:
“start”→“Control Panel”→“Network and Internet”→ “Network and Sharing Center”→“Manage network connections”

② In the Network Connections screen, press “Alt” key. When the menu bar appear on the top, click “File”, then “New Incoming Connection…”

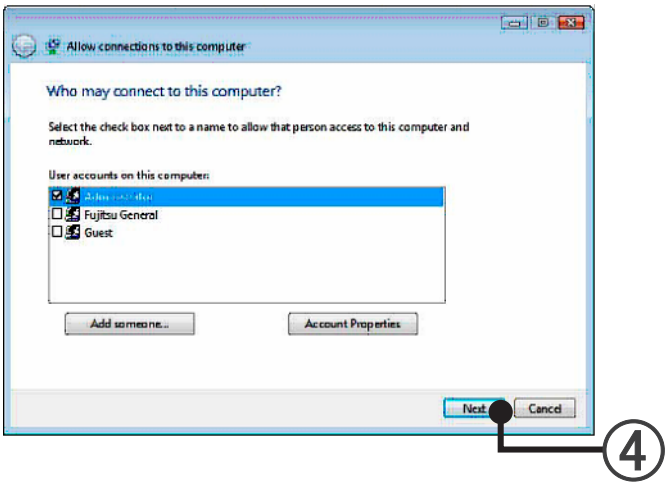


③ This screen sets the users who can connect to the computer. The users of the Operating System of the machines are displayed. Check the users allowed to connect from the displayed list. (*1)
Verification is performed by the Operating System at incoming. For connection from the client, the user set here and the password of that user must be input. (*2)

Information

*1. When creating a new user, click [Add someone…] and create the user from the displayed screen.

*2. Perform connection from the client from the screen par. 6-2-2 Dial-up setting.



④ Click [Next].

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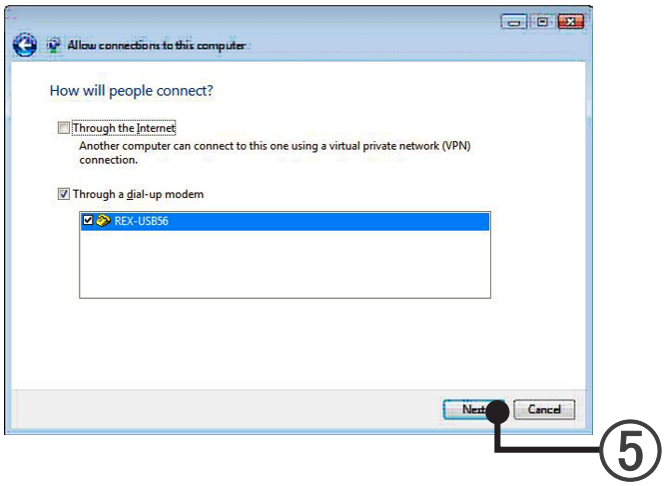
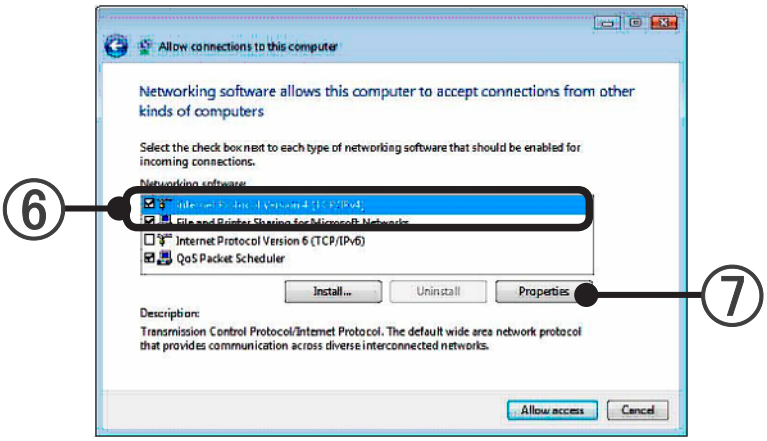
⑤ Select the model to be used and click [Next].



⑥ Confirm that “Internet Protocol Version 4 (TCP/IPv4)” is checked. If “Internet Protocol Version 4 (TCP/IPv4)” is not checked, check it.



⑦ In the Internet Protocol (TCP/IP) selected state, click [Properties].

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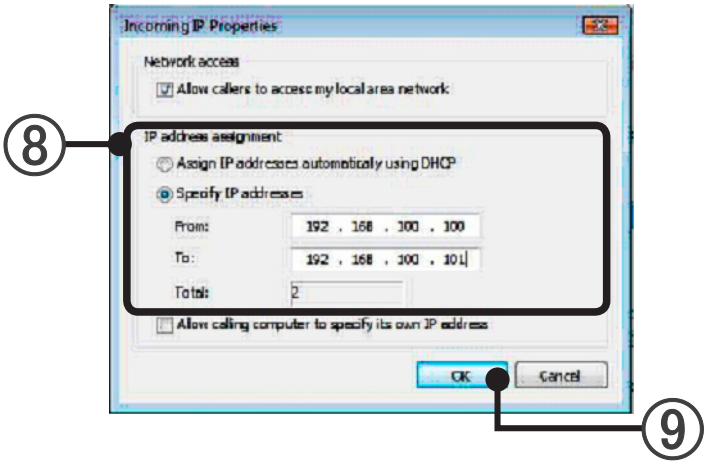
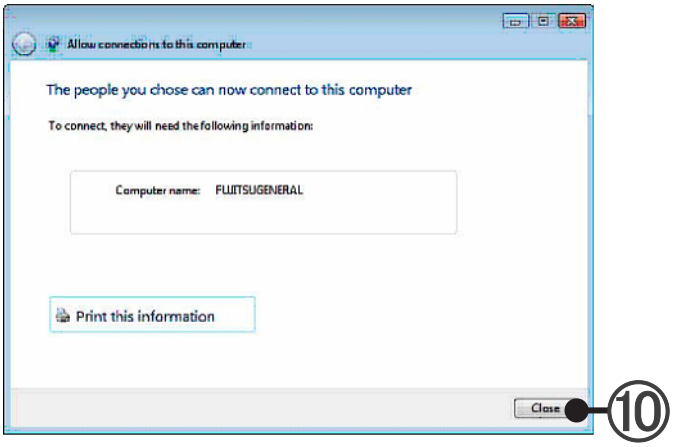
⑧ This screen sets the IP address allocated at incoming connection.Select “Specify TCP/IP address” and sets the “From” and “To” IP addresses serially to match the installation environment in accordance with the network administrator’s instructions.
Normally IP addresses are specified serially, beginning from 192.168. . , but when connecting the personal computer which performs the setting to another network (for instance, LAN), be sure that the set IP addresses do not duplicate those of a personal computer on the other network.
For incoming connection, the IP address specified by “From” becomes the IP address of this machine and the IP address specified by “To” is set at the client IP address. The example below shows setting when the local personal computer is made 192. 168. 100. 100 and the client IP address is set to 192. 168. 100. 101.



⑨ Close the screen by clicking [OK].
Then click [Allow access] in the screen.



⑩ Click [Close].

- Close the “Network Connections” screen.
- Close the “Network and Sharing center”.

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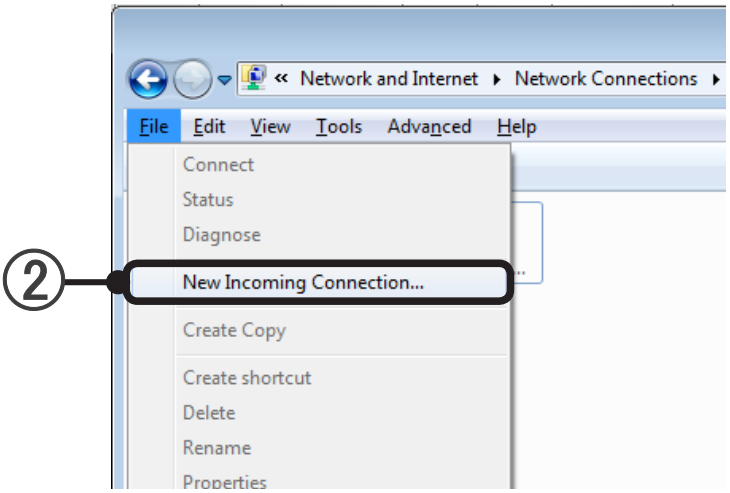
Windows 7/8

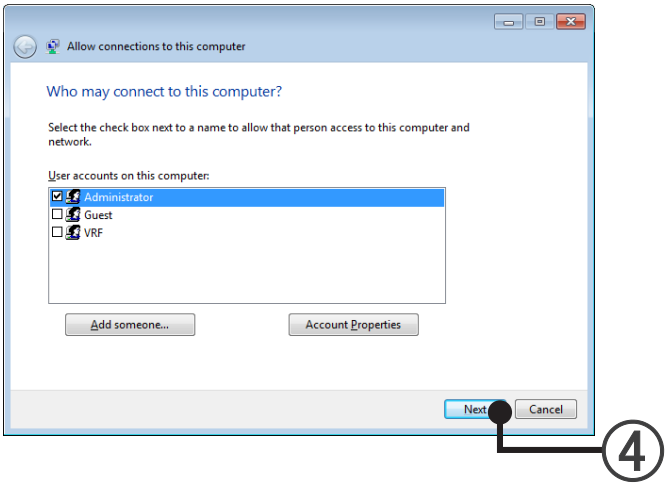
① Display the network setting screen by sequentially selecting the menus as follows:
“start”→“Control Panel”→ “Network and Sharing Center”→"Change adaptor settings"

② In the Network Connections screen, press “Alt” key. When the menu bar appear on the top, click “File”, then “New Incoming Connection…”



③ This screen sets the users who can connect to the computer. The users of the Operating System of the machines are displayed. Check the users allowed to connect from the displayed list. (*1)
Verification is performed by the Operating System at incoming. For connection from the client, the user set here and the password of that user must be input. (*2)
Information

*1. When creating a new user, click [Add someone…] and create the user from the displayed screen.
*2. Perform connection from the client from the screen par. 6-2-2 Dial-up connection setting.



④ Click [Next].

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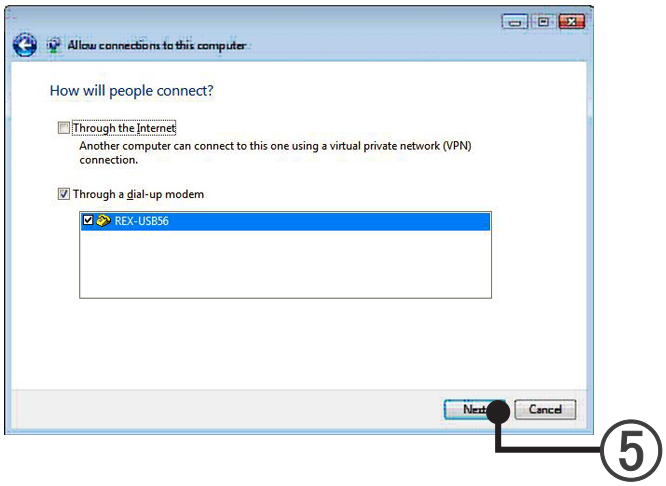
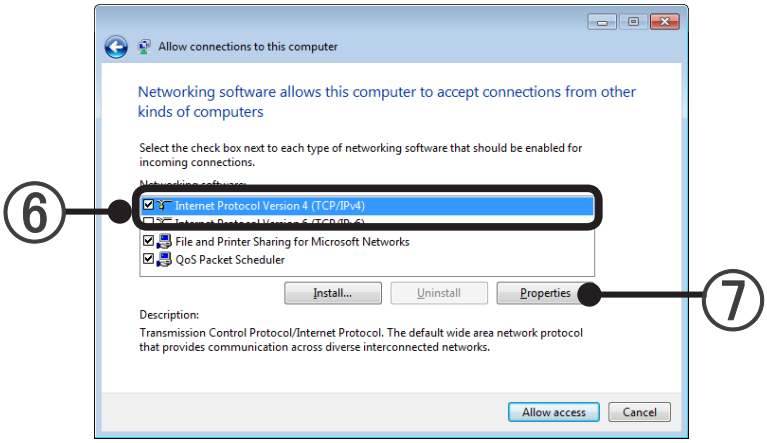
⑤ Select the modem to be used and click [Next].



⑥ Confirm that “Internet Protocol Version 4 (TCP/IPv4)” is checked. If “Internet Protocol Version 4 (TCP/IPv4)” is not checked, check it.



⑦ In the Internet Protocol (TCP/IP) selected state, click [Properties].

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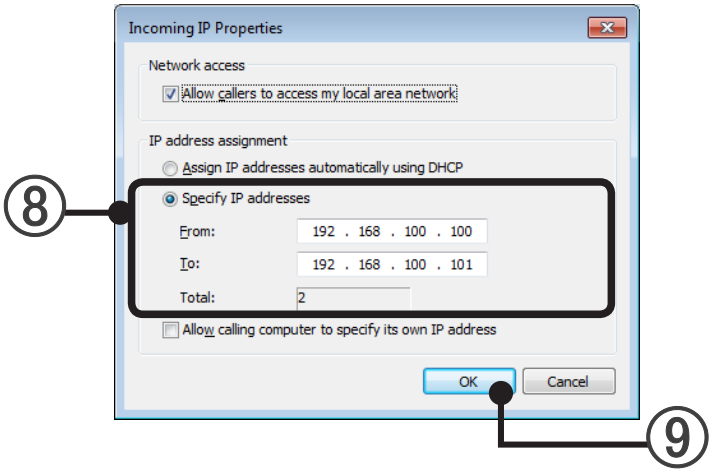
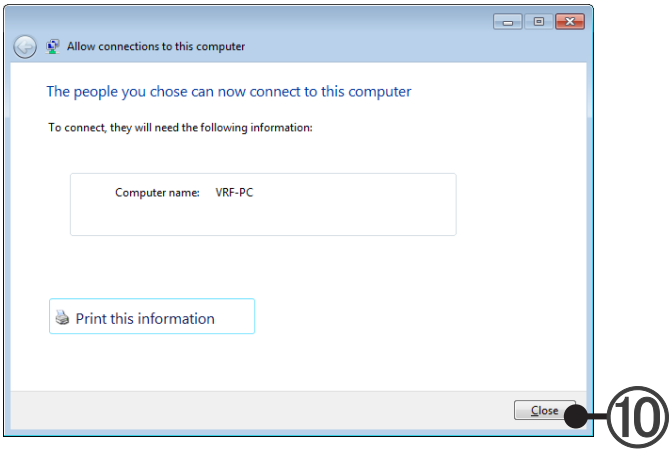
⑧ This screen sets the IP address allocated at incoming connection.Select “Specify TCP/IP address” and sets the “From” and “To” IP addresses serially to match the installation environment in accordance with the network administrator’s instructions.
Normally IP addresses are specified serially, beginning from 192.168. . , but when connecting the personal computer which performs the setting to another network (for instance, LAN), be sure that the set IP addresses do not duplicate those of a personal computer on the other network.
For incoming connection, the IP address specified by “From” becomes the IP address of this machine and the IP address specified by “To” is set at the client IP address. The example below shows setting when the local personal computer is made 192. 168. 100. 100 and the client IP address is set to 192. 168. 100. 101.



⑨ Close the screen by clicking [OK].
Then click [Allow access] in the screen.



⑩ Click [Close].

- Close the “Network Connections” screen.
- Close the “Network and Sharing center”.

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6-2 Network setting (client PC side setting)

The setting contents vary depending on the server and client connection method. Perform setting after confirming the connection method.

The System Controller Lite can be used in the following network connection modes:

1. LAN connection

In this mode, the System Controller Lite can be accessed by multiple terminals on the user's premises connected by intranet.

Required environment : LAN connection environment

Network Interface

LAN cable

Hubs or Routers may become necessary

→ See par. 6-2-1 LAN connection setting

2. Internet connection

Setting is not particularly necessary at the client terminal, but if not authorized by the network administrator, connection may be impossible.

3. Dial–up connection

This mode uses a telephone line to dial-up connect to a server installed on the user's premises.

Required environment: Telephone line, modem

→ See par. 6-2-2 Dial-up connection setting

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6-2-1 LAN connection setting

Perform LAN setting to match the usage environment. Contact the network administrator for the IP address, subnet mask, and other settings.

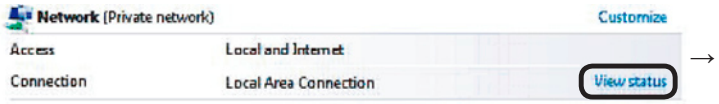
Windows Vista

① Display the LAN setting screen by sequentially selecting the menus as follows:

"Start"→"Control Panel"→

→

→



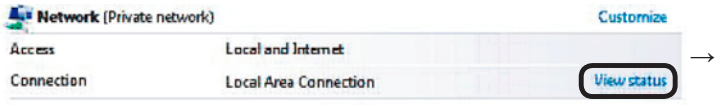
→

Note

- When the control panel display is Classic View, select the menus in the following order:

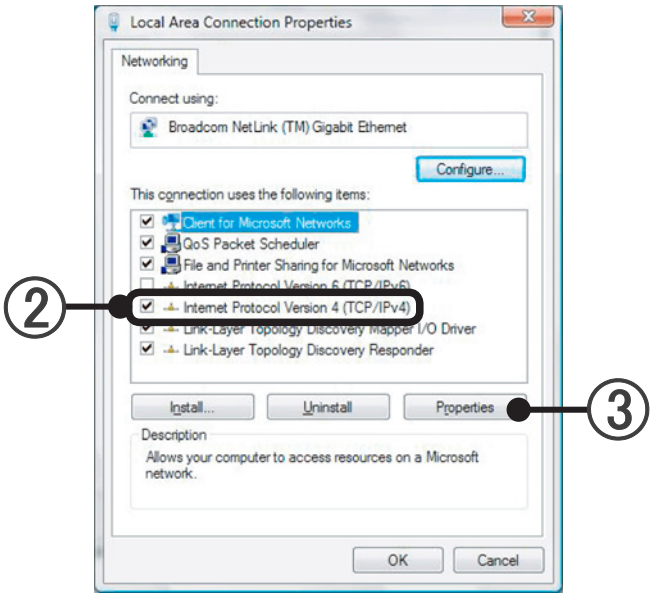
"Start"→"Control Panel"→

→



→

② Select by checking "Internet Protocol (TCP/IP)".



③ Click [Properties].

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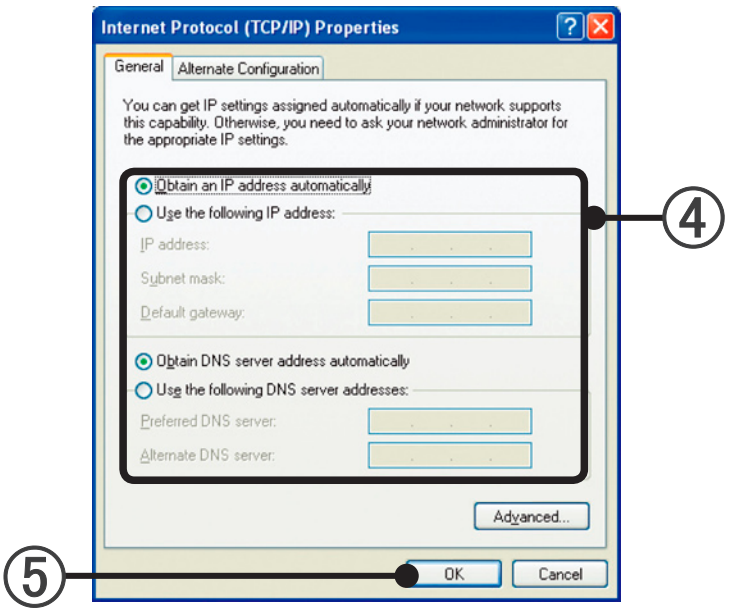
④ Select the IP address acquisition/specification method, input IP address to be set, subnet mask, default gateway, and DNS service setting items, which are inputted items of this screen, to match the installation environment in accordance with the network administrator's instructions.



⑤ Exit setting by clicking [OK] .

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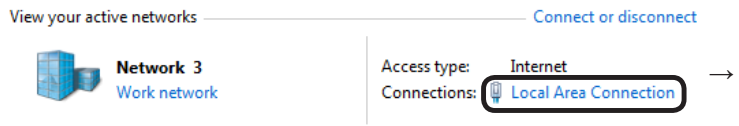
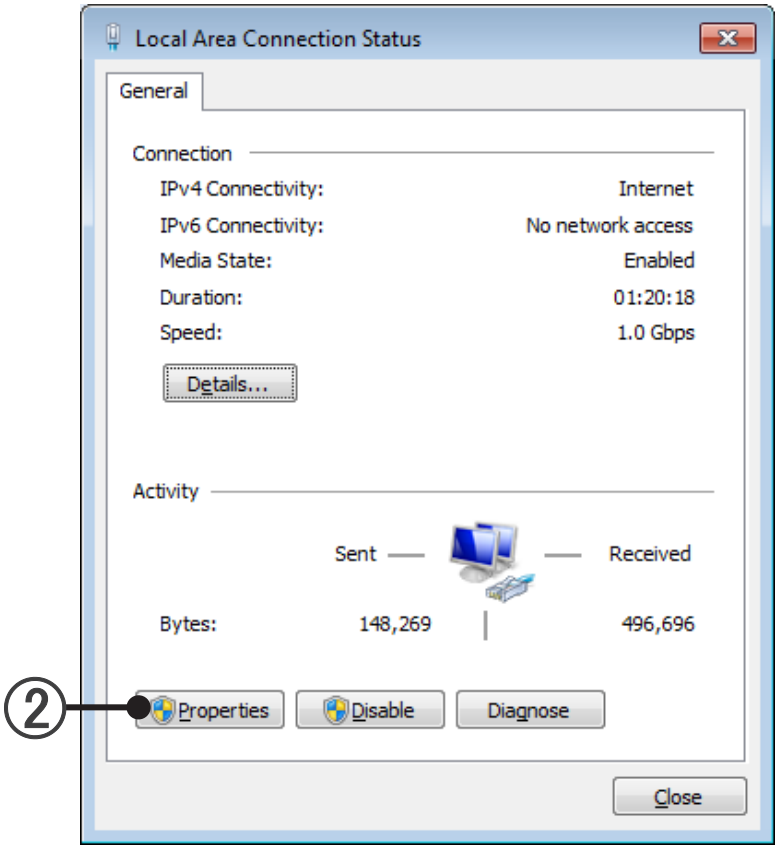
Windows 7/8

① Display the LAN setting screen by sequentially selecting the menus as follows:

"Start"→"Control Panel"→ Network and Sharing Center →



② Click [Properties].



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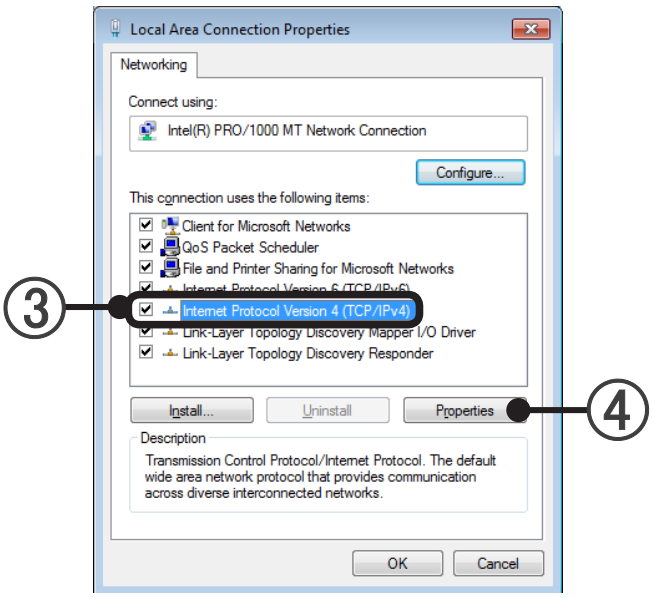
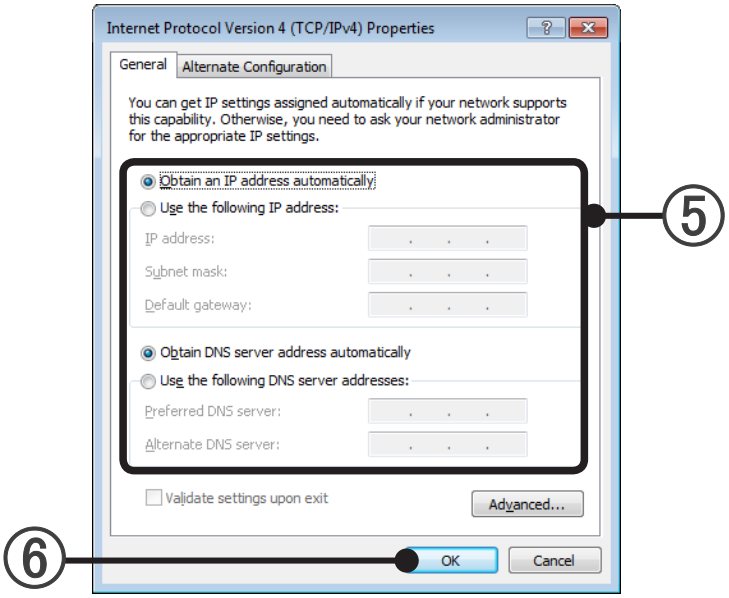
③ Select by checking “Internet Protocol (TCP/IP)”.



④ Click [Properties]

⑤ Select the IP address acquisition/specification method, input IP address to be set, subnet mask, default gateway, and DNS service setting items, which are inputted items of this screen, to match the installation environment in accordance with the network administrator’s instructions.



⑥ Exit setting by clicking [OK].

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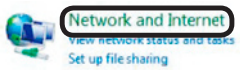
6-2-2 Dial-up connection setting

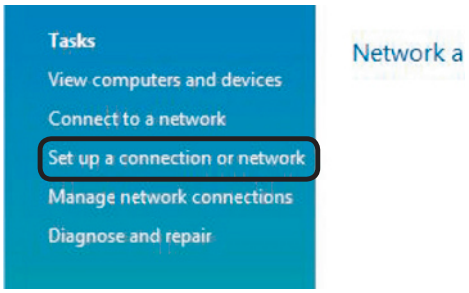
Windows Vista

① Display the network setting screen by sequentially selecting the menus as follows:

"Start"→"Control Panel"→ 

→

→

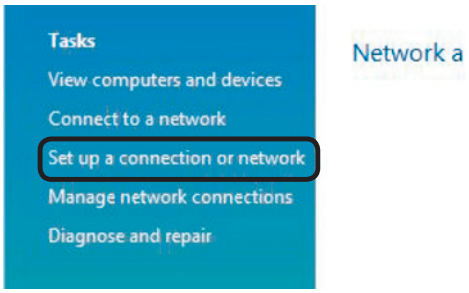


Note

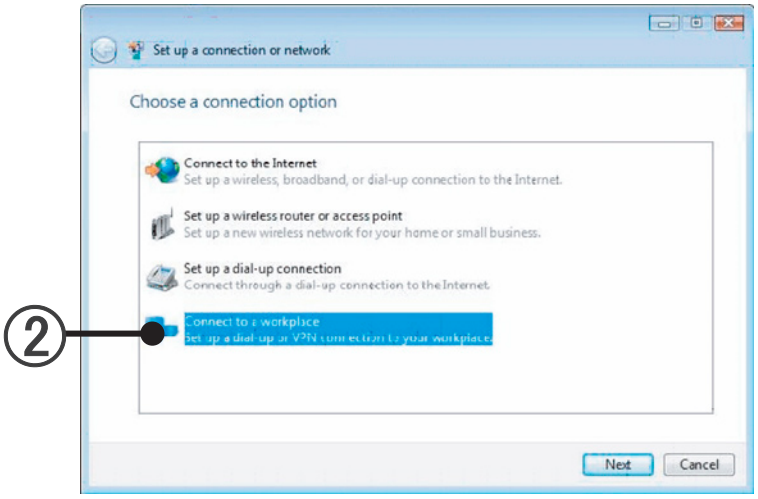
- When the control panel display is Classic View, select the menus in the following order:

"Start"→"Control Panel"→

→



② Select "Connect to a workplace".



Client PC Installation

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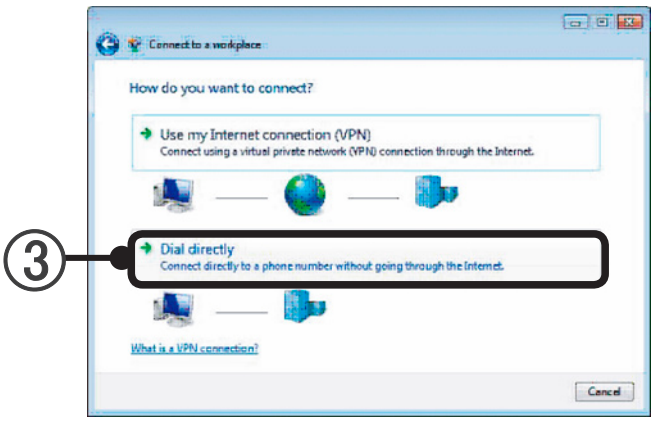
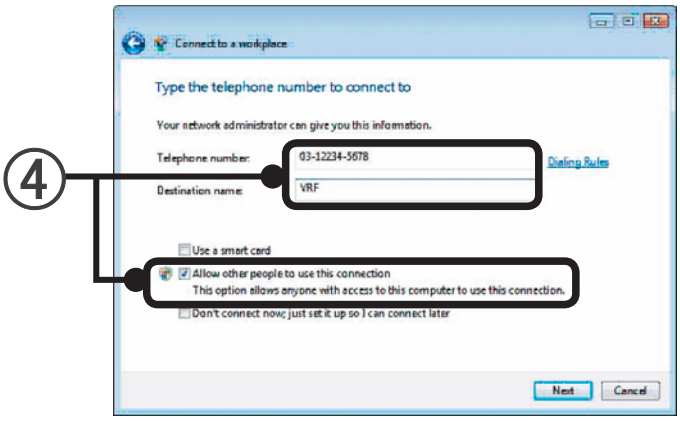
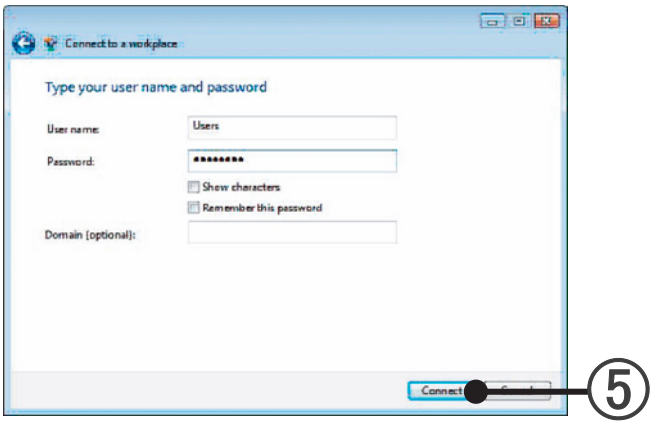
③ Select “Dial directly”.



④ Type the Telephone number, Destination name (arbitrary), and check on the “Allow other people to use this connection” if there are no special problems.
This connection setting can be used by all users of the computer used.



⑤ When performing connection, do it from this screen.
Here close the screen by clicking [Cancel].



* When performing connection, input the user name/password specified 6-1-1 Incoming setting.

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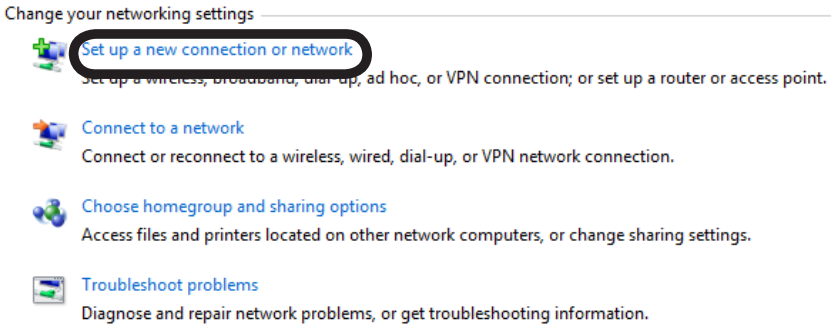
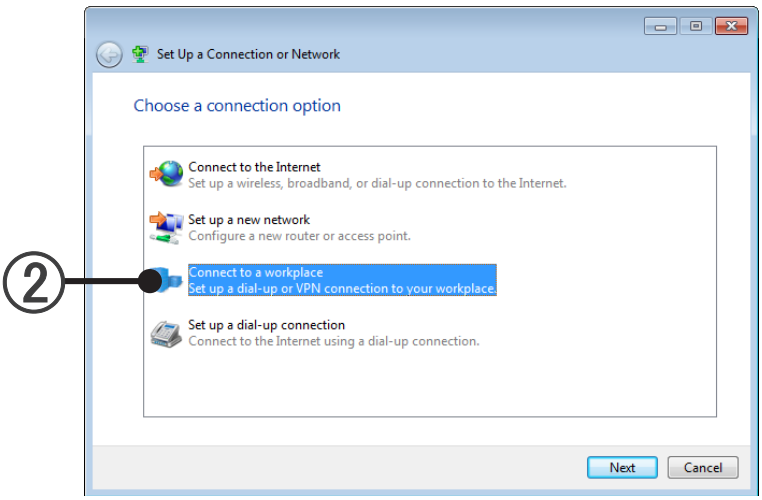
Windows 7/8

① Display the network setting screen by sequentially selecting the menus as follows:

"Start"→"Control Panel"→ Network and Sharing Center →



② Select "Connect to a workplace".



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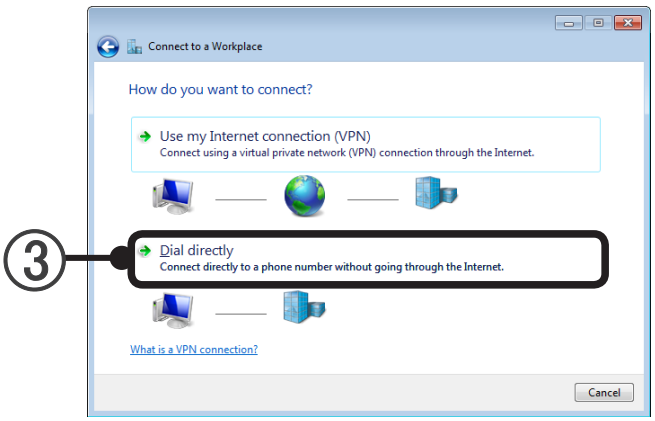
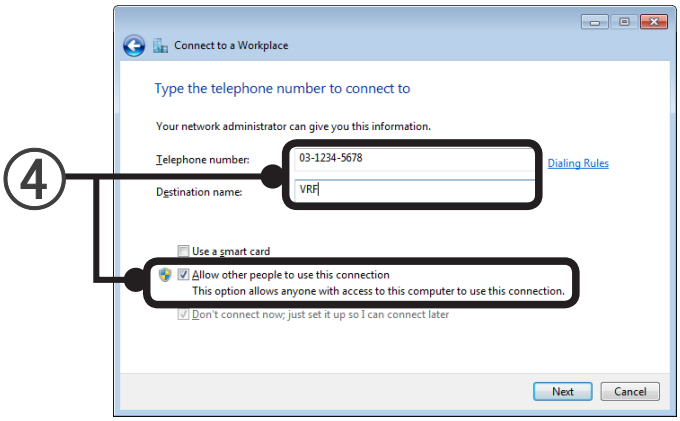
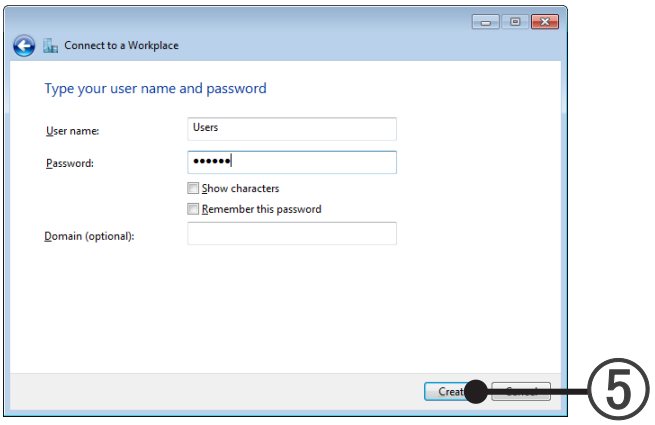
③ Select “Dial directly”.



④ Type the Telephone number, Destination name (arbitrary), and check on the “Allow other people to use this connection” if there are no special problems.
This connection setting can be used by all users of the computer used.



⑤ When performing connection, do it from this screen.
Here close the screen by clicking [Cancel].



* When performing connection, input the user name/password specified 6-1-1 Incoming setting.

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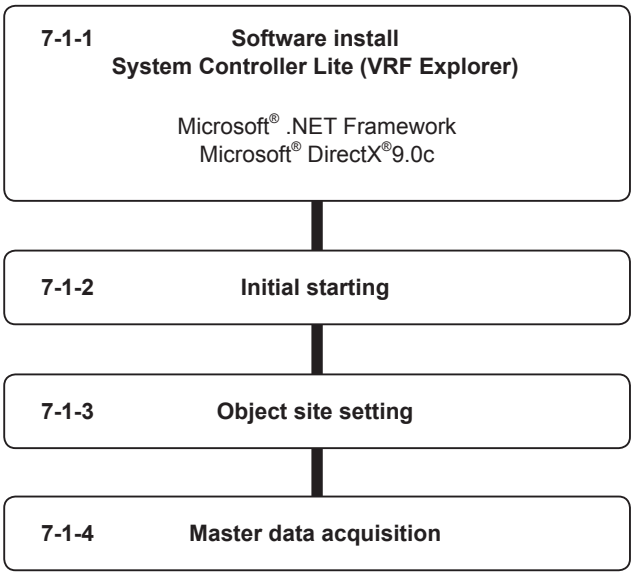
7. Installation (Client PC)

7-1 Installation flow

The description of this section is necessary when using the Remote Access option.

- Installs the System Controller Lite (client is VRF Explorer only) to the client PC.

Installation flow



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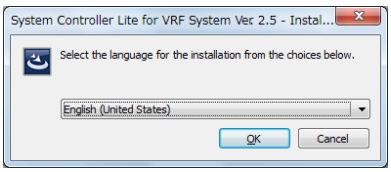
7-1-1 Software install

The following software is installed here.

- Microsoft® .NET Framework
- System Controller Lite (VRF Explorer only)
- Microsoft® DirectX® 9.0c

① Execute setup.exe in the System Controller Lite folder on the System Controller Lite setup DVD.

② Select the same language as that of the Windows® (If you select a different language, characters may not be displayed correctly).



③ Install .NET Framework using the chosen method (for Windows 8 (or later)).
This screen will not be displayed for Windows other than Windows 8 (or later). Even for Windows 8 (or later), it will not be displayed if .NET Framework has already been installed.

- Install Online (when the PC is connected to internet)
  Select "Install from Internet" and click “Install” button.
  .NET Framework 3.5 will be downloaded from Microsoft site and will be installed.

- Install Offline (when the PC is not connected to internet)
  When the PC is not connected to the internet, Windows 8 (or later) installation media is required to install .NET Framework 3.5. Please have the media ready before continuing the following steps.

  If you have Windows 8 (or later) installation DVD, select "Install using Windows 8 (or later) DVD installation media". If you have other types of Windows 8 (or later) installation media, check that the “sxs” folder that holds the .NET Framework components exists within that media, and select ”Specify the folder with .NET Framework installation files”.

  - Install using Windows 8 (or later) DVD installation media
    Insert Windows 8 (or later) installation DVD to the DVD drive.
    Select that drive and click “Install” button.
    When the installation of .NET Framework 3.5 completes, a message “Set the System Tool DVD installation media” is displayed. Insert the System Controller Lite DVD again.

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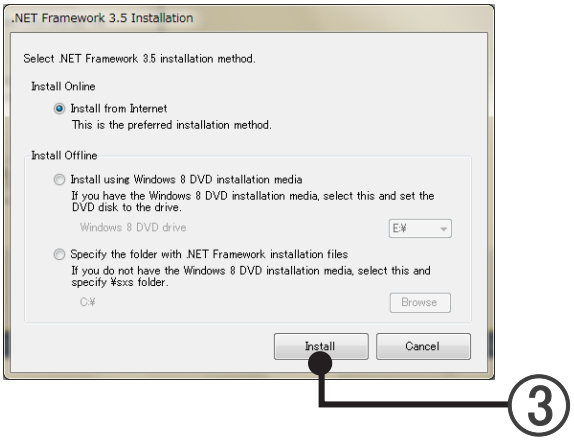
- Specify the folder with .NET Framework installation files
  Specify the "sxs" folder and click “Install” button.
  (The “sxs“ folder is where the .NET Framework components are stored).
  Ex. D:\windows8\sources\sxs



Note

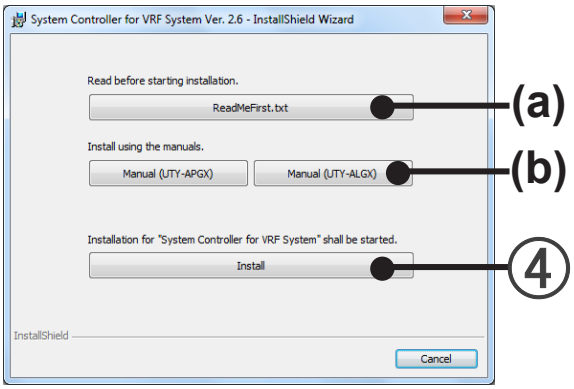
Installation of .NET Framework 3.5 requires few minutes to complete. Do no operate the screen until the installation is completed.

④ When “Install” is selected, installation begins.
a When “ReadMeFirst.txt” is selected, ReadMe is displayed.

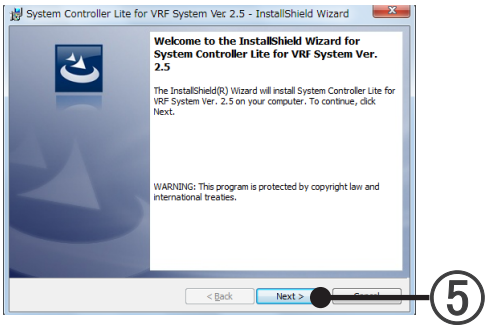
Note

Be sure to read it for important information.

b When “Manual” is selected, the manual is displayed.



⑤ This screen is displayed. Click the [Next] button.



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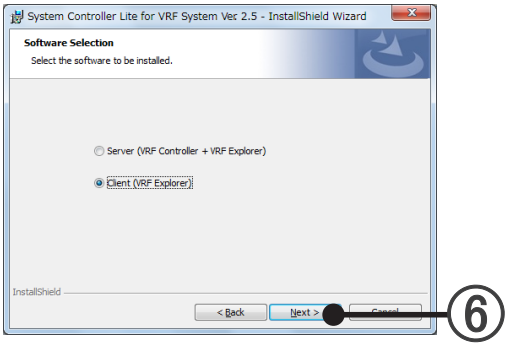
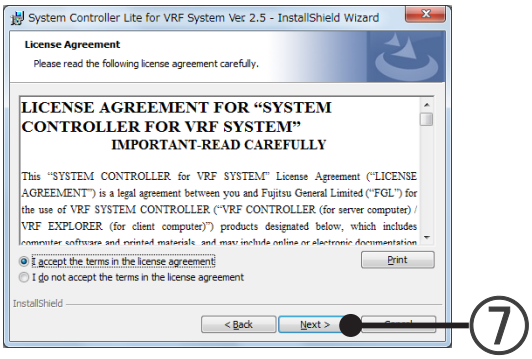
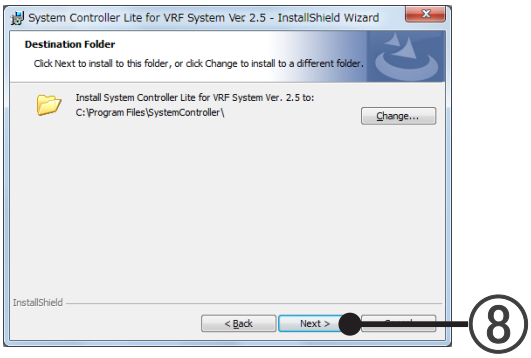
⑥ Select Client (VRF Explorer) then press [Next] button.



⑦ Since the System Controller Lite end user licensing agreement is displayed, confirm the contents. To agree to the terms of the license, check “I accept the terms in the license agreement” and click the [Next] button.



⑧ Specify the installation destination folder and click the [Next] button.



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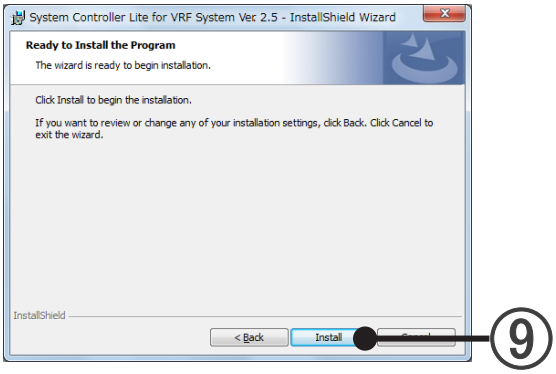
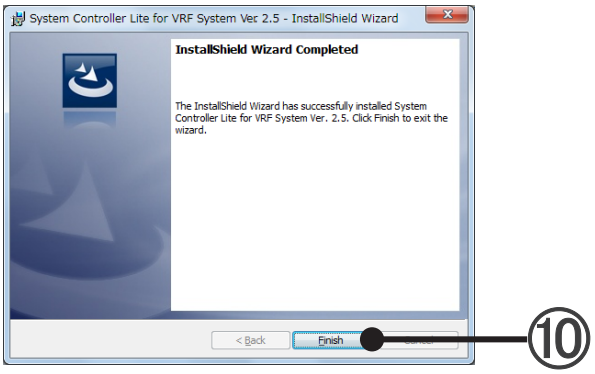
⑨ If the installation setting contents are correct, click the [Install] button.



Installation starts.
The necessary drivers are also installed at the same time.
"Microsoft® DirectX®9.0c" is also installed automatically.
When following error appears during the installation of the System Controller Lite; "Internal error 25259. DirectX -9: An internal error occurred." execute the following program and install DirectX.
Execute DXSETUP.exe in the DirectX9c folder on the System Controller Lite setup DVD.

⑩ After copying of all the files is complete, this screen is displayed.
Click the [Finish] button.



This completes installation of the System Controller Lite for VRF System Client (VRF Explorer).
Next, initially start and make the various settings. → See par. 7-1-2 Initial starting

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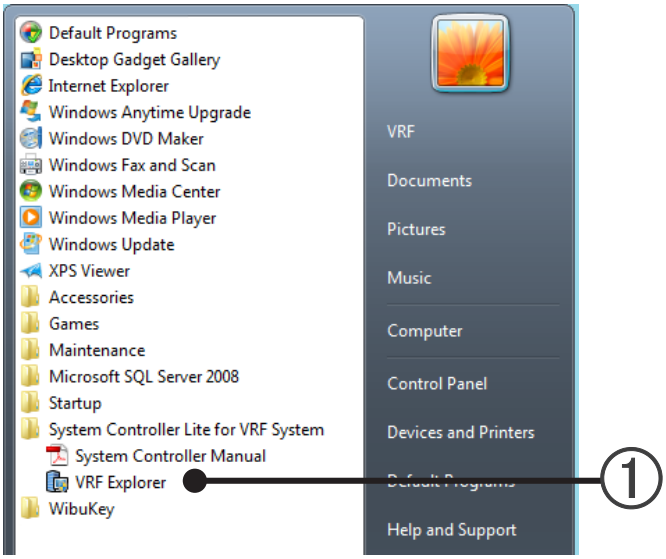
7-1-2 Initial starting

① Start from Windows® start.
Select “Start” → “All programs” → “System Controller Lite for VRF System” → “VRF Explorer”



② System Controller Lite starts.

Continued at par. 7-1-3 Object site setting.

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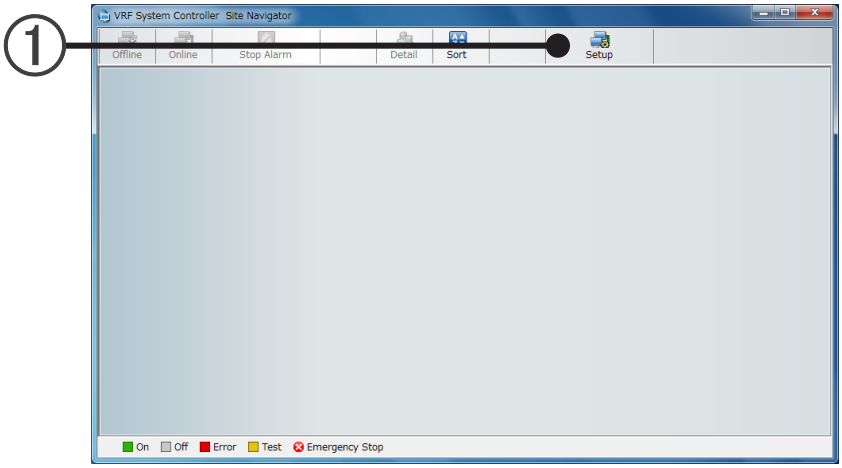
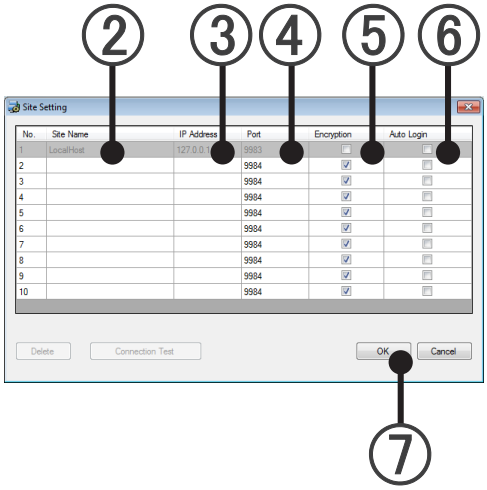
7-1-3 Object site setting

Set the site connected from the VRF Explorer.

① Since “Site Navigator” is displayed, click [Setup].



② Since “Site Setting” is displayed, enter the site name at “Site Name”.



③ Enter the IP address of the server PC (VRF Controller) to be connected.
For LAN connection, enter the intranet IP address.
For internet connection, enter the global IP address of the server.
For dial-up connection, enter the IP address of the server PC set at par. 6-1-1 Incoming setting.

④ The Port No. to be set is displayed. → See par.12-3 Port Setting

⑤ Check Encryption and match with the setting of the connection destination VRF Controller.
→ See par.12-2 Security setting

Checked: Encrypt
Unchecked: Do not encrypt

⑥ Login automatically without entering password.
This can be checked at login screen.

⑦ Click [OK].

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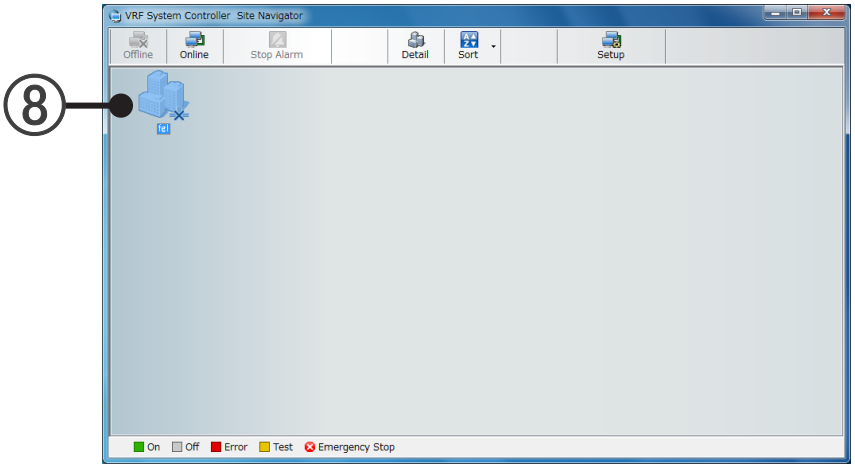
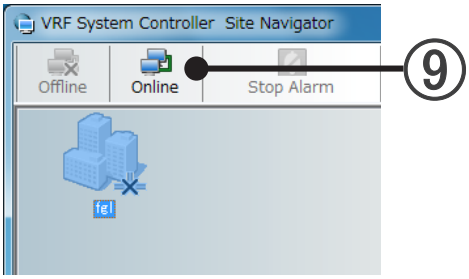
⑧ This registered 1 connection destination site.
Select a displayed offline state “Site” icon.



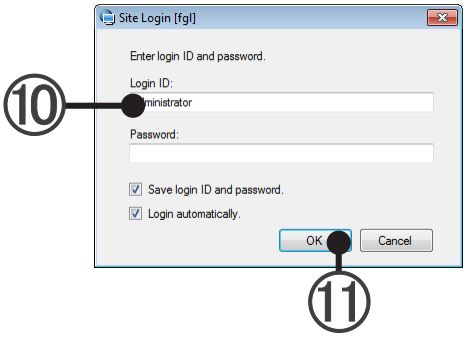
⑨ Click [Online] (Site icon can also be double clicked.)



* When “Failed to connect” is displayed, see “Not connected from client PC to server PC” in the “30-1 Trouble-shooting”.

⑩ Since the login screen is displayed, enter the allocated Login ID and Password.

* When the login ID and Password are not known, please contact the administrator of the connection destination VRF Controller.



⑪ Click [OK].
Since it is the first connection to the site, the “Master data acquisition” screen is displayed.

Continued at par 7-1-4 Master data acquisition.

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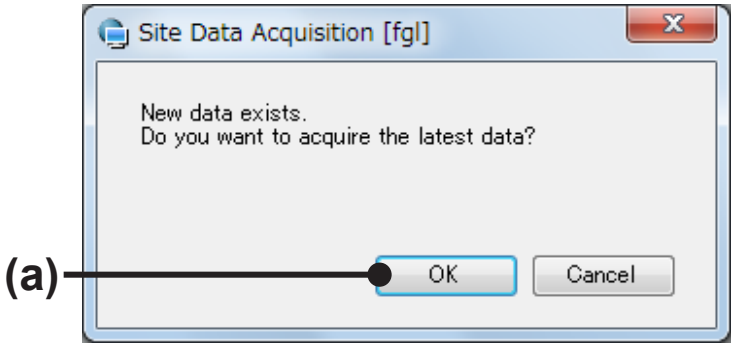
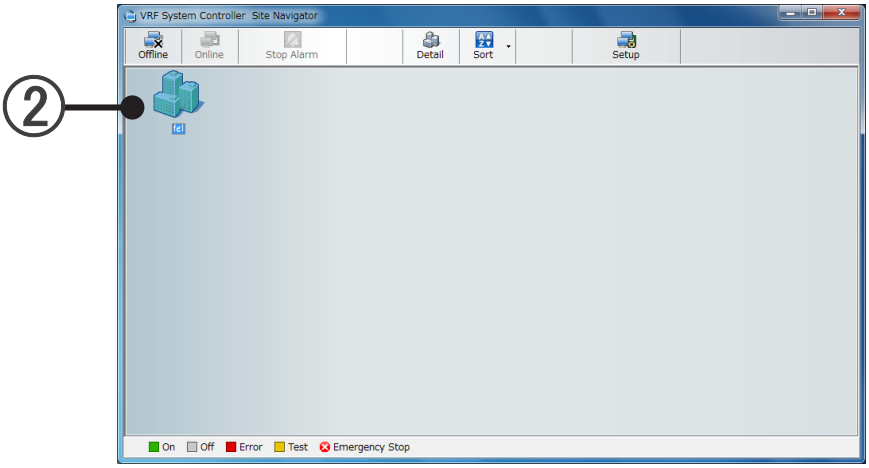
7-1-4 Master data acquisition

Acquire the newest master data from the server.

① Click the (a) [OK] button and acquire the master data.



② The “Site” icon enters the connected state.



This allows use of the VRF Explorer.
For the VRF Explorer operation method, see VRF Explorer Operation section.

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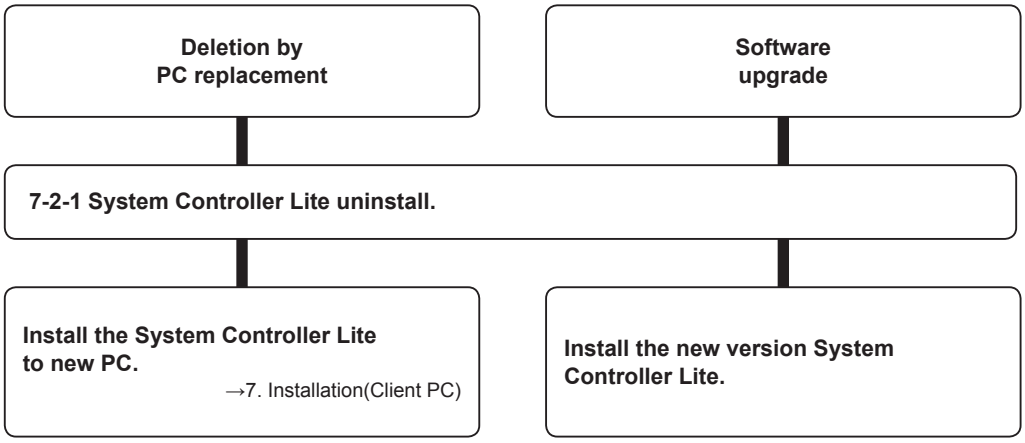
7-2 Uninstall and version upgrade

For uninstallation and version upgrade in the Client PC, follow the procedures shown below.

Note

For upgrade, when the method of upgrading a version supplied with a new version of the System Controller Lite is announced, give it priority.
When the version upgrading method is not supplied with the new version System Controller Lite, refer to the procedure described in par. 7-1-1 Software install.

Flowchart for uninstallation and upgrade



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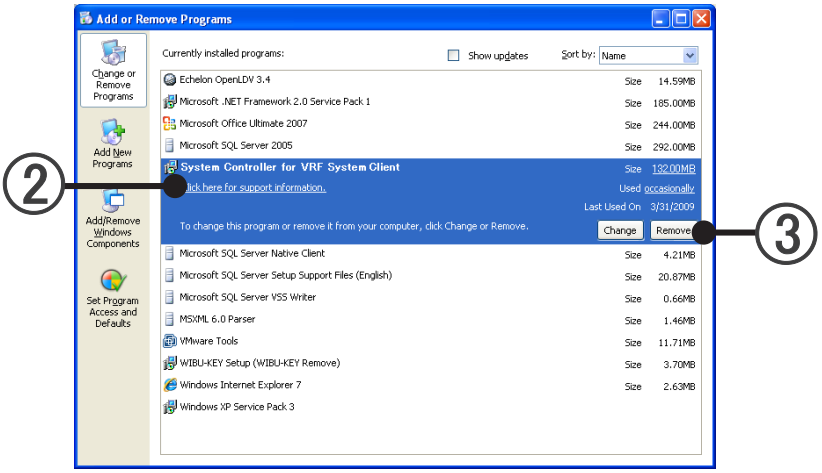
7-2-1 System Controller Lite uninstall

Windows XP

① Display “Start” → ”Control Panel” → “Add or Remove Programs”

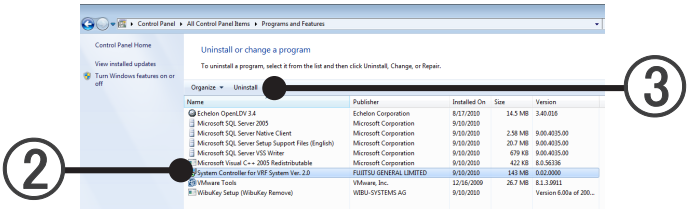


② Select “System Controller Lite for VRF System”.

③ Click the [Remove] button.

Windows 7/8

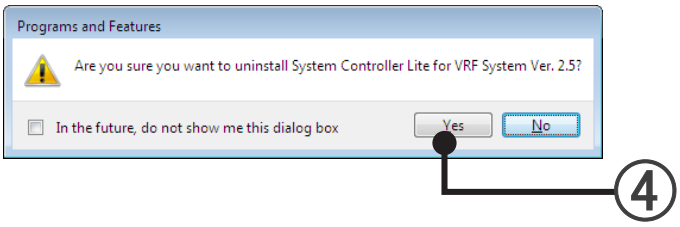
① Display “Start” → ”Control Panel” → “Programs and Features”



② Select “System Controller Lite for VRF System”.

③ Click the [Uninstall] button.

④ When the [Yes] button is clicked, uninstallation begins.



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⑤ When the screen displaying the uninstallation process closes, uninstallation is complete.

⑥ Close the “Programs and Features” screen by clicking the [×] at the top right-hand corner of the screen.

* A folder named “System Controller Lite” remains in the folder designated as the System Controller Lite installation folder at installation even though uninstallation is performed
There is no problem even if this folder remains, but it doesn’t matter even if the folder is deleted.

Note

When installing the System Controller Lite, some of “Microsoft®.NET Framework” may be installed at the same time.
Since the Frameworks may also be used by other programs, if it is uninstalled, the other programs may not run properly.
If not inconvenient, do not uninstall the Frameworks and let it remain as is.

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Settings

8. Basic Settings
9. Error E-mail Notification Setting
10. User Environment Setting

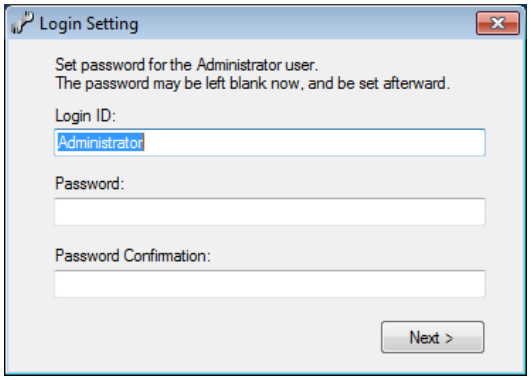
8. Basic Settings

The basic settings necessary before use in the server PC are made. They are also made when the settings are updated due to equipment and tenant changes.
When starting the system for the start time after installation, make the settings in accordance with the flow described below. At the 2nd and subsequent starting, make the necessary settings in accordance with par. 8-1 and subsequent paragraphs, as required.

Settings flow at initial starting

When initially starting the system, make the settings in accordance with this flow. The ★ symbol indicates essential items.
The screen display method is described at the beginning of each setting item, but this is not related to the setting flow at initial starting.
The screen is switched to the necessary screen automatically by clicking the [Next] button on each setting screen.

Login Setting ★



Login ID
Enter the administrator's log in ID.
(Within 20 characters of alphabet and numeric)
Password
Enter the administrator's Password.
(Within 20 characters of alphabet, numeric, and symbol)
Password Confirmation
Enter the administrator's Password again for confirmation.

Next / Back

8-3-1 Site name setting

- Site name setting

Next / Back

8-3-2 Transmission adaptor setting

(Next page)

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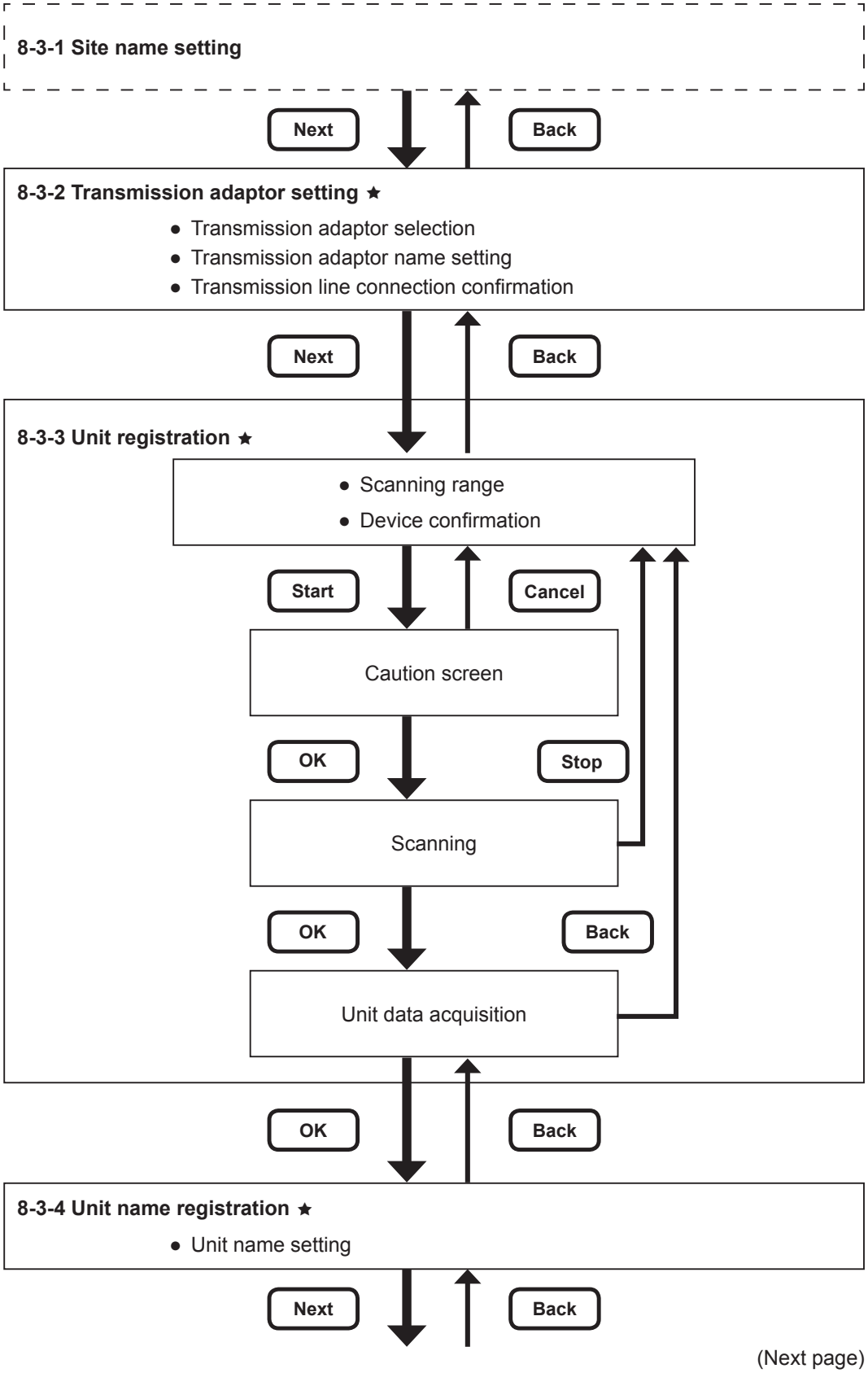
(Former page)



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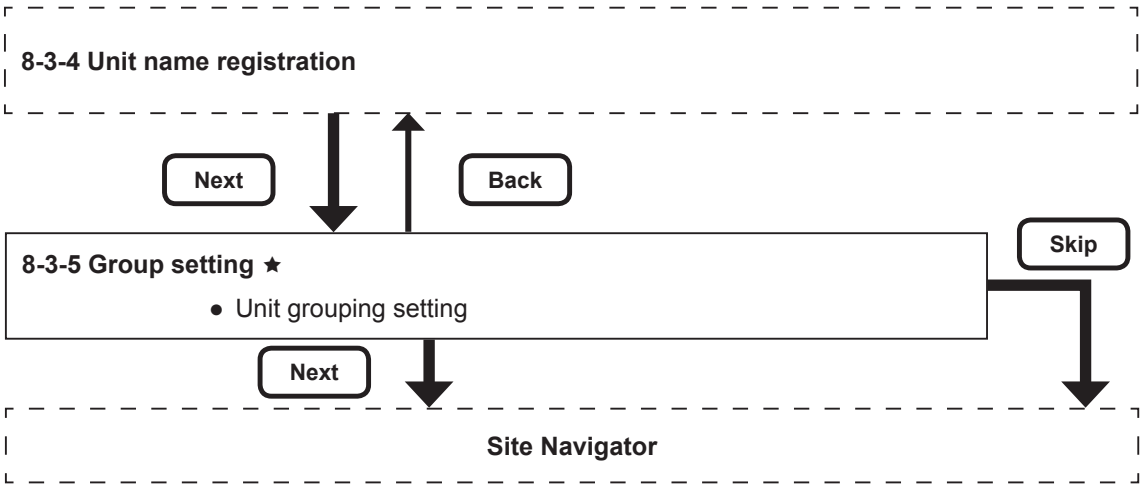
(Former page)



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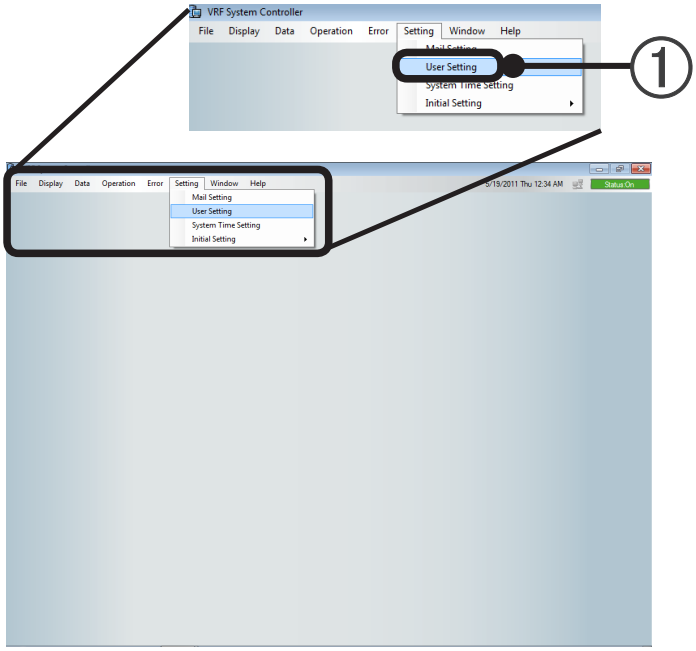
8-1 User management settings

Displays the list of the user to be registered.
New user registration and user registered contents change and deletion can be performed.

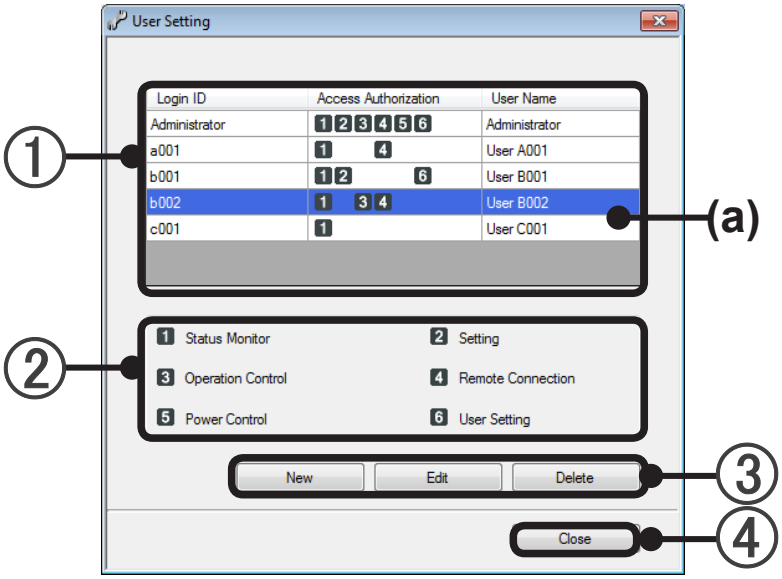
① Select main screen menu →"Setting" → "User Setting".



The "User Setting" screen opens. Advance to par. 8-1-1 "User Setting" screen.

8-1-1 User Setting screen

Description of screen



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① User list: Displays the log in ID, access authorization, and user name of the registered users.
(a) The selected users are displayed against a blue background.

② Access Authorization list: Displays the access authorization setting item of ①.

	Item	Operable contents
1	Status Monitor	List display, Error notification, Operation history, Error history, User environment setting
2	Setting	Site name setting*, Unit registration*, Unit name registration*, Group setting, Transmission adaptor setting*, Error e-mail notification
3	Operation Control	Operation control, Memory operation, Schedule operation, Low Noise operation
4	Remote Connection	Remote connection
5	Power Control	Electricity charge apportionment setting, Apportionment calculation execution, Bill creation , Energy saving
6	User Setting	User management setting (these settings)

* The setting is possible only at a local connection.

Note

The administrator can perform all the operations shown above.
Only the administrator can operate the VRF Controller.

③ [New]: Registers new users.
When this button is clicked, the User Registration screen opens. (See par. 8-1-2.)

[Edit]: The access authorization, user name, and password of the selected user can be changed. When this button is clicked, the User Registration screen opens. (See par. 8-1-3.)

[Delete]: Deletes a registered user.
(The Administrator cannot be deleted.)

④ [Close]: Closes the User Setting screen.

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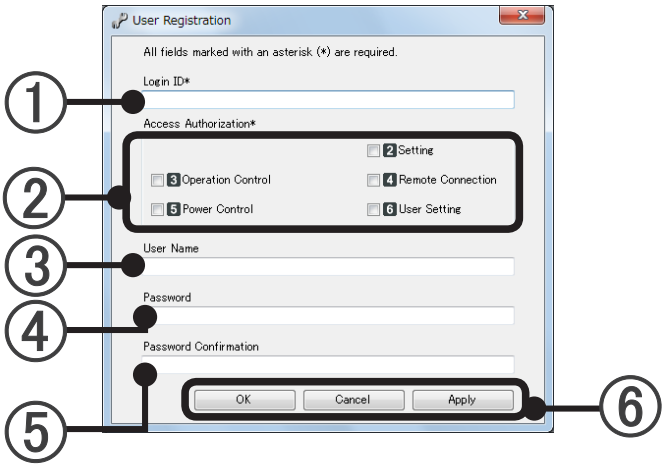
8-1-2 New user registration

Creates a new user who can log in to the System Controller Lite.
To display this screen, click the ③ [New] button on the par. 8-1-1 User Setting screen.



① Enter the Login ID. [Essential] (Cannot be changed after setting is complete.)
(Used when logging in.) (Within 20 characters of alphabet and numeric)

② Select the function allowed by [Access Authorization]. [Essential]
Since Status Monitor is always valid, uncheck the checkbox.

- When the Remote Access option is not enabled, "Remote Connection" cannot be selected.
- When neither the Electricity Charge Apportionment option nor the Energy Saving option is not provided, "Power Management" cannot be selected.

③ Enter User Name. (Within 20 characters of alphabet, numeric, and symbol)

④ Enter Password. (Used when logging in.)
(Within 20 characters of alphabet, numeric, and symbol)

⑤ Re-enter and confirm Password.

⑥ [OK]: Registers the settings and ends registration.
[Cancel]: Ends registration without registering the settings.
(When [Apply] was performed during setting work, the contents cannot be canceled by [Cancel].)
[Apply]: Registers the contents with the input screen remaining open.

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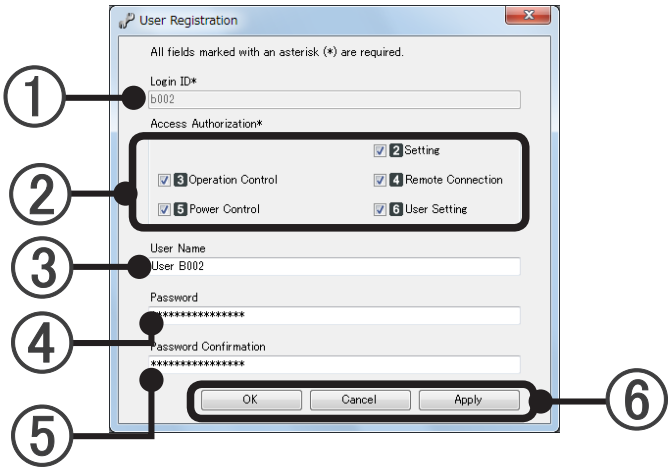
8-1-3 Registered user editing

Edits registered users of the System Controller Lite.
To display this screen, click the ③ [Edit] button on the par. 8-1-1 User Setting screen.



① Login ID is displayed. (Cannot be changed.) (Used when logging in.)

② Select the function allowed by [Access Authorization]. [Essential]
Status Monitor is always valid, and can not be unchecked.

③ Enter User Name. (Within 20 characters of alphabet, numeric, and symbol)

④ Enter password. (Used when logging in.)
(Within 20 characters of alphabet, numeric, and symbol)

⑤ Re-enter and confirm Password.

⑥ [OK]: Registers the settings and ends registration.
[Cancel]: Ends registration without registering the settings.
(When [Apply] was performed during setting work, the contents cannot be canceled by [Cancel].)
[Apply]: Registers the contents with the input screen remaining open.

Note

Registered Login ID cannot be changed.
If the change was performed for a user being logged in, the change is reflected from the next log in.

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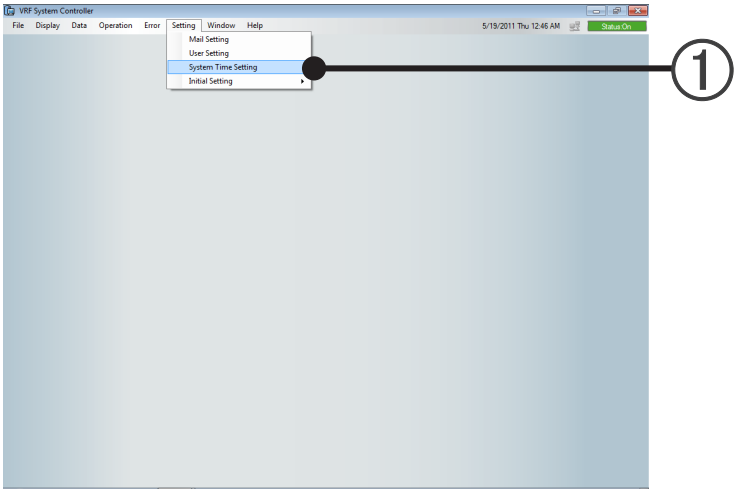
8-2 System Time Settings

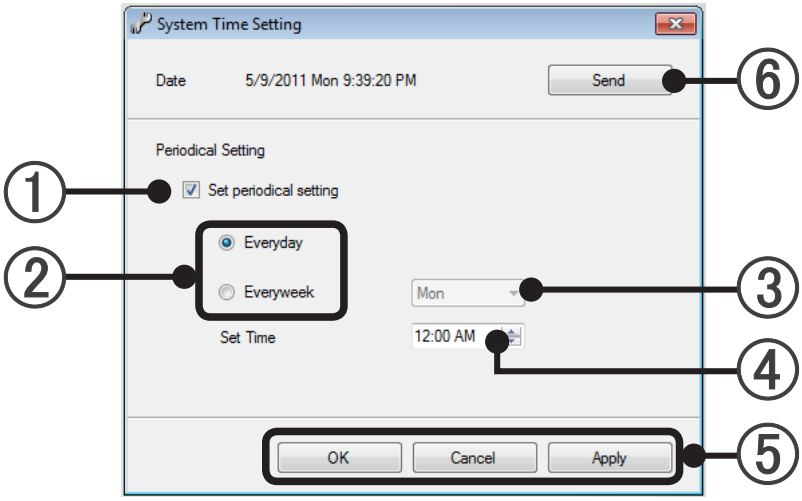
Set the time for the controllers connected to the VRF network. (V-II/V-III/VR-II/J-II/J-IIS)

① Select the item to be set from main screen menu → “Setting” → ”System Time Setting”.



8-2-1 System Time Setting screen

Description of screen



Periodical setting

Periodically set the time at specified day of every day or every week.

① [Set periodical setting] Periodical setting is enabled by checking.

② [Everyday, Everyweek] Select everyday or everyweek time setting.

③ Select the day of week periodical setting is to be performed. Setting is possible only when Everyweek was selected at step ②.

④ Specify the time periodical setting is to be performed.

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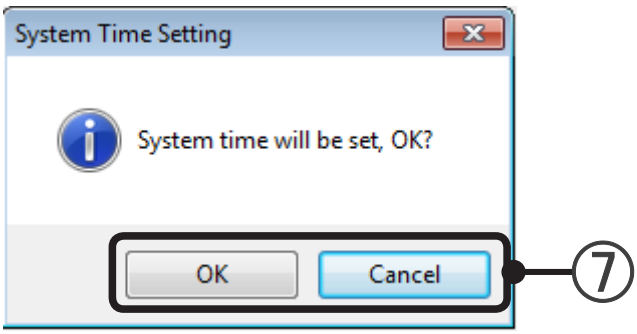
⑤ When the [OK] button is clicked, the set contents are reflected and System Time Setting ends.
[Cancel]: If there is data being edited, discards the data being edited and ends setting.
[Apply]: Saves the set contents without ending setting.
(System Time Setting screen is displayed as it is.)

Manual setting
Set the time to the current time.
(Manual setting cannot be performed from remote PC.)

⑥ [Send] Displays a send confirmation message.



⑦ [OK]: When clicked, sends the current time to the VRF network.
[Cancel]: Returns to the System Time Setting screen without sending time data.

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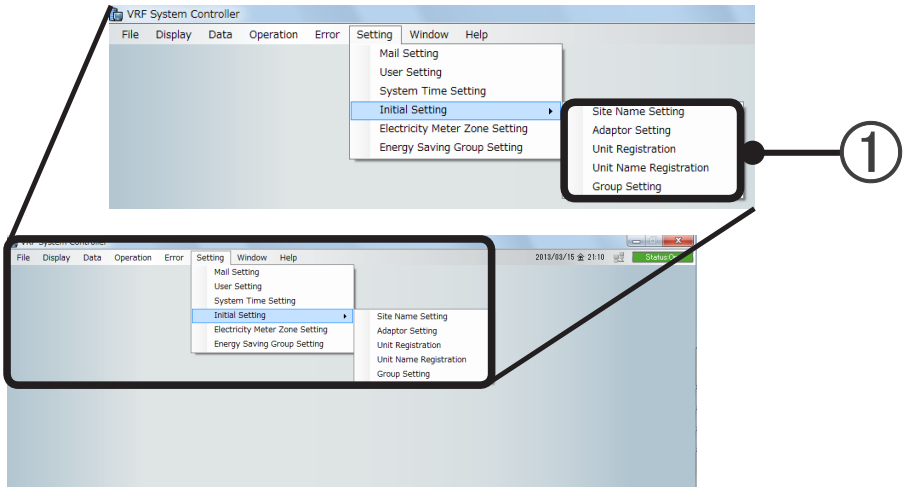
8-3 Initial setting

Makes any settings and changes necessary before operation.

① Select the item to be set from main screen menu → “Setting” → ”Initial Setting”.



Item	Contents
Site Name Setting	The site name can be set and changed. (For details, see par. 8-3-1.)
Adaptor Setting	The transmission adaptor (U10 USB Network Interface) name can be changed and the connection state can be confirmed. (For details, see par. 8-3-2.)
Unit Registration	The connection state of each unit can be confirmed by network scan (For details, see par. 8-3-3.) Note) During scanning at secure reg. unit operation is stopped.
Unit Name Registration	R/C group and outdoor unit group name can be set and changed. (For details, see par.8-3-4.)
Group Setting	An arbitrary group can be set by combining R/C group and outdoor group. (Up to hierarchy) Batched control and data can be obtained by setting a group. Group setting by different refrigerant systems and duplicate setting at multiple groups are also possible. (For details, see par. 8-3-5.)

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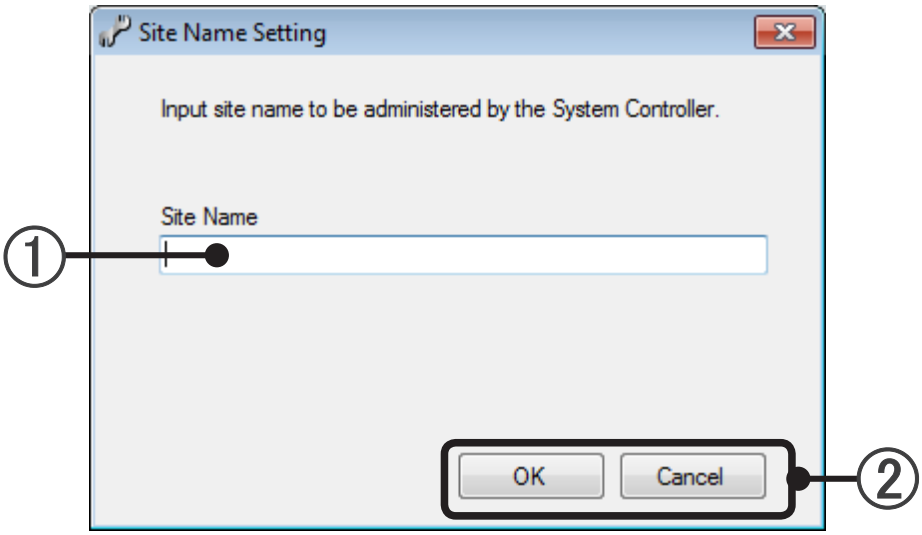
8-3-1 Site name setting

Sets and changes the site name.
To display this screen, select main screen menu → “Setting”→ “Initial Setting” → “Site name setting”.

Description of screen



① Enter the site name. (Within 20 characters of alphabet, numeric, and symbol)

Note

The Site Name entered at ① is the name of a site directly controlled from the VRF Controller.
It does not necessarily have to match the “Site Name” on the Site Navigator when connecting from the VRF Explorer.

② [OK]: Saves the settings and ends setting work. (At initial starting, [Back]: Returns to log in setting)
[Cancel]: Ends setting without saving the settings. (At initial starting, [Next]: Advances to Transmission adaptor setting)

To perform setting at initial starting, advance to par. 8-3-2 Transmission adaptor setting by clicking the [Next] button.

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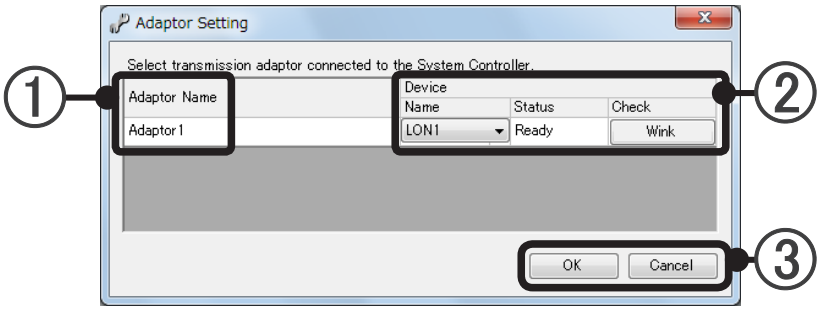
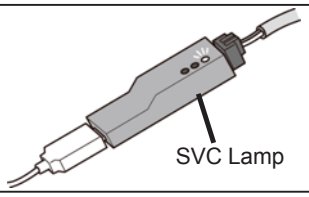
8-3-2 Transmission adaptor setting

Sets the name and confirms the connection state of the Transmission adaptor (U10 USB Network Interface) that connects the VRF Controller.
To display this screen, select main screen menu → “Setting”→ “Initial Setting” → “Adaptor setting”.



① The adaptor name can be set for easy identification by the user. Click the adaptor name you want to set and enter the text. (Default name: “AdaptorX”)
Up to 20 characters (alphabet, numeric, and symbol) can be set. The adaptor name cannot be duplicated. Only the connected adaptor can be set.

② Usable device setting and confirmation are possible.

Name	A usable devices list (LONx) or “Not Used” can be pulled down and selected.	
Status	Displays the device status.	
	Ready	The specified adaptor can be used.
	Busy	The specified adaptor is being used by another system.
	Error	The specified adaptor cannot be used.
	(Blank)	Not displayed when an adaptor is not connected.
Check	When the [Wink] button is clicked, the SVC lamp of the specified device lights (for approx. 2 second) and you can confirm which Transmission line the adaptor is connected to. (Only when the device status is Ready) 	

③ [OK]: Saves the settings and ends setting work. (At initial starting, [Back]: Returns to site name setting)
[Cancel]: Ends setting work without saving the settings. (At initial starting, [Next]: Advances to unit registration)

Note

Adaptor Name is a name which can be arbitrarily set so that the user can easily identify connection of the Transmission adaptor (U10 USB Network Interface). (Default name: “AdaptorX”)
“Device Name” is a name automatically allocated to the network when a “Transmission adaptor” (U10 USB Network Interface) is connected. (User may select the LONx number)

It is necessity that set Transmission adaptor respectively because of the S/V series and V-II/V-III/VR-II/J-II/J-IIS series can not be connected to the same communication line.
To perform setting at initial starting, advance to par. 8-3-3 Unit registration by clicking the [Next] button.
If it is changed to “Not Used”, all data on the connected adaptor will be deleted.

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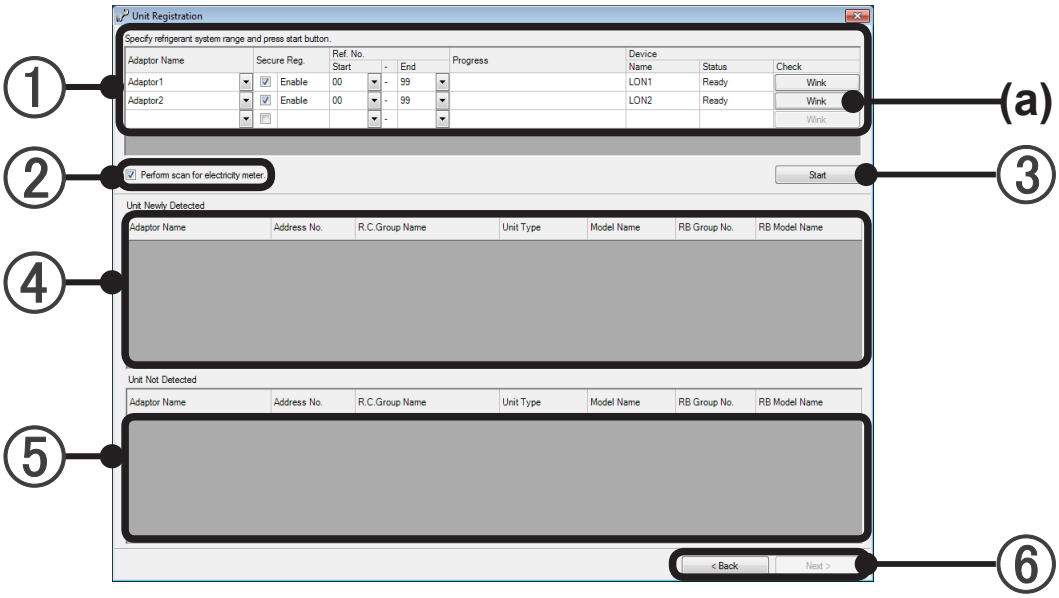
8-3-3 Unit registration

Scans by the network and detects and registers usable R/C groups and outdoor units and electricity meters.
The units registered by scanning are managed by System Controller Lite.
To display this screen, select main screen menu → “Setting”→ “Initial Setting” → “Unit Registration”.

Description of screen



Note

When the PC system time is turned back by time change operation and the start date of contract or block for electricity charge apportionment is at some future date, the contract and block are deleted at the completion of scanning.
If the following message is displayed after scanning is completed, the necessary information cannot be acquired.
“Information was not acquired for some units. Perform unit registration again.”
In this case, always perform scan again to acquire all the necessary information.
If advanced to next as is, normal operation will become impossible.
Especially, if there is a unit for which information could not be acquired when electricity charge apportionment is performed, the refrigerant system including that unit will not be handled by the electricity charge apportionment function.
When these information missing units are included in “Unit Newly Detected”, since they are displayed in red characters, treat them as the index of refrigerant system specification when rescanning.

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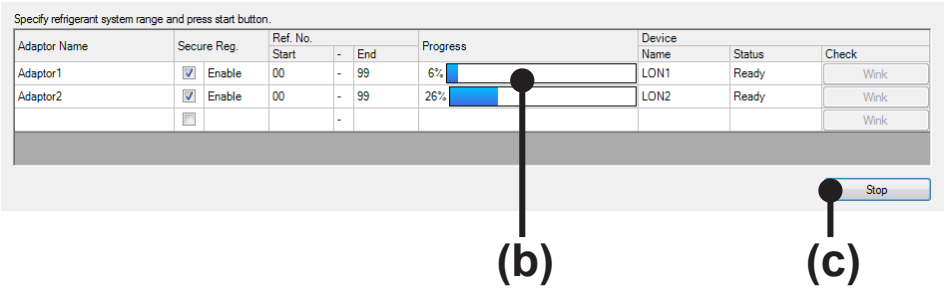
① VRF network list: Sets the scan targets.

Adaptor Name		Selects the name of the adaptor which is to perform scanning. (Name set at par. 8-3-2 Transmission adaptor setting.) Unit registration is necessary for each adaptor. When an adapter is set at a blank line, a blank line is added below it. The same adapter can be set on multiple lines and different refrigerant system can also be specified.
Secure Reg.		Specifies by checkbox whether or not secure registration is to be performed when scanning Checked: Secure registration (Recommended) Not checked: No secure registration When scanning is performed at secure registration, operation of the units is stopped. When you do not want to stop operation, uncheck the checkbox. See par. 31-1 No.6.
Ref. No.	Start	When partially scanning, specify the start number of the refrigerant system by pull-down menu or key input. See par.31-1 No.10.
	End	When partially scanning, specify the end number of the refrigerant system by pull-down menu or key input.
Device	Name	Displays the name of the device used by the relevant network.
	Status	Displays the status of the device used by the relevant network. Normal: “Ready” Abnormal: “Error” Not connected: “Blank”
	Check	When the (a) [Wink] button is clicked, the SVC lamp of the Transmission adaptor used by the relevant network lights (for approx. 2 second) and connection of the selected adaptor can be identified. (Effective only when the status of the Transmission adaptor is normal.)

② Select the "Perform scan for electricity meter".
Put a check also in those adaptors connecting the electricity meters you want to scan.
Not displayed when neither the Electricity Charge Apportionment function nor the Energy Saving option is not provided.

③ **[Start] button:**
Starts scanning. (Disabled when there is no scanning target.)
Note) All systems connected to 1 Transmission adaptor (U10 USB Network Interface) are stopped during scanning at secure reg.
The time required by scanning differs with the size of the system. Use the indicator displayed at (b) during scanning as a guideline.
While scanning is being performed, the [Stop] button (c) is displayed. To stop scanning, click this button.

①VRF network list display during scanning



Settings

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Note

If the following message is displayed after scanning is completed, the necessary information cannot be acquired.
"Information was not acquired for some units. Perform unit registration again."
In this case, always perform scan again to acquire all the necessary information.
If advanced to next as is, normal operation will become impossible.
Especially, if there is a unit for which information could not be acquired when electricity charge apportionment is performed, the refrigerant system including that unit will not be handled by the electricity charge apportionment function.
When these information missing units are included in “Unit Newly Detected”, since they are displayed in red characters, treat them as the index of refrigerant system specification when rescanning.

④ **Unit newly detected list:**
After the end of scanning, displays the units newly detected.
At initial scanning, all the units are displayed.
After the 2nd scanning, only the units newly detected are displayed.
Model names for S/V series will not be displayed.

Note

Depending on the R/C connected to the indoor unit, "R/C address" part of the "Address No." column may show different value from that being set to the indoor unit.
The same applies to the "Address No." and "Address" column of other screens.
The numbers in the "Address No." corresponds to "Refrigerant system address" - "Unit address" - "R/C address".

⑤ **Unit not detected list:**
When scanning was performed for the 2nd and subsequent times, displays the units which are already registered and were not detected this time.

Note

- As a result of performing scan, a unit of the same address may be displayed in the Unit Newly Detected list and Undetected Unit list.
  This occurs when a registered unit was changed to a different model and set to the same address as the previous unit, etc.
  Since the registration information of the previous unit is erased when registration is completed, continue at that setting.
- When intentionally removing a unit from registration, etc, because the unit is removed from the electric power charge apportionment objective or other reason, confirm it here. (Perform scanning after turning off the power of the unit removed from registration.)

⑥ [OK] button: Saves the detected unit configuration detected by scanning.
(At initial starting, [Back]: Returns to Transmission adaptor setting)
[Cancel] button: Ends scanning without saving the scanned result.
(At initial starting, [Next]: Advances to unit name registration)

To perform setting at initial starting, advance to par. 8-3-4 Unit name registration by clicking the [Next] button.

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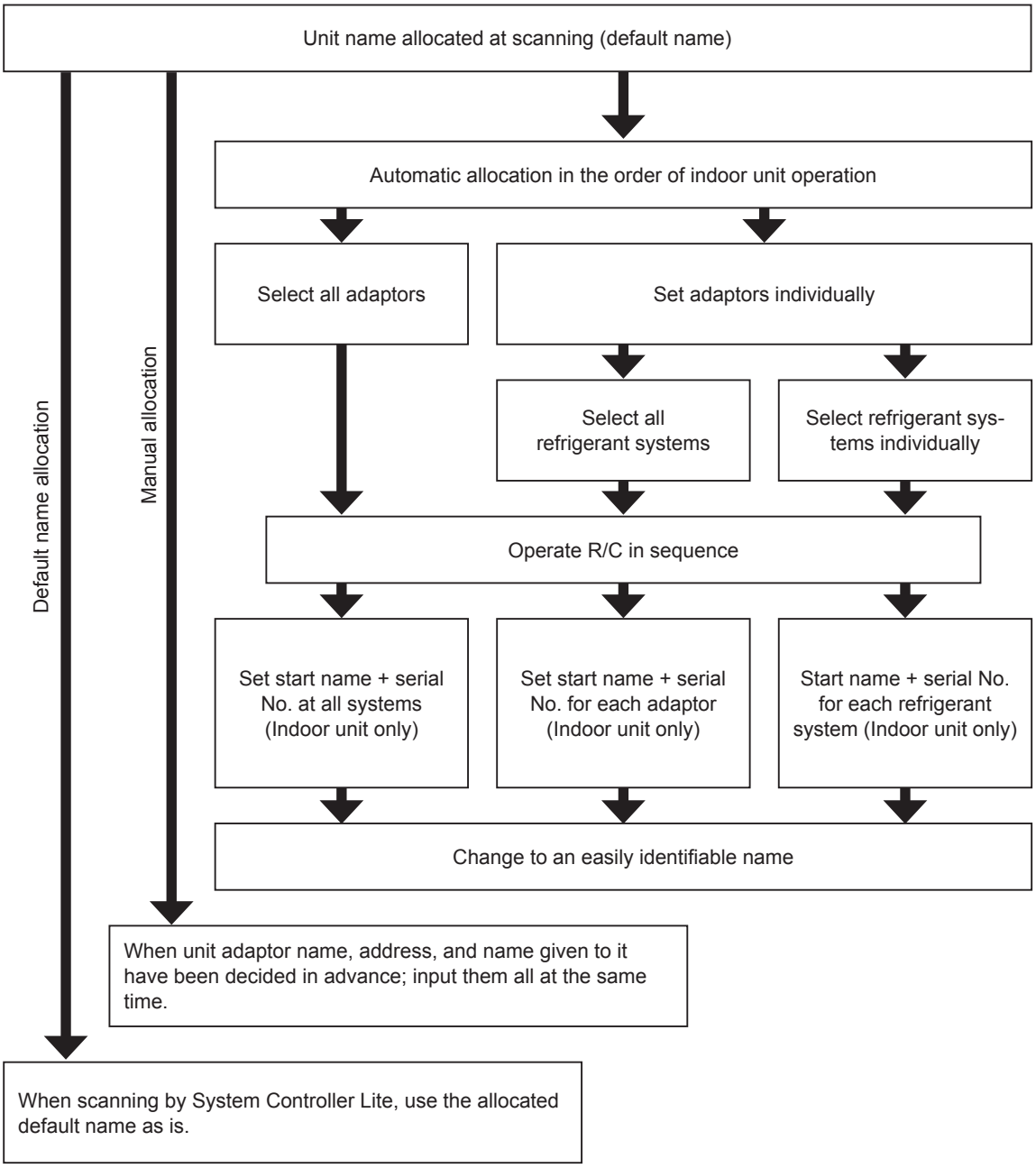
8-3-4 Unit name registration

Allocates unit names to the R/C group of indoor unit and outdoor unit group registered by scanning so that the user can easily identify units.
(Names allocated automatically can also be used.)

Unit name registration options



At automatic allocation in the order of indoor unit operation, assign serial numbers to the units in the order in which the units are operated.

Note

When automatic allocation in the order of indoor unit operation was performed, register the relationship between unit and serial No.. After automatic allocation in the order of indoor unit operation is finished, change the names based on that registration to names by which the units can be easily identified.

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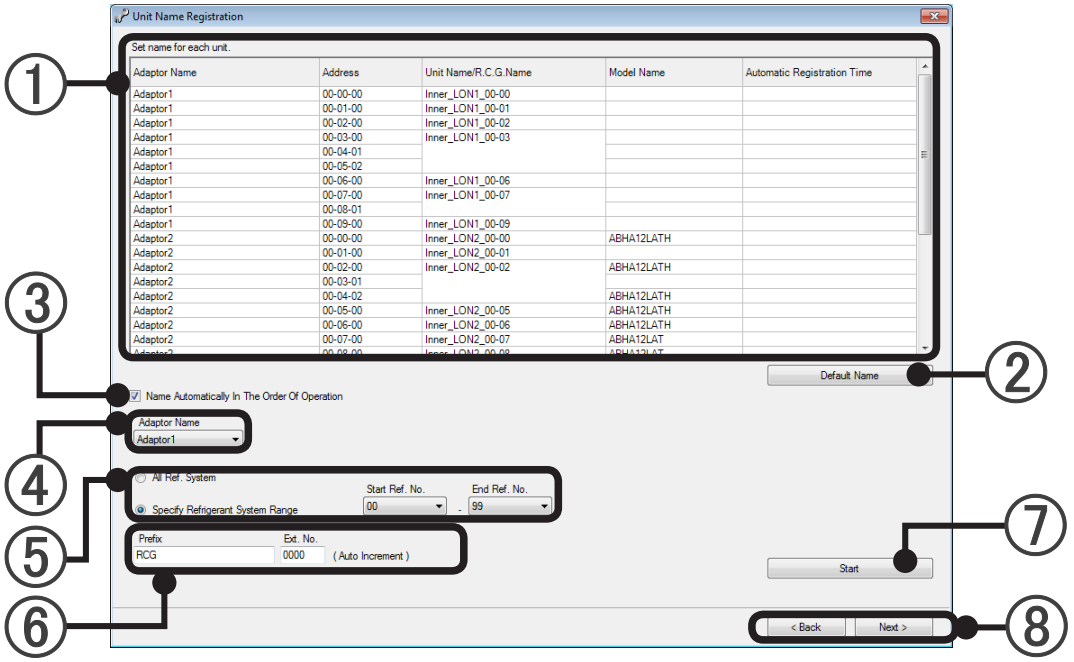
To display this screen, select main screen menu → “Setting”→ “Initial Setting” → “Unit Name Registration”

Description of Unit name registration screen



① **Unit list**: Displays a list of all the units registered by scanning.
Changing to ascending order/descending order sorting of the selected column is possible by clicking the header part of the list.

Adaptor Name	The names of the connected adaptors are displayed. (Name set by par. 8-3-2 Transmission adaptor setting.)
Address	“Refrigerant system address” – “Unit address” – “R/C address”
Unit Name/ R.C.G. Name	R.C.G. Name, outdoor unit group name When ③ is not checked, editing is possible. Within 20 characters (Alphabet, numeric, and symbol). Blanks are not allowed.
Model Name	Model name*
Automatic Registration Time	Displays the operation ON detection time

*The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter ":" is not part of the Model Name.

② **[Default Name] button:**
Returns all the R/C group and outdoor unit group names to their default names.

③ **Name Automatically In The Order Of Operation checkbox**: When checked, ④, ⑤, and ⑥ can be set and automatic allocation can be performed in indoor unit operation order.
Unit name cannot be changed from the unit list of ①.

④ **Adaptor Name:**
To perform automatic name setting over an entire VRF network, select “All”.
(When “All” was selected, ⑤ cannot be set.)
To perform setting by specifying a refrigerant system range, select “Specify Refrigerant System Range” and specify the start number and end number of refrigerant system.
If you select “All” and then execute, all units will stop.

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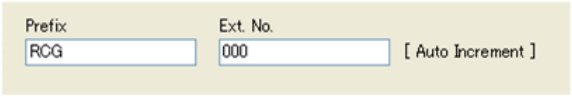
⑤ **Refrigerant system name:**

To perform automatic name setting at all the refrigerant systems, select “All Ref. System”.
(The unit names in the refrigerant systems become the same Start name + serial No.)
To perform setting by specifying a refrigerant system range, select “Specify Refrigerant System Range” and specify the start number and end number.
(Arbitrary Start name + Serial No. for each specified refrigerant system.)
When the selected start No. is larger than the end No., the end number is automatically set to the same value as the start No..
When the selected end No. is smaller than the start No., the start No. is automatically set to the same value as the end No..

⑥ **R/C group name setting:**

The R/C group and the name of the start name and serial No. combination are set for each refrigerant system specified at ⑤. (Indoor unit only)



Prefix: Specifies the arbitrary character string given to beginning of the name set at a detected R/C group. (Within 16 characters of alphabet, numeric, and symbol)

Ext. No.: Specifies the start value and number of digits of the number given at the end of the name set at a detected R/C group. Numerical string only.
When the number exceeded the specified number of digits, the necessary Numerical string only. (Within 4 digits)

0 → 1 digit starting from 0 (0, 1, 2, ---9, 10, 11---)
0021 → 4 digits starting from 21 (0021, 0022, 0023---)

⑦ **[Start (Stop)] button:**

Starts the operation detection mode. The operation detection mode is ended by [Stop] button.
In the operation detection mode, the target network and refrigerant system range units are monitored.
Serial numbers are assigned to units in the relevant refrigerant system range in the order in which the units were operated by R/C and they are displayed at the top line of ① Unit list.

⑧ [OK]: Saves the edited contents and ends editing work.
(At initial starting, [Back]: Returns to unit registration)

[Cancel]: Ends editing work without saving the scanned result.
(At initial starting, [Next]: Advances to Group setting)

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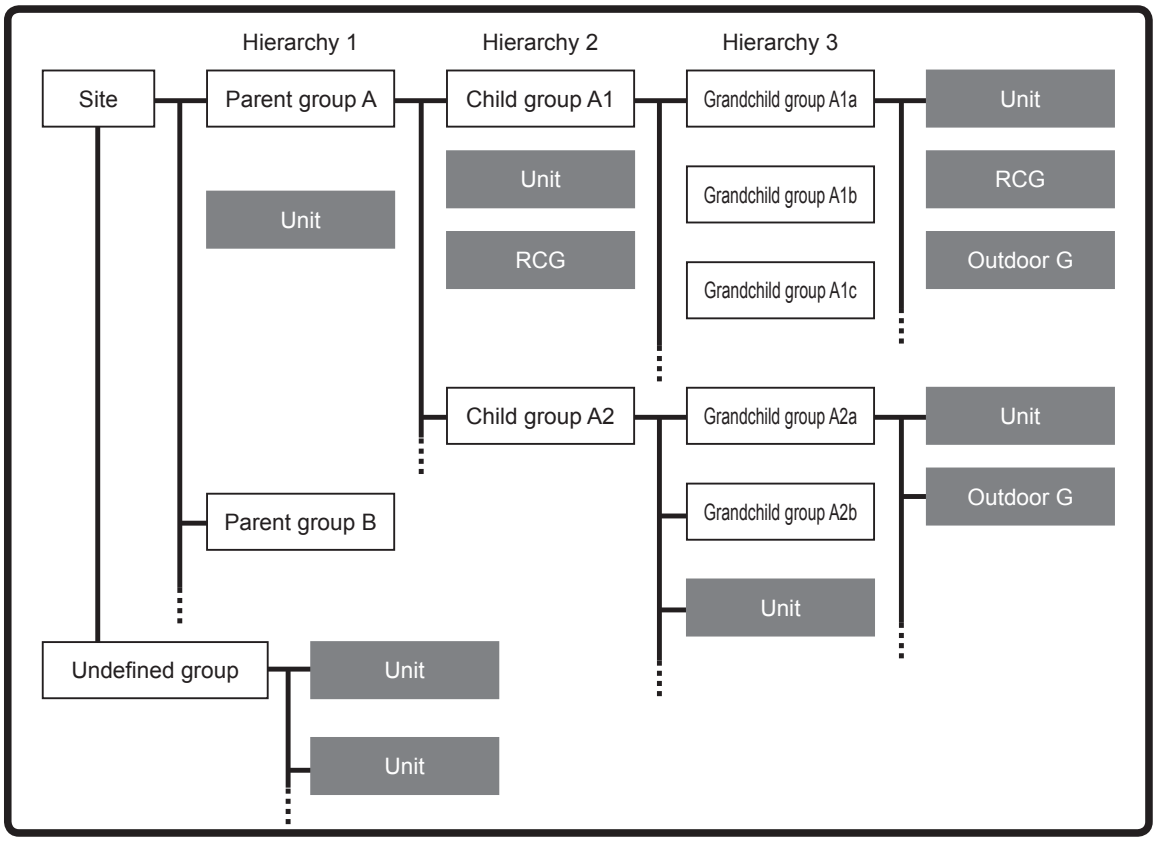
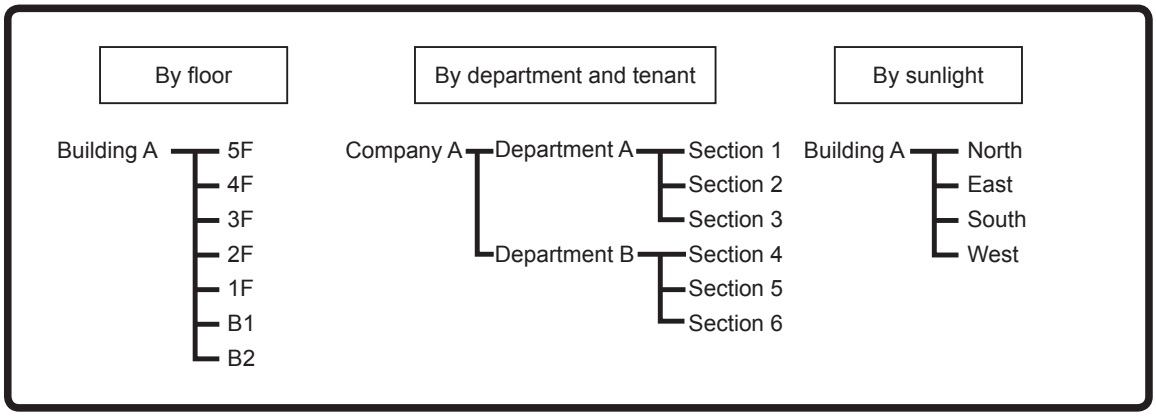
8-3-5 Group setting

Arbitrary group setting and change are possible at multiple units, outdoor units, R/C group, and outdoor unit group. (Up to 3 hierarchies)
Batch control and data acquisition are possible by setting a group.
Group setting at different refrigerant systems and duplicated setting at multiple groups are also possible.

Group concept



Example of group setting



Settings

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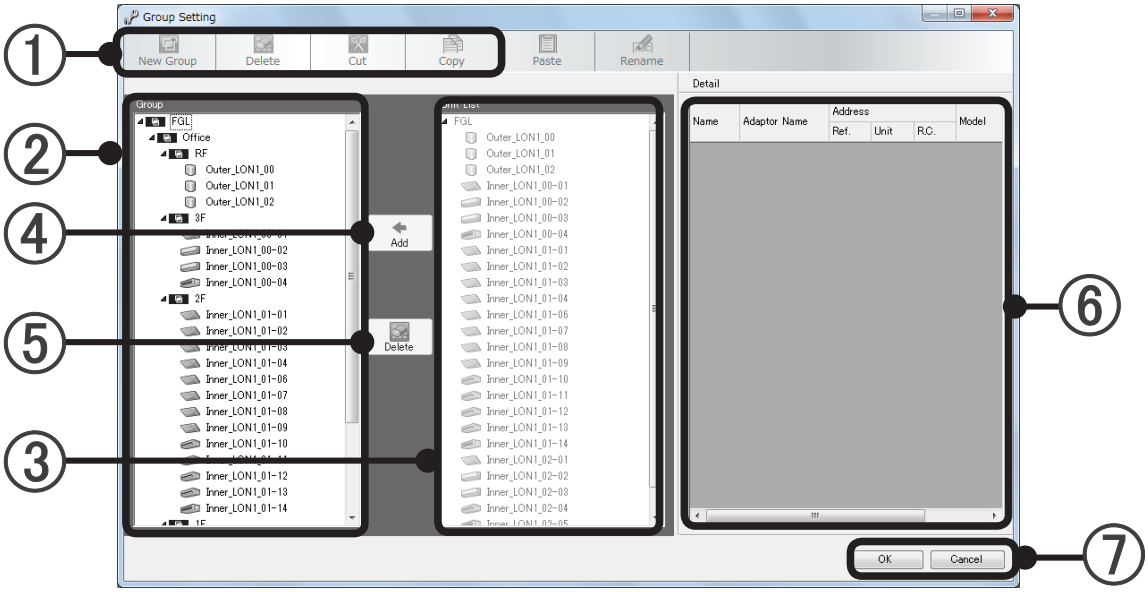
Perform group setting.

To display this screen, select main screen menu → “Setting”→ “Initial Setting” → “Group Setting”

Description of Group Setting screen



* At initial starting, part of the screen is different.

① Tool bar: Selects the work item.
(Depending on the work contents, the items which can be selected are different.)

New Group	Creates a new group under the hierarchy (group) selected at ②.
Delete	Deletes the Group selected at ② or releases a unit in a group. This is the same function as the ⑤ [Delete] button.
Cut	Performs cutting when you want to move a selected group and unit. Movement is complete when the move destination is selected as is and [Paste] is clicked.
Copy	Performs copy when you want to duplicate a selected group and unit. Duplication is complete when the move destination is selected as is and [Paste] is clicked.
Paste	When the [Cut] move destination and [Copy] destination are selected and clicked, the group and unit are pasted.
Rename	When the group and unit whose name you want to change are selected and this button is clicked, the new name can be input (Within 20 characters of alphabet, numeric, and symbol).

Note

Regarding the tool bar work items, the same operations are possible by right clicking the mouse on the unit and hierarchy you want to set.

② Group tree: Tree view of the currently set groups. Units which can be selected but are not set in a group are displayed in Undefined Group at the very bottom.

③ Unit list tree: Tree view of the units installed at the site.

④ [Add] button: Sets the units selected at ③ at the group of the position selected at ②.

⑤ [Delete] button: Deletes a group set at ② or releases a unit.
This is the same function as the [Delete] button in the ① tool bar.

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⑥ Information list: Displays the selected unit information by either group tree or unit list tree. (Editing cannot be performed on the information list.)

Name		Displays R/C group or outdoor unit group name. (Name set by par. 8-3-4 Unit name registration)
Adaptor Name		Displays the name of the connected adaptor. (Name set by par. 8-3-2 Transmission adaptor setting)
Address	Ref.	Displays the refrigerant system number.
	Unit	Displays the unit number in the refrigerant system.
	R.C.	Displays the R/C group connection order. “0” is the master unit. (Blank when outdoor unit selected)
Model		Displays the icons in an R/C group and outdoor unit group in a list.
Model Name		Displays the model name of the units in an R/C group and outdoor unit group in a list.*

*The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter ":" is not part of the Model Name.

⑦ [OK]: Saves the edited contents and ends.
[Cancel]: Ends without saving the edited contents

⑧ [Back] button: Returns to par. 8-3-4 Unit name registration
[Next] button: Saves the work contents and completes initial setting.
(Displayed at initial starting only)

⑨ [Skip] button: Completes initial setting without completing “Group” setting. (Displayed at initial starting only)
Skipped setting items can be set later, but complete them before operation.

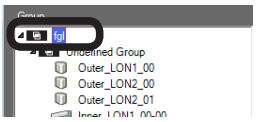
Note

The [Next], [Back], and [Skip] buttons of ⑧ and ⑨ are displayed at initial starting only.

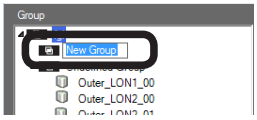
New group creation

Parallel group creation

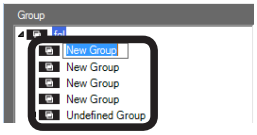
1. Select the site in the ② group tree at which the group is to be created.



2. Click the ① [New group] button.

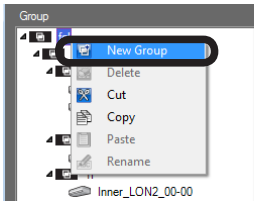


3. A group is created at a hierarchy below the Site selected at 1.
(In this state, “Group name” can be keyed in.)
4. When the ① [New Group] button is clicked continually in the Site selected state, parallel groups are created.



[Creation by right click]

Groups can also be created by right clicking the site at which a group is to be created in the ② group tree and selecting “New Group”.



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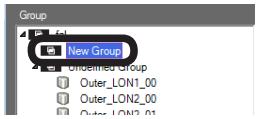
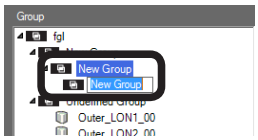
Creation of a group having a hierarchy

1. Select the group you want to add to the hierarchy in the ② group tree.
2. Click the ① [New group] button.



3. A group is created at a hierarchy below the group selected at 1.

4. When the group created at step 3 is selected and the ① [New Group] button is clicked, a group of a still lower hierarchy is created. (Up up to 3 hierarchies)



Group name change (All the newly created group names become New Group)

1. Select the group whose name you want to change in ② group tree.
2. Click the ① [Rename] button.
3. The group name selected at step 1 can be changed by text key input.

[Change by right click]
The name can also be changed by right clicking the group whose name you want to change in the ② group tree and selecting Rename.

Site name cannot be changed by this operation. (See par. 8-3-1 Site name setting.) “Undefined Group” names cannot be changed.

Settings

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Arrange units to the created group.
(Arrangement by duplicating units to different groups is also possible.)

1. Select the group at which units in the ② group tree are to be arranged. (Cannot be arranged to “Undefined Group”.)
2. Select the unit or units you want to arrange in the ③ unit list tree. (Multiple selection is possible by “+Shift key” or “+Ctrl key”.)
3. Click the ④ [Add] button.
4. The units are arranged in the group selected at step 1. (The arranged units are not displayed at “Undefined Group” in the ② Group tree.)

[Arrangement by right click]
Right click the unit you want to arranged in the ③ unit list tree and select “Copy”.
Arrangement is also possible by right clicking the arrangement destination group in the ② group tree and selecting “Paste”. (Selection from “Undefined Group” of ② is also possible.)

Check for duplicate arranged units

1. Select the unit whose duplication you want to check in the ② group tree.
2. If there is a duplicate unit, the relevant unit in the ② group tree will be highlighted.

Moving created group and arranged units to a different hierarchy and group (When a group is moved, the units under that group follow it. In addition, movement to a position exceeding 3 hierarchies is impossible.)

1. Select the group and units whose hierarchy you want to move in the ② group tree. (Multiple selection is possible by “+Shift key” or “+Ctrl key”.)
2. Click the ① [Cut] button.
3. Select the move destination group or site.
4. Click the ① [Paste] button.
5. The group and units move to under the group or site selected at step 3.

[Movement by right click]
Right click the group and units to be moved in the ② group tree and select “Cut”. Right click one group or site above the move destination and select “Paste”.
[Movement by dragging]
Movement is possible by dragging the group and units to be moved in the ② group tree.

Delete a created group and release arranged units.

1. Select the group and unit you want to delete or release in the ② group tree. (Multiple selection is possible by “+Shift key” or “+Ctrl key”.) “Undefined Group” and “Site” cannot be deleted.
2. Click the [Delete] button of ① or ⑤. The units which are released and not belonging to any group are displayed at “Undefined Group” in the ② group tree.

[Deletion and removal by right click]
Right click the group and unit to be deleted and released in the ② group tree and select “Delete”.

Note

When the group is set, the monitoring screen is closed. To display the monitoring screen after the setting completes, click the main menu screen → “Display” → “Unit List”

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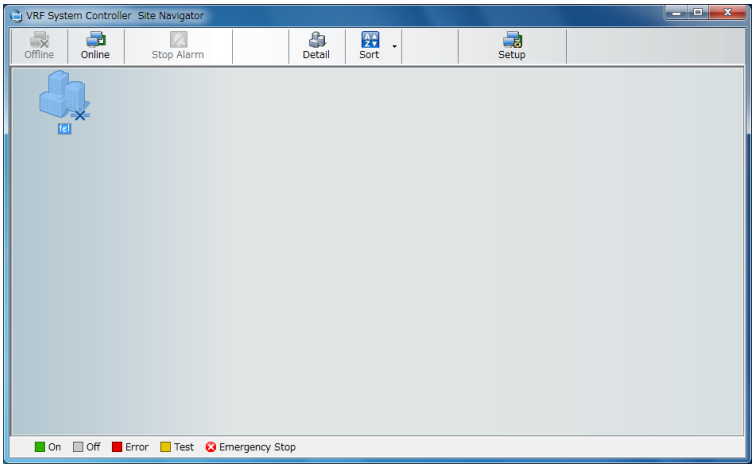
When setting at initial starting is complete, the VRF Explorer “Site Navigator” screen appears.



To connect to a site and continue monitoring, control, etc., double click the Site icon and log in and display the VRF Explorer main screen.
For details, see pars. 15-1-2 Communication connection to site and 15-1-4 Site details display.

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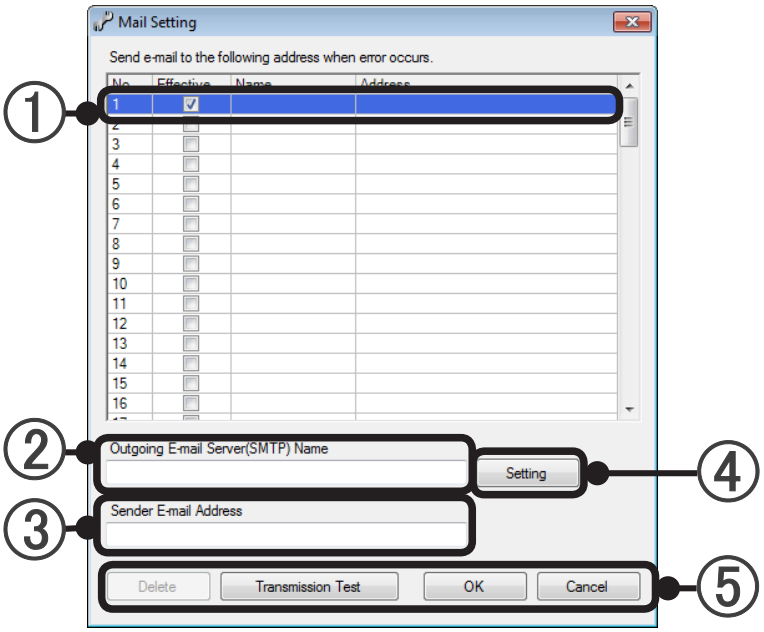
9. Error E-mail Notification Setting

Automatically sends an error notification e-mail to the preset e-mail address whenever an error occurs.

9-1 E-mail Setting screen

To display this screen, select the main screen menu → “Setting” → “Mail setting”



① Enters the receiver’s name and E-mail address. (Up to 100 names and addresses can be registered)
“No.”:Line numbers from 1 to 100 are displayed.
“Effective”: When checked, enables setting of that line.
* When “Effective” is unchecked, an e-mail is not sent.
“Name”: Enters the receiver’s name. (Within 20 characters of alphabet, numeric, and symbol)
“Address”: Enters the receiver’s e-mail address.
(Within 50 characters of alphabet, numeric, and symbol)

② Enters the SMTP server name for e-mail transmission.
(Within 50 characters of alphabet, numeric, and symbol)
* The SMTP service name differs with the network environment. If the SMTP server name is unknown, check with the network administrator.

③ Enters the sender’s e-mail address. (Within 50 characters of alphabet, numeric, and symbol)

④ Press [Setting] button to change to Out going mail server setting screen.

⑤ Closes the E-mail Setting screen after setting is complete.

[OK]:	Saves the edited contents and ends setting.
[Cancel]:	Ends setting without saving the edited contents.
[Delete]:	Delete the selected item.
[Transmission Test]:	Sends test by email. (Confirm that the email reached its destination.)

Note

Error E-mail transmission conditions
Errors are checked at 5 minute intervals and only errors being generated are sent.
However, errors that were sent and errors which were reset within 5 minutes are not sent.

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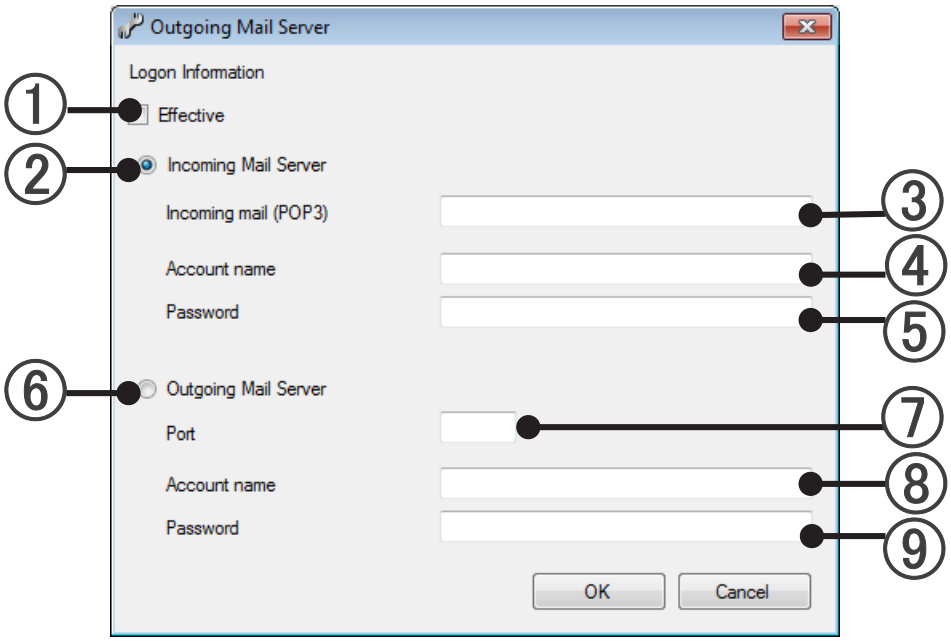
9-2 Out going mail server setting

In the case that a authentication required mail server is used when a mail was sent, please set logon information.
Authentication method will be either "POP before SMTP" or SMTP authentication.



① **Effective**
With check: Authentication will act when a mail is sent.
Please set Incoming Mail Server or Outgoing Mail Server.
No check: Authentication will not act when a mail is sent.

② **Incoming Mail Server**
The mail is sent under the authentication method of "POP before SMTP"

③ **Incoming mail(POP3):** Please input the name of incoming mail server.

④ **Account name**: Please input the account name of incoming mail server.

⑤ **Password**: Please input the password of incoming mail server.

⑥ **Outgoing Mail Server**
The mail is sent by SMTP authentication.

⑦ **Port**: Please input the Port number of incoming mail server.(default: 25)

⑧ **Account name**: Please input the account name of outgoing mail server.

⑨ **Password**: Please input the password of outgoing mail server.

Note

POP before SMTP: It is a method to sent a mail after the authentication incoming mail server is acted before the mail is sent.
(Only System Controller Lite login into incoming mail server, so the mail will not be received.)
SMTP authentication: It is a method of outgoing mail server authentication when sent a mail.

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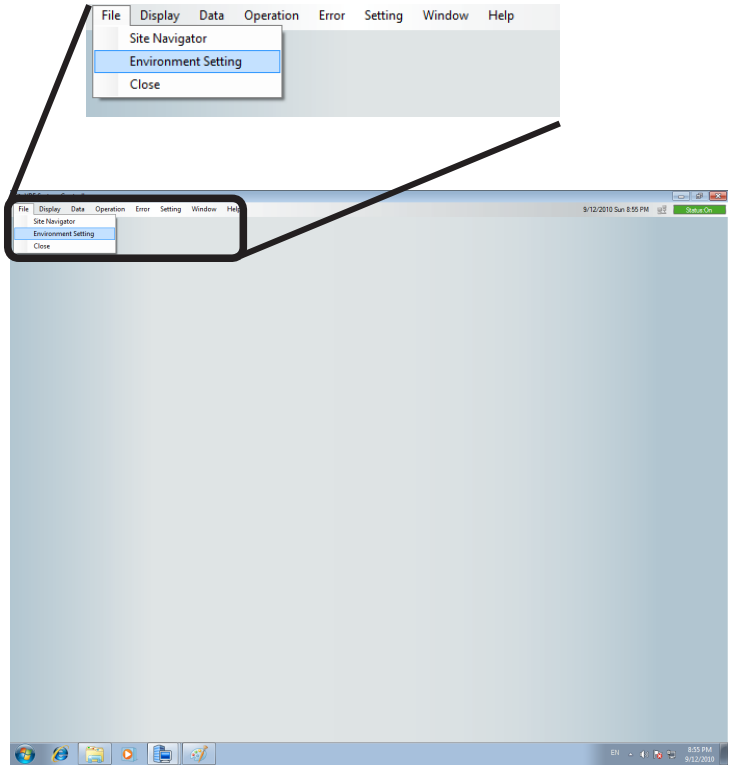
10. User Environment Setting

Performs setting related to VRF Explorer representation. The following settings are performed here.

"Alarm": Alarm sound setting

"Unit": Temperature units setting

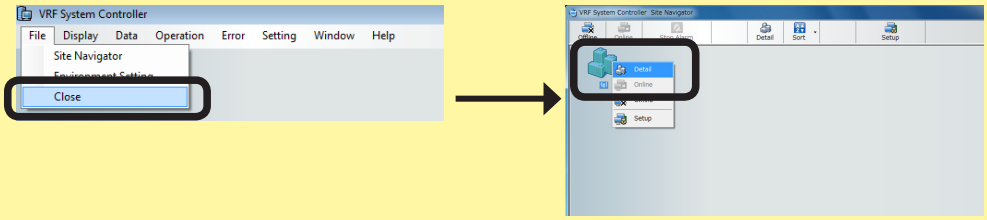
To display this screen, select main screen menu → "File"→ "Environment Setting".



The environment setting screen opens. Advance to "Environment Setting" screen (par. 10-1).

Note

The settings made here become effective when the VRF Explorer main screen closed and then re-opened. After the end of setting, select main screen menu → "File" → "Close" and right click site icon and select "Detail" of the "Site Navigator" screen. (Selecting the site icon and clicking the tool icons "Detail" button is also possible.)



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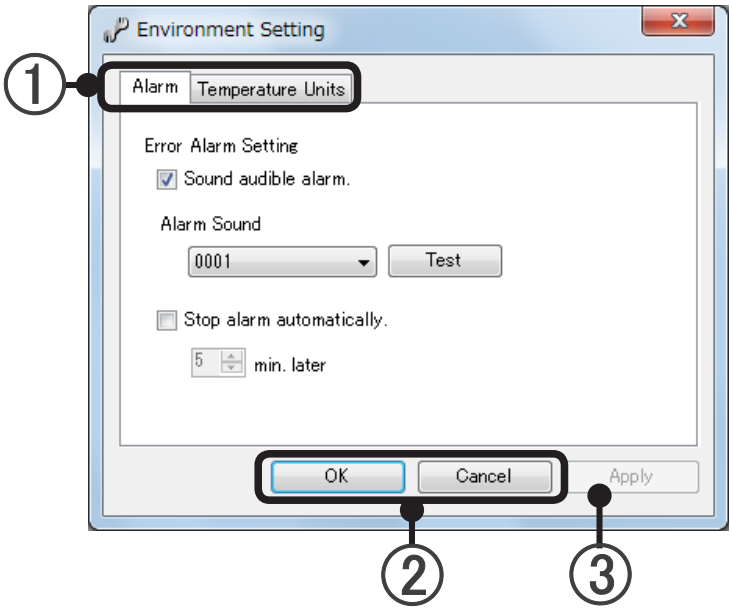
10-1 Environment Setting screen

Description of screen



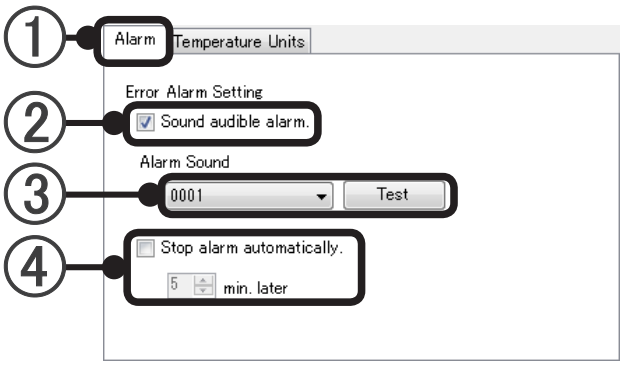
① Setting type tab: Switches the setting item.

② Closes the screen after the end of setting.
[OK]: Saves the edited contents and ends setting.
[Cancel]: Ends setting without saving the edited contents.

③ [Apply]: Saves the settings without closing the screen.
If there is even 1 setting, selection is possible.
* When [Apply] is clicked; it cannot be canceled by [Cancel].

10-1-1 Alarm sound setting

Performs setting related to the alarm sound when an error occurs.



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① Select the “Alarm” tab.

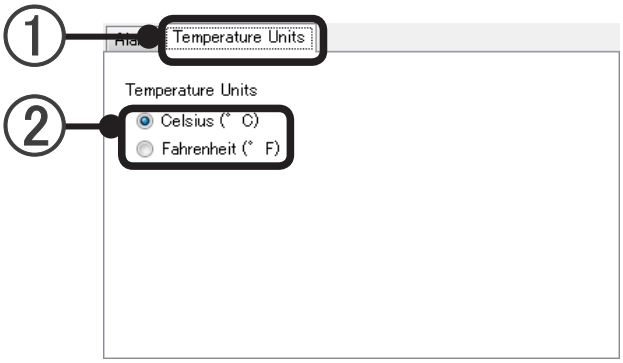
② Sound audible alarm checkbox: Selects whether or not an audible alarm is generated when an error occurs (When not checked, settings ③ and ④ cannot be made.)

③ Selects the type of alarm sound. The [Test] button generates the alarm sound for the test.

④ Stop alarm automatically checkbox: When checked, the time until the alarm sound is stopped automatically can be set by up/down buttons or key input. (1 to 60 minutes)

10-1-2 Temperature units setting

Sets the temperature display units.



① Select the “Unit” tab.

② Temperature Units option button:
“Celsius” or “Fahrenheit” can be selected. Select the units to be used at temperature display.

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VRF Controller Operation

11. Starting And Ending The VRF Controller
12. Task Tray Operation

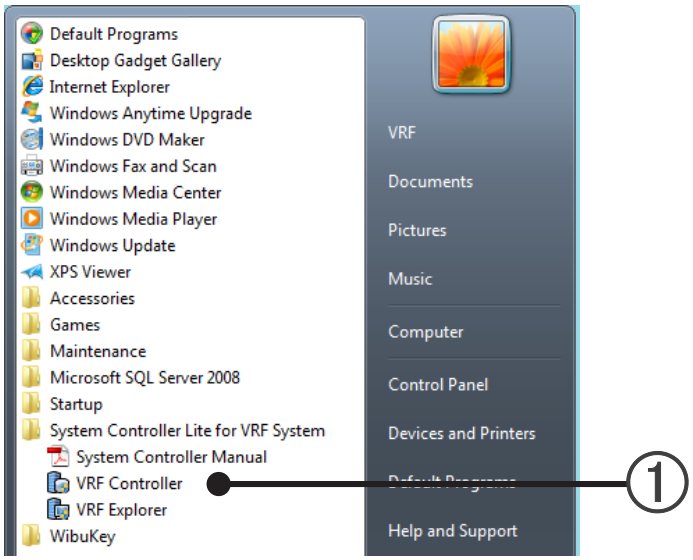
11. Starting And Ending The VRF Controller

VRF Controller

The VRF Controller connects to the VRF System at the server PC and controls and monitors the system based on operation commands from the VRF Explorer. During VRF System operation, always keep the VRF Controller in the running state.

11-1 VRF Controller starting method

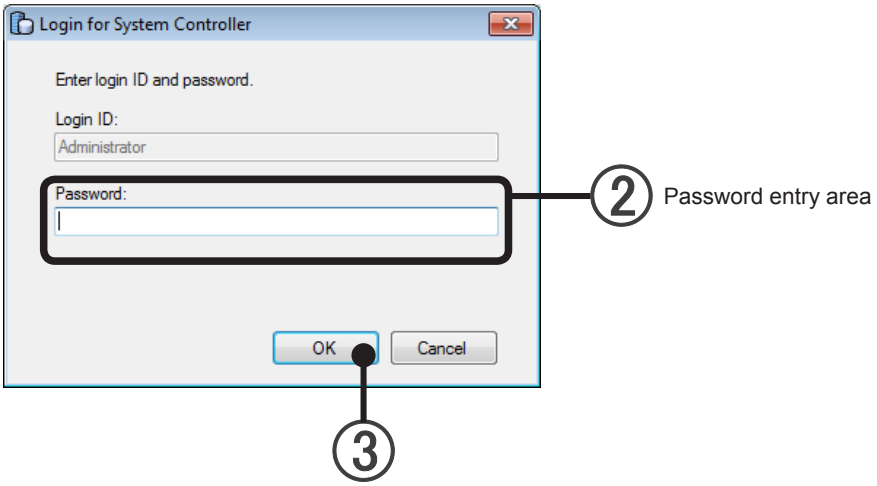
① Start the VRF Controller from Windows® starting.
Select “Start” → “All Programs” → “System Controller Lite for VRF System” → “VRF Controller”.



Note

When the message “Failed to recognize software protection key” appears, WIBU-KEY is not connected to server PC.
Connect WIBU-KEY to the USB port and restart the VRF Controller.

② When the Login screen appears, enter the administrator’s password.



③ Click the [OK] button.

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④ The VRF Controller starts.
While running, the VRF Controller resides on the Windows task tray.

⑤ The VRF Explorer starts automatically and the site group monitor screen appears.
→ See par. 15 Site Navigator

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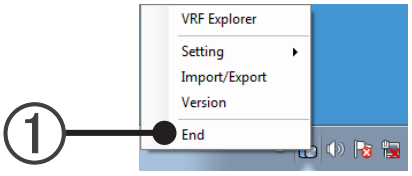
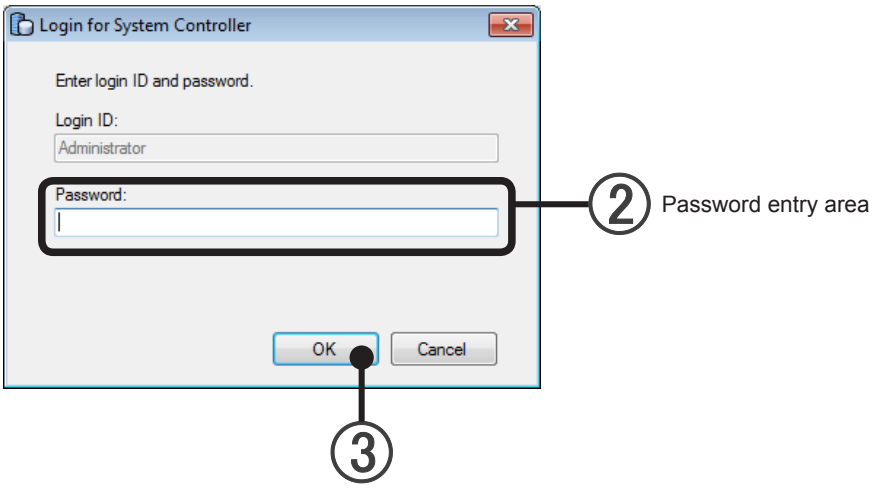
11-2 Ending the VRF Controller

Normally, the VRF Controller runs constantly. End the controller only when necessary for maintenance, or similar reasons.

① End the VRF Controller.
Right click the VRF Controller icon on the task tray and select task tray menu → “End”.

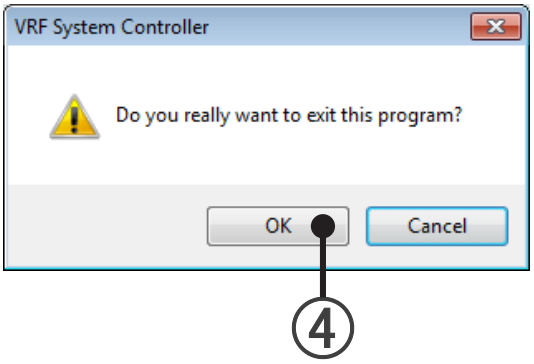


② A Login screen appears. Enter the administrator’s password.



③ Click the [OK] button.

④ A confirmation screen appears. Click the [OK] button.



⑤ The VRF Controller ends.

Note

- When the VRF Controller ends, its functions as a System Controller Lite stop. Therefore, air conditioner operation and management using the VRF Explorer can no longer be performed.
- While the VRF Controller is stopped, operation history, error history and other VRF System related data collection is not performed.
- When the VRF Controller is ended during Electricity Charge apportionment data collection period when the Electricity Charge apportionment function is used, correct Electricity Charge apportionment calculation may become impossible.

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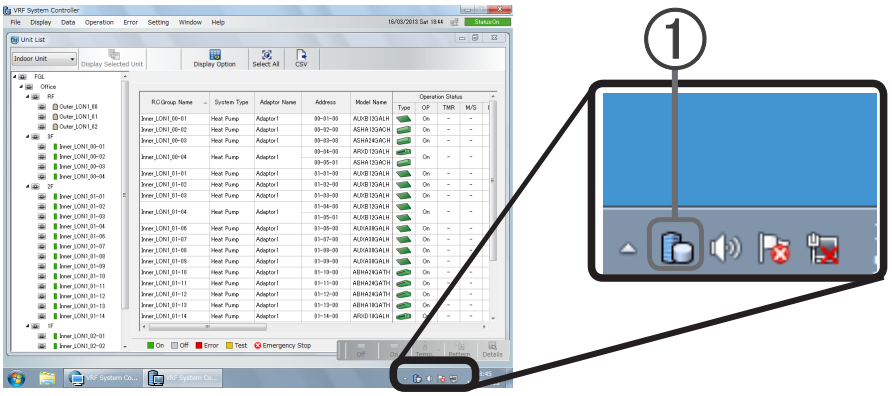
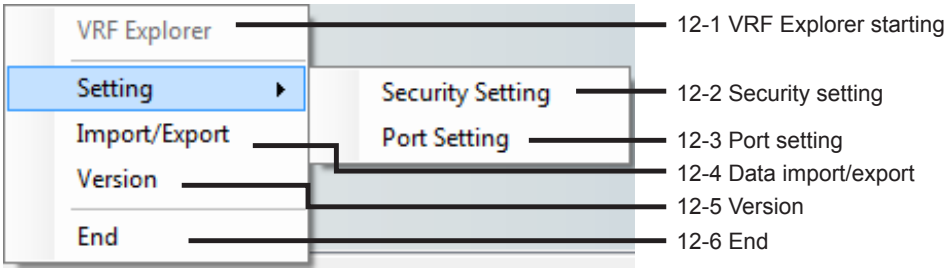
12. Task Tray Operation

While the VRF Controller is running, it resides on the Windows task tray and a small icon is displayed. All VRF Controller operations are performed using this icon.

① Right click the VRF Controller icon in the task tray menu.



② A task tray menu appears. Select the operation you want to perform.



Note

- At Windows Default setting, the task tray is displayed at the bottom right-hand side of the screen.

12-1 VRF Explorer starting

Start the VRF Explorer.

① Select “VRF Explorer” from the task tray menu.

② The VRF Explorer starts and the Site Navigator appears.
→ See par. 15 Site Navigator

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12-2 Security setting

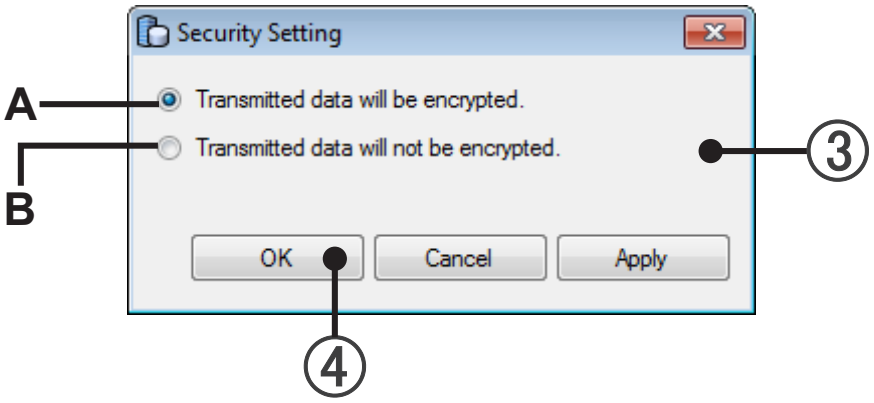
Performs setting when the Remote Access option is enabled.
Security setting sets the data encryption. Only the administrator can make this setting.

① Select “Security Setting” from the task tray menu.

② A Login screen appears. Enter the administrator’s password.

③ A “Security Setting” screen appears. Click one of the items.

A: Encrypt transmitted data
B: Do not encrypt transmitted data



④ When the [OK] button is clicked, the set contents are reflected and security setting ends.

[Cancel] button
Ends security setting without saving the set contents.

[Apply] button
Saves the set contents.
(Security setting screen is displayed as it is.)

Note

- Normally select “Transmitted data will be encrypted”. If there are exceptional circumstances, “Transmitted data will not be encrypted” can be selected.
- If the encryption settings are different, the VRF Controller and VRF Explorer cannot communicate. Match the VRF Explorer setting to the VRF Controller setting.
  → See par. 15-2 Site setting

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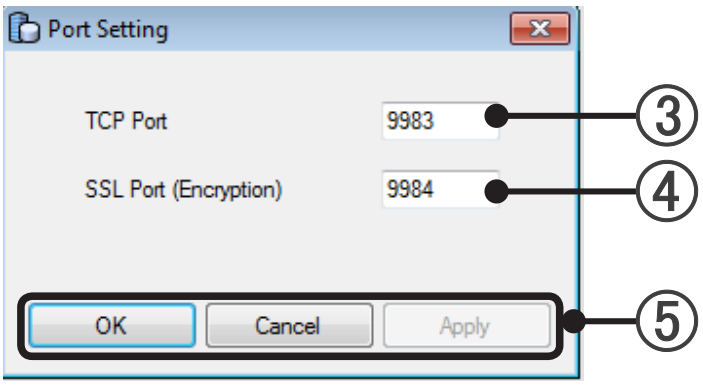
12-3 Port Setting

Set the port of VRF Controller.
Performs setting when the Remote Access option is enabled.

① Select “Port Setting” from the task tray menu.

② A Login screen appears. Enter the administrator’s password.



③ Enter TCP Port in 1 to 65535 range. Initial value 9983
Specify the port No. which is not used by other applications.
When "Transmitted data will not be encrypted." is selected at 12-2 Security setting, this TCP Port can be used.

④ Enter SSL Port in 1 to 65535 range. Initial value 9984
Specify the port No. which is not used by other applications.
When "Transmitted data will be encrypted." is selected at 12-2 Security setting, this SSL Port can be used.

⑤ When the [OK] button is clicked, the set contents are reflected and Port setting ends.

[Cancel] button
Ends Port Setting without saving the edited contents.

[Apply] button
Saves the set contents without ending setting.
(Port setting screen is displayed as it is.)

Note

Normally Port No. is not necessary to change.
Change the Port No. only when it is necessary to change due to network security.
When the Port No. is changed, set the VRF Explorer Port No. to the same number.
If the Port numbers of VRF Controller and VRF Explorer are different, they cannot be connected. Set the same Port No. in the “Site Setting” at “Navigator” screen. (See par. 15-2 Site Setting.)

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12-4 Data import/export

Imports/exports registration data. Only the administrator can make this setting.

- Three types of data: "All data", "Initial setting data only" or "Unit parameter definition data" can be selected.
  - All data
    Unit registration data acquired by system scan, Various kinds of setting data, operation data, history data, and the other data.
  - Initial setting data only
    Unit registration data acquired by system scan.
  - Unit parameter definition data (import only)
    Individual parameters for every supported model.
- The various collected data, etc. are backed up by exporting all the data.
- Server PC replacement and maintenance are performed easily and smoothly by using import/export of all data.
- It may not be possible to Import/Export, depending on folder access rights.In such a case, use the “My Documents” folder.
- Please use import/export file with one language only. It may cause troubles just like display can not be acted on right etc.

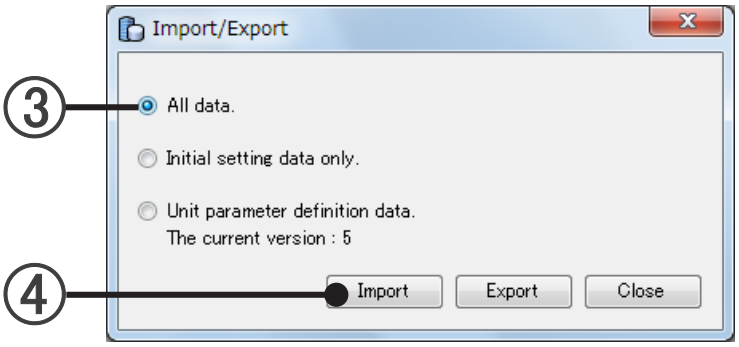
12-4-1 All data

Import all the data.

① Select “Import/Export” from the task tray menu.

② A Login screen appears. Enter the administrator’s password.

③ An Import/Export screen appears. Select by clicking “All Data”.



④ Click the [Import] button.

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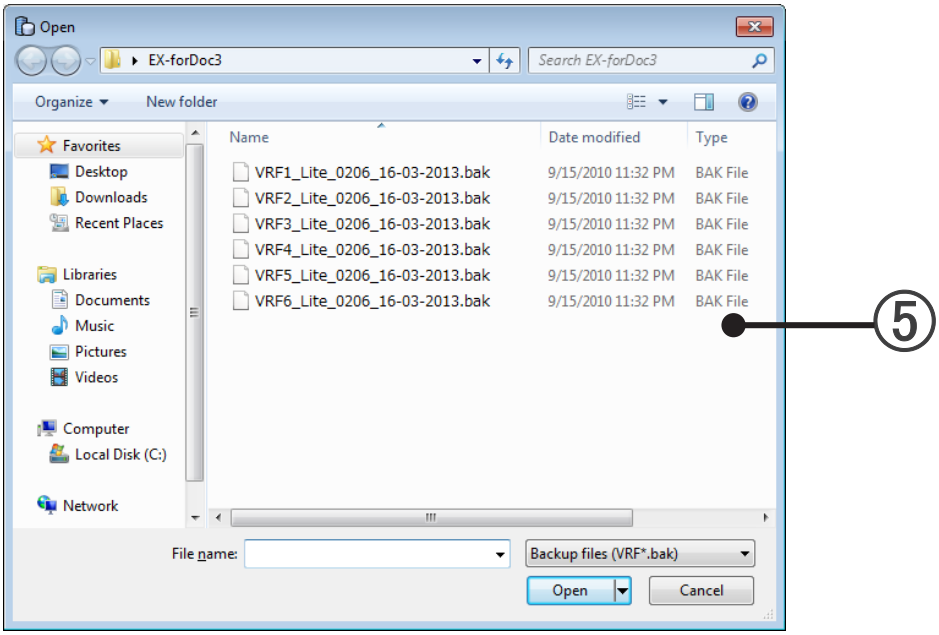
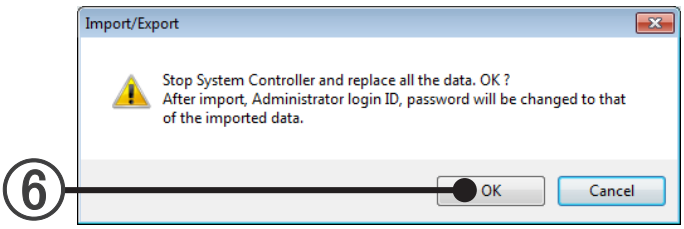
⑤ A file selection dialog box opens. Select the 6 files (extension: bak) to be imported. Multiple files can be selected by selecting each file while pressing the Ctrl key.



Note

The data exported by UTY-APGX cannot be imported.

⑥ To import data, the VRF Controller must be stopped.
A confirmation screen appears. If okay, click the [OK] button.



Note

The VRF Controller stops and the data are imported.

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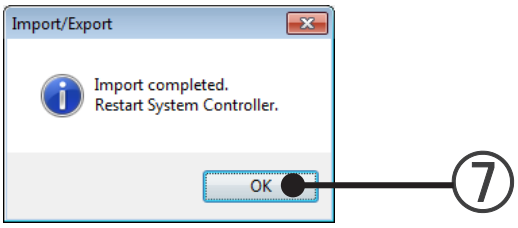
⑦ When import is complete, the message shown below appears.
After clicking [OK] button, end the VRF Controller.



Note

To restart the VRF Controller, perform 11-1 VRF controller starting method after performing 11-2 Ending the VRF controller
The administrator's password will be changed to the imported data.

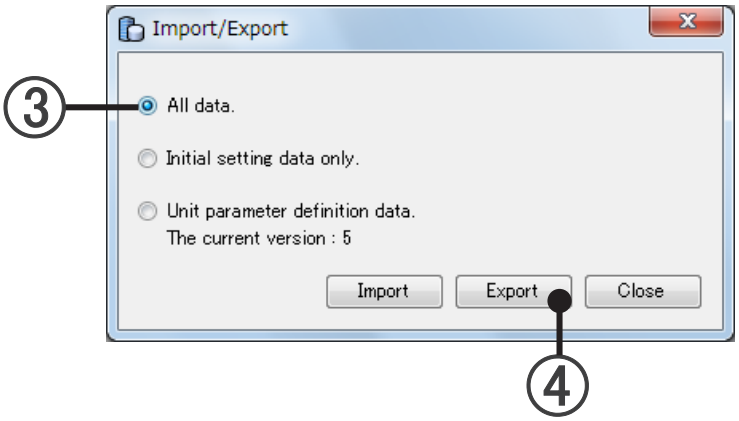
Export all the data.

① Select "Import/Export" from the task tray menu.

② A Login screen appears. Enter the administrator's password.

③ An Import/Export screen appears. Select by clicking "All Data".

④ Click the [Export] button.



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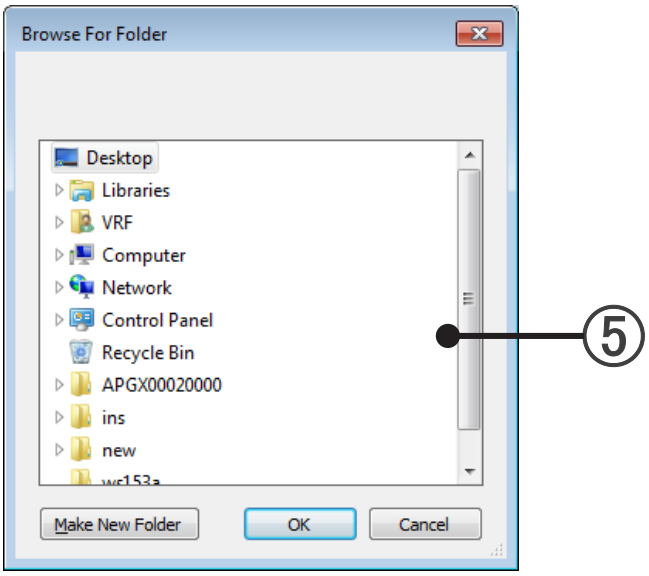
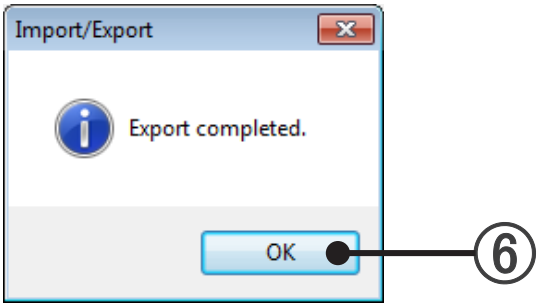
⑤ A folder selection dialog box opens. Select a folder or create a new folder and click the [OK] button.
Data export begins.



⑥ When export is complete, the message shown below appears.
When the [OK] button is clicked, export work is completed.



⑦ Close the Import/Export screen by clicking the [Close] button.

Note

When all data are exported, 6 data files (extension: bak) are created in the specified folder.
Do not change the exported file name.

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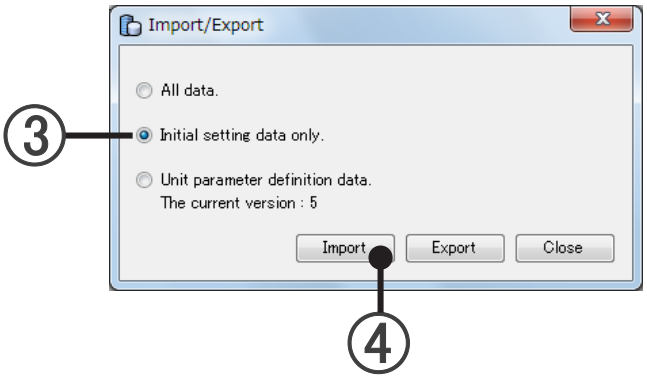
12-4-2 Initial setting data only

Import the registration data.

① Select “Import/Export” from the task tray menu.

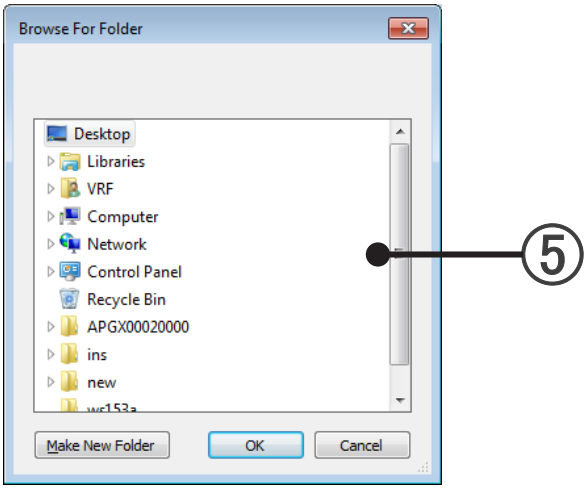
② A Login screen appears. Enter the administrator’s password.

③ An Import/Export screen appears. Select by clicking “Initial setting data only”.



④ Click the [Import] button.

⑤ A folder selection dialog box opens. Select the folder containing the data files (extension: csv) to be imported.



Note

If the data to be imported and the current unit registration are different, a confirmation message will be displayed.
The data exported by UTY-APGX cannot be imported.

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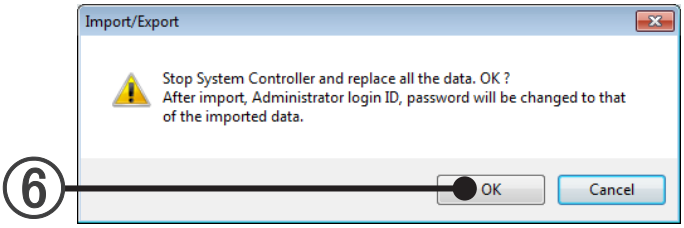
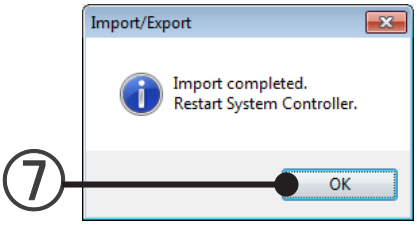
⑥ To import data, the VRF Controller must be stopped.
A confirmation screen appears. If okay, click the [OK] button.



Note

The VRF Controller stops and the data are imported.

⑦ When import is complete, the message shown below appears.
After clicking [OK] button, restart the VRF Controller.



Note

To restart the VRF Controller, after performing “11-2 Ending the VRF Controller”, perform “11-1 VRF Controller starting method”.
You cannot import files created with the old version (0.1.0.0, 0.1.0.1) of the System Controller Lite.

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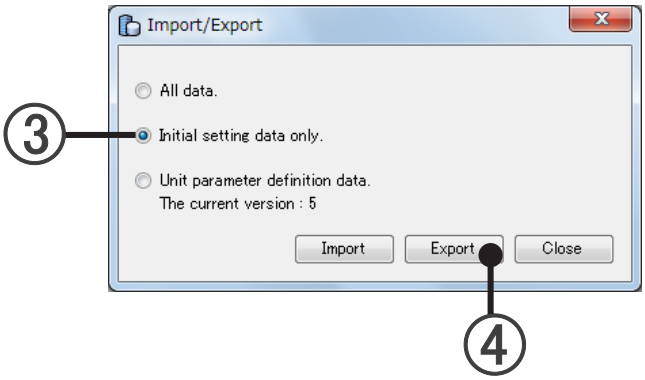
Export the registration data.

① Select “Import/Export” from the task tray menu.

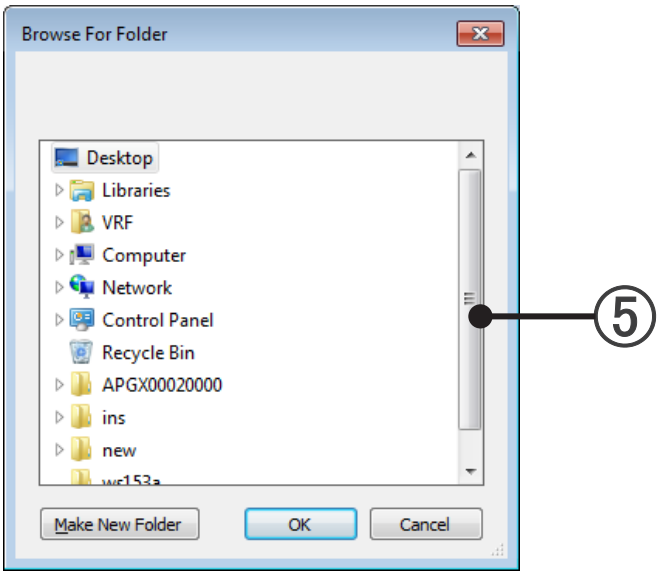
② A Login screen appears. Enter the administrator’s password.

③ An Import/Export screen appears. Select by clicking “Initial setting data only”.



④ Click the [Export] button.

⑤ A folder selection dialog box opens. Select a folder or create a new folder and click the [OK] button. Data export begins.



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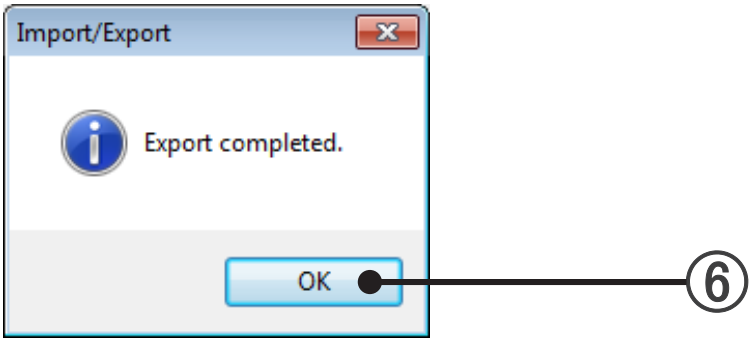
⑥ When export is complete, the message shown below appears.
When the [OK] button is clicked, export work is completed.



⑦ Close the Import/Export screen by clicking the [Close] button.

Note

When registration data is exported, multiple data files (extension: csv) are created in the specified folder.
Do not change the exported file name.

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12-4-3 Unit parameter definition data

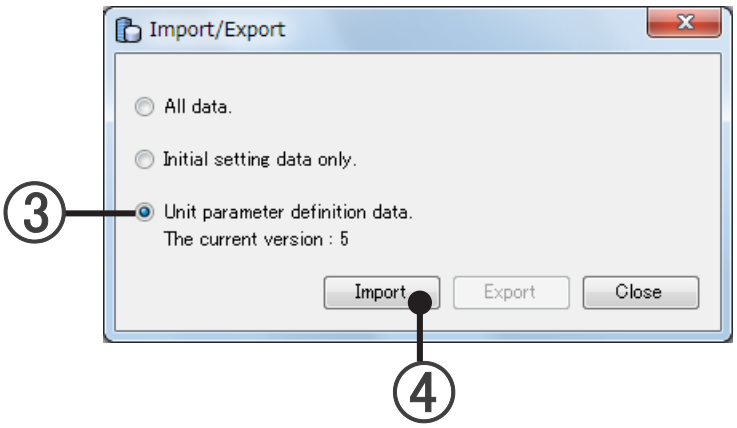
Import the unit parameter definition data.

① Select “Import/Export” from the task tray menu.

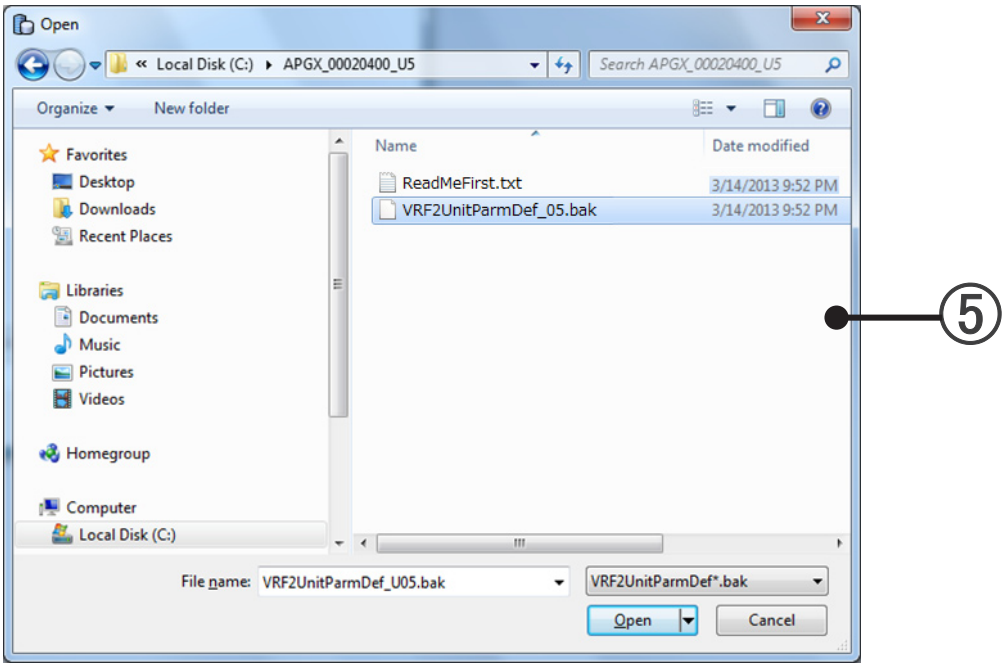
② A Login screen appears. Enter the administrator’s password.

③ An Import/Export screen appears. Select “Unit parameter definition data”.

④ Click the [Import] button.



⑤ A file selection dialog box opens. Select the Unit parameter definition file.



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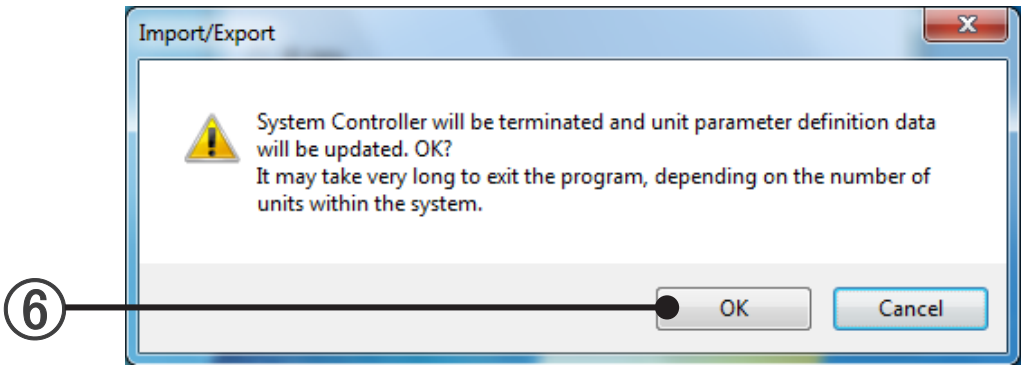
Note

Contact your service personnel for getting the parameter definition file.

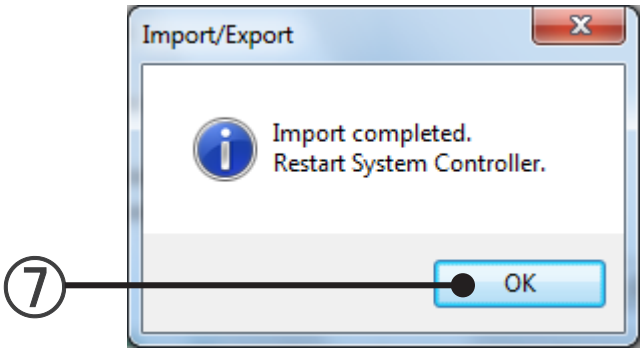
⑥ To import the data, the VRF Controller must be stopped.
A confirmation screen appears. If okay, click the [OK] button.



Note

The VRF Controller stops and the data are imported.

⑦ When import is complete, the message shown below appears.
After clicking [OK] button, end the VRF Controller.



Note

To restart the VRF Controller, perform 11-1 VRF controller starting method.

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12-5 Version

The version information can be viewed.

View the version information.

① Select “Version” from the task tray menu.

② The screen shown below appears.

③ To end the screen, click the screen.

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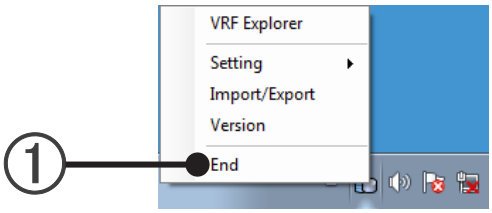
12-6 End

Ends the VRF Controller. End the controller only when necessary for maintenance, or similar reasons.

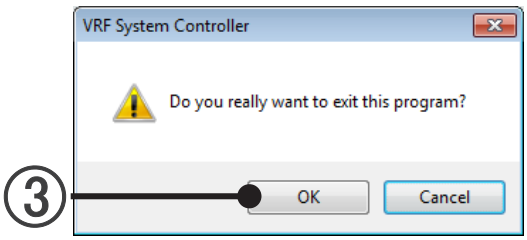
End the VRF Controller.

① Select “End” from the task tray menu.



② A Login screen appears. Enter the administrator’s password.

③ A confirmation screen appears. Click the [OK] button.



④ The VRF Controller ends.

Note

- When the VRF Controller ends, its functions as a System Controller Lite stop. Therefore, air conditioner operation and management using the VRF Explorer can no longer be performed.
- While the VRF Controller is stopped, operation history, error history and other VRF system related data collection is not performed.
- When the VRF Controller is ended during Electricity Charge apportionment data collection period when the Electricity Charge apportionment function is used, correct Electricity Charge apportionment calculation may become impossible.

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VRF Explorer Operation

13. Overview Of VRF Explorer
14. Starting And Ending The VRF Explorer
15. Site Navigator
16. Basic Operation
17. Operation Control
18. Schedule Operation
19. Error Monitoring
20. Operation Management
21. Low Noise Operation
22. The Flow of the Process up to Operation
23. Creating an Electricity Meter System

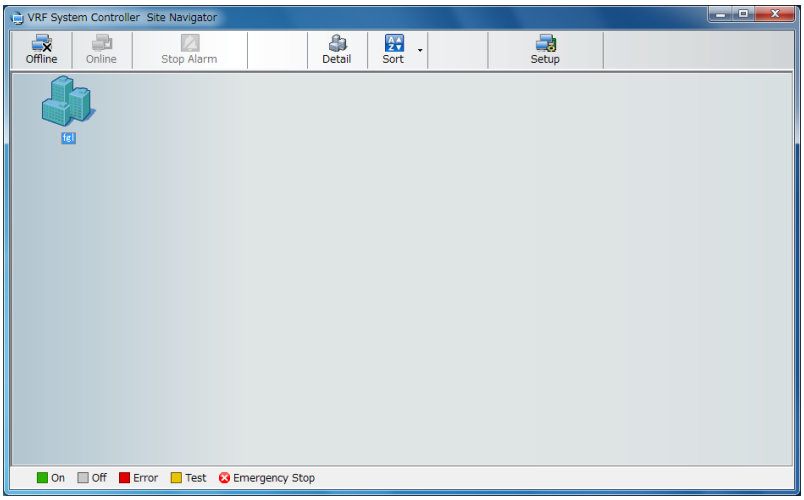
13. Overview Of VRF Explorer

13-1 Composition of VRF Explorer

13-1-1 Screens making up VRF Explorer

VRF Explorer consists largely of 2 main screens. They are the Site Navigator and VRF Explorer main screens.

① **Site Navigator**



This screen monitors multiple sites in site units. The operation status and whether or not there are any errors can be checked in site units at this screen.
When multiple sites are centrally monitored, usually monitoring is performed only at this screen. When checking the detailed status and when controlling operation, the checks are made by opening the VRF Explorer main screen for each site.
When monitoring multiple sites by the Site Navigator, place all the monitoring sites into the online state.

→ See par. 15-1-1 Site Navigator

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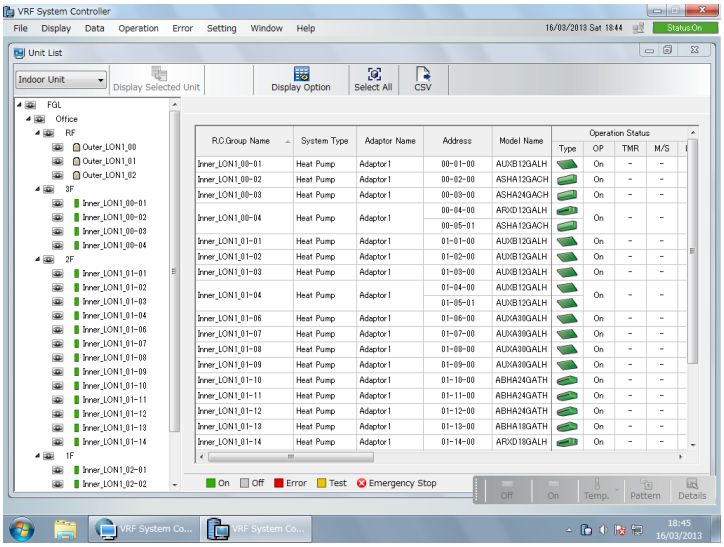
② VRF Explorer main screens



Detailed status monitoring, operation control, and other operations of each unit related to one selected site can be performed.

→ See par. 16-1-1 Composition of main screen

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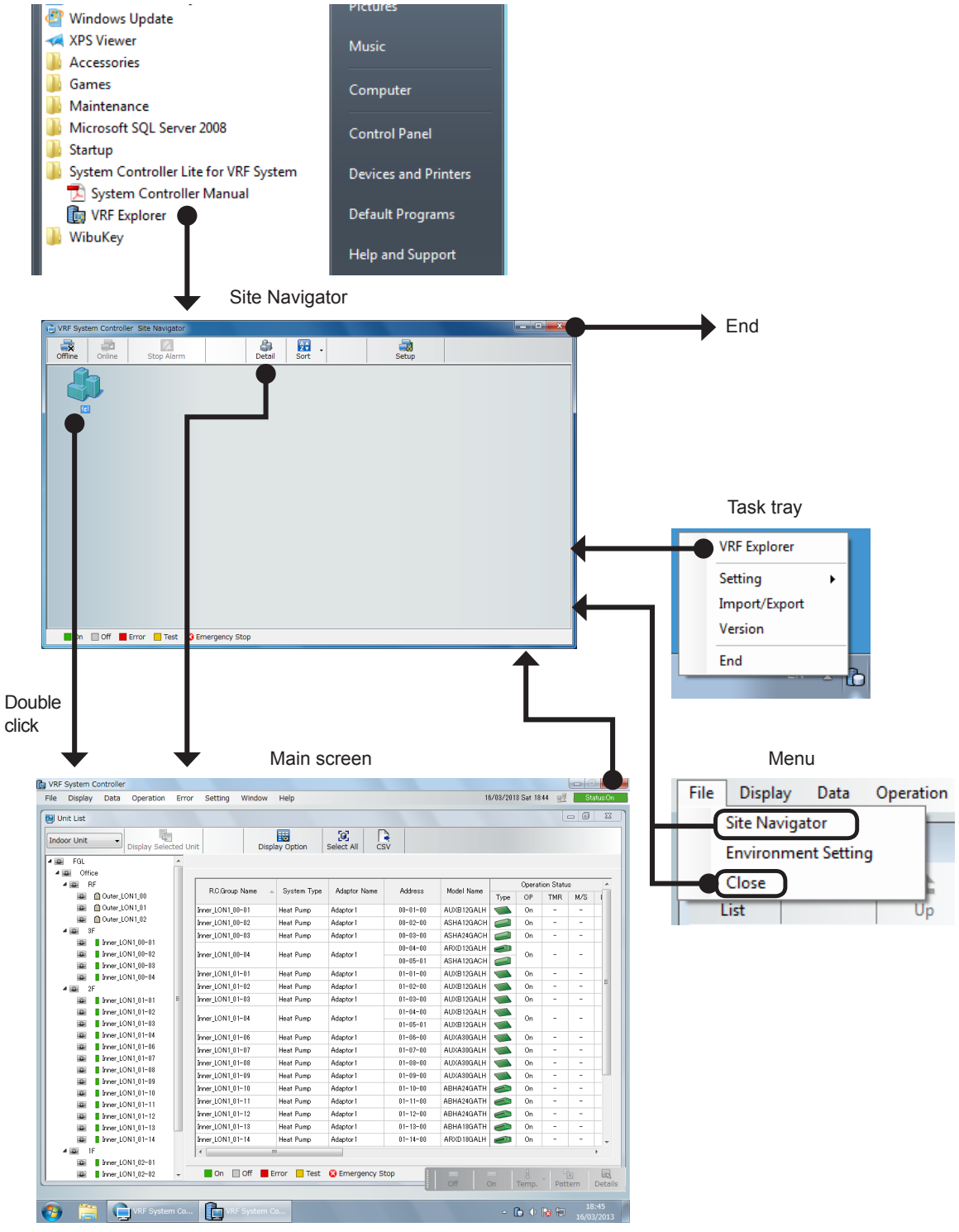
13-1-2 Screen transition



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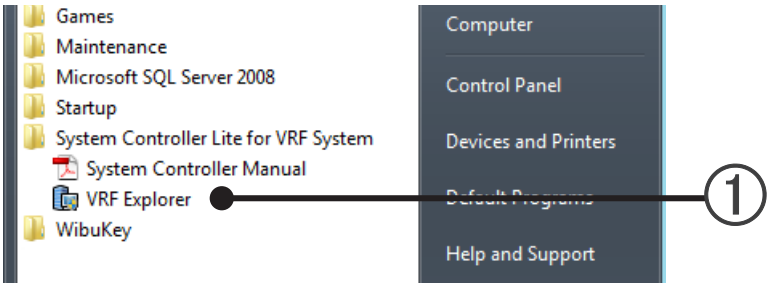
14. Starting And Ending The VRF Explorer

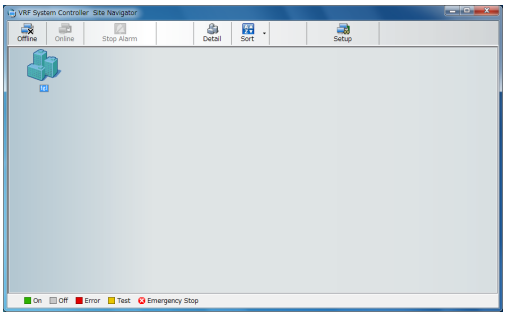
When the VRF Controller is started from the server PC, the VRF Explorer starts automatically.

14-1 Starting the VRF Explorer



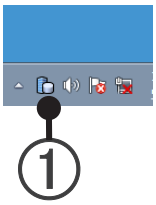
① Start the VRF Explorer from Windows® starting.
Select “Start” → “All Programs” → “System Controller Lite for VRF System” → “VRF Explorer”

② Site Navigator appears.
→See par. 15 Site Navigator

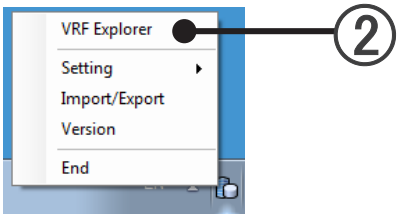


If the VRF Controller is already started (VRF Controller icon is displayed in the task tray menu), the VRF Explorer can be started from the task tray menu.

① Right click the VRF Controller icon in the task tray menu.



② Select "VRF Explorer".



③ Site Navigator appears.
→ See par. 15 Site Navigator

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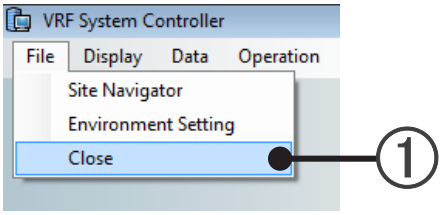
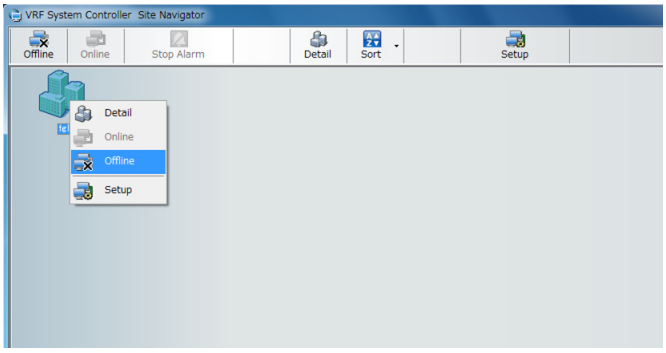
14-2 Ending the VRF Explorer

① Select main screen menu → “File” →“Close”.

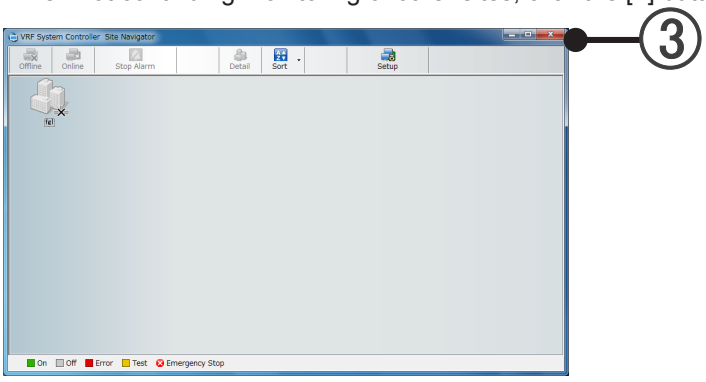


Main screen ends.

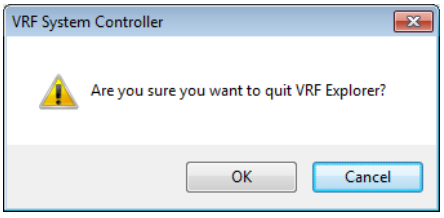
② Site Navigator appears. When Site Navigator is minimized, return it to its original size by selecting Site Navigator from the Task bar at the bottom of Windows. When there are the connecting sites, disconnect the communication. → See par. 15-1-3 Disconnection of communication to site



③ When not continuing monitoring of other sites, click the [×] button which closes Windows®.



④ An end confirmation dialog box opens. Click the [OK] button.



⑤ The VRF Explorer ends.

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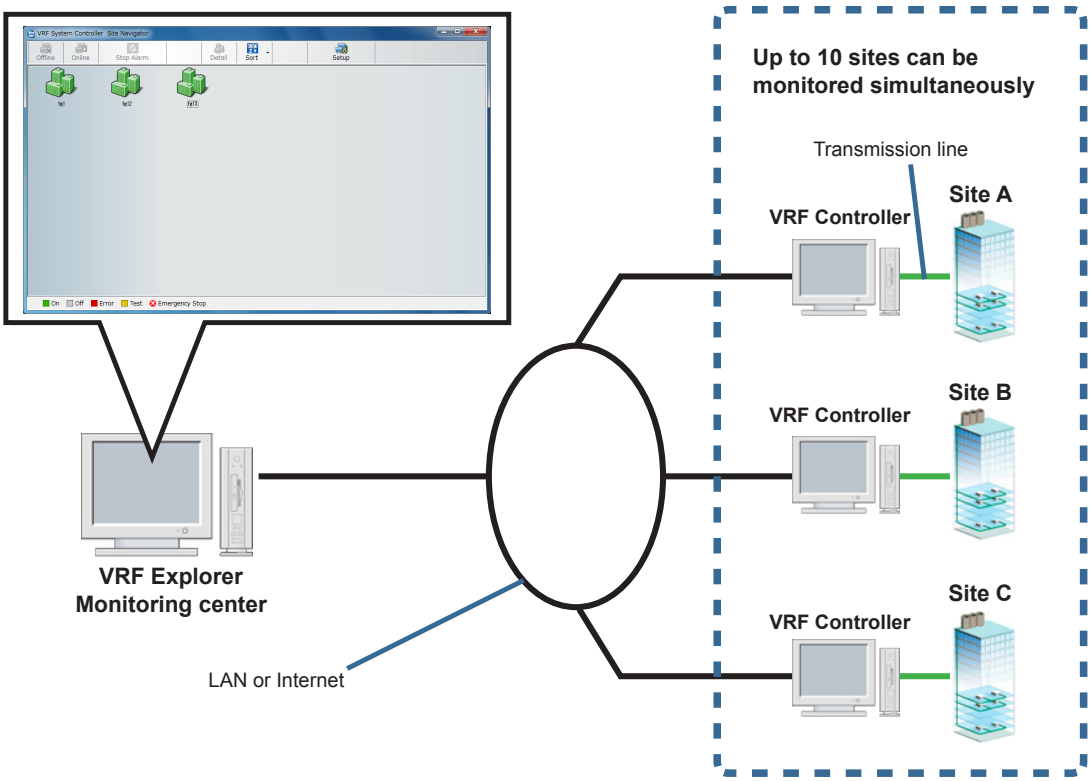
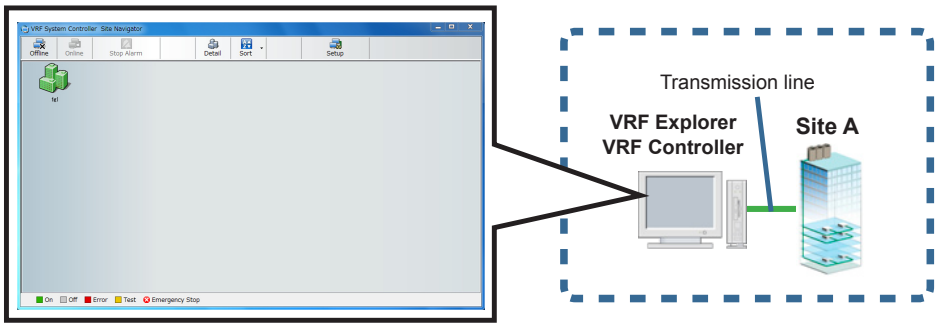
15. Site Navigator

The registered sites are displayed in a list and the site status can be checked.
The Site Navigator can be used as follows.

When simultaneously monitoring multiple sites from a single client PC (max 10 sites)



When monitoring sites managed by a server PC (1:1)



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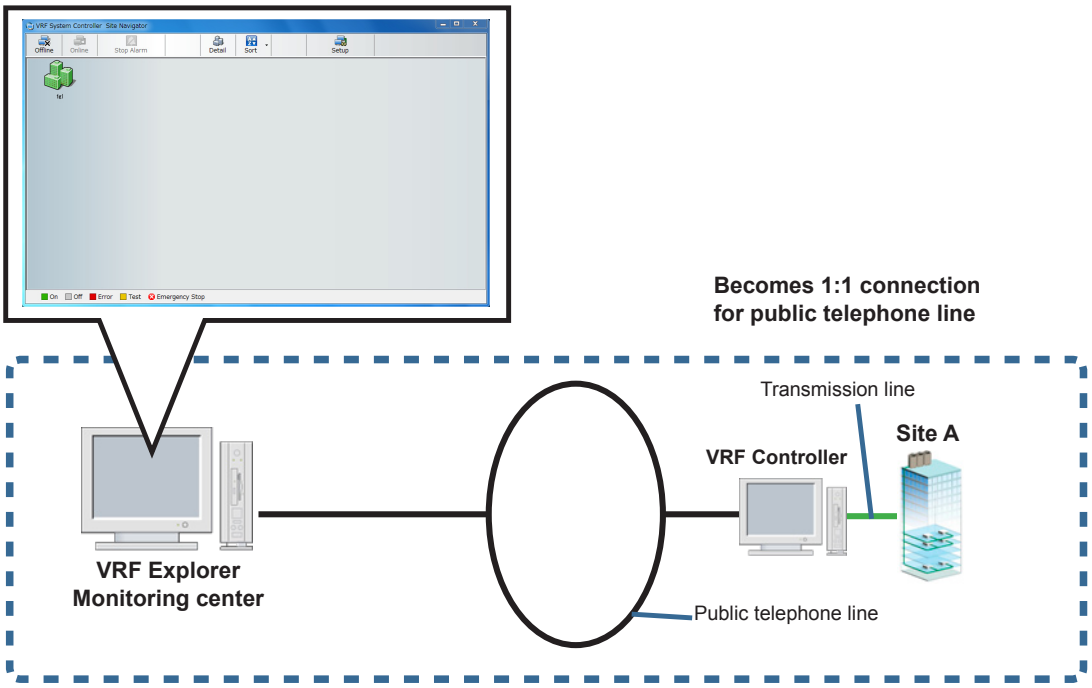
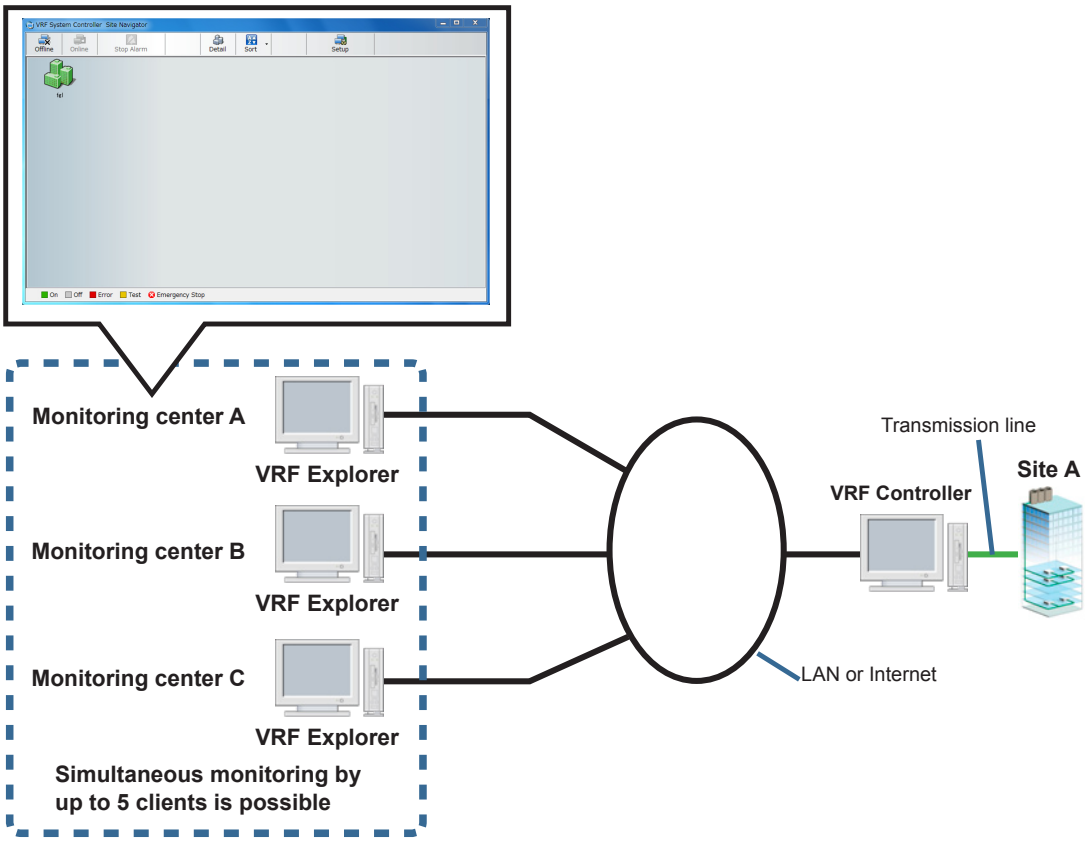
When using a public telephone line to monitor sites from a client PC (1:1)



When simultaneously monitoring a single site from multiple client PCs (Max 5 client PCs)



Note

When a network is not constantly connected between VRF Controller and VRF Explorer, connect and disconnect it manually at each use.

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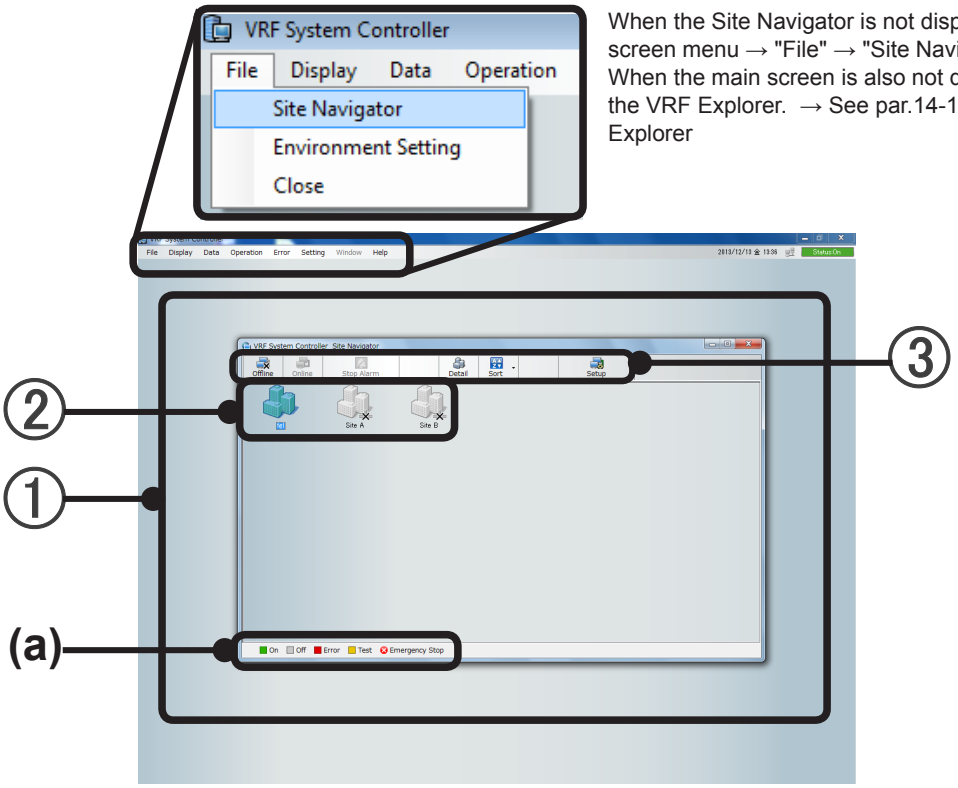
15-1 Site Navigator

Registered sites are displayed in a list and the status of each site can be checked. (Max 10 sites)
When centrally monitoring multiple sites, usually do it at this screen. Place all the sites to be monitored into the online state.

15-1-1 Site Navigator

① Site Navigator screen. Registered sites are displayed by a list of icons.
(The screen is an example of 3 registered sites.)

- Up to 5 VRF Explorers can simultaneously connect to a VRF Controller.
- Up to 10 sites can be registered at a VRF Explorer.
- When a public telephone line is used, the connection between service PC and client PC is 1:1.



When the Site Navigator is not displayed, select main screen menu → "File" → "Site Navigator".
When the main screen is also not displayed, start the VRF Explorer. → See par.14-1 Starting the VRF Explorer

② Site icon. Represents the status of a site by color. See (a)Display color guidance for the contents.

	Offline Cannot communicate with site
	On Running
	Off Stopped

	Test Testing
	Error Error signal received
	Emergency Stop Emergency stop signal received

* If even one of the units of a site is in one of the states shown above, its icon color is changed and it is displayed. The priority order is 1: Emergency Stop, 2: Error, 3: Test, 4: On, 5: Off.

Note

- If the site to be monitored is not registered, perform site setting. See par. 7-1-3 Object site setting

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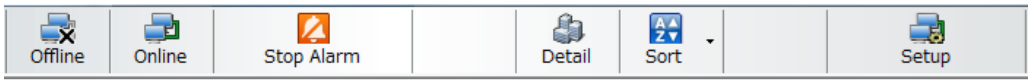
③ Tool icon. Connects and disconnects communication with a site and performs various settings. Details conform to the description of each operation.



* This picture is for description only. The items which can be selected are different depending on the operation.

Offline	Disconnects communication to a "site". (Selection is possible at Online sites)
Online	Connects communication to a "site". (Selection is possible at Offline sites) Monitors the site status.
Stop Alarm	Stops the alarm.
Detail	Opens the main screen for displaying the detailed "site" data. Monitoring, operation control, etc. are performed at the main screen. (→ See par. 16-1 VRF Explorer screen composition.)
Sort	Switches the “site” icon of the state selected by pull-down menu to a higher rank. Online (connected site)　　On (running site) Off (stopped site)　　Error (error site)
Setup	Opens a "Site Setting" screen for setting the "site" connection. (→ See par. 15-2 Site setting)

Note

To monitor buildings and floors on a site, refer to par. 15-1-4 Site details display.

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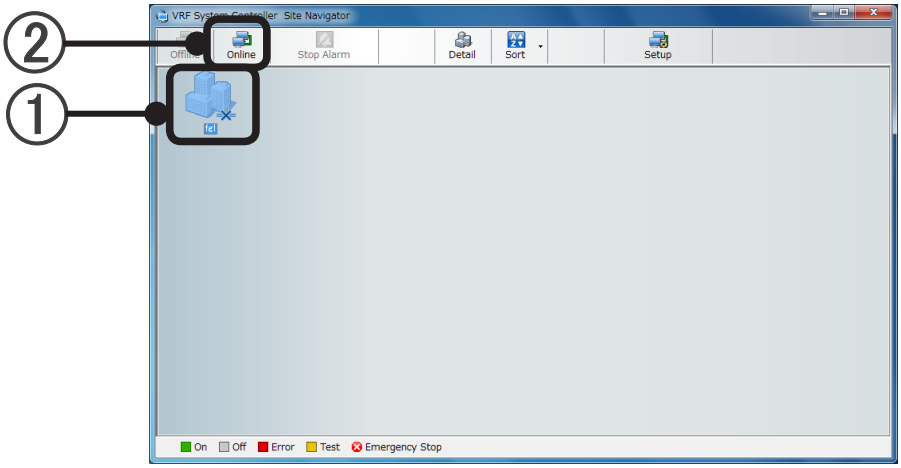
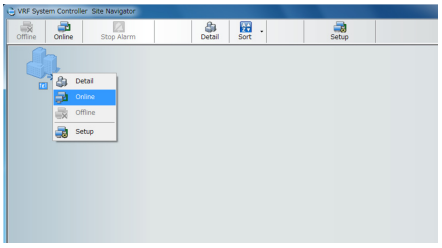
15-1-2 Communication connection to site

When "Offline", connect to a monitoring and control site.
(If even one site is not displayed, see par. 15-2 Site setting.)

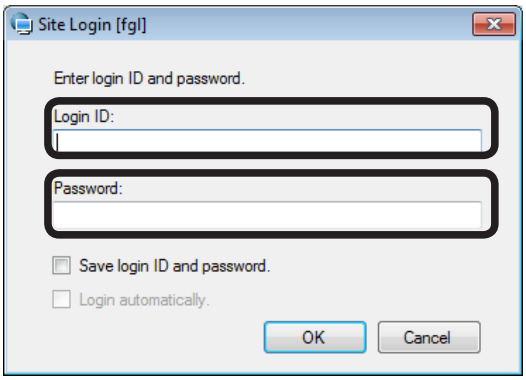
① Select the icon of the site to be connected.



② Click [Online] of the tool icons.
(This operation is also possible by right clicking a site icon and selecting "Online".)



③ When a login screen is displayed, enter the Login ID and Password.
(Not displayed when set to auto login.)
See par. 8-1 User management settings for a description of Login ID and Password.
(For a client side, obtain the Login ID and Password from the server administrator.)



Note

Press OK, and if there is a difference between the server and client versions, a correction message will be displayed. Match the version to the server.

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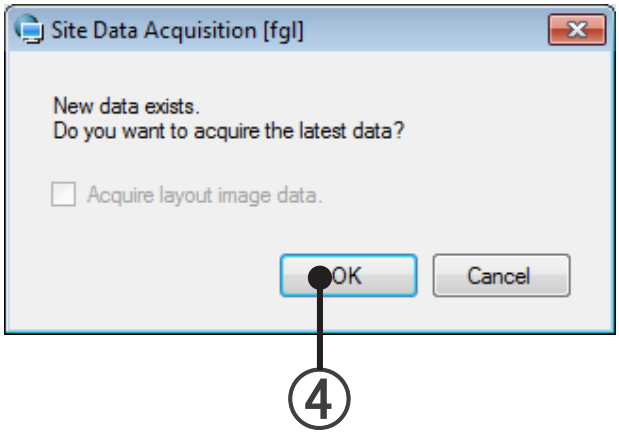
④ When a site is connected for the first time and when settings are changed, a site data acquisition dialog box is opened.
Click the [OK] button.



⑤ The site data is acquired.

⑥ After a while, the site icon changes to the connection state.
(The time up to connection depends on the type and state of the line.)

See par. 15-1-1 Site Navigator for the color of the connected site icon.

15-1-3 Disconnection of communication to site

Disconnects communication to a site. (Selection is possible at Online sites.)
This is effective when sites are not monitored continuously when a metering rate toll line is used.

① Select the icon of the site to be disconnected.

② Click [Offline] of the tool icons.
A confirmation message box opens. Click the [Yes] button.
(This operation is also possible by right clicking a site icon and selecting "Offline".)

③ After a while, the site icon changes to the disconnection state.
(The time up to disconnection depends on the type and state of the line.)

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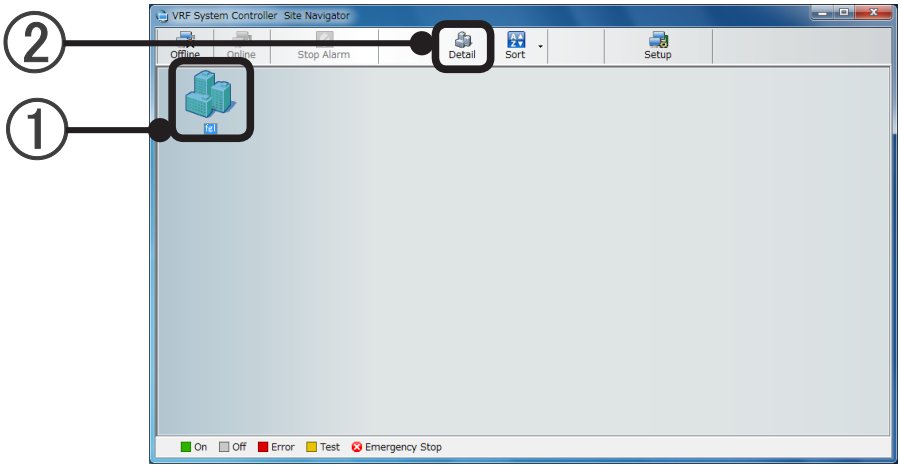
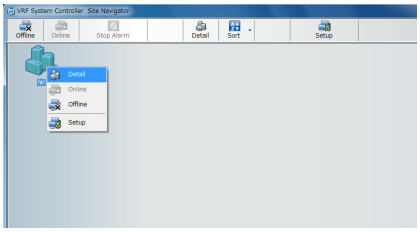
15-1-4 Site details display

Acquires the site data and monitors and controls the status of the buildings and units installed on the site. (Depending on the access right setting, may be monitoring only.)

① Select the icon of the site whose data is to be acquired.



② Click [Detail] of the tool icons.
(This operation is also possible by right clicking a site icon and selecting [Detail]. In addition, this can be performed by double clicking the site icon.)



③ A monitor screen opens.
(See par. 16 Basic Operation.)

Note

- Connection processing is also performed automatically for sites in the Offline state.

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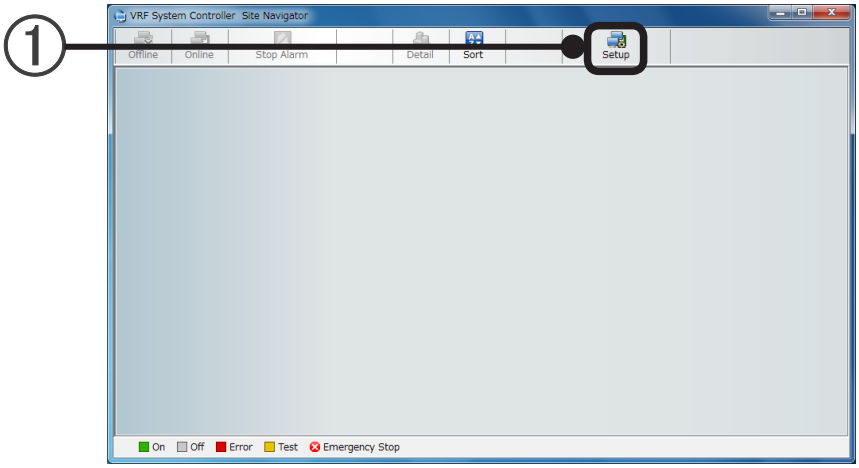
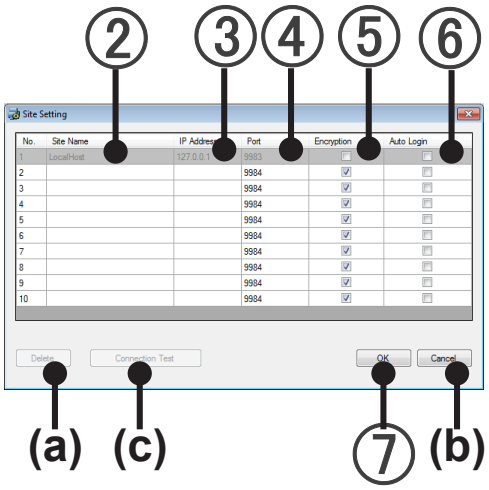
15-2 Site setting

When adding and deleting sites to be monitored, perform monitoring site setting by Site Navigator. (Up to 10 sites can be registered.)

① Click [Setup].



② Enter the name of the site to be monitored at "Site Name".
(Within 20 characters of alphabet, numeric, and symbol)



③ Enter the IP address. (For local connection, enter 127.0.0.1.)

- For LAN connections and server PCs.
- For internet connection, enter the global IP address of server PC.
- For dial up connection, enter the IP address of server PC set by Incoming setting

→ See par. 6-1-1 Incoming setting

④ The Port No. to be set is displayed.

→ See par. 12-3 Port Setting

⑤ Specify encryption of the signals to be sent and received at the "Encryption" check box.
When the check box is checked, it is available.
Recommended when using the internet or other open line, etc.
Match with the setting of the connection destination VRF Controller.

→ See par. 12-2 Security setting

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⑥ When the Auto Login check box is checked, the site is automatically connected by saved ID.
(Cannot be checked at new registration of a site. Can only be checked after initial login.)

⑦ Click [OK]. Then the site is registered.

(a) [Delete] button

Deletes the connection to selected site settings.

(b) [Cancel] button

Ends the site setting without saving the set contents.

(c) [Connection Test] button

Performs the connection test to the VRF Controller (Server Software).
(In this connection test, encryption check is not performed. For encryption, match the server settings.)

Note

You can set a name for Site Name different than that set on the VRF Controller side.Set the name while bearing in mind the method of management.
If encryption is not the same, communications between connected server PC and client PC is impossible.

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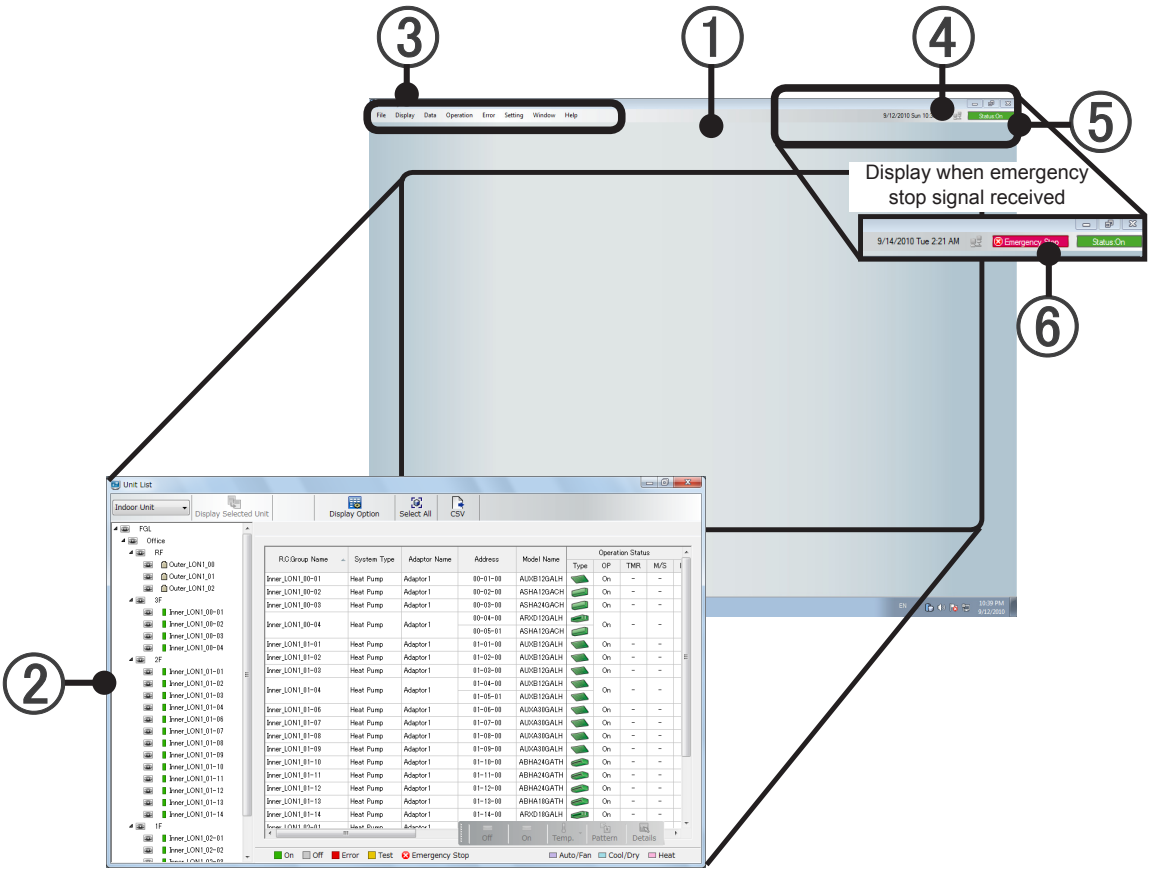
16. Basic Operation

16-1 VRF Explorer screen composition

16-1-1 Composition of main screen

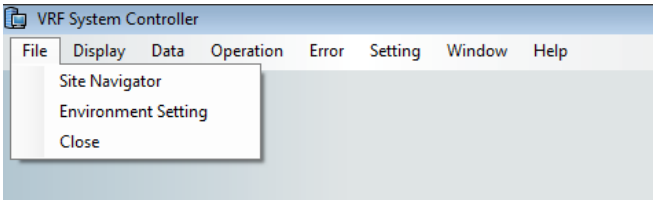
① Main screen: This is the basic screen of the VRF Explorer.



② Function screens: Monitor and operate units.
The screen is switched with the menu of ③ (See ③ Menu.)

③ Menu: Calls the function screens which perform various settings, monitoring, and control. For details, see the description of each operation

“File”



“Site Navigator” (15-1)
Displays the site group monitor screen.

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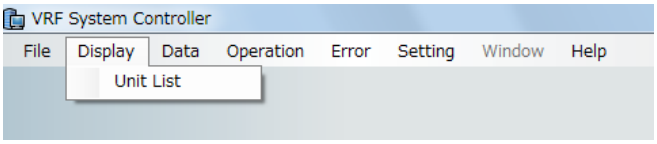
“Environment Setting” (10-1)

Sets the alarm volume, temperature units.

“Close”

Closes the main screen. Communication with the VRF Controller and site monitoring are continued.

“Display”

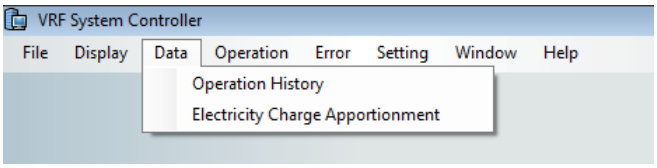


the monitor screen display.

“Unit List” (16-3)

Displays a unit list.

“Data”



“Operation History” (20-1)

Displays, outputs, and deletes the operation history from the unit and the System Controller Lite control history.

“Electricity Charge Apportionment” (27), (28)

Performs electricity charge apportionment setting and apportionment calculation.

* Can be selected only by users with the Electricity Charge Apportionment right.

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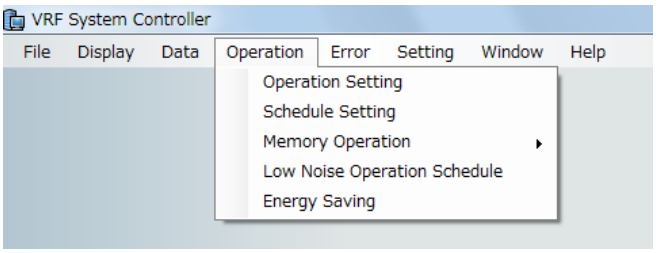
“Operation”



“Operation Setting” (17-2)

Controls the operation of R/C group and group.

* Can only be selected by users with the Operation Control right.

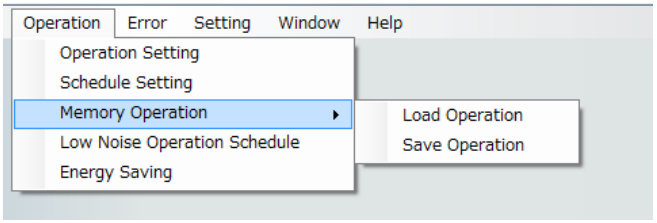
“Schedule Setting” (18)

Set the operation schedule of R/C group and group.

* Can only be selected by users with the Operation Control right.

“Memory Operation” (17-3)

Performs the following settings:



“Load Operation” (17-3-1)

Reads the preset operation pattern to R/C group and group.

* Can only be selected by users with the Operation Control right.

“Save Operation” (17-3-2)

Saves the set operation pattern to R/C group and group.

* Can only be selected by users with the Operation Control right.

“Low Noise Operation” (21)

Sets the schedule of low noise operation mode for groups.

* Can only be selected by users with the Operation Control right.

“Energy Saving” (24)

Basic setting for energy saving is performed.

* Energy Saving option is necessary.

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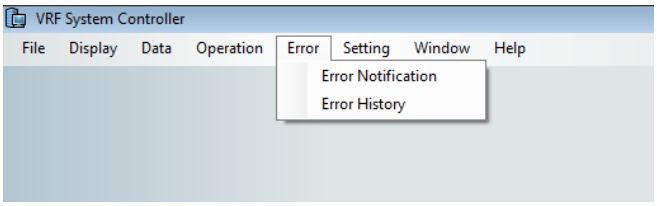
“Error”



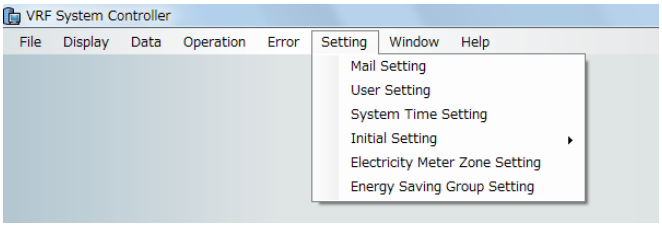
“Error Notification” (19-1)

Opens an error notification screen.

“Error History” (19-4-2)

Displays, outputs and deletes current errors and past errors history.

“Setting”



“Mail Setting” (9)

Performs setting which automatically sends an error notification email when an error occurs.

* Can only be selected by users with the Setting right.

“User Setting” (8-1)

Displays a list of the users registered at the VRF Controller.

New user registration and modification and deletion of the registered contents of selected users can be performed.

* Can only be selected by users with the User Setting right.

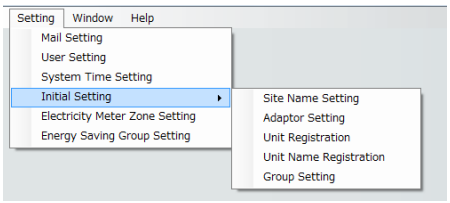
“System Time Setting” (8-2)

Sets the time of the controller connected to VRF network.

* Can only be selected by users with the Setting right.

“Initial Setting” (8-3)

Performs the following settings:



“Site Name Setting” (8-3-1)

Sets and changes the site name.

* Can only be selected for local connection of users with the Setting right.

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“Adaptor Setting” (8-3-2)

Changes adaptor name and checks connection status.

* Can only be selected for local connection of users with the Setting right.

“Unit Registration” (8-3-3)

Acquires by network scan the registration information, capacity, and other information of the connected units.

* Can only be selected for local connection of users with the Setting right.

“Unit Name Registration” (8-3-4)

Sets and changes R/C group and outdoor unit group name.

* Can only be selected for local connection of users with the Setting right.

“Group Setting” (8-3-5)

Performs arbitrary group setting and change by outdoor unit, R/C group, and outdoor unit group. (Max 3 hierarchy)

Batch control and information can be acquired by setting a group.

Group setting by different refrigerant systems and duplicate setting by multiple groups are also possible.

* Can only be selected by users with the Setting right.

“Electricity Meter Zone Setting” (23)

Adds and deletes unit groups for usable electricity meters.

* Electricity Charge Apportionment option or Energy Saving option is necessary.

“Energy Saving Group Setting” (25-1)

Adds and deletes indoor units for created energy saving groups.

* Energy Saving option is necessary.

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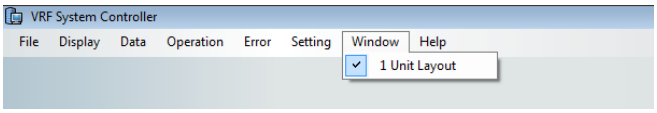
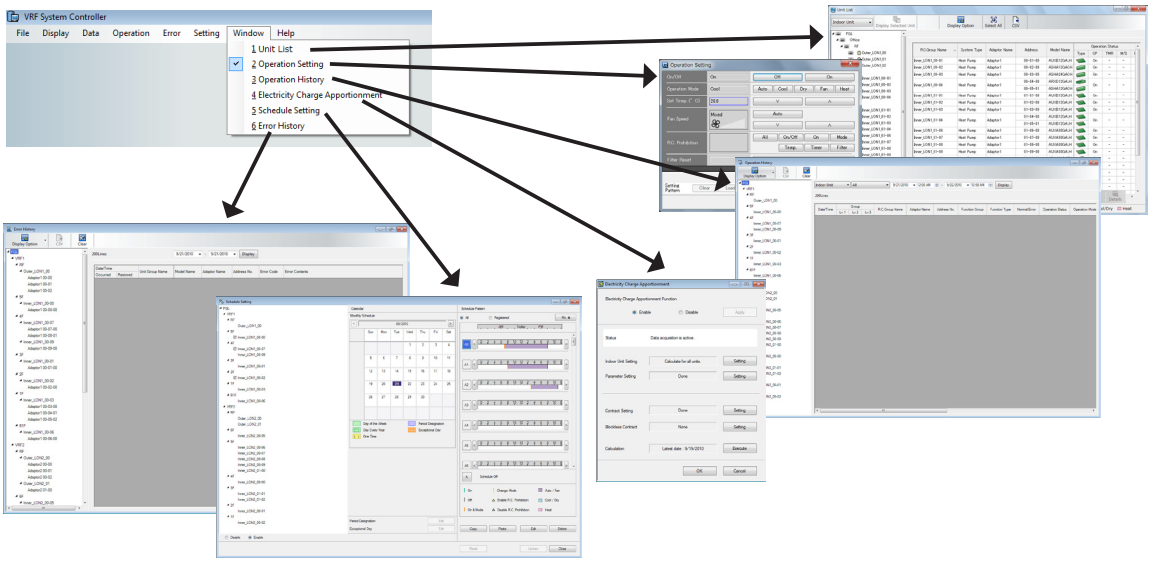
“Window”



Displays a monitor screen and working screen list and moves to the selected screen.
(Depending on the operation, the contents pulled down are different.)



However, cannot be selected during "Mail Setting", "User Setting", or "Initial setting". (Other operations are not performed until setting is complete.)

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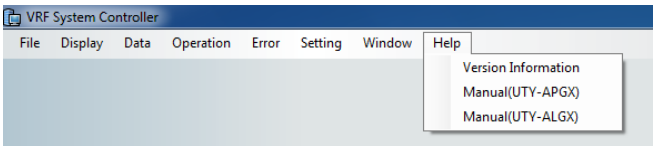
“Help”



“Version Information”

Displays the start screen and verifies the version. When the screen is clicked, the window closes.

“Manual”

Displays a PDF file of this manual.

④ User icon: When this icon is pointed with the mouse, the user name currently connected from a remote site is displayed.

* For local connection only, the icon is displayed.

⑤ Status icon: When all the recognized units are stopped, [Status: Off] is displayed.

If even one recognized unit is running, [Status: On] is displayed.

When an error is generated, [Status: Error] blinks. When this icon is double clicked while it is blinking, the error notification screen is re-displayed. For details, see par. 19. Error monitoring.

⑥ Emergency Stop: If even one of the units received an emergency stop signal, the [Emergency Stop] icon is displayed.

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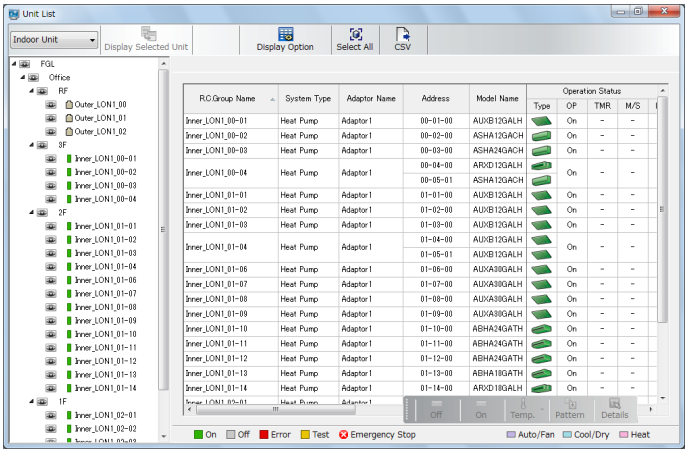
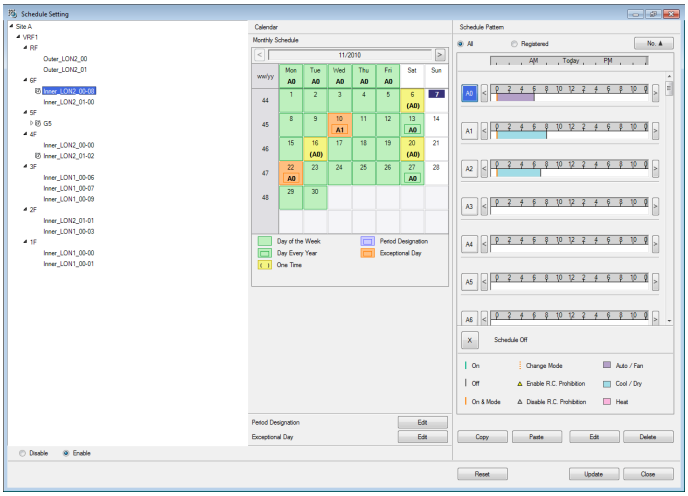
16-1-2 Function screens

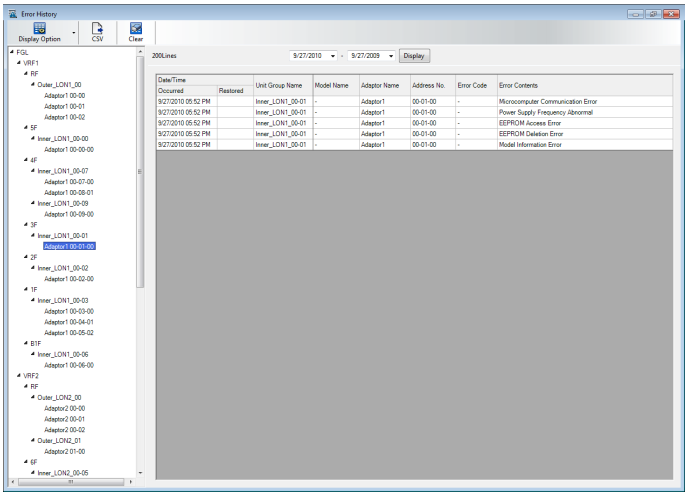
Function screen: Various function screens are opened in the main screen by selecting the main screen menu. The display contents are different depending on the function.



Function screen example (monitor screen)



Example of function screen (Schedule setting screen)



Example of function screen (Error history screen)

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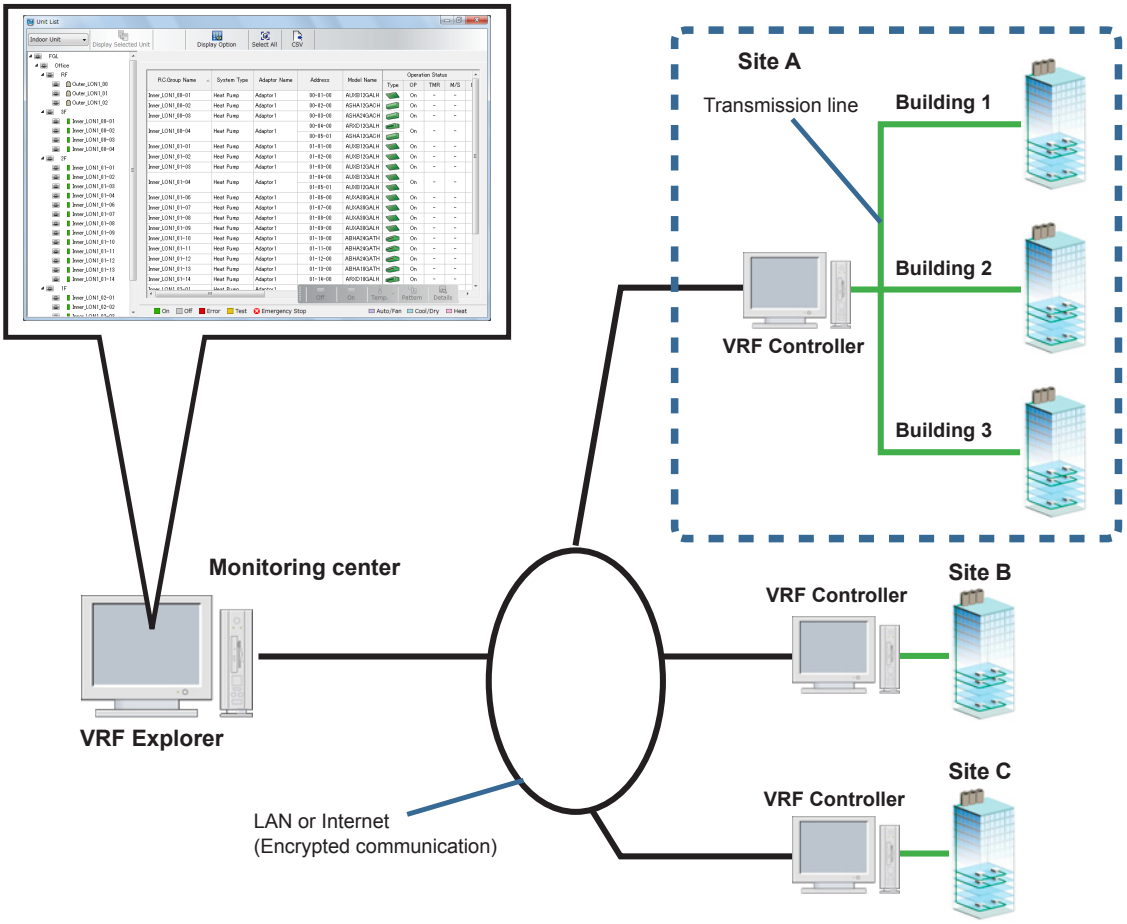
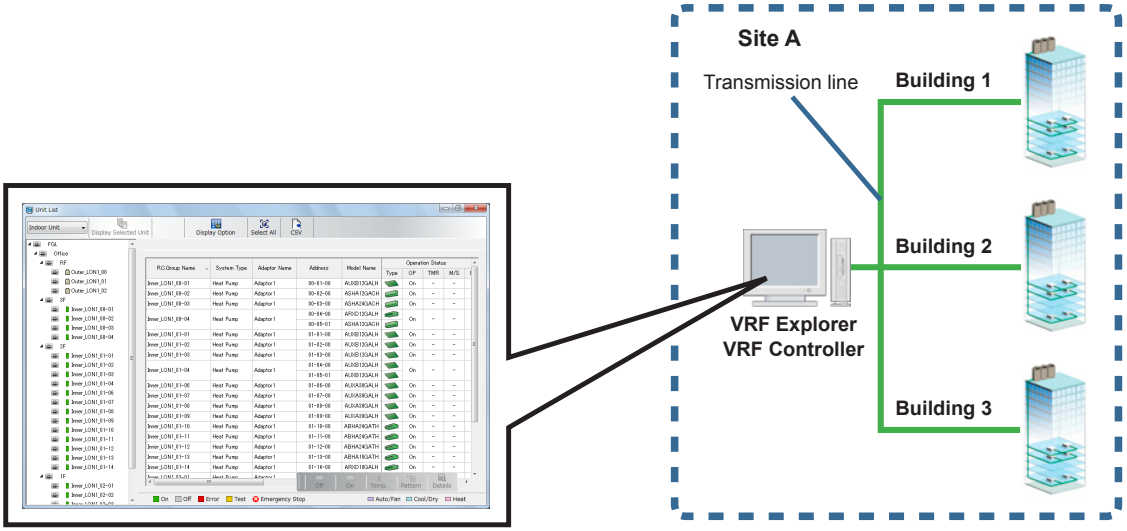
16-2 Overview of monitor screens

Multiple buildings on a site are monitored from a client PC



Multiple buildings on a site are monitored from a server PC



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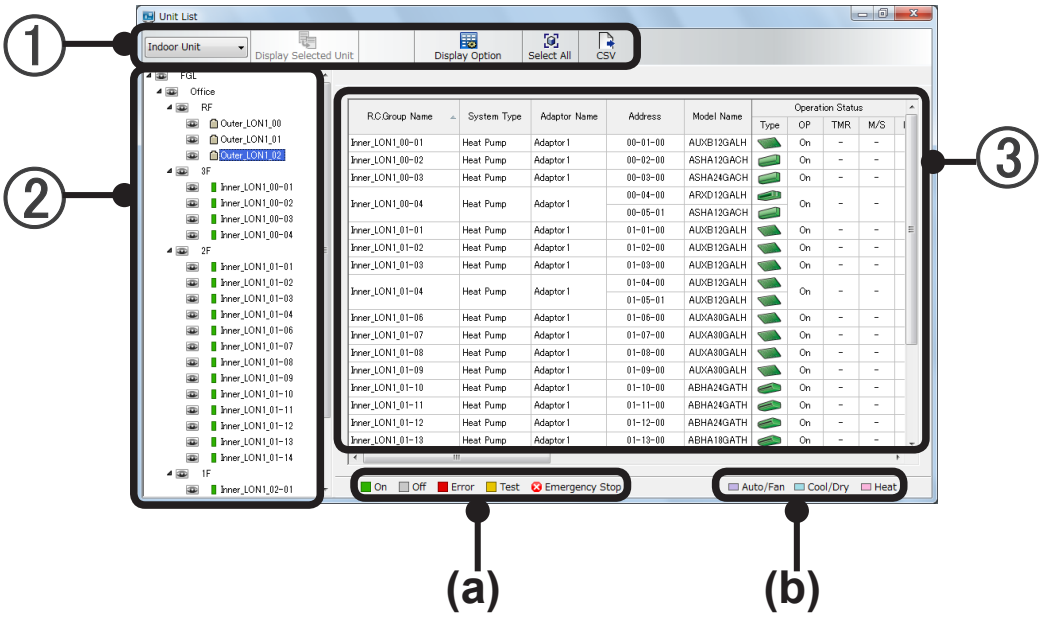
16-3 List display

Displays details of the R/C group/independent unit on the site in a list.



① Tool icons

Indoor Unit / Outdoor Unit (Switching by pull-down menu)	Switches the ③ "List display" screen to indoor unit display or outdoor unit display by pull-down menu.
Display Selected Unit	Displays only the R/C group selected in the ② "Tree display" on the ③ "List display" screen.
Display Option	Displays the display options setting screen that displays a list of setting items by pressing the “Display Option” button.
Select All	Selects all the units being displayed on the ③ "List display" screen. This is convenient in batch operation and setting.
CSV	Writes the contents of the ③ "List display" screen in CSV format.

② Tree display

Displays the groups and R/C groups on the site in tree format. The contents selected for each preset hierarchy and group and by R/C group are reflected at the ③ "List display" screen. For details, see par. 16-4 Tree display.

③ List display

The viewpoint selected at the ② "Tree display" and units in the group are displayed.
(Display is indoor units only or outdoor units only. Switch the display by ① Tool icon pull-down menu.)

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Indoor unit display

Item	Display contents		System correspondence	
			S/V Series	V-II/V-III/ VR-II/J-II/ J-IIS Series
R.C.Group Name	Remote controller group name		○	○
System Type	Displays the type of refrigerant system (cooling only or heat pump).		○	○
Adaptor Name	Connected U10 USB Network Interface adaptor name		○	○
Address	Displays the address for each unit. “Refrigerant system address”-“Unit address”-“R/C address” or “Refrigerant system address”-“Unit address”-“R/C address”-“RBG No”		○	○
Model Name	Unit model name The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter ":" is not part of the Model Name.		-	○
Operation Status	Type	Indoor unit icon.*1 The status of each unit can be checked. See (a) Display color guidance	○	○
	Operation	Operation status. ON / OFF / Test	○	○
	Timer	Schedule timer set state. Timer set Timer setting invalid	○	○
	Master / Slave	Identifies master indoor unit and slave indoor unit by icon. (Cooling/Heating switching cannot be set for slave unit.) Master unit Slave unit Slave unit by outdoor unit	-	○
	OP.Restriction	Displays an icon during emergency stop, maintenance, and operation prohibited restriction.	○	○
	Filter	Displays the status of the filter sign by icon. For the icon → See par. 17-2 Detail operation.	○	○
Operation Mode	Displays the operation mode. (Displayed even when stopped.) Cool / Dry / Heat / Auto /Fan/ “-”(S/V Series : Stop) (V-II/V-III/VR-II/J-II/J-IIS Series : Off) Displays the background color during operation. See (b).		○	○
Set Temp.	Displays the set temperature.		○	○
Fan Speed	Displays the air flow setting. Auto/Quiet/Low/Med-Low/Med/Med-High/High		○	○
R.C.Prohibition	Displays the R/C prohibited state. For the icon →See par. 17-2 Detail operation.		○	○

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Information		Displays the unit status.	Emergency Stop	○	○
			Pump Down	○	○
			OP.Restriction	-	○
			Maintenance Mode	○	○
			Defrost	-	○
			Oil Recovery	-	○
			Mode Mismatch	○	○
Air Flow Direction	VT	Vertical Air Flow Direction setting		○	○
	HT	Horizontal Air Flow Direction setting		○	○
Temp. Limit*2	Cool / Dry	Cool/Dry upper/lower limit temperature set value		-	○
	Heat	Heat upper/lower limit temperature set value		-	○
	Auto	Auto upper/lower limit temperature set value		-	○
Economy		Energy-saving operation setting (S/V Series: Energy save V-II/V-III/VR-II/J-II/J-IIS Series: Eco Mode)		○	○
Anti Freeze		Anti Freeze setting		○	○

Note

*1. An indoor unit icon can be changed from a tool (application) separate from the system controller.
Since the tool is installed at the following location simultaneously with the system controller, start and set by double clicking the execution file from the following location, as required.

- Application name: “Icon Changer”
- Location: C:\Program Files\SystemController\IconChanger\IconChanger.exe

*2. The background of the currently enabled mode becomes grey.

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Outdoor unit display

Item	Display contents		System correspondence	
			S/V Series	V-II/V-III/ VR-II/J-II/ J-IIS Series
Outdoor Unit Group Name	Outdoor group name		○	○
System Type	Displays the type of refrigerant system (cooling only or heat pump)		○	○
Adaptor Name	Connected U10 USB Network Interface name		○	○
Address	Displays the address for each unit. Display contents: “Refrigerant system address”- “Unit address”		○	○
Model Name	Unit model name* *The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter ":" is not part of the Model Name.		○	○
Operation Status	Type	Outdoor unit icons Normal Error signal received Emergency stop signal received	○	○
	Status	Displays the outdoor unit status. (Normal/Error)	○	○
	TMR	Low noise schedule set	○	○
		Low noise schedule invalid		
		— Low noise schedule not set		
Information	Displays the unit status.	Emergency Stop	-	○
		Maintenance Mode	-	○
		Defrost	○	-
		Oil Recovery	○	-

Note

- The data may not fit on the "List Display" screen depending on the contents.
  In this case, scroll the data using the scroll bar at the side of the screen.
- The operation mode and Air Flow Direction, Fan Speed, and other display contents may be different depending on the unit (model).

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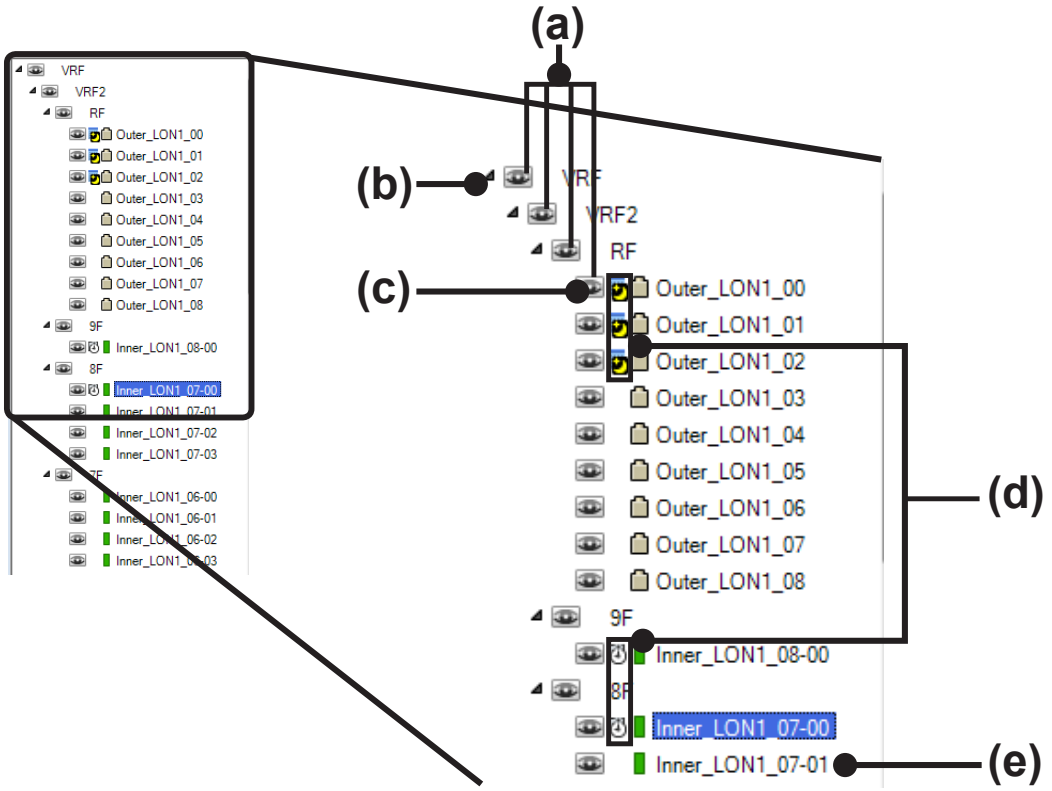
16-4 Tree display

Hierarchal display of a list of monitored groups and R/C groups.
Rapid movement to monitored units and selection is possible.



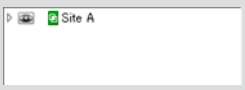
(a) Hierarchal display:

Group display having a hierarchy is possible by site, building, floor, and other group setting.
A hierarchy by tenant, etc. can also be set. (Site setting only at highest hierarchy)
The contents of the tree display are different depending on the group setting.
For details, see par. 8-3-5 Group setting.

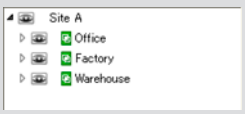
(b) Expansion (degeneration) mark:

Everything lower than the clicked hierarchy is not displayed.
It is displayed when clicked again.

Highest hierarchy (site) only displayed



2nd hierarchy only displayed
(building in the example in the figure)



3rd hierarchy only displayed
(floor in the example in the figure)

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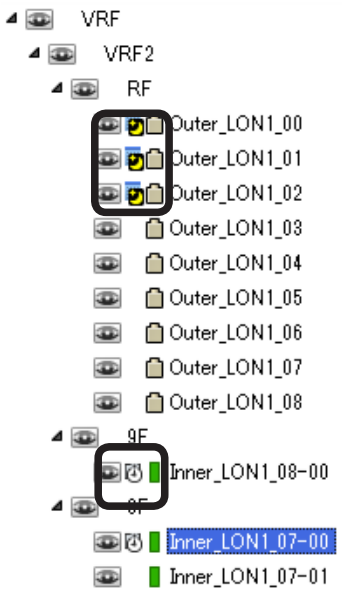
(c) View icon

When clicked, "List view" is changed according to the selected hierarchy.

(d) Status display

Displays the timer setting and status of each unit in a tree display



No icon	Timer not set (*1)
	Timer set
	Timer setting invalid

*1. For a detailed description of timer setting, see par. 18. Schedule Operation.

No icon	Low noise schedule status (*1)
	Low noise schedule allocated
	Low noise schedule invalid

*1. For a detailed description of timer setting, see par. 21.Low Noise Operation.

	Indoor unit Running
	Running in group (*2)
	Indoor unit Stopped
	All stopped in group (*2)

	Indoor unit Error signal received
	Error signal received in group (*2)
	Indoor unit Testing
	Testing in group (*2)

	Outdoor unit
	Outdoor unit error signal received
	Emergency stop signal received

*2. Displayed when unit hierarchy was not displayed and when group setting is performed. (For a detailed description of group setting, see par. 8-3-5 Group setting.)

If even one unit in a hierarchy and group is in one of the states shown above, the icon color is changed and the icon is displayed. The priority order is 1: Emergency stop, 2: Error, 3: Test, 4: On, 5: Off.

(e) Tree item

When clicked, all the units in the selected hierarchy are selected.
Batch operation and setting are performed.

Note

- Tree view may not be displayed on the screen depending on the contents. In this case, scroll the display using the scroll bar at the side of the screen.

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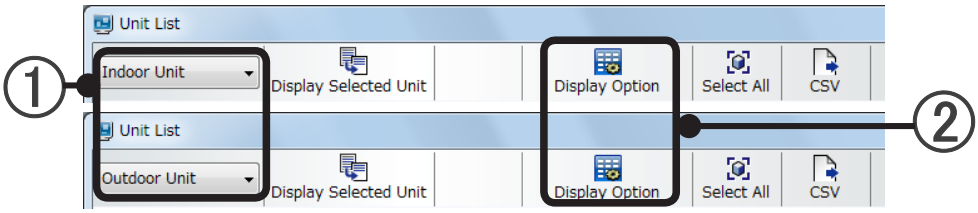
16-5 Display Option setting

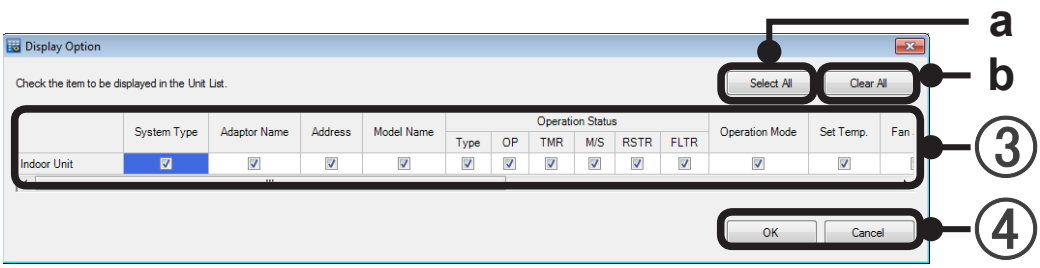
Selects the items you want to display on the “Unit List” screen.



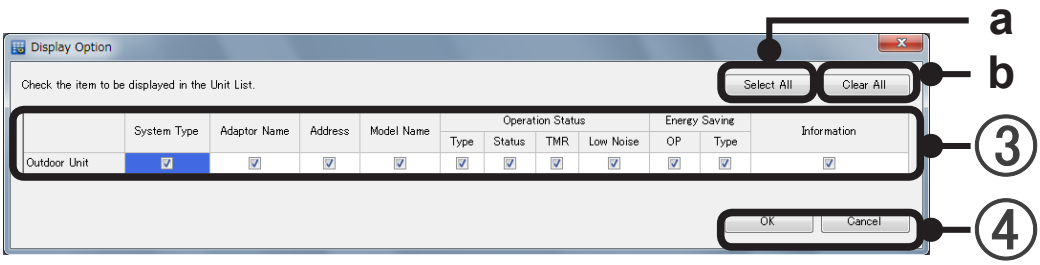
① To set [Indoor Unit] display items, select [Indoor Unit] and to set [Outdoor Unit] display items, selected [Outdoor Unit].

② Press the [Display Option] button. The “Display Option” screen opens.

“Display Option” display (Indoor Unit)



“Display Option” display (Outdoor Unit)



③ Check the items you want to display on the “Unit List” screen.
a [Select ALL]: Checks all the items.
b [Reset All]: Unchecks all the items.

④ [OK]: Reflected at the “Unit List” screen in realtime.
[Cancel]: Ends setting without saving the edited contents.

Note

When the Energy Saving option (UTY-PLGXE1) is used, an “Energy Saving” item is added to the menu.

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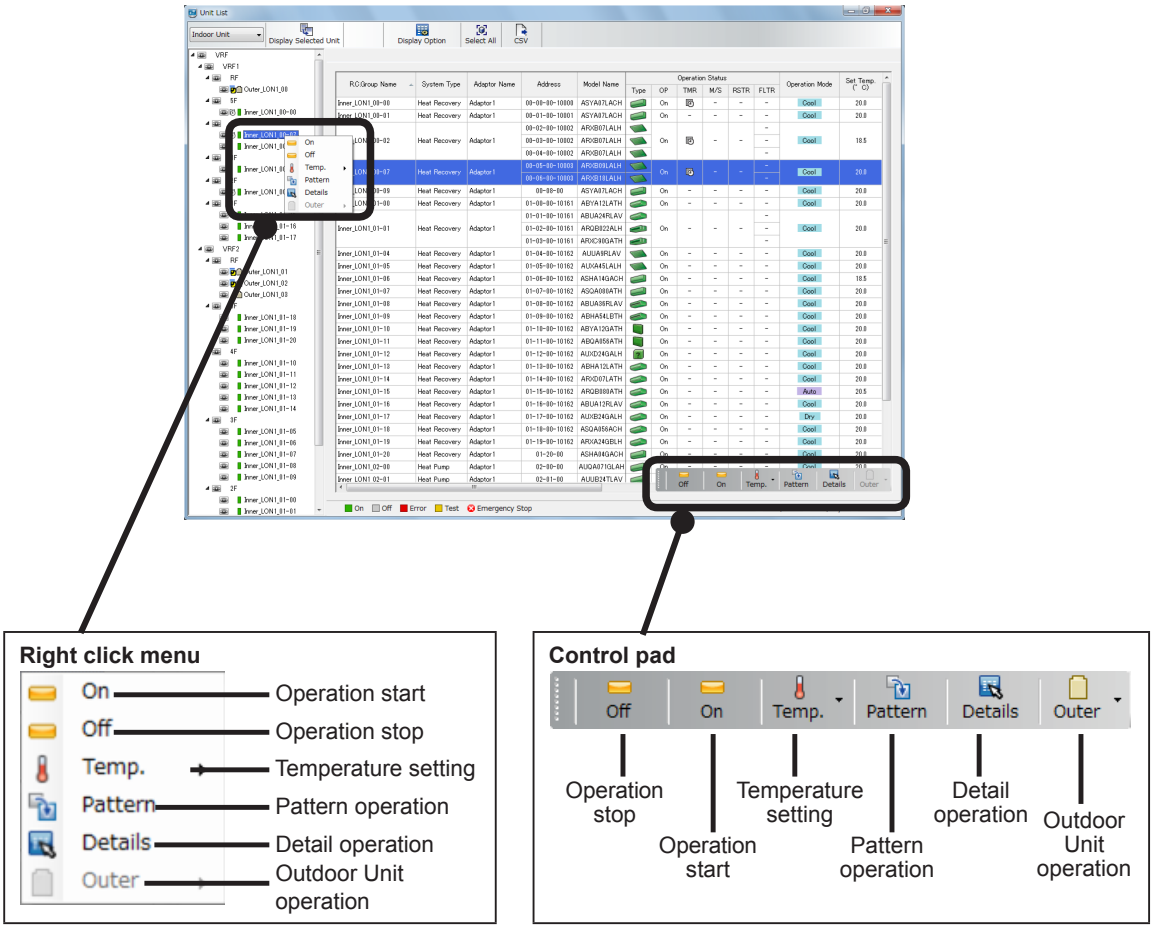
17. Operation Control

Operation control is possible only by users given the Operation Control right.

17-1 Quick operation

Operation ON-OFF, temperature setting, and other frequently used operations are performed easily.
There are 2 quick operation methods: by right click menu and by control pad.



Quick Operation is performed by selecting an R/C group and using right click menu or control pad.

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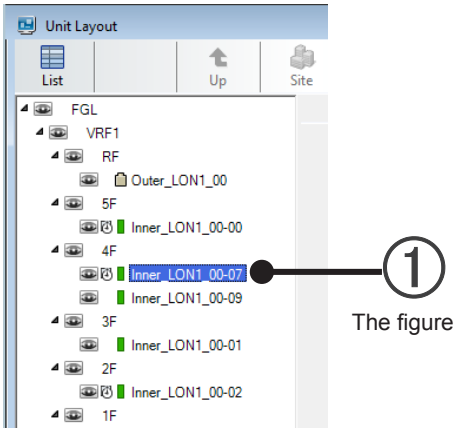
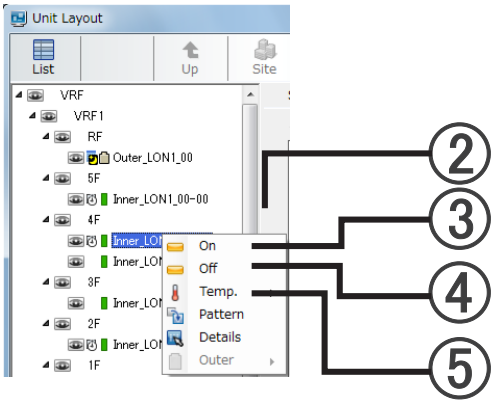
Turning operation ON.

① Select the R/C group (individual, group) to be controlled.

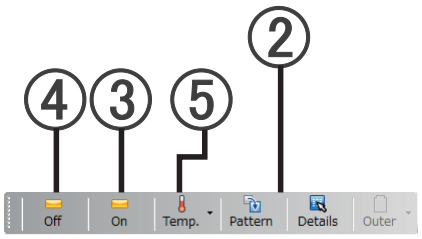


The figure is an example of a tree view.

② Display the right click menu by right clicking the mouse.



② When using control pad



Control pad

③ When [On] is selected, operation starts.

Turning operation OFF.

① Select the R/C group (individual, group) to be controlled.

② Display the right click menu by right clicking the mouse or using the control pad.

④ When [Off] is selected, operation stops.

Changing the set temperature

① Select the R/C group (individual, group) to be controlled.

② Display the right click menu by right clicking the mouse or using the control pad.

⑤ When [Temp] is selected, the settable temperature is displayed.
With the S Series and V Series, select that temperature. With the V-II/V-III/VR-II/J-II/J-IIS Series, when the displayed temperature is pointed to, a more detailed settable temperature is displayed. Select the temperature
The selected temperature is set.

* For energy saving measures and other reasons, when upper/lower temperature limits are set, the temperature can only be set within that set range.

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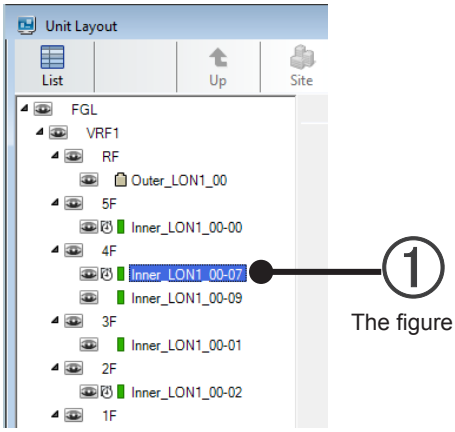
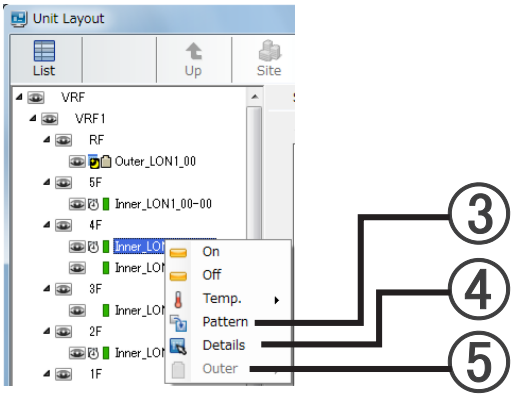
Performing pattern operation

① Select the R/C group (individual, group) to be controlled.

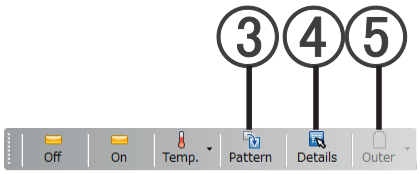


The figure is an example of a tree view.

② Display the right click menu by right clicking the mouse.



② When using control pad



Control pad

③ Select [Pattern].
The operation of R/C group is set in accordance with a pattern registered at the System Controller Lite in advance.

* If a pattern is not registered, [Pattern] is not displayed.
→ See par. 17-2-1 Basic operation

Performing detail operation

① Select the R/C group (individual, group) to be controlled.

② Display the right click menu by right clicking the mouse or using the control pad.

④ Select [Detail].
An Operation Setting screen opens.
→ See par. 17-2 Detail operation

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Setting low noise operation for outdoor units

① Select the outdoor unit group (individual, group) to be controlled.

② Display the right click menu by right clicking the mouse or using the control pad.

⑤ Select [Outer] and then [Low noise operation]
A Low Noise Setting screen opens.
→ See par. 17-4-1 Low noise setting operation

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17-2 Detail operation

Indoor unit detail operation control is performed. To display this screen:

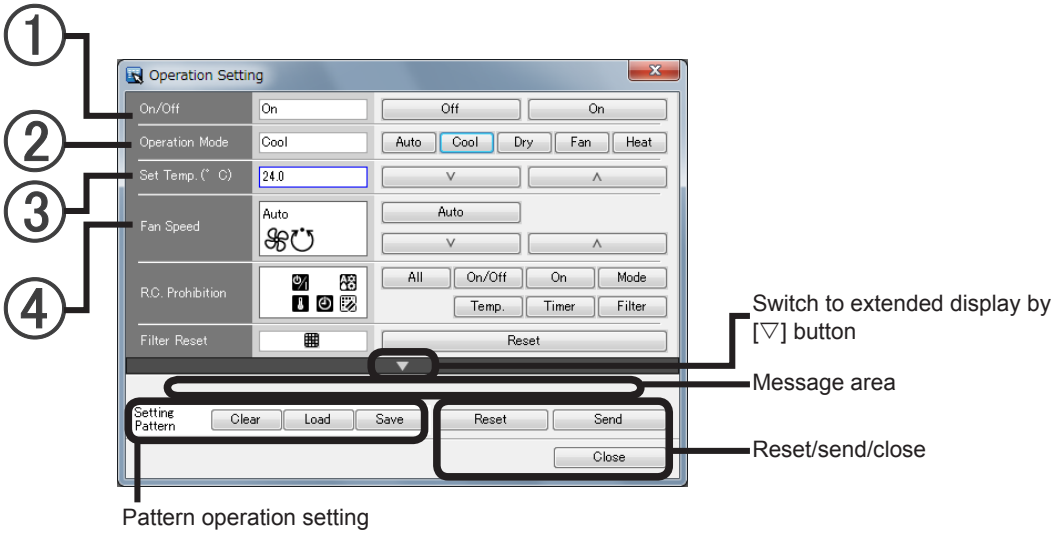
- R/C group selection and right click menu →[Detail]
- R/C group selection and control pad →[Detail]
- R/C group selection and main screen menu → "Operation" → "Operation Setting"

17-2-1 Basic operation

Description of Operation Setting screen

At display, the current operation status of the selected R/C group is displayed.

When multiple R/C groups are selected, if the displayed details of each item are “Mixed”, they will be displayed in a mixed way.



Standard display state

① **On/Off**

Operation start/operation stop

② **Operation Mode**

Operation mode switching

Auto/Cool/Dry/Fan/Heat

* There are other indoor unit operation status and operation modes which cannot be set depending on the System Type. For details, see "**About operation mode**".

③ **Set Temp**

Temperature setting

Set by direct numeric input or [v] and [Λ] buttons.

With the S Series and V Series, setting in 1 degree increments is possible.

With the V-II/V-III/VR-II/J-II/J-IIS Series setting in 0.5 degree increments is possible.

* When upper and lower temperature limits were set; temperature setting is possible only within that set range.
→ See par. 17-2-2 Extended operation (upper/lower temperature limits setting item)

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④ Fan Speed

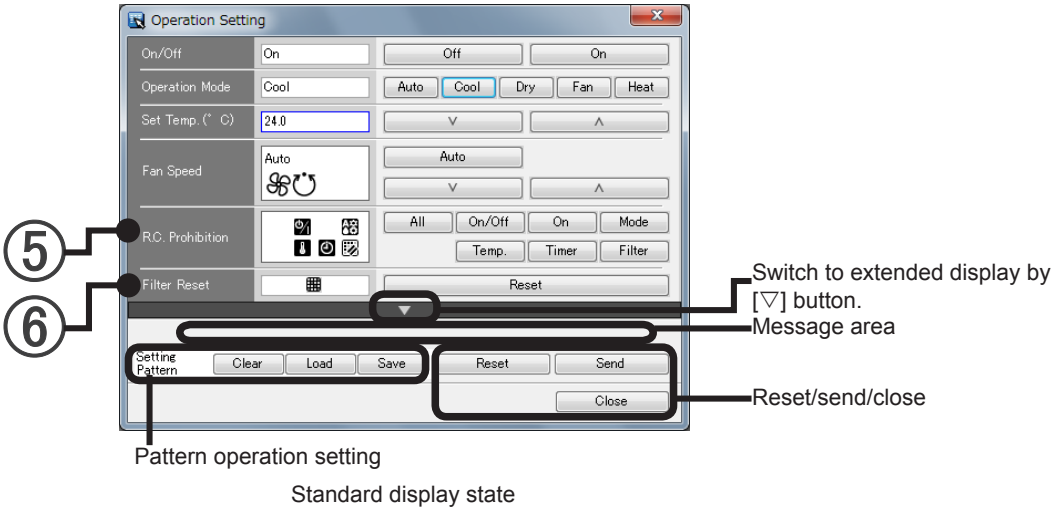
Fan speed setting

Set Fan speed by the [V] and [Λ] buttons.

To set to automatic, select [Auto].

Fan Speed:Quiet, Low, Med-Low, Med, Med-High, High, and Auto

* For "Auto" details, see "About the Auto setting of fan speed".



⑤ R.C Prohibition

R/C prohibition: Restricts operation from R/C.

All: All operations prohibited

On/Off: Operation start/operation stop prohibited

On: Operation start prohibited V-II/V-III/VR-II/J-II/J-IIS Series

Mode: Operation switching prohibited

Temp: Temperature setting prohibited

Timer: Timer prohibited

Filter: Filter reset prohibited

⑥ Filter Reset

Displays filter sign on/off and resets filter sign (elapsed time).

Display contents

Filter sign

"Blank" No filter sign

Note

When operation is performed and reflected at a unit, always click [Send].
If the settings are not sent, operation will not be reflected at the unit.
When multiple R/C groups were selected, the settings are sent only to the settable units.

When the unit to be operated is in a state in which it cannot be operated, each setting item cannot be operated.
Check whether or not the unit is in a state in which it cannot be operated by means of the icon displayed at the “RSTR” row of the system list.

Displayed icon

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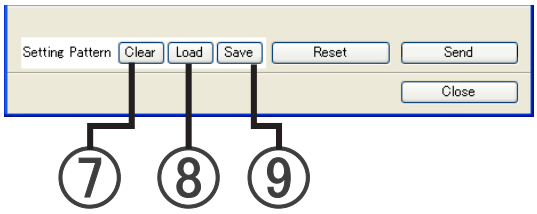
Pattern operation setting　　Clear/Load/Save



Performs operations related to the operation setting pattern of frequently used patterns.

⑦ [Clear] button
Erases the contents of a saved operation setting pattern.

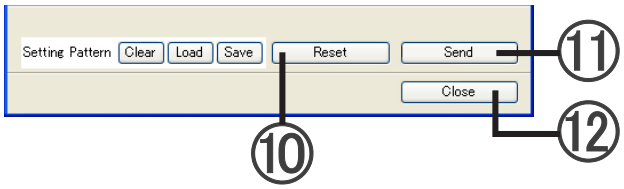
⑧ [Load] button
Loads the set contents of a saved operation setting pattern.
It is reflected at the current Operation Setting screen.

⑨ [Save] button
Saves the setting contents of the current Operation Setting screen as frequently used operation setting pattern. (*1)

Note

*1. Only 1 setting can be saved as operation setting pattern. The setting contents previously saved are erased.

Reset/Send/Close



Resets or sends the setting contents of the Operation Setting screen and ends Operation Setting.

⑩ [Reset] button
Clears the entered setting contents and acquires and displays the current operation status.

⑪ [Send] button
Sends the setting contents of only the set items to the target unit
Items not set are not sent.

⑫ [Close] button
Ends Operation Setting.
(This does not send the setting contents to the target unit.)

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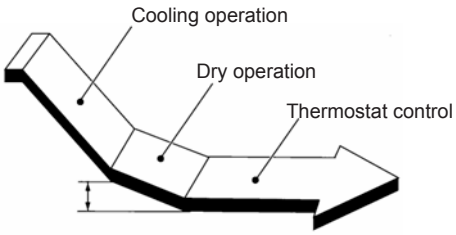
About operation mode

AUTO ..COOLING MODEL



- When the room temperature is 2 °C(4°F) higher than the set temperature ,the operating status will switch between Cooling and Drying.
- During the Drying mode operation, the FAN setting should be switched to LOW for a gently cooling effect during which the fan may temporarily stop rotating.
- If the mode automatically selected by the unit is not satisfactory, see above and change the mode setting (COOL, FAN).

AUTO (AUTO CHANGE OVER) ..HEAT&COOL MODEL (Reverse cycle)

- When AUTO CHANGE OVER is selected, the air conditioner selects the appropriate operating status (Cooling or Heating) according to the real room temperature.
- When AUTO CHANGE OVER is first selected, the fan will operate at very low speed for about one minutes while the unit determines the current conditions of the room and accordingly selects the proper operation mode.
- When the air conditioner has adjusted the room temperature to near the thermostat setting, it will being monitor operation. In the monitor operation mode, the fan will operate at low speed. If the room temperature subsequently changes, the air conditioner will select the appropriate operation (Heating, Cooling) once again to adjust the temperature to the value set with the thermostat. (The monitor operation range is ±2 °C(±4°F) relative to the thermostat setting.)
- If the mode automatically selected by the unit is not satisfactory, see above and change the mode setting (HEAT, COOL, FAN).
- Do not select AUTO CHANGE OVER if the difference in the environmental temperature of the master and slave units is over 2 °C(4°F). (Otherwise, the indoor fan may not be controlled correctly.)

Heating

- Use to warm your room.
- When Heating mode is selected, the air conditioner will operate at very low fan speed for about 3 to 5 minutes, after which it will switch to the selected fan speed setting. This period of time is provided to allow the indoor units to warm up before a full operation.
- When the room temperature is very low, frost may form on the outdoor unit, therefore, the performance of the outdoor unit will decrease. In order to remove such frost, the unit will automatically enter the defrost cycle from time to time. During defrosting, the heating mode will be temporarily interrupted “DEFROST” will be shown on the remote controller display.

Cooling

- Use to cool your room.

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Fan

- Use to circulate the air throughout your room.

Cooling/Heating priority:

When a HEAT PUMP TYPE operating system is used, the system can only be performed in one of 2 operation modes (cooling/heating) for single refrigerant system. When an indoor unit in the system first starts an heating operation, the system is then in “Heating priority”. This means the system will refuse a command for changing the operation mode.

On the other hand, when an indoor unit in the system first starts a cooling operation, the system is then in “Cooling priority”. The system will refuse to change to any other operation mode, except for the drying operation.

About the AUTO setting of fan speed

Heating:

Fan operates so as to optimally circulate warmed air. However, the fan will operate at very low speed when the temperature of the air issued from the indoor unit is low.

Cooling:

As the room temperature approaches that of thermostat setting, the fan speed becomes slower.

Fan:

The fan alternately turns on and off; when the fan turns on, it rotates at a low fan speed.

- The fan will operate at a very low speed during the monitor operation by which the room Temperature is deleted.

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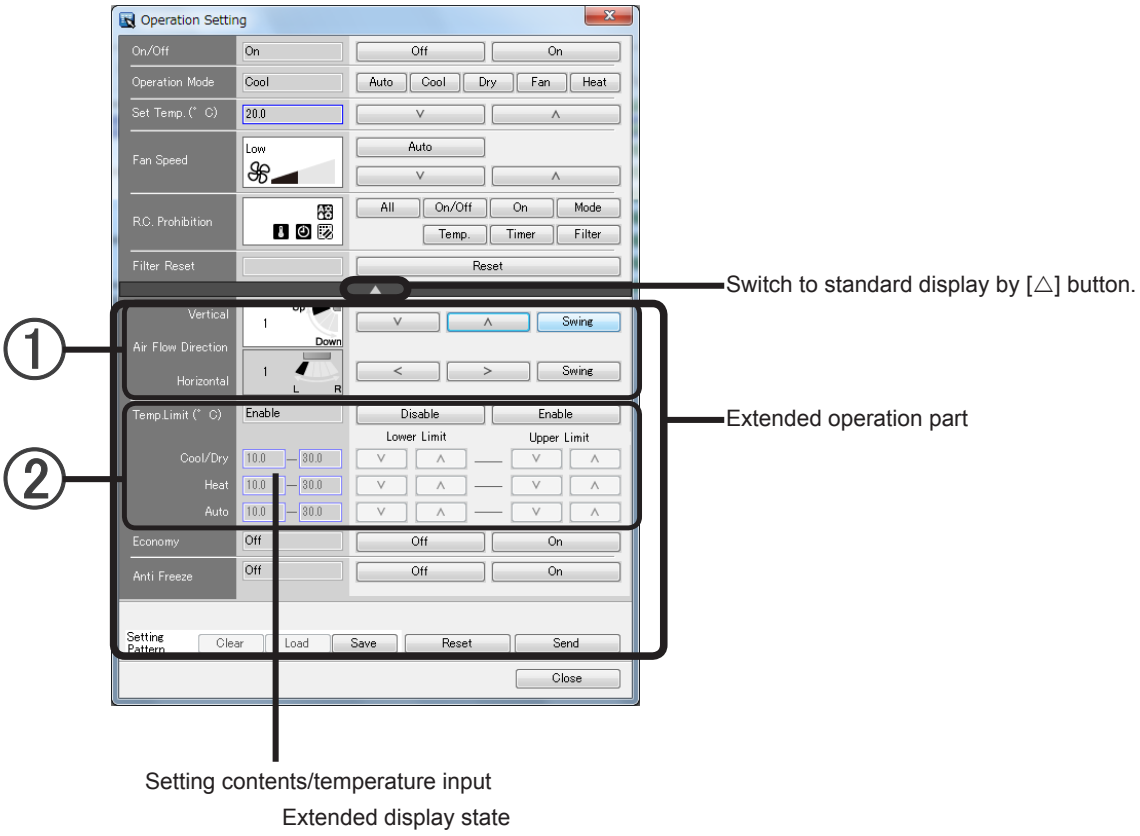
17-2-2 Extended operation

Sets the extended operation for detail operation of the air conditioner.
The extended operation screen is displayed from the Operation Setting screen by [▽] button.



① Air Flow Direction setting

Sets the Air Flow Directions.

1. Set an arbitrary angle using the [v], [Λ], [<], and [>] buttons.
   To set to automatic, select [Swing].
   Louver Vertical: Vertical Air Flow Direction setting
   Louver Horizontal: Horizontal Air Flow Direction setting

* When Air Flow Direction setting is disabled, N/A is displayed and setting is impossible.

② Upper/lower temperature limits setting

When upper/lower temperature limits setting is performed, "Set Temp." can only be changed within that set range.
Perform upper/lower temperature limits setting.

1. Click [Enable] button.
2. Enter the set temperature range in the modes of Cool, Dry, Heat, and Auto.
   Set by direct numeric input or by [v] and [Λ] buttons. (0.5 degree increments)
   Upper limit: Upper limit set temperature
   Lower limit: Lower limit set temperature

* Only the necessary modes can be set.
Setting is possible only with of the V-II/V-III/VR-II/J-II/J-IIS Series.

Cancel upper/lower temperature limit setting.
Click [Disable] button.

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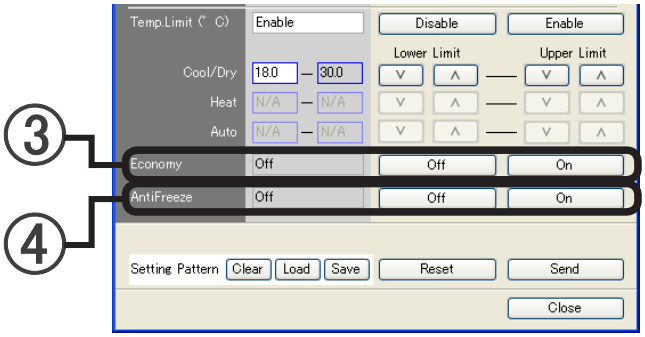


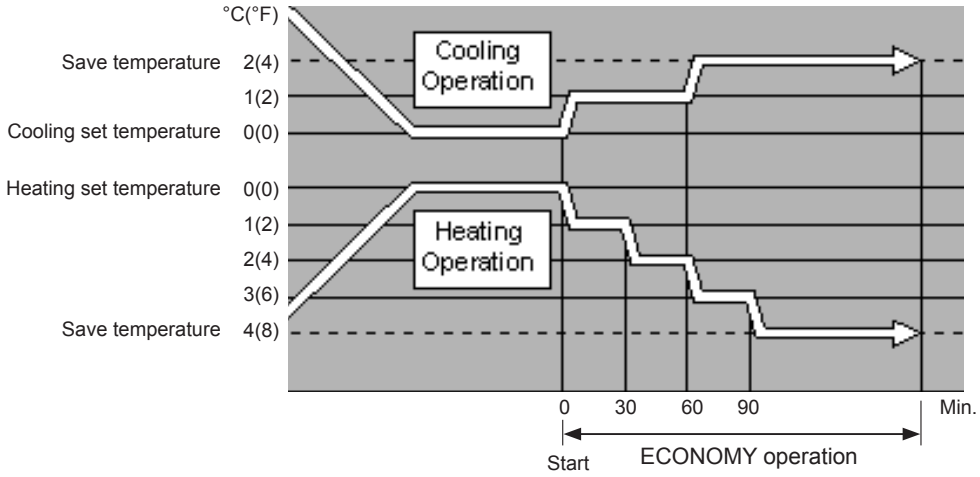
Extended operation part

③ Economy operation

Economy operation can be set by remote controller.

The temperature setting is offset automatically over a certain period of time.

Based on temperature set in remote control unit, temperature of indoor unit varies little by little. However in this case, temperature indication of remote control unit does not vary as it continues to indicate the temperature when ECONOMY Operation was set.



[On] button

Sets economy operation

* Energy Save mode for S Series and V Series
Economy mode for V-II/V-III/VR-II/J-II/J-IIS Series

[Off] button

Cancels the economy operation setting.

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④ **Anti Freeze**

Anti Freeze is a function that performs low temperature heating operation to prevent freezing of water lines and equipment, when air conditioning operation is off, in regions where outside temperature may drop below freezing.

If water lines are far from the unit or within exterior walls, this function may not provide enough anti freeze protection.

[On] button

Sets Anti Freeze.

[Off] button

Cancels the Anti Freeze settings.

Note

When operation is performed and reflected at a unit, always click [Send].
If the settings are not sent, operation will not be reflected at the unit.
When multiple R/C groups were selected, the settings are sent only to the settable units.

When the unit to be operated is in a state in which it cannot be operated, each setting item cannot be operated.
Check whether or not the unit is in a state in which it cannot be operated by means of the icon displayed at the “RSTR” row of the system list.

Displayed icon

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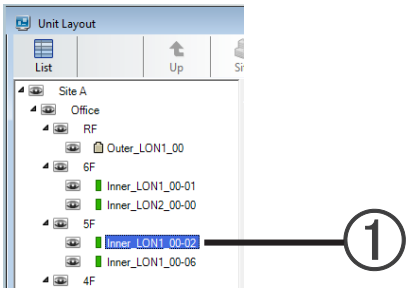
17-3 Memory operation

This operation loads and reflects the saved operation pattern for the selected R/C group (multiple groups can be selected).
Operation settings for each group or each R/C group can be saved and reproduced by simple operation.

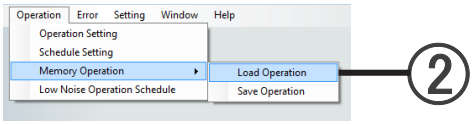
17-3-1 Load operation pattern

Operates according to an operation pattern saved in advance

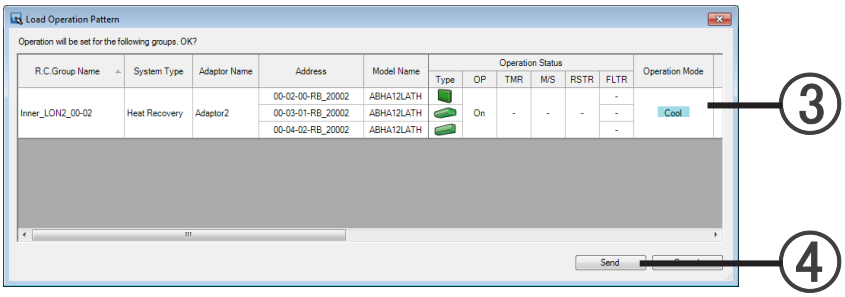
① Select the R/C group. (*1)



② From the main screen menu, select "Operation" → "Memory Operation" → "Load Operation".



③ The currently saved operation pattern contents are displayed. (*2)



④ If the loaded contents are okay, click the [Send] button.
The operation pattern is sent to the unit.

Note

*1. When selecting R/C groups, selection is simple if performed while pressing the keyboard Shift key to select consecutive groups and while pressing the keyboard Ctrl key when selecting random groups
*2. When nothing is saved, the current operation status is displayed.

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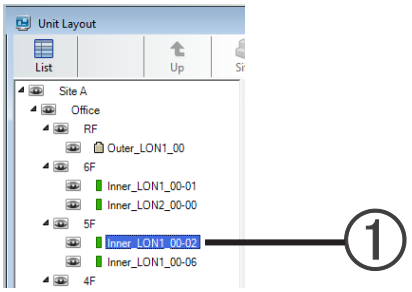
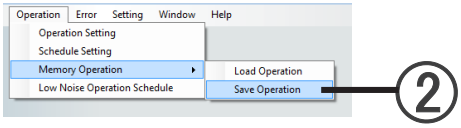
17-3-2 Save operation pattern

Saves the current operation pattern.

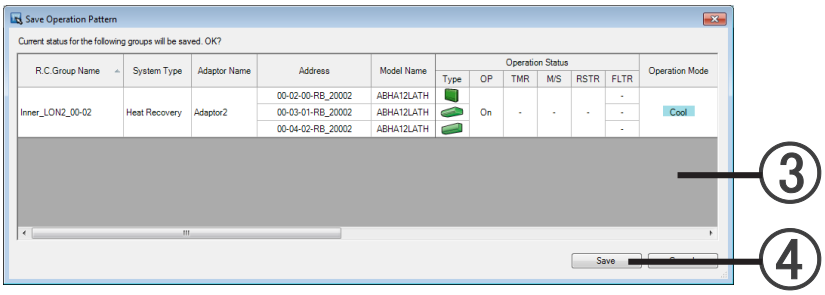
① Select the R/C group. (*1)



② From the main screen menu, select "Operation" → "Memory Operation" → "Save Operation".



③ The current operation pattern is displayed.



④ When the [Save] button is pressed, the current operation pattern is saved at the selected R/C group. (*2)

Note

*1. When selecting R/C groups, selection is simple if performed while pressing the keyboard Shift key to select consecutive groups and while pressing the keyboard Ctrl key when selecting random groups.

*2. Only 1 pattern can be saved. The previously saved operation pattern is erased.

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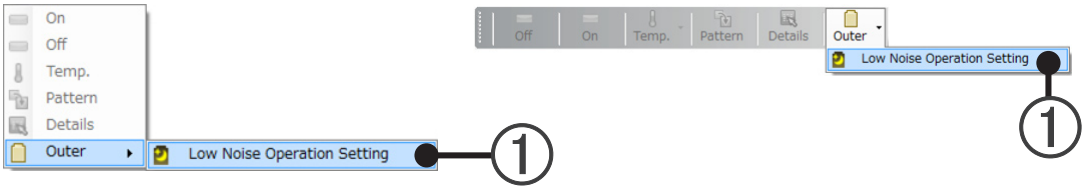
17-4 Outdoor Unit operation

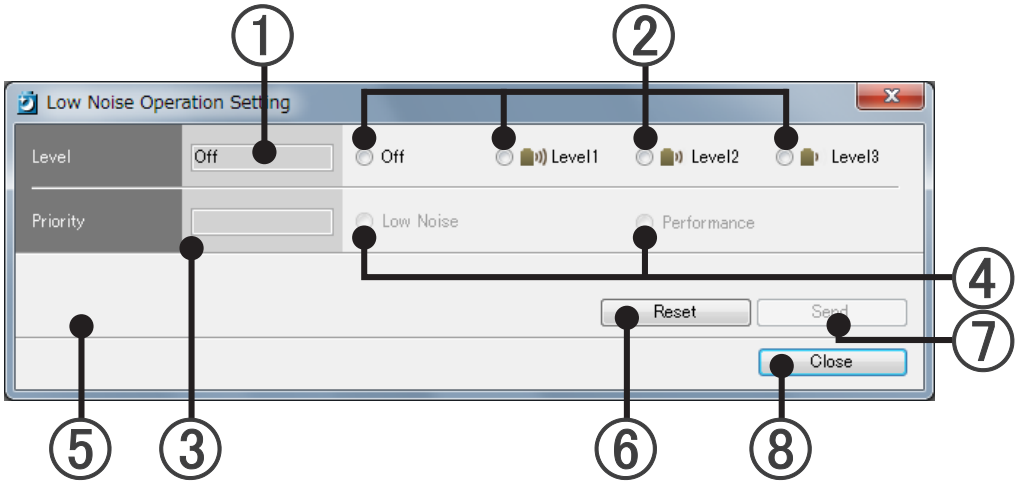
17-4-1 Low noise setting operation

Perform the low noise operation control for the selected outdoor unit.

Select the following screen ① to display the "Low Noise Setting" screen.
For the below screen, see par.18-1 Quick operation .



Set the low noise.



① [Level] label
When the screen is opened, the status (operation value) of the selected outdoor unit is displayed.
When the "Level" was changed at ②, the changed value is displayed.

② [Level] selection radio button.
Selects the [level]. Level 3 is the most quiet state.
When the screen opens, no button is selected.

③ [Priority] label
The set value is displayed.
When the screen opens, blank is displayed. ("Low Noise" and "Performance" are not selected.)

④ [Priority] selection radio button
Selects the [Priority].
These buttons cannot be selected when the screen opens. They can be selected after "Level" was selected at ②.

- Performance: When air conditioning capacity is not sufficient, the noise may be higher level than specified.
- Low Noise: When air conditioning capacity is not sufficient, the air conditioning capacity may not be as high as expected.

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⑤ Message

Normally, nothing is displayed.

When low noise function "ON" and "OFF" are mixed or the outdoor unit at which maximum level is mixed is selected, the message "Not supported setting is configured at some units" is displayed.

⑥ [Reset] button

Returns to the initial state (at screen opening).

⑦ [Send] button

Sends the set contents to the selected outdoor unit.

This button is effective only when the setting was changed.

⑧ [Close] button

Closes the setting screen.

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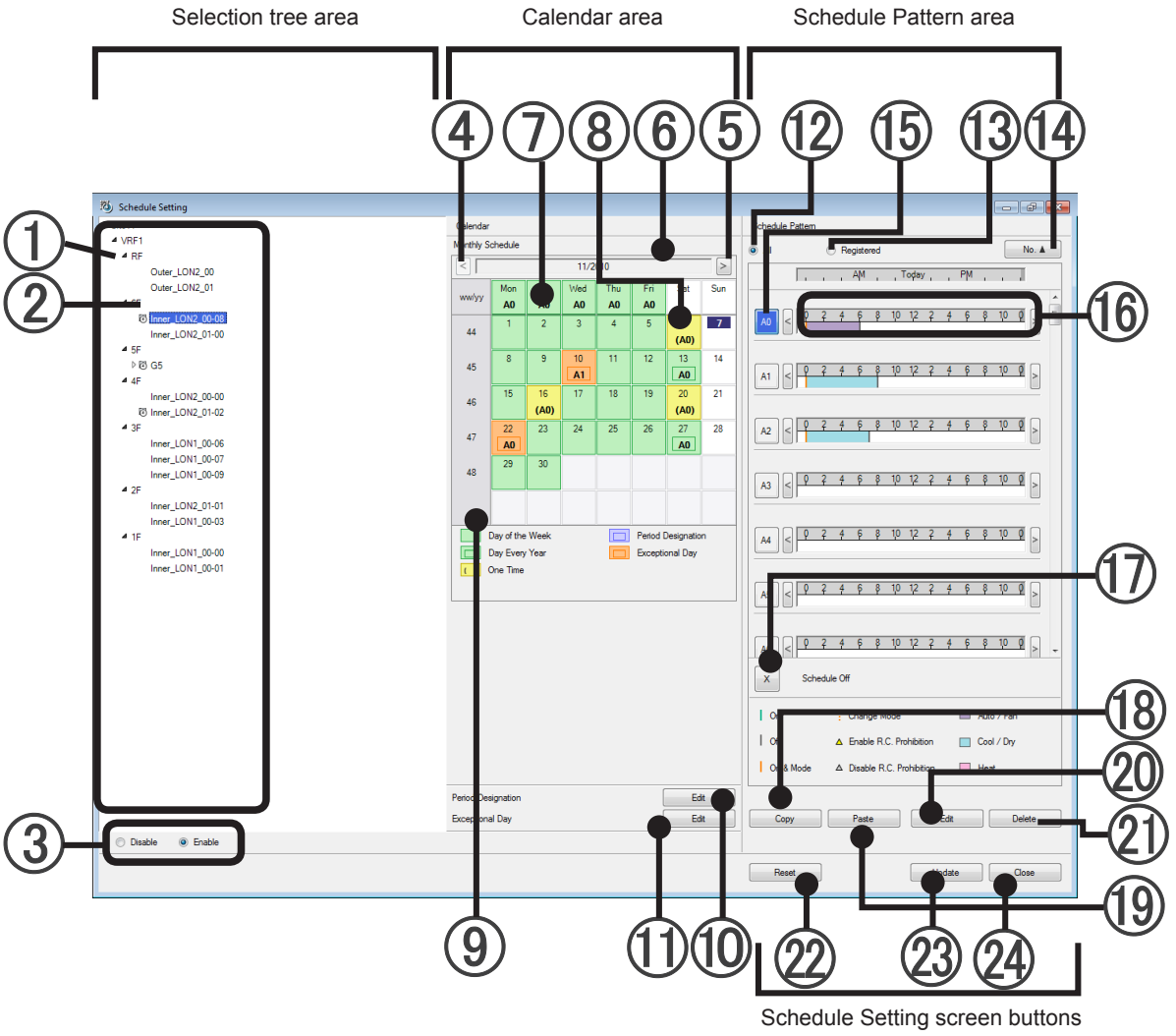
18. Schedule Operation

18-1 Schedule Setting screen

Indoor unit operation schedules can be set in group and R/C group units.
To display this screen, click main screen menu → "Operation" → "Schedule Setting".



Selection tree area

① Selection tree	Selects the R/C group which is the target of schedule setting.
② Icon	None: Schedule not set : Schedule set : Different schedule set at R/C groups in a group : Schedule disabled
③ Enable/Disable button	Enable or disables the schedule of the selected R/C group.

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Calendar area

④ Back button	Moves the displayed calendar to the preceding month. Does not return to the previous month from the current month.
⑤ Next button	Moves the displayed calendar to the next month. Advances up to 12 months, including the current month.
⑥ Set month and year	Displays the month and year to be set.
⑦ Day of week setting	Performs setting in day of week units.
⑧ Date setting	Sets the date. Day every year One time Period Designation Not set Exceptional day
⑨ Week number	Displays the number of the week in the year. Displays only calendars beginning from Monday. *1
⑩ Period Designation	Opens the Set Period settings screen. → See par. 18-5 Period Setting
⑪ Exceptional day button	Opens an Exceptional Day Setting screen. → See par. 18-6 Exceptional day setting

Note

*1. The first day of the calendar is determined by the Windows® region setting at the time of installation. The first day of the calendar cannot be changed after installation.

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Schedule pattern area

⑫ All button	Displays all the patterns (including those not set)
⑬ Registered button	Displays only the set patterns.
⑭ No. button	Switches the ascending/descending order of the displayed patterns.
⑮ Pattern selection button	When selected, assignment to a calendar and pattern setting are possible.
⑯ Schedule bar	Displays the pattern contents by color. Can be scrolled to both sides using the [<] and [>] buttons.
⑰ Off button	When assigned to the calendar, the Off day can be set.
⑱ Copy button	Copies the selected pattern.
⑲ Paste button	Pastes the copied pattern to the selected pattern.
⑳ Edit button	Edits the selected pattern. (Pattern Setting screen opens.)
㉑ Delete button	Deletes the selected pattern

Schedule Setting screen buttons

㉒ Reset button	Deletes the new contents and returns to the original contents.
㉓ Update button	Reflects the set schedule.
㉔ Close button	Closes the Schedule Setting screen. The contents being changed are discarded.

Note

Always update the calendar after setting/changing a schedule.
If not updated, the set/changed contents will not be reflected.

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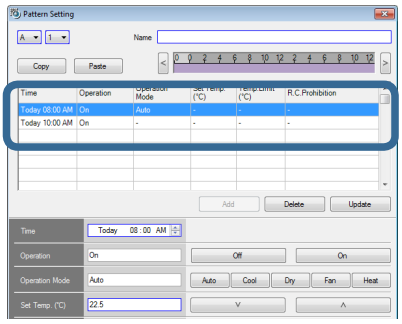
18-2 Overview (flow) of schedule operation creation

The following is the basic operating procedure when setting an operation schedule.

Operation flow

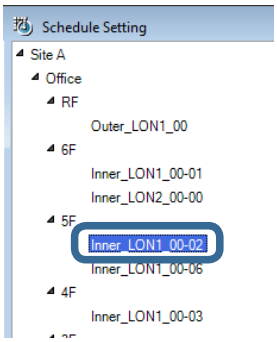
① Create an operation pattern (Schedule Pattern)

→ See par. 18-3 Operation pattern creation



② Select the schedule operation target.

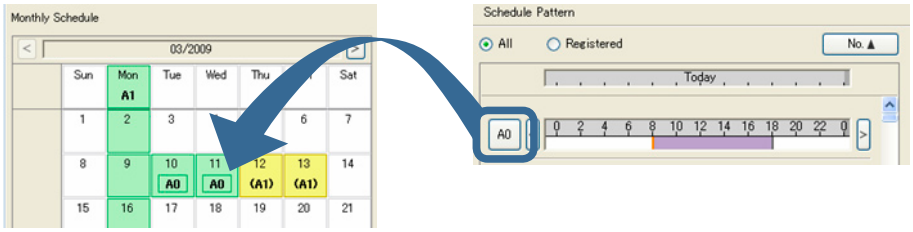
Group or R/C group. → See par. 18-4-1 Selection of schedule operation target



③ Assign an operation pattern to the calendar.

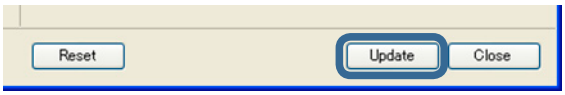
Operation pattern assignment → See par. 18-4-2,3 Assigning operation pattern to calendar
18-4-4 Assigning the OFF day on the calendar

Exceptional day setting → See par. 18-6 Exceptional day setting



④ At the end of setting, update the calendar.

→ See par. 18-4-5 Calendar updating



VRF Explorer Operation

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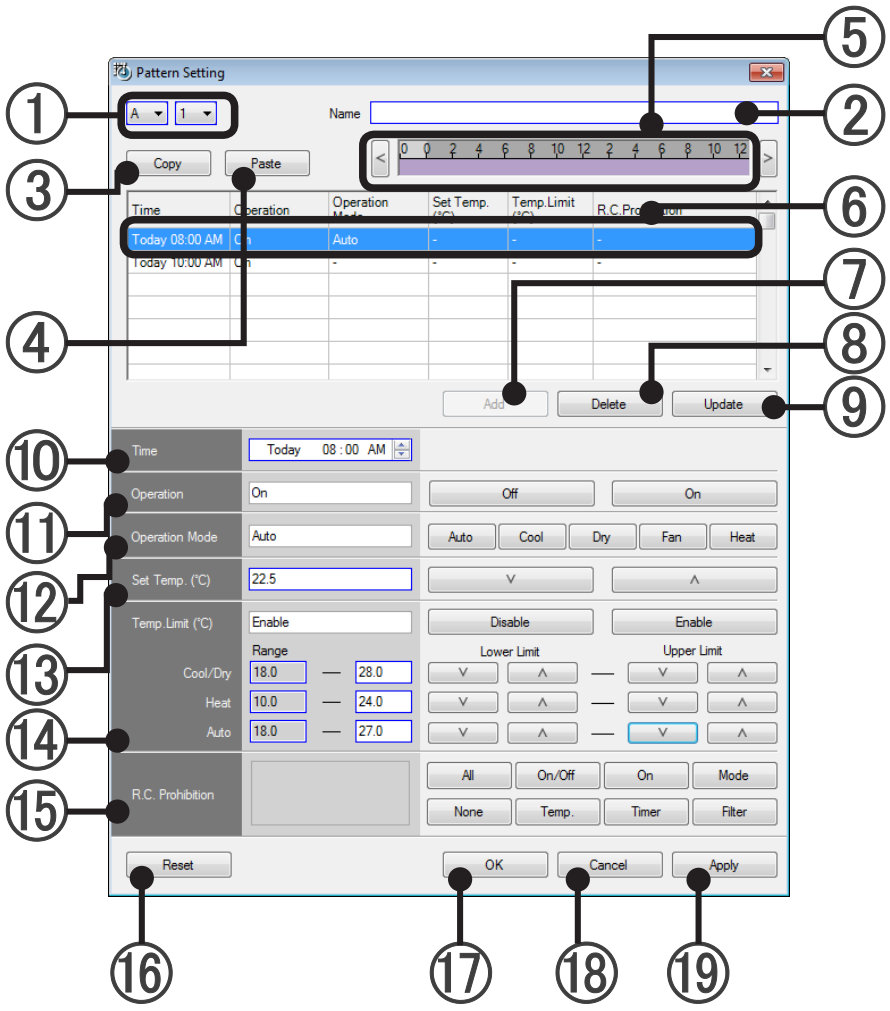
18-3 Operation pattern creation

Creates an operation pattern (Schedule Pattern).
48hours (2 days) operation control of indoor units in group and R/C group units is possible. (Max 100 patterns)

18-3-1 Pattern Setting screen

To display this screen, click the [Edit] button in the Schedule Pattern area of the Schedule Setting screen.



① No. setting button	The pattern number can be set. In addition, the pattern can be edited by selecting a set pattern.
② Pattern name	A name can be set for pattern. (Within 20 characters of alphabet and numeric)
③ Copy button	Copies the pattern selected with ①.
④ Paste button	Pastes the pattern copied with ③ to the pattern selected with ①.
⑤ Schedule bar	Displays the pattern contents by color. Can be scrolled to both sides using the [<] and [>] buttons.
⑥ Time pattern	Displays the control setting contents at the set time.
⑦ Add button	Adds the time pattern newly set with ⑩ to ⑮.

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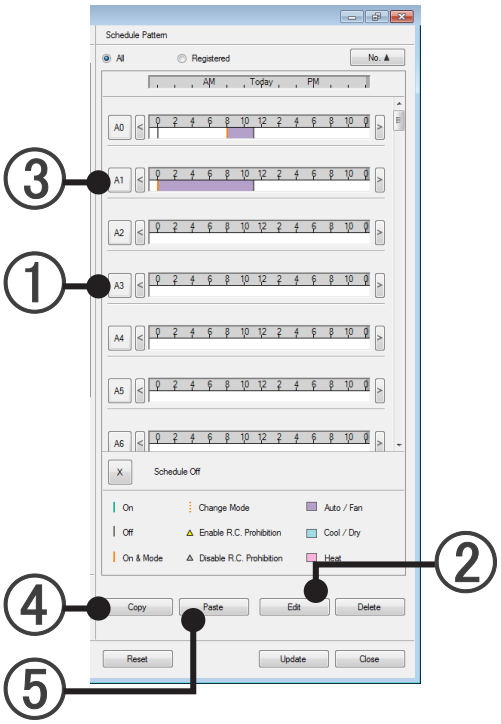
⑧ Delete button	Deletes the time pattern selected with ⑥.
⑨ Update button	Reflects the contents corrected with ⑩ to ⑮ at the time pattern.
⑩ Operation time	Sets the time pattern control time.
⑪ Operation	Sets operation start/operation stop.
⑫ Operation mode switching	Sets the operation mode to Auto, Cool, Dry, Fan, or Heat. Depending on the system type, and other mode, it may not be possible to normally reflect the operation mode setting.
⑬ Temperature setting	Set by direct numeric input or with the [v] and [Λ] buttons. When upper/lower temperature limits are set, the temperature can only be set within that set range.
⑭ Upper/lower temperature limits setting	When upper/lower temperature limits setting is performed, the set temperature can only be set within that range.
⑮ R/C prohibition	Restricts operation from R/C.
⑯ Reset button	Deletes the contents being set and returns to the contents before the set contents were changed. This button is effective only if pressed before the [Add]/[Update]/[Apply] button is pressed.
⑰ OK button	Reflects the set operation pattern and closes the setting screen.
⑱ Cancel button	Closes the setting screen. The contents being changed are discarded.
⑲ Apply button	Reflects the set operation pattern.

18-3-2 Overview of operation pattern creation

Schedule Setting screen



New pattern

① Select a pattern for which an operation pattern is not set.

② Click the [Edit] button.

Correction

③ Select the pattern to be corrected.

② Click the [Edit] button.

Using a duplicate

③ Select the pattern to be duplicated.

④ Make a copy by pressing the [Copy] button.

① Select the duplication destination.

⑤ When the [Paste] button is clicked, the copy is pasted to the duplication destination.

② Click the [Edit] button.

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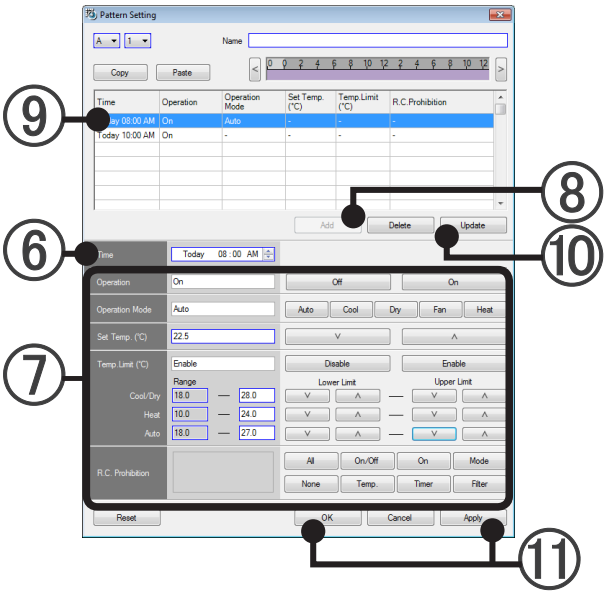
Pattern Setting screen



Pattern Setting screen opens.

Creating a new time pattern

⑥ Set the control start time.

⑦ Make the necessary operation settings.
→ See par. 18-3-3 Operation pattern setting items

⑧ At the end of the necessary operation settings, click the [Add] button.

⑨ Check that the pattern was added to the time pattern.

Editing a time pattern

⑨ Click the time pattern you intend to edit.

⑥ The set start time is displayed.

⑦ The setting state is displayed. Perform editing.

⑩ At the end of editing, click the [Update] button.

⑪ At the end of setting, click one of the following buttons:
[OK] button: Saves the set contents and closes the Pattern Setting screen.
[Apply] button: Saves the set contents. The Pattern Setting screen remains unchanged.

Note

When Start/Stop, operation mode setting, room temp. setting, fan speed setting, air flow direction setting, swing setting, economy mode, and anti freeze setting are changed frequently by using the central controller like BMS, System Controller Lite, touch panel controller, etc., the number of operations for each indoor unit must not exceed 7,500 times/year.
If the number of setting change exceeds the above specified number, the rewriting frequency of the EEPROM (built into the air conditioner and used for setting memory) will be exceeded, and may cause breakdown.

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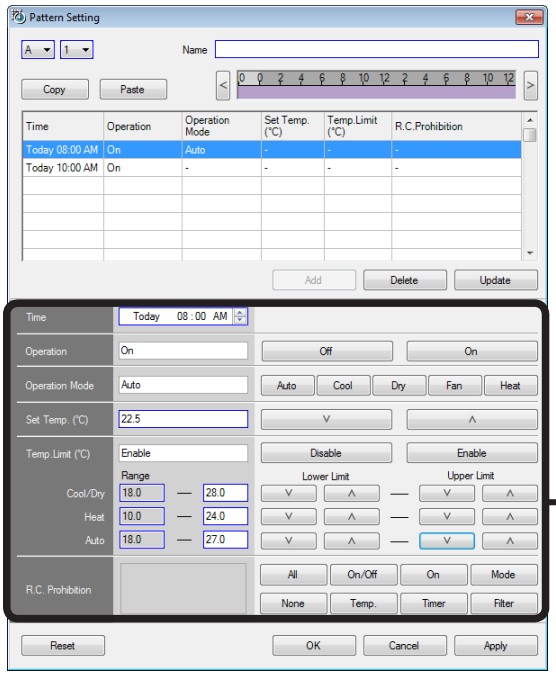
18-3-3 Operation pattern setting items



Operation pattern setting items

Operation time input (Essential)

Select “Today” or “Next” at “Today” item and set by using the up/down buttons at the right side.
Select the hour digit at the "Time" item and set the hour by entering the numbers directly or by using the up/down buttons on the right side. Next, select the minute digit and set the minutes by entering the numbers directly or by using the up/down buttons at the right side.
Minutes are in 10 minute units. Input in 1 minute units is invalid, even if performed.
When “AM” or “PM” is displayed, select the item and set by using the up/down buttons at the right side.
■ Operation time input is essential, but set the following items as required.

Operation start/stop

To start operation, select [On] and to stop operation select [Off].
To use the air conditioner continuously during operation, leave the setting as it is.

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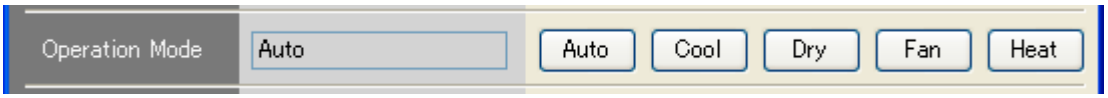
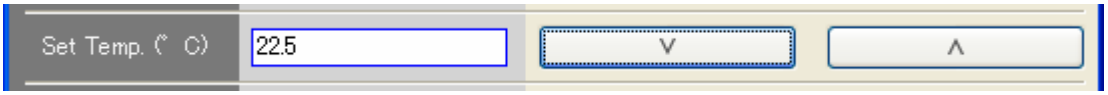
Operation mode switching



Select the operation mode to be set.
Depending on the System Type, etc, there may be operation modes which cannot be set.
When not performing operation mode switching, leave the setting as it is.

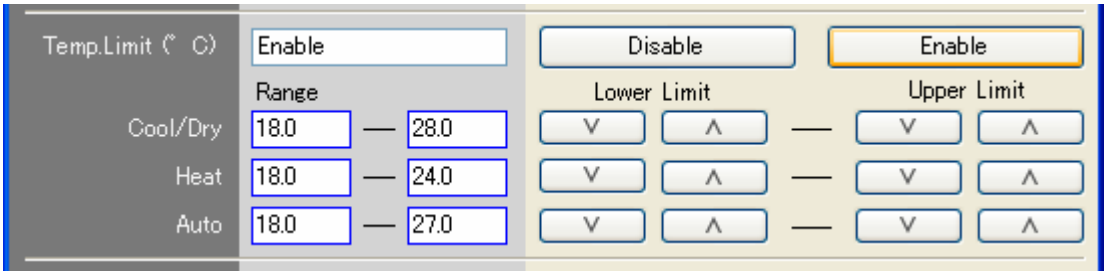
Temperature setting



Set an arbitrary temperature from the [v] and [Λ] buttons.
Direct numeric input is also possible. Input the temperature after making the selections inside the blue frame.
(S/V Series: 1.0ºC units, V-II/V-III/VR-II/J-II/J-IIS Series: 0.5ºC units)
The room temperature setting range is within the set upper/lower temperature limits range.
When the room temperature is not to be changed, leave the setting as it is.

Upper/lower temperature limits setting

The temperature setting operable range in each operation mode can be set for V-II/V-III/VR-II/J-II/J-IIS Series.



Set an arbitrary temperature range from the [v] and [Λ] buttons. The temperature range can be set in 0.5ºC units.
Direct numeric input is also possible. Make the selections inside the blue range to be input and input in 0.5ºC units.
Upper limit only or lower limit only can also be set.

To enable upper/lower limits setting, select [Enable].
To disable upper/lower limits setting, select [Disable].

When the upper/lower limits setting is not changed, leave the setting as it is.

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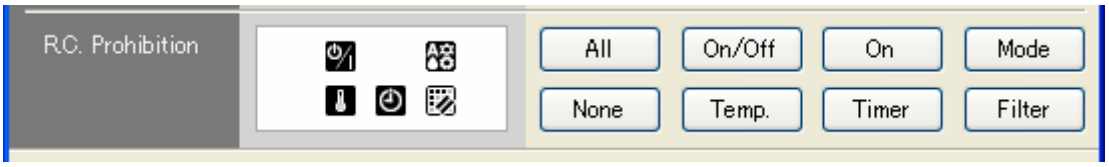
R/C prohibition

Restricts operation from R/C.



Selects operations which are not to be accepted from R/C.

- All: All prohibited
- On/Off: Operation start/stop prohibited
- On: Operation start prohibited V-II/V-III/VR-II/J-II/J-IIS Series.
- Mode: Mode switch prohibited
- Temp.: Temperature setting prohibited
- Timer: Timer prohibited
- Filter: Filter reset prohibited

The prohibition setting is switched each time each button is clicked.
Do not set when the R/C prohibition setting is not changed.

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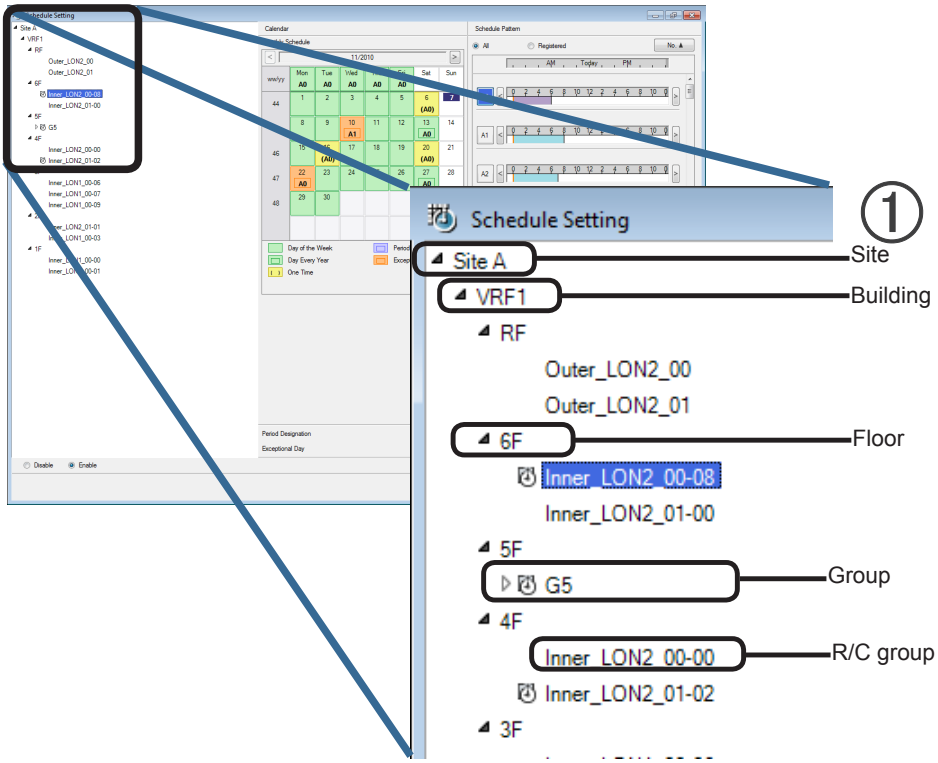
18-4 Pattern assignment to calendar

18-4-1 Selection of schedule operation target

① Select the schedule operation target.
Selectable targets are site, building, floor, and other groups or R/C groups.



Note

If there is an R/C group with a different schedule set in a group, a schedule cannot be set at that group.

To set up schedules in ascending order

Example) Group A

- R/C group 1
- R/C group 2

When a different schedule is set at R/C group 1 and R/C group 2, a schedule cannot be set at Group A.

Now then, when a different operation pattern is assigned to a group within a group or an R/C group (e.g. building → floor → group → R/C group) after a common pattern was previously pasted to the group (e.g. site), an entire schedule can be set using very few steps.

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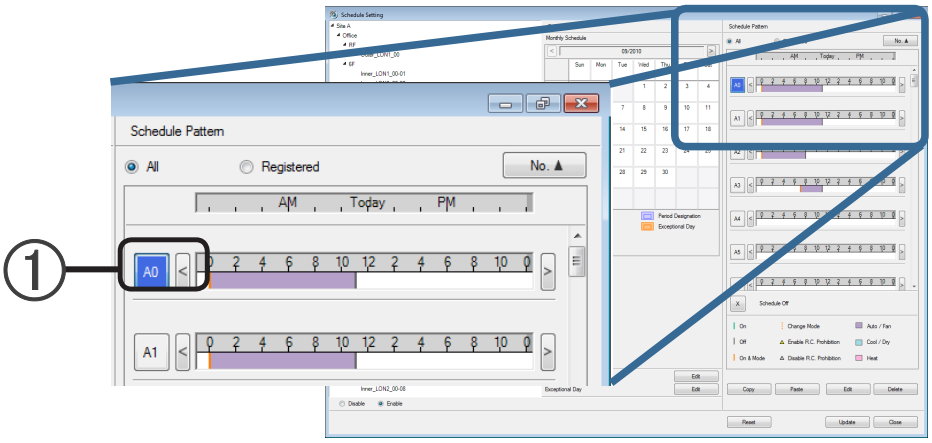
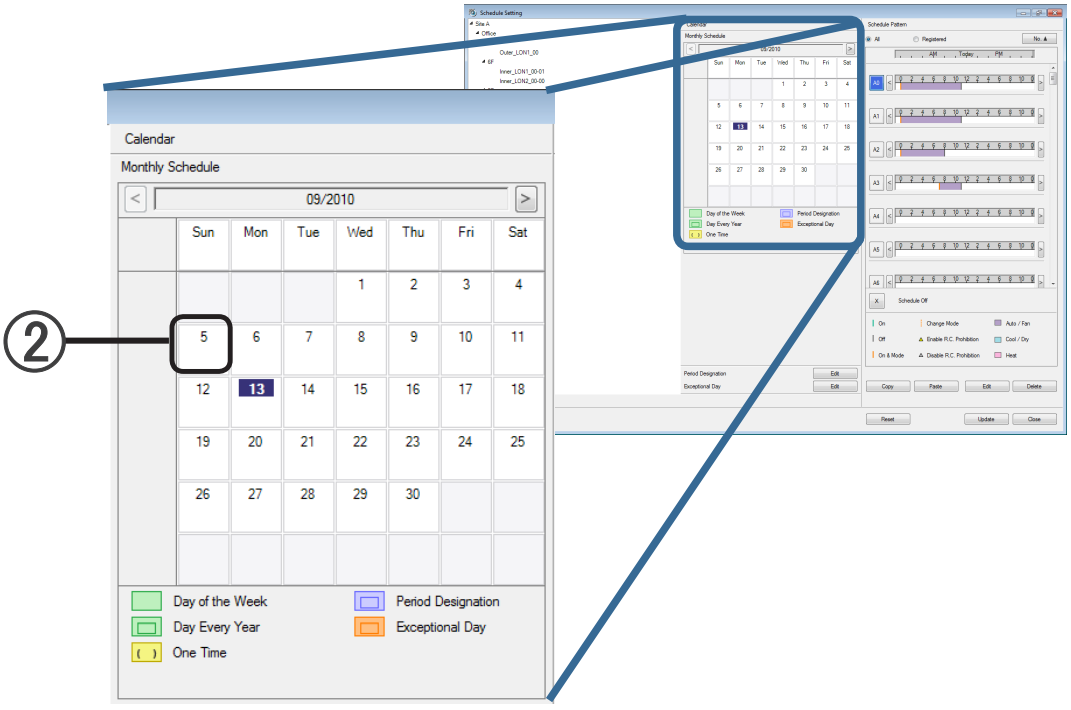
18-4-2 Assigning operation pattern to calendar (daily)

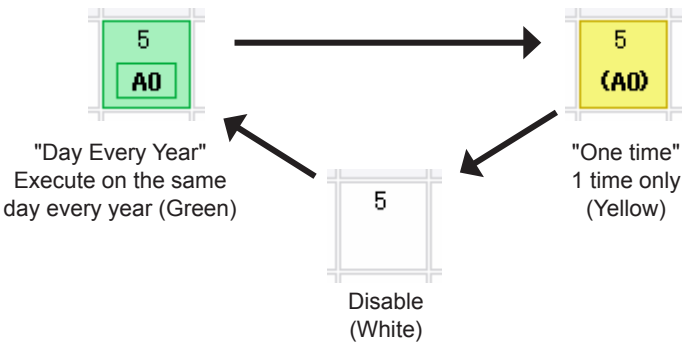
① Select the operation pattern.



② Assign the operation pattern to a calendar.



③ Operation pattern registration varies depending on the number of clicks.



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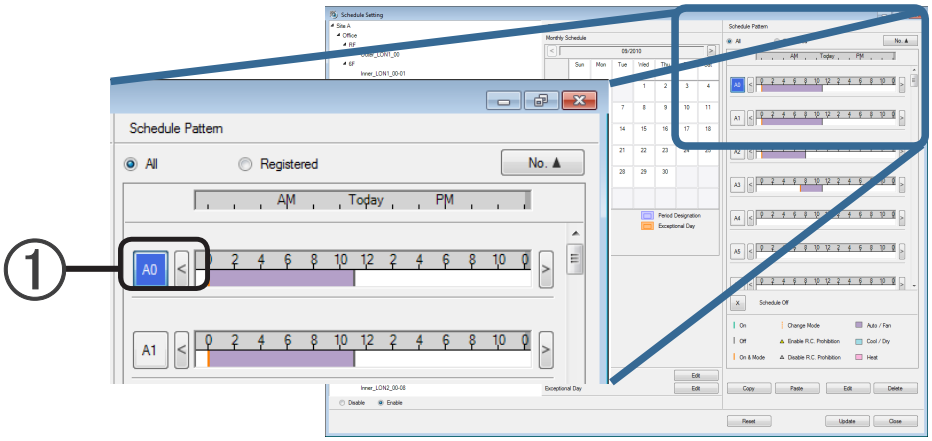
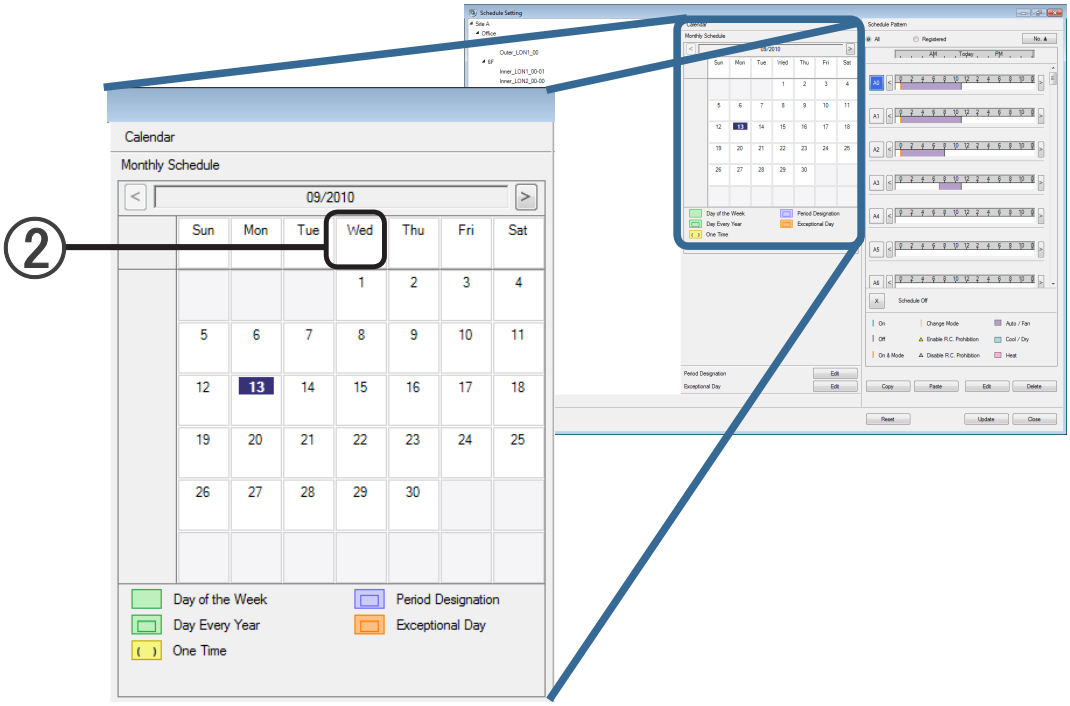
18-4-3 Assigning operation pattern to calendar (every day of week)

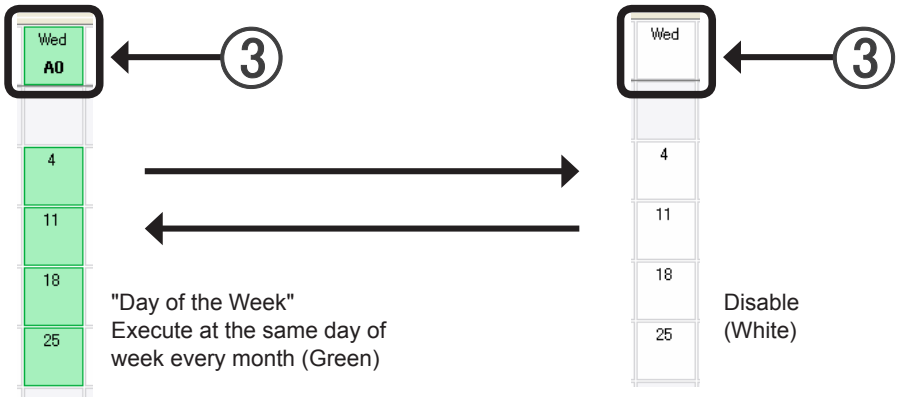
① Select the operation pattern.



② Assign the operation pattern to a day of week calendar.



③ Operation pattern registration varies depending on the number of clicks.



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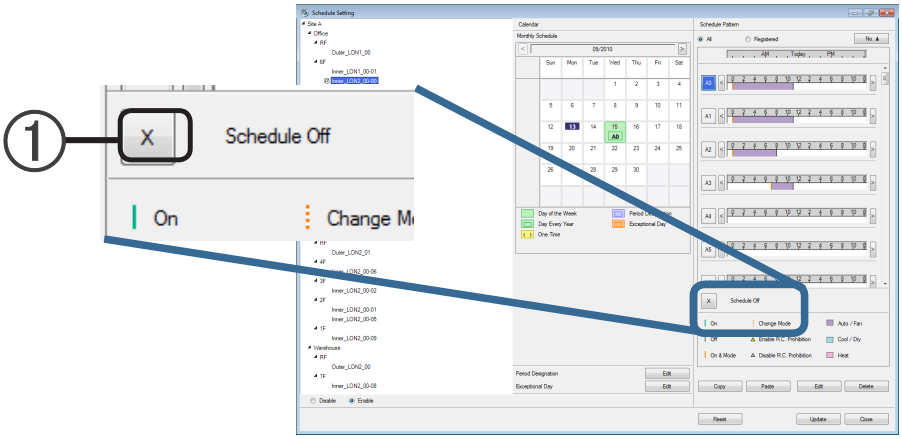
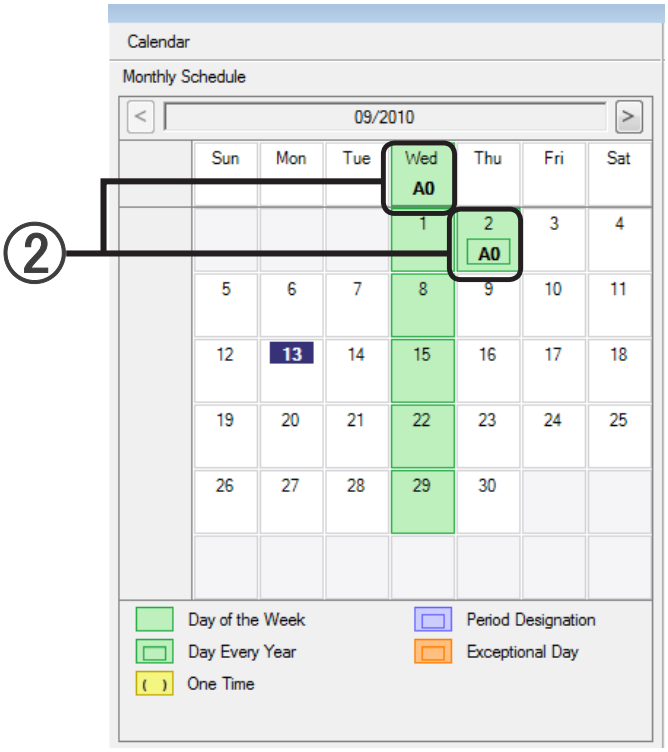
18-4-4 Assigning the OFF day on the calendar

① Select "Schedule Off".



② Assign the OFF day on the calendar.



■ Date can be cancelled by repeated clicking.

→ See par. 18-4-2 Assigning operation pattern to calendar (daily)

However, when set by day of week, operation pattern assignment cannot be canceled by repeated clicking.

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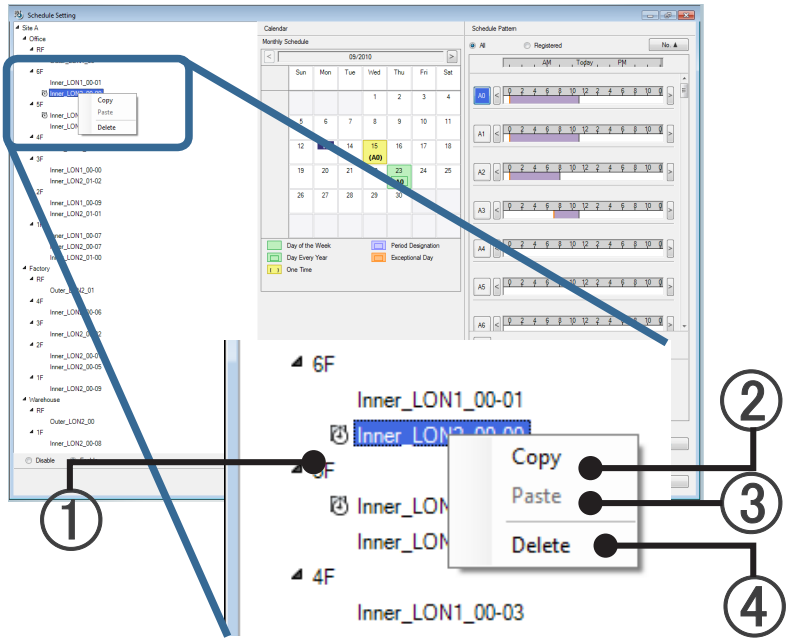
Operation method at tree area

Copy, Paste, and Delete of schedules set by group and R/C group can be performed at the selection tree area.



Copying schedule set at group (R/C group) to another group (R/C group)

① Select the group (R/C group) with the schedule you want to copy at the selection tree area.

② Right click the mouse and select [Copy].

① Select the copy destination group.

③ Right click the mouse and select [Paste].
The schedule is pasted.

Deleting a schedule set at a group (R/C group)

① Select the group (R/C group) with the schedule you want to delete at the selection tree area.

④ Right click the mouse and select [Delete].
The schedule is deleted.

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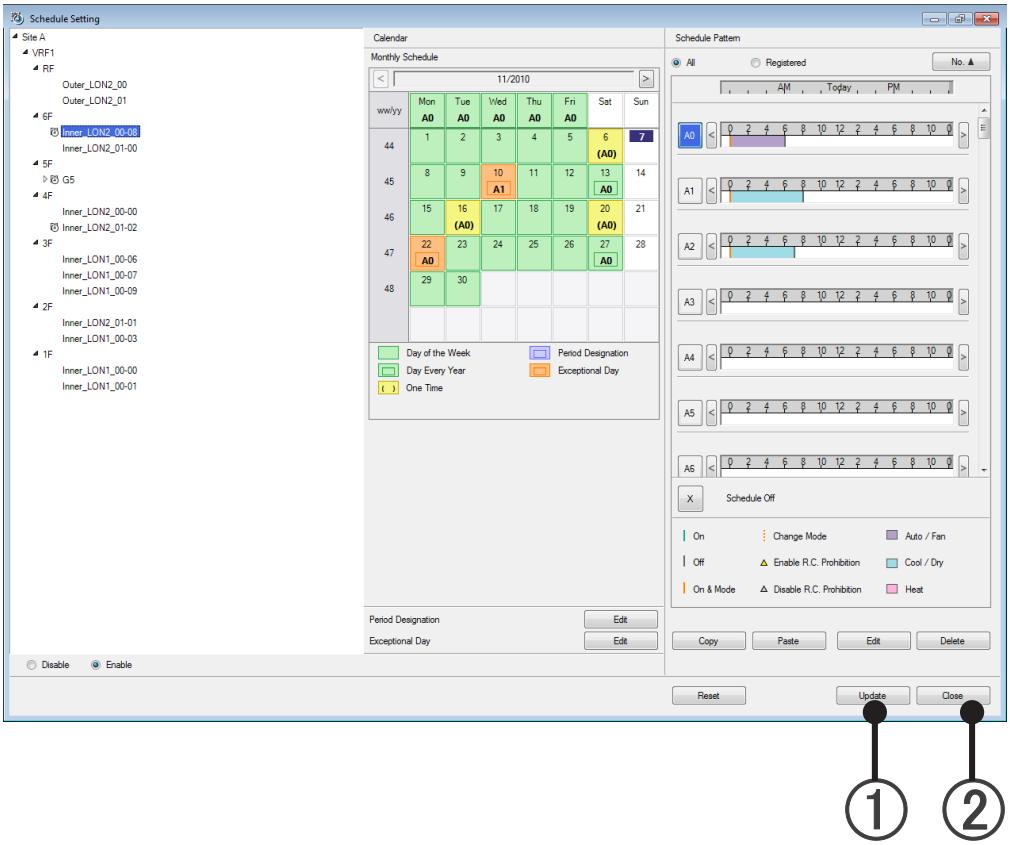
18-4-5 Calendar updating

Update the calendar when a schedule is set.

① Click the [Update] button to update the schedule.



② When the [Close] button is clicked, the Schedule Setting screen is closed.

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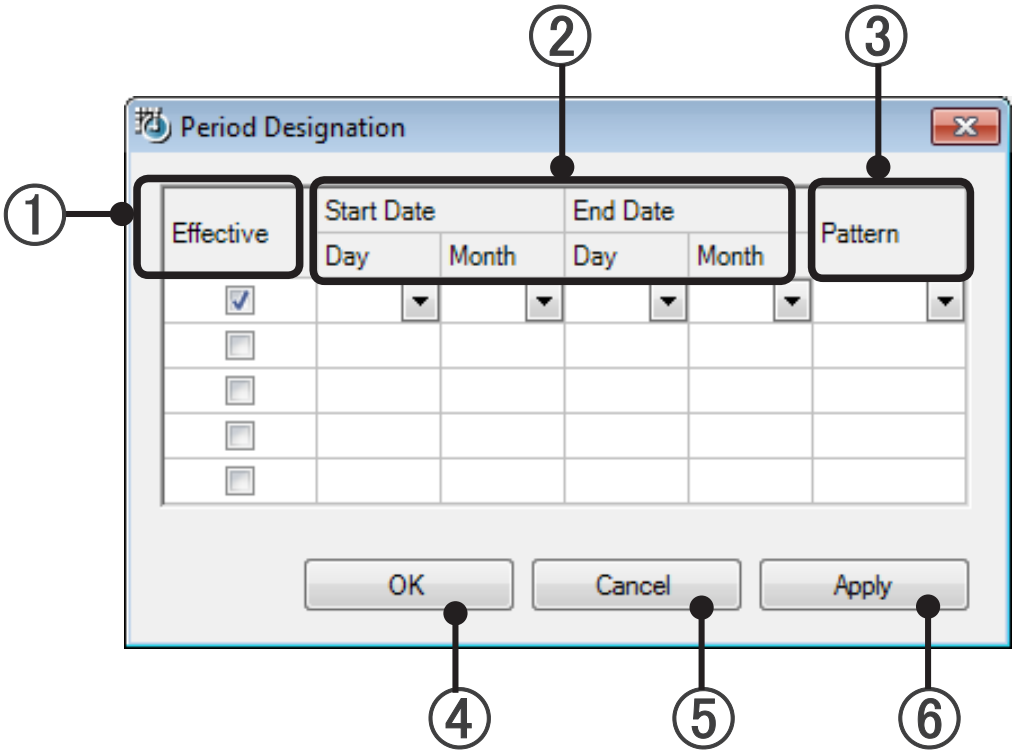
18-5 Period Setting

You can set the period and allocate it to a calendar.The settings will also carry over into the next year and later.



① Effective	By checking, the period and pattern will be enabled, and press the OK or Apply button to reflect these in the calendar. If the check is removed, pressing the OK or Apply button will delete it.
② Period	Set the Start Date and End Date.
③ Pattern	Set the patter for the relevant period.
④ OK button	The configured details will be reflected in the calendar.Close the screen.
⑤ Cancel button	Discard data during editing, and close the screen.
⑥ Apply button	The configured details will be reflected in the calendar.Do not close the screen.

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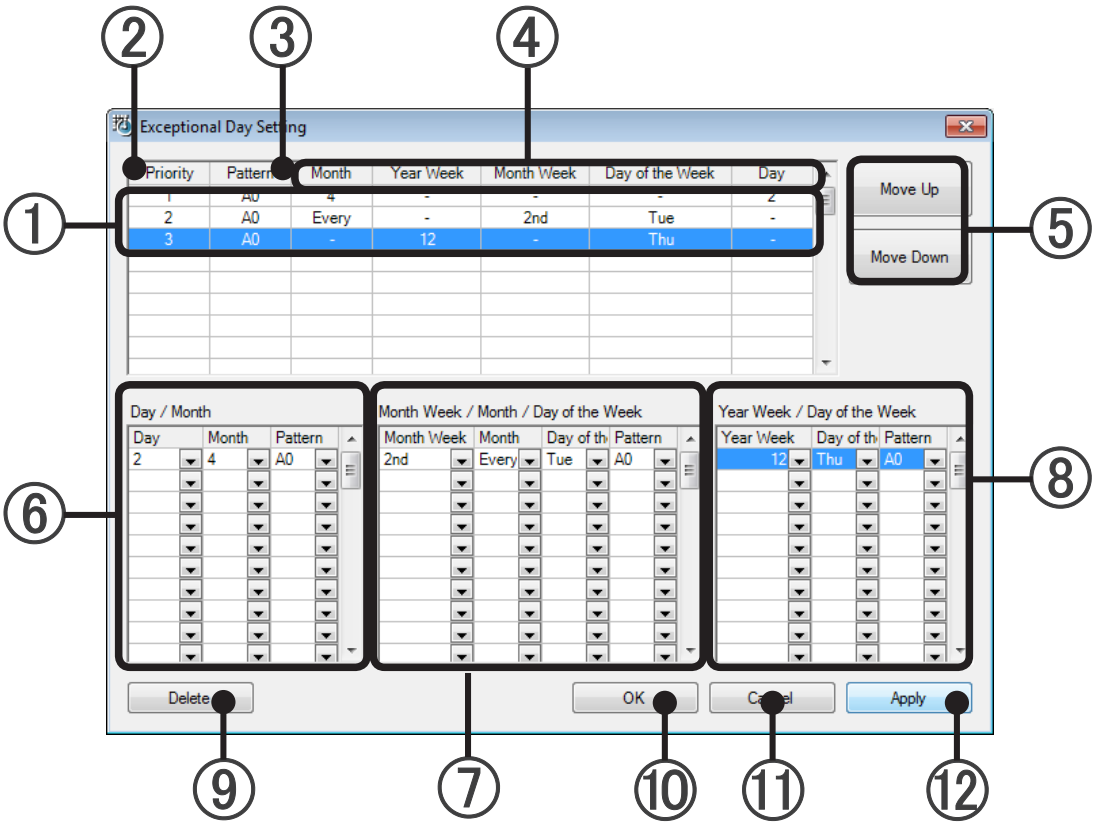
18-6 Exceptional day (holiday, etc.) setting

Special operation schedule days (exceptional days) can be set. (Max 50 lines)
To display this screen, click the [Edit] button in the Exceptional Day area on the Schedule Setting screen.

18-6-1 Exceptional Day Setting screen



* Operation is impossible if even one operation pattern was not created. Create an operation pattern first.
→ See par. 18-3 Operation pattern creation

① Exceptional day list	Exceptional day setting contents.
② Priority	When set days overlap, setting is applied by giving the day with the lowest number priority.
③ Pattern	Shows the operation pattern to be applied.
④ Exceptional day specification	Displays the exceptional day specification method. Month/week number (year)/week number (month)/day of week/day
⑤ Move Up/Move Down buttons	Change the priority order.
⑥ Day/Month area	Specifies the exceptional day and assigns a pattern by month/day.
⑦ Month Week/Month/Day specification area	Specifies the exceptional day and assigns a pattern by month/day of week of which week.
⑧ Week number/day of week specification area	Specifies the exceptional day and assigns a pattern by week number (year)/day of week. Displayed only when a calendar beginning from Monday is set.

⑨ Delete button	Deletes the exceptional day selected with ①. Cannot be canceled using [Cancel] button.

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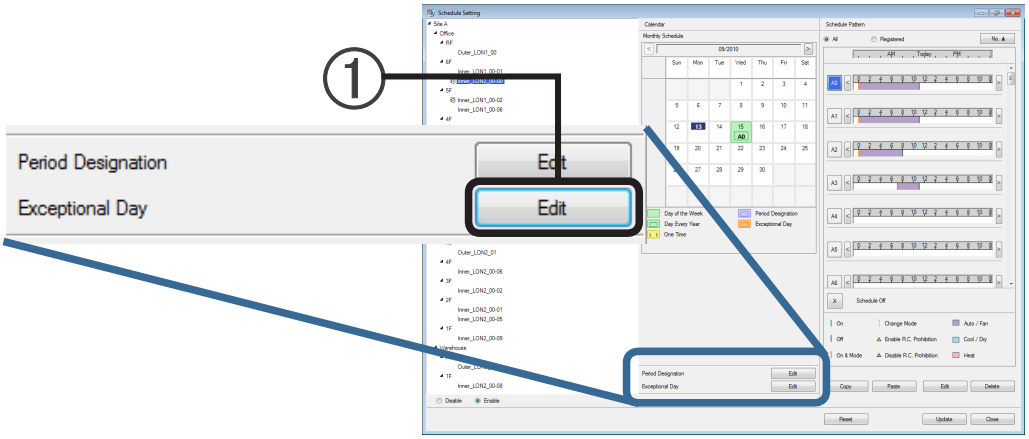
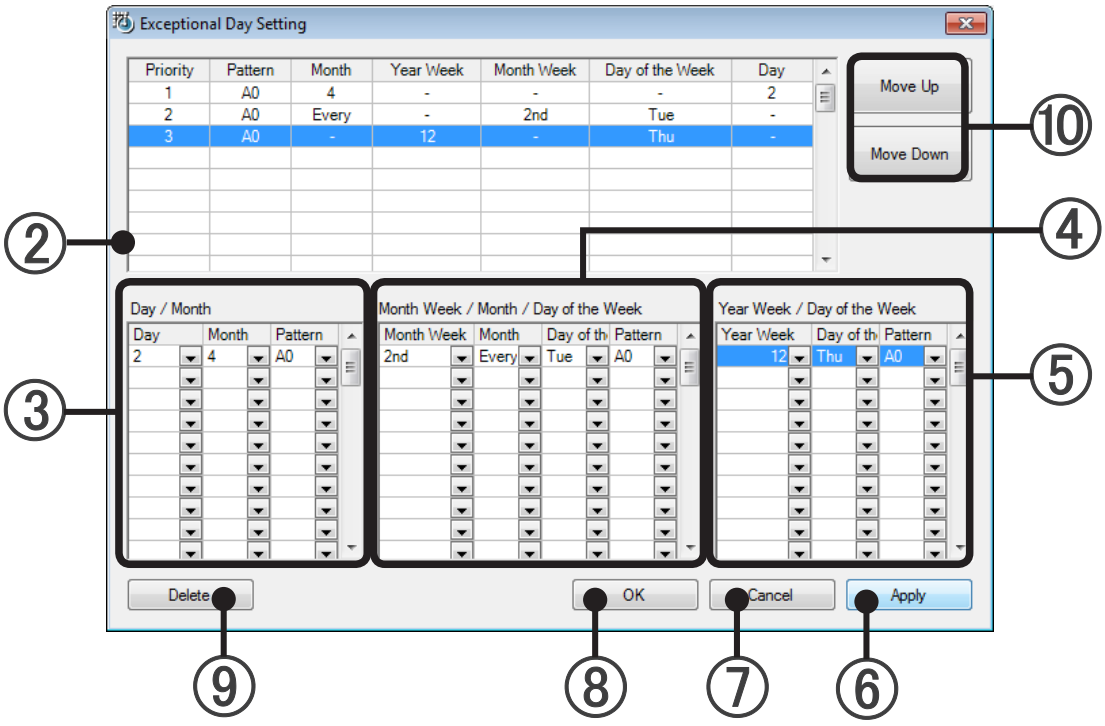
⑩ OK button	Reflects the set contents and closes the setting screen.
⑪ Cancel button	Closes the setting screen without reflecting the contents set with ⑤, ⑥, ⑦, and ⑧.
⑫ Apply button	Setting screen remains displayed and reflects the contents set with ⑤, ⑥, ⑦, and ⑧

18-6-2 Overview of exceptional day creation

① Click the [Edit] button in the Exceptional Day area of the Schedule Setting screen.



② The Exceptional Day Setting screen is displayed.
Set the exceptional day and pattern. Confirm the pattern to be set in advance.



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There are the following methods of setting the exceptional day and pattern. Select the appropriate method.

③ Set a specific day. Select the month/day from the Day/Month specification area and set the pattern.
Day selection contents: Every, 1 to 31
Month selection contents: Every, 1,2,3,4,5,6,7,8,9,10,11,12

④ Set from month week/month/day of week. Combine from the "Month Week/Month/Day" specification area and set the pattern.
Month Week selection contents: 1st, 2nd, 3rd, 4th, 5th
Month selection contents: Every, 1,2,3,4,5,6,7,8,9,10,11,12
Day selection contents: Every, Sun, Mon, Tue, Wed, Thu, Fri, Sat

⑤ Set from the week number and day of week. Combine from the Year Week/Day specification area and set the pattern. This is displayed only when a calendar starting from Monday is set
Year Week selection contents: 1 to 53 (Select the week number from the beginning of the year.)
Day selection contents: Every, Sun, Mon, Tue, Wed, Thu, Fri, Sat

⑥ At the end of setting, click the [Apply] button.
The contents set with ③, ④, ⑤ and ⑩ are reflected in the exceptional day list.

⑦ To cancel a setting, click the [Cancel] button.
The Exceptional Day Setting screen is closed without reflecting the contents in the settings made with ③, ④, ⑤ and ⑩.

⑧ When setting is complete, click the [OK] button.
The contents in the settings made with ③, ④, ⑤ and ⑩ are also reflected in the exceptional day list and the Exceptional Day Setting screen is closed

⑨ To delete an exceptional day setting displayed in the exceptional day list, select the exceptional day to be deleted and click the [Delete] button. That exceptional day is deleted from the list.

Changing the exceptional day list priority order

⑩ Select the exceptional day whose priority is to be changed and change it to the desired priority by clicking the [Move Up] or [Move Down] button.
"Priority order" is the order of the exceptional days applied by giving priority to the exceptional day with the lowest number when the days set during multiple setting overlap.
If the [OK] button or[Apply] button is not clicked after the order was changed, the change will not be reflected.

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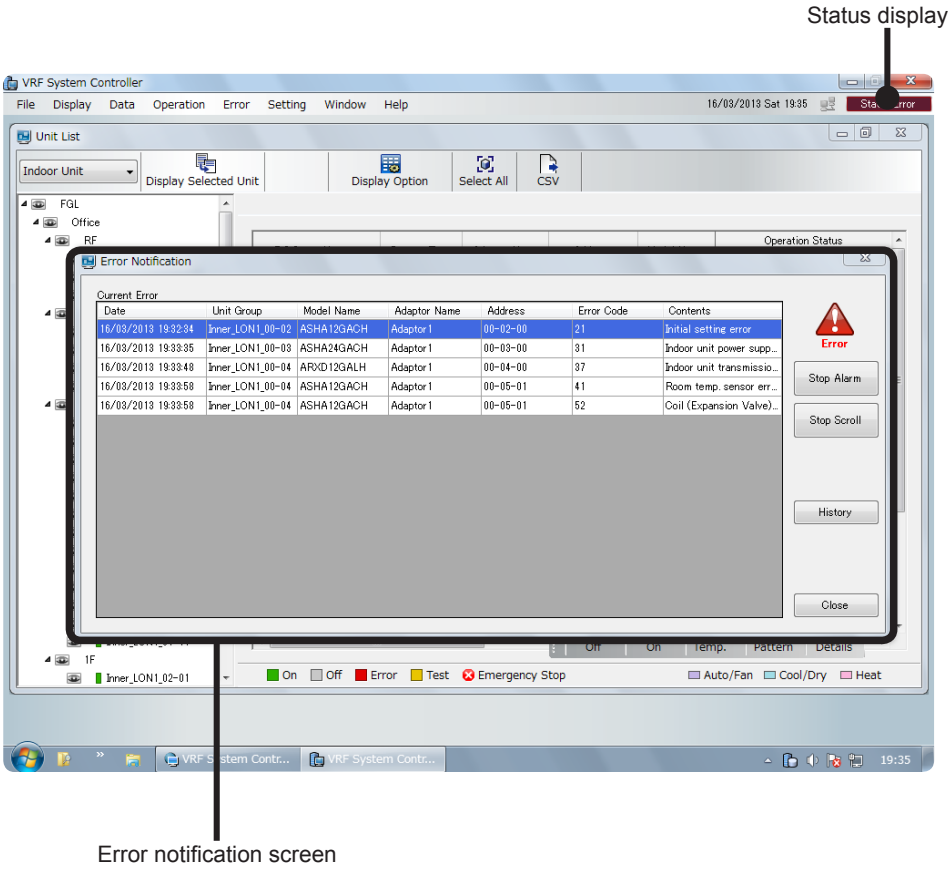
19. Error Monitoring

19-1 Overview of error notification

When an error is occurs in the system, the following are displayed:

1. [Status: Error] blinks red at the status display at the top right-hand corner of the main screen.
2. An Error Notification screen is displayed.

This screen can also be opened by clicking main screen menu → “Error” → “Error Notification”.



The unit that generated the error, installation site, and history can be ascertained from the Error Notification screen.

19-2 Status display

The following states are displayed at the Status display at the top right-hand corner of the main screen:

Operation display
If even one unit is operating, [Status: On] lights.

Stop display
If all the connected units are stopped, [Status: Off] lights.

Error display
[Status: Error] blinks when an error occurs.
If this display is double clicked even when the Error Notification screen is not displayed, the Error Notification screen will be displayed again.

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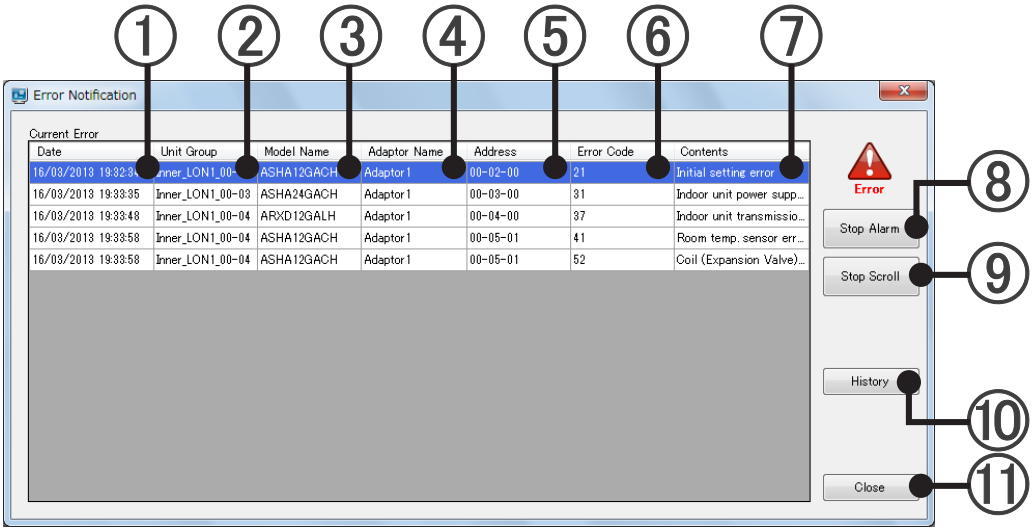
19-3 Error Notification screen



① Date	Generation date
② Unit Group	R/C group name
③ Model Name	Model name* *The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter ":" is not part of the Model Name.
④ Adaptor Name	U10 USB Network Interface name
⑤ Address	“Refrigerant system address”-“Unit address”-“R/C address”
⑥ Error Code	Error code → See par. 30-2 Error code table
⑦ Contents	Error contents

⑧ Stop Alarm button	Stops the alarm sound. However, if the error occurs again, the alarm sound will be generated.
⑨ Stop Scroll button	When the R/C group at which the error occurred exceeds the display area of the Error Notification screen, it is displayed by scrolling the display area. This button stops that scrolling. This button is used when stopping scrolling and checking the error contents. However, while scrolling is stopped, the contents are not updated even if a new error occurs or an error is restored. To resume scrolling, click this button again.
⑩ History button	Displays the Error history of the unit at which the error occurred. When the unit is selected and this button is clicked, an Error History screen showing the history of that unit is displayed.
⑪ Close button	Closes the Error Notification screen.

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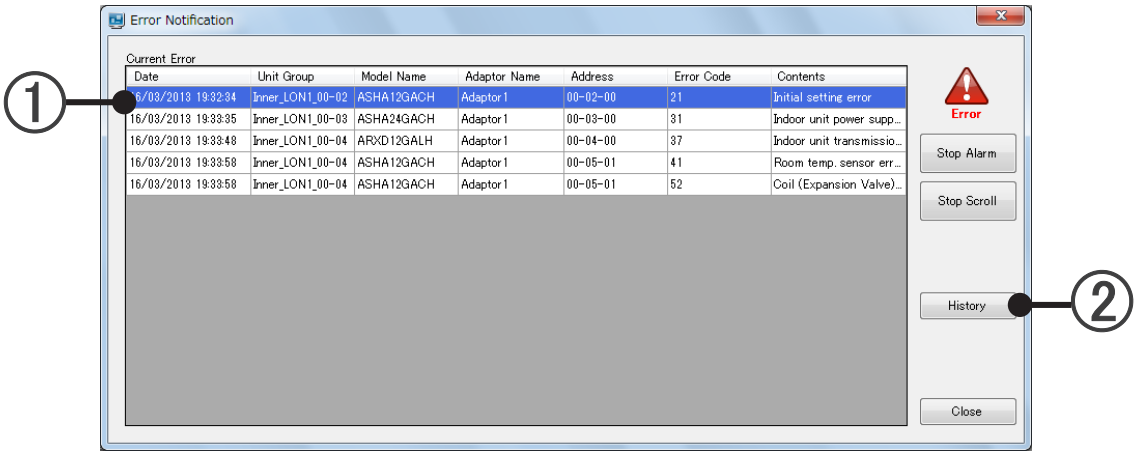
19-4 Unit error history

19-4-1 Error History screen display method

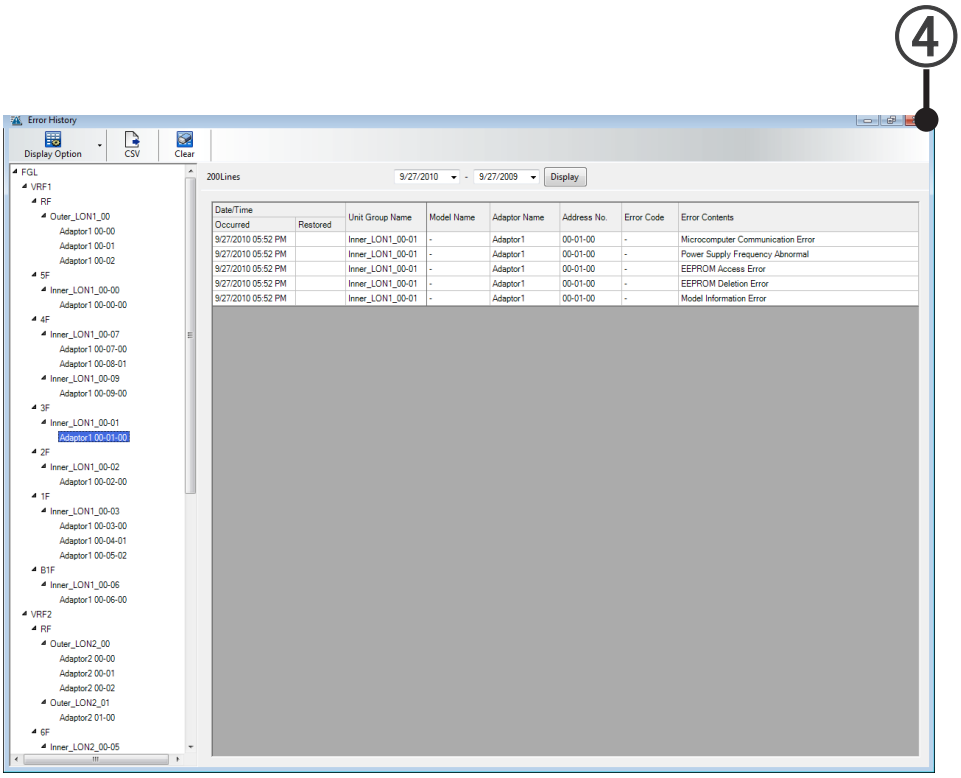
Views the history of the unit generating the error.

① Select the unit that generated the error.



② Click the [History] button.

③ An Error History screen opens.



④ To close the Error History screen, click the [X] button at the top right-hand corner of the screen.

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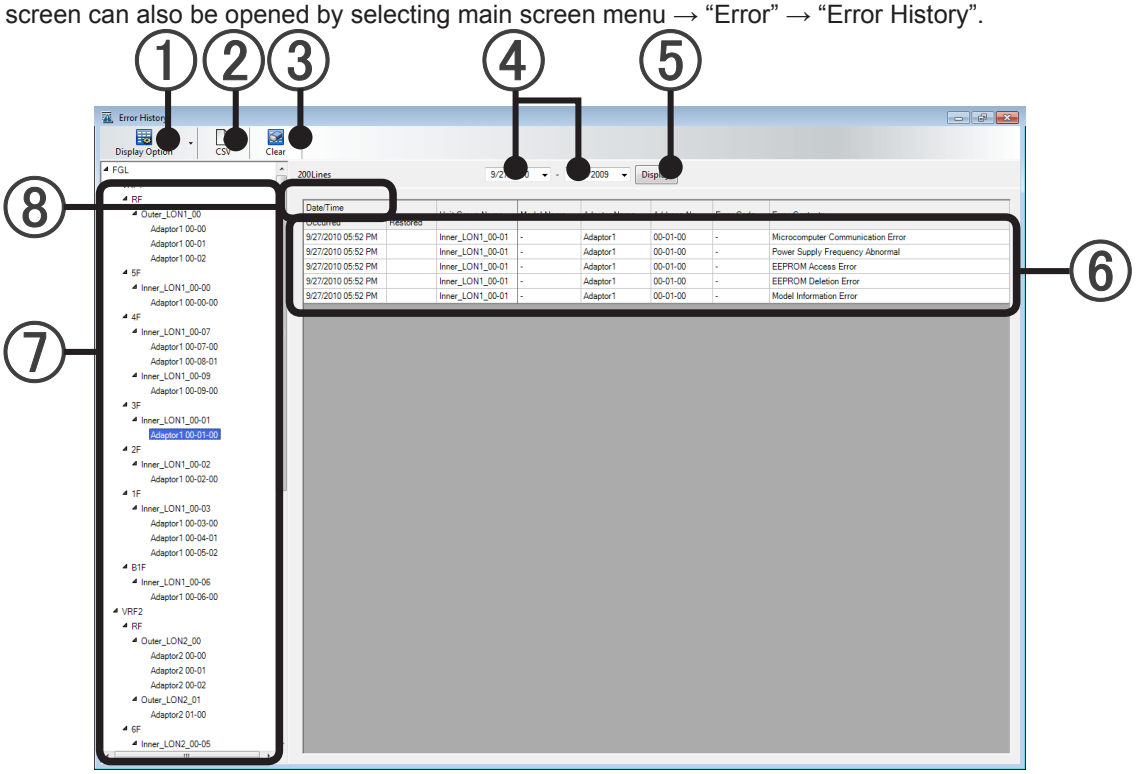
19-4-2 Error History screen

Unit and System Controller Lite error generation history is displayed. The history save period is 1 year.
This screen can also be opened by selecting main screen menu → “Error” → “Error History”.



① Display Option button	Specifies the number of lines on 1 page of the history display. 20, 50, 100, 150, 200 lines (Default: Remote 20 lines, Local 200 lines)
② CSV button	Writes the history display at ⑥ as CSV format data.
③ Clear button	Delete abnormality history for all units.This will not be displayed if operating remotely.
④ History display period specification	Specifies the period of time whose error history is to be displayed.
⑤ History display button	Displays the history for the period specified by ④ of the unit specified by ⑦.

⑥ History display contents	
Date/Time Occurred	Generation date and time
Date/Time Restored	Restoration date and time
Unit Group Name	R/C group name or outdoor unit group name. “-“ displayed for System Controller Lite Error.
Model Name	Model name* *The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter ":" is not part of the Model Name. The S/V series will have “-“ displayed.
Adaptor Name	U10 USB Network Interface name
Address No.	“Refrigerant system address”-“Unit address”-“R/C address”
Error Code	Error code → See par. 30-2 Error code table
Error Contents	Error contents

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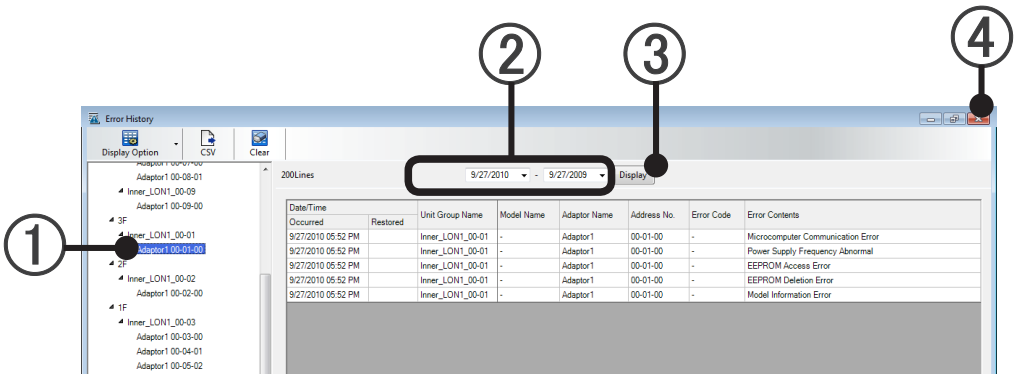
⑦ Unit selection tree	Selects the unit whose history is to be displayed. When Other Unit is selected, the error history for unit other than the indoor unit and the outdoor unit are displayed.
⑧ Number of lines of history display	Displays the number of lines specified by ①.

19-4-3 History display method

View errors generated in the past

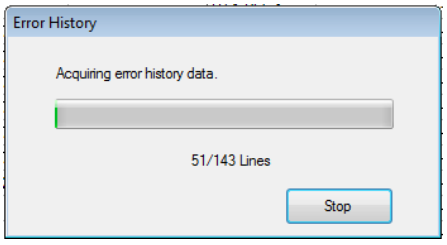
① Select the unit whose history is to be displayed.



② Specify the period of time whose error history is to be displayed.

③ When the [Display] button is clicked, the history is displayed
Not displayed if there is no error history.

When connected remotely, a data acquisition progress bar is displayed.
When the [Stop] button is clicked when the data acquisition progress bar display appears, data acquisition stops and only the acquired history is displayed



Data acquisition progress bar

④ To close the Error History screen, click the [X] button at the top right-hand corner of the screen.

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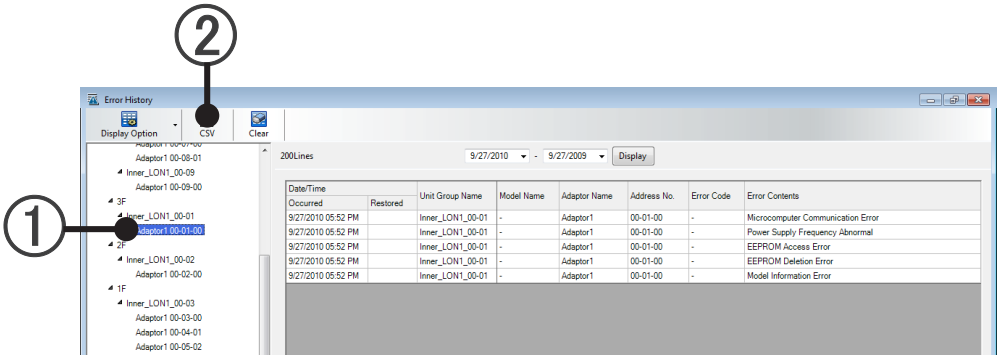
19-4-4 Writing of history

The error generation history can be written to a CSV format file
The CSV format file can be browsed and edited with Microsoft Excel.

① Display the error history of the unit to be written in accordance with par. 19-4-3 History display method.

② Click the [CSV] button.



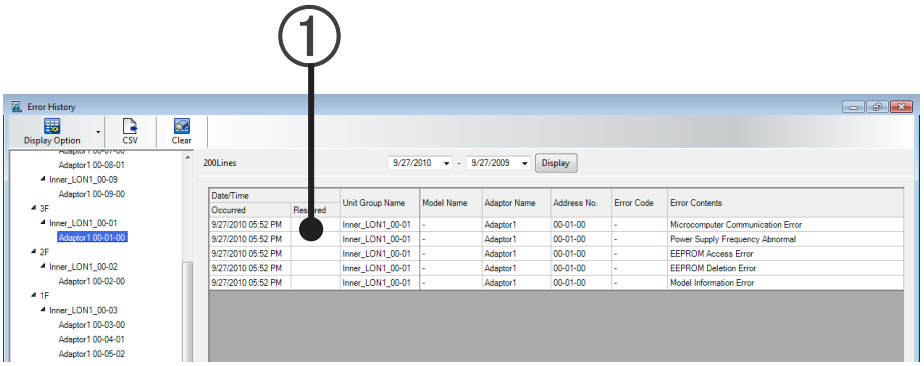
③ A file save dialog box opens. Select the write destination folder and enter the filename and click the [OK] button.
The error history is written in CSV format.

19-4-5 Sorting history display

The error history can be sorted.

History sorting

① The error generation history can be sorted by clicking on the title of the item which is made the sort key.
Ascending/descending can be switched by repeated clicking.



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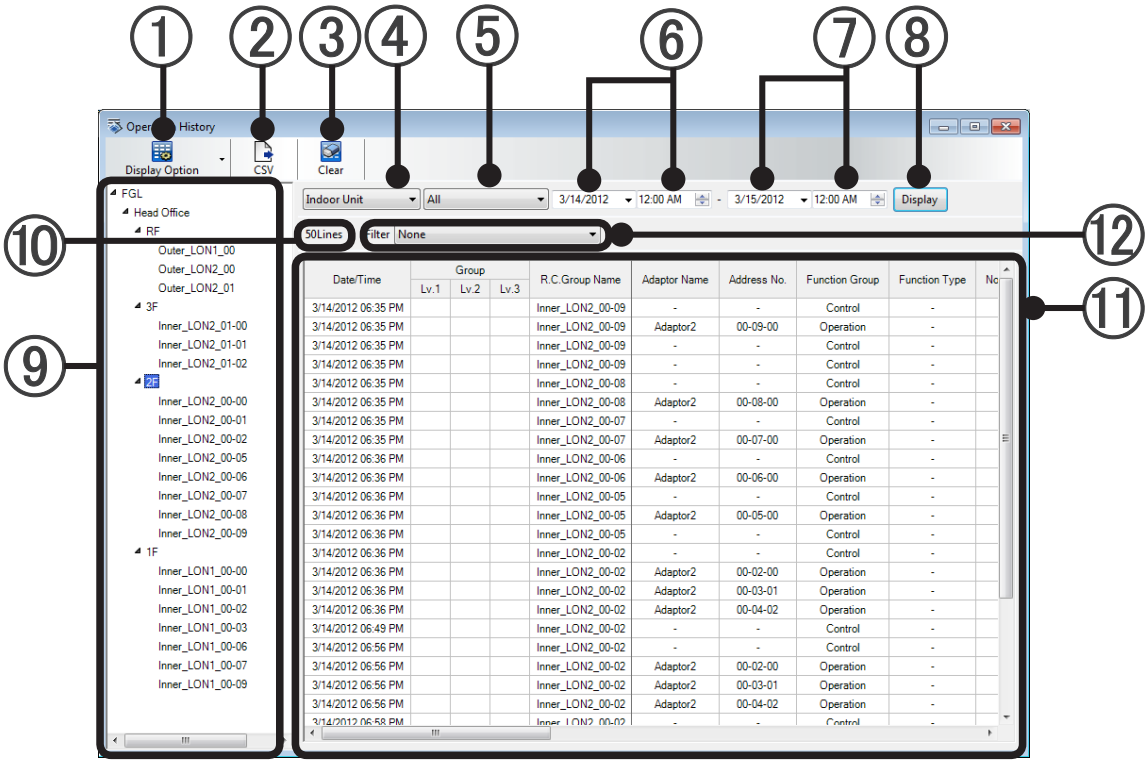
20. Operation Management

Unit management data and the history of operation control data from the System Controller Lite can be displayed
The history save period is 1 year.

20-1 Operation history

20-1-1 Operation History screen

To display this screen, click main screen menu → “Data”→ “Operation History”.



① Display Option button	Specifies the number of lines on one page of the history display. 20, 50, 100, 150, 200 lines (Default: remote 20 lines, local 200 lines)
② CSV button	Writes the history in CSV format.
③ Clear button	Clears the operation history of all the units directly connected from the server. Not displayed for remote operation.
④ Indoor unit/outdoor unit selection	Select indoor unit or outdoor unit.
⑤ Function Group Selection	Displays the selected Function Group.
⑥ History period start specification	Specifies the date and time history display is to start.
⑦ History period end specification	Specifies the date and time history display is to end.
⑧ History display button	Displays the history of the R/C group selected by ⑧ for the period specified by ⑤ and ⑥.
⑨ Unit selection tree	Selects the R/C group whose history is to be displayed.
⑩ Number of lines of history display	Displays the number of lines specified by ①.

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⑪ History display contents	Indoor unit
Date/Time	Operation date and time
Group Lv.1	Group level 1 group name
Group Lv.2	Group level 2 group name
Group Lv.3	Group level 3 group name
R.C. Group Name	R/C group name
Adaptor Name	U10 USB Network Interface name
Address No.	“Refrigerant system address” - “Unit address” - “R/C address”
Function Group	Operation / Control / Schedule / Energy Save Control
Function Type *1	Thermostat Off / Temperature Shift
Normal/Error	Normal/error
Operation Status	Operation status On/Off/Test
Operation Mode	Operation mode
Set Temp	Set temperature
R.C.Prohibition	R/C prohibition All, On/Off, On, Mode, Temp, Filter
Fan Speed	Fan speed Auto, Quiet, Low, Med-Low, Med, Med-High, High
Anti Freeze	Anti Freeze On,Off
Economy	Economy operation On, Off
Air Flow Direction VT	Vertical Air Flow Direction status
Air Flow Direction HZ	Horizontal Air Flow Direction status
Temp. Limit (°C/°F)	Temperature upper/lower limits setting
Status	Temperature upper/lower limits setting status
Cool/Dry	Temperature upper/lower limits setting at Cool/Dry
Heat	Temperature upper/lower limits setting at Heat
Auto	Temperature upper/lower limits setting at Auto
Forced Thermostat Control *1	Forced Thermostat Off or Not
Information	Special operation status Emergency Stop / Pump Down / Maintenance Mode / Defrost / Oil Recovery / Mode Mismatch
User Name	Operation user name

*1. These columns will be displayed only when the Energy Saving option (UTY-PLGXE1) is used.

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⑪ History display contents	Outdoor unit
Date/Time	Operation date and time
Group Lv.1	Group level 1 group name
Group Lv.2	Group level 2 group name
Group Lv.3	Group level 3 group name
Unit Group Name	Outdoor unit group name
Adaptor Name	U10 USB Network Interface name
Address No.	“Refrigerant system address” - “Unit address”
Function Group	Operation / Low Noise Control / Schedule / Energy Save Control
Function Type *1	Forced Off / Capacity Save Control
Normal/Error	Normal / error
Low Noise Operation Priority	Low Noise / Performance
Low Noise Operation Level	Off / Level 1 / Level 2 / Level 3
Capacity Control *1	Operation Rate 50~100(%)
Information	Special operation status Emergency Stop / Maintenance Mode / De-frost / Oil Recovery
User Name	Operation user name

*1. These columns will be displayed only when the Energy Saving option (UTY-PLGXE1) is used.

⑫ Selection of status change extraction conditions	Only records with value of specified lines changed are displayed. *When there is displayed data in the list after the ⑧“Display” button is pressed, the target items are displayed in the combo box of status change extraction. *As for extraction, the data of "Operation" at ⑤"Function Group" are targeted. *When multiple RCG are displayed, they are compared and extracted in each unit (adapter + unit address).

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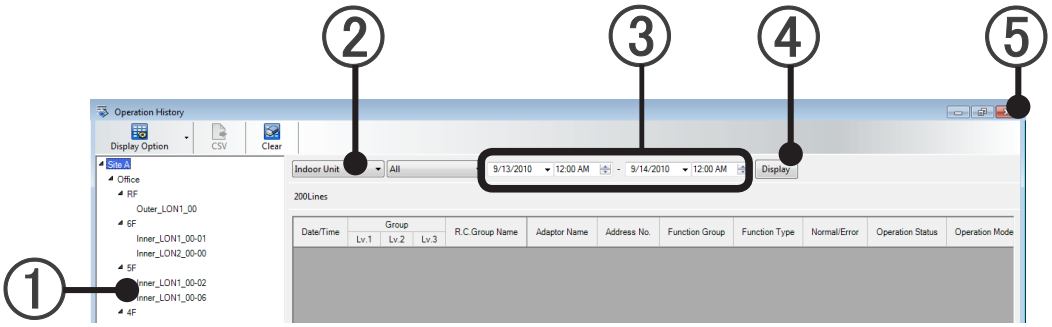
20-1-2 History display method

① Select the unit whose history is to be displayed

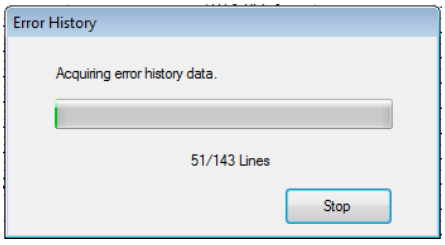


② Select indoor unit or outdoor unit.

③ Specify the period of time whose history is to be displayed.

④ When the [Display] button is clicked, the history is displayed.

For remote connection, a data acquisition progress bar is displayed.
When the [Stop] button is clicked when the data acquisition bar display appears, data acquisition is stopped and only the acquired history is displayed.



Data acquisition progress bar

⑤ To close the Operation History screen, click the [X] button at the top right-hand corner of the screen.

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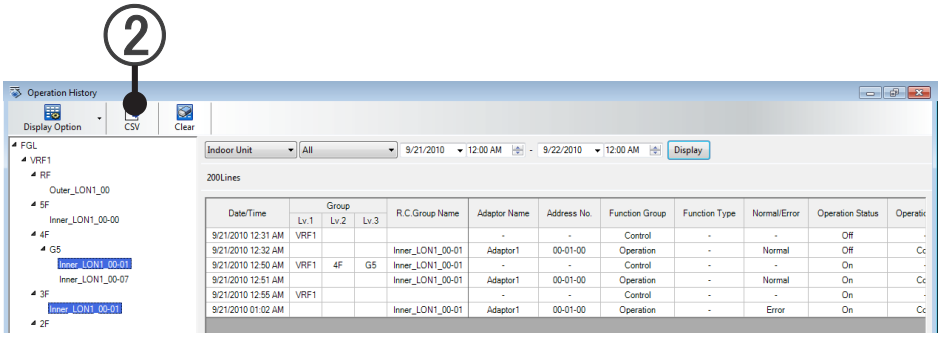
20-1-3 Writing of history

The operation history can be written to a CSV format file.
The CSV format file can be browsed and edited with Microsoft Excel.

① Display the operation history of the unit to be written in accordance with par. 20-1-2 History display method.

② Click the [CSV] button.



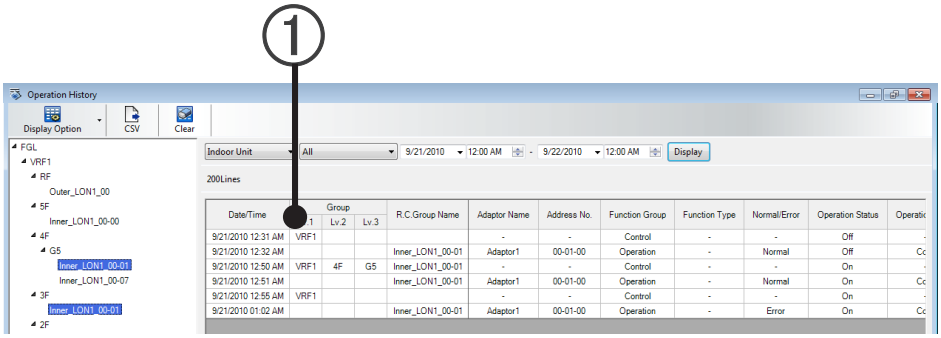
③ A file save dialog box is displayed. Select the write destination folder and enter the filename and click the [OK] button.
The operation history is written in CSV format.

20-1-4 History display sorting

The operation history display can be sorted.

History sorting

① The operation history can be sorted by clicking the title of the item which is made the sort key. Ascending/descending can be toggled by repeated clicking.



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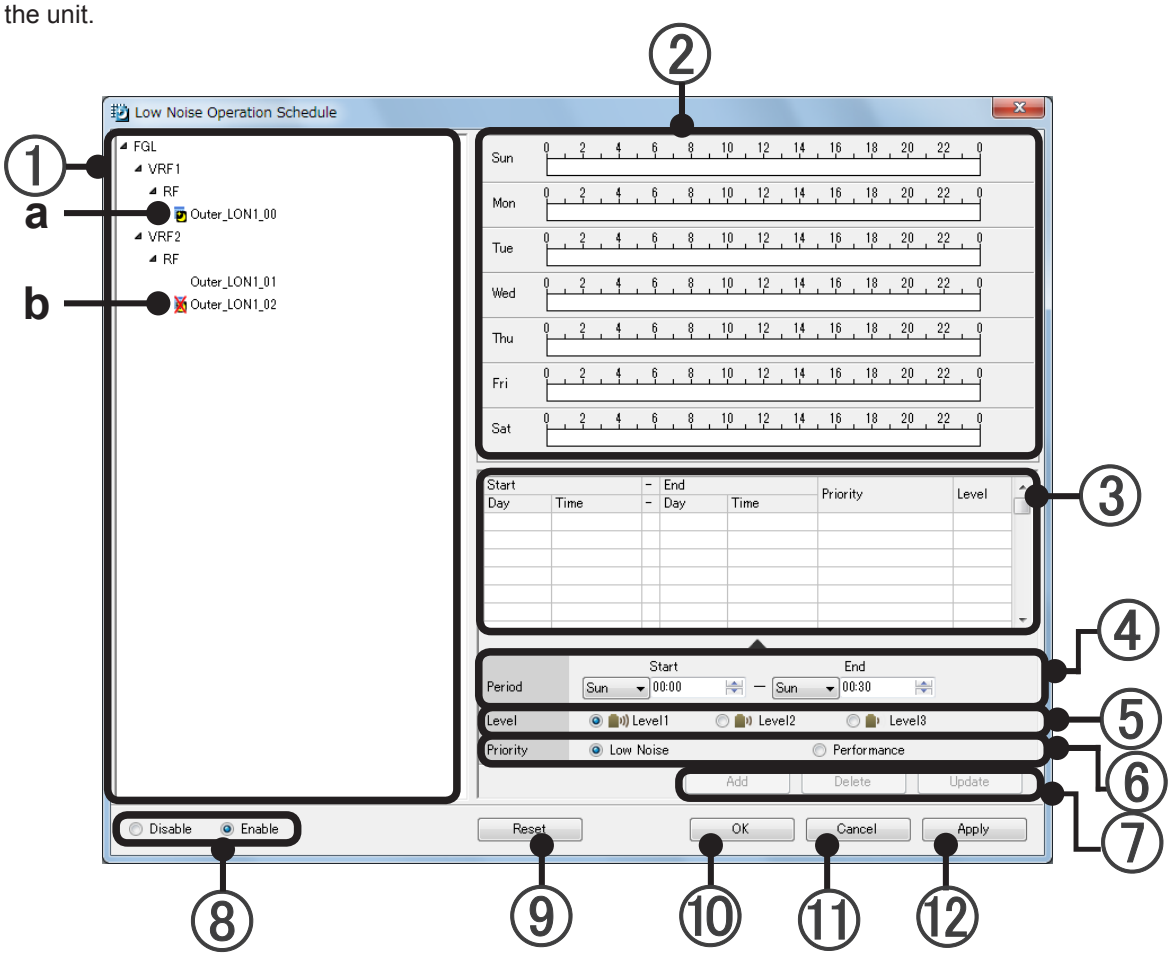
21. Low Noise Operation

You can group the outdoor-unit low noise operation mode schedule by days of the week, and then operate the unit.



① Selection Tree

Display with the outdoor unit (including groups) taken out from the tree created on the group setting screen. (Outdoor units with low noise function disabled will not be displayed.)

Select the outdoor unit or group that you want to set low operating noise for, and create a low-operating noise schedule.

② Schedules

The details of the schedule list are displayed in a bar.

The bar display will change colors depending on the priority type, and the priority level will be displayed with a number.

③ Schedule List

The start and end days of the week and times, priority types and priority levels are displayed.

A maximum of 50 items can be registered.

④ Period

Set the day of the week and time range for running low noise operation.

You can configure the set time in units of 30 minutes.

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⑤ Level

You can select the low noise level.

There are 3 levels, 1, 2 and 3, and the most quiet level is 3.

Note

The level may not always be as specified.

When set so that performance takes priority, the level of the operation may become lower than that specified.

⑥ Priority Types

Select quiet prioritization or power prioritization.

⑦ All Types of Button

●The “Add” button

The configured details will be displayed in the schedule bar and in a list.

●The “Delete” button

If data from the list is selected and the details are deleted, the relevant schedule will disappear.

●The “Update” button

The configured details will be reflected in the schedule bar and in a list.

⑧ Check schedule enable/disable.

a Enable: Enables the group or “Outdoor Unit” schedule selected by tree.

b Disable: Disables the group or “Outdoor Unit” schedule selected by tree.

⑨ The “Reset” button

Discard data being changed, and return to the originally displayed details.

⑩ The “OK” button

Save changed details and close the screen.

⑪ The “Cancel” button

Discard data being changed, and close the screen.

⑫ The “Apply” button.

Enable the changed settings (having carried out Add, Update, or Delete), and do not close the screen.

⑬ Right-Click Menu

●Copy Schedule

Copy a selected schedule.

●Paste

Enabled after copying has been carried out.

●Delete

Delete the selected schedule.

Note

Press “OK” or “ Apply” button after the schedule setting is changed (add/delete/update), the schedule will be controlled at current time at once.

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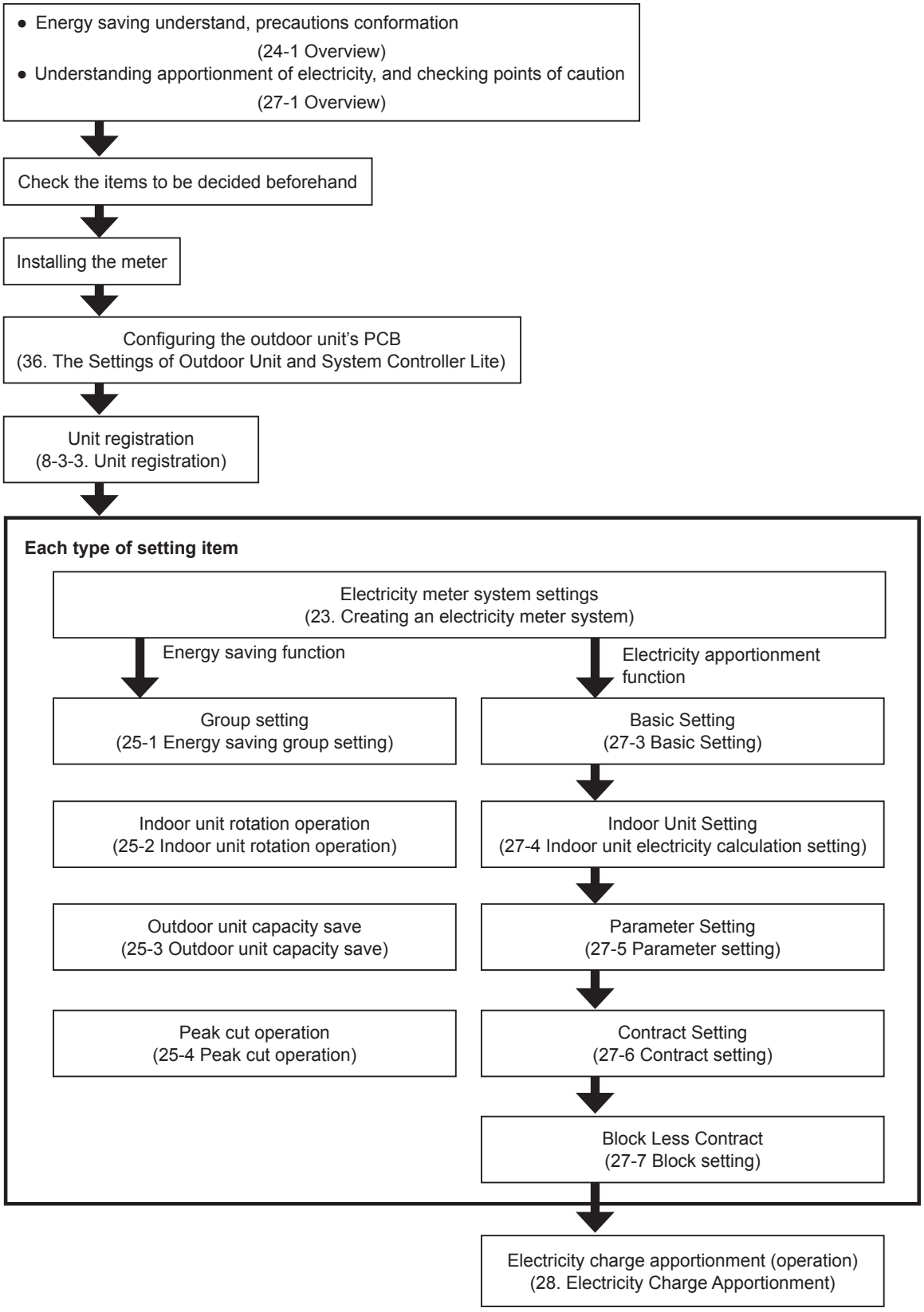
22. The Flow of the Process up to Operation

This process flow is from the configuration of the electricity meter until the configuration and operation of the System Controller Lite.



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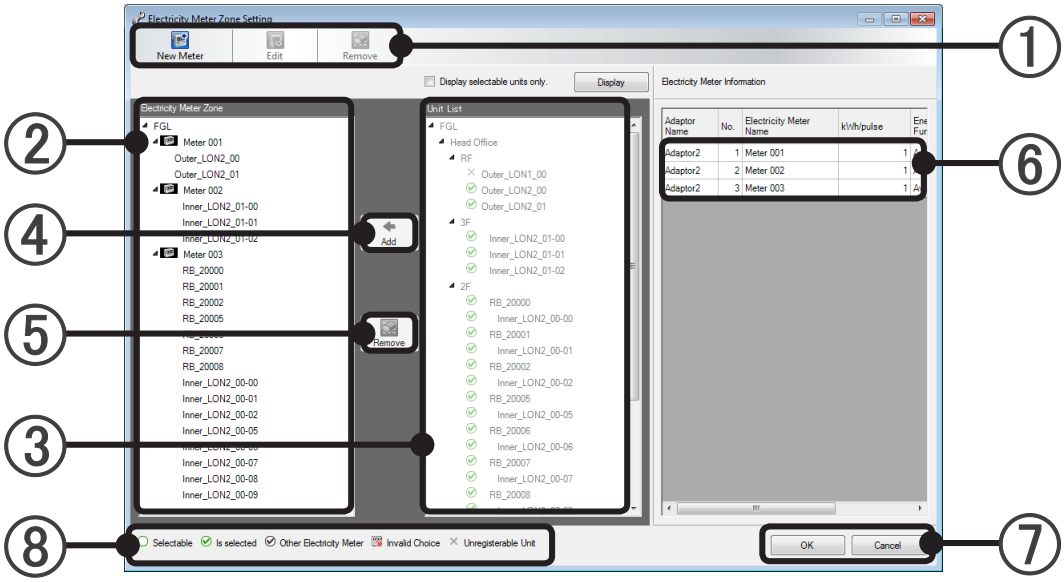
23. Creating an Electricity Meter System

Configure the connection structure of the electricity meter and air-conditioner units connected to those underneath it. Configure according to the actual electricity meter installation condition.
Since the Electricity Charge Apportionment function has a function that uses and controls electricity consumption information from the electricity meter, it is necessary to configure the electricity meter system.

Select main screen menu → “Setting” → “Electricity Meter Zone Setting”



① Select work term from tool bar.

New Meter	Displays the “Create Electricity Meter Zone” screen. Up to 200 electricity meter systems can be created.
Edit	At electricity meter system selection, this button becomes active and the “Create Electricity Meter Zone” screen is displayed by pressing the button.
Remove	At electricity meter system selection, the electricity meter system is deleted and all the units allocated under it are removed. At unit selection, unit allocation is removed. Multiple electricity meters and units can be selected and deleted.

Note

- The action item on tool bar can be operated equally even right click mouse on the indoor units in ②.

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② The currently set electricity meter system and the indoor, outdoor, and RB units registered under it will be displayed hierarchically.

③ Tree view of the units installed at the site.
Displayed in the order of outdoor unit → RB unit → indoor unit.

④ By pressing the [Add] button, the indoor, outdoor, and RB units selected at ③ will be added to the electricity meter system of the selection position of ②.

⑤ By pressing the [Remove] button, the indoor, outdoor, and RB units selected at ② will be removed .

⑥ All the electricity meter system data will be displayed in the data list and at electricity meter system selection (multiple selection is possible) by left side tree, the background color of the selected electricity meters will be changed.

⑦ By pressing the [OK] button, the set electricity meter system and indoor, outdoor, and RB units will be saved and ends setting.
By pressing the [Cancel] button, if there is data being edited, it will be discarded and ends setting.

⑧ An icon will be assigned to the indoor, outdoor, and RB units of the right side tree and will be made reference at registration.

Selectable	When none or more than one electricity meter systems are selected, shows V-II/V-III/VR-II/J-II/J-IIS series units (including UTY-VGGXZ1) that are not registered to any meter. When one electricity meter system is selected, shows units that can be registered at the selected meter. [Add] button can also be selected.
Is selected	When none or more than one electricity meter systems are selected, shows units registered to any meter. When one electricity meter system is selected, shows units registered to the selected electricity meter system.
Other Electricity Meter	When one electricity meter system is selected, shows units registered to the other meter systems.
Invalid Choice	When an electricity meter system is selected,shows units that cannot be registered to the selected meter,depending on type (whether or not the unit has an energy-saving function).
Unregisterable Unit	Units that are not assumed to be registered to a electricity meter system. S/V Series units, etc.

UTY-VGGXZ1 :The V-II/V-III/VR-II/J-II/J-IIS series network converter

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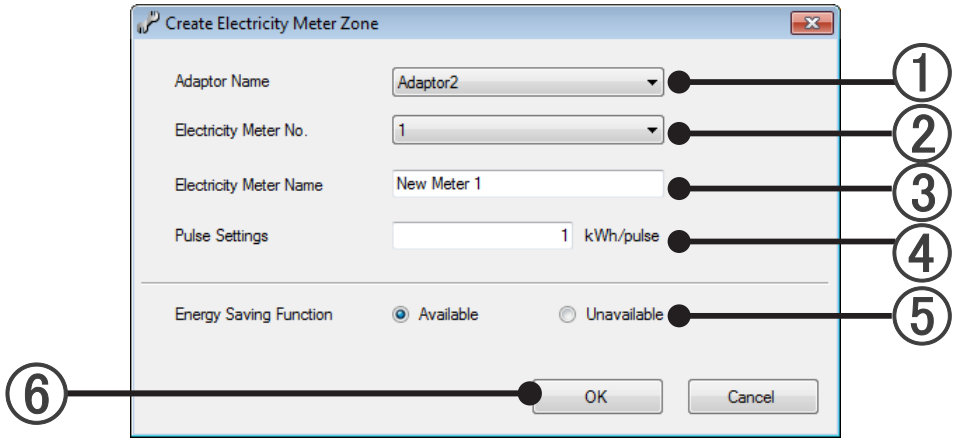
[New Meter] button or [Edit] button of Electricity Meter Zone Setting screen



① Select one from the list of adaptors on the adaptor setting screen.

② Select a number from the list of meter numbers for those connected to the adaptor selected in ①.

③ Enter the electricity meter name.
The maximum number of character you can enter is 20, or you can leave this blank or enter multiple numbers.

④ Set whether to handle by specifying how many kWhs correspond to one pulse from the electricity meter.
For the number value only enter 7 or fewer digits for whole numbers and 6 or fewer for digits after the decimal point.

Note

"1" is displayed as the initial value, however, set this to match the electricity meter you are using.

⑤ Select the type.
Select 'Available' if the meter measures V-II/V-III/VR-II/J-II/J-IIS series indoor/outdoor/RB units, because they can use the energy saving function.
Select 'Unavailable' if the meter measures air conditioning systems connected via UTY-VGGXZ1 network converters, because they cannot use the energy saving function.

⑥ [OK]: Saves the edited contents and ends setting.
[Cancel]: Ends setting without saving the edited contents.

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Energy Saving Function

24. Energy Saving Function
25. Energy Saving Setting

24. Energy Saving Function

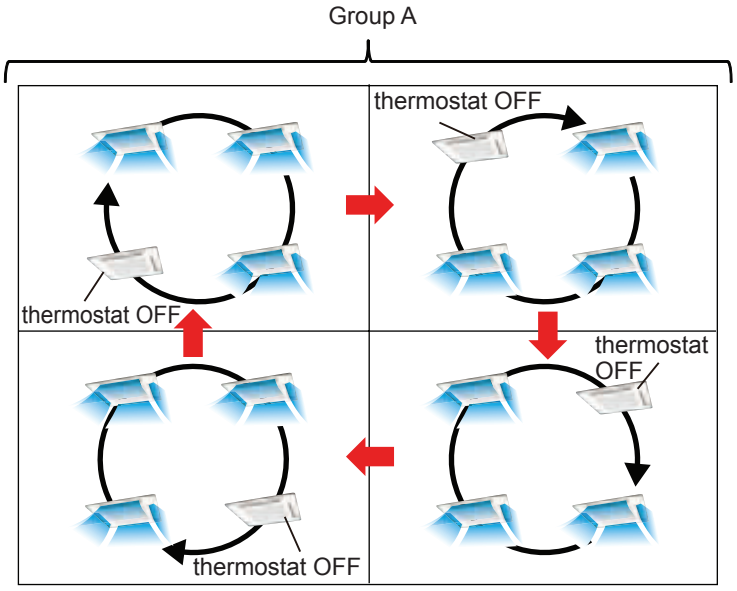
24-1 Overview

The Energy Saving option of System Controller Lite has 4 functions as follow.

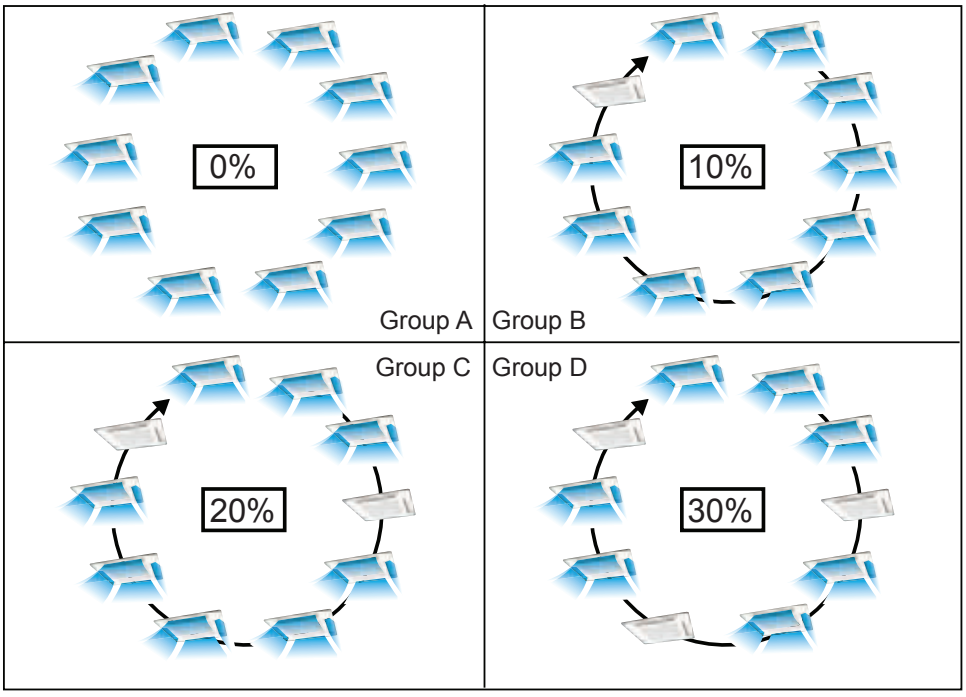
[Indoor unit rotation operation]

Reduces the power consumption by rotating the indoor units which are set to forced thermostat OFF.
Operating the air conditioner even in the spring and autumn when the load is comparatively light may have an energy saving effect.
Because it is an intermittent operation, it does not loose much comfort, and is a control which is difficult for use of the room to sense its operation.

- The electric power consumed in the arbitrarily defined group is reduced by rotating indoor units which are set to forced thermostat OFF.



- Indoor units can be rotated by stoppage rate set for each group.



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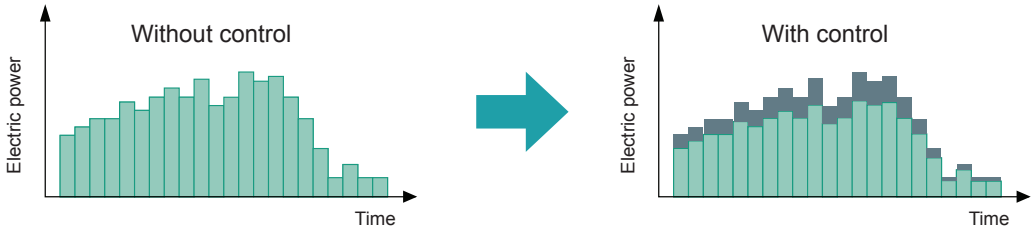
* The indoor unit operation stoppage rate can be selected from 10% to 30%.



Example of Use

Overview of Property:

Usage at own office building. Each floor are configured as rooms or blocks separated by partitions, and each room/block has multiple indoor units not linked with Remote Control Groups.

Objectives of Energy Saving:

You want to save energy consumed by air-conditioners that is large portion of energy consumption to reduce the running cost of the building. You have no specific numerical targets.

Recommended Settings:

Set Energy Saving Groups by each room/block and set Indoor Unit Rotation at thermostat-off rate of 10%. However, do not set anything for server rooms etc where air-conditioners need to be continuously operational, or for the room with high heat load due to direct exposure to sunlight.

When energy saving benefits are not adequate, increase the thermostat-off rate of Energy Saving Groups after verifying the impact on comfort.

Energy Saving Benefits:

Over the entire year, energy saving benefits are obtained according to the usage of air-conditioners. Especially, benefits during high heat load hours such as afternoons in summer are high.

[Out door unit capacity save]

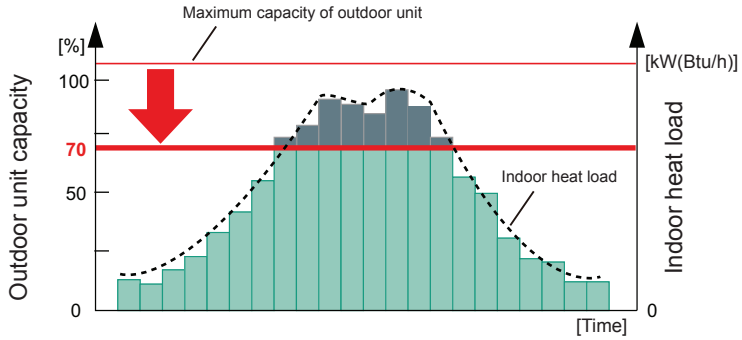
The power consumption is reduced by limiting the upper limit of the outdoor unit capacity for each refrigerant system.

This has a reducing effect especially in the summer, winter and other times when the heat load is high.

In addition, because the upper limit capacity of the outdoor units is limited directly, it is a control which easily exhibits an energy saving effect compared to rotation control.

However, because the outdoor unit does not operate above the limited capacity, there may be a loss of comfort, depending on the room heat load.

* The operation capacity upper limit rate [%] of the outdoor unit is specified for each refrigerant system.



Example of Use

Overview of Property:

Usage at a leased building. No separate air-conditioning charges are collected.

Refrigerating Systems are separated for each floor and electricity meters are installed for each Refrigerating System.

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Objectives of Energy Saving:

As the electricity charges increase during high heat load times such as peak summer, you want to somehow limit such charges.

If possible, you want to reduce about 10% of energy.

Recommended Settings:

Set Outdoor Unit Capacity Save at operation rate of 90% for each Refrigerating System.

By setting a schedule, let this function operates only while the time or season when the heat load is high.

Set operation rate smaller if the energy saving benefits are not up to expected levels.

Using energy meters, monitor the power consumption for each Refrigerating System, and reduce the operation rate for the Refrigerating Systems having high power consumption compared to other locations.

On the other hand, increase the operation rate for places where heat is likely to accumulate such as higher floors.

Energy Saving Benefits:

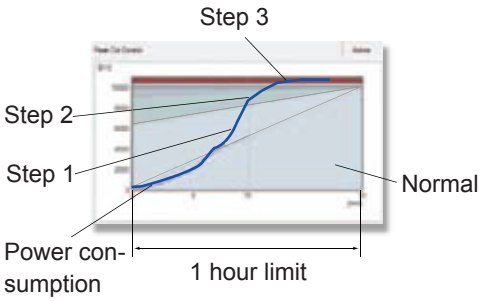
Energy saving benefits would be obtained for sure, resulting in the reduction of electricity charges.

[Perk cut operation]

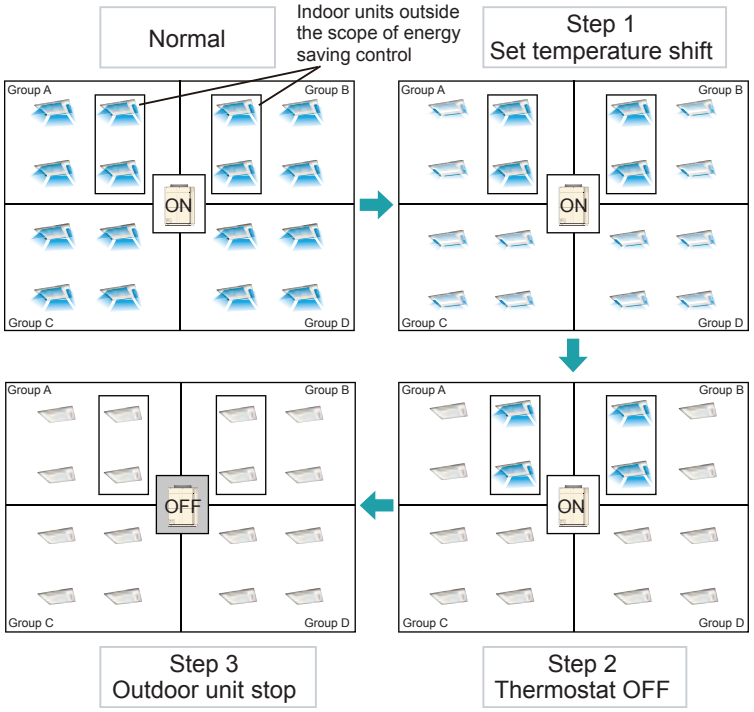
Reduces the power consumption by setting a specific target value (maximum average power [kW]) for the air conditioners and controlling operation to prevent the power consumption from exceeding this value.

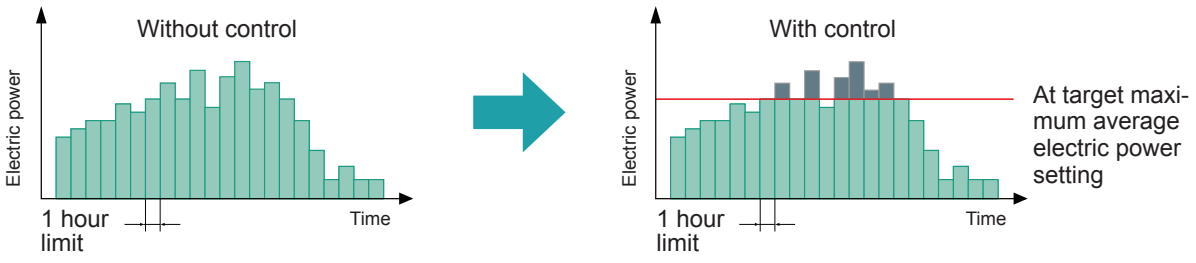
Limit control is performed in 3 steps of “Step 1: Set temperature shift” → “Step 2: Thermostat OFF” → “Step 3: Outdoor unit stop”.

To perform this control, an electricity meter must be installed.



*Specifies the maximum average electric power [kW] for the entire air conditioning system.





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Example of Use

Overview of Property:

Usage at own office building.

Objectives of the Energy Saving:

As the electricity charges differ depending on to time, you want to reduce the power consumption during the time when electricity charges are high.

Especially, we would like to monitor and maintain the air conditioners that consume large proportion of electricity using Energy Saving Function.

Have specific numerical targets for power consumption (kW).

Recommended Settings:

Set an Energy Saving Group for each room/block; however, do not set the locations that need to be operational continuously such as server rooms as an Energy Saving Group.

Set the value mentioned in numerical targets as an upper power limit of the function, then set target power of the function.

Adjust the effect of energy saving by setting temperature shift pattern after considering the heat load and the requirement on comfort for each energy saving group.

Benefits of Energy Saving:

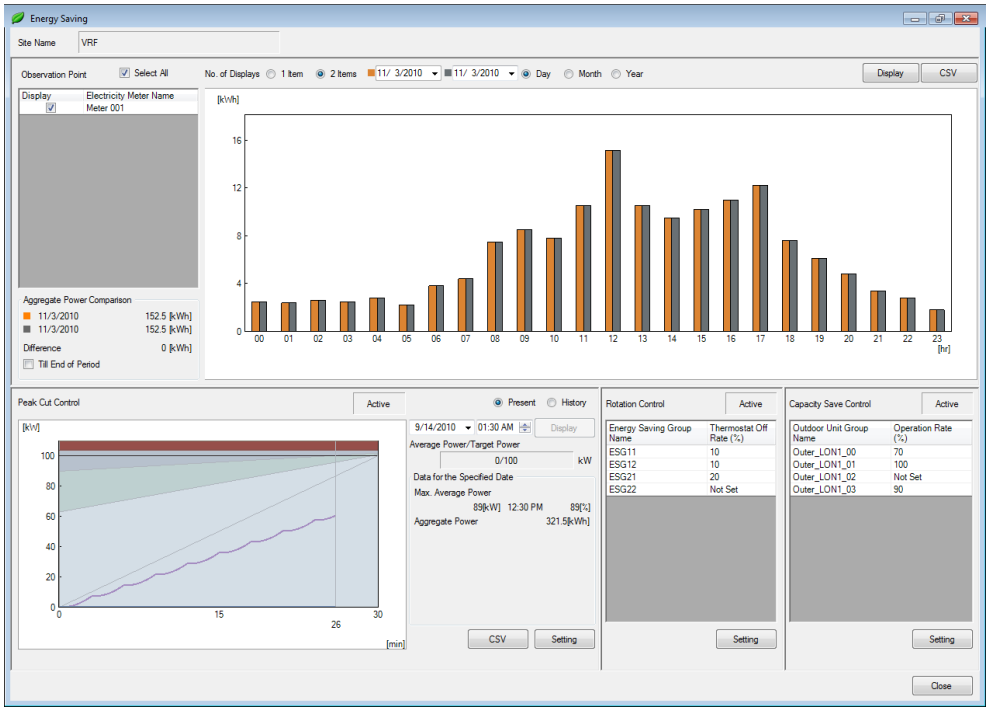
Limiting the power consumption during the time when electricity charges are high.

[Electricity energy graph display function]

Displays by bar graph the power consumption measured by the electricity meter connected to the air conditioner. Use it to grasp the power consumption usage conditions.

The power consumption for 3 years is saved and the past history can be referenced.

In addition, the data of an arbitrary 2 periods can be comparison displayed.



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24-2 Precautions on use

The effect of energy saving function will be different by used device and use environment or installation environment etc. Energy saving function does not ensure that the stable effect or function can be brought out for the operation by specified setting. Please understand the follow precautions then operate it.

① How to use the energy saving function
Since the effect of the energy saving function depends on the devices used, usage environment, installation environment, and so forth, a different effect may appear according to the building and operating period even when operated at the same settings and schedule.
Gain an understanding of the features of each energy saving function and confirm the actual effect during operation and use while adjusting the settings, etc. as required.

② Target electric power at peak cut function
There are values used as target values from the standpoint of performing peak cut control.
These values do not always guarantee that the consumed power is the target value or less. For example, even if forced thermostat off and control which enters the outdoor unit stoppage region are each performed, since control is ineffective if the outdoor unit is performing a protective operation (oil recovery and defrosting), as a result the electric power consumed may exceed the target electric power.

③ Relationship between unit protection and energy saving function
For VRF, there are operations and restrictions for protecting units. The energy saving function operates within the range of these protection operations and restrictions. When the energy saving function performs control against these protection operations and restrictions, the protection operations and restrictions have priority and the energy saving function is restricted and may not operate. As protection operation of a specific device, there is oil recovery, defrosting, etc. which are automatically performed periodically or under specified conditions.

④ Failure, etc.
An energy saving function operates only when the related units are operating normally.
When the power of the electricity meter and the outdoor units connected to an electricity meter and the SYSTEM CONTROLLER LITE is turned off due to a failure, etc. the energy saving function will not operate normally.

⑤ Explaining to the building tenants
During energy saving function operation, different control from the setting by remote controller may operate. For this reason, it is recommended that the building tenants be informed of this beforehand.

⑥ Since using the 3 functions of Indoor unit rotation operation Function, Outdoor Unit Capacity Save Function and Perk cut operation Function simultaneously can largely affect the comfort, it is recommended to use a single function.

⑦ Indoor Unit Rotation operation
- Heating operation when outside temperature is low can significantly lower the air-conditioning performance.
- If the total capacity of the indoor units stopped simultaneously in one room is large against the load of the room, it may significantly deteriorate the comfort.
- If the connecting capacity ratio is large, setting low stoppage rate would make it difficult to gain benefits of reduction in power consumption.
- In a system with a lot of indoor units of small capacity, comfort may be significantly lost or it may be difficult to gain benefits of reducing in power consumption.

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⑧ Outdoor unit capacity save

- Benefits may vary according to indoor and outdoor heat load.
- If the operating rate is set very low, comfort may significantly deteriorate.
- No reduction benefits would be obtained if the unit is operated below the set operation rate.

⑨ Peak cut operation

- If the target electric power is set very low, comfort may significantly deteriorate due to the occurrence of Outdoor Unit Forced Stop every hour.
- If the time interval is set too short, Outdoor Unit Stop would easily occur as compared to longer time interval.
- If the energy meter is not set to appropriate pulse unit (or pulse factor), control will become rough.
- When the DX-Kit is controlled by DDC or some other external controller, the temperature shift control is not performed to the DX-Kit.

⑩ When cooling and heating operations are mixed at indoor rotation control, effect may be small.

⑪ Energy saving control for Outdoor Air Unit and DX-Kit

When energy saving control is performed for an Outdoor Air Unit or DX-Kit itself or outdoor units in the refrigerant system to which the unit belongs, the unit may be stopped if the desired capacity is not obtained or the energy saving function is limited.

When the Outdoor Air Unit and DX-Kit are used as an outdoor air introduction unit, perform the energy saving control after understanding the affect because the ventilation function required by facility design may not be satisfied.

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24-3 Before Using Energy Saving Function

First of all, clearly define the purpose and goals of energy saving.

[How would you like to use it?]

(1) I want to try it and check the benefits.

(2) Although no clear targets, would like to reduce the electricity bill in a stepwise manner.

(3) Would like to reduce the electricity bill in a planned manner after setting numerical targets.

[What issues would you like to address with it?]

(4) Would like to reduce the power consumption during day time in summer.

(5) Would like to limit the power consumption of a specific unit.

(6) Would like to comply with energy consumption laws and regulations.

[What are your desired advantages?]

(7) Would like our building to be recognized as an environment friendly building by the external world.

(8) Would like to contribute to global environment.

Refer to the following table based on the details provided above, find appropriate functions according to the requirements of each property and perform them.

Usage Scenarios	Supported Functions			
	Indoor unit rotation operation	Outdoor unit capacity save	Peak cut operation	Power Consumption Graph Function
Priority is energy saving.		○	○	
Want to save energy keep the comfort in mind.	○			
Want to save energy irrespective of heat load.	○			
Want to save energy when the heat load is high.		○	○	
Have a specific indoor unit as I do not want to save energy or want to reduce the amount of energy saved.	○		○	
Want to have uniform energy saving across all properties.	○	○	○	
No specific targets of energy saving.	○			
Specific targets of energy saving are relative compared to the current figures.		○	○	
Specific targets of energy saving are absolute figures.			○	
Do not want to increase the basic charges of electricity bill.			○	
Want to reduce volume-driven electricity charges.	○	○		
Want to give it a try and check the benefits of energy saving.	○			
Want to save energy without doing any complicated settings. Fine if the benefits are also marginal.	○			
Want to save energy without doing any complicated settings. However, want to achieve several benefits.		○		
Want to check the power consumption for each energy meter.				○
Want to compare daily, weekly and monthly power consumption.				○

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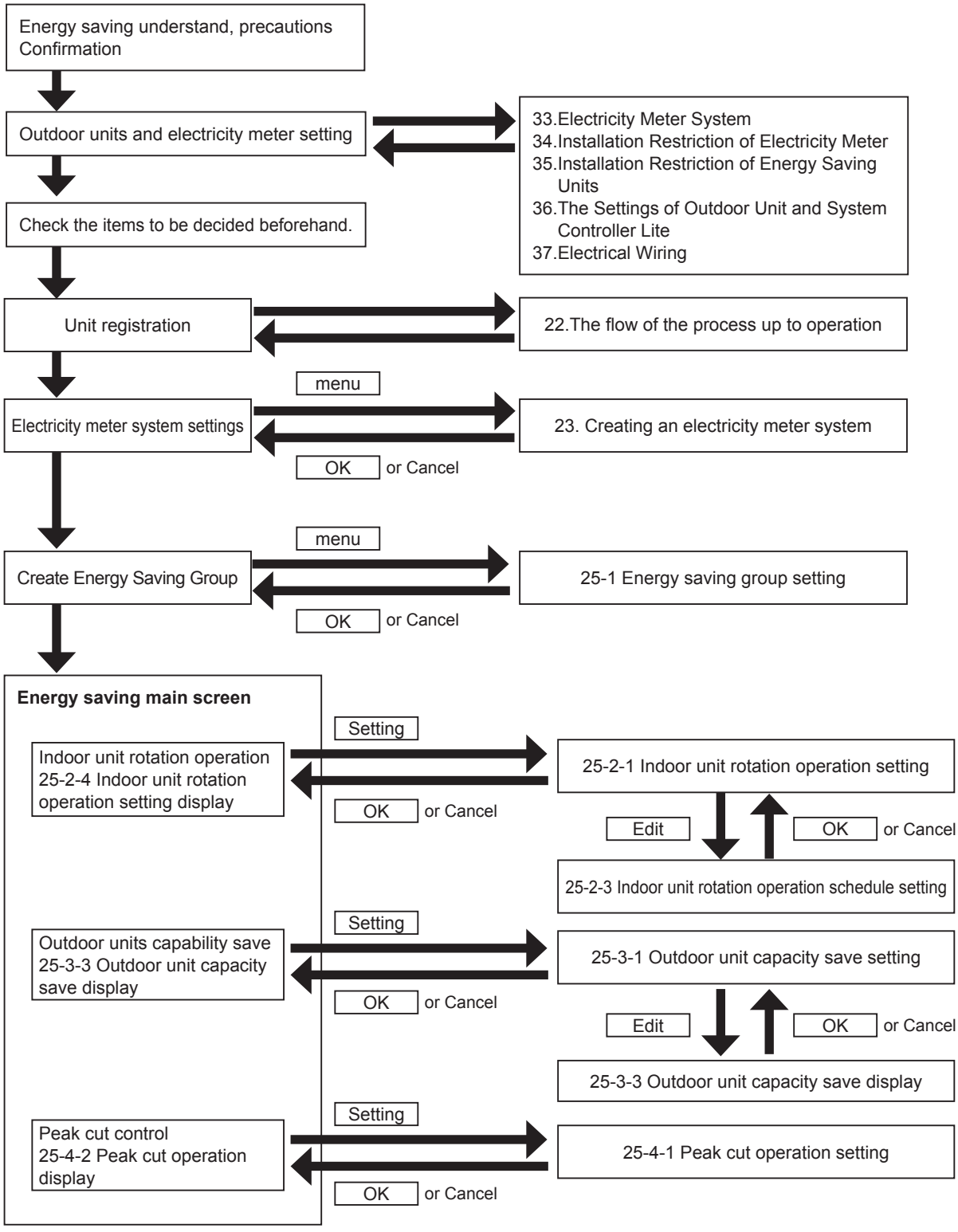
25. Energy Saving Setting

Make a necessary basic setting related energy saving before operate it. And, the setting may be also renewed because of device or tenant changing.
Make a basic setting related necessary energy saving before operation.
Please set it according to the follow flow when you set first time after installation. AS the setting and changing from operation starting, please in according to the contents after chapter 25-2 when needed.

Flow at initial setting
Please set it in accordance with this flow when at first setting.



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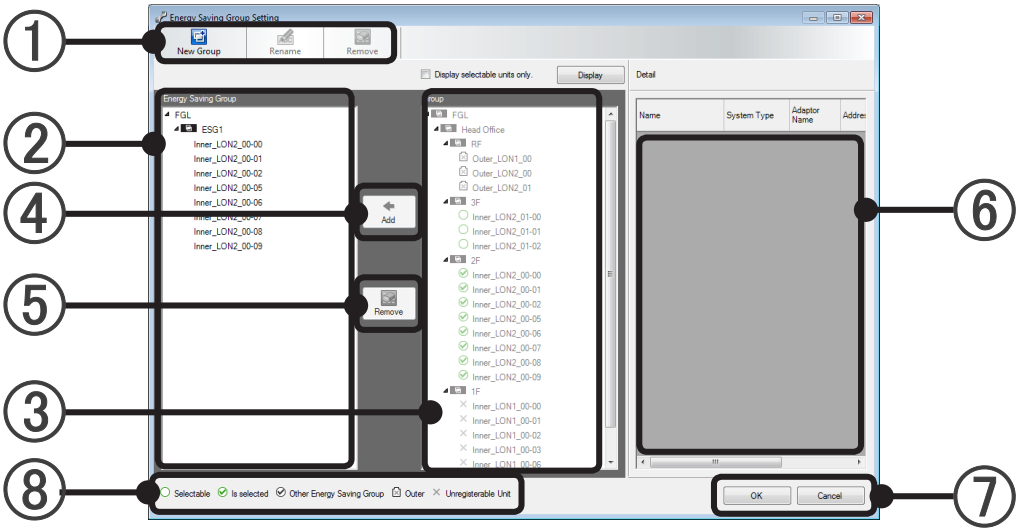
25-1 Energy saving group setting

Manage energy saving group.
Add or delete the indoor units for created energy saving group. (Multiple registration is not allowed)
Indoor units registered in energy saving group would be:

- An object of indoor unit rotation operation. It can set downtime ratio in each energy saving group.
- An object of temperature shift and forced thermostat-OFF of peak cut operation. Temperature shift pattern can be set for each energy saving group.
- Belonging refrigerant system would be an object of outdoor units stop by peak cut operation.

To the extent possible, set Energy Saving Group by room (or by separated spaces).
Make each Energy Saving Group includes as many indoor units as possible.
Do not include the indoor units that are out of the control scope of Peak Cut Function in an Energy Saving Function.

To display this screen, select main screen menu → "Setting" → "Energy Saving Group Setting".



① Select work term from tool bar.

New Group	Create a new energy saving group. (Max1600).
Rename	A new name can be input for a selected energy saving group. (20 characters or less, alphabet, digit, symbol)
Remove	Delete the selected energy saving group or release the selected indoor units from energy saving group. This function is the same with Remove button of ⑤.

Note

- The action item on tool bar can be operated equally even right click mouse on the indoor units in ②.

② Current energy saving groups and indoor units registered under them will be displayed hierarchically.

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③ The groups set in Group Setting Screen will be displayed.
The indoor units which is not registered in any group will displayed in "Undefined Group".

④ Press [Add] button to add the indoor units selected at ③ to energy saving group selected in ②.

⑤ Press [Remove] button to delete selected energy saving group or release selected indoor units from energy saving group.

⑥ Energy saving group tree, or the address and model name of indoor unit group which included in a group being selected at group tree will be displayed information list.

⑦ Press [OK] button to save energy saving groups and indoor units, then exit.
Press [Cancel] button to throw away editing data, then exit.

⑧ Show an icon to the indoor unit in the tree on right and refer to it at the time of registration.

Selectable	This shows indoor units not registered in any Energy Saving Group. These can be added to a selected Energy Saving Group.
Is selected	When an Energy Saving Group is selected in ②, this shows indoor units registered to it. When none or multiple Energy Saving Groups are selected in ②, this shows indoor units registered to any Energy Saving Group.
Other Energy Saving Group	When an Energy Saving Group is selected in ②, this shows indoor units registered to the other Energy Saving Groups.
Outer	Outdoor units.
Unregisterable Unit	Units which cannot be registered to Energy saving Group. (S Series units, V Series units, UTY-VGGXZ1).

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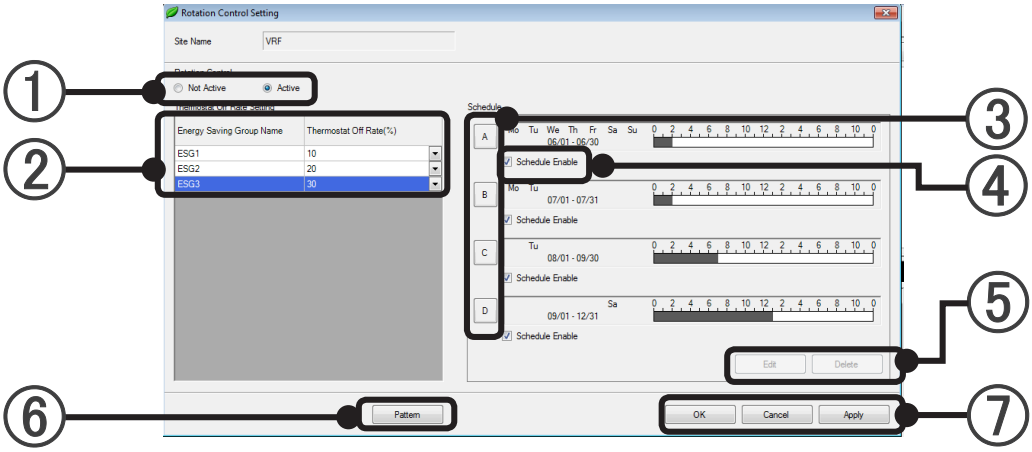
25-2 Indoor unit rotation operation

25-2-1 Indoor unit rotation operation setting

Rotate the indoor units that thermostat OFF forcibly to reduce electricity consumption.
Set the thermostat-OFF for each energy saving group, select setting schedule and specify to enable or disable this function.

To display this screen, select main screen menu → "Operation" → "Energy Saving", and click the "setting" button on the Rotation Control area.



① Set the indoor units rotation operation to be "Active" or "Not Active".

② The list of energy saving group is displayed. Select thermostat-OFF rate (10~30) for each energy saving group.
Temporarily operate at 10% in the beginning, and select 20% or 30% as needed after checking the benefits and comfort.
Select “Not Set” for the Energy Saving Groups that are not controlled.

③ Button will be reversing displayed and the schedule will be selected by pressing schedule setting (A~D) button. It will be not selected if you press it once again.

A pattern of one day set based on schedule (A~D) is displayed.

The day of the week displaying	A set week day is displayed.
Period displaying	The applicable period of a set pattern is displayed.
Schedule pattern displaying (a day)	The time of up to 4 pattern is displayed within color bar.

④ Set correspond schedules to be enable or disable.
It is used when you have input setting only and want to change enable or disable.

⑤ Indoor Unit Rotation Schedule Setting Screen will be opened as you select schedule (A~D) and press [Edit] button.
A selected Schedule pattern will be deleted as you select schedule (A~D) and press [Delete] button.
If you select schedule, Edit button or Delete button will be enable.

⑥ When [Pattern] button is pressed, the rotation pattern display screen is opened.
The display becomes Active when there are 1 or more energy saving groups.

⑦ Press [OK] button to save thermostat-OFF rate information of energy saving group list and rotation schedule information and exit.

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Press [Apply] button to save thermostat-OFF rate information of energy saving group list and rotation schedule information, then continue setting.
Press [Cancel] button to throw away editing data, and exit.

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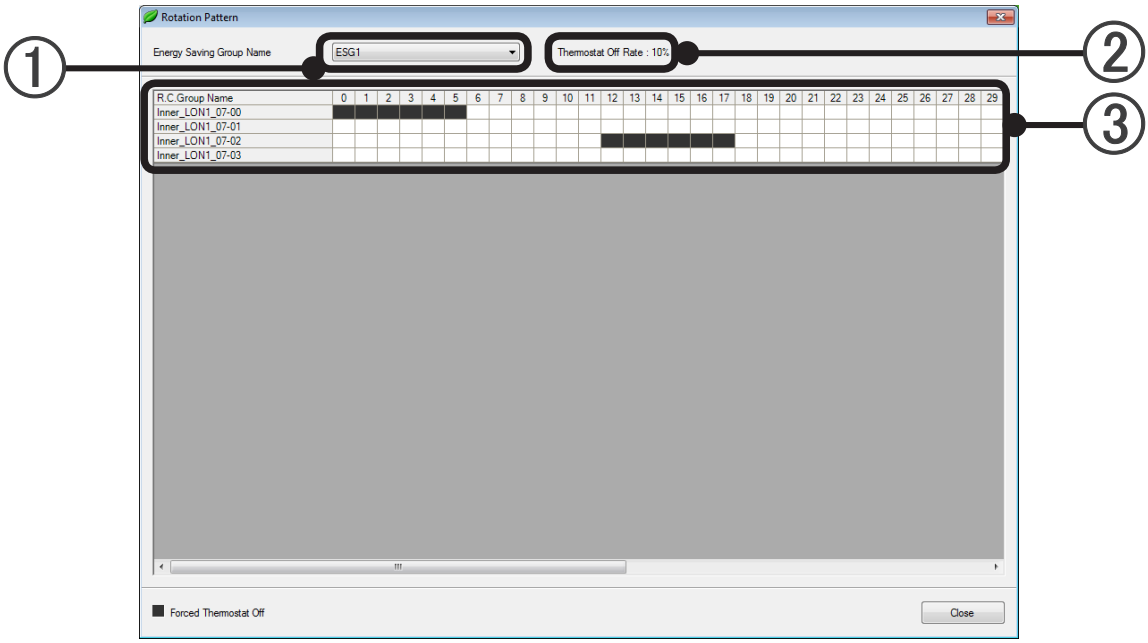
25-2-2 Rotation pattern display

A 60 minutes rotation pattern of a specified energy saving group is displayed for each Remote controller group.



① Select the energy saving group.

② The thermostat off rate set at the selected energy saving group is displayed.

③ The forced thermostat OFF rotation pattern of all the Remote controller groups belonging to the energy saving group is displayed.
Each Remote Control Group is forced thermostat OFF at the black time band.

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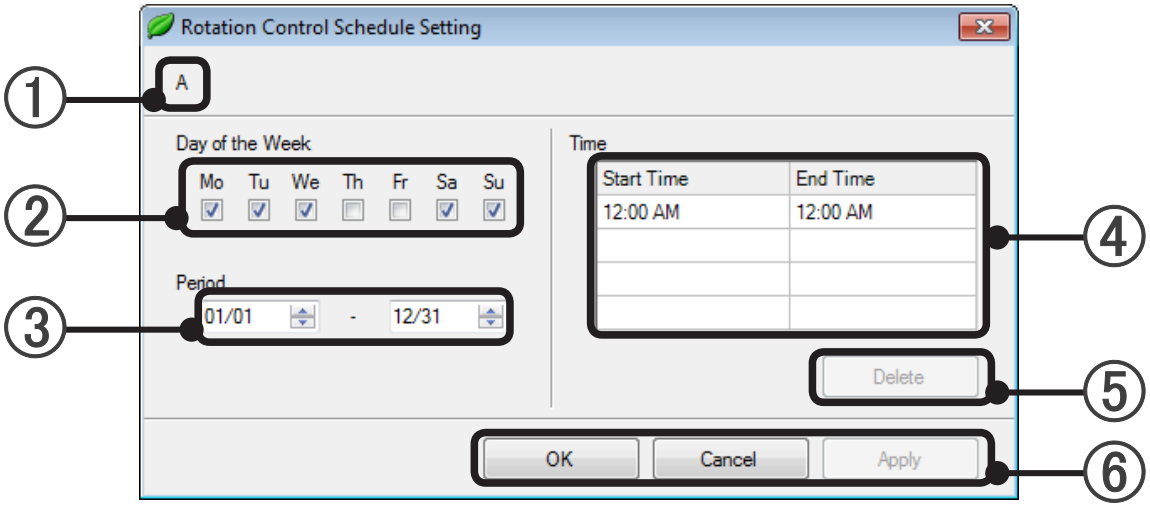
25-2-3 Indoor unit rotation operation schedule setting

Schedules selected at Indoor unit rotation operation setting screen and a schedule pattern is displayed.

In This schedule, up to 4 operation patterns can be defined annually.
For the regions that have distinct seasons such as spring, summer, autumn, winter, rainy season and dry season, set the schedule according to each season.

Disable the patterns that are not used.

To display this screen, click the "Edit" button on Indoor unit rotation operation setting screen.



① A pattern character (A~D) selected at Indoor unit rotation operation setting screen is displayed.

② Set a day of week day which apply to pattern. Multiple days of week can be selected. One or more days of week must be selected.

③ Set a period which apply to pattern. Period must be set.
When the start of the period was set to February 29, years that are not a leap year are controlled from March 1.
When the end of the period was set to February 29, years that are not a leap year are controlled up to February 28.

④ Set the time to create schedule pattern. One or more schedule pattern must be created more than 1.
Control is a setting of within 24 hours.
When you want to control up to the next day
(Example 22:00 to 05:00)
By entering the 2 periods 22:00 to 00:00 and 00:00 to 05:00 and setting them to consecutive days of the week, control is performed continuously without stopping even if the day of week is changed

⑤ Press [Delete] button to delete selected time.

⑥ Press [OK] button to save the information of weekday (②), period (③), time (④) and exit.
Press [Apply] button to save the information of weekday (②), period (③), time (④), then continue setting.
Press [Cancel] button to throw away editing data, and exit.

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25-2-4 Indoor unit rotation operation setting display

To display this screen, select main screen menu → "Operation" → "Energy Saving".

① It displays that Indoor unit rotation operation is "Active" or "Not Active".

② It is displayed that the thermostat-OFF rate for each energy saving group as Indoor unit rotation operation object.
Energy Saving Group Name……It displays Energy Saving Group which has been registered.
Thermostat Off Rate (%)……it displays the Stopping rate for each energy saving group.

③ Press [Setting] button to change to Indoor unit Rotation Operation Setting screen.

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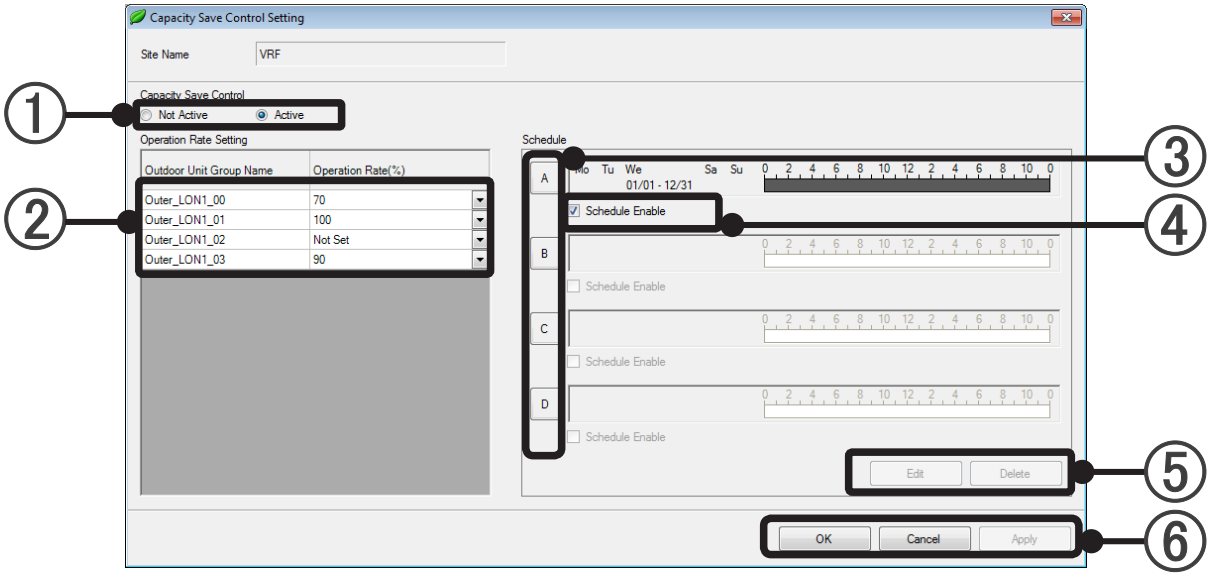
25-3 Outdoor unit capacity save

25-3-1 Outdoor unit capacity save setting

It will limit the outdoor units capacity of each outdoor unit group to reduce used electricity.

To display this screen, select main screen menu → "Operation" → "Energy Saving", and click the "setting" button on the Capacity Save Control area.



① Set the outdoor unit capacity save to be "Active" or "Not Active".

② The list of outdoor unit group is displayed. Select operating rate for each outdoor unit group.
Temporarily operate at 90% in the beginning, and select other values as needed after checking the benefits and comfort.
Select “Not Set” for the outdoor unit groups that are not controlled.

Note

The operating rate of 100% limits the outdoor units not to operate at more than their rated capacity. When not set, an outdoor unit may operate at more than 100% capacity.

③ Button will be reversing displayed and the schedule will be selected by pressing schedule setting (A~D) button. It will be not selected if you press it once again.

A pattern of one day set based on schedule (A~D) is displayed.

The day of the week displaying	A set week day is displayed.
Period displaying	The applicable period of a set pattern is displayed.
Schedule pattern displaying (a day)	The time of up to 4 pattern is displayed within color bar.

④ Set correspond schedules to be enable or disable.

⑤ Capacity Save Control Schedule Setting screen will be opened by pressing [Edit] button.
A selected Schedule pattern will be deleted by pressing [Delete] button.
If you select schedule, Edit button or Delete button will be enable.

⑥ Press [OK] button to save operating efficiency information in outdoor unit group list, outdoor unit capacity save schedules information and exit.

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Press [Apply] button to save operating efficiency information in outdoor unit group list, outdoor unit capacity save schedules information, then continue to set it.
Press [Cancel] button to throw away editing data, and exit.

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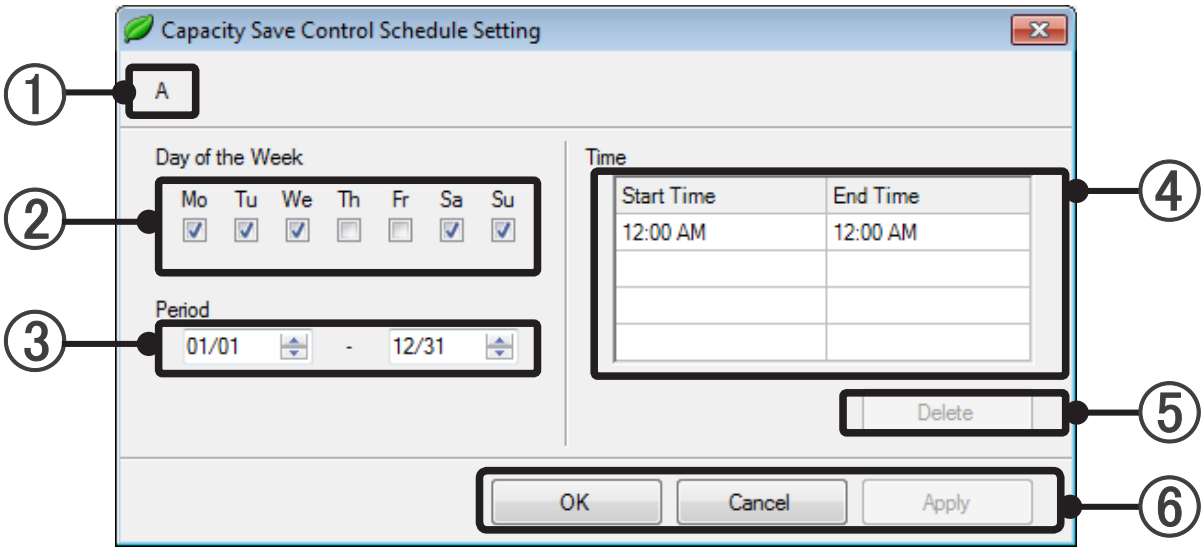
25-3-2 Outdoor unit capacity save schedule setting

Schedules selected at Outdoor unit capacity save setting screen and a schedule pattern is displayed.

In this schedule, up to 4 operation patterns can be defined annually.
For the regions that have distinct seasons such as spring, summer, autumn, winter, rainy season and dry season, set the schedule according to each season.
Disable the patterns that are not used.

To display this screen, click the "Edit" button on Outdoor Capacity Save Setting Screen.



① A pattern character (A~D) selected at Outdoor unit capacity save setting screen is displayed.

② Set a day of week which apply to pattern. Multiple days of week can be selected. One or more days of week must be selected.

③ Set a period which apply to pattern. Period be set must.
When the start of the period was set to February 29, years that are not a leap year are controlled from March 1.
When the end of the period was set to February 29, years that are not a leap year are controlled up to February 28.

④ Set the time to create schedule pattern. One or more schedule pattern must be created more than 1.
Control is a setting of within 24 hours.
When you want to control up to the next day
(Example 22:00 to 05:00)
By entering the 2 periods 22:00 to 00:00 and 00:00 to 05:00 and setting them to consecutive days of the week, control is performed continuously without stopping even if the day of week is changed

⑤ Delete the selected time.

⑥ Press [OK] button to save the information of weekday (②), period (③), time (④) and exit.
Press [Apply] button to save the information of weekday (②), period (③), time (④), then continue setting
Press [Cancel] button to throw away editing data, and exit.

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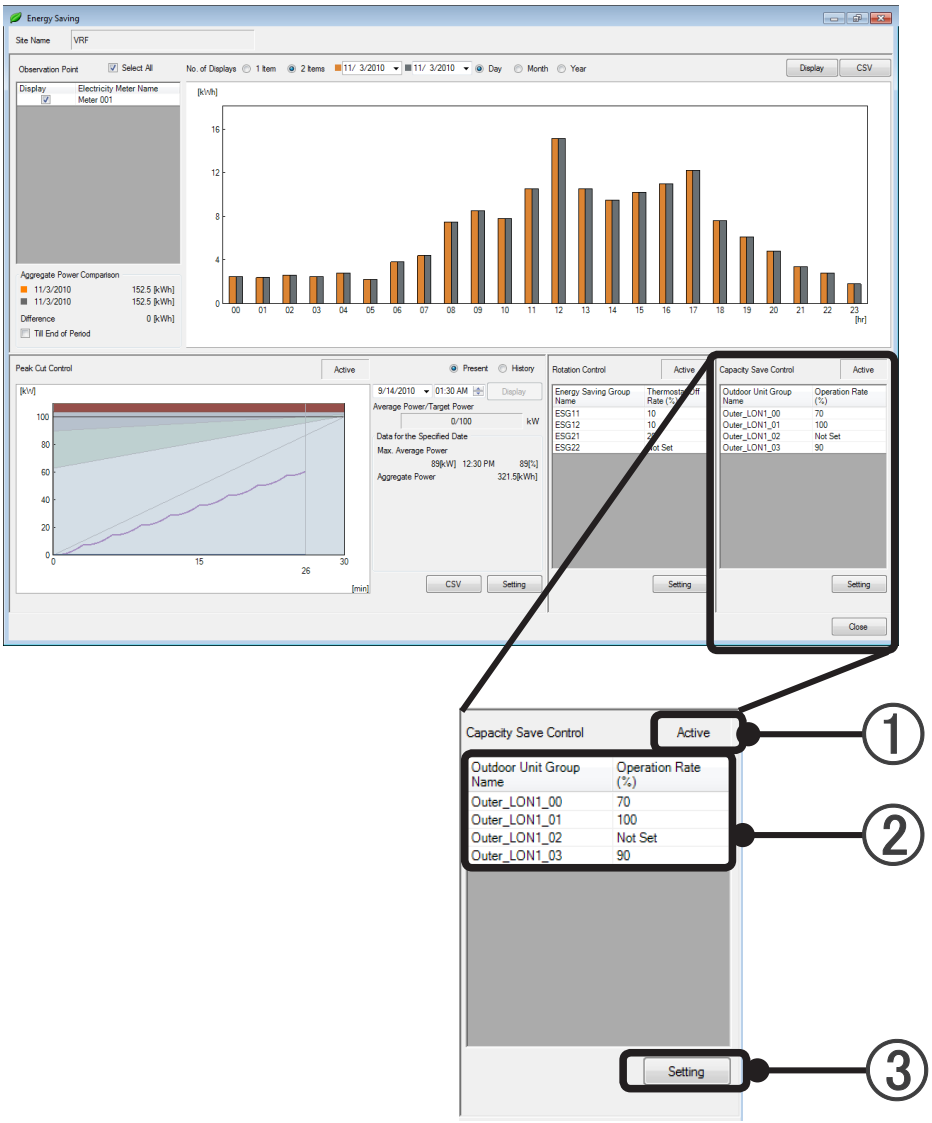
25-3-3 Outdoor unit capacity save display

To display this screen, select main screen menu → "Operation" → "Energy Saving".



① It displays that Outdoor unit capacity save is "Active" or "Not Active".

② It displays the set operation rate of each outdoor unit group which is a object of Outdoor unit capacity save.

Outdoor Unit Group Name……It displays the outdoor unit group which has been registered.
Operation Rate (%)……It displays the operating efficiency of each outdoor unit group.

③ Press [Setting] button to change to capacity save Setting screen.

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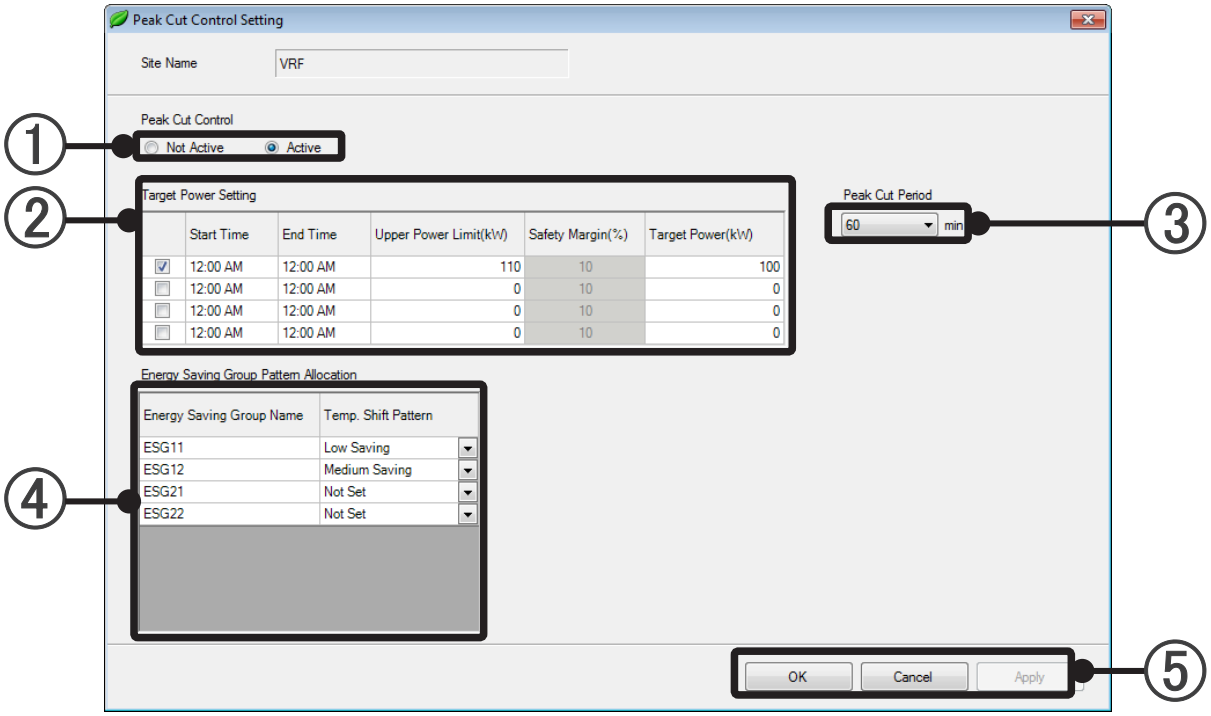
25-4 Peak cut operation

25-4-1 Peak cut operation setting

This function can reduce the electricity energy by setting a specific target value (maximum average power) at all units to limit operation, make the detail target value will not be exceed.
Set a target value of average electricity [kW]in 60 minutes, and control the air condition not to exceed the target value.
Set the upper limit power and the target power for up to 4 time period.
Temperature shift pattern is also set for each energy saving groups.

To display this screen, select main screen menu →"Setting" →"Energy Saving Group Setting".



① Set the peak cut control to be "Active" or "Not Active".

② Check the checkbox to decide a use target electricity. The checked items must be set.

Start Time, End Time	Set start time and end time for up to 4 time slots. The checked time slots must not overlap each other, and the total of the checked time slots must cover 24 hours of one day.
Upper Power Limit (kW)	The value to have added the safety ratio (10%~50%) on the target power.
Safety Margin (%)	Upper electricity will update automatically in accordance with input selected value of target electricity.
Target Power (kW)	The electricity of a target of peak cut control.0~10000kW.

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Normally, the expected upper limit of power consumption of an air-conditioner according to the contract with the electric company should be set as upper power limit.
Or, if there is a target figure for power consumption with a time interval, set so that this figure becomes upper power limit.
For target power, set the value arrived after deducting an appropriate Safety Margin from the upper power limit.
Values of upper power limit and target power changes in conjunction according to the formula shown below.

Upper power limit = Target power x (100% + Safety Margin)

Peak Cut Function does not guarantee that power consumption would not exceed upper power limit and target power.
Taking larger Safety Margin would reduce the possibility of power consumption exceeding upper power limit.

Start/End Time can define up to 4 time slots dividing one day.
When electricity charges vary depends on the time, set upper power limit and target power according to each time slot.
Uncheck the rows that are not used.

③ Select a unit of time (10, 15, 30, 60) which control the air-conditioners by peak cut control to make the target electricity does not be exceed.
Normally, set the demand time according to the contract with the electric company.
If it is not specified, set 60 minutes.

④ Select temperature shift pattern (High Saving, Medium Saving, Low Saving) for each energy saving group.
Shift value of the set temperature increases in the sequence of Low, Middle and High, and its impact on the reduction in power consumption and the comfort also increases.
Normally, the impact on comfort would be minimal if Low is selected.
In the areas where comfort is not important, benefits due to reduction in power consumption would increase at the temperature shift if it is set to Middle of High.
This would also make it unlike for the situation of Outdoor Unit Stop or Thermo OFF to occur.
Select “Not Set” for the Energy Saving Groups that are not controlled.
Even when “Not Set” is selected, Forced Thermo OFF and Outdoor Unit Stop would be performed.

- When the DX-Kit is controlled by DDC or some other external controller, the temperature shift control is not performed to the DX-Kit.

⑤ Press [OK] button to save current screen information, "Active", "Not Active" of peak cut control after input is checked, and exit it.
Press [Apply] button to save current screen information, "Active", "Not Active" of peak cut control after input is checked, then continue to set it.
Press [Cancel] button to throw away editing data, and exit.

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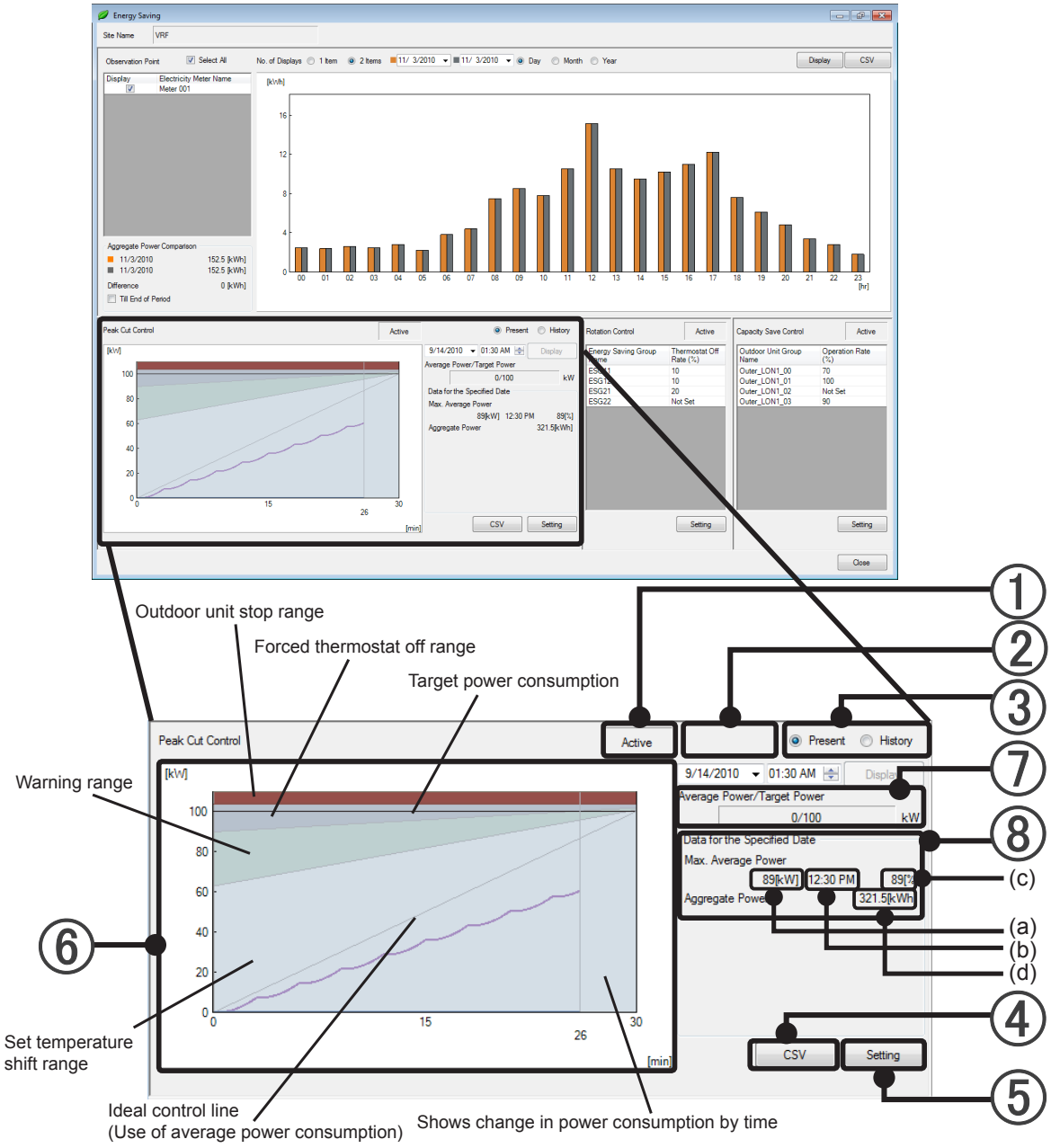
25-4-2 Peak cut operation display

To display this screen, Select main screen menu →"Operation" →"Energy Saving".



① It displays that peak cut control is "Active" or "Not Active".

② The function of peak cut control icon is as follow. (This will be displayed only when the Peak Cut Operation is Active.).

Standby	The stand-by state before peak cut control beginning. The control will begin from the next period. The status will become the standby status when the System Controller Lite is started, or the Peak Cut Period value is changed.
Warning	When peak cut control and average electricity reach a warning range of 5% from the lower limit line of forced thermostat off range.
Thermo Off	When peak cut control and average electricity reach forced thermostat off range and forced thermostat OFF control is started.
Forced off	When the Peak Cut Control/Average Electric Power has reached Forced thermostat off range and Outdoor Unit Stop Control has started.

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③ Specify the display content on graph.
Present:It displays the state at current time.
History:The state of specified date and hour will be displayed by pressing [Display].

④ Press [CSV] button to display the dialogue which save the currently displayed graph data at CSV format.
Please save it in any folder.

⑤ Press [Setting] button to open Peak Cut Control Setting screen.

⑥ The peak cut control graph is displayed.
Peak cut control graph monitor what control is used and how much electricity energy is consumed in current peak cut control.
Display timing
• When peak cut control is changed from "Not Active" to "Active" at peak cut control screen.
• When graph display type (③) is changed from "Present" to "History" and "Display" button is pressed.
• When graph display type (③) is changed from "History" to "Present".
• The timer cycle (Default 20 seconds) in the case of peak cut control is effective and graph display type (③) is "Present".

⑦ Average Power/Target Power is displayed.
Average power and target power is displayed.
In the case "present"graph, the current value is displayed. In the case of "History"graph, a value in exit time is displayed.

⑧ Data for the specified Date.
Max. Average Power information and Aggregate Power information on specified date is displayed.
(a) Max. Average Power: it means the maximum average power recorded on specified date.
(b) Max. Average Power recording time (display the end time): It displays the final time of recorded time limit.
(c) Max. Average Power recording ratio: it is a ratio of maximum average power recorded on specified date to target power.
(d) Aggregate Power: It displays the integrating power on specified date.

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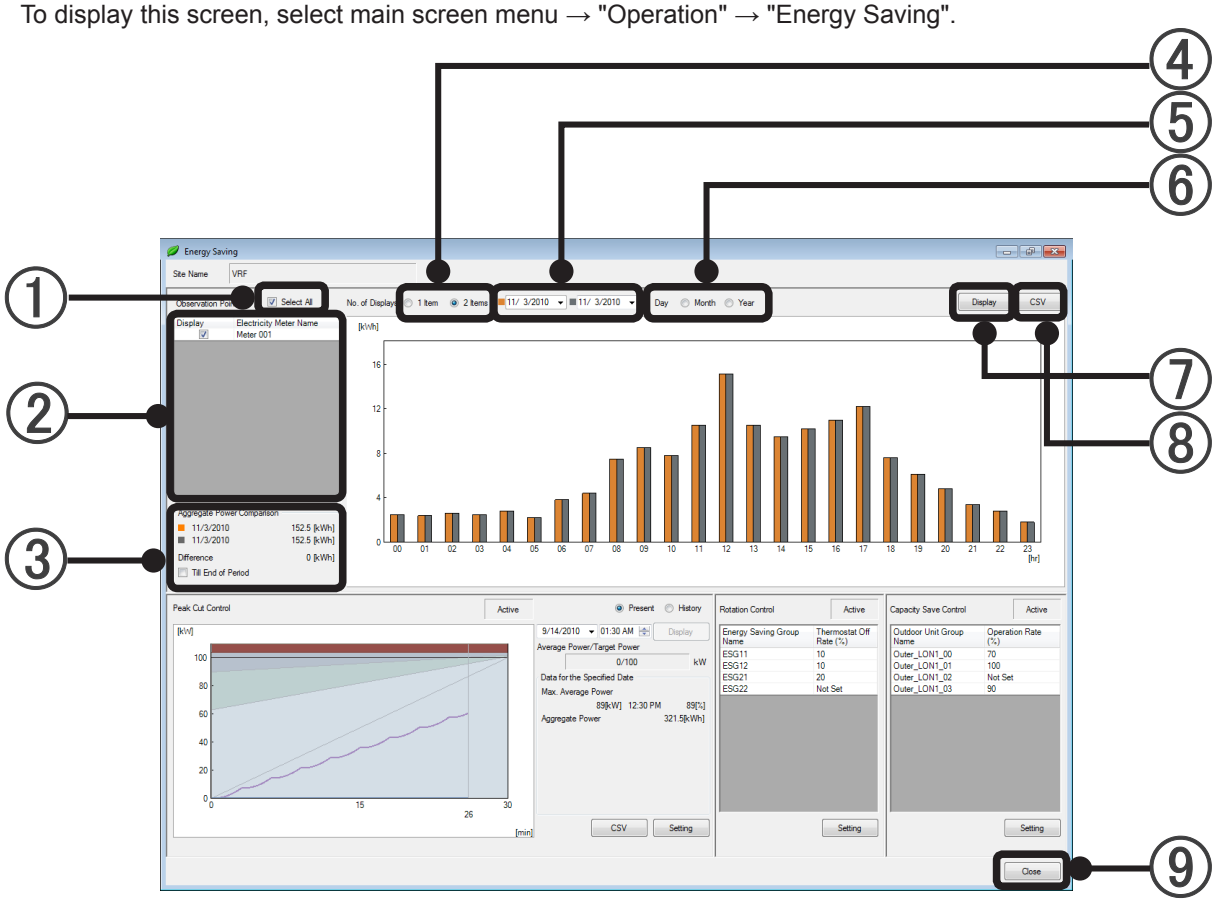
25-5 Electricity energy graph display

The effect of energy saving is displayed in electricity energy graph.
Graph will be refreshed at every set seconds (Default 300 seconds: 5 minutes) on the view of electricity meter.
It displays the operating condition of peak cut operation, indoor unit rotation operation and outdoor unit capacity save.
The peak cut control graph will be refreshed at every set seconds (Default 20 seconds).

To display this screen, select main screen menu → "Operation" → "Energy Saving".



① If you check "Select All", all display check box of electricity meter will be checked.
If the check is removed, all display check box of electricity meter will be removed.

② The selected electricity meter will be displayed on list. All will be displayed the electricity meter registered on electricity meter system setting screen.

③ It will be displayed that the integrating electricity energy at specified date on electricity meter selected at electricity meter list (①).
If you select "Till End of Period", it will integrate data and calculate difference until completion deadline in display bar graph to change label value automatically.

④ Select the number of periods to be displayed.
When "1 Item" selected, energy graph for a period specified at right date of ⑤ will be displayed.
When "2 Item" selected, energy graph for periods specified at both dates of ⑤ will be displayed.

⑤ Specify a period of total electricity energy displayed on graph with pulldown calendar.

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⑥ Specify horizontal axis of the graph.

"day": It displays 0:00~24:00 on specified date. (It will display total value of each 60 minutes on bar graph.)

"Month": It displays from specified date to 1 month later. (It will display total value of everyday on bar graph.)

"Year": It displays from specified date to 12 months later. (It will display total value of every month on bar graph.)

⑦ Press [Display] button to update electricity energy graph using the specified information from electricity meter list and display period.

⑧ Press [CSV] button to display the dialogue which save the currently displayed graph data at CSV format.
Please save it in any folder.

⑨ Press [Close] button to exit this screen.

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Electricity Apportionment Function

26. Electricity Apportionment Function
27. Electricity Charge Apportionment Setting
28. Electricity Charge Apportionment

26. Electricity Apportionment Function

Electricity Charge Apportionment option (UTY-PLGXA1) is necessary to use the electricity charge apportionment function.

26-1 Overview

The proportional electricity allocation function apportions consumed electricity for air-conditioning (electricity cost) to each previously defined tenant's indoor unit, based on the usage results of the consumed electricity, after the consumed electricity is input into the System Controller Lite.
When implementing electricity apportionment with the VRF system, you can select to either a composition which uses the electricity meter or one that does not. The following explains the differences between these.
As the proportional electricity allocation function apportions consumed electricity for air-conditioning (electricity cost) to each previously defined tenant's indoor unit, based on the usage results of the consumed electricity, after consumed electricity is input to the System Controller Lite, it is possible to carry out electricity apportionment calculations starting with either consumed electricity or electricity cost input.
[In case of apportioning electricity using an electricity meter]
As it is possible to send consumed electricity information from the electricity meter to the System Controller Lite as required, it is basically possible to carry out electricity apportionment calculation at any time.
Since the System Controller Lite carries out aggregation in units of days, it is possible to carry out electricity apportionment in units of days.

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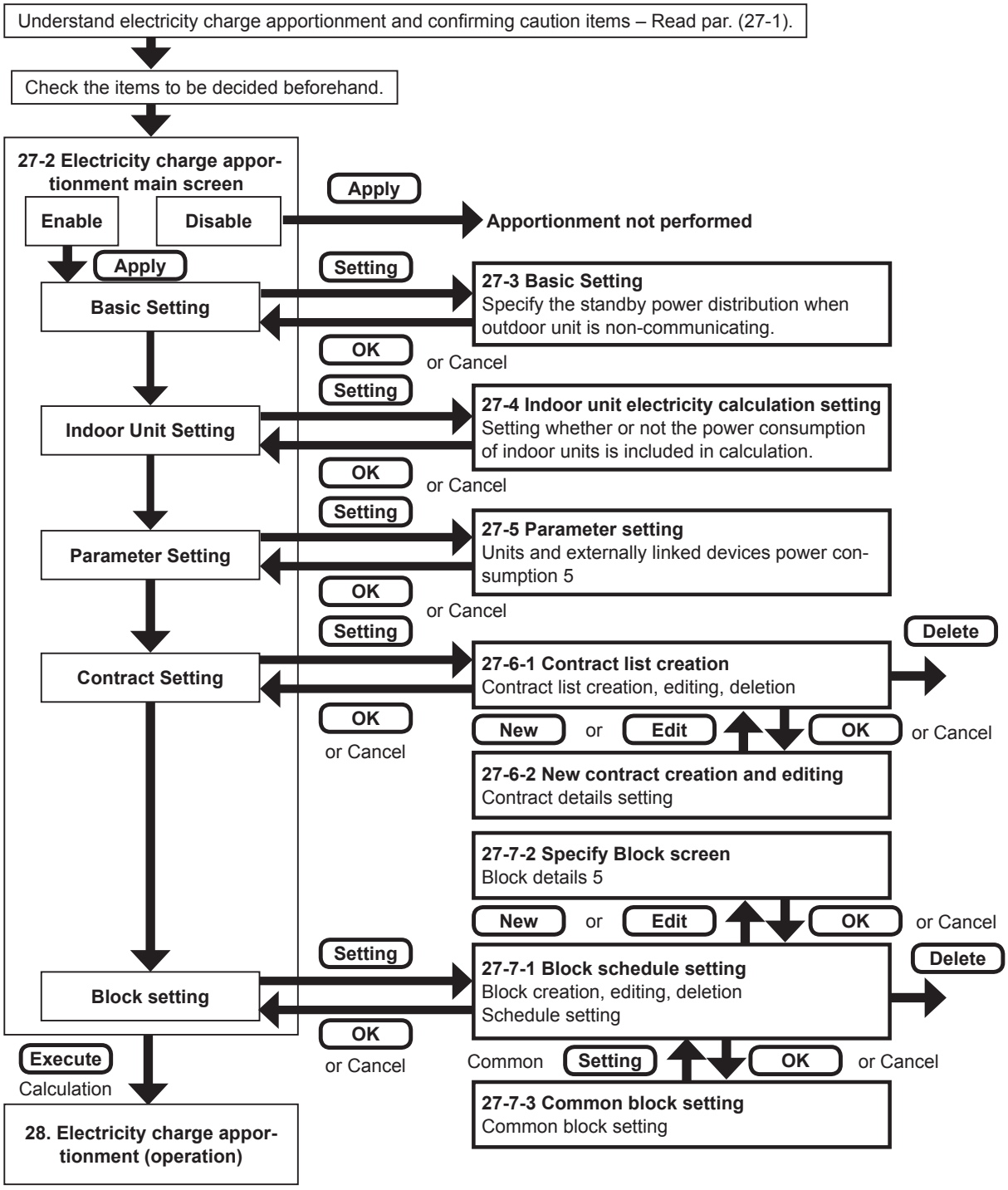
27. Electricity Charge Apportionment Setting

Electricity Charge Apportionment option (UTY-PLGXA1) is necessary to use the electricity charge apportionment function.
Performs basic settings related to electricity charge apportionment necessary before operation. May also update the settings due to facility and tenant changes.
At initial starting after installation, perform setting in accordance with the following flow. For settings and changes after operation starts, perform the necessary settings in accordance with the contents of par. 27-1 and subsequent paragraphs.

Flow at initial setting

Perform initial setting in accordance with this flow.



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27-1 Overview

1. Purpose of electricity charge apportionment

The electricity charge apportionment function apportions air conditioner electric charges to tenants. Generally, indoor units are divided among and used by each tenant, and calculation of the electricity charge for each tenant is easy. But since outdoor units are shared by multiple tenants, calculation of the electric charge for each tenant is not easy.

The electricity charge apportionment function is allows distribution of the electricity charges of outdoor units, which are a large part of the air conditioner power consumption, according to the air conditioner usage ability of each tenant.

2. Features of electricity charge apportionment of System Controller Lite

(1) There is a method of carrying out apportionment calculations from the used electricity volume sent from the electricity meter and the unit price, and there is also a method of electricity apportionment calculation based on the amount on the invoice from the electricity company.
(2) Apportionment calculation is performed according to indoor unit usage ability.
(3) In addition to electric charge calculation of outdoor units only, electric charge calculation including indoor units is also possible.
(4) Flexible definition according to the electric charge contract configuration, block configuration, and usage period is possible.
(5) Since the data for 1 year is saved, recalculation of the past is possible.

3. Basic electricity charge apportionment terms

The terms related to electricity charge apportionment which appear in this section are defined below.

Apportionment	Distribution proportional to basic quantity.
Contract	Billing objective of electricity charge from electric power company.
Block	Aggregate of indoor units used by building tenants. A block used exclusively by a specific tenant is called a tenant block and a block shared by multiple tenants is called a common block.
Energy used	Energy used by indoor units and outdoor units to perform air conditioning.
Electricity charge	Electricity charge billed from an electric power company. Consists of basic charge billed without regard to amount used, metering charge billed only for the amount used, additional charge billed for special reasons, etc.
Undefined block	Special block which is allocated the power consumption, etc. of indoor units which are not allocated to a tenant block or common block. Generally, electric charges considered to be borne by the building owner or manager are apportioned to an undefined block.
Parameters	Detailed unit Information used in electricity charge calculation by the electric charge apportionment function.

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4. Usage Precautions

(1) The electricity charge apportionment function requires correct setting and use in accordance with the descriptions in this manual.
If correct operation based on correct setting is not performed, a reasonable result may not be obtained.

(2) The electricity charge apportionment function does not calculate official electricity charges like those established by the laws and regulations of each country.

(3) Gaining an understanding of the descriptions, etc. in this manual and using the electricity charge apportionment function accordingly are the responsibility of the user.

(4) The electricity charges used in electricity charge apportionment calculation are only for the power consumed by the air conditioner.

(5) For the electricity charge apportionment function to function properly, the VRF Controller in the server PC must be operated continuously. If the VRF Controller is shut down or stopped by a power failure, etc. while the data needed by calculation is being acquired, correct electricity charge apportionment calculation may be impossible.

(6) Electricity charge apportionment is performed for units identified by scanning. When the unit configuration was changed, perform scanning to re-identify the objective units.

(7) Constantly maintain the units which are the objective of electricity charge apportionment calculation in the normal operating state.
If units are left in abnormal state (power not supplied or in error), data acquisition and calculation will not be correct.
The electricity charge apportionment function should not be performed during such period.

(8) When all the indoor units managed by the System Controller Lite are not allocated to a block, etc, the electric charges may be allocated to an undefined block. The electricity charges apportionment function cannot be used to reapportion the electricity charges allocated to an undefined block.
For cases which generate an undefined block, etc., see the later description.

(9) Electricity charge apportionment calculation identifies units by address. When the address of a unit was changed by automatic addressing function, etc., perform scanning to re-identify the correct address and update the block setting, if necessary.

(10) The electricity charge apportionment function of VRF system can only be performed from 1 controller or 1 gateway simultaneously.

(11) You cannot calculate the start day of data collection.

(12) Please correct the time periodically to make the date will not be changed.
The calculation of ECA will be as follow by correct time.
- In the case of set time back, ECA data will be deleted before returned time and collect data newly.
- In the case of set time ahead, ECA data will disappear during skip time.

In the case that set time back to change date, please scan for the apportionment can not be calculated accurately.

(13) When outdoor unit does not communicate, the apportionment calculation of the appropriate refrigerant system is not performed correctly because the data needed for apportionment is not obtained.

(14) Specifications of electricity charge apportionment are subject to change without prior notice.

(15) Specifications of electricity charge apportionment may be different depending on the series.

(16) With heat recovery, the apportionment result may be different even under the same operating condition, depending on the cooling/heating operation ratio, etc. of indoor units in the same refrigerant system.
For example, the case where there are both cooling units and heating units is more efficient than the case where all units operate in cooling mode within a refrigerant system.

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(17) About fan for the DX-Kit.

When fan is controlled by DX-Kit, fans are presumed to have 1 fan level (ON or OFF) in terms of electricity charge apportionment calculation.

Power consumed by the external fan must be entered by the user from the "Parameter Setting" screen in order to perform ECA.

Calculation is performed using the entered value as power consumed when the fan is ON.

When fan is controlled by external equipment, calculation is also performed using the ON/OFF status, but the status is estimated from the thermo-control status, acknowledged by DX-Kit.

5. Items Decided Before Use

Before using the electricity charge apportionment function, decide each of the items below and perform setting and operation correctly based on them.

(1)	Apportionment objective range	Whether or not indoor units are included in the apportionment objectives.
(2)	Basic/additional charges apportionment method	Select from among apportionment proportional to the number, capacity, and usage ability of indoor units or equal apportionment to blocks.
(3)	Common block apportionment method	Burden ratio of each block and building owner.
		When apportioning to blocks, select the apportionment method from the number of indoor units, capacity, equal, or individual.
(4)	Processing of undefined blocks	An undefined block is a block with an integrated electricity charge that could not be apportioned to a tenant block by the electricity charge apportionment function. The building owner or manager may have to process the electric charges apportioned to an undefined block separately from this electricity charge apportionment function. Decide beforehand the method of processing the undefined block when an undefined block was generated. See the later description so that undefined block electricity charges are not generated as much as possible.
(5)	Contents of contract	Contents of block division in contract, present/absence of basic/additional charges, nighttime, weekend charges time, etc.

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6. Overview of apportionment method

Electricity charge apportionment is performed by a suitable method corresponding to the S/V Series and V-II/V-III/VR-II/J-II/J-IIS Series refrigerant control system.
The following outlines the V-II/V-III/VR-II/J-II/J-IIS Series electricity charge apportionment method, but the conceptual processing method is also the same for the S/V Series.

6.1 Fixed period processing

This processing is performed periodically for all the objective units when the electricity charge apportionment function is enabled.

(1) The energy used by and usage ability of each outdoor unit and indoor unit are calculated in accordance with the operation status of each unit.

(2) The energy used by outdoor units is apportioned to indoor units according to the usage ability of the indoor unit and the total energy used by each indoor unit is calculated for each refrigerant system.

6.2 Charge calculation processing

Electricity charge calculation is processed for the period for each block, based on either the used electricity amount from electricity meter and the unit price, or based on the invoice from the electricity company.

(1) Basic and additional charges

- Apportioned to each block in accordance with the selected apportionment method.
- Apportionment is performed in day units.
- Apportioned between real blocks.
- Not apportioned to common blocks.
- Since charges are not distributed when there are no real blocks, when using basic and additional charges, set an owner block, etc. so that blank period blocks are not generated.

(2) Meter rate charges

- The total energy used by each indoor unit calculated by fixed period processing is accumulated through the calculation period as the total energy used by each block. Indoor units not allocated to a block are integrated as an undefined block.
- Meter rate charges are apportioned to each block in accordance with the proportion of the calculated total energy used by each block.

(3) Common block

- The result of accumulation of meter rate charges above becomes the source of apportionment for common blocks.
- Charges are apportioned to blocks specified as distribution destinations in accordance with the selected apportionment method.
- Apportionment is performed in day units.
- Apportionment is apportioned among real blocks.
- The period when there are no real blocks is integrated at undefined blocks.

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7. Cases for which Undefined Blocks are Generated

Cases for which undefined blocks are generated and measures to be taken when you do not want the undefined blocks to be generated, are described below.

(1) When there is an R/C group which belongs to a contract, but is not allocated to a block, its power consumption is apportioned to an undefined block.

To prevent generation of an undefined block

- Allocate all R/C groups to blocks.
- When that is not possible, either allocate it to a common block, or power off the indoor unit and perform re-scan so that it is removed from the electricity charge apportionment object.

(2) When the electricity charges of a common block are to be freely distributed to tenant blocks and the total is not 100%, the power consumption under 100% is apportioned to an undefined block.

- To prevent generation of an undefined block, make sure that the total distributed power consumption is 100%. In addition, when the period of the allocated blocks do not match, an undefined block is generated for periods that do not match.

(3) On the day with no block defined, with just common blocks or with blocks but when some units remain unallocated, those energy consumption are apportioned to undefined blocks.

- To prevent generation of an undefined block, disable the electricity charge apportionment function during that period.

8. Electricity charge apportionment error

Errors and their main causes related to electricity charge apportionment detected by the System Controller Lite are described.

(1) Generation conditions

- Generated when a unit that does not send the information necessary for electricity charge apportionment (non-communicating unit) is detected during the period electricity charge apportionment data collection is performed.
  Judgment, performed for the outdoor unit and the indoor unit, is based on whether there is no communication for more than 30 minutes or not.

(2) Processing of errors by the System Controller Lite

- Electricity charge apportionment error with the unit address are displayed for the non-communicating unit.
  The generation time and recovery time are recorded in the error history as with the other errors.
- In the electricity charge apportionment calculation, non-communicating unit is handled as follows:
  · Non-communicating indoor unit: Handled the same as an indoor unit whose operation is stopped by a remote controller
  · Non-communicating outdoor unit: When the non-communicating unit is a master unit, since the minimum data necessary for electricity charge apportionment is not collected, apportionment calculation of the relevant refrigerant system is not performed. (Charge becomes “0”.) When a slave unit is the non-communicating unit, calculation is performed as if the slave unit does not exist.
- Whether or not the outdoor unit standby power is apportioned to non-communicating indoor units can be set from the basic setting screen.

(3) Recovery conditions

- When the data necessary for electricity charge apportionment can be acquired from the relevant unit, the electricity charge apportionment error is reset.

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(4) Main error generation causes

- Electricity charge apportionment errors are mainly generated when the power breaker of a unit is switched off.
  (Because apportionment data is not sent when the power breaker is switched off.)
  When the power breaker of only part of the units in a refrigerant system is switched off, outdoor unit trouble may occur.
  Therefore, if there is a unit whose power breaker is switched off, quickly recover the power by switching on the breaker.
- This error may also occur when the communication is disrupted due to disconnection of VRF communication line. Check that the communication line is not disconnected.
- This error may also occur when the PC running this application goes into sleep or hibernation mode. Set the PC so that it would not go into such an energy saving mode.

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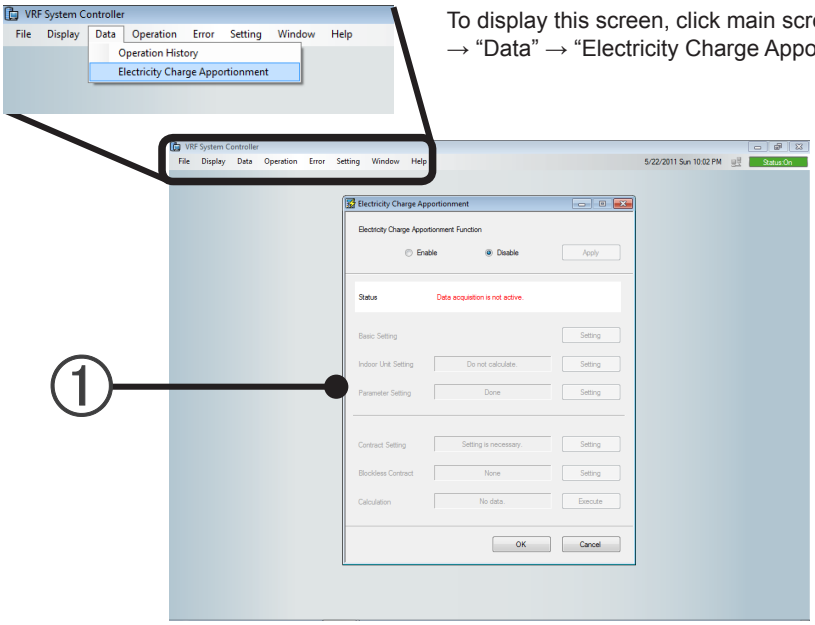
27-2 Electricity charge apportionment main screen

Performs electricity charge apportionment setting.



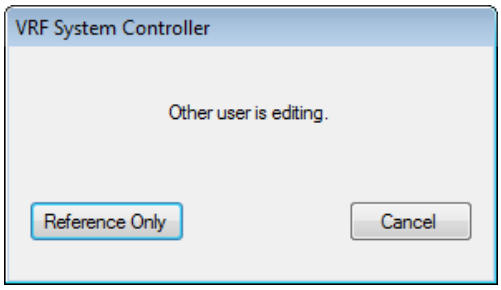
To display this screen, click main screen menu → “Data” → “Electricity Charge Apportionment”.

① Electricity charge apportionment main screen
(The screen is in the unset state. The contents which can be selected vary depending on the setting)

■ Function lock

Only the user that started the electricity charge apportionment main screen for the first time can use the electricity charge apportionment function.

If another user attempts to open the electricity charge apportionment main screen while the electricity charge apportionment function is being used, the message shown below is displayed.



[Reference Only]

Displays the electricity charge apportionment main screen in the locked state. (Only the [OK] button is enabled)

[Cancel]

Ends the electricity charge apportionment function without displaying the electricity apportionment main screen.

Note

When performing electricity charge apportionment setting by remote connection, required time varies depending on the network communication speed. To avoid this, perform electricity charge apportionment setting on server PC preferably.

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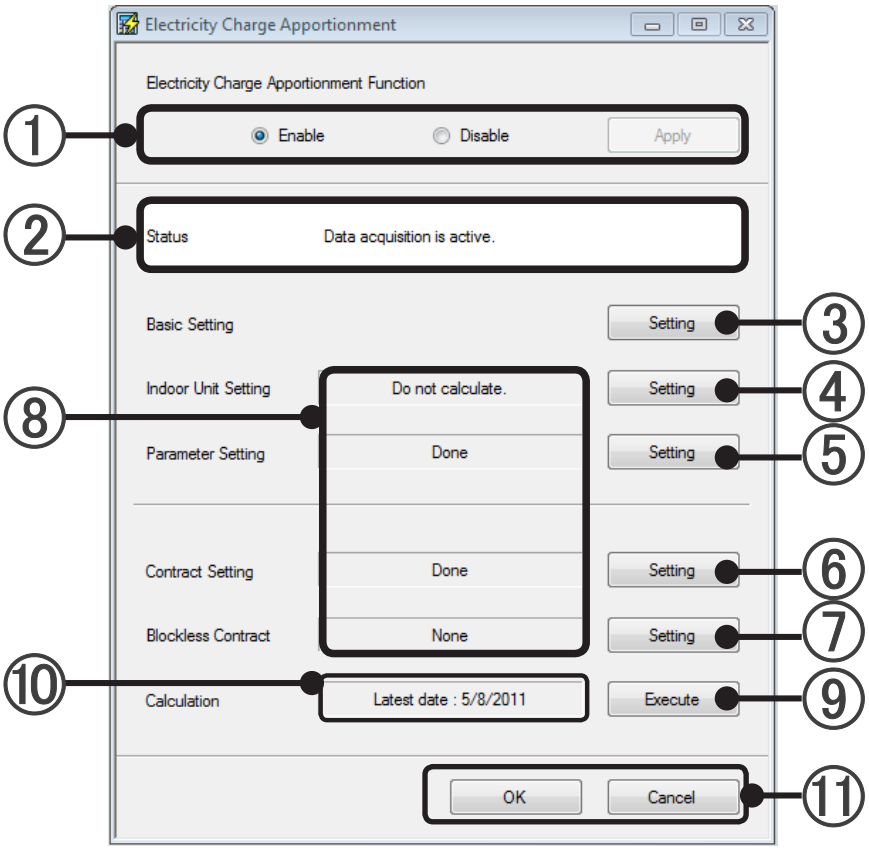
27-2-1 Main screen

The screen is for description purposes.
The contents which can be selected vary depending on the setting.



① Selects whether or not electric charge apportionment is to be performed and is entered by [Apply] button.

② Displays the data acquisition state. If “Data acquisition is active.” is displayed, data acquisition is performed normally.
If ④ to ⑥ are not set correctly, “Data acquisition is not active.” is displayed in red.
In this case, data acquisition are not performed and apportionment calculation cannot be performed.

③ Basic setting
Overall setting is performed at electricity charge apportionment calculation. (For details, see par. 27-3.)

④ Sets whether or not the power consumption of indoor units is included in electricity charge apportionment calculation. (For details, see par. 27-4.)

Display contents of ⑧	“Calculate for all units”:	Includes the power of all indoor units in apportionment calculation.
	“Do not calculate”:	Does not include the power of all indoor units in apportionment calculation.
	“Custom setting”:	Includes the power of some indoor units in apportionment calculation.

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⑤ Sets the parameters of each unit. (For details, see par. 27-5.)
Display contents of ⑧ “Done”: Ends parameter setting of all units.
“Setting is necessary”: There is a unit which whose parameters cannot be set.

⑥ Performs contact setting. (For details, see par. 27-6.)
Display contents of ⑧ “Done”: Ends contract setting.
“Setting is necessary”: There are no contract settings or there is a contract without a unit.

⑦ Performs block setting. (For details, see par. 27-7.)
Display contents of ⑧ “Done”: Ends block setting at all contracts.
Display other than this displays the number of contracts without set blocks.

⑧ The current state of settings ④ to ⑦ is displayed.

⑨ Performs electricity charge apportionment calculation. Apportionment Calculation screen opens. (For details, see par. 28-2-1.)

⑩ The latest date for which calculation is possible is displayed.

⑪ [OK]: Saves the edited contents and ends setting.
[Cancel]: Ends setting without saving the edited contents.
However, when the [OK] button is clicked in each setting screen at ④ to ⑦ and ⑨, the edited contents cannot be canceled.

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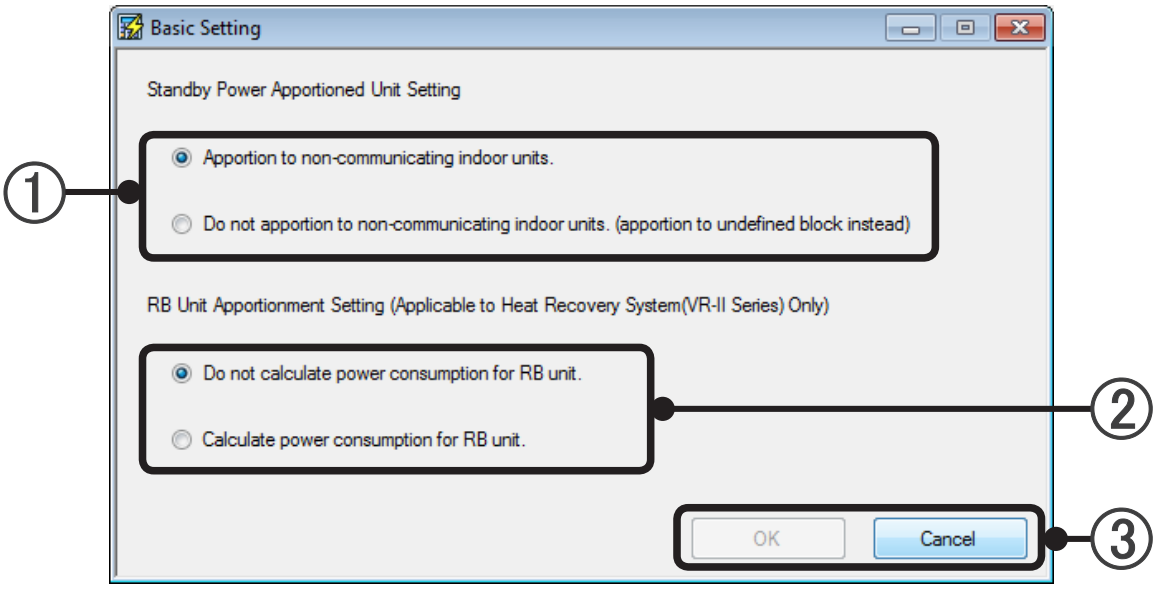
27-3 Basic Setting

Sets whether or not outdoor unit standby power is apportioned to non-communicating indoor units.



① Set whether or not the outdoor unit standby power is to be apportioned to non-communicating indoor units.

- Apportion to non-communicating indoor units
  Standby power is apportioned even to non-communicating indoor units
- Do not apportion to non-communicating indoor units.(apportion to undefined block instead)
  Outdoor unit standby power is not apportioned to non-communicating indoor units.
  (Standby power not apportioned to non-communicating indoor units is apportioned to the owner block (Undefined Block).)

② Set the apportioning method of RB unit.

- “Do not calculate RB Unit's power consumption.”
  The calculation of RB unit is not performed.
- “Calculate RB Unit's power consumption.”
  The calculation of RB unit is performed.

③ [OK]: Saves the edited contents and ends setting.
[Cancel]: Ends setting without saving the edited contents.

Note

When System Controller Lite and outdoor unit cannot communicate due to tripping of a unit power breaker or a network error, since the minimum data needed for apportionment calculation cannot be acquired, electricity charge apportionment calculation is not performed.

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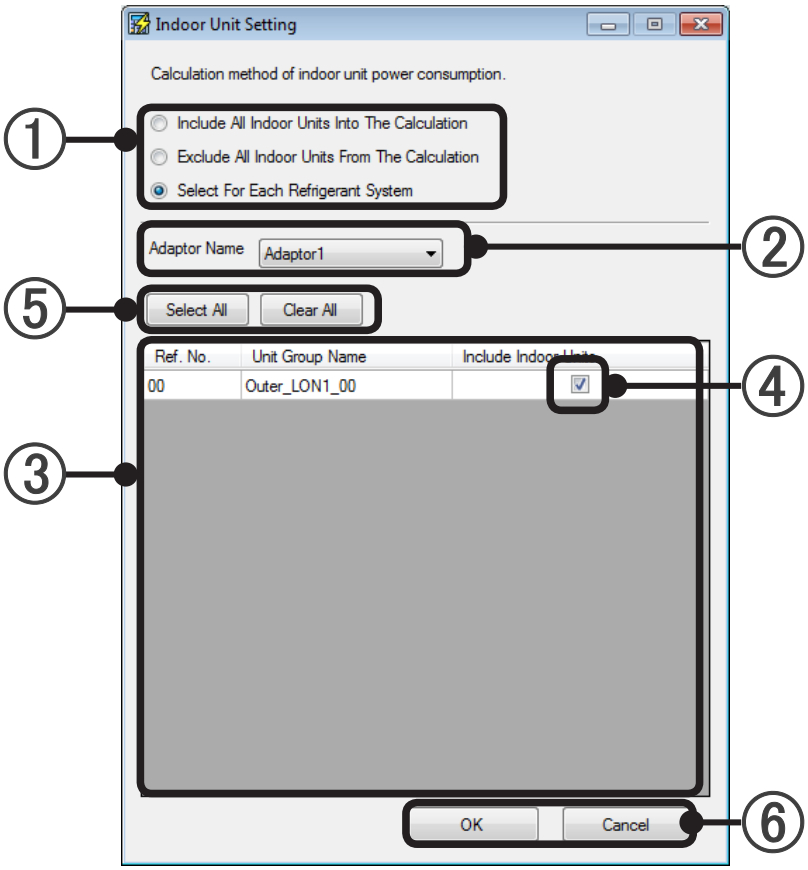
27-4 Indoor unit electricity calculation setting

To display this screen, click the [Setting] button of the “Indoor Unit Setting” item on the electricity charge apportionment main screen.
Whether or not the electricity charge of indoor units is included in calculation is decided by this screen.

Description of Indoor Unit Setting



① Selects the indoor unit calculation type.

“Include All Indoor Units Into The Calculation.”	The electricity charge of indoor units is also included in calculation. Select when the power meter is shared by the indoor unit and outdoor unit power source and when the power meter of the same contract destination as an outdoor unit is installed at an indoor unit power source. (Settings ② to ⑤ cannot be performed.)
“Exclude All Indoor Units From The Calculation.”	The indoor unit electricity charge is not included in calculation. Select when a power meter independently contracted with the electric power company by tenants is installed at the indoor unit power source, etc. (Settings ② to ⑤ cannot be performed.)
“Select For Each Refrigerant System”	Select when setting whether or not indoor unit power consumption is included in calculation for each refrigerant system.

Select according to the power meter position and contact with the electric power company.

Note

If a setting is changed during data acquisition, the results of calculation after setting will also change.

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When “Select For Each Refrigerant System” is selected at ①, set items ② to ⑤.

② Selects the adaptor (U10 USB Network Interface) which is to perform setting by pull-down menu.

③ Displays a list of the refrigerant systems connected to the adaptor selected at ②.

④ Selects whether or not indoor units are included individually for each refrigerant system by checkbox.

⑤ When clicked, [Select All] or [Clear All] of ④ is checked.
This is convenient when starting from the highest number when selecting the refrigerant systems individually at ④. Reflected by range (adaptor units) displayed at ③.

⑥ [OK]: Saves the edited contents and ends setting.
[Cancel]: Ends setting without saving the edited contents.

Note

- When setting is finished with [Select All] or [Clear All] checked at ⑤, the setting of ① becomes “Include All Indoor Units From The Calculation.” or “Exclude All Indoor Units From The Calculation.”
- When the power meter or other contract contents were changed by resident or tenant updating, change the setting at the same time.

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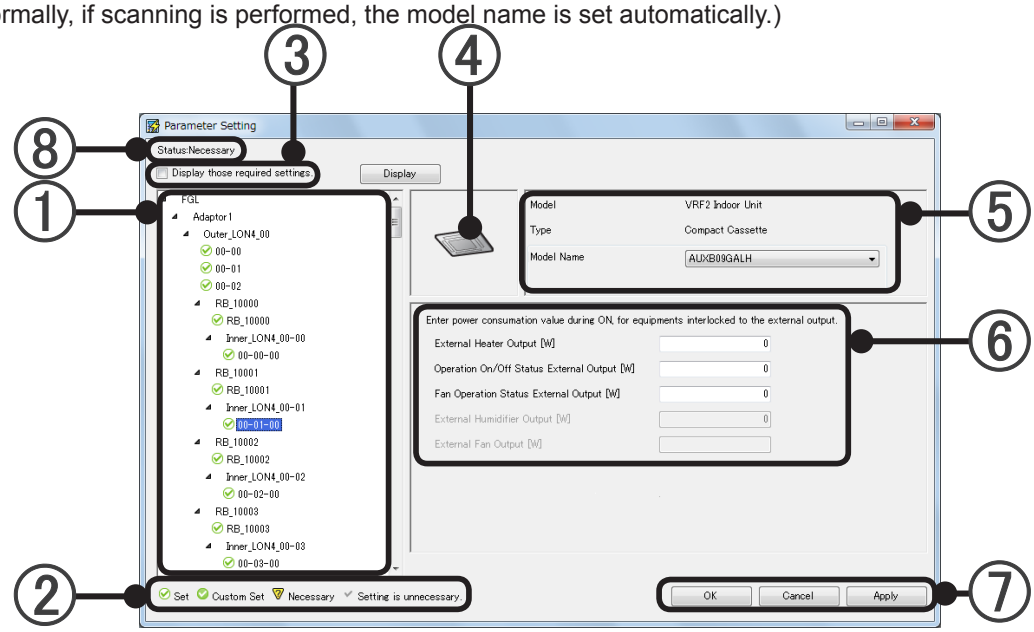
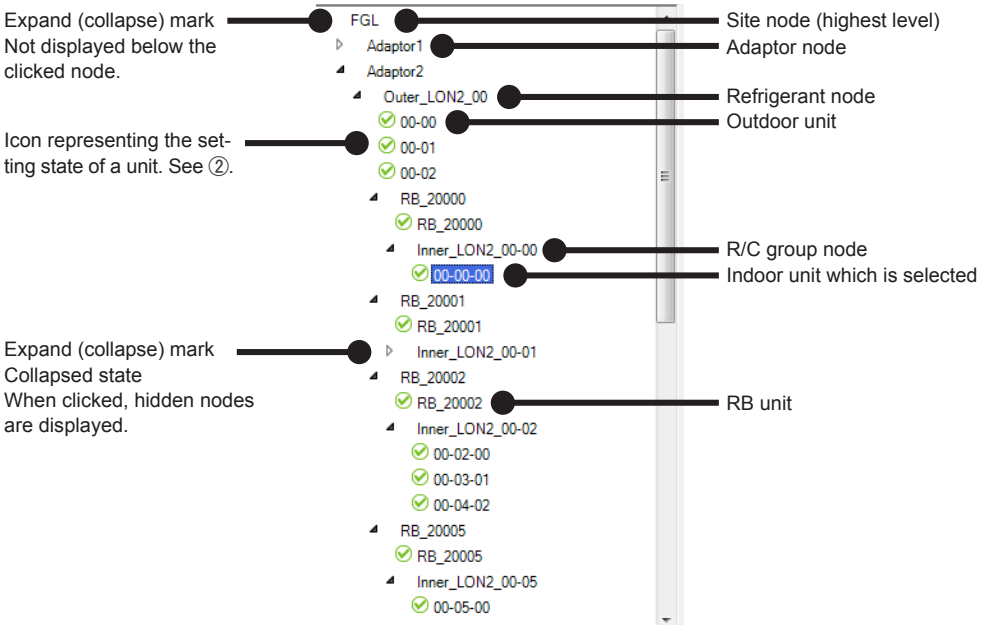
27-5 Parameter setting

To display this screen, click the [Setting] button of the “Parameter Setting” item on the electricity charge apportionment main screen.
Setting of the model name of the unit which is to perform electricity charge apportionment calculation and the externally linked devices are performed by means of this screen.
Since model name setting is necessary in electricity charge apportionment calculation, perform it certainly. (Normally, if scanning is performed, the model name is set automatically.)



① Selects the unit (outdoor unit, indoor unit, RB unit) which is to be set from the list hierarchically displayed in tree view site, adaptor, refrigerant, and R/C group order.



Note

The “Tree View” may not be displayed on the screen depending on the contents. In this case, display it by scrolling the screen using the scroll bar at the side of the screen.

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② Description of icons representing the setting state of the units in the “Tree View”.

Set	V-II/V-III/VR-II/J-II/J-IIS Series unit set without externally linked devices
Custom Set	V-II/V-III/VR-II/J-II/J-IIS Series unit set with externally linked devices
Necessary	V-II/V-III/VR-II/J-II/J-IIS Series Unit whose parameter is unclear. When you install a new unit and replace the board, it may be incompatible with the version of System Controller Lite. When this icon is displayed, electricity charge apportionment calculation is performed without ending setting. Please contact your service personnel.
Setting is unnecessary	S Series or V Series unit (Setting is unnecessary)

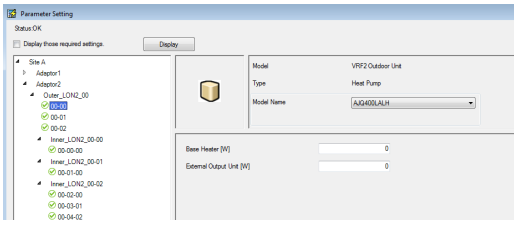
③ Refinement
Display only those units for which parameters have not been set.
Once all unit settings have been configured, the unit name will no longer be displayed.

④ Displays the “unit icon”

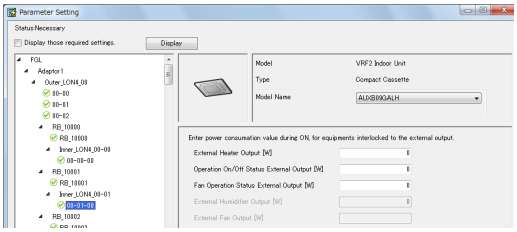
⑤ Displays the Model, type, and model name of the Unit.
When the model name is displayed in red bold characters, it is a model which is not compatible with the System Controller Lite. Please contact your service personnel.
In the case of RB unit, type is not displayed.

⑥ Sets the power consumption of auxiliary heater, ventilation fan, or other linked device added to the unit in watt. hr. (within 7 digits, integer number only) Manual setting at all relevant units is necessary. (Except the automatic setting objective at scanning.)

Example of outdoor unit display



Example of indoor unit display



When a unit is ON/OFF linked and controlled by using the external output terminals on its PCB, entering the power at ON here can be taken into account for electricity charge apportionment calculation.
The electricity charge apportionment function performs calculation with power of the value input at the screen as constant while the external output terminal is ON.
When electricity charge apportionment used an electricity meter, the electricity meter must also be connected to the unit to be linked.
Depending on the unit, items without external output function are displayed grey.

- Operation stop state external output [W]
- Fan operation state external output [W]
- External heater output [W]
- External humidifier output [W]
- External fan output [W]

Refer to the “Design & Technical Manual” for a detailed description of each external output operation.

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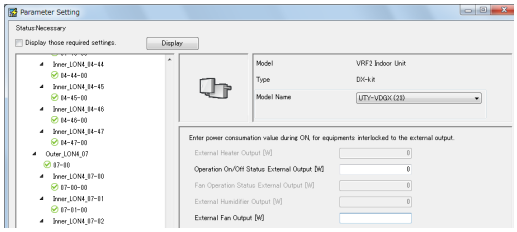
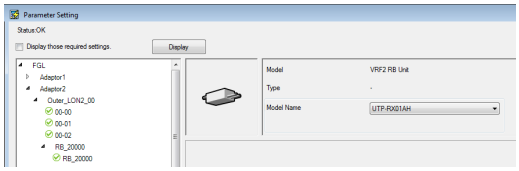
Example of DX-Kit display



Note

* A value may be given in ( ) after “Model Name”.
For detail of the number, refer to the description in the “ReadMeFirst.txt” file within the installation DVD.

Example of RB unit display



⑦ [OK]: Saves the edited contents and ends setting.
[Cancel]: Ends setting without saving the edited contents.
(When [Apply] was performed during work, it cannot be canceled by [Cancel].)
[Apply]: Saves the edited contents without ending setting.

⑧ Displays whether setting are done for all units.
Status: OK - setting are done for all units.
Status: Necessary - Some units still need to be set parameters.

Note

- Except for indoor- and outdoor-units, items cannot be displayed in Tree View.
- If not even one indoor unit or outdoor unit is connected, there may be a display at ① Tree View, but setting is unnecessary.
- When a unit was added or replaced, quickly perform scanning and end unit registration and parameter setting.
- Even if the model name has been set, it will not be reflected in the unit list. Model name setting uses the electricity charge apportionment parameter.

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27-6 Contract setting

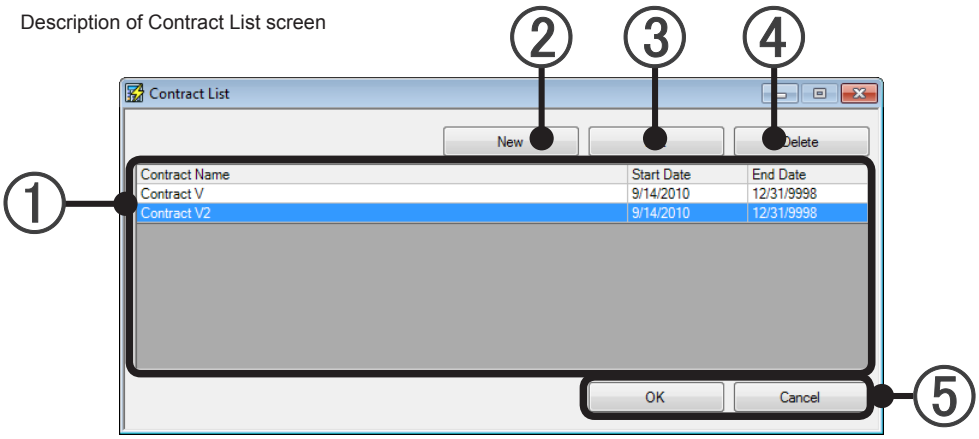
Overview of contract

- Performs data acquisition at which the scan unit becomes the apportionment objective.
- Create a contract either for each invoice from the electricity company (invoice to be apportioned), or in units in which the apportionment calculation is to be carried out.
- Create blocks (become the bill output unit of the apportionment function) in the contract
- One refrigerant system cannot be set to span multiple contracts

27-6-1 Contract list creation

To display this screen, click the [Setting] button of the “Contract Setting” item on the electricity charge apportionment main screen.
On this screen, you can create contracts as many as contracts with electricity companies. The electricity charge apportionment is calculated for each contract which is created here.

Description of Contract List screen



① Lists set contracts and contract periods.

② Creates and adds new contract setting. (See par. 27-6-2.)

③ Changes the contract setting selected at ①. (See par. 27-6-2.)

④ Deletes the contract setting selected at ①.
Block settings in this contract are simultaneously deleted.

⑤ [OK]: Saves the edited contents and ends setting.
[Cancel]: Ends setting without saving the edited contents.

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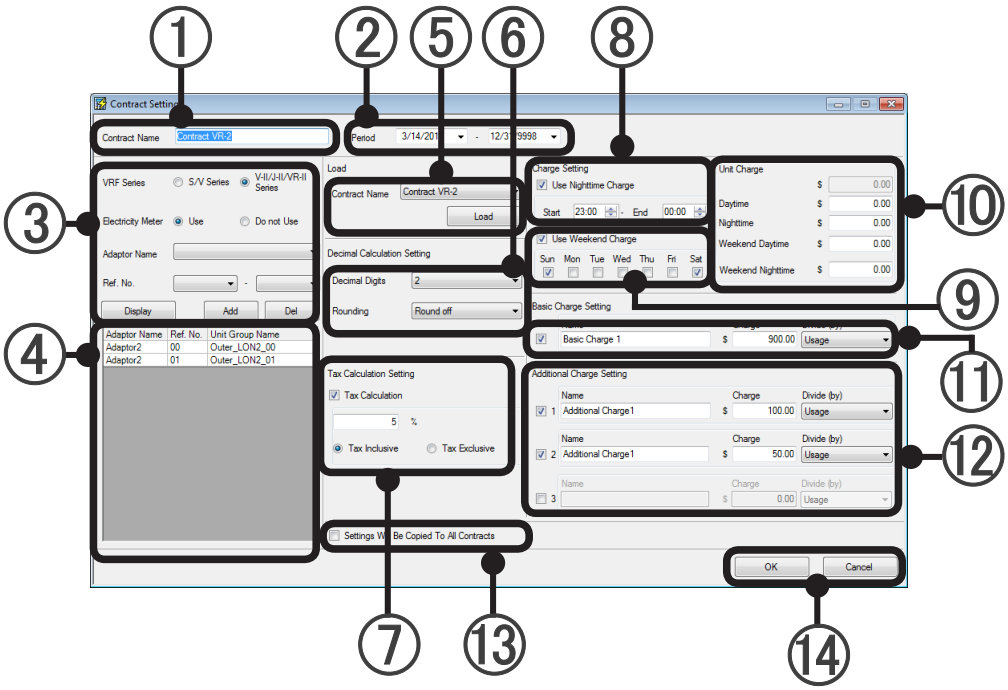
27-6-2 New contract creation and editing

Performs setting for each contract created at par. 27-6-1.
To display this screen, click the [New] button or [Edit] button at par. 27-6-1 Contract list creation.

Description of contact setting screen



① Inputs and edits the name of the contract. (Within 20 characters of alphabet, numeric, and symbol)

② Contract start and end dates setting. (Calendar is opened by pull-down menu. Key input is also possible.) After setting, the refrigerant systems which can be selected during this period at ③ are updated by clicking the [Display] button of ③.

③ Refrigerant system setting and change

1. Select the contract system type.
2. Configure whether to use the electricity meter or not for registered contracts.
3. Select the objective adaptor (U10 USB Network Interface).
4. Select the refrigerant system range by pull-down menu. (Cannot be selected when all systems were set.)
5. When the [Add] button is clicked, the refrigerant systems are displayed in the list at ④.

Deleting refrigerant system from setting

1. Select the refrigerant system to be deleted at the list of ④.
2. Click the [Del] button.

Redisplaying the refrigerant systems

1. Since the refrigerant systems which can be selected at ③ are updated when [Display] is clicked when the contract period was changed at ②, reset the refrigerant systems.

④ List of refrigerant systems set at the contract.

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⑤ The contents of items ⑥ to ⑫ can be used in contracts which have already been set.
Select the contract name to be referenced by pull-down menu and load it using the [Load] button.

⑥ Sets the number of display digits after the decimal point. (Calculation is performed at this setting.)
- Number of digits after the decimal point which is displayed. Select by pull-down menu. (0 to 5)
- Method of rounding of fractions below the display. Select by pull-down menu. (Round off, count fractions as one, truncate)

⑦ Tax calculation setting. Enabled when checkbox is checked.
Input the tax rate at the text box. (0~99.99)
Selects whether the amount of the calculated result is to be handle “Tax inclusive” or “tax exclusive”.
When the billed amount includes the tax, select “Tax inclusive” and when the tax is separate, select “Tax exclusive”.

⑧ Nighttime charge setting. Set when the electricity charge unit price is different in the daytime and at nighttime.
Enabled when checkbox is checked.
Set the start time and end time of the time frame corresponding to nighttime charge. (Set in 30 minutes units and evening of current day to morning of next day)

⑨ Weekend charge setting. Set when the electricity charge unit price is different on weekdays and weekends.
Enabled when checkbox is checked.
Select the day of week corresponding to weekend charge. (Multiple days can be selected)

⑩ Configure the unit price for each item. This is only enabled in the case that usage of the meter was selected in ③.

⑪ Basic charge setting. Enabled when checkbox is checked.
“Name”: An arbitrary name can be set. (Within 20 characters of alphabet, numeric, and symbol)
“Charge”: Inputs the basic charge. (Numeric only within 11 digits. Can be changed during calculation)
* Input up to the number of digits after the decimal point set at ⑥.
“Divide”: Select the charge distribution method by pull-down menu. (Equal distribution, distribution according to number of units, distribution by amount of electricity used, distribution according to total indoor unit capacity)

⑫ Additional charge setting. Up to 3 additional charges can be set. Enabled when checkbox is checked.
Perform input sequentially, beginning from additional charge 1.
“Name”: An arbitrary name can be set. (Within 20 characters of alphabet, numeric, and symbol)
“Charge”: Inputs the additional charge. (Numeric only within 11 digits. Can be changed during calculation)
* Input up to the number of digits after the decimal point set at ⑥.
“Divide”: Select the additional charge distribution method by pull-down menu. (Equal distribution, distribution according to number of units, distribution by amount of electricity used, distribution according to total indoor unit capacity)

⑬ When checked and [OK] is clicked, items ⑥ to ⑫ are made the same setting for all the contracts.

⑭ [OK]: Saves the edited contents and ends setting.
[Cancel]: Ends setting without saving the edited contents.

Note

At contract addition, change or end, finish setting up to the relevant date.
If changes are made later, correct calculation will not be performed.
You cannot calculate the start day of data collection.
Do not add/remove outdoor/indoor unit during contract period.
IF you need to do so, end the contract and define a new contract.
Set Basic Charge to the basic amount charged by the electricity company, if there is a basic charge.
If there is no basic charge, you do not need to set this.

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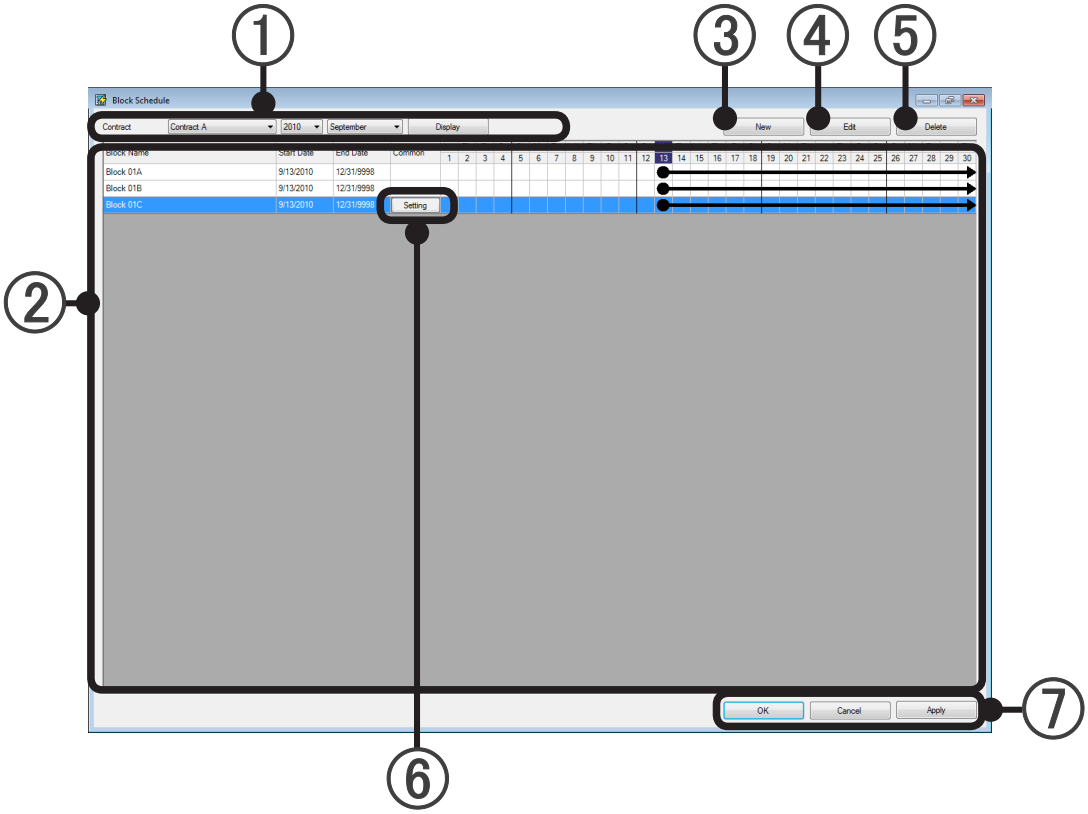
27-7 Block setting

27-7-1 Block schedule setting

To display this screen, click the [Setting] button of the “Blockless contract” item on the electric charge apportionment main screen.
Setting of the move-in/move-out schedule of supposed tenant blocks is performed for each contract. Common blocks can also be set.

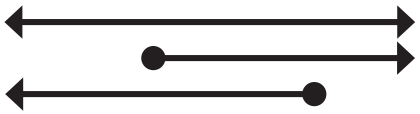
Description of screen



① Selects the contract name, year, and month to be displayed.
When the [Display] button is clicked, the blocks set at ② are displayed.

② The block setting state of the contents selected at ① is displayed. The block setting period is represented on the calendar by a line.

- When the block setting period spans the previous month and the next month or more
- When the block setting period starts from in the displayed month
- When the block setting period ends in the displayed month
(Units of periods not belonging to a block are attributed to an “Undefine” block.)



Note

The calendar display of ② may not appear on the screen depending on the number of set blocks and the PC monitor size.
In this case, display it by scrolling the screen with the scroll bar at the end of the screen.

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③ New block creation button. (See par. 27-7-2.)
Creates a new block. When the [New] button is clicked, the “Specify Block” screen opens. The created blocks are displayed at ②.

④ Block edit button. (See par. 27-7-2.)
Edits the setting contents of the block. When the [Edit] button is clicked after a block is selected at ②, the “Specify Block” screen opens.

⑤ Block delete button.
Deletes the block. When the [Delete] button is clicked after a block is selected at ②, that block is deleted.

⑥ Common block [setting] button.
(See par 27-7-2. Displayed when set to common block at the “Specify block” screen.) When clicked, the “Common Specify Block” screen opens. Always set when there is a common block. (If common block setting is not complete, correct calculation cannot be performed.)

* Perform common block setting after creating all the tenant blocks.

⑦ [OK]: Saves the setting and ends it.
[Cancel]: Ends the setting without saving it.
(When [Apply] was performed during work, it cannot be canceled by [Cancel].)
[Apply]: Saves the block schedule setting without ending it.

Note

When a new contract was created and when a block (resident or tenant) was updated, end setting before the block period starts.
In addition, when the block period end date was decided, end setting before the end date.

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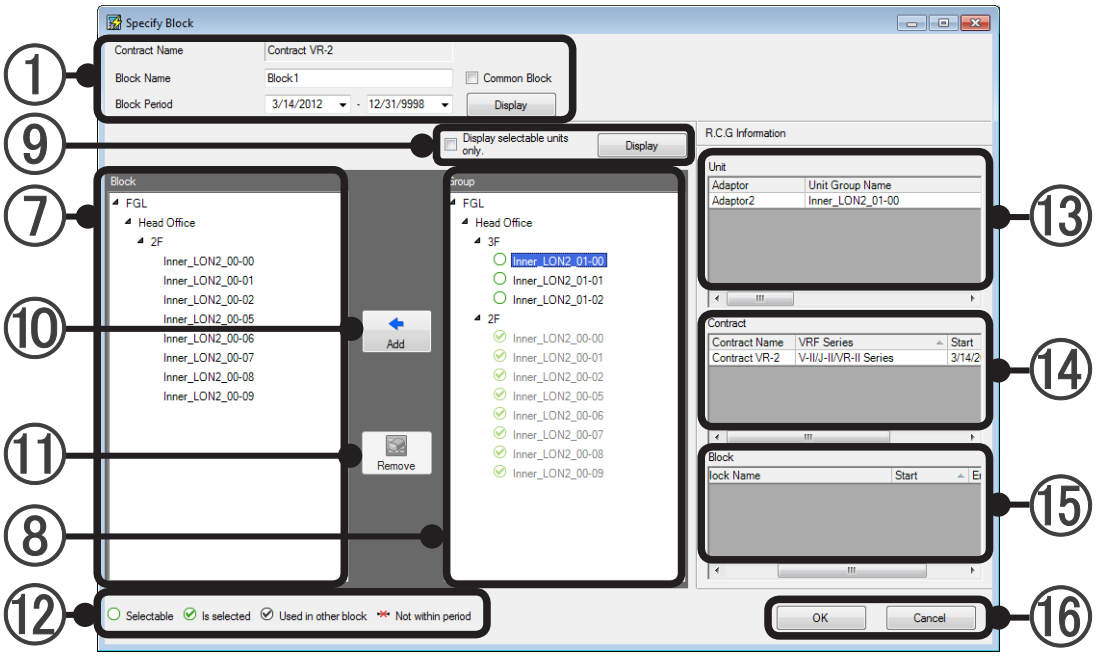
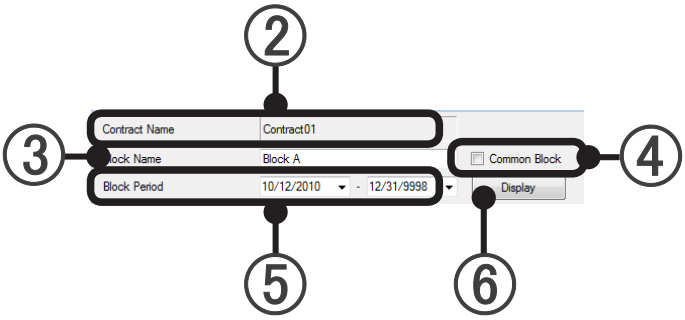
27-7-2 Specify Block screen

To display this screen, click the [New] button or the [Edit] button of the par. 27-7-1 “Block schedule setting” screen.
Creates a new block or edits an existing block. Registers and edits R/C groups belonging to the block.



① Block basic setting



② Contract name: Displays the name of the contract to which the block belongs.

③ Block name setting:
An arbitrary name can be text input. (Within 20 characters of alphabet, numeric, and symbol)

④ Common setting:
Can be set as a common block. Enabled by checking the checkbox. The [Setting] button at the block schedule setting screen is enabled.

⑤ Block period setting:
Sets the start and end dates of the objective period of the block. Can be set by key input or from the calendar displayed by pull-down menu. Setting within the contract period is possible.

⑥ [Display] button: When clicked, the setting state for the period specified at ⑤ is displayed at ⑦ and ⑧.

⑦ Block list:
Tree view of the R/C groups registered at the block being set.

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⑧ Group list:
Tree view of the R/C groups by group. R/C groups not set at a group are displayed as “Undefine” Group.
Registered R/C groups are displayed in gray and cannot be set.
* R/C groups without electricity charge apportionment function are not displayed.

⑨ Refinement button
Display only those units for which parameters have not been set.

⑩ [Add] button
Registers the R/C groups and groups selected at ⑧ group list at the block of ⑦.

⑪ [Remove] button
Deletes the R/C group and group set at a block at ⑦.

⑫ Description of icon displayed at ⑧. Represents the state of the unit.

Selectable	R/C group which can be registered
Is selected	R/C group already registered at the block being set
Used in other block	R/C group already registered at another block
Not within period	Unit that does not exist within the period specified by ⑤

⑬ Unit information: Displays the “Adaptor”, “Unit Group Name”, “Address”, “Unit Type”, “Operation Start Date”, “Operation End Date”, “Model Name*”, “System Type (Cooling Only, Heat Pump, etc)”, and “Model” of the R/C group selected at ⑧.
*The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter ":" is not part of the Model Name.

⑭ Contract information: Displays the “contract name”, “contract start date”, and “contract end date” of the R/C group selected at ⑧.

⑮ Block information: Displays the “contract name”, “block name”, “block start date”, and “block end date” of the R/C group selected at ⑧.

⑯ [OK]: Saves the setting and ends it.
[Cancel]: Ends the setting without saving it.

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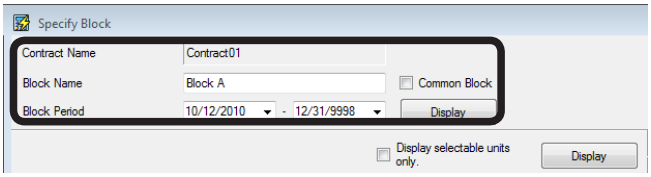
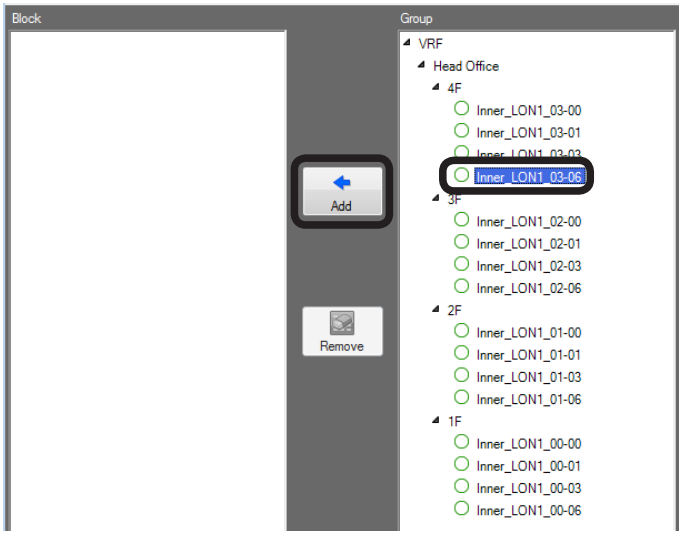
New block setting flow

1. Contract name confirmation. Block name and period setting.

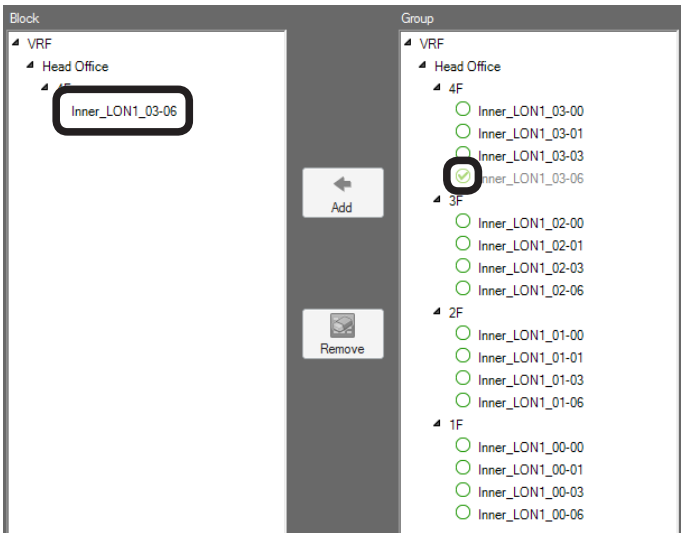


When registering the block as a common block, check “Common Block”.
Reflect the setting on the screen by clicking the [Display] button.

2. Select the R/C group to be registered at the block from the ⑧“Group” list. When the ⑨[Add] button is clicked, the R/C group is registered at the ⑦ “Block” list.



3. The R/C group registered at the block is displayed in the ⑦ “Block” list and becomes the registered display by ⑧“Group” list.



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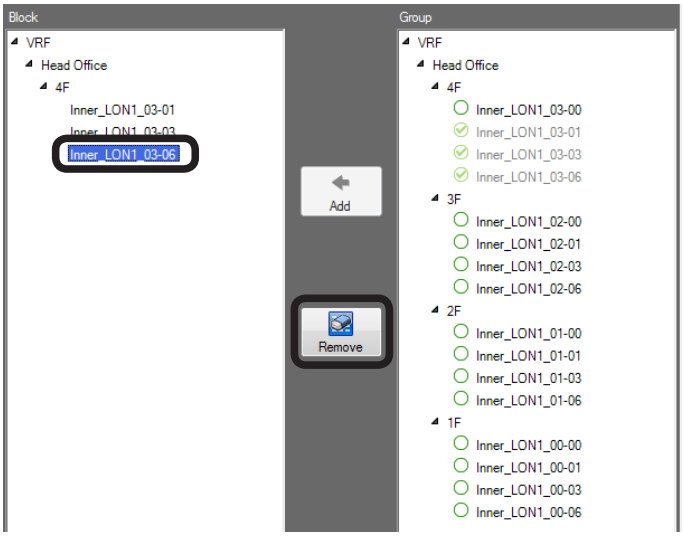
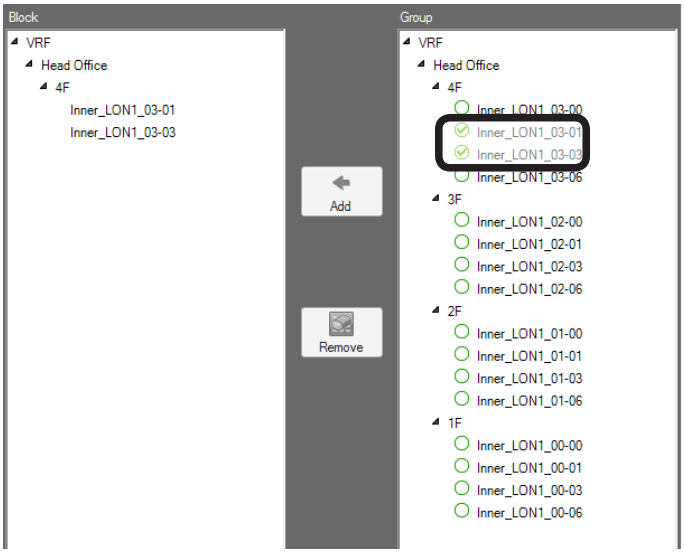
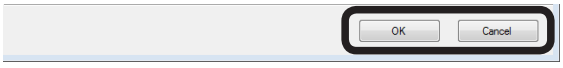
4. To delete an R/C group from a block, select the R/C group to be deleted from the ⑦ “Block” list and click the ⑩ [Remove] button.



5. The selected R/C group is deleted from the block and can be selected at the ⑧“Group” list.



6. After registration is complete, end setting by clicking the [OK] button. To end by canceling the setting, click the [Cancel] button.



Note

To register each group which already has the units laid out to a block, select the relevant group name from the ⑧“Group” list and click the ⑨[Add] button.

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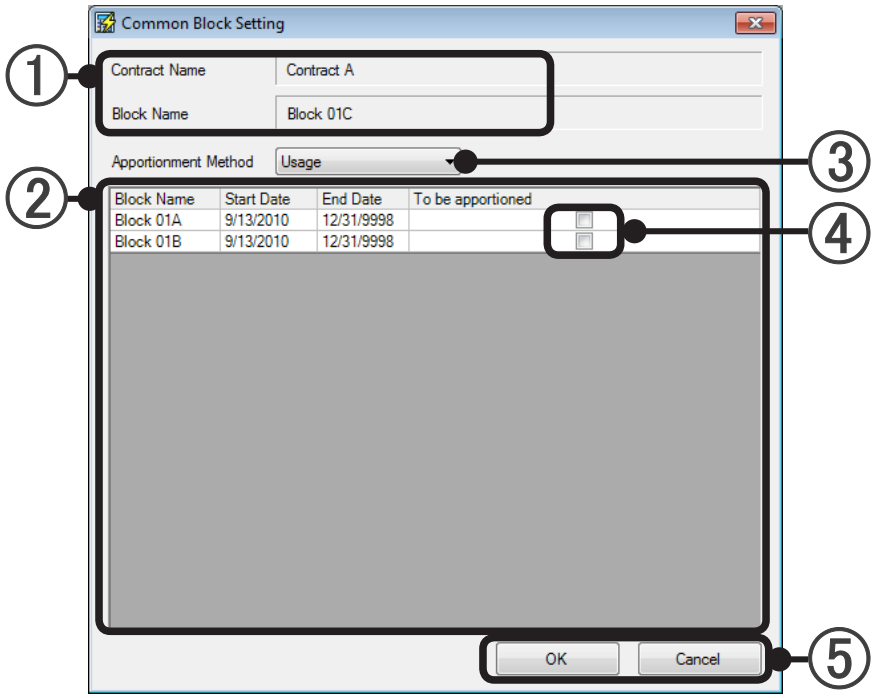
27-7-3 Common block setting

Sets the block with Common Block ④ checked at par. 27-7-2 Specify Block screen.
To display this screen, click the ⑥ Common block [setting] button of par. 27-7-1 Block schedule setting.
Sets the method the power consumed by common blocks is apportioned to tenant blocks.

Description of screen



① Confirms the contract name and block name.

② Displays the block name and period of tenant blocks in the same contract as a common block in a list.

③ Selects the apportionment method by pull-down menu. See the block apportioned at ④.

"Equally": Apportion equally to the selected blocks

"Unit quantity": Apportion by proportion of number of units

"Usage": Apportion by proportion of amount of power used (metering) (Recommended)

"Capacity": Apportion by allowable capacity of unit

Set by checkbox.

"Manually": Apportion by arbitrary setting.—— Manual setting of apportionment ratio. In the initial state at selection, 100% of the consumed power is apportioned to "Undefine" blocks as imaginary blocks and displayed. Since key input is possible at field (4), adjust so that the total apportionment ratio to the tenant block is 100%. If an apportionment ratio to an "Undefine" block remains, the "Undefine" block will be charged at apportionment calculation.

⑤ [OK]: Saves the setting and ends it.
[Cancel]: Ends the setting without saving it.

Note

After all settings are finished, electricity charge apportionment data acquisition is started. Close the "Electricity Charge Apportionment" screen (par. 27-2). When performing electricity charge apportionment calculation, see par. 28. Electricity charge apportionment.

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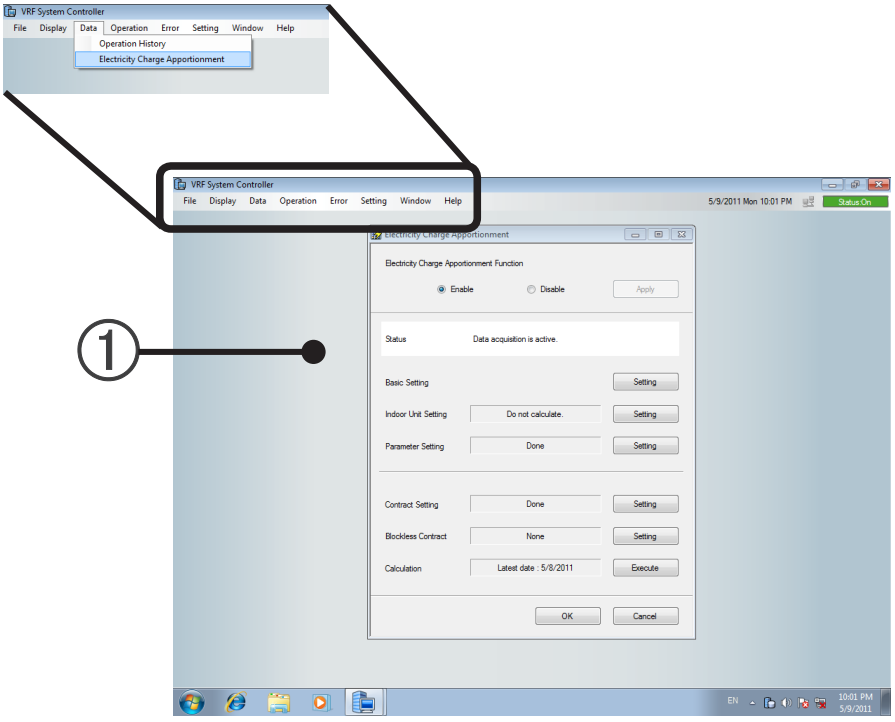
28. Electricity Charge Apportionment

Electricity Charge Apportionment option (UTY-PLGXA1) is necessary to use the electricity charge apportionment function.

28-1 Electricity charge apportionment main screen

The electricity apportionment calculation is performed with either the used electricity amount sent from the meter and the unit price, or the invoice amount sent from the electricity company ,as input.
For a description of electric power consumption data acquisition and electricity charge apportionment calculation related settings, see par. 27 Electricity Charge Apportionment Setting.

To display this screen,
click main screen menu → “Data” → “Electricity Charge Apportionment”.



① Electricity Charge Apportionment main screen.

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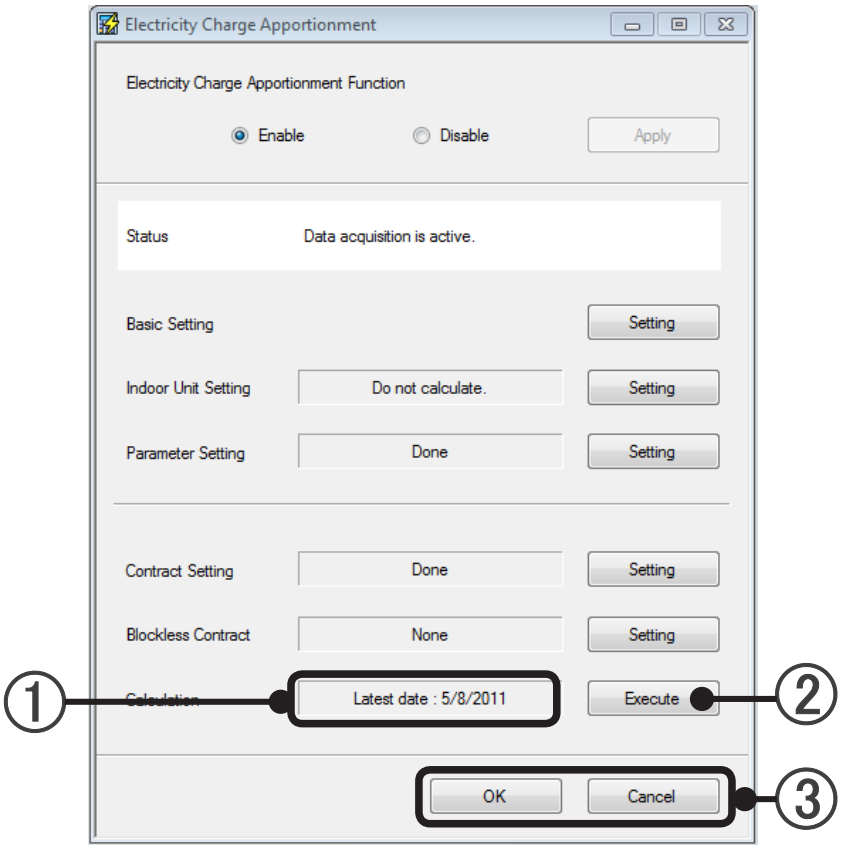
28-1-1 Electricity Charge Apportionment main screen

Description of screen



① The latest date which can be calculated is displayed.

② Executes calculation
When clicked, the Apportionment Calculation screen (28-2-1) opens.

③ Click to end apportionment calculation or to end after printing a bill.
[OK]: Save edited contents and end.
[Cancel]: End without saving edited contents

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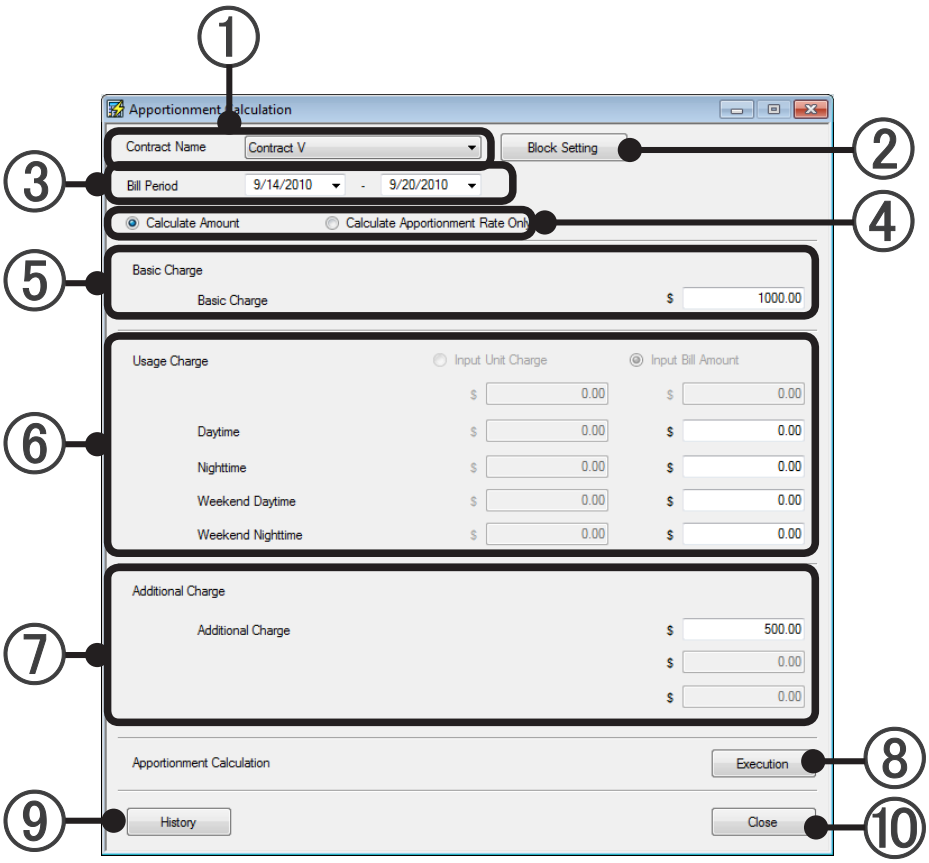
28-2 Apportionment calculation execution

To display this screen, click the [Execute] button of the Calculation item on the Electricity Charge Apportionment main screen.

28-2-1 Apportionment Calculation screen

Description of screen



① Selects the calculation target contract.

② [Block Setting] button: When you want to check or change the block setting, click this button to open the [Block Schedule Setting] (27-7-1) screen. Close the screen after checking or changing the block setting.

③ Sets the billing target period.
Text can be input.
When the dropdown button at the right-hand side is clicked, a date selection calendar is displayed. Select the day.
The range of the period over which there is electric power apportionment collection data in the contract period can be selected.

④ Select “Calculate Amount” or “Calculate Apportionment Rate Only”.
Calculate Amount: Calculates the apportionment rate and the actual amount billed to each block based on that apportionment rate and the amount.
Calculate Apportionment Rate Only: Calculates the apportionment rate only of each block based on the amount of electricity used.
When “Calculate Apportionment Rate Only” is selected, ⑤, ⑥, and ⑦ cannot be input.

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⑤ If there is a basic charge, input the amount.
Input is possible when basic charge setting is performed at 27-6-2 New contract creation and editing.
The name of the basic charge set at the par. 27-6-2 New contract creation and editing is displayed.

⑥ If calculating the invoiced amount, you can choose whether to enter the total invoice fee or the cost per unit of electricity.

- If selecting total invoice fee.

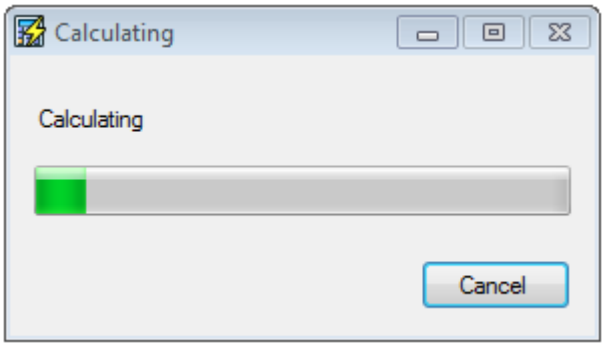
If there is a usage charge, input the amount respectively. (Within 11 digits each)
■ Daytime ■ Nighttime ■ Weekend daytime ■ Weekend nighttime
When nighttime charge setting is performed at the par. 27-6-2 New contract creation and editing, ■ Nighttime input is possible.
When weekend charge setting is performed at the par. 27-6-2 New contract creation and editing, ■ Weekend daytime input is possible.
When nighttime charge setting and weekend charge setting are performed at the par. 27-6-2 New contract creation and editing, ■ Weekend nighttime input is possible.
When nighttime charge setting and weekend charge setting are not performed at the par. 27-6-2 New contract creation and editing, only the topmost item can be input.

- If selecting the cost per unit of electricity.

Enter each of the monetary amounts.
The unit price entered at the time of contract creation will be initially displayed. If changes are made, enter each unit price.
■ Daytime ■ Nighttime ■ Weekend daytime ■ Weekend nighttime

⑦ If there is an additional charge, input the amount. (Within 11 digits each)
■ Add1 ■ Add2 ■ Add3
Input is possible when additional charge setting is performed at the par. 27-6-2 New contract creation and editing.

⑧ Perform apportionment calculation. When the [Execution] button is clicked, Confirmation screen appears. Click the [Yes] button. A calculating progress bar and [Cancel] button are displayed.
When the progress bar reaches 100%, apportionment calculation is complete and the [Calculation result] screen (28-2-2) is opened.
When the [Cancel] button is clicked, apportionment calculation is stopped and the display returns to the Apportionment Calculation screen.



⑨ Displays the History Selection screen. (The calculation items input before the history can be input. See par. 28-2-3 Calculation history.)

⑩ Click to end and close the screen after apportionment calculation ends or the calculation result is printed.

Note

Apportionment calculation may take several tens of minutes or more depending on the number of units calculation and calculation objective period. Since no operations can be performed during this time, be amply careful when performing apportionment calculation.

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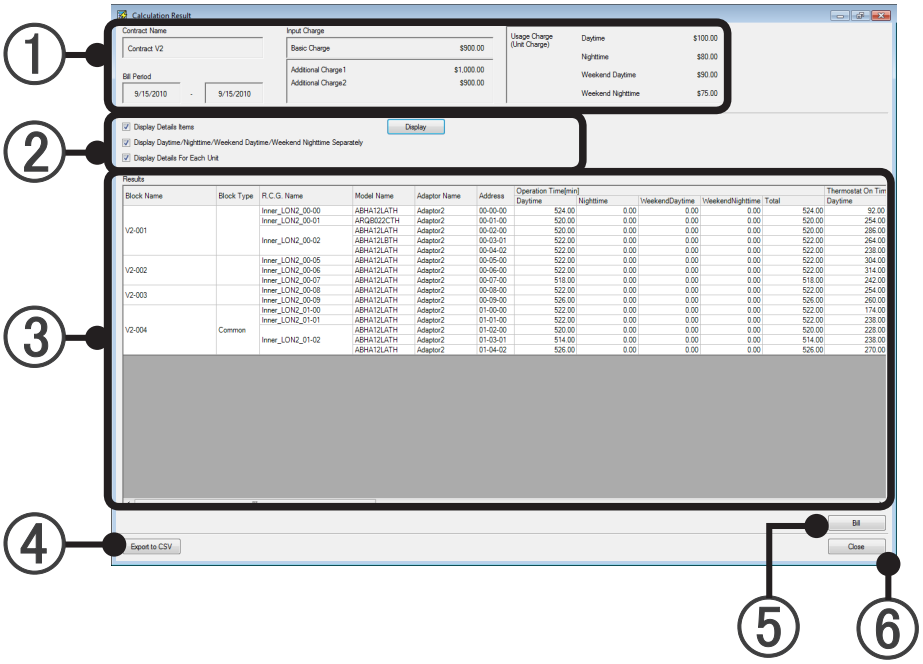
28-2-2 Calculation result screen

Calculation Result screen (Amount calculation example)
This screen is displayed after the [Execution] button at the par. 28-2-1. Apportionment Calculation screen is clicked and the calculating progress bar reaches 100%.



① ● If calculating the total invoice amount
Displays the contract name, bill period, and total amount (amount from the electric company) of the basic charge, additional charge, daytime charge, nighttime charge, weekend daytime charge, and weekend nighttime charge.

● If calculating using the unit price
Displays the contract name, applicable invoice period, basic charge, additional charge, and unit prices for daytime charge,nighttime charge, weekend daytime charge and weekend nighttime charge.

② Adds a details display to ③ Calculated charge. (Reflected when the [Display] button is clicked when the check box is ON.)

(a) Displays the detail items. (Operation Time/ Thermostat ON / Total Energy Used)

(b) Displays the daytime charge / nighttime charge / weekend daytime charge / weekend nighttime charge.

* Cannot be checked when both nighttime charge and weekend charge are not set

(c) Displays the details for each unit.

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③ Displays the calculation result.

- For “Calculate Amount” and “Calculated Apportionment Rate Only”

<table>
<tr><td colspan="3">Block Name</td><td rowspan="2">Displayed without regard to the checking of (a), (b), and (c).</td></tr>
<tr><td colspan="3">Block Type (Common, Undefine)</td></tr>
<tr><td colspan="3">R.C.G. Name</td><td rowspan="4">Displayed on when (c) is checked.</td></tr>
<tr><td colspan="3">Model Name *
*The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter ":" is not part of the Model Name.</td></tr>
<tr><td colspan="3">Adaptor Name</td></tr>
<tr><td colspan="3">Address</td></tr>
<tr><td>Operation Time</td><td rowspan="4">Displayed on when (a) is checked.</td><td rowspan="4">Day, Night, Weekend Day, Weekend Night, Total</td><td rowspan="4">Displayed on when (b) is checked.</td></tr>
<tr><td>Thermostat ON Time</td></tr>
<tr><td>Total Energy Used</td></tr>
<tr><td>Electrical power (KW) *</td></tr>
</table>

* Only when using electricity meter.

- For “Calculate Amount”

<table>
<tr><td>Charge</td><td>Day, Night, Weekend Day, Weekend Night</td><td>Displayed on when (b) is checked.</td><td rowspan="10">Displayed only when “Calculate Amount” is set.
→28-2-1 ④</td></tr>
<tr><td colspan="3">Charged Amount</td></tr>
<tr><td colspan="3">Basic Charge</td></tr>
<tr><td colspan="3">Common Charge</td></tr>
<tr><td colspan="3">Additional Charge 1</td></tr>
<tr><td colspan="3">Additional Charge 2</td></tr>
<tr><td colspan="3">Additional Charge 3</td></tr>
<tr><td colspan="2">Sub Total Charge *</td><td rowspan="2">Displayed only when tax calculation setting effective.
→27-6-2 ⑦</td></tr>
<tr><td colspan="2">Tax</td></tr>
<tr><td colspan="3">Total Charge</td></tr>
</table>

* Amount with Tax subtracted from Total Charge

- For “Calculate Apportionment Rate Only”

Apportionment Rate	Day, Night, Weekend Day, Weekend Night	Displayed only when “Calculate Apportionment Rate Only” is set. →28-2-1 ④

④ Writes the data in CSV format

Write the contents displayed by ③ to a file.

To reflect the details display setting of ②, click the [Export to CSV] button after displaying to ③. A file save dialog box is displayed. Select the folder to be saved and input the filename and save.

⑤ Creates a bill. Advance to “Bill Creation” (28-3).

Cannot be pressed when “Calculate Apportionment Rate Only” is selected in 28-2-1 Apportionment Calculation screen.

⑥ Click to end and close the screen after checking the calculation result or printing a bill.

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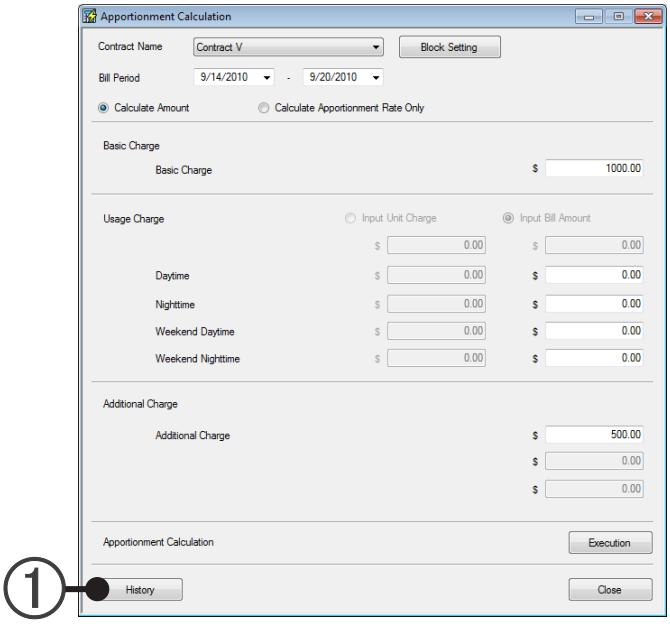
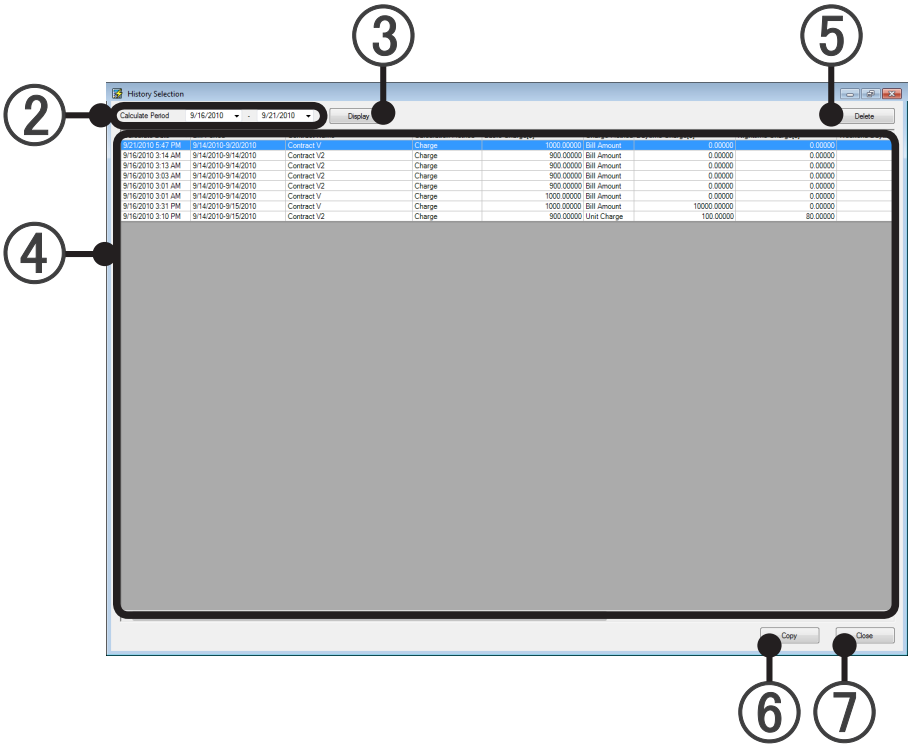
28-2-3 Calculation history

A history of past electricity charge apportionment calculations can be referenced and reflected at the Apportionment Calculation screen.

① Click the [History] button of the Apportionment Calculation screen.



The History Selection screen opens.



② Calculate Period: Set the start and end of the period of time whose calculation history is to be displayed.

③ When the [Display] button is pressed, the calculation history is displayed in the [calculation history list] of ④.

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④ Calculation history list:
Displays apportionment calculation input contents for “Calculate Date” within the period specified by ② in a list.
When the [Calculate Date item] is clicked, the apportionment calculations can be sorted in old order or new order.

Calculate Date	Calculation date
Bill Period	Period of time that used the electricity charges to be billed
Contract Name	Calculated contract name
Calculation Method	Charge/Rate
Charge Method	Bill Amount/Unit Charge (Nothing is displayed if the Calculation Method is "Rate")
Basic Charge	Total basic charge
Daytime Charge	Total daytime charge
Nighttime Charge	Total nighttime charge
Weekend Daytime Charge	Total weekend daytime charge
Weekend Nighttime Charge	Total weekend nighttime charge
Additional Charge 1	Total additional charge 1
Additional Charge 2	Total additional charge 2
Additional Charge 3	Total additional charge 3

* When nighttime charge setting and weekend charge setting is not performed, the billing amount of the power used is displayed at “Daytime Charge”.

⑤ [Delete] button:
If there is a calculation history you want to delete from the list of ④, select it and click the [Delete] button.
A confirmation screen is displayed. When [OK] is clicked, the data of the selected calculation history is deleted.

⑥ [Copy] button:
When you want to use input contents from the list of ④, select the calculation history and click the [Copy] button.
A confirmation screen is displayed. Click [OK].
The contents input at the Apportionment Calculation screen are destroyed.
The History Selection screen is closed and the data selected at the list of ④ is reflected at the Apportionment Calculation screen.

⑦ [Close] button:
Interrupts history referencing and closes the History Selection screen and returns to the Apportionment Calculation screen.

Note

The history does not reference past calculation results, but does reference the past data needed in calculation.
The data will be stored for 2 years.

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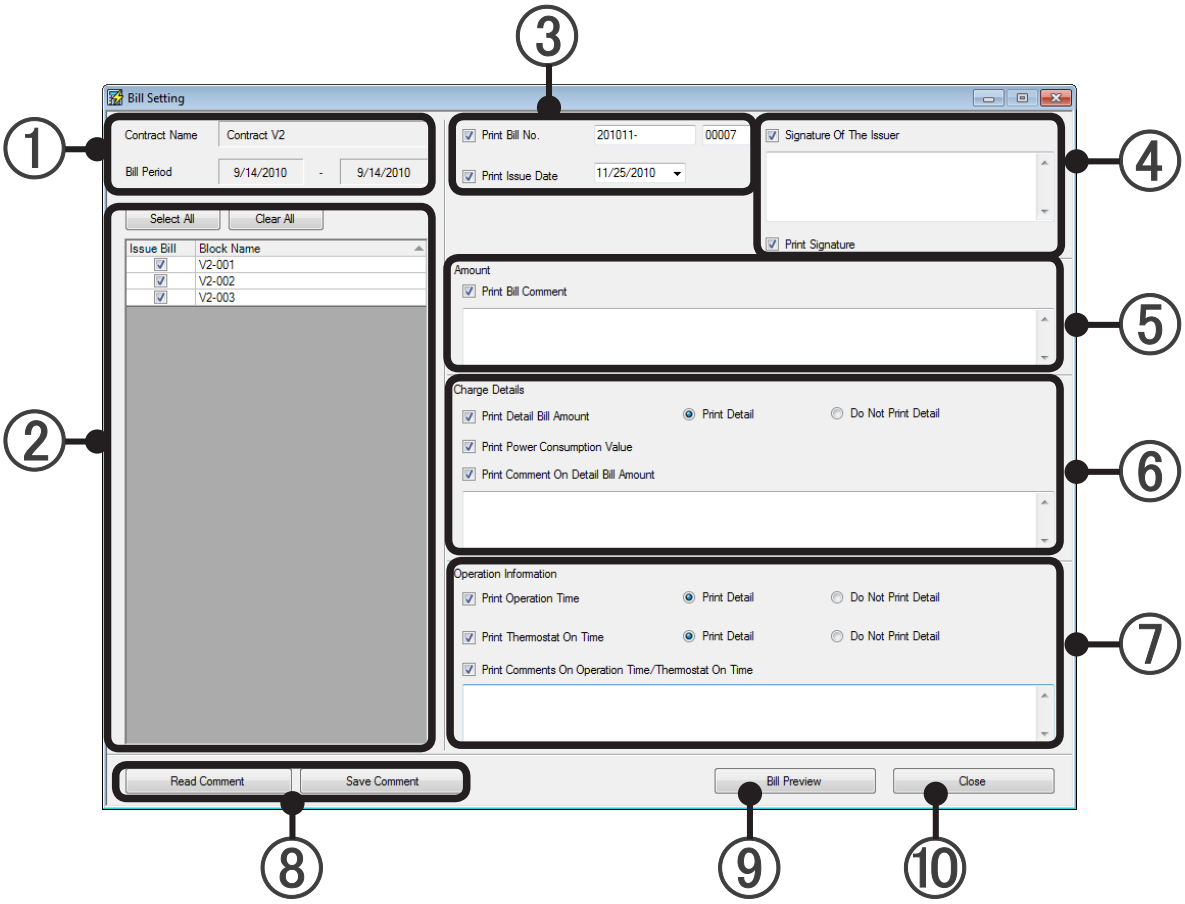
28-3 Bill creation

Creates a bill for each block based on the amount of the apportionment calculation result.

28-3-1 Bill setting

To display this screen, click the [Bill] button on the “Calculation Result” screen.

Description of screen (Different from the initial screen in the state in which all the check boxes are ON)



① Check “Contract Name” and “Bill Period”.

② Select bill destination (Block) which is to output the bill. All select is possible by [Select All] button and all clear is possible by [Clear All] button.

③ Select whether or not the bill No. and bill issue date are to be printed.
(Bill No. is stored for each user in the VRF Controller database.)
When a check is entered, the number allocated by the VRF Controller database is input at “Bill No.” and the date the bill setting screen was opened is input at “Bill issue date”.
To change them, enter them at the “Bill No. (Within 15 characters of alphabet, numeric, symbol + 5 digits of numeric)” and “Bill issue date”.

④ Select whether or not the bill issuer is to be printed and the comment (within 500 characters) is to be input and whether or not the bill destination name field is to be printed.

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⑤ Amount

Print Bill Comment check box:

Select whether or not a comment related to the bill is to be output.

To output a comment, enter the comment in the comment field. (Within 500 characters)

⑥ Charge Details

Print Detail Bill Amount check box:

Select whether or not basic charge (when set), usage charge, common charge, and additional charge 1 to 3 (when set) are to be output.

When Print Detail is selected, a summary of the nighttime charges and weekend charges is output.

Turn the Print Amount of Power checkbox to On:

If entering the invoice amount, the amount of power will be displayed.

If entering the unit price, the unit price and the amount of power will be displayed.

Print Comment On Detail Bill Amount check box:

Select whether or not a comment related to the amounts summary is to be output.

To output a comment, enter the comment in the comment field. (Within 500 characters)

⑦ Operation Information

Print Operation Time check box:

Select whether or not Operation Time is to be output.

When Print Detail is selected, a summary of the Night Operation Time and weekend Operation Time is output. (Cannot be selected when both night time charge and weekend charge are not set.)

Print Thermostat On Time check box:

Select whether or not Thermostat On Time is to be output.

When Print Detail is selected, a summary of the Night Thermostat On Time and weekend Thermostat On Time is output. (Cannot be selected when both nighttime charge and weekend charge are not set.)

Print Comment On Operation Time/Thermostat On Time check box:

Select whether or not a comment related to Operation Time/Thermostat On Time is to be output.

To output a comment, enter the comment in the comment field. (Within 500 characters)

⑧ Saves and reads the bill output setting contents.

[Save Comment] button: Saves the setting contents and comments of ③ to ⑦ to a file. (.xml format)

[Read Comment] button: Reads the setting contents and comments of ③ to ⑦ from a file. (.xml format)

* Only the state of the checkbox is saved and read at ③.

⑨ Opens the Bill Preview screen.

(Prints at the preview screen and writes in .rpt format.)

Advance to par. 28-3-2 Bill printing preview.

⑩ Click to end bill creation after bill printing. The Bill Setting screen closes.

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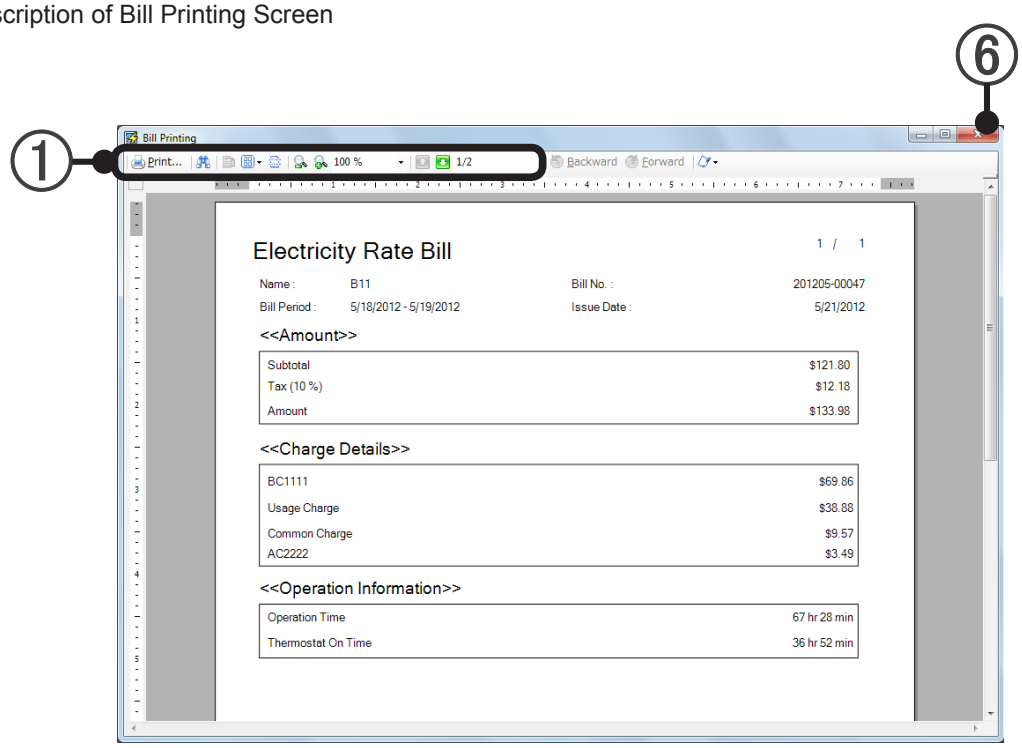
28-3-2 Bill printing preview

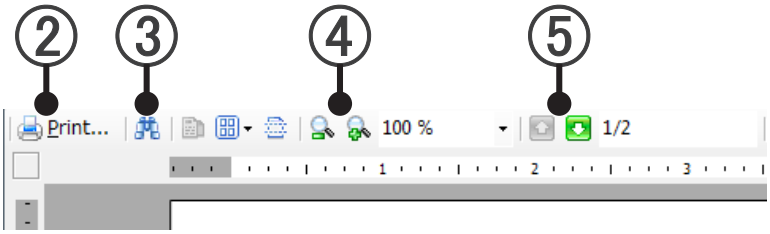
Displays a print preview of the bill.
Check the contents, and if there is no problem, print the bill.

Description of Bill Printing Screen



If “Input Unit Charge” is selected in the apportionment calculation, the unit cost will be displayed.

① Description of tools



② Bill print

③ Text search in document

④ Preview display size specifications. (Zoom)

⑤ Bill page feed

⑥ After bill printing or the end of data write, close the Bill Printing Screen.

Note

- To end bill creation, after closing the Bill Printing Screen, click the [Close] button ⑩ of the “Bill Setting” screen (28-3-1).
- End apportionment calculation in order of “Calculation Result” screen (28-2-2), “Apportionment Calculation” screen (28-2-1), and “Electricity Charge Apportionment” main screen (28-1-1).

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Appendix

29. Product Specifications
30. Troubleshooting
31. FAQ
32. Definition Of Terms
33. Electricity Meter System
34. Installation Restriction of Electricity Meter
35. Installation Restriction of Energy Saving Units
36. The Settings of Outdoor Unit and System Controller Lite
37. Electrical Wiring

29. Product Specifications

29-1 Operating condition

PERSONAL COMPUTER SYSTEM REQUIREMENTS

Operating system	• Microsoft® Windows Vista® Home Premium (32-bit) SP2, Windows Vista® Business (32-bit) SP2 • Microsoft® Windows® 7 Home Premium (32-bit or 64-bit) SP1, Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8 (32-bit or 64-bit), Windows® 8 Pro (32-bit or 64-bit) • Microsoft® Windows® 8.1 (32-bit or 64-bit), Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit), Windows® 10 Pro (32-bit or 64-bit) [Supported languages] English, Chinese, French, German, Russian, Spanish, and Polish
CPU	Intel® Core™ i3 2 GHz or higher
Memory	• 2 GB or more (for Windows Vista® and Windows® 7 [32-bit]) • 4 GB or more (for Windows® 7 [64-bit], Windows® 8, Windows® 8.1, and Windows® 10)
HDD	40 GB or more of free space
Display	1024 × 768 or higher resolution
Interface	• Ethernet port (for getting access to the Internet using LAN) or Modem (for getting access to the Internet using Public Telephone Line) • USB ports (Maximum of 5 ports) (Required only for the Server PC that works as VRF Controller) - Maximum of 4 USB ports are required for WibuKey connection - 1 USB port is required for Echelon® U10 USB Network Interface * The maximum number of required USB port depends on the applicable system configuration.
Graphic accelerator	Microsoft® DirectX® 9.0c compatible
Software	Adobe® Reader® 9.0 or later
Optical drive	DVD-ROM drive

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29-2 Specifications

Model		UTY-ALGX	
Max number of connect-able units	USB compatible LON adaptor	1	
	Indoor unit	400 (Max 400 units x 1 adaptors)	
	Outdoor unit	100 (Max100 units x 1 adaptors)	
	VRF Explorer	5	
Max number of sites		10	
Max number of groups		1600	
Max number of R/C groups		400 (Max 400 groups x 1 adaptors)	
Compatible systems		S/V/V-II/V-III/VR-II/J-II/J-IIS Series	
Compatible transmission adaptor		U10 USB Network Interface adaptor	
Compatible communication system with client server		TCP/IP, dial-up connection	
Air conditioning control function		Start/Stop	
		Master control setting	
		Fan speed setting	
		Room temp. setting	
		Room temp. set point limitation	
		Up/down air direction flap setting	
		Right/left air direction flap setting	
		Group setting	
		RC prohibition	
		Anti Freeze setting	
Display		Failure	
		Defrosting	
		Current time	
		Day of week	
		RC prohibition	
		Address display	
Timer	System schedule timer	On/Off per day	72
		On/Off per week	504
	Day off		
	Min. unit of timer setting (Minutes)		10
Control		Status monitoring system	
		Electricity charge calculation	
		Error history	
		Control via internet	
		E-mail notification for malfunction	

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30. Troubleshooting

30-1 Troubleshooting

Trouble contents	
Cause	**Countermeasures**

Nothing is displayed on the List screen of the VRF Explorer monitor screen.	
Graphic chip of the PC used does not support “DirectX9.0C”.	Change to a PC with graphic chip that supports DirectX, or install a DirectX compatible graphic board at an expansion slot.

When scanning, U10 USB Network Interface is not displayed as a selection choice.	
U10 USB Network Interface driver is not installed.	Install the OpenLDV supplied.
Power is not supplied.	If an USB hub is used or many USB units are connected, the power supply may be insufficient. Connect the USB units directly to the PC, or reduce the number of USB units connected.

Cannot print.	
Printer power is not turned on.	Turn on the printer power.
Printer cable is not connected to the PC.	Connect the printer to the PC.
Printer driver is not installed.	Install the printer driver.

Cannot send and receive e-mail.	
E-mail software settings are not appropriate.	Confirm by checking e-mail software help.
System Controller Lite e-mail settings are not appropriate.	See par. 9. Error E-mail Notification Setting, and check the settings.
Internet provider is shut down for maintenance or other reason.	Wait awhile and then retry, or contact the provider.

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Overall operation is slow.	
System Controller Lite is designed to run on a PC of the specified performance, but the operation speed varies depending on the number of management points and other loads. When the operating speed of the System Controller Lite used appears to be slow, the methods shown at the right will increase the speed.	1. Lighten the processing load 1) Close other applications running on the PC. 2) Change the settings that the load is lightened. Specifically, •Reduce the number of managed units. •Reduce the number of schedules.
	2. Raise the PC specifications. 1) Increase the memory size. 2) Use a high performance PC

Not connected from client PC to server PC.	
Network setting was not performed.	See 6. network setting of this manual and perform network setting.
Port to outside the network is not open.	Contact both the client side and server side network administrator, and confirm that port numbers 9983 and 9984 are open.
VRF Controller not started by server PC.	Start the VRF Controller by server PC.
For internet connection: Client PC side internet provider or service PC side internet provider is shut down for maintenance or other reason.	Wait awhile and then retry, or try contacting the provider.
After import, VRF Controller does not restart.	Restart VRF Controller. (→ See par. 11. Starting and ending the VRF Controller)
Encryption settings do not match.	Match the encryption setting of the VRF Explorer (→ See par. 15-2 Site setting) and the encryption setting of the VRF Controller. (→ See par. 12-2 Security setting)

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30-2 Error code table

The System Controller Lite error codes are shown below. When an error occurred at the System Controller Lite, check the codes below and contact your service personnel.

Note

The table below includes only the error which occurs on System Controller Lite.
For the error codes of other units(indoor units, outdoor units, etc), refer to the service manual.

Error code	Error contents
F11	Database access error
F12	Database connection error
F13	Software restart error
F14	Program run time error
F15	Error at execution of various special operations
F16	Insufficient vacant space on HDD used by database
F21	Transmission adaptor connection failed
F22	Transmission error (data not acquired)
F23	External input power meter error
F31	Communication between processes error
F32	Software protection key not recognized (including WIBU-KEY obstruction)
F33	Server/client communication error
F41	HDD capacity error
F42	System requirements error
F43	Time error
17	Electricity charge apportionment error → See 27-1. Over view and 8. Electricity charge apportionment error.

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31. FAQ

31-1 Frequently asked questions and answers

No.	Question / Answer
1.	How can I determine if my PC supports DirectX?
	Open the command prompt and execute “dxdiag”. Then check “DDI Version” in Display tab is 9 or more.
2.	What units are supported by the temperature display?
	Celsius (°C) and Fahrenheit (°F) are supported. → See par. 10-1-2 Temperature units setting.
3.	I don’t want the alarm to sound. Can I stop the alarm from sounding?
	Yes, Uncheck “Sound audible alarm” at the Alarm tab of 10-1 environment setting screen.
4.	The PC power was dropped during unit scanning. What happens to the data scanned up to the point? Is data integrity maintained?
	The scanned data is saved when scanning is completed and the [OK] button is pressed. When the power was dropped before this, the data scanned up to that point is lost. Restart scanning from the beginning. → See par. 8-3-3 Unit registration.
5.	Can the U10 USB Network Interface used with the System Controller Lite also be used with service tools and other software?
	The adaptor can also be used with service tools. However, one adaptor cannot be used simultaneously by the System Controller Lite and service tools.
6.	What is the difference Secure Reg enable and disable at Unit Registration?
	Secure Reg. enable is a mode which stops operation of all the units and confirms scanning for unit recognition. Secure Reg. disable is a mode which performs scanning in parallel without stopping operation of the units. Since scanning is an important function for recognition of the units to be managed by the System Controller Lite, it is recommended that, as a rule, it be performed by enabling Secure Reg. If unavoidable, disable Secure Reg only when scanning must be performed without stopping operation of the units. In any case, whether or not units were recognized correctly must be confirmed after scanning. However, when scanning was performed with Secure Reg disabled, re-scanning may be necessary due to unit recognition misses.
7.	Scanning was performed, but all the units were not recognized. What should I do?
	When work is performed normally and scanning is performed after confirmation and units are not recognized, first check whether or not the power of the unrecognized units is turned off. Other causes may be: •Unit trouble •Deterioration of the work state In any case, contact the relevant dealer.
8.	Scanning was performed, and all the units were recognized, but R/C group information is not correct. What should I do?
	Assume an abnormality in the wiring which defines the R/C group or incorrect setting of the address in the indoor unit R/C group. Refer to the service manual and perform setting correctly.
9.	Scanning was performed and all the units were recognized, but the unit information is not correct. What should I do?
	It is possible that communication with the unit is incomplete. Enter a secure reg. check mark and re-scan. → See par. 8-3-3 Unit registration.

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No.	Question / Answer
10.	Scanning takes a very long time. What can I do?
	When the existing refrigerant system numbers are known in advance, the scanning time may be shortened by specifying the refrigerant range to be scanned at the scan execution screen. For example, when rescanning, etc. when recognition by scanning isn't very good, the scanning time can be shortened by specifying the range of only the refrigerant systems at which recognition was poor. In addition, scanning by "secure reg." is faster than scanning "without secure reg.". → See par. 8-3-3 Unit registration.
11.	Can multiple System Controllers be used simultaneously?
	Multiple system controllers cannot be used in one VRF network. → See par. 3-3 Example of use.
12.	I want to replace the server PC with a new PC. Can the data be transferred?
	The System Controller Lite has data Export and Import functions. For details, see the Import/Export page.
13.	Unit expansion, replacement, and removal were performed. How can I reflect these changes at the System Controller Lite?
	Perform scanning again. → See par. 8-3-3 Unit registration.
14.	VRF system expansion, replacement, and removal were performed.
	After setting the U10 USB Network Interface adaptor correctly, recognize the units by scanning. See par. 8-3-2 Transmission adaptor setting, See par. 8-3-3 Unit registration
15.	I want to inform the System Controller Lite if an error occurred at a unit even in the state in which the System Controller Lite is not visible.
	Perform error e-mail notification setting and set so that the System Controller Lite is informed by e-mail. → See par. 9. Error E-mail Notification Setting.
16.	The state displayed on the screen does not change even though operation setting is performed.
	When operation setting was performed at multiple units or at a group containing multiple units, it may take some time for the state of that unit to change to the set contents.
17.	Can a transmission adaptor (UTR-YTMA) be used with the System Controller Lite?
	Transmission adaptor (UTR-YTMA) cannot be used with the System Controller Lite. Provide a new U10 USB Network Interface to monitor by System Controller Lite an S/V Series monitored by a PC controller via a transmission adaptor.
18.	Can a WIBU-KEY used by a PC controller be used by the System Controller Lite?
	Since the PC controller and System Controller Lite are separate products, the WIBU-KEY used by the PC controller cannot be used by the System Controller Lite.
19.	Do you need a WIBU-key for both server and client PC?
	No, only server PC requires WIBU-key.
20.	When SQL Server 2008 R2 installation failed while the this application is being installed.
	Please refer to the log in the following folder. C:\Program Files\Microsoft SQL Server\100\Setup Bootstrap\Log
21.	The System Controller Lite stopped while I was away from my seat for a while.
	When Windows Update was executed in the background, the Operating System automatically reboots and the System Controller Lite may stop. In such cases, set so that Windows Update is performed manually and periodically update the Operating System.

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31-2 Questions and answers related to electricity charge apportionment

No.	Question / Answer
1.	Why is an electricity charge generated even though none of the indoor units is being used?
	Since power is consumed by the outdoor unit even when all the indoor units are not in use, an electric charge is generated.
2.	Why isn't the operation time and electric charge proportional?
	If the room temperature is already the set temperature even when operation is turned ON by remote controller, the indoor unit will not operate and the power consumption will be that much lower. In addition, if the difference between the room temperature and the set temperature is large, more power is consumed than when the difference is small. Therefore, the operation time and electricity charge may not necessarily be proportional.
3.	Why is the electricity charge of operated indoor units so much smaller than that of indoor units that are not operated at all?
	Electricity charge includes the power consumed by the outdoor unit in addition to that of the indoor unit. The outdoor unit consumes power constantly so that operation at any time is possible even through indoor units are not operating. This is called "standby power". Since the standby power differs with the model of outdoor unit, if the number of indoor units per outdoor unit is assumed to be the same, the indoor units which use a high standby power outdoor unit will consume more power than indoor units which use a low standby power outdoor unit. This question is an example of when the difference of this standby power was larger than the power consumed by operation. This is a normal result. Generally, this kind of difference is made small by selecting the model of outdoor unit based on appropriate facility design.
4.	Why has the electricity charge suddenly increased even though use is the same as in the past?
	The electricity charge is apportioned between blocks. When the number of blocks is decreased or increased by the leaving and entering of tenants, the electricity charge increases and decreases. As an example, if the case when setting so that the basic charge is apportioned equally by number of blocks, when the number of tenants decreases, apportionment per block increases and when the number of tenants increases, apportionment per block decreases. This phenomenon also varies depending on the electricity apportionment setting method. The building owner and manager should perform appropriate setting in accordance with that policy.

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32. Definition Of Terms

Terms	Definition
Group	When a group is set, the operating state can be checked by selecting it one time.
U10 USB Network Interface adaptor	Adaptor for connecting the USB terminal of PC and units.
R/C group, R.C.G.	Minimum units of unit group which receives operation commands.
Filter sign	Sign which shows that the filter cleaning period has arrived. The filter cleaning period is represented by operation for a fixed time.
Anti Freeze	Anti Freeze is a function that performs low temperature heating operation to prevent freezing of water lines and equipment, when air conditioning operation is off, in regions where outside temperature may drop below freezing. If water lines are far from the unit or within exterior walls, this function may not provide enough anti freeze protection.
Economy operation (Energy save)	Function which gradually changes the internal set temperature to near the room temperature each time a fixed interval has elapsed after the temperature was set. The set temperature display does not change.
R/C prohibition setting	Setting so that a certain function cannot be performed by local remote controller.
Site	VRF system group or building group connected by one VRF controller.
Local	Connection method when the PC running the client software and the PC running the server software is the same.
Remote	Connection method when the PC running the client software and the PC running the server software are different.
Server PC	PC which is directly connected to the VRF System by using a U10 USB Network Interface adaptor. Server PC is the PC in which VRF Controller is installed and run. A VRF Explorer is also installed to the server PC, and the user can manage VRF System operation by server PC.
Client PC	PC which is connected to a server PC over an internet or other network and manages operation of the VRF System via the server PC. VRF Explorer is installed and run.
Server software	One of the 2 programs making up the System Controller Lite. It communicates with the VRF System and passes status information to the client software and receives operation setting information from the client software. Since the user provides service to the client software (VRF Explorer) used to actually manage operation, it is called server software. Since it is run in the background on the PC, it is difficult to realize that it is running and when running, an icon appears on the task tray. Operations which can be performed by the user related to the client software are related to menus which are displayed by right clicking the icons on the task tray. In this manual and programs, it is referred to by the name VRF Controller. The VRF Controller must be used together with a WIBU-KEY packed with together with this product.
Client software	One of the 2 programs making up the System Controller Lite. It is software used by the user to actually manage operation. Since it communicates with a server directly connected to the VRF network and is run by receiving service from the server, it is called client software. In this manual and programs, it is referred to by the name VRF Explorer. VRF Explorer mainly consists of 2 screens: Site Navigator screen for monitoring group site and VRF Explorer main screen related to a specified site in it. VRF Explorer can be installed to up to 5 PC by using this product. (Including the VRF Explorer in the server PC)
VRF Controller/VrfController	See the server software item.
VRF Explorer/VrfExplorer	See the client software item.
Emergency Stop	State in which operation was forcefully stopped in an emergency such as a fire, etc.

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Terms	Definition
RB	RB is the abbreviation for "Refrigerant Branch Unit" used with a heat recovery system. It is installed at the refrigerant piping between outdoor unit and indoor unit to switch the refrigerant circuit in the operation mode of each indoor unit.

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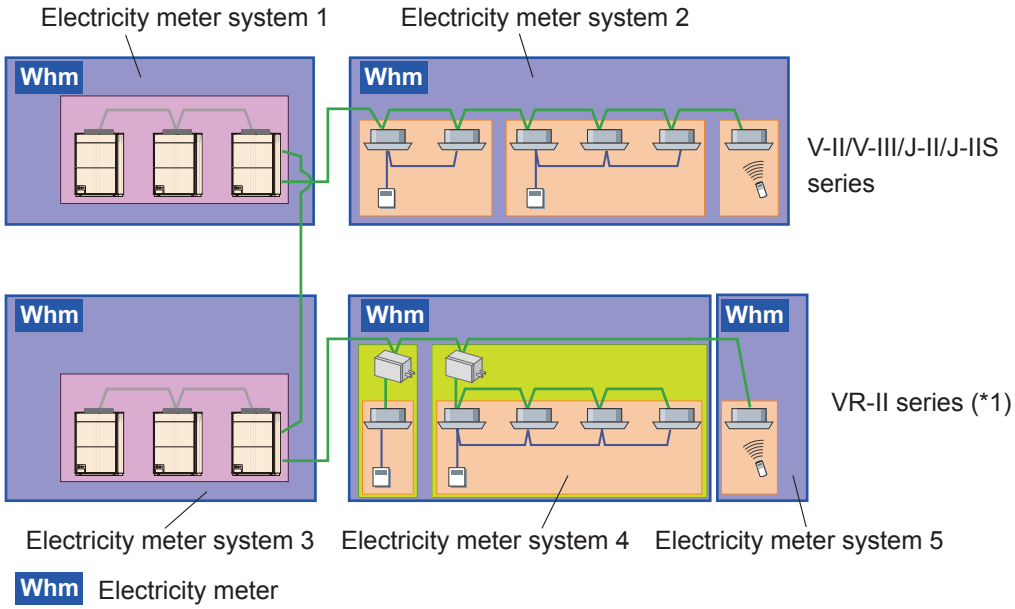
33. Electricity Meter System

Electricity meter system is the connection configuration of one electricity meter and the air conditioner units which are connected to the power line under it. this is set on the System Controller Lite.
Set to the System Controller Lite match the actual electricity meter installation configuration.
Since the electricity charge apportionment function/energy saving function perform control using the power consumption data from an electricity meter, it is necessary to set an electricity meter system on the System Controller Lite.

When installing electricity meters as shown,5electricity meters systems are set.



(*1) In the VR-II series, Electricity Meter System can contain the RB units.

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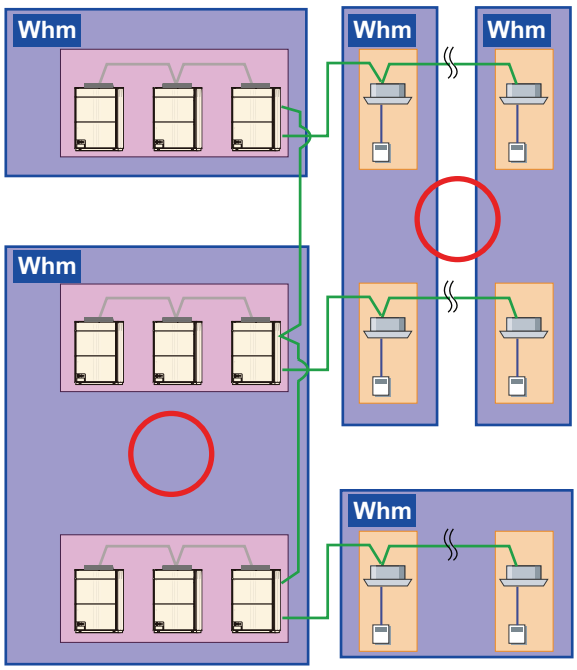
34. Installation Restriction of Electricity Meter

Note

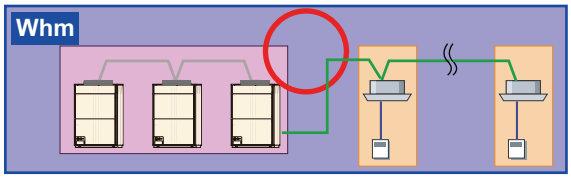
The following items are ways of connecting the electricity meter that are supported by the System Controller Lite.
However, it is necessary to observe the following restrictions.

① It is possible to connect multiple VRF-Networks to a single electricity meter. (With network jump)

② Electricity meter may cover more than one refrigerant system.
However, at least one electricity meter is recommended to be installed for each refrigerant system.



③ It is permitted to mix indoor/ outdoor units for a single meter.



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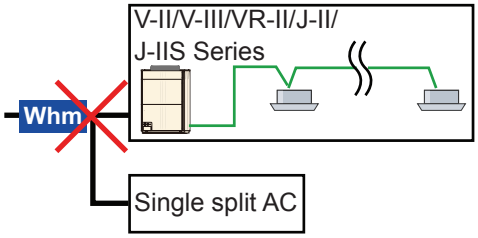
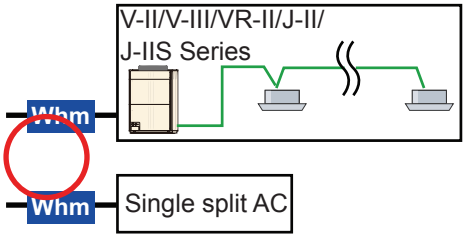
- Installation limitations

① Only install air-conditioning units which are to be in-scope for the function.
If an electric lamp or other OA equipment is connected to the electricity meter, also take into account the amount of power they use.
Make it so that the electricity meter is only connected to required air-conditioning units.

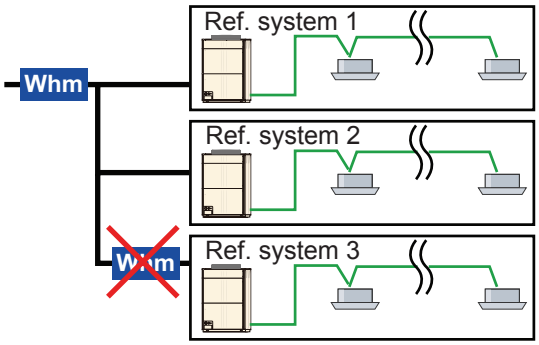
② Only connect the meter to V-II/V-III/VR-II/J-II/J-IIS Series air-conditioners.
Electricity meters can only be installed on V-II/V-III/VR-II/J-II/J-IIS Series equipment. Do not connect the electricity meter to S Series or V Series, as these do not support it.

③ You cannot have a mixture of units that support the electricity meter and those that do not support it working under a single electricity meter.
This is because the functions that can be used are different.
If connecting Single split AC using the V-II/V-III/VR-II/J-II/J-IIS series' network converter (UTY-VGGXZ1), please separate the connection between the V-II/V-III/VR-II/J-II/J-IIS series VRF air conditioner and the electricity meter, as part of the functions*1 are not supported.
However, this does not include UTY-VGGXs that are connected to a Group Remote Controller.
*1: [Electricity Apportionment Function] It is not possible to carry out apportionment processing for indoor units such as Single split AC connected to Network converters.
The electricity cost for equipment connected to the network converter must be calculated in another way.
[Energy Saving Function] The Target Electricity in the Peak Cut function is a target, and there are no restrictions implemented for the Target Electricity.





④ Nests for other meters and multiple installations are not permitted.
The meter itself can be installed, but please only use one for the System Controller Lite power meter (if you use both, the amount of electricity will be counted twice).



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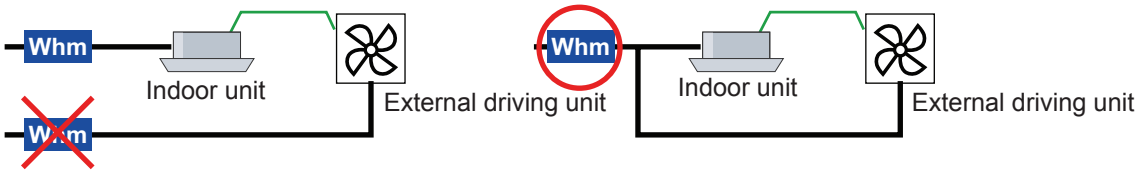
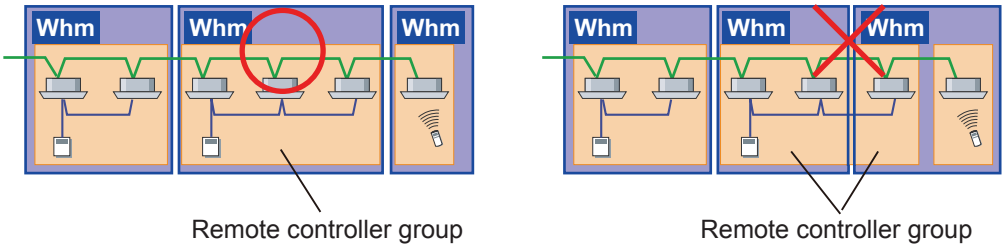
⑤ The externally linked units*shall be connected to the same electricity meter as the air conditioner to which they are connected.

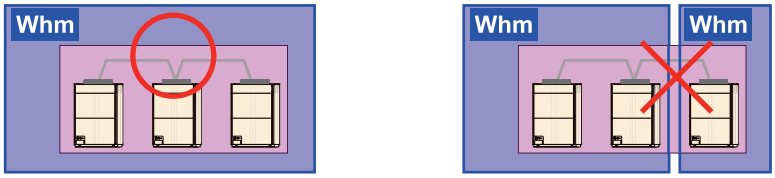
*General-purpose unit which performs calculation as an externally linked unit by electricity charge apportionment function.



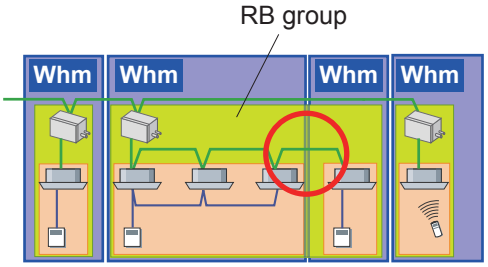
⑥ It is prohibited to install electricity meters that split Remote controller group.



⑦ It is prohibited to install electricity meters that split outdoor unit group.



⑧ Installation of electricity meter which divides RB groups is OK.



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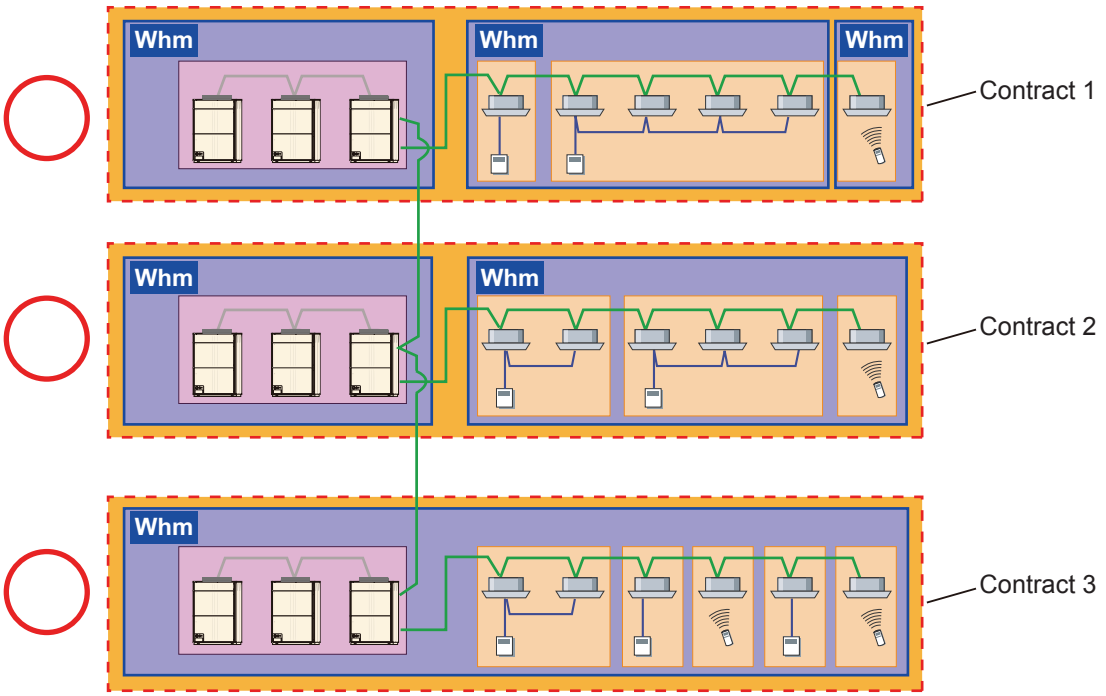
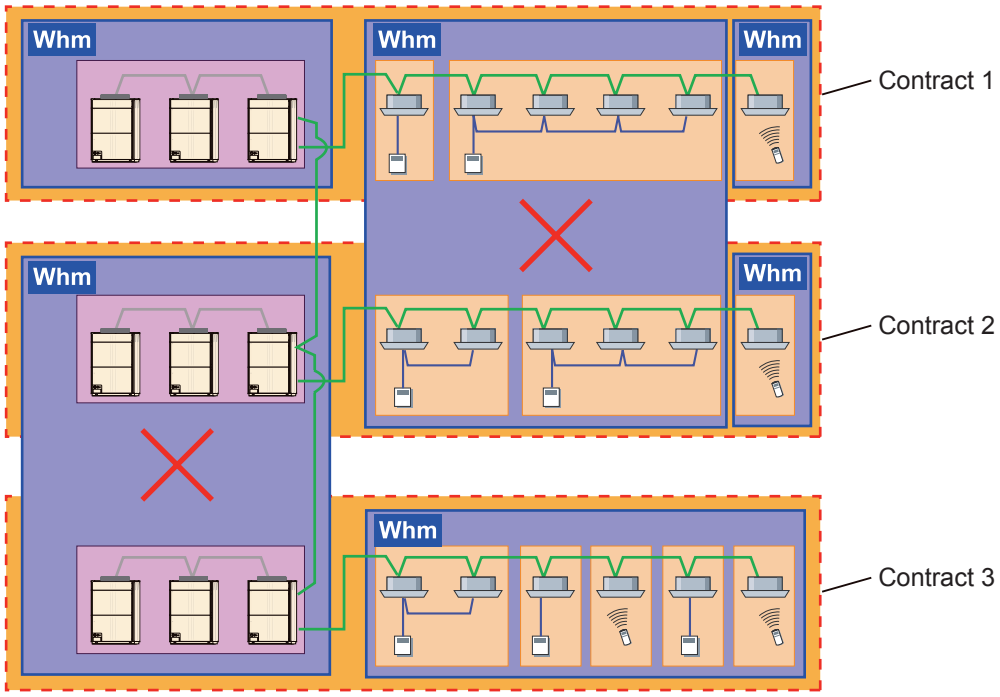
⑨ Installation of cross-contract electricity meters is prohibited.
If an electricity meter is used in the electricity apportionment function, install the electricity meter such that the “contract settings” configured in the electricity apportionment are not skipped.





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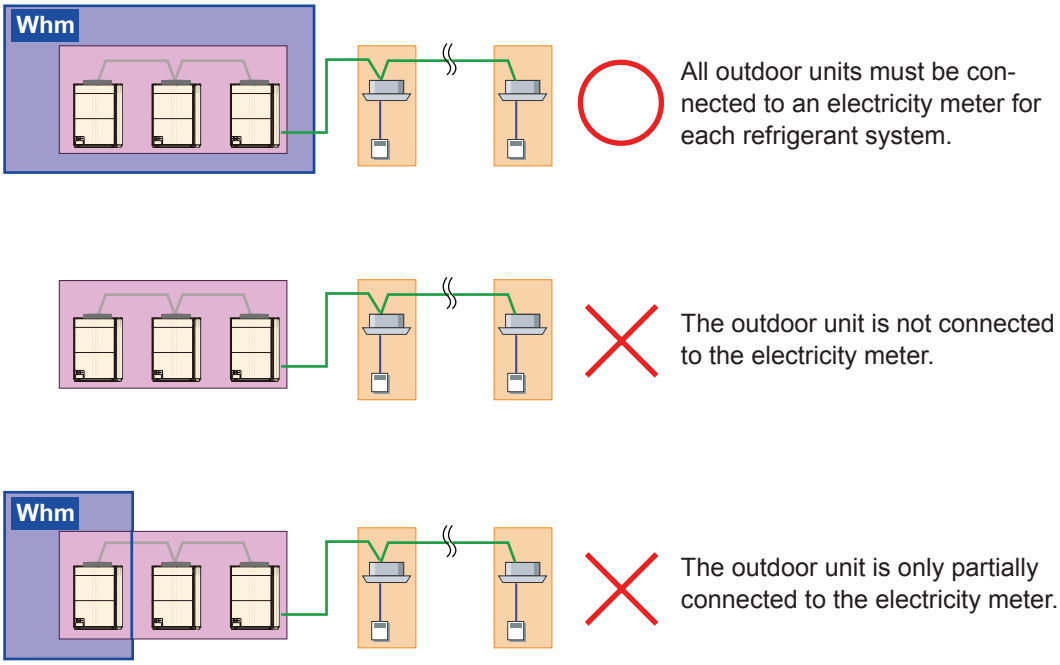
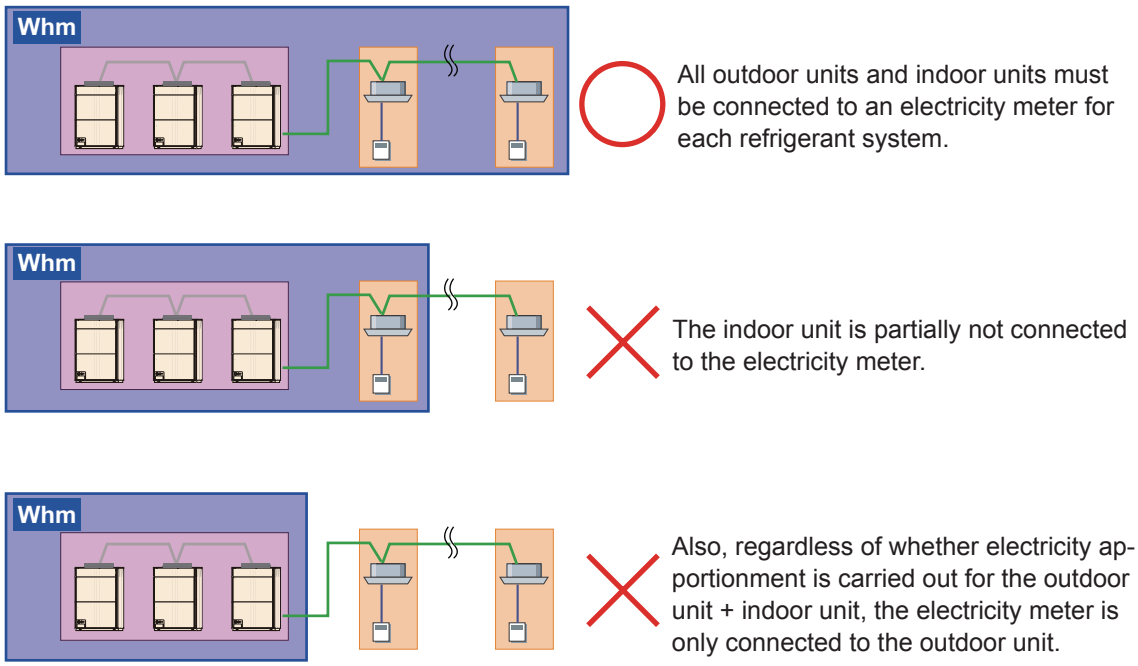
⑩ When an option to use electricity meter for performing an apportionment function is selected, all units which are the subject of calculation must be monitored by electricity meter.
If an electricity meter is not connected, it may not be possible to calculate electricity apportionment using the electricity meter.

<For only electricity distribution for Outdoor units> → Connect the electricity meter to all Outdoor units.



<For an electricity apportionment of outdoor unit + indoor unit> → Necessary to connect the electricity meter to all outdoor units and indoor units.



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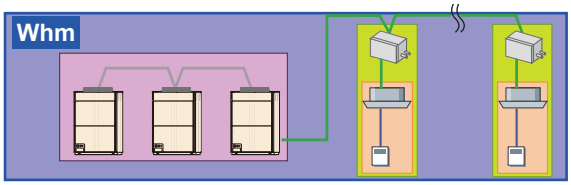
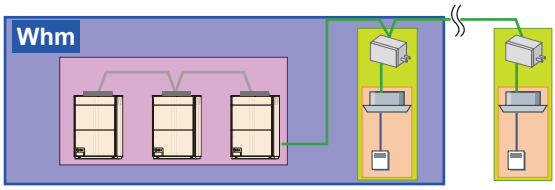
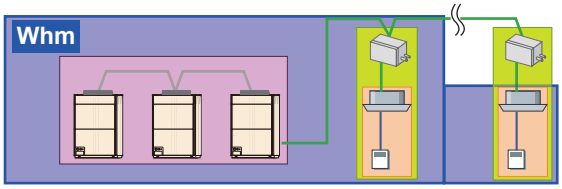
<For an electricity apportionment of outdoor unit + indoor unit + RB unit>→ Necessary to connect the electricity meter to all outdoor units, indoor units and RB units.



All outdoor units, indoor units and RB units must be connected to an electricity meter.



Electricity meter is not connected to some indoor units and RB units



Electricity meter is not connected to some RB units

⑪ Electricity apportionment for DX-Kit

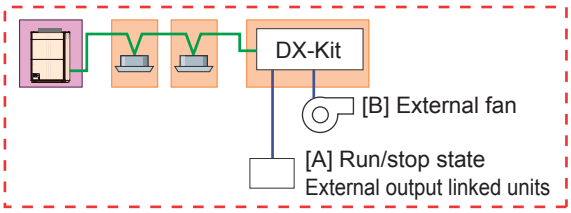
- When electricity meter not connected

The following units can be linked to the DX-Kit, by using external output terminals.

[A]：External fan

[B]：Units linked to run/stop state external output

At electricity apportionment, the DX-Kit itself and units [A] and [B] mentioned above can be handled. Set the electricity value at ON beforehand for the units [A] and [B] from the “Parameter Setting” screen. The input value is included in the calculation as a constant value when the external output terminal is ON.



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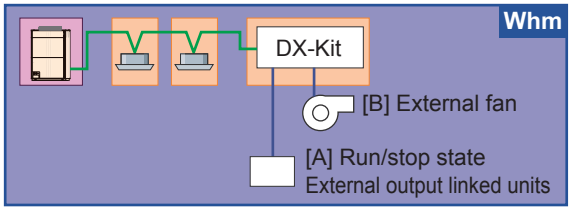
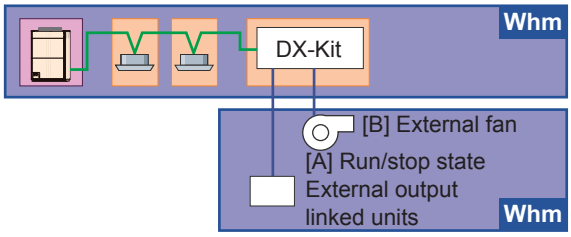
- When an electricity meter is connected

  At electricity apportionment, the DX-Kit itself and units [A] and [B] mentioned above can be handled the same as when an electricity meter is not connected.
  Set the electricity value at ON beforehand for the units [A] and [B] from the “Parameter Setting” screen and install the electricity meter so that the units [A] and [B] are included.
  The input value in the calculation as a constant value when the external output value is ON is included.

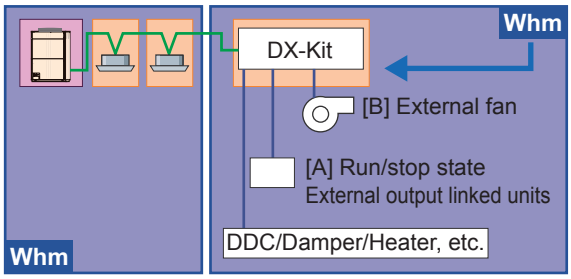


○ The electricity meter is installed so that the units [A] and [B] are included.



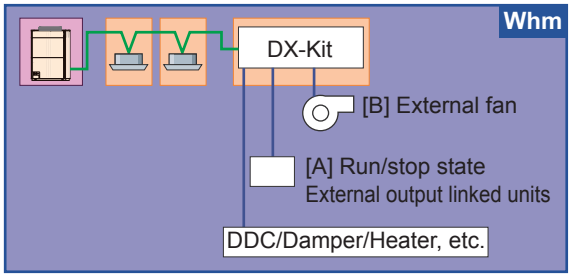
× The electricity meter is installed independently from the units [A] and [B].

If there is a unit related to the DX-Kit other than [A] and [B], if the DX-Kit is connected as an independent electricity meter system and installed so that other units are included, it may be included in electricity charge apportionment. (All the value of that electricity meter is charged to the DX-Kit.)



○ The electricity meter is installed so that [A], [B], and other units are included.

Units other than [A] and [B] must not be connected to an electricity meter together with other indoor units. If connected, the electricity amount of DDC, damper and heater is also charged to the other indoor units.



× The electricity meter is installed so that the units other than [A], [B] and indoor units are included.

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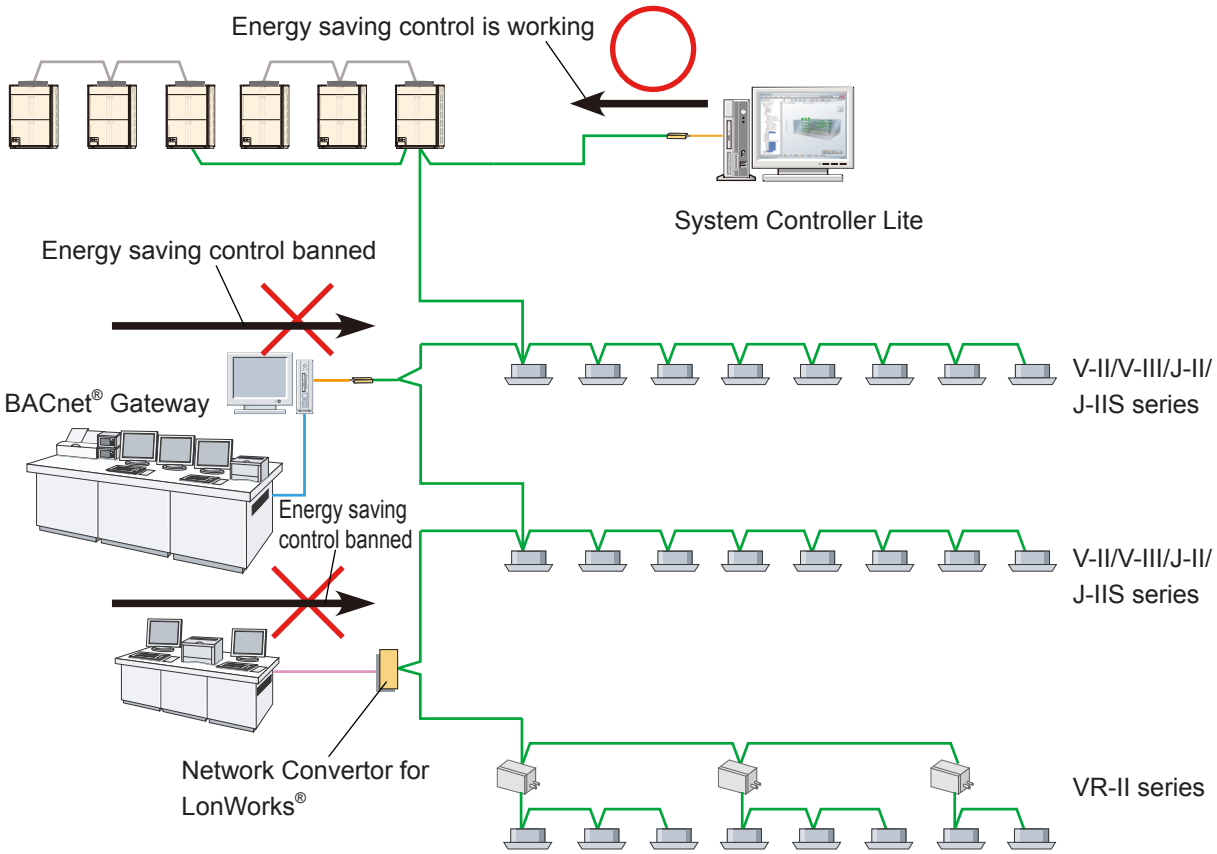
35. Installation Restriction of Energy Saving Units

Only 1 unit may perform energy saving control at a time.
When energy saving control is performed by SYSTEM CONTROLLER LITE (UTY-ALGX/PLGXA1/PL-GXE1), stop energy saving control *1 from the building management system through the following units.

- BACnet® Gateway (UTY-ABGX)
- Network Convertor for LonWorks® (UTY-VLGX)

When energy saving control is performed from multiple points, trouble may occur.
*1: Forced thermostat OFF, outdoor units stoppage.



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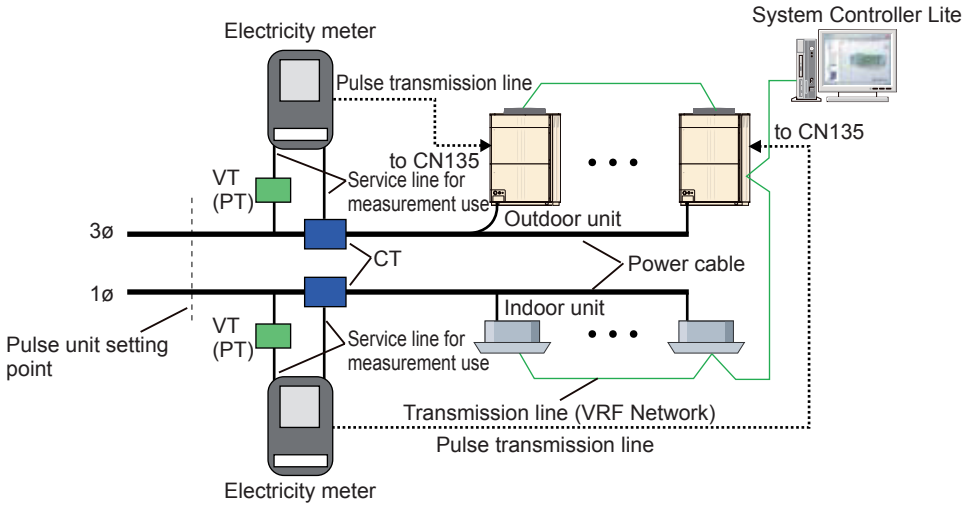
36. The Settings of Outdoor Unit and System Controller Lite

In order to understand the appropriate power consumption with the System Controller Lite, it is important to correctly transmit the electricity value measured with the power meter.
In order to do this it is necessary to configure appropriate settings on the power meter, outdoor unit, and System Controller Lite.
The following describes the method of setting the pulse value on the controller.
Setting example

① If the electricity meter you are using has units of pulses specified.



Pulses output with electricity meters specified in units of pulses are normalized (usually 1kWh/pulse) beforehand and then output.

Set location	Setting items	Set value	Comment	Remarks
Electricity meter	Configuration following the product manual.	-	If the product has fixed settings, configure by following the product manual (pulse unit value, VT/CT ratio, output factor, etc.).	
Outdoor unit	Meter number setting	Any	In order to distinguish between power meters, configure a fixed power meter number	These information are required for System Controller Lite setting. Please refer to the Installation Manual of the outdoor unit.
	Electricity meter pulse setting	1	Set it fixed at “1”. When one pulse comes from the electricity meter, the outdoor unit will communicate “1” to the System Controller Lite.	
System Controller Lite	Electricity meter system settings	Unit that is subject to measurement by the electricity meter	The electricity meter with the meter number set in the outdoor unit configures the measured outdoor and indoor units.	Use values set for each outdoor unit
	Pulse setting	Electricity meter pulse unit value (normally it is either of 1, 10, or 100 [kWh/pulse])	The electricity meter is set to the specified pulse units without them being changed. Set the number of kWh that corresponds to the “1” communicated from the outdoor unit.	Refer to values set for each outdoor unit

[Setting Examples]
Setting conditions: VT ratio = 1 (unused), CT ratio = 50 (250/5A), power meter = 1kWh/ pulse
Set value: Electricity meter pulse setting = 1 (fixed), pulse setting = 1 (for the electricity meter used)

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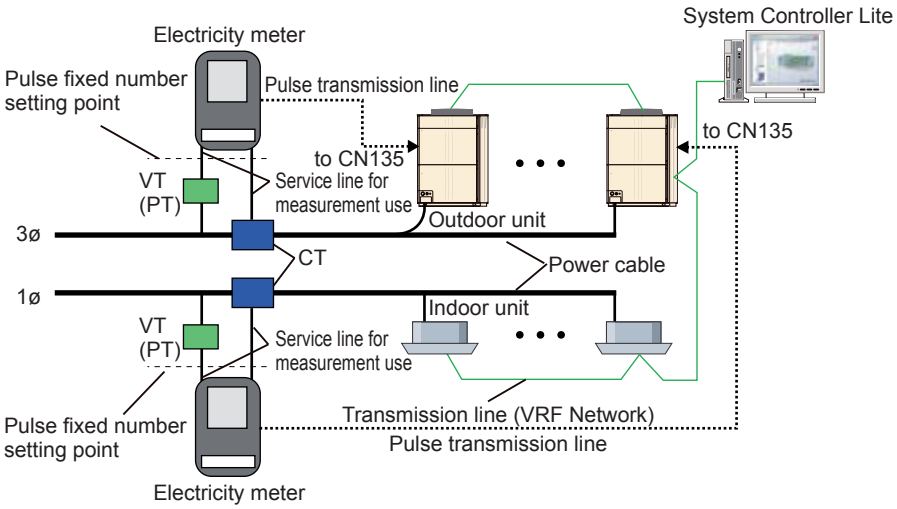
② If the electricity meter you are using has a fixed number of pulses specified.



Consumed electricity values displayed by output pulses with an electricity meter specified in a fixed number of pulses must be corrected with the VT/CT ratio. In this case configure the following settings.

Set location	Setting items	Set value	Comment	Remarks
Electricity meter	Configuration following the product manual.	-	If the product has fixed settings, configure by following the product manual (pulse unit value, output factor, etc.).	
Outdoor unit	Meter number setting	Any	In order to distinguish between power meters, configure a fixed power meter number	These information are required for System Controller Lite setting. Please refer to the Installation Manual of the outdoor unit.
	Electricity meter pulse setting	The pulse fixed number of settings/ (VT ratio x CT ratio), however, remove the numbers after the decimal point	Set the approximate number of power meter pulses that are equivalent to 1kWh. When the pulses of set number come from the electricity meter, the outdoor unit will communicate “1” to the System Controller Lite.	
System Controller Lite	Electricity meter system settings	Unit that is subject to measurement by the electricity meter	The electricity meter with the meter number set in the outdoor unit configures the measured outdoor and indoor units.	Use values set for each outdoor unit
	Pulse setting	(Outdoor unit electricity meter pulse setting value) x (VT ratio x CT ratio)/ Fixed number of pulses However, the figures after the decimal point are also input.*1	Set whether the communication from the outdoor unit is in kWh. Set the number of kWh that corresponds to the “1” communicated from the outdoor unit.	Refer to values set for each outdoor unit

*1: Input until the 6th place after decimal point
[Setting Examples]
Setting conditions: VT ratio = 1 (unused), CT ratio = 500 (2500/5A), power meter = 3200pulse/kWh
Set value: Electricity meter pulse setting = 6 (3200/(1x500)),
pulse setting = 0.9375 (6x(1x500)/3200) ... Refer to the calculating formula on above table

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Note

Be sure to select an electricity meter that sends more pulses per 1kWh than VT ratio x CT ratio. Otherwise, the measurement error of the power will be larger than 1kWh, thus affecting the accuracy of ECA.

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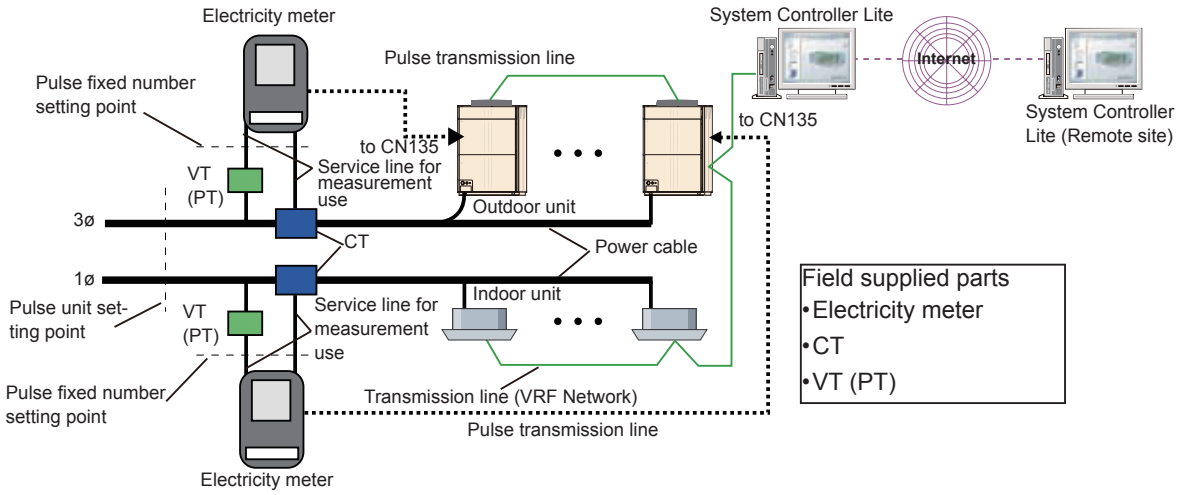
37. Electrical Wiring

- Electricity meter connection composition
  In order to control the peak cut of energy saving, In principle, It is necessary that a electricity meter with pulse sending function to monitor all electricity consumed by air conditioner. The number of electricity meter should be less than predefined number, but if cover all observed subject, it can be multiple installed. The installation construction of general electricity meter is shown as follows.



Item	Explanation	Remarks
Electricity meter	Service line for measurement use measure the voltage and current of connected power cables to obtain consumed electricity or output a measured value related pulse from pulse transmission line.	
VT(PT)	Voltage Transformer (Power Transformer) Make the voltage of power cables lower to be a voltage that the electricity meter can measured. It will shows with VT(PT) ratio that how the voltage was lowered. Usually, it has no necessary that a voltage level used on outdoor units, indoor units.	
CT	Current Transformer Shunt the current value of power cables to be current that the electricity meter can measured. It will shows with CT(PT) ratio that how the shunt it. It have 2 type of " insert into power cable type" and " through into power cable type".	
Pulse unit	Pulse unit shows the relation of electricity meter's output pulse and measured electricity. The numerical value specified in pulse unit shows the value of kWh that are equivalent to a pulse in consumed electricity of power cables. Unit is [kWh/pulse] The numerical value specified in pulse unit has consider to the used VT or CT ratio, it corresponding to the value of actual consumed electricity.	
Pulse unit setting point	It shows the measurement point of consumed electricity specified in pulse unit.	
A fixed number of pulses	Pulse fixed number shows the relation of measured electricity of electricity meter and output pulse. The numerical value specified in pulse fixed number shows the number of pulses that are equivalent to 1kWh consumed electricity that input electricity meter. Unit is [pulse/kWh] It is need to multiply VT, CT ratio by the value of pulse fixed number respectively when you calculate the actual electricity consumed on power cables, because of the numerical value specified in pulse unit has not taken the used VT or CT ratio into consideration.	
Pulse fixed number setting point	It shows the measurement point of consumed electricity specified in pulse fixed number.	

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- Selection of Electricity meter, CT, and VT.
  Please take the follow item into consideration to select electricity meter, CT,VT.
  ① Install the electricity meter with refrigerant system unit as possible.
  ② Select VT/CT with a low ratio.
  ③ In the case that a electricity meter specified in pulse unit (kWh/ pulse) is used, a output of kWh/ pulse should be selected usually.

- Outdoor unit connection interface (CN135) to electricity meter

Item		Specifications	Remarks
Interface		Non-powered connection point “a” *3	Connection point “a”: ON upon short circuit*1
Pulse	Specifications	Width: 50ms or greater Interval: 50ms or greater	
	Unit	1 kWh/ pulse (pulse units) is recommended.	
	A fixed number	However, with consideration given to the power meters that can be obtained in some countries, power meters with 3,200 pulse/kWh (fixed number of pulses) and below are also supported.	
Wire length limitations		150m(492ft) or less	Between Electricity meter to Outdoor unit
Wiring specification		Control and instrumentation cable CVV-S (Control-use Vinyl insulated Vinyl sheathed cable - Shielding) *2 2 cores 1.25mm^2(16AWG)	

*1: Pulse signal that is OFF when electricity is flowing (open), and ON at the time of a short circuit (closed).
*2: In the case of the trouble effect caused by induction, please select a CVV cable (CVV-S cable) with shield.
Because the copper shield tape is wrapped on CVV cable make it has a effect to relax induction trouble from near power cable to keep normal transmission.
In additional, in the case of the wiring at outdoor, please select a weather-resistant one.
*3: To connect an electricity meter, an additional service part "External Input Wire"(Parts No.9368777005) is required.

- Restrictions on electricity meter installation

Item	Specifications	Remarks
Number of electricity meters installed	Max.200	For each System Controller Lite
	Max.1	Number of units connected to one outdoor unit (Master or Slave)
That which the electricity meter is connected to	Any	There are no restrictions on outdoor units which the electricity meter connects to.You can connect any electricity meter to any outdoor unit.

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