

mitsubishi

Mitsubishi Electric Air Conditioning Network System Integrated centralized control software TG-2000A Operation Manual (Management)

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Please read this manual before using the unit.

Please keep this manual for future use

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In this manual, Microsoft® Windows® Vista Business is Called Windows Vista, Microsoft® Windows® XP Professional is called Windows XP and Microsoft® Windows® 2000 Professional is called Windows 2000. In this manual, Microsoft® Excel 2007/2003/XP/2000 is called Excel.

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—About this manual—

The operation manual consists of three volumes, "Site adjustment", "Management", and "Wide area".

This manual is "Management". These manuals are accessible from the Help on TG-2000A. Acrobat® Reader is required to read these manuals. (Ver. 5.0E or later recommended)

When using the unit in wide area, refer to this manual and "Wide area".

-- Term description --

- "Man-machine" : Indicates a computer with integrated centralized control software TG-2000A. (Man-machine interface abbreviation)
- "PLC" : Abbreviation for Programmable Logic Controller.
The TG-2000A system uses two PLCs; the electric amount count software and PLC for general equipment software.
The electric amount count software measures the electric amount with the PLC, the general control operates and monitors the general equipment, etc.
- "Power apportioning billing" : Billing function that apportions the electric amount used by the air conditioner. The following three methods are available:
 - Manual electric amount input
A watt hour meter (WHM) is not connected, and instead the charge percentage is calculated according to the percentage of power used.
The service power is measured with the separately installed WHM, and the service charges are obtained from the charge percentage.
 - Electric amount pulse count
The electric amount is measured by the PLC, and the service electric amount is monitored by via the LAN to automatically apportion and calculate the electricity charges.
The designated PLC and optional software are used.
 - Direct read in of power value into computer
The RS-485 output watt hour meter is directly connected to the computer containing the integrated software (via an RS-232-C/RS-485 converter), and the service power is input.
The service power rate is automatically apportioned and calculated.
- "WHM" : Abbreviation for Watt Hour Meter.
- "Service power rate" : The service power rate indicates the power rate (apportioned rate) apportioned based on the service state of the air conditioner, etc.
- "Always connected to G-50A system - Activate":
Refers to charging method that is operated by connecting this integrated software TG-2000A constantly to the G-50A and PLC via a LAN. Leave the computer power ON to keep the TG-2000A running.
- "Always connected to G-50A system - Deactivate":
Refers to charging method that connects this integrated software to the G-50A and PLC once a month via the LAN. The charges for the last month are calculated and output at once. The charging function can be used efficiently by starting the computer and integrated centralized control software TG-2000A on the day after the set settlement date.
- "IC I/O signal" : Refers to a contact mounted on the air conditioner's indoor unit. A general equipment can be connected to the IC I/O signal using this contact and a PLC for general equipment to operate and monitor the system.

- About screen -



This instruction manual may use the development version screen in some case.

- Simple operation manual -

- The simple operation manual is stored as a pdf file in the "Manual" folder on the TG-2000A Setup CD. Acrobat® Reader (Version 5.0E or higher recommended) is required to view this pdf file.

1. Safety Precautions

- Please read the Safety Precautions section very carefully before using the unit.
- The safety cautions provided here are very important for your safety. Please observe them at all times.
- The degree of danger involved with incorrect operation of the unit are indicated in this manual using the following symbols.

 WARNING	Incorrect operation could result in death or severe injury.
 CAUTION	Incorrect operation could result in injury or damage to property.

- After reading this information, please keep this manual together with the operation manual (site adjustment manual) in a location where the operator can see it. Also, when changing operators give both of these manuals to the new operator.

Note:

- **Please observe the safety precautions detailed in the installation manuals and operation manuals of the other machines such as computers, peripherals, and air conditioners.**

WARNING

The customer must not do any wiring or electrical work.

Have the dealer or a specialist do any wiring or electrical work. Do not do it yourself. Doing the work yourself may result in improper installation which may cause electric shock or fire.

Do not relocate the unit yourself.

Relocating the unit yourself may result in incorrect installation which may cause electric shock or fire.

To relocate the unit, consult the company from which the unit was purchased.

Do not make any improvements or repairs for any reason.

Making improper improvements or repairs may cause electric shock or fire. For repairs, consult the company from which the unit was purchased.

Read the installation manuals and operation manuals for the computer, peripherals and other machines.

Improper operation could result in fire or damage to the computer or peripherals.

Stop operation immediately if an error message appears on the computer and the unit stops or is not operating properly.

Failing to do so may result in fire or damage to the unit.

Immediately contact the company from which the unit was purchased.

Read the installation manual and operation manual for the air conditioner controller.

Improper operation could result in fire or damage to the air conditioner controller.

CAUTION

Do not use the product for any other purpose.

This product is for use with the Mitsubishi Electric Building Air Conditioning Control System. Do not use it with any other air conditioning control system or for any other application. Doing so may cause the unit to malfunction.

Keep children away from the unit.

Inspections and maintenance can be dangerous. Do not let children near the unit during these times.

Do not use with other applications.

Use the computer that uses this product with this product only. Using it with other applications may cause faulty operation.

Warning to all users (User Agreement)

This document is a contract between the customer and Mitsubishi Electric Corporation. By using this application, you agree to the following conditions and are considered a user.

- Mitsubishi Electric and associated suppliers are not responsible for any collateral, secondary, or special damages, even if notified by the distributor of the possibility of a certain type of damage. Mitsubishi Electric is not responsible for any rights claimed by a third-party.

Safety Guidelines for the Computer Running with the TG-2000A.

(1) Precautions for selecting a computer

Select a desktop computer.

- Depending on the function, it is recommended to use a desktop as opposed to a laptop computer as there is a tendency for heat to build up in a laptop.
- Some laptop computers cannot be run for long hours.

Computer based UPS recommended.

- It is recommended to use a UPS to protect data from momentary power outages or power cuts. It is particularly recommended to employ a UPS when using power apportioning billing.

Use a computer/operating environment with specifications capable of running the TG-2000A function.

- Run the function using the specified OS. There is a possibility that the function cannot be used when running an OS other than specified.
- **Use a business model computer.** There are cases when it is not possible to install or run the application with other applications on a computer or laptop intended for personal use.

(2) Precautions for General usage

Do not place the computer in any of the following locations.

- An error or accident may occur when using in the following environments.

A place where there is: a lot of dust, a likelihood of shock or vibration, instability, a heater or speaker nearby, direct exposure to sunlight, a likelihood of dropping, a possibility that the computer may be exposed to moisture or high temperature, or where it may be exposed to sudden temperature fluctuations or heat.

Ensure to read the computer/peripheral instruction manual.

- A fire or accident may occur due to improper use of the equipment.

Avoid covering the computer or AC adapter with a cloth or blanket, or locating them on or near a heater.

- There is a possibility of internal temperature build-up, fire or burning under the above situations.

Cut the power or disconnect the power cable immediately if smoke, or an abnormal smell or noise emanates from the computer.

- Using the computer in the above circumstances may result in fire, burning, or electric shock. Please consult the maker of the equipment/computer.

Do not close the lid when using a laptop.

- There is a possibility of an internal temperature build-up, fire or burning. Use in an area with sufficient ventilation.
- The system may start Stand By or Hibernate function and stop functions of TG-2000A by closing the lid.

Use the hard disk, floppy disk, or CD media as indicated.

- Do not expose the hard disk, floppy disk, or CD to shock or vibration during use.
- Do not cut the power or reboot the computer while the hard disk, floppy disk, or CD is in use.
- Always turn OFF the power when moving the computer.

Do not touch the computer air vent.

- The air emitted by the ventilator is hot and may result in burning if exposed to the skin.

Do not tamper with the computer fan.

- Tampering with the computer fan may result in a temperature build-up, fire, or accident.

(3) Other precautions

Precautions relating to the computer and peripheral equipment

- Please consult the maker regarding damage to the computer or peripheral equipment. We will not be held responsible for damage occurring at the user's site.

2. Precautions Before Starting Use

This integrated centralized control software TG-2000A is used to monitor/operate an air conditioner group with multiple centralized G-50A controllers connected.

The instruction manual for this integrated centralized control software TG-2000A consists of Site adjustment and Management (this manual).

Before using the integrated centralized control software TG-2000A, thoroughly read the following precautions. Also read Chapter 12 “System Operation Precautions”.

(1) Installation conditions check

Check the wiring, connection, initial settings etc of the computer and peripheral devices.
Verify that each device is installed in accordance with its installation and instruction manuals.

(2) Site adjustment check

Before using the system, make sure that the initialization and test running described in the Operation Manual (Site adjustment) are complete. (To sales companies and agents ... Make sure that the system information database is backed up.)

(3) Power supply processing

- When "always connected to G50A system" is selected
After installation and adjustment, do not turn off the power to the system devices and air conditioner except when a failure occurs, or when servicing the equipment.
If the system devices or air conditioner power is turned off, a failure may be displayed. When the power is turned back on, the display will automatically return to normal.
- When "connect when needed (operate only when required)" is selected
After installation and adjustment, do not turn off the power to the system devices and air-conditioner, other than the TG-2000A, except when a failure occurs, or when servicing the equipment.
If the system devices or air conditioner power is turned off, a failure may be displayed. When the power is turned back on, the display will automatically return to normal.

(4) Screen processing

If the keyboard or mouse is not touched for a certain length of time, a screen saver starts to prevent burning of the screen. If the mouse or keyboard is touched while the screen saver is running, the display will return to its original state.
(The screen saver function is described in section 4.3.)

(5) Printer check

When this system is used with a printer, leave the printer power on and check that there is paper in the printer.

(6) Optional G-50A function

The optional functions of the central controller G-50A will include “Annual/weekly schedule”, “Charge calculation”, etc. The license number must be registered in each central controller G-50A to use the optional functions with this integrated centralized control software TG-2000A.

Monitor/operation function	: [Web monitor]
Schedule function	: [Annual/weekly schedule]
Air-conditioning charge and operation time function	: [Charge](All G-50A)
Energy saving function	: [Energy saving]
Demand function	: [Peak cut]
Personal browser function	: [Personal browser]
PLC for general equipment function	: [PLC for general equipment]

Make sure that the license No. corresponding to the function to use is registered in the central controller G-50A.

(7) PLC check

To use the power apportioning billing (electric amount pulse count) or general equipment, turn the PLC power ON and stay in the RUN state. Make sure that each software is installed in the PLC and that initialization has been executed from the integrated centralized control software TG-2000A.

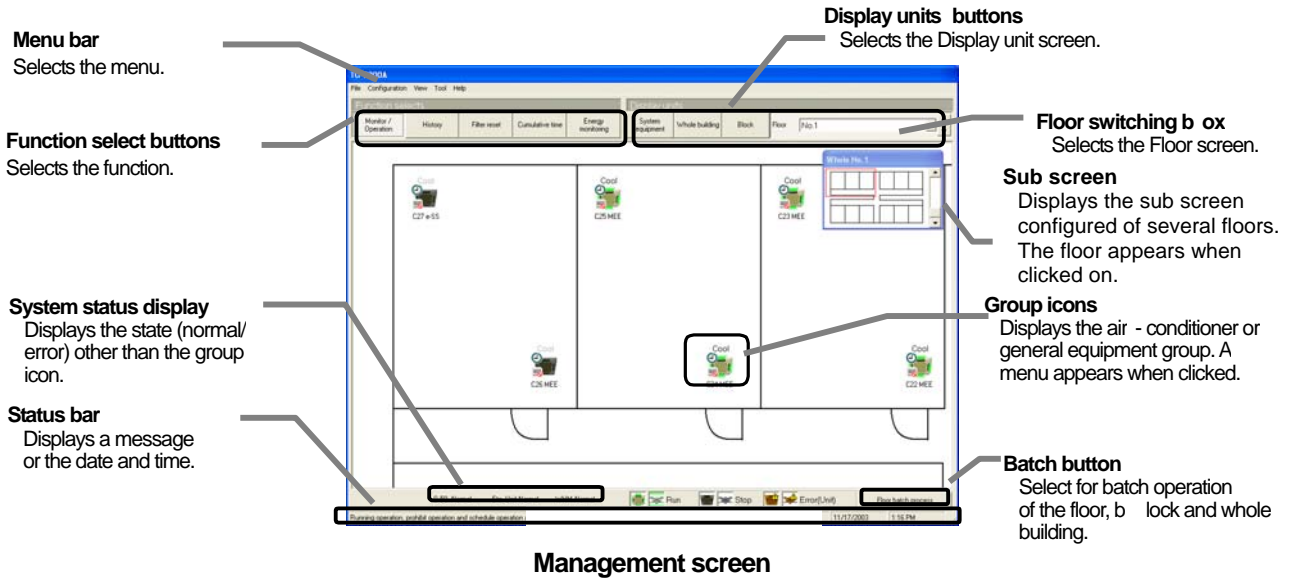
Note:

- Refer only to the functions that have been purchased.
- Only option functions for which the license has been registered will work.
- By using this TG-2000A, the user agrees to the conditions of the License.

3. Names and Functions of Each Part

3.1 Screen Configuration

The Management screen consists of the following parts:



Item	Details
Group icon	Displays the state of the air conditioner or LOSSNAY, and operates On/Off.
Function select buttons	Select the function.
Display units buttons	Select the display unit for each function.
Floor switching box	Switches the floor.
Status bar	Displays the operation procedure message and current date/time.
System status display	Displays the status (normal, abnormal) of the G-50A, watt hour meter (WHM), PLC, and other units.
Sub screen	Displays the sub floor configured of several floors. The sub floor can be selected with the scroll bar. When a section to be displayed is clicked, that floor will appear. (Option)

3.2 Operations

Mouse operation

The following description assumes that a mouse is used as the pointing device. When using another pointing device, read the description for that device.

Operation on the screen is the same.

The keyboard can also be used to input characters and numerics.

Move the mouse while viewing the arrow (mouse pointer) on the screen.

Use the left mouse button only.

The following describes the operations:

Item	Details
Click	Pressing and releasing the mouse button once is called "click". This operation is used when selecting a button.
Double click	Pressing and releasing the mouse button twice in rapid succession is called "double click".
Drag	The mouse pointer is moved to an icon and the left mouse button is held down. When the mouse is moved in this state, the icon moves as if it were being dragged. This operation is called "drag". The icon can be left at the new position by releasing the left mouse button.
Keyboard	Primarily used when entering password, characters, or numerics.

3.3 Functions Table

The integrated software TG-2000A has two major functions.

- 1) Function which monitors the operation status of the air conditioner and controls and sets the air conditioner.
- 2) Operation function and system initialization and maintenance function.

This section mainly describes function 1).

Function 1) consists of the items shown below. The screen that displays this function is called the "Management screen".

Name	Function	Reference
Air conditioner on/off	On/off operation can be performed in group, floor, block, or whole air conditioner units. The operating status can also be monitored.	6.1, 6.2
General equipment ON/OFF(option)	The general equipment can be turned ON and OFF, and the operation state can be monitored.	6.1, 6.2
Air conditioner control	Operation (heat/fan/cool/dry) can be switched and the room temperature can be adjusted in group, floor, block, or whole air conditioner units.	6.4
Priority specification	Operation can be permitted and prohibited from the local remote controller in group, floor, block, or whole air conditioner units.	6.4
History	The history of abnormalities and operation can be referenced in group, floor, block, or whole air conditioner units.	8.1
Cumulative time (Option)	The air conditioner cumulative operation time can be referenced for each group.	8.4
Schedule setting (Option)	Air conditioner operation can be scheduled for each group.	7
Air-conditioning charge monitor (Option)	The air-conditioning charge or ratio result for each block and watt hour meter can be displayed.	9
Trend data output (option)	The trend data, such as the set temperature, intake temperature, meter and peak cut status history, can be output.	8.7, 8.8

* Some functions may unusable.

The following items are necessary when the system configuration was changed, but are not covered in this manual.

Change operation requires a knowledge of system set-up. For the detailed contents and operating instructions, refer to the separate "Site Adjustment manual".

Name	Function
User set-up	Set the validity of the TG-2000A functions.
G-50A connection set-up	Registers the number of centralized G-50A controllers or the IP address set to the G-50A.
System configuration set-up	Performs connected devices, refrigerant system connection, group, operation mode and other functions settings and block and other settings.
DIDO, AI and PI controller set-up	Sets the name, function, and measurement range and pulse value for each equipments, etc.
PLC for General equipment set-up	Sets the IP address of PLC for general equipment and the general device's functions, etc.
IC I/O signal set-up	Sets the general equipment connected to the IC I/O signal, etc.
Monitoring screen set-up	Sets the type of unit, number of floors, plan view, layout of group icon, operation block, etc.
Watt Hour Meter set-up/ Measurement Meter set-up	Sets the number of meters (WHM) and unit, etc.

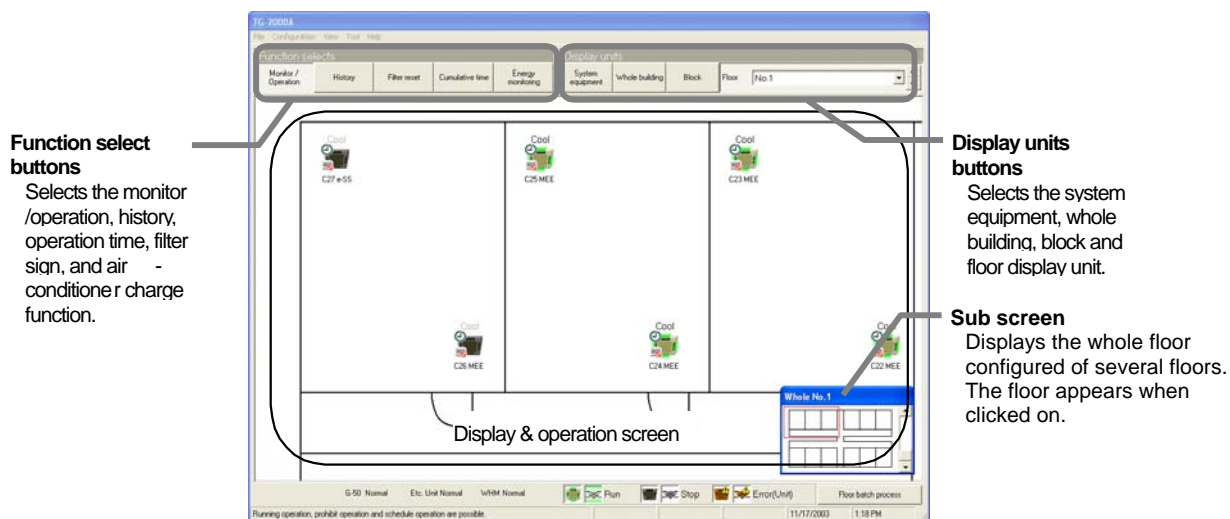
Name	Function
Energy monitoring set-up	Performs various settings for air-conditioning charge calculation.
Charge set-up	Sets the charge unit, time zone, basic charges, and season period, etc.
Energy saving/peak cut set-up	The G-50A for energy saving operation, the control state of the indoor units in each operation block, and the control status of each outdoor unit is set for energy saving.
Night mode set-up	The object and time which reduce outdoor unit operation sound are set up.
Auto change over set-up	Change mode is set up for the mode for every mode change block.
Time set-up	Sets the current time. (NOTE) This function should be used for TG-2000A.
Maintenance of charge data	Past charge data can be referenced.
Operation amount/(electric amount) data monitor	Monitors operation/electric amount data backed-up at G-50A.
Remedial apportioning setting	Remedies charge apportioning at WHM failure, etc.
Maintenance of comparison data for energy monitoring	Clears the billing comparison data when the G-50A or PLC is replaced due to a fault, etc.
Test run for energy monitoring	Trial operation of the charging system can be completed easily in one day.

4. Screen Basic Operation

The function is selected with the function select buttons (top left-hand side of screen) and the operation object is displayed on the display & operation screen with the display units buttons (top right of screen).

4.1 Function Select Buttons and Display Units Buttons

This table shows which function display buttons and Display units buttons should be selected when performing an operation.



Control screen

The **V** symbol indicates that the operation can be performed and the **-** symbol indicates that the operation cannot be performed.

Operation	Function select button	Display units buttons (display object)				
		Whole building	Block	Floor		System equipment *1
				Group	Floor	
On/off (Run/stop) switching	Monitor/operation	V	V	V	V	-
Operation status (run/stop/abnormality) check	Monitor/operation	V	V	V	V	V *2
Detailed setting of operation mode, temperature, etc.	Monitor/operation	V	V	V	V	-
Operation prohibition setting from local remote controller	Monitor/operation	V	V	V	V	-
Annual schedule, weekly schedule and today's schedule setting (Option)	Monitor/operation	V	V	V	V	-
Temperature/humidity display	Monitor/operation	-	-	-	V	-
Abnormality history and operation history check (Option)	History	V	V	V	V	V
Cumulative time check (Option)	Cumulative time	-	-	V	-	-
Filter sign reset	Filter reset	-	-	V	-	-
Energy monitoring (Option)	Energy monitoring	-	V	-	-	-

*1: System equipment includes G-50A, system controller (system remote controller, etc.), local remote controller, OA processing unit and LOSSNAY.

*2: Normal/abnormal display only.

4.2 Display Units Buttons Operation

The methods of operating the air-conditioners in group units, block units and for the whole building, and the methods of operating the general equipment in group units and in batch units are explained in this section.

(1) Floor screen

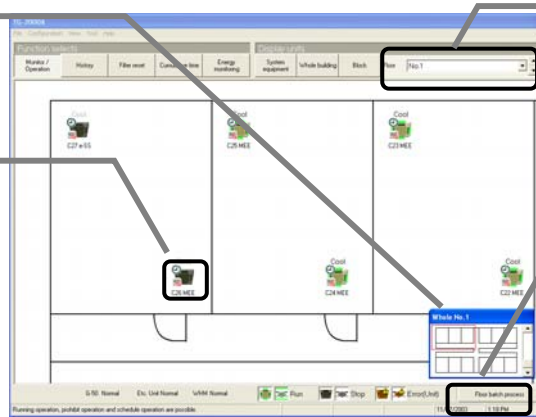
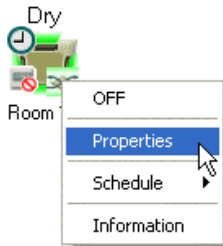
On the floor screen, the air-conditioner (general equipment) can be turned on/off, the operation and schedule can be set and monitored, and the floor can be switched.

Sub screen

Displays the whole floor configured of several floors. The floor appears when clicked on.

Icon selection menu

The selection menu appears when the icon is clicked. Click the item to be selected.

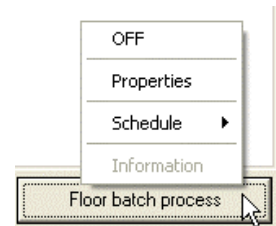


Floor switching box

Use the ▲/▼ buttons or combo box to select the floor to be displayed.

Floor batch button

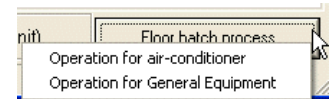
Click this to operate the floors in a batch.



Floor screen

When controlling the air-conditioners and general equipment and the [Floor batch] button is clicked, the Air-conditioner operation and General equipment operation selection screen opens.

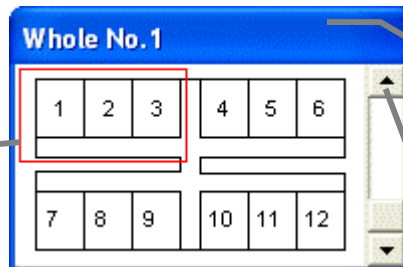
Select the target to be operated, and then select the items to be operated.



Either the Sub screen for several floors or the screen for a floor can be displayed on the **Sub screen**. (The Sub screen can be displayed by selected "split floor" in the user settings.)

Floor selection

Using the cursor, select the floor to be displayed. That floor will appear when clicked on.



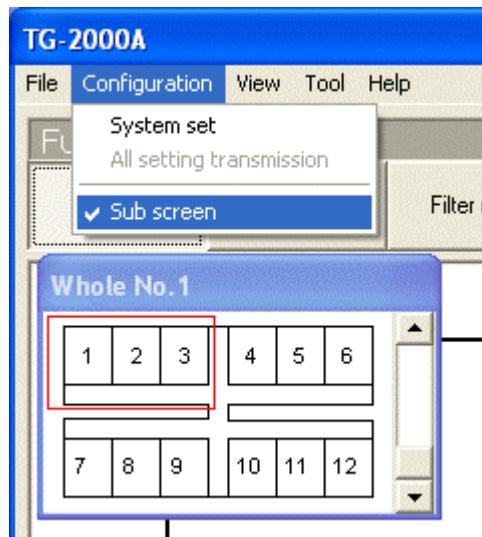
Display position change

The position where the whole floor is displayed can be moved by dragging.

Whole floor selection button

The whole floor can be selected with the scroll button.

Whether to show or hide the whole floor can be selected with "Configuration" - "Sub screen".

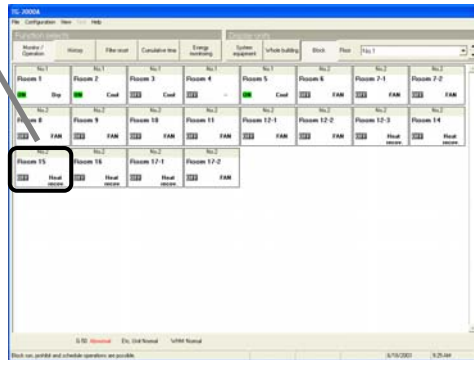
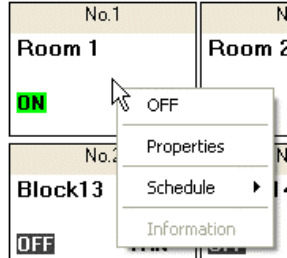


(2) Block screen

The air-conditioners can be operated and monitored in block units using the Block screen.

Block unit

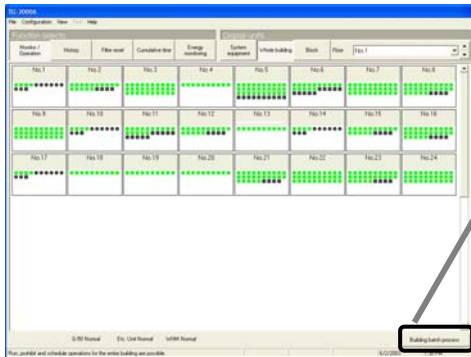
The selection menu appears when the block is clicked. Click the item to be selected.



Block screen

(3) Whole building screen

The air-conditioners for the whole building can be operated and monitored using the Whole building screen.

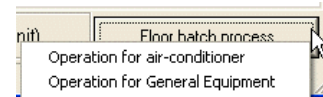
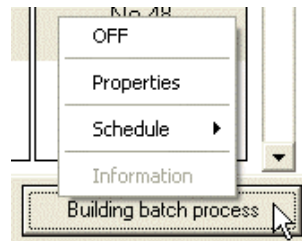


Whole building screen

Whole Building Batch button

Select this for batch operation of the whole building.

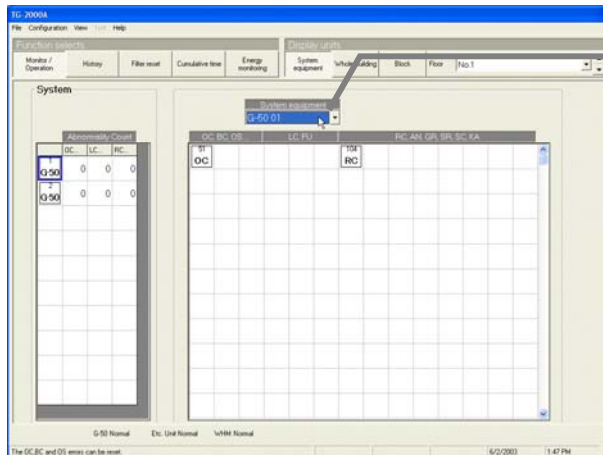
When controlling the air-conditioners and general equipment, the Air-Conditioner Operation and General Equipment Operation selection screen opens.



(4) System equipment screen

The units other than the indoor units and general equipment are displayed on the System equipment screen. The status (abnormal/normal) is displayed. If an air-conditioner indicated as abnormal is clicked, the error can be reset.

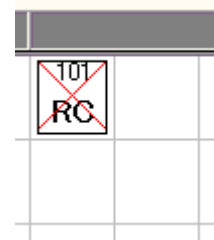
* If the cause of the abnormality is not removed, the abnormality will be detected again even if the abnormality is reset.



System equipment screen

Selection box

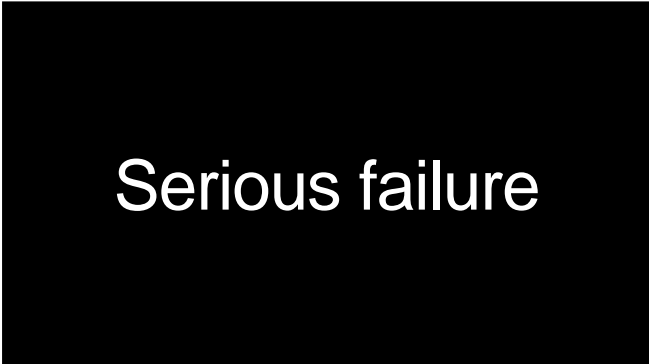
Select the target to be displayed. Selection: G-50A, WHM, PLC



Abnormality state

4.3 Screen Saver Display

When the mouse and keyboard are not touched for a certain length of time, the screen saver starts. (To prevent burning of the computer screen.) The following messages flow across the screen saver screen.



Note:

- When OS is Windows Vista, the screen saver is not displayed.

Message contents	Contents
TG-2000A	When normal operation is executing
Serious failure	When a (communication) error occurs between the TG-2000A and the G-50A or PLC for general equipment
Watt hour meter failure *1	When an error occurs in the watt hour meter monitor
Serious failure, Watt hour meter failure *1	When a (communication) error occurs between the TG-2000A and the G-50A or PLC for general equipment, and an error also occurs in the watt hour meter monitor
Slight failure	When an error occurs in the air conditioner or general equipment
Slight failure, Watt hour meter failure *1	When an error occurs in the air conditioner or general equipment and in the watt hour meter monitor
TG-2000A, Error mail receiving from G-50A	When receiving G-50A error or recovery mail
Serious failure, Error mail receiving from G-50A	When a (communication) error occurs between the TG-2000A and the G-50A or PLC for general equipment When receiving G-50A error or recovery mail
Watt hour meter failure, *1 Error mail receiving from G-50A	When an error occurs in the watt hour meter monitor, and when receiving G-50A error or recovery mail
Serious failure, Watt hour meter failure, *1 Error mail receiving from G-50A	When a (communication) error occurs between the TG-2000A and the G-50A or PLC for general equipment, and an error also occurs in the watt hour meter monitor When receiving G-50A error or recovery mail
Slight failure, Error mail receiving from G-50A	When an error occurs in the air conditioner or general equipment, and when receiving G-50A error or recovery mail
Slight failure, Watt hour meter failure *1 Error mail receiving from G-50A	When an error occurs in the air conditioner or general equipment, and in the watt hour meter monitor When receiving G-50A error or recovery mail

*1: The watt hour meter failure includes the gas, water and calorific value unit in addition to the WHM.

Maintenance Tip:

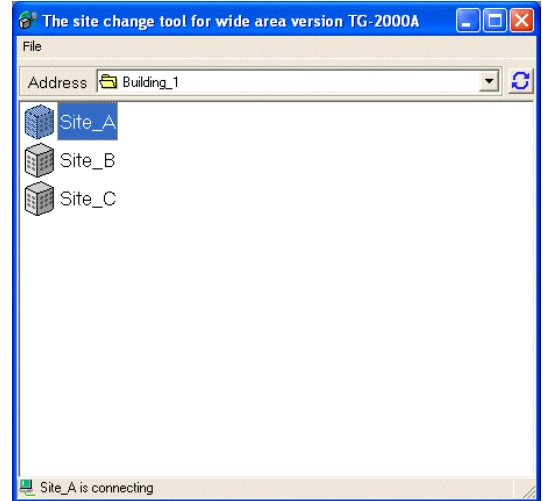
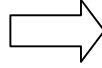
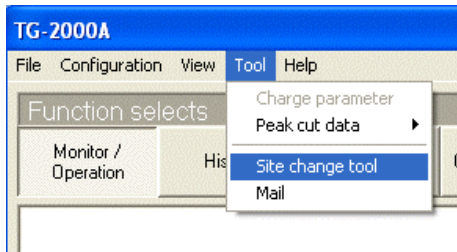
- Do not change the screen saver setting. (The screen saver is automatically set to Marquee Display.) If set at other than the Marquee Display, the screen saver will not display the message contents.

Note:

- The "System error" display takes precedence to the "Unit error" display.

4.4 Display method for Site change display

The following is the display method for “Site change” display of wide area mode.
Use menu bar [Tool]-[Site change tool] to display “Site change” display.

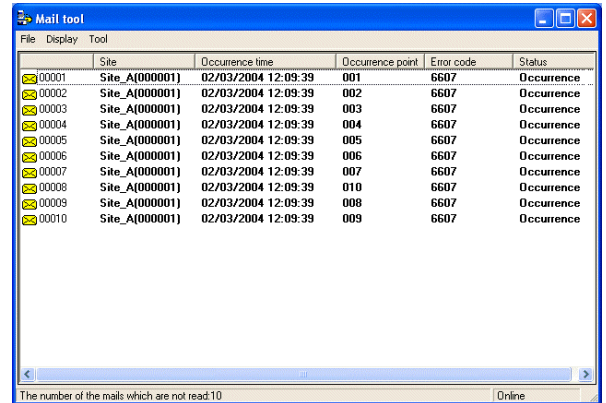
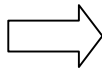
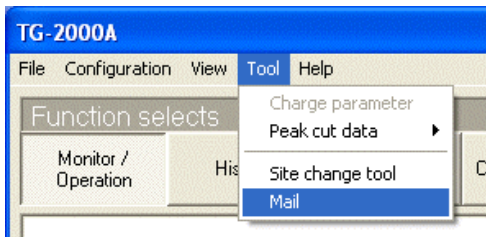


Management screen

- NOTE:**
- “Site change tool” can be selected only in wide area mode.
 - For the usage of “Site change tool”, refer to the operation manual for wide area.

4.5 Display method for Mail display

The following is the display method for “Mail” display when using the received mail tool.
Use menu bar>Tool>Mail to display “Mail” Display.



Mail tool display screen

- NOTE:**
- “Mail” can be selected only when the mail function is used.
 - For the usage of “Mail”, refer to the operation manual for wide area.

4.6 Startup and Shutdown

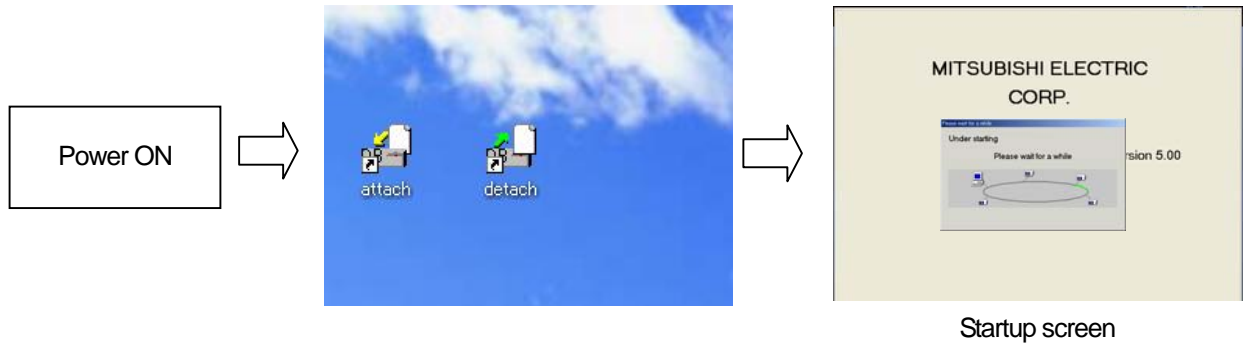
Start the TG-2000A application.

[Procedure]

1) Restart Windows

When Windows (OS) restarts, the user automatically logs on and the TG-2000A program starts.

* TG-2000A can also be started by selecting "TG2000" in the Windows Start Menu.



TG-2000A Shutdown

[Procedure]

1) Select the End option in the File menu in the Menu Bar

Be sure to finish this program before the shutdown.

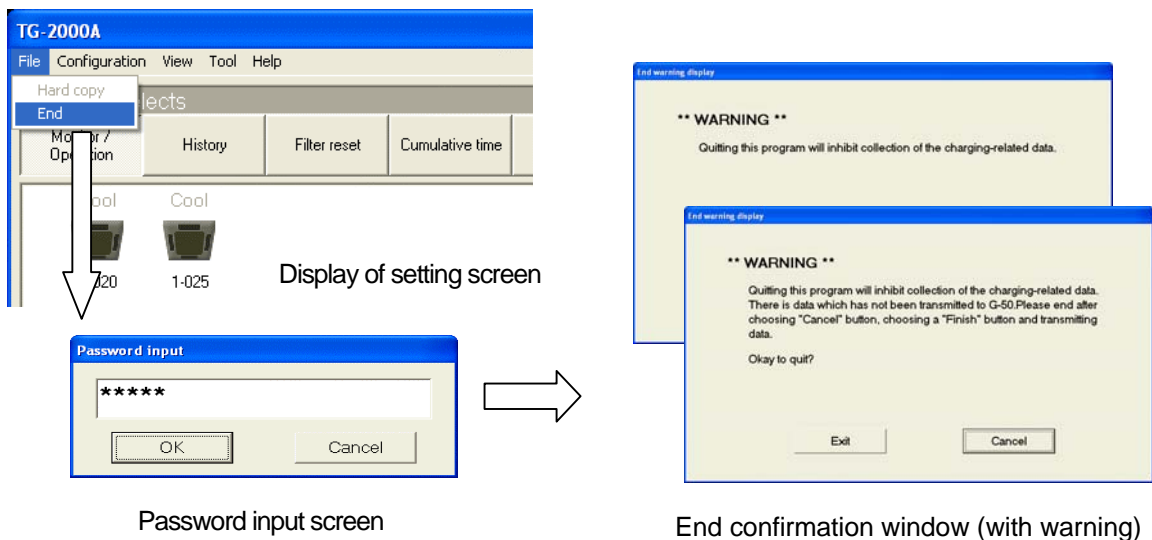
2) Input the password.

The password input screen appears. Input the password (default:"tglogout"), and click the [OK] button.

3) Select the [Finish] button.

The end confirmation window appears. Confirm the message on the window, and click the [Finish] button to finish this program.

* To return to the initial setting screen, click the [Cancel] button.



Maintenance Tip

- Always exit the TG-2000A application before turning off the PC. Failing to do so could result in damage.
- Note that when the TG-2000A application is exited, the functions used stop. When the charge calculation function (only for constant operation) is used, set the operation mode to TG-2000A 24-hour continuous operation.

5. Initialization Before Use

The items to+ be set or checked at the operation start-up are shown in this chapter. Set the functions being used.

5.1 Schedule Setting

For a description of the schedule setting method, see chapter 7. Schedule Setting.

5.2 Air-conditioning Charge Setting

When the [Energy monitoring] button in the function selection on the normal screen is clicked, the Air-conditioning charge screen opens.

The air-conditioning charges are initialized on this screen.

Note:

- If Without charge is set, " Energy monitoring " cannot be selected. (It will not appear on the screen.)
- If the "Energy monitoring set-up" has already been set on the initial window, check the set details.
- The license number for the "Charge" must be registered in the central controller G-50A.

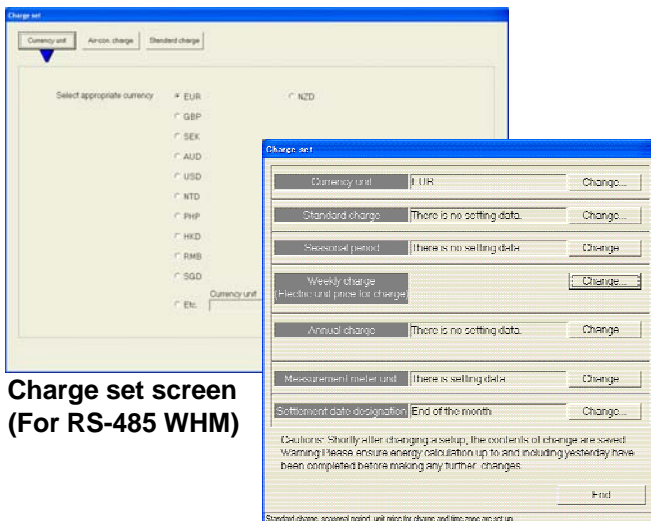
5.2.1 Charge Setting

The charge settings include the "Currency unit", "Basic charges" "Season period", "Weekly charge", "Annual charge" and "Meter charge unit" and "settlement date". Set each item.

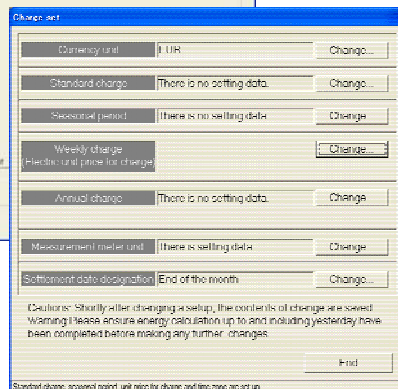
Open the Charge Set screen

[Procedure]

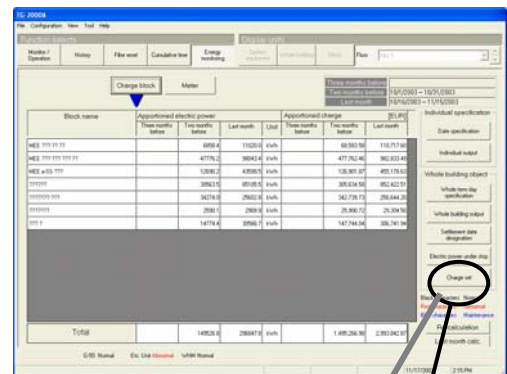
- 1) Click the [Charge set] button
Click the [Charge set] button on the air-conditioning charge screen.
- 2) Input the password.
Set the password (for maintenance user) on the Password screen, and then select the [OK] button.



Charge set screen
(For RS-485 WHM)

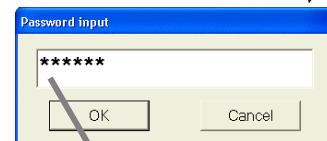


Charge set screen
(For PLC WHM and without WHM connection)



Air-conditioning charge screen

Charge setting button
Set the charges.



Password

Set the password (for maintenance user).
* Refer to the Site Adjustment Manual Chapter 6.3 for details on the default values.

Note:

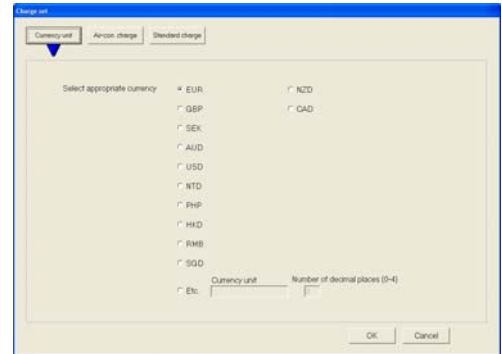
- Each item shown in the Site Adjustment Manual Energy monitoring set-up must be set. The power apportioning billing will not be calculated correctly if each item is not set.
- If the charge time zone setting is changed, the settings are valid after the changes.
- Changing the charge setting during operation **can adversely affect** the billing system as the power apportioning charges may not be correctly calculated, etc.

[Using the RS-485 WHM]

Set the Currency unit

[Procedure]

- 1) Click the [Currency unit] button.
Click the [Currency unit] button in the Charge Set screen. The currency unit set screen opens. This screen is also displayed when the currency Set screen is opened.
- 2) Select the currency unit to be used.
Click the option box of the currency unit to be used. Otherwise, in "Etc." column, set a currency unit (9 characters) and the number of digits to be displayed after the decimal point (0 to 4).



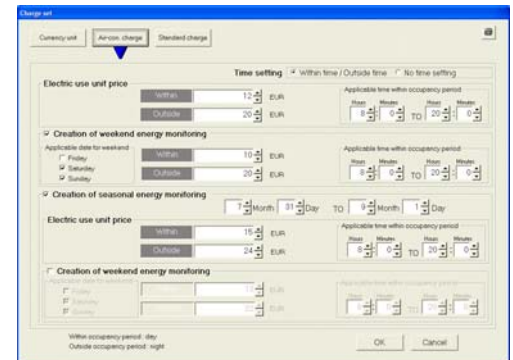
Currency unit set screen

Set the electric use unit price

Set the electric use unit price. One charge system can be selected from daytime/nighttime, weekend, seasonal charge, etc.

[Procedure]

- 1) Select the charge system to be used.
Set the charge system by clicking the option button at the charge system you want to use.
- 2) Select the unit price and applicable time or applicable day of the week.
Select the unit price, applicable time, applicable date, or applicable day of the week in accordance with the set charge system. Some of the data can also be input from the keyboard.



Charge set screen

Note:

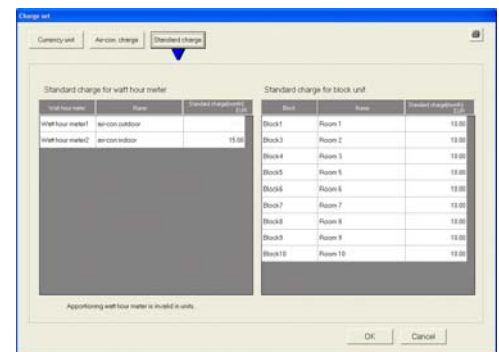
- Within a time (daytime) setting cannot span days.
- One within a time (daytime) setting per day is possible.

Set the standard (fixed) charge

Block units and watt hour meter units standard charge (per month) can be set. However, for standard charge in watt hour meter units, only the watt hour meter unit charge object (K controller, A controller, OA processing unit, etc.) can be set.

[Procedure]

- 1) Click the [Standard Charge] button.
When the [Standard Charge] button on the Charge Set screen is clicked, the standard charge set screen opens.
- 2) Set the standard charge.
Set the standard charge in watt hour meter or block units. For watt hour standard charge, only charge in watt hour meter units is the object. Standard charge can be input from the keyboard by clicking with the cursor. Clicking the standard charge allows the value to be input from the keyboard.



Standard charge set screen

Note:

- When there is no WHM connection the watt-hour standard charge cannot be set.

Ending charge setting

[Procedure]

- 1) Click the [OK] button.
*The set details are not updated if the [Cancel] button is selected.

Note:

- When an item which must be set is not set, a caution message is displayed. Reset that item.

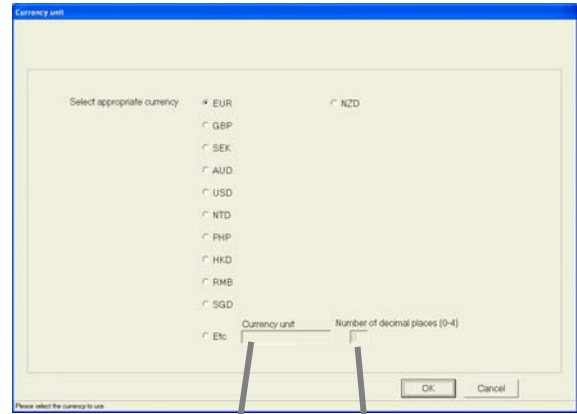
[Using the PLC WHM]

Set the Currency unit

[Procedure]

- 1) Click the currency unit [Change] button.
Select the currency unit [Change] button on the Charge Set screen to open the Currency Unit screen.
- 2) Set the currency unit.
Select the currency unit from the list. If the required currency unit is not displayed in the list, select "Etc.", and enter the currency unit in the [Currency Unit] field. Enter the number of decimal places in the [Number of decimal places (0-4)] field.
- 3) Select the [OK] button to end the settings.

* If the [Cancel] button is clicked on, the settings will be canceled and the Charge Set screen will open.



Currency unit setting screen

Currency unit setting

Number of decimal places

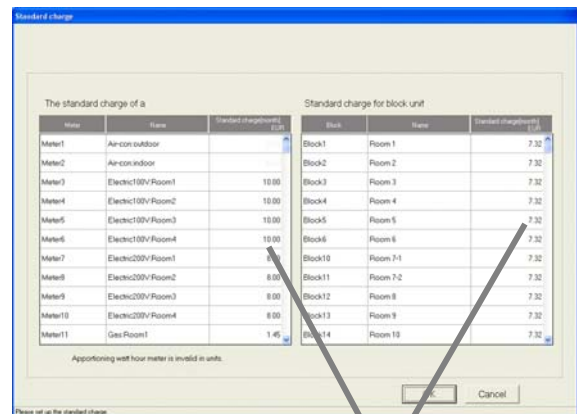
Set the basic charges

Set the basic charges (monthly charges) for the block unit and meter (WHM) unit.

[Procedure]

- 1) Select the basic charge [Change] button.
Select the basic charge [Change] button on the Charge Set screen to open the Basic Charge screen.
- 2) Set the basic charges.
* The basic charges cannot be set for the watt hour meter used for the air conditioner unit.
- 3) Select the [OK] button to end the settings.

* The set details are not updated if the [Cancel] button is selected.



Basic Charge Setting screen

Basic charge

Set the basic charge (monthly unit) for the block and meter unit.

Note:

- This setting screen does not appear when using the power apportioning billing (manual electric amount input) with no WHM connected.
- If the basic charge is 0 yen when the [OK] button is selected, a message appears. Check the settings in this case.

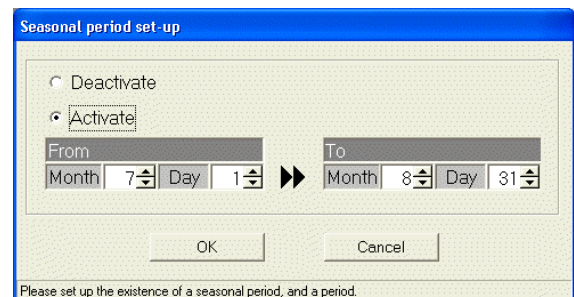
Set the season period

Set the validity of the season period, and the period that the season is applied.

[Procedure]

- 1) Select the season period [Change] button.
Select the season period [Change] button on the Charge Set screen to open the Season Period Setting screen.
- 2) Set the validity of the season setting and the period.
Select the validity of the seasonal charge setting, and if valid, set the period.
- 3) Select the [OK] button to end the settings.

* The set details are not updated if the [Cancel] button is selected.



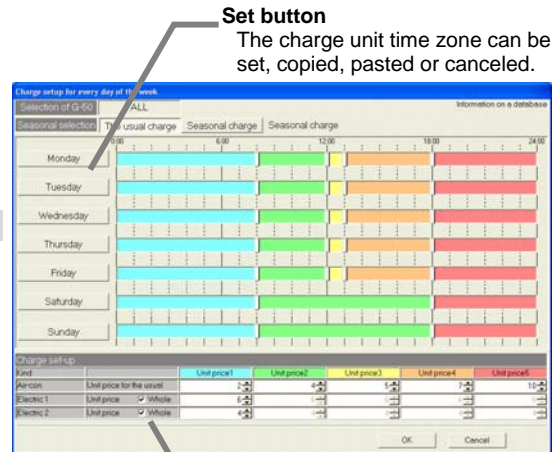
Season Period Setting screen

Weekly charge set-up

Set the weekly charge unit and each day's time zone for normal operation and season operation. If the season period is not set, the "Usual charges" and "Season charges" can be selected.

[Procedure]

- 1) Select the weekly charge [Change] button.
Select the weekly charge [Change] button on the Charge Set screen to open the Weekly Charge Setting screen.
- 2) Set the charge unit and charge zones.
Set the daily charge time zone and charge unit (yen) for the normal and season operation.
 - Charge unit: Maximum five units
 - Time zone: Maximum 10 zones (per day)
- 3) Select the [OK] button to end the settings.
* The set details are not updated if the [Cancel] button is selected.



Set button

The charge unit time zone can be set, copied, pasted or canceled.

Weekly Charge Setting screen

Charge unit

Set the charge unit.

Note:

- Refer to section 9.4 Air-conditioner charge setting for details on setting the details of the weekly charges.
- If the charge unit is 0 when the [OK] button is selected, a message appears. Check the settings in this case.
- Set the meter charge unit when using a meter.

Annual charge set-up

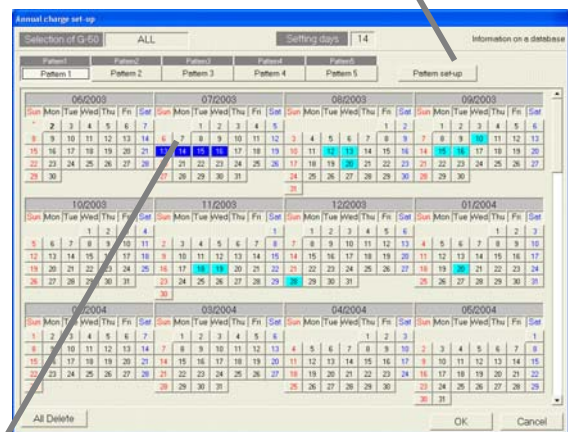
The charge time zone for days that do not apply to the weekly charge settings, such as holidays and summer vacation, can be set. Up to five patterns, and 50 days can be set. The weekly charge unit is applied as the charge unit.

[Procedure]

- 1) Select the annual charge [Change] button.
Select the annual charge [Change] button on the Charge Set screen to open the Annual Charge Setting screen.
- 2) Set the pattern and assign the date.
Set the time zone and applicable unit, and assign the pattern to the date to be set.
- 3) Select the [OK] button to end the settings.
*The set details are not updated if the [Cancel] button is selected.

Pattern Set/Change button

The setting window for setting the annual pattern opens when this button is clicked.



Annual Charge Setting screen

Annual setting states

The state of the annual charge settings is displayed.

- Blue : Settings for corresponding pattern
- Light blue : Settings for other pattern

Note:

- Refer to section 9.4 Air-conditioner charge setting for details on setting the details of the annual charges.

Ending the charge settings

[Procedure]

- 1) Select the [OK] button when completed with the settings.

5.2.2 Settlement-date Designation Setting

Set the settlement-date designation day

Since the air-conditioning charge is calculated once a month, set the settlement date.

[Procedure]

- 1) Click [Settlement-date designation] button.

When the [Settlement-date designation] button at the bottom right-hand side of the screen is clicked, the Settlement-date designation specification screen opens.

- 2) Specify the settlement.

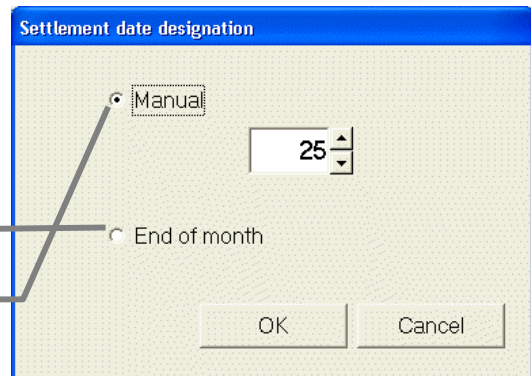
To specify the end of month, click [End of month].

To specify the actual date, click [Manual] and select the date by clicking the “▲/▼” buttons.

* Numerical values can also be input from the keyboard.

- 3) Click [OK] to end settlement-date designation setting.

* If the [Cancel] button is clicked on, the settings will be canceled and the Management screen opens.



Settlement data designation specification screen

Note:

- The 29th, 30th, and 31st cannot be set as the settlement-date designation. (However, they can be set as the end of month.)
- Automatic printing or file output is possible after settlement-of-accounts. (Refer to the Site Adjustment manual.)

6. Normal Operation

6.1 Monitor/Operation

Perform normal operation from the Management screen.

Display the Management screen by clicking the [Monitor/Operation] function select button (top left-hand side of screen), then selecting the operation object from the display units buttons (top right-hand side of screen). The “Cumulative time” and “Energy monitoring” are displayed when With change function is selected.



Function selects

Display units

(1) Select the function

When the [Monitor/Operation] function select button is clicked, the monitor/operation screen opens.

(2) Select the operation object.

[Procedure]

When group is the object

Operations from floor buttons

- Click the [Floor] button in screen display.
- Select the distribution floor of the object group from the floor switching box (left-hand side of screen).
- Click the object group icon on the displayed floor.

Operations from Whole floor screen

- Select the whole floor by scrolling from the Sub screen.
- Click on the target floor from the Sub screen (whole floor).
- Click the object group icon on the displayed floor.

When whole floor is the object

- Click the [Floor] button in screen display.
- Select the object floor from the floor switching box.
- Click the [Floor batch process] button at the bottom right-hand corner of the screen.

When block is the object

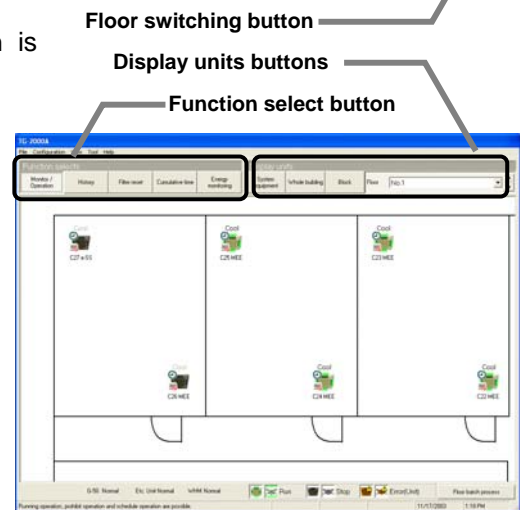
- Click the [Block] button in screen display.
- Select the object block from the monitor/operation screen.

When whole building is the object

- Click the [Whole building] button in screen display.
- Click the [Building batch process] button at the bottom right-hand corner of the screen.

When system equipment, or G-50A is the object

- Click the [System equipment] button in screen display.
- Select the G-50A connected to the object equipment from the G-50A selection box pull down menu.
- Select the object system equipment from the monitor/operation screen.



Monitor/operation screen

6.2 On/Off Operation

Air conditioner On/Off operation is possible.

Block, floor batch, whole building, and other multiple group batch operations are also possible.

Operable objects: Group, floor batch, block, whole building

[Procedure]

1) Select the object to be turned on or off.

Click the on/off object. A menu appears.

Note:

- For a description of the underlined part, see par. “6.1 (2) Select the operation”

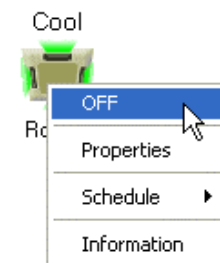
2) Select on/off.

If the selected object is currently running, [OFF] is displayed in the menu and if the selected object is stopped, [ON] is displayed in the menu.

When [ON] or [OFF] is selected from the menu, operation is switched.

Note:

- When multiple groups are the operation object, if at least one group is on, OFF operation has precedence.



Example) Group operation

6.3 Operation Status Monitor

The air conditioner operation status can be monitored.

Operable objects: Floor, block, whole building, system equipment

(1) Display the operation status.

[Procedure]

- 1) Select the object whose operation status is to be displayed.

When the object whose operation status is to be displayed is clicked, the current operation status is displayed.

Note:

- For a description of the underlined part, see par. "6.1 (2) Select the operation object" to be operated.

(2) Description of operation status

Floor display screen









Description of group icons (Air conditioner)

Operation state				
	Air conditioner group: On	Air conditioner group: Off	Ventilation group: On	Ventilation group: Off
	Air conditioner/interlocking ventilation unit: On	Air conditioner: On/Interlocking ventilation unit: Off	Air conditioner: Off/Interlocking ventilation unit: On	Air conditioner/interlocking ventilation unit: Off
Error state				
	Air conditioner group error	Ventilation group error	G-50 error	Outdoor unit error
	Subsidiary outdoor unit error	BC controller error	K-transmission converter error	
Other state & display				
	Local remote controller operation: Prohibited	With schedule setting	Filter sign	Operation prohibited state
	Operation mode display	Display of group name	Energy save control	

Note:









- When the mouse cursor is placed on the group icon, the group Full name is displayed.
- At stop, the operation mode and set temperature displays are hidden. (Gray characters display)
- When the indoor unit is in the operation prohibited state, it remains stopped.
To reset the operation prohibited state, change the operation mode.
Some models are unable to display this operation prohibited state.
- The filter sign is displayed only on the Filter sign screen.
- There may be a slight time lag in the marks displayed during energy saving control and the actual operation state. While on stand-by for energy save control, the "tree" symbol will not be displayed. If the version of the connected G-50A is 2.90 or later, the tree symbol will be displayed while outdoor units are under the control.

Explanation of group icons (PLC for general equipment)

Operation state			
ON  GE-1 [General equipment ON]	OFF  GE-1 [General equipment OFF]	ON  GE-1 [Operation/monitor display]	ON  GE-3 [Operation display only]
Error state			
ERROR  GE-1 [General equipment error]	OFF  GE-2 [PLC error]		
Other state & display			
ON  101-2 [Schedule setting enabled]	STOP!  GE-1 [Error details display *1]	OFF  1F Floor [General equipment name display]	







*1: Error state display can be set randomly. (Maximum: 8 characters)

Explanation of group icons (general equipment for IC I/O signal)

Operation state			
ON  FC123 [General equipment ON]	OFF  FC123 [General equipment OFF]	ON  FC123 [Operation/monitor display]	ON  FC2 [Operation display only]
Error state			
ERROR  FC4 [General equipment error]	OFF  FC123 [G-50A error]		
Other state & display			
ERROR  FC4 [Error details display *1]	OFF  FC123 [General equipment name display]		

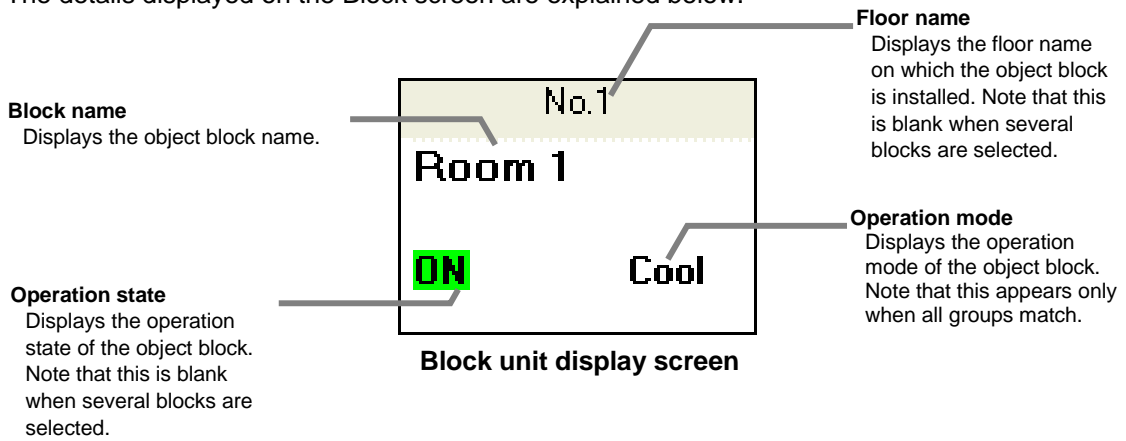
*1: Error state display can be set randomly. (Maximum: 8 characters)

Explanation of loop icons (instrumental equipment)

Operation status			
28.5°C	33.1%	25.3°C	33.0%
			
1-050-1	1-050-2	1-050-1	1-050-2
[Thermometer/normal]	[Hygrometer/normal]	[Thermometer/detection limit]	[Hygrometer/detection limit]
Error status			
			
1-047-1	1-047-2		
[Thermometer abnormal]	[Hygrometer abnormal]		

(3) Block screen

The details displayed on the Block screen are explained below.



Note:

- Block does not correspond to the “Only running ventilation unit on” display.
- The general equipment are not block targets.

(4) Whole building display screen

The details displayed on the Whole building display screen are explained below.

[Air-conditioner group display]

- (Green) : Running (On)
- (Deep gray) : Stopped (Off)
- (Blue) : Only running ventilation unit on
- × (Yellow) : Abnormal

[General equipment display]

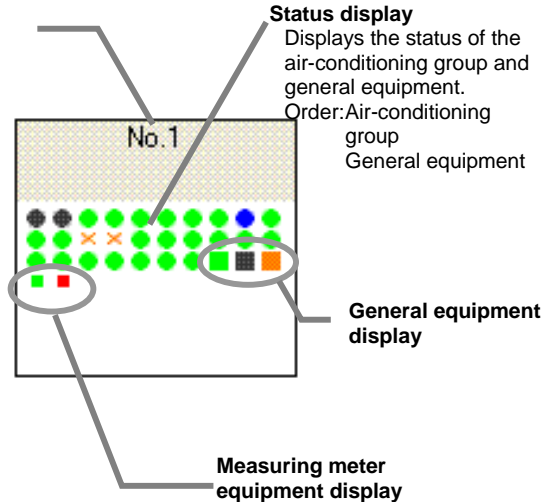
- (Green) : Running (On)
- (Deep gray) : Stopped (Off)
- (Yellow) : Abnormal

[Measuring meter equipment display]

- (Green) Normal
- (Red) Abnormal

Floor name
Displays the floor name.

Status display
Displays the status of the air-conditioning group and general equipment.
Order: Air-conditioning group
General equipment



* The general equipment display is the same as the PLC, DC and IC I/O signal.

(5) System equipment display screen

When an equipment is abnormal, × is displayed at the icon of the abnormal equipment.



6.4 Operation Details

Air conditioner operation mode switching, temperature adjustment, and other functions can be monitored and operated. Objects which can be monitored and operated: Floor, block, whole building

(1) Display the remote control screen.

[Procedure]

1) Select the operation setting.

Click on the group icon, floor batch, block or whole building batch button, and then select [Properties] from the menu. The Operation setting screen opens.

(2) Description of operation setting screen

Object name — 1-001

On/Off button — The air-conditioner (ventilation unit) can be turned On and Off.

Mode button — Cool, Dry, FAN, Heat, Auto, Ventilation

Set temperature/display — Room Temp. 25 °C, Set temp. 20 °C

Prohibit operation by remote controller — Prohibition of remote control operation

Set temperature range limit — Cool/Dry: Maximum 23 °C, Minimum 21 °C; Heat: Maximum 28 °C, Minimum 23 °C; Auto: Maximum 23 °C, Minimum 23 °C

Interlocking ventilation unit On/Off button — Ventilation: Hi, Lo, Stop

Air direction setting — Vane (Fan direction)

Fan speed setting — Fan speed

Temperature unit — When Fahrenheit is chosen by G-50A, "°F" is displays.

* It may not be displayed depending on the air conditioner model.
* For multiple groups, the state consistent to each item is displayed.

Operation setting screen

Object name — GE-5

On/Off button — The general equipment can be turned On and Off.

General equipment operation setting screen

Item	Details
Object name	Group : Displays the group name (Full). Floor (batch) : Displays the floor name. Block : Displays the block name. Whole buildings : Displays whole buildings. General equipment : Displays the general equipment name (Full).
On/Off button	Displays the current On/Off state. (The state for which the button is pressed indicates the current state.)
Mode button	Displays the current operation mode. (The state for which the button is pressed indicates the current state.)
Interlocking ventilation unit On/Off button	Displays the current On/Off state. (The state for which the button is pressed indicates the current state.) * Note that it is not displayed for groups to which the interlocking ventilation unit is not connected.
Set temperature/display	Set temperature : Displays the set temperature. Indoor temperature : Displays the current indoor temperature. (Updated in approx. three minutes.)
Air direction setting	Displays the current air direction.
Fan speed setting	Displays the current fan speed.
Prohibit operation by remote controller	Displays the operation prohibit setting state of the local remote controller. * Only the operation prohibited setting from the man-machine and the G-50A is reflected upon display.

Item	Details
Set temperature range limit	<p>Displays the lower and the upper limit of the set temperature for the Cool (Dry) mode, for the Heat mode and for the Auto mode. (valid for ME remote controller, PAR-F27MEA-F and for simple ME controller, PAC-SE51CRA-F)</p> <ul style="list-style-type: none"> * The set temperature range is limited on the ME remote controller (PAR-F27ME) and individual browser's operation screen. * Only the lower limit of the set temperature for the Cool (Dry) mode and the upper limit for the Heat mode can be set with the ME remote controller, PAR-F27MEA-E. * For ME remote controller, model name is written on the packing label or on the notice sticker on the backside of the remote controller lid. For ME simple remote controller, model name is written on the packing label or on the rated nameplate of the remote controller.

(3) Operation setting screen operation

Operation methods are shown below.

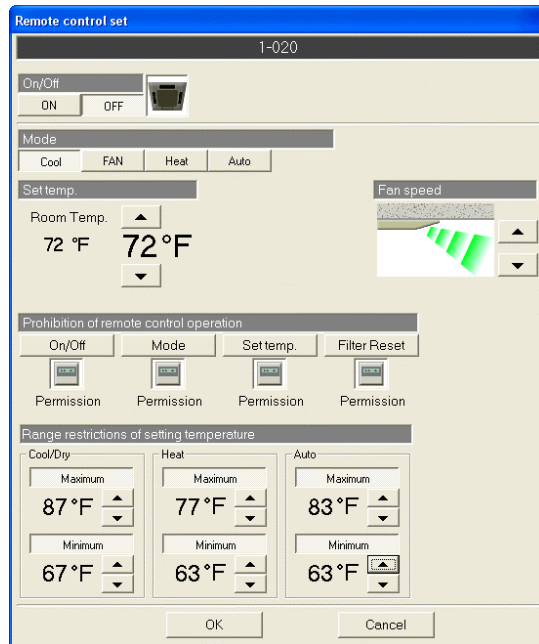
Item	Details
ON/OFF change	<p>Click either the [On] button or [Off] button. The current state can be maintained without selecting both buttons.</p>
Mode change	<p>For the air conditioner, click the [Cool], [Dry], [Fan], [Heat], or [Auto] button. For the ventilation unit, click the [Bypass], [Heat-recovery], or [Auto] button. The current state can be maintained without selecting all the buttons.</p> <ul style="list-style-type: none"> * Note that some modes may not be able to be set depending on the equipment model connected. * For K control models, all modes are displayed; however, choose only the modes that can be used.
Changing the interlocking ventilation unit On/Off	<p>Click the [High], [Low], or [Off] button. The current state can be maintained without selecting all the buttons.</p>
Set temperature change	<p>Change the set temperature by clicking set temp. adjustment “▲/▼” buttons.</p> <ul style="list-style-type: none"> * The range of temperatures that can be changed depends on the operation mode. This function is not provided for the ventilation group. * When displayed in Fahrenheit, 2°F steps or 1°F step depends on the indoor unit function to be connected.
Air direction change	<p>Click the “▲/▼” buttons to change the air direction.</p> <ul style="list-style-type: none"> * Swing and air direction change are provided on different equipment models. * This function is not provided for the ventilation group.
Fan speed change	<p>Click the “▲/▼” buttons to change the fan speed. For the ventilation group, the fan speed is changed from Low to High, Keeping current state, Low, etc.</p> <ul style="list-style-type: none"> * The fan speed can be changed to 2, 3, 4 stages or AUTO depending on the equipment model.
Prohibit operation by remote controller change	<p>The setting is changed to Permit, Prohibit, Keeping current state (without icon displayed), and Permit each time when each button for [On/Off], [Mode], [Set temperature], and [Filter reset] is pressed. Local remote control operation Prohibit/Permit When Prohibit On/Off is selected, On/Off operation cannot be performed from the local remote controller. When Prohibit Mode is selected, the mode cannot be changed from the local remote controller. When Prohibit Set Temp. is selected, the temperature cannot be changed from the local remote controller. When Prohibit Filter Reset is selected, filter reset cannot be performed from the local remote controller. When Unchange (no icon display) is selected, Prohibit/Permit remains in the current state.</p> <ul style="list-style-type: none"> * For the ventilation group, it is possible to set Permit/prohibit only to [On/Off] and [Filter reset]. * For the K-control model, there is no item provided for [Filter reset]. * For the K-control model, it is possible to set only All-item permit and All-item prohibit.

Item	Details
Set temperature range limit	<p>Set the temperature range limit value by selecting the Maximum or the Minimum buttons.</p> <p>Change the set temperature range limit value by clicking the "▲▼" buttons.</p> <p>Cooling (dry) mode :Upper limit set temperature, Lower limit set temperature</p> <p>Heating mode :Upper limit set temperature, Lower limit set temperature</p> <p>Automatic mode :Upper limit set temperature, Lower limit set temperature</p> <p>When the Maximum or the Minimum buttons are not selected, the upper limit or the lower limit will be removed.</p> <p>* This can be set only when the set temperature range limit function is valid.</p> <p>* The set temperature range is limited only for the ME remote controller (PAR-F27ME) and personal browser. In some case, this function cannot be used depending on the indoor unit model being used when using the MA remote controller.</p> <p>* It is impossible to set the upper limit lower than the lower limit. When the upper limit is lower than the lower limit, the limit will automatically change to "upper limit = lower limit".</p> <p>* When the out of range setting is made on the remote controller, the system will correct the value automatically to the settable value.</p> <p>* When displayed in Fahrenheit, the temperature is displayed in 2°F steps.</p>
Select [OK] or [Cancel] button.	<p>OK : Accepts the changes and returns to the monitor/operation screen.</p> <p>Cancel : Ignore the changes and returns to the monitor/operation screen.</p>

Note:

- If a group in a different state exists on the operation setting group of All floors, Whole buildings, and Block, the following is displayed.
On/Off : State in which both On button and Off button are not pressed (keeping current state)
Mode : State in which all operation mode buttons are not pressed (keeping current state)
Set temperature : -- (keeping current state)
Remote controller prohibited item: No display (keeping current state)
Set temperature range limit: -- (keeping current state)
- Note that the setting/change contents of each item may change depending on the equipment model. It is possible to confirm the group function by reading the [System configuration setting display] in the [Display] menu. (For operation details, refer to the Chapter 10 System display given in this instruction manual.)
- When the air direction is set to downwards, the indoor unit control may automatically change it to another direction.
- When local remote control operation is prohibited, "CENTRALLY CONTROLLED" is displayed on the local remote controller.

When Fahrenheit is chosen by G-50A



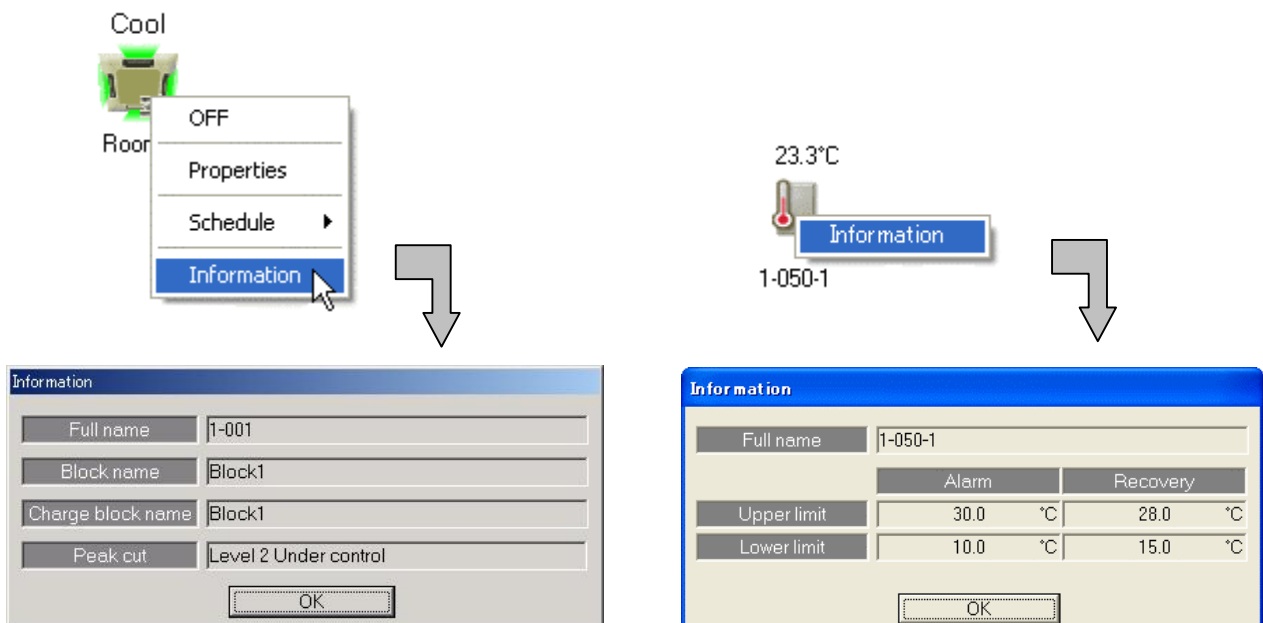
6.5 Other Functions

The following are displayed on Floor screen of the monitor/operation screen:

- Full name
- Block name (Operation block name)
- Charge block name
- Energy saving/ Peak cut control information

[Procedure]

- 1) Select group.
 When the group item of the group whose names are to be displayed is clicked, a menu appears.
- 2) Select the information to be displayed.
 When Information in the menu is clicked, every set contents are displayed.
- 3) Select [OK] button.
 Confirm the contents of the information and then click the [OK] button.



Note:

- When a communication error occurs, “???” appears on the screen. Energy saving/Peak cut information can be seen when the information screen is displayed. As the control information is monitored every minute, display the information menu again after a minute.
- The energy saving/peak-cut control is sometimes run at regular intervals. The type of information displayed will depend on whether the unit is under the control or on stand-by. Information related to the control of indoor units and outdoor units will be displayed.

“Peak cut control”

<Under the control>

- Information screen display
「Level* under control」
- Floor-screen icon



<On stand-by>

- Information screen display
「Level* under control」
- Floor-screen icon



The levels are shown where marked with an asterisk (*).

“Energy save control”

<Under the control>

- Information screen display
「Under control」
- Floor-screen icon



<On stand-by>

- Information screen display
「Under standby」
- Floor-screen icons



The full group name automatically appears when the cursor is placed on the group icon.



7. Schedule Setting

The operation mode, temperature, wind velocity, and On/off from the specified time can be set with the schedule setting function. To set a schedule, "On (start)" or "Off (stop)" must always be selected. Today's schedule, weekly schedule or annual schedule can be set. A schedule for each day can be set in the weekly schedule, and a schedule for up to 50 days can be set in the annual schedule. The setting priority is today's, annual and weekly.

The minimum unit that can be set is group.

Operable objects: Group, floor, block, whole building

Note:

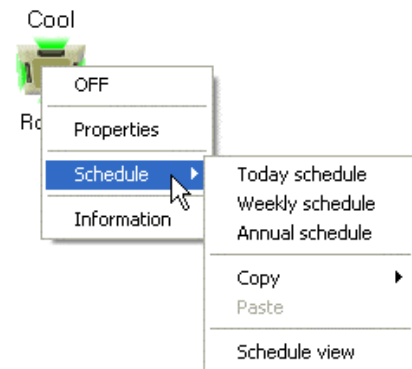
- The "Annual/Weekly Schedule" license must be registered in the central controller G-50A before using this schedule function. The schedule cannot be used until the license is registered in the central controller G-50A.
- With the general equipment, only the schedule for the group (general equipment unit) and whole building can be set. The license does not need to be registered.
(TG-2000A ~Ver. 4.10 is not compatible with the general equipment's schedule function.)
- The schedule function cannot be used with general equipment connected to the IC I/O signal.

7.1 Today's Schedule Setting

- 1) Select the today's schedule.

When the today's schedule is clicked on in the menu, the today's schedule set screen opens. The information saved in the integrated centralized control software TG-2000A appears on the screen.

Perform the following operations from the today's schedule set screen.



(1) Schedule setting

Caution:

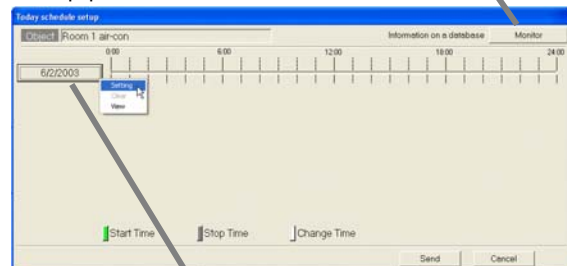
- Press the [Update] button to display the schedule set in the G-50A on the monitor before setting the schedule. Mistakes in the schedule setting can be prevented by updating the monitor.

[Procedure]

- 1) Select the Date button.
The menu opens when the Date (year/month/day) button is clicked on.
- 2) Select Setting.
The schedule details set screen opens when the menu [Setting] is clicked on.
- 3) Set the time.
Set the time with the "▲/▼" buttons. The value can also be input directly.
* The values can also be input directly.

Monitor update button

The schedule setting details are monitored from the G-50A or general equipment.



Setting button

A menu appears when the date is clicked. Click the "Setting" button.

Note:

- Multiple schedules cannot be set for the same time.

- 4) Select the [Start] or [Stop] button.

Click the [Start] or [Stop] button. The current state can be set without selecting either the [Start] or [Stop] button.

5) Set the operation prohibit, mode and set temperature, etc.

The operation prohibit item can enable or disable operations from the local remote controller. Set either prohibit or enable for the start/stop, mode and set temperature items.

* If changes are not required, set the current state (no icon display).

Use each mode button to select the mode. To set the current state, do not select any button.

The temperature can be set by clicking the [Set Temperature] button.

The temperature can be changed with the ▲/▼ buttons. To set the current state, click the [Set Temperature] button again to cancel the selection.

To delete a set schedule, click the [Delete] key.

Time setting button
Sets the schedule time.

Delete button
Deletes a schedule setting.

On/Off button
Sets the On/Off state

Operation mode button
Sets the operation mode.

Set temperature button.
Sets the set temperature. When using the "Heating" mode, a temperature higher than 12°C can be set as the frost protection

Operation prohibit/enable button
Sets whether operation of the local remote control is prohibited or enabled.

Air-conditioner schedule details setting screen

Time setting button
Sets the schedule time.

Delete button
Deletes a schedule setting.

On/Off button
Sets the On/Off state

General equipment schedule details setting screen

6) Click the [OK] button after making the settings.

The set schedule appears on the current day schedule set screen.

* The set details are invalidated when the [Cancel] button is clicked on.

Note:

- Up to 12 operations can be set.
- When using batch schedule monitor for two or more groups, the setting field is highlighted in light blue if there are different settings. (On Schedule setting screen)
- If the data is sent without today's schedule set, a schedule with "no settings" is set. A schedule mark appears at the group icon in this case.
- When using the "Heating" mode, a temperature higher than 12°C can be set as the frost protection. (The function of Frost protection is only at the time of effective.)
* This can be used only with the PAR-F27MEA system.
- When Fahrenheit is chosen by G-50A, the temperature unit displays by "°F".
- For K control models, all modes are displayed; however, choose only the modes that can be used.

(2) **Schedule change**

Use this function to change a set schedule.

[Procedure]

- 1) Select the current day schedule from the menu.
The current day schedule set screen opens.
- 2) Select the operation display box.
Click the operation display box to be changed.
The schedule details set screen opens.

Operation display box

* Change the time by dragging.

Today schedule setup

Room: 1 air-con

Information of a database Monitor

6/2/2008

Start Time Stop Time Change Time

Send Cancel

3) Change the details of the schedule.

Set the changes on the Schedule details setting screen.

* For the operating instructions, see "(1) Schedule setting".

When only the set time is changed, the change can be made by dragging the operation display box. (10 minutes units)

4) Click the [OK] button after making the settings.

The changed schedule appears on the current day schedule set screen.

* The set details are invalidated when the [Cancel] button is clicked on.

(3) Schedule clearing

[Procedure]

1) Select the Date button.

The menu opens when the Date button is clicked on.

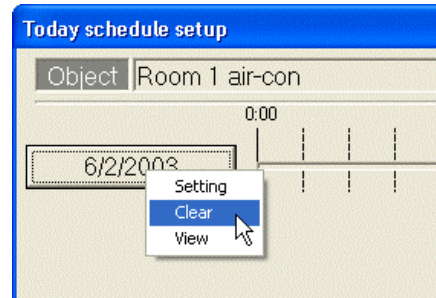
2) Select [Clear].

Select [Clear] from the menu.

The clear check screen opens.

3) The schedule is deleted when [OK] button is pressed after confirmation.

* The schedule is not deleted when the [CANCEL] button is clicked on.



(4) Checking the schedule details

[Procedure]

1) Select the Date button.

The menu opens when the Date button is clicked on.

2) Select View.

Click the menu [View].

The details screen opens.

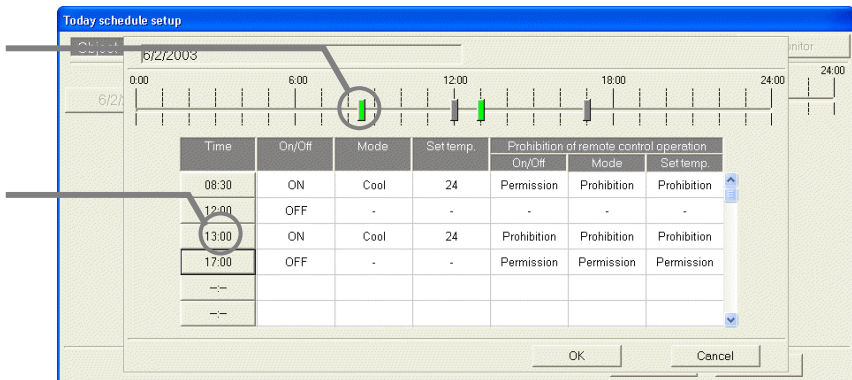
The details for "Time", "Start/Stop", "Mode", "Temperature Setting" and "Remote Controller Prohibit" are displayed on the details screen.

Operation display box

* The Schedule details setting screen opens when clicked, and the schedule can be changed.

Set time button

* The Schedule details setting screen opens when clicked, and the schedule can be changed.



3) Press the [OK] button after confirming or changing the settings.

* The set details are invalidated when the [Cancel] button is clicked on.

Ending the today's schedule setting

Select the [Send] or [Cancel] button.

Send : The schedule is sent to the G-50A, and the monitor/operation screen opens.

Cancel : The schedule is not sent to the G-50A, and the monitor/operation screen opens.

(When the monitor/operation screen opens, a schedule mark is displayed at the set group's icon.)

7.2 Weekly Schedule Setting

Switch from Management screen to schedule set screen [Procedure]

- 1) Select weekly schedule.
When Weekly schedule is selected from the menu, the Weekly schedule set screen opens.

Perform the following operations from the Weekly schedule set screen.

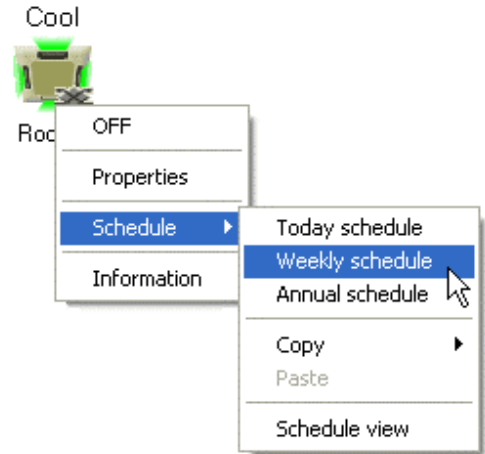
(1) Schedule setting

[Procedure]

- 1) Select the pattern data.

Select from the pattern data selection box [G-50A Data], [Summer Master], [Winter Master], [Schedule Master 1] [Schedule Master 2], or [Schedule Master 3]

When [Summer Master], [Winter Master], [Schedule Master 1], [Schedule Master 2], or [Schedule Master 3] is selected, the set schedule can be saved in TG-2000A. These are useful for setting different schedules for different seasons.



Operation display box

Up to 12 operation times can be displayed.

Pattern data button

Select the object from [G-50A data] [Summer master], [Winter master], [Schedule Master 1], [Schedule Master 2], or [Schedule Master 3]

Day button

The menu appears when clicked.

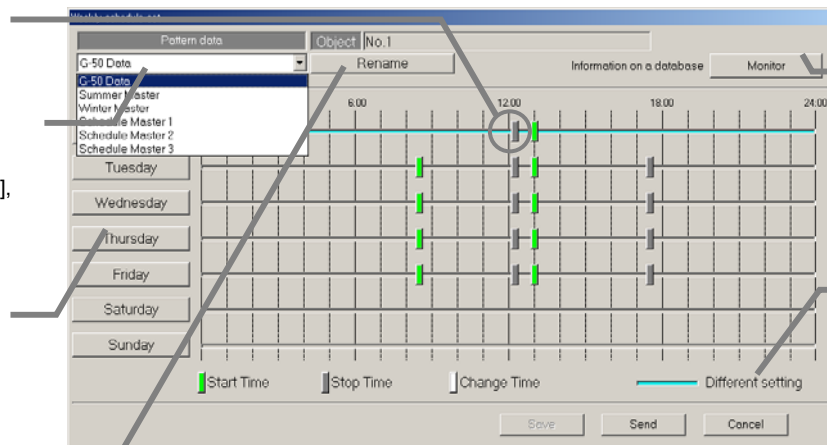
[Menu items]
Setting, View, Clear, Copy, Paste

Schedule Master

Rename button

The names for [Summer Master], [Winter Master], and [Schedule Masters 1-3] can be changed by clicking on Rename. (20 characters or less)

Name changes will be reflected on all groups in the building. If the name of a master in one group is changed, the ones in other groups will also change.

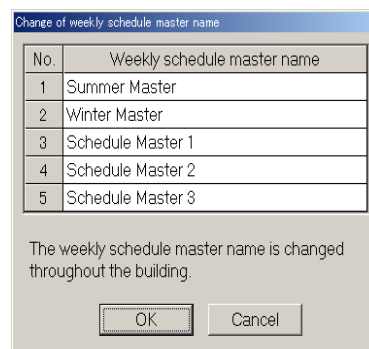


Monitor update button

Details of the schedule settings can be monitored from the G-50A.

Different setting display

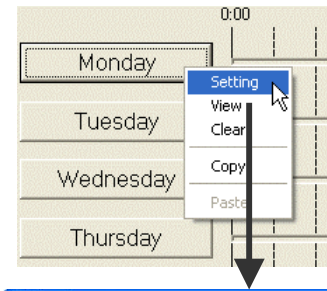
If several groups are being used and the details of the schedules differ, a light blue line appears.



Note:

- Press the [Monitor] button to display the schedule set in the G-50A on the monitor before setting the pattern data to [G-50A Data].
Mistakes in the schedule setting can be prevented by updating the monitor.
- The "Monitor update" function is not available for the general equipment.

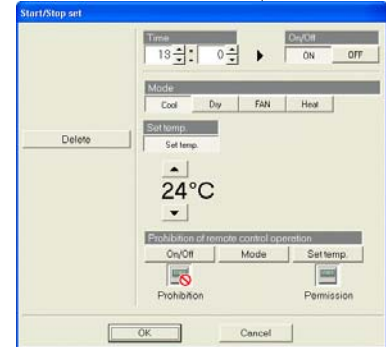
- 2) Select the day of the weekly to be set.
When the button of the day of the weekly to be set is clicked, a menu appears.
- 3) Select Setting.
Select [Setting] from the menu.
The schedule details set screen opens.
- 4) Set the time.
Set the time with the “▲/▼” buttons. The value can also be input directly.
* The values can also be input directly.



Note:

- Multiple schedules cannot be set for the same time.

- 5) Select the [Start] or [Stop].
Click the [Start] or [Stop] button.
* The current state can be set without selecting either the [Start] or [Stop] button.



- 6) Set the operation prohibit, operation mode and set temperature, etc.
The operation prohibit item can enable or disable operations from the local remote controller. Set either prohibit or enable for the start/stop, mode and set temperature items.
* If changes are not required, set the current state (no icon display).

Use each mode button to select the operation mode.

- * To set the current state, do not select any button.

The temperature can be set by clicking the [Set Temperature] button.

The temperature can be changed with the ▲/▼ buttons.

- * When using the current settings, set the set temperature to "--°C".

- * To delete a set schedule, click the [Delete] key.

- 7) Click the [OK] button after making the settings. The set schedule appears on the weekly schedule set screen.

- * The set details are invalidated when the [Cancel] button is clicked on.

Note:

- Up to 12 operations can be set.
- When using batch schedule monitor for two or more groups, the setting field is highlighted in light blue if there are different settings. (On Schedule setting screen)

(2) Schedule change

Use this function to change a set schedule.

[Procedure]

- 1) Select the weekly schedule from the menu.
The weekly schedule set screen opens.
- 2) Select the operation display box.
Click the operation display box to be changed.
The schedule details set screen opens.
- 3) Change the details of the schedule.
Set the changes on the Schedule details setting screen.

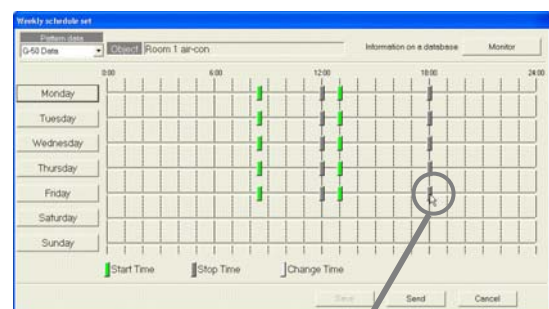
- * For the operating instructions, see “7.2 (1) Schedule setting”.

When only the set time is changed, the change can be made by dragging the operation display box. (10 minutes units)

- 4) Click the [OK] button after making the settings.

The changed schedule appears on the weekly schedule set screen.

- * The set details are invalidated when the [Cancel] button is clicked on.



Operation display box

(3) Schedule clearing

[Procedure]

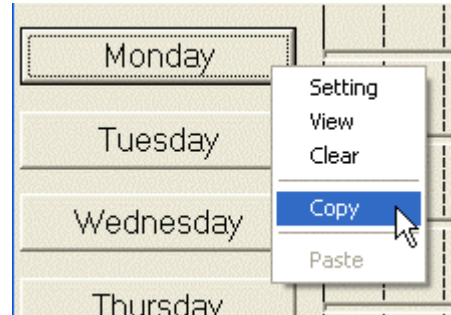
- 1) Select the day of the week whose schedule is to be cleared.
When the button of the day of the week whose schedule is to be cleared is clicked, a menu appears.
- 2) Select [Clear].
Select [Clear] from the menu.
The clear check screen opens.
- 3) Select the [OK] button after confirmation.
The schedule for that day is deleted.
* The schedule is not cleared when the [Cancel] button is clicked.

(4) Schedule copy

This function copies the schedule settings of the specified day of the week to another day of the week.

[Procedure]

- 1) Select the copy from day of the week.
When the copy from day of the week button is clicked, a menu appears.
- 2) Select [Copy].
Select [Copy] from the menu.
- 3) Select the copy to day of the week
When the copy to day of the week is clicked, a menu appears.
- 4) Select [Paste].
When [Paste] is selected from the menu, the schedule of the copy source day of the week is pasted.
This schedule can also be pasted to other days of the week.



(5) Checking the schedule details

[Procedure]

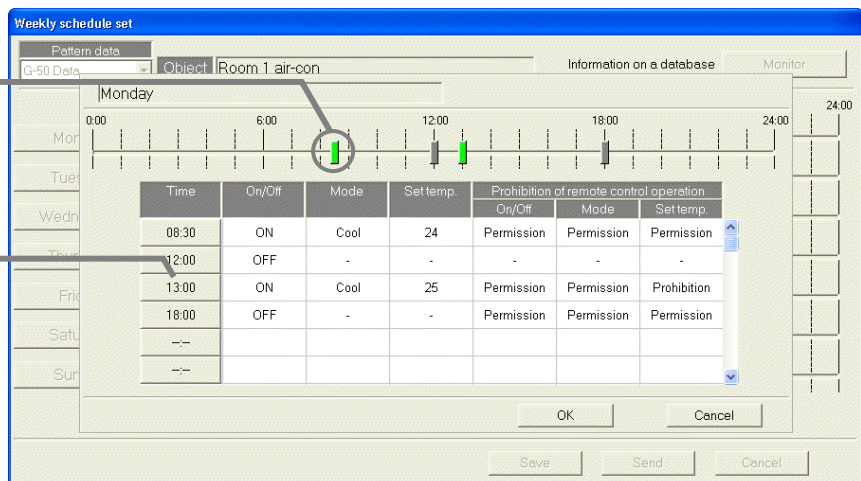
- 1) Select the Day button.
The menu opens when the Day button is clicked on.
- 2) Select [View].
Click the menu [View]. The details screen opens.
The details for "Time", "Start/Stop", "Mode", "Temperature Setting" and "Remote Controller Prohibit" are displayed on the details screen.

Operation display box

* The Schedule details setting screen opens when clicked, and the schedule can be changed.

Set time button

* The Schedule details setting screen opens when clicked, and the schedule can be changed.



3) Press the [OK] button after confirming or changing the settings.

The changes are saved and the weekly schedule set screen opens.

* The set details are invalidated when the [Cancel] button is clicked on.

Ending weekly schedule setting

Select [Send] or [Cancel] button.

At the end of schedule setting and change, click the [Send] button.

Send : The settings are validated, the schedule is sent to the G-50A, and the monitor/operation screen opens.

Cancel : Ignore the changes and returns to the monitor/operation screen.

(When returned to the monitor/operation screen, a schedule mark is displayed at the set group icon.)

7.3 Annual Schedule Setting

With the annual schedule, up to 50 days in the next 24 months (including current month) can be set for each air conditioner group. This is handy for sending a schedule that does not fit into the weekly schedule, such as holidays and summer vacations.

To change the annual schedule, first select the target to be set, and then set the details of the schedule pattern (patterns 1 to 5). Then, assign the pattern to the holidays or summer vacation schedule, etc.

Switch from Management screen to schedule set screen

[Procedure]

1) Select Annual schedule.

When Annual schedule is selected from the menu, the Annual schedule set screen opens.

Annual schedule is displayed up to 24 months from the current month.

The schedule starting from the next day can be set.

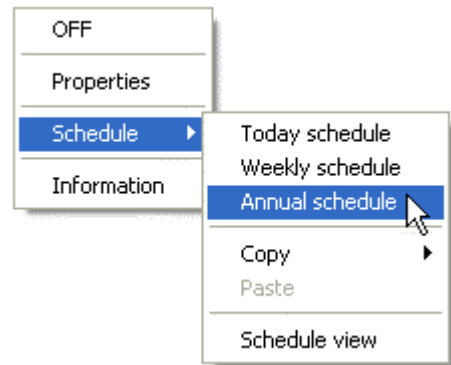
Color of calendar date frame:

Blue : Schedule set for target pattern

Dark gray : Schedule set for non-target pattern

Light gray : No schedule set

Light blue : Different schedule set for multiple groups

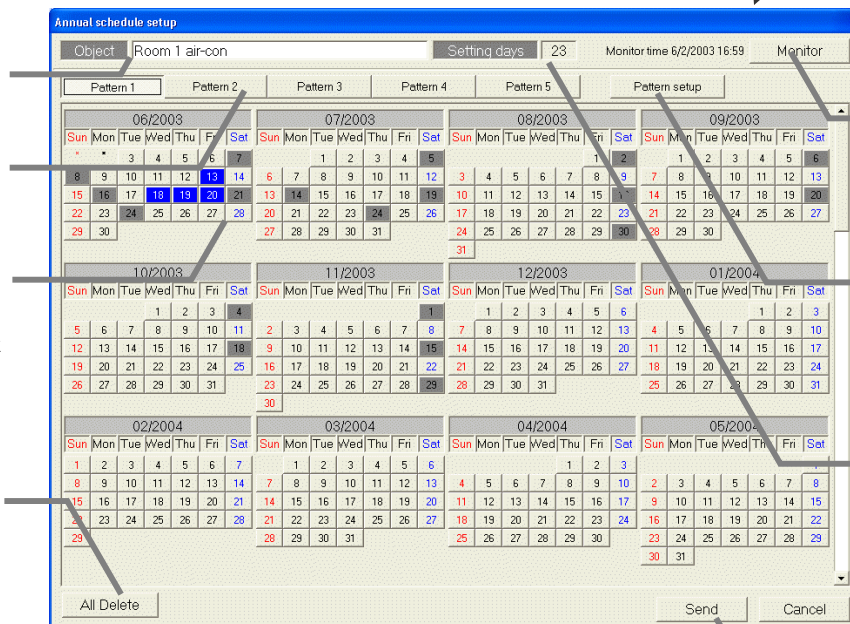


Object display
Displays the display object.

Pattern buttons
Buttons for selecting five types of schedule patterns.

Setting status display
The dates set in the annual schedule are displayed in blue, dark gray, light gray and light blue.

All Delete button
Deletes the entire annual schedule.



Monitor button
Details of the schedule settings can be monitored from the G-50A.

Pattern setting/change button
Sets and changes the schedule pattern.

Number of set days display
Displays the number of days set in the annual schedule.

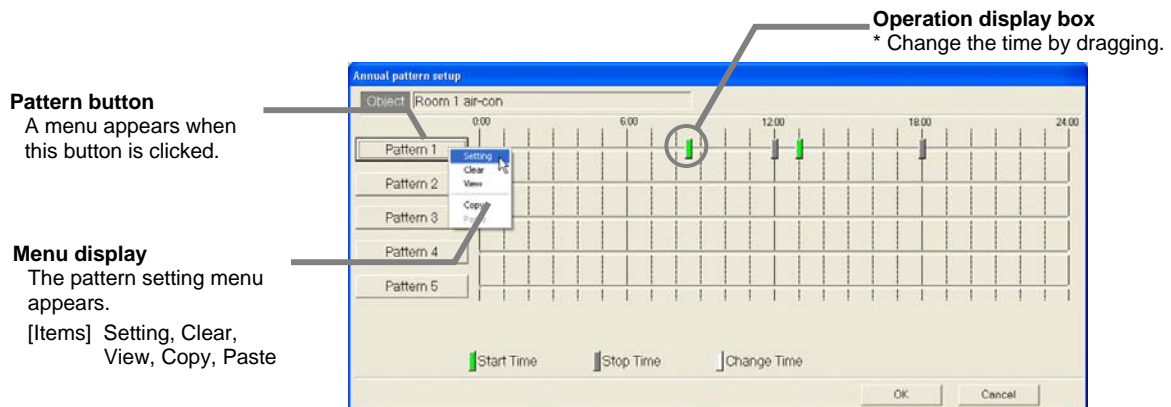
Annual schedule setting screen

Send button
Click to set the data.

Perform the following operations from the Annual schedule set screen.

(1) Pattern setting

The methods of setting the annual schedule pattern are explained in his section.



[Procedure]

- 1) Select the [Pattern Setting/Change] button.

When the [Pattern Setting/Change] button on the annual schedule set screen is clicked on, the annual pattern set screen opens.

- 2) Select the Pattern button.

The menu opens when the Pattern button is clicked on.

- 3) Select Setting.

Select the menu [Setting].

The schedule details set screen opens.

- 4) Set the time.

Set the time with the “▲/▼” buttons.

* The values can also be input directly.

Note:

- Multiple schedules cannot be set for the same time.

- 5) Select the [Start] or [Stop].

* Click the [Start] or [Stop] button. The current state can be set without selecting either the [Start] or [Stop] button.

- 6) Set the operation prohibit, operation mode and set temperature, etc.

The operation prohibit item can enable or disable operations from the local remote controller. Set either prohibit or enable for the start/stop, operation mode and set temperature items.

* If changes are not required, set the current state (no icon display).

Use each mode button to select the operation mode.

* To set the current state, do not select any button.

The temperature can be set by clicking the [Set Temperature] button. The temperature can be changed with the ▲/▼ buttons.

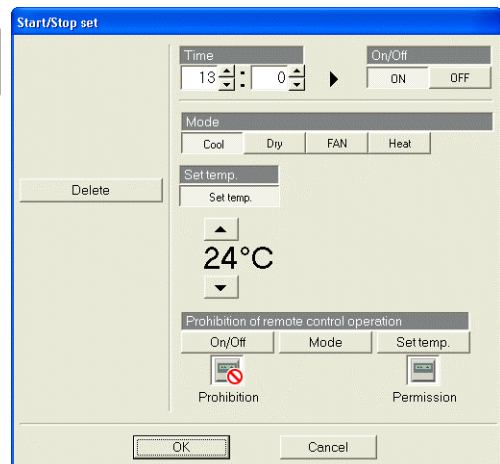
* To set the current state, click the [Set Temperature] button again to cancel the selection.

* To delete a set schedule, click the [Delete] key.

- 7) Select the [OK] button after making the settings.

The set schedule appears on the annual schedule set screen.

* The set details are invalidated when the [Cancel] button is clicked on.



Note:

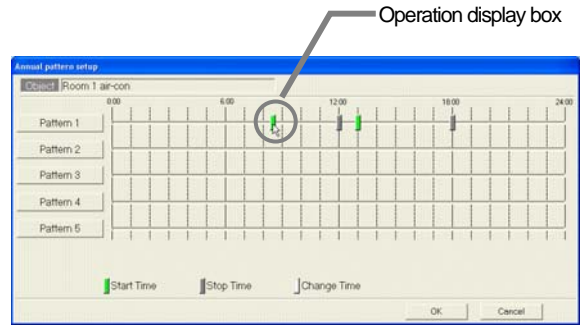
- Up to 12 operations can be set.
- When using batch schedule monitor for two or more groups, the setting field is highlighted in light blue if there are different settings.

(2) Pattern change

Use this function to change the set pattern.

[Procedure]

- 1) Select [pattern setting/change].
The annual pattern set screen opens.
- 2) Select the operation display box.
Click the operation display box to be changed. The schedule details set screen opens.
- 3) Change the schedule details.
Set the changes on the Schedule details setting screen.



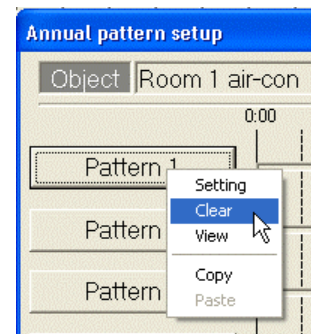
* Refer to Chapter 7.3 “(1) Setting the pattern” for details on the operations. When changing only the set time, the changes can be made by dragging the operation display box. (10 minutes units)

- 4) Select the [OK] button after making the settings.
These settings are validated, and the annual schedule set screen opens.
* The set details are invalidated when the [Cancel] button is clicked on.

(3) Pattern clearing

[Procedure]

- 1) Select the pattern to be cleared.
Click the button for the pattern to be cleared. A menu appears.
- 2) Select Clear.
Click the menu [Clear]. A clear confirmation screen opens.
- 3) Select the [OK] button.
The set schedule is cleared when the [OK] button is clicked on after confirming.
* The pattern is not cleared when the [Cancel] button is clicked.

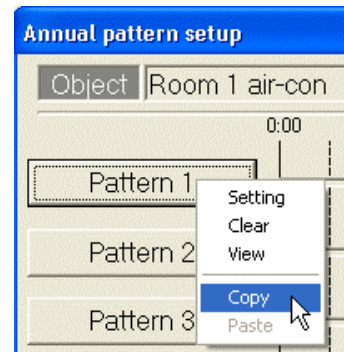


(4) Pattern copy

This function copies the schedule settings of the specified pattern to another pattern.

[Procedure]

- 1) Select the copy from pattern.
When the copy from pattern is clicked, a menu appears.
- 2) Select [Copy].
Select [Copy] from the menu.
- 3) Select the copy to pattern.
When the copy to day is clicked, a menu appears.
- 4) Select [Paste].
When [Paste] is selected from the menu, the schedule of the copy to pattern is pasted.
This schedule can also be pasted to other patterns.



(5) Checking the pattern details

[Procedure]

- 1) Select the Pattern button.

The menu opens when the Pattern button is clicked on.

- 2) Select [View].

Click the menu [View]. The details screen opens.

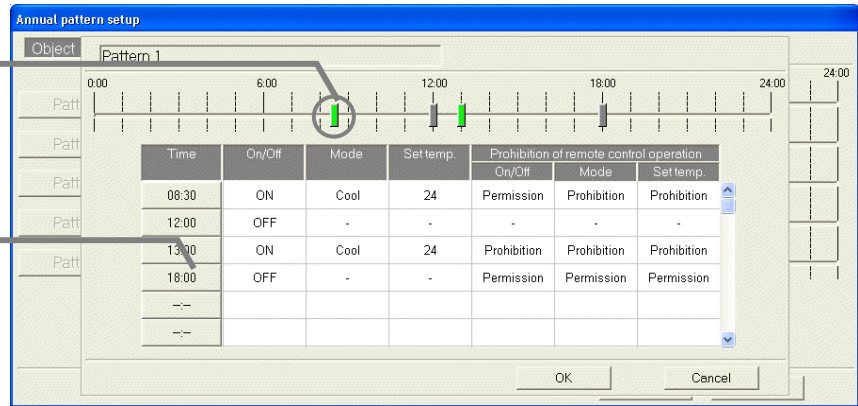
The details for "Time", "Start/Stop", "Mode", "Temperature Setting" and "Remote Controller Prohibit" are displayed on the details screen.

Operation display box

* The Schedule details setting screen opens when clicked, and the schedule can be changed.

Set time button

* The Schedule details setting screen opens when clicked, and the schedule can be changed.



- 3) Press the [OK] button after confirming or changing the settings.

The changes are saved and the annual schedule set screen opens.

* The set details are invalidated when the [Cancel] button is clicked on.

(6) Annual schedule setting

[Procedure]

- 1) Select the Pattern button.

Select the pattern button for the annual schedule set screen.

- 2) Select the date.

Click the date for executing the schedule.

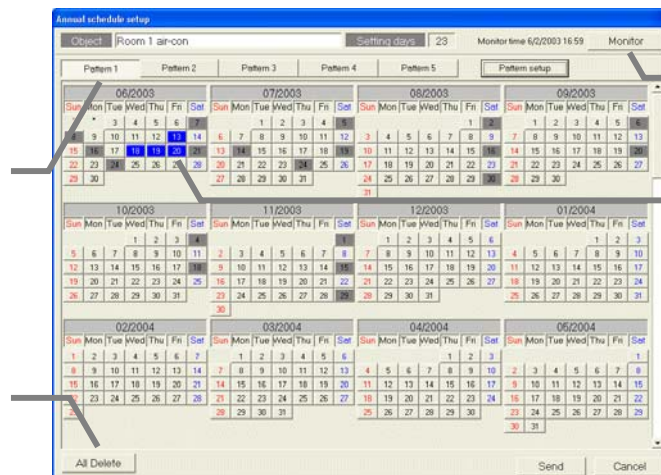
The date box changes to blue, and the schedule is set.

Caution:

- Press the [Monitor] button to display the schedule set in the G-50A on the monitor before setting the schedule. Mistakes in the schedule setting can be prevented by updating the monitor. (* The "Monitor update" function cannot be used with the general equipment's schedule.)

Pattern button
Displays the selected pattern.

All Delete button
Deletes the entire annual schedule.



Monitor update button

Details of the schedule settings can be monitored from the G-50A.

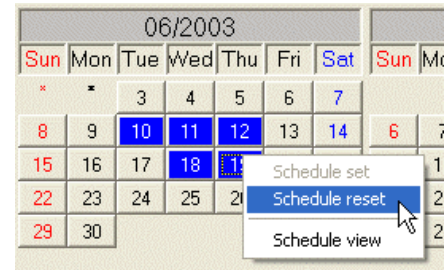
Set display

The date already set in the selected pattern are displayed in blue.

(7) Annual schedule clearing

[Procedure]

- 1) Select the date for which a schedule is set.
A menu appears.
- 2) Select [Clear Schedule Setting].
Click the menu [Clear Schedule Setting].
The pattern assignment set for that date is cleared.
* All dates set in the schedule can be canceled by clicking the [Delete All] button.



(8) Checking the annual schedule details

[Procedure]

- 1) Select the date for which a schedule is set.
A menu appears.
- 2) Select schedule view.
Click the menu [Schedule View]. The Schedule View opens.
- 3) Select the [Cancel] button.
Click the [Cancel] button after confirming. The annual schedule set screen opens.

Note:

- The set details cannot be changed from the View screen.

Ending Annual schedule setting

Select [Send] or [Cancel].

At the end of Annual schedule setting and change, click the [Send] button.

Send : The settings are validated, the schedule is sent to the G-50A and the monitor/operation screen opens.

Cancel : Ignore the changes and returns to the monitor/operation screen.

(When returned to the monitor/operation screen, a schedule mark is displayed at the set group icon.)

Note:

- Depending on the setting contents, message "The today schedule may be changed. Please check a today schedule." may appear.
When annual schedule pattern is changed, the contents of today's schedule also can be changed.
If this message is shown, please confirm today's schedule.

7.4 Schedule View

The details of the weekly schedule, today's schedule and the next day schedule are displayed.

Switch from the Management screen to the Schedule View

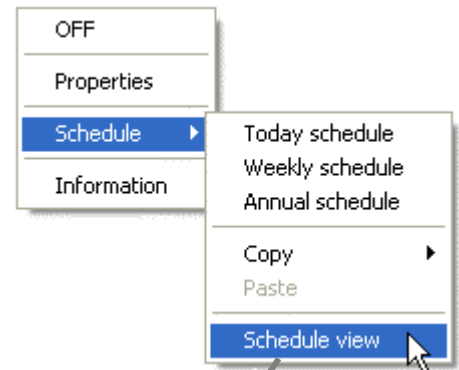
[Procedure]

1) Select schedule view.

Click the menu [Schedule View]. The Schedule View opens.

Note:

- Click the "Monitor" button to display data saved with the G-50A.
(* Only the current day can be monitored for the general equipment.)
- The set details cannot be changed from the Schedule View screen.
- When using batch schedule monitor for two or more groups, the setting field is highlighted in light blue if there are different settings.



Object display

Displays the display object.

Today/Tomorrow display

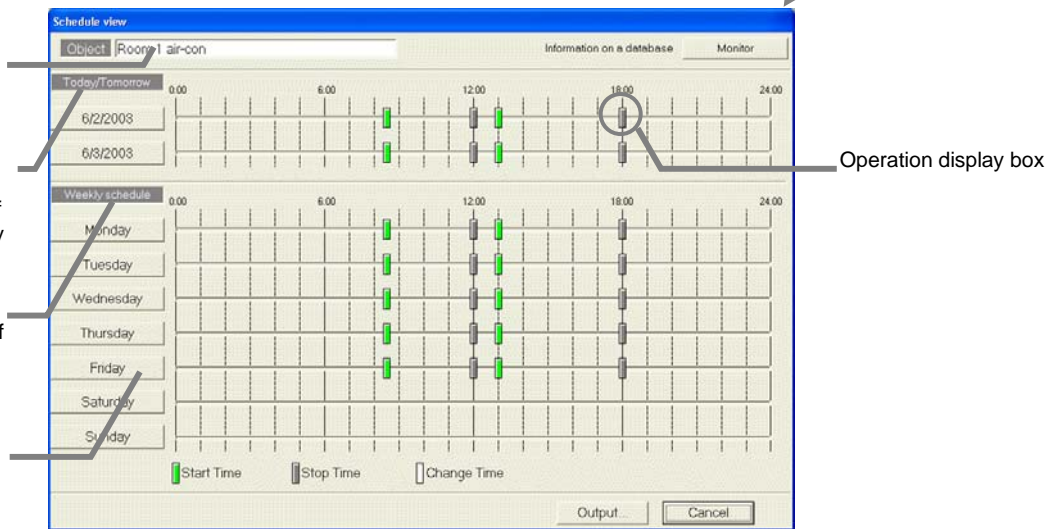
Displays the details of the schedule for today and tomorrow.

Weekly display

Displays the details of the weekly schedule.

Day button

Press this button to display the detailed schedule.



Schedule view screen

Schedule output

[Procedure]

1) Select [Output] button.

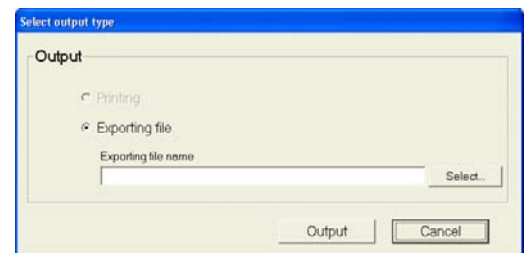
Click the [Output] button on the schedule check screen. The output type selection screen opens.

2) Input the output file name.

Input the folder name and output file name to be output in the output file name field. The existing folder and file name can be selected by clicking the [Select] button.

3) Select [Output].

The file is output and the Schedule View screen opens.



Note:

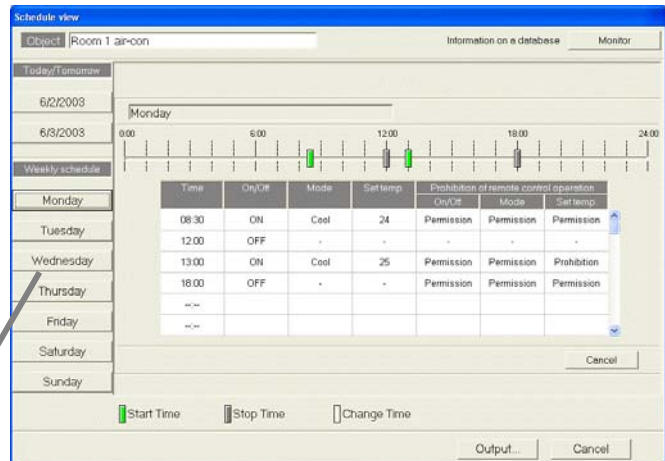
- The file is output with the CSV type format.

Schedule details display

[Procedure]

- 1) Select the day or date button.
The detailed view opens when the day or date button is clicked on the Schedule view display screen.
- 2) Select the [Cancel] button.

Day button
The schedule details appear when clicked.



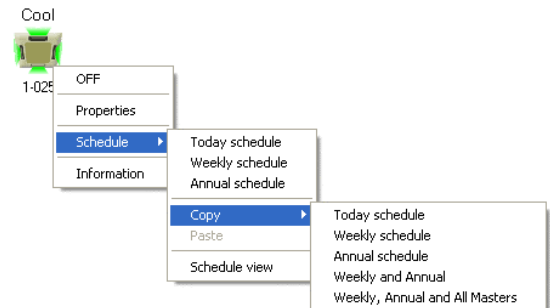
7.5 Schedule Copy

The details set for the schedule can be copied in group units. Select the copy target from the today's schedule, weekly schedule, annual schedule or weekly & annual schedule.

Copying schedules between groups

[Procedure]

- 1) Click the copy from group
When the cursor is set to Schedule of the menu displayed by clicking the copy from group, a schedule menu appears.
* The schedule menu appears when the mouse cursor is set on [Schedule] in the selected menu.
- 2) Select the [Today's schedule] in the [Copy] menu.
- 3) Select the object whose schedule is to be copied.
* The schedule menu appears when the mouse cursor is set on [Schedule] in the selected menu.
- 4) Select [Paste].
The entire schedule is pasted.

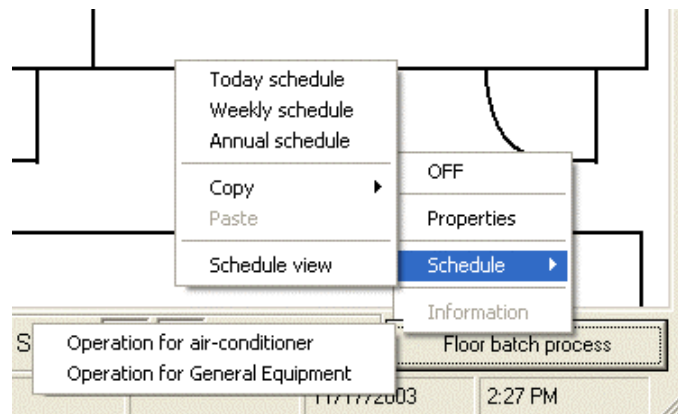


Note:

- The weekly schedule, annual schedule, weekly & annual schedule and weekly & annual & all masters schedule can be copied in the same manner.
- For weekly schedule, it is unable to copy the master weekly schedule for [Summer Master] [Winter Master], [Schedule Master1], [Schedule Master2], or [Schedule Master3] (The master weekly schedule for each master can be copied in "Weekly & annual & all masters".)

Copying the schedule in a batch

When monitoring or operating the general equipment, do not open the menu. Instead, select "Operation for air-conditioner" and "Operation for General Equipment".



8. Maintenance Operation

8.1 Abnormality History and Operation History

There are two kinds of history: Abnormality history and Operation history.

Item	Details
Abnormality history	Displays errors currently occurring and that occurred in the past. * Click the [History Update] button to display the latest abnormality history.
Operation history	Displays the operations (Operations such as on/off, charge setting, schedule setting, and error history deletion) performed in the past. * Only the limited operation item in TG-2000A excluding the operation in the remote controller or G-50A.

(1) Switch from Management screen to history screen

[Procedure]

1) Select [History] button.

Click the [History] function select button.

2) Select the object whose history is to be displayed.

When the object whose history is to be displayed is clicked, the History screen opens.

Note:

- For a description of the underlined part, refer to section "6.1 (2) Select the operation object" to be operated.

Perform the following operations from the History screen.

(2) Description of History screens

Abnormality history

The Abnormality History screen displays air conditioner failures, transmission failures, and other abnormalities in the order in which they occurred.

(Although a total of approximately 8,000 histories can be stored, the maximum number of histories that can be stored is set for each error type and for each G-50A. When this limit is exceeded, the oldest records are deleted.)

The screenshot shows the 'Abnormality History' window with a table of error records. Callouts point to various UI elements:

- Abnormality history button:** Displays the abnormality history.
- History details display:** Display the history details.
- Daily Report, Monthly Report buttons:** Outputs a daily report or monthly report of the abnormality history.
- History update button:** The latest abnormality history can be monitored from the G-50A. * Always click on this button when checking the abnormality history.
- Delete button:** Deletes the abnormality history.
- Search buttons:** Searches the abnormality history.
- Close button:** Closes this screen.

Error kind	Occurrence time	Recovery time	Origin address	Occurrence point	Error detection source address	Contents	
Others	6/18/2003 09:44		03	G50-03	MM	0003:Communication error	
Others	6/18/2003 09:44		04	G50-04	MM	0003:Communication error	
Others	6/18/2003 09:44		05	G50-05	MM	0003:Communication error	
Others	6/18/2003 09:44		10	G50-10	MM	0003:Communication error	
Others	6/18/2003 09:44	6/2/2003 13:01	01	G50-01	MM	0003:Communication error	
Others	6/18/2003 09:44		06	G50-06	MM	0003:Communication error	
Others	6/18/2003 09:44		09	G50-09	MM	0003:Communication error	
Others	6/18/2003 09:44		02	G50-02	MM	0003:Communication error	
Others	6/18/2003 09:44		07	G50-07	MM	0003:Communication error	
Others	6/18/2003 09:44		08	G50-08	MM	0003:Communication error	
Others	6/18/2003 09:33	6/2/2003 13:24	101	PLC101	MM	0003:Communication error	
General Equipment	6/18/2003 09:33	6/2/2003 13:24	101-1	No.1	OE-1	MM	0003:Communication error

Item	Details
Error kind	Displays Communication error, Unit error, and Others.
Occurrence time	Displays the time the abnormality occurred.
Recovery time	Displays the time the abnormality recovered. Blank indicates that the abnormality is still in effect.
Origin address	Displays the G-50A No. and address of the equipment at which the abnormality occurred.
Occurrence point	Displays the occurrence floor at the left and the group or equipment name at the right.
Error detection source address	Displays the G-50A No. and address or the name of the equipment in which an error is detected.
Contents	Displays the error code and its description.

Note:

- See 8.2 “Error code list” for the abnormality history contents.
- Error history will not be updated automatically. Manually update the history and check the latest error history.
- The maximum number of errors that can be recorded in the automatic output file is 3,000.
- When selecting DC group to display abnormality history on floor screen, all errors for DC comprising the group is displayed.
- Abnormality histories of DC displays only bracket error code. Each contact point (DIDO) error, which is indicated on equipments in error screen, is not displayed.
- When selecting a meter (MCT) to display abnormality history on the floor screen, all error of MCT are displayed.

Operation history

The operation history displays **the operation content performed by the man-machine**. The operations in this case are limited to operations such as schedule setting, error history deletion, etc.

Up to 10,000 items can be displayed. When the number of items exceeds 10,000, the items are sequentially deleted in ascending order.

Operation history button
Displays the operation history.

History details display
Display the history details.

Daily Report, Monthly Report buttons
Outputs a daily report or monthly report of the abnormality history.

Delete button
Deletes the abnormality history.

Search buttons
Searches the abnormality history.

Close button
Closes this screen.

Operation time	Obj. address	The candidate for operation	Operation point	Contents
6/18/2003 09:24	—	PLC	—	Pulse unit setup
6/18/2003 09:24	—	PLC	—	Energy monitoring core setup (week)
6/18/2003 09:24	—	PLC	—	Energy monitoring time zone setup
6/18/2003 09:24	—	PLC	—	Energy monitoring core setup (annual)
6/18/2003 08:53	(01-031)	Group	01-031	Drive mode change Ventilation mode: heat ex.
6/18/2003 08:53	(01-031)	Group	01-031	Fan speed Fan speed: high
6/18/2003 08:53	(01-031)	Group	01-031	On
6/18/2003 08:53	(01-031)	Group	01-031	Remoccon on/off On/Off(Enable) Filter reset(Enable)
6/18/2003 08:53	—	Block	Floam 2	Remoccon on/off On/Off(Enable) Drive mode(Enable) Set temp(Enable) Filter reset(Enable)
6/18/2003 08:53	—	Block	Floam 2	
6/18/2003 08:52	—	Block	Room 1	Drive mode change Dry

Item	Details
Operation time	Displays the time the operation was performed.
Object address	Displays the G-50A No. and address of the equipment to which the operation is commanded.
The candidate for operation	Displays the object operated.
Operation point	Displays the occurrence floor at the left and the group or equipment name at the right.
Contents	Displays the contents of the operation that was performed.

Note:

- The operation history performed by the man-machine contains the following:
Charge setting operation, schedule setting operation, error history deletion operation, operation from integrated centralized control software TG-2000A
- The operation history screen is only displayed on the whole buildings screen.
- The history may be displayed in an order different from the actual operated order, depending on the data storage timing.

(3) History screen operation

The Abnormality History and Operation History screen displays can be switched and updated.

[Procedure]

History display switching

When the [Abnormality history] button is clicked, the display switches to the Abnormality History screen and when the [Operation history] button is clicked, the display switches to the Operation History screen.

Display updating (Abnormality history function only)

Since the history update is monitored for all G-50A units connected when the [History update] button is clicked, it may take time for monitor communication. When the history is updated, the updating time is displayed.

(4) History search

This function searches the histories based on the set conditions.

There are the following search items. The search conditions can be set by combining these items.

Abnormality history search

Error type

Search from the error type (communication error, unit error, etc.)

Occurrence date

Search from abnormality occurrence date

Recovery date

Search from the designated recovery date and non-recovered error.

Occurrence source address

Search from the object (G-50A, man-machine, unit, meter, PLC, general equipment) in which the error occurred.
* For G-50A and unit, specify the address at the same time. If the address is set to "0", all addresses are deemed to be specified.

Error code

The error code that caused the abnormality.
* For error code, it is also possible to specify multiple codes with the "*" (wild card).

Find button

Search the abnormality history by clicking this button.

Operation history search

Operated date

Search from operated date.

Operation type

Search from the operated type (schedule, etc.).
* If "Schedule" or "Operation history" is designated, also designate the operation destination address.

Operation destination address

Search from the operated target (G-50, group).
* Specifies the G-50A or group. Specifies the address at the same time. If the address is set to "0", all addresses are deemed to be specified.

Find button

Search the abnormality history by clicking this button.

[Procedure]

1) Select [Search] button.

When the [Search] button is clicked, a search screen opens.

2) Input the search item.

Specify the search condition at the search item check box. Specify the object with the Option button.

* Numerics can be input by clicking the “▲/▼” buttons at the right-hand side of the numeric part or by clicking the numeric part. They can also be input from the keyboard.

Search conditions can also be combined by selecting multiple items.

(The search is executed in accordance with the AND condition.)

3) Select [Find] button.

After setting the search conditions, click the [Search] button.

(If there is no history that meets the set conditions, nothing is displayed.)

Find : Displays, on the history screen, histories that meet the search conditions.

Cancel : Returns to the history screen.

(5) History delete

Error history delete

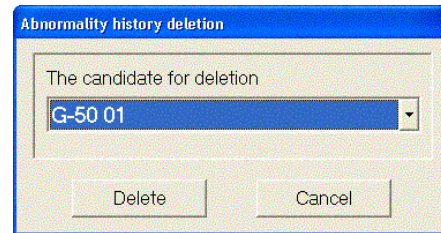
[Procedure]

1) Select [Delete] button.

When the [Delete] button is clicked, the Delete screen opens.

2) Select the error history to delete.

Select the G-50A or man-machine to delete from the combo box.



Note:

- For deletion, the abnormality history retained by each G-50A or man-machine is completely deleted.

3) Select the [Delete] button.

Click the [Delete] button after setting the error history to delete.

In this case, all object equipment histories are deleted, and the history display screen is resumed.

* When the [Cancel] button is clicked, the history display screen is resumed without the history deleted.

Note:

- Once deleted, histories cannot be recovered.

Operation history delete

[Procedure]

1) Select [Delete] button.

When the [Delete] button is clicked, the Delete screen opens.

2) Select [OK] button.

When the [OK] button is clicked, the history display screen is resumed with all histories deleted.

* When the [Cancel] button is clicked, the history display screen is resumed without the history deleted.



(6) History output

Outputs daily or monthly history.

The output is only compatible with the file output (CSV format).

(Search results history cannot be output.)

[Procedure]

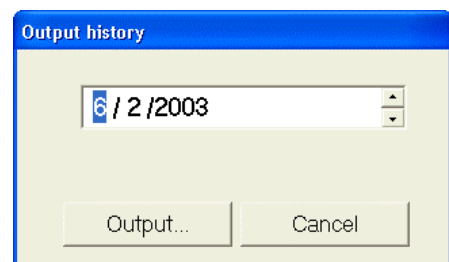
1) Select [Daily] or [Monthly] button.

When the [Daily] or [Monthly] button is clicked, the Output History screen opens.

2) Input the date to be printed

Set the date with the “▲/▼” buttons at the right-hand side of the numeric part.

* When the numeric part is clicked, the date can also be input from the keyboard.



* (Click the [Cancel] button to stop output.)

* For monthly reports, only the year and month are used, but the day setting value is ignored.

3) Input the output file name.

Set the file name input.

* When the [Select] button is clicked, it is possible to enter the location to save the file in.

4) Select [Output] button.

When the [Output] button is clicked, the histories generated within the input range are output.

* When the [Cancel] button is clicked, the history display screen is resumed without the history output.

8.2 Error Code List

(1) Air-conditioning unit error codes

The following is a list of the error codes and their meaning. (A) indicates A-control units

0100	"Blanket unit error"
01*0	"Equipment abnormality **"
0403	"Serial transmission trouble"
0404	Indoor unit EEPROM abnormality (A)
0701	Combustion circuit abnormality (A)
0702	Overheat protection for the combustion heat exchanger (A)
0703	Accidental fire (A)
0704	Heater abnormality (A)
0705	Seismoscope malfunction (A)
0706	Flame current sensor abnormality (A)
0707	Ignition problem (A)
0708	Blower motor rotational speed abnormality (A)
0709	Oil pump circuit abnormality (A)
0900	"Test run"
1000	"Ref.cycle abnormality"
10*0	"Ref.cycle abnormality in line **"
1102	Discharge temperature abnormality (TH4) (A)
1108	Inner thermo (49C) trip (A)
11**	"Ref.cycle temperature abnormality - Common operand: **"
12**	"Ref.cycle temperature abnormality allowance - Common operand: **"
1300	Low pressure abnormality (63L trip) (A)
13**	"Ref.cycle pressure abnormality - Common operand: **"
14**	"Ref.cycle pressure abnormality allowance - Common operand: **"
1500	"Ref.cycle not operate due to overcharge"
1501	"Ref.cycle not operate due to undercharge" (/compressor shell temperature abnormality)
1502	"Ref.cycle not operate due to liquid back" /Low pressure abnormality (63L trip) (A)
1503	"Ref.cycle not operate due to coil frost"
1504	"Ref.cycle not operate due to overheat protection"
1505	"Ref.cycle not operate due to compressor vacuum operation protection/refrigerant low temperature abnormality"
1506	"Ref.cycle not operate due to refrigerant pump abnormality"
1507	"Ref.cycle not operate due to composition detection abnormality"
1508	"Ref.cycle not operate due to control valve fault"
1509	"Ref.cycle not operate due to high pressure abnormality (ball valve closed) "
1510	"Ref. cycle gas leakage"
1511	"Ref.cycle not operate due to oil slick abnormality"
1512	"Ref.cycle not operate due to a stop of freezing protection function"
1513	"Ref. cycle brine freezing"
1559	"Oil balance circuit abnormality"
1600	"Ref.cycle - Preliminary overcharge refrigerant trouble"
1601	"Ref.cycle - Preliminary lacked refrigerant trouble"
1605	"Ref.cycle - Preliminary suction operation protection"
1606	"Ref.cycle - Preliminary gas pump abnormality"
1607	"Ref.cycle - Preliminary CS circuit closed detection abnormality"
1608	"Ref.cycle - Preliminary control valve abnormality"
1659	"Ref.cycle - Preliminary oil balance circuit abnormality"
2000	"Water system abnormality" (Pump interlock abnormality)
20*0	"Water system abnormality in line **"
21**	"Water system temperature abnormality - Common operand: **"
22**	"Water system temperature abnormality allowance - Common operand : **"
23**	"Water system pressure abnormality - Common operand: **"
24**	"Water system pressure abnormality allowance - Common operand: **"
2500	"Water system not operate due to water leak"
2501	"Water system not operate due to water supply suspension"
2502	"Water system not operate due to drain pump abnormality"
2503	"Water system not operate due to drain sensor abnormality/float switch function"
2504	"Water system not operate due to liquid level abnormality"

2505 "Water system not operate due to cool water valve abnormality"
2506 "Water system not operate due to warm water valve abnormality"
2507 "Water system not operate due to dew condensation prevention control activated"
2600 "Water system operation restricted due to water leak"
2601 "Water system operation restricted due to water supply suspension/humidifier water supply suspension"
2602 "Water system operation restricted due to drain pump abnormality"
2603 "Water system operation restricted due to drain sensor abnormality"
2604 "Water system operation restricted due to liquid level abnormality"
3152 "Air system operation restricted due to inverter control box inner temperature abnormality"
3182 "Air system operation restricted due to housing inner temperature abnormality"
3252 "Air system operation restricted due to preliminary control box temperature abnormality"
3600 "Air system operation restricted due to filter clogging"
3601 "Air system operation restricted due to filter maintenance"
3602 "Air system operation restricted due to damper position detecting abnormality"
37** "Air system operation humidity abnormality allowance - Common operand: **"
38** "Air system operation humidity abnormality - Common operand: **"
4000 "Electric system abnormality"
40*0 "Electric system abnormality in line **"
4100 "Electric system not operate due to overcurrent shut-off"
4101 "Electric system not operate due to overcurrent protection"
4102 "Electric system not operate due to open phase" /Open phase (T phase), (A)
4103 "Electric system not operate due to reversed phase/open phase"
4104 "Electric system not operate due to electric leak"
4105 "Electric system not operate due to short circuit"
4106 "Electric system not operate due to self power supply OFF/power failure"
4107 "Electric system not operate due to overlord"
4108 "Electric system not operate due to overlord protection/OCR51C" /Open phase (S phase), Open connector 51CM (A)
4109 "Electric system not operate due to OCR51F"
4110 "Electric system not operate due to high voltage part"
4111 "Electric system not operate due to bus current"
4112 "Electric system not operate due to coil overheat 49°C"
4113 "Electric system not operate due to heater overheat"
4114 "Electric system not operate due to fan controller abnormality"
4115 "Electric system not operate due to power supply synchronism abnormality" /Input circuit(circuit board) defect
4116 "Electric system not operate due to motor abnormality/speed abnormality"
4117 Compressor self-protection function trip (A)
4118 Reversed phase detection circuit (circuit board) problem (A)
4119 More than 2 connectors are open. (A)
4121 "Electric system not operate due to trouble in equipment to which a measure against higher harmonics is taken"
4123 "Electric system not operate due to Inverter output error"
4124 "Electric system not operate due to damper abnormality"
4125 "Electric system - Rush-proof circuit abnormality"
4126 "Electric system - Preliminary overcurrent protection/OCR51C"
4162 "Electric system not operate due to compressor coil temperature abnormality delay"
4163 "Electric system not operate due to preliminary fan controller abnormality"
4165 "Electric system not operate due to preliminary power synchronization error"
4171 "Electric system - Preliminary trouble in equipment to which a measure against higher harmonics is taken"
4200 "Inverter abnormality"
420* "Inverter abnormality - Inverter No.: **"
4210 "Inverter overcurrent shut-off"
421* "Inverter overcurrent shut-off - Inverter No.: **"
4220 "Inverter bus voltage insufficiency" / Voltage abnormality (A)
422* "Inverter bus voltage insufficiency - Inverter No.: **"
4230 "Inverter radiating thermostat abnormality"
423* "Inverter radiating thermostat abnormality - Inverter No.: **"
4240 "Inverter overcurrent (overload) protection"

424* "Inverter overcurrent protection - Inverter No.: **"
 4250 "Inverter IPM/bus voltage abnormality"/Power module abnormality (A)
 425* "Inverter IPM abnormality **"
 4260 "Inverter cooling fan trouble"
 426* "Inverter cooling fan trouble - Inverter No.: **"
 4300 "Inverter abnormality allowance"
 430* "Inverter abnormality allowance - Inverter No.: **"
 4310 "Inverter overcurrent shut-off allowance"
 431* "Inverter overcurrent shut-off allowance - Inverter No.: **"
 4320 "Inverter bus voltage insufficiency allowance"
 432* "Inverter bus voltage insufficiency - Inverter No.: **"
 4330 "Inverter radiating thermostat abnormality allowance"
 433* "Inverter radiating thermostat abnormality allowance - Inverter No.: **"
 4340 "Inverter overcurrent protection abnormality"
 434* "Inverter overcurrent protection abnormality - Inverter No.: **"
 4350 "Inverter IPM abnormality allowance"
 435* "Inverter IPM abnormality allowance **"
 4360 "Inverter preliminary cooling fan trouble"
 436* "Inverter preliminary cooling fan trouble - Inverter No.: **"
 5000 "Sensor trouble"
 50*0 "Sensor trouble in system **"
 51** "Temperature sensor trouble - Sensor No.: ***"
 5202 Open connector (63L) (A)
 52** "Pressure sensor trouble - Sensor No.: **"
 5300 Current sensor abnormality (A)
 53** "Current sensor trouble - Sensor No.: **"
 54** "Humidity sensor trouble - Sensor No.: **"
 55** "Gas sensor trouble - Sensor No.: **"
 56** "Air speed sensor trouble - Sensor No.: **"
 57** "Limit switch trouble - Switch No.: **"
 58** "Sensor trouble - Sensor No.: **"
 59** "Other sensors trouble - Sensor No.: **"
 6000 "System abnormality"
 6101 "System not operate due to abnormality - With response frame"
 6102 "No answer back"
 6200 "Controller H/W abnormality"
 6201 "E2PROM abnormality"
 6202 "RTC abnormality"
 6500 "Communication error"
 6600 "Communication error - Address duplicate"
 6601 "Communication error - Polarity unsettled"
 6602 "Communication error - Transmission processor hardware error"
 6603 "Communication error - Transmission line busy"
 6604 "Communication error - No ACK (06H) (communication circuit error)"
 6605 "Communication error - No response frame"
 6606 "Communication error - Transmission processor communication error"
 6607 "Communication error - No ACK return"
 6608 "Communication error - No return of response frame"
 6609 "Communication error"
 6610 "Communication error"
 6700 "Communication error - K-transmission abnormality"
 6701 "Communication error - K-transmission error"
 6702 "Communication error - K-address duplicate"
 6750 "Communication error - K abnormality code PO"
 6751 "K abnormality - Room temperature thermistor abnormality"
 6752 "K abnormality - Indoor coil thermistor abnormality, Condensation temperature sensor abnormality"
 6753 "K abnormality - Transmit/receive error"
 6754 "K abnormality - Drain sensor abnormality, Float switch function"
 6755 "K abnormality - Drain pump abnormality"
 6756 "K abnormality - Coil frost/overheat protection"

6757 "K abnormality - System error"

6758 "K abnormality - Outdoor unit trouble, Indoor/outdoor communication error"

6761 "K abnormality - Room temperature thermistor abnormality"

6762 "K abnormality - Indoor coil thermistor abnormality, Condensation temperature sensor abnormality"

6763 "K abnormality - Transmit/receive error"

6764 "K abnormality - Drain sensor abnormality"

6765 "K abnormality - Drain pump abnormality"

6766 "K abnormality - Coil frost/overheat protection"

6767 "K abnormality - Outdoor unit trouble - Indoor/outdoor communication error"

6771 "K abnormality - High pressure abnormality, Low pressure abnormality"

6772 "K abnormality - Inner thermostat function, Discharge temperature abnormality, Shell thermostat function, Overcurrent protection"

6773 "K abnormality - Radiator plate thermostat function"

6774 "K abnormality - Outdoor thermistor abnormality"

6775 "K abnormality - Pressure sensor abnormality, Indoor/outdoor communication error"

6776 "K abnormality - Overcurrent shut-off"

6777 "K abnormality - System error"

6778 "K abnormality - Normal"

6779 "K abnormality - Refrigerant overcharge, Abnormal voltage, Abnormal CT sensor"

6800 "Communication error - Other communication errors"

6801 "Communication error - V-control communication error"

6810 "Communication error - UR communication error"

6811 "Communication error - UR communication synchronism not recover"

6812 "Communication error - UR communication hardware error"

6813 "Communication error - UR communication status bit detection error"

6820 "Other communication errors"

6821 "Other communication errors - Transmission line busy"

6822 "Other communication errors - No communication ACK"

6823 "Other communication errors - No response command"

6824 "Other communication errors - Receive data error"

6830 "Communication error - MA communication refrigerant address double setting error"

6831 "Communication error - No MA communication reception error"

6832 "Communication error - MA communication synchronism not recover"

6833 "Communication error - MA communication transmission/reception hardware trouble"

6834 "Communication error - MA communication start bit detection error"

6840 "Communication error - A control no indoor/outdoor communication/reception abnormality"

6841 "Communication error - A control indoor/outdoor communication synchronization recovery abnormal"

6844 "A control indoor/outdoor communication incorrect indoor/outdoor wiring connection, excessive number of indoor units (more than five units)"

6845 "Communication error - A control indoor/outdoor communication incorrect indoor/outdoor wiring connection (telecommunication, disconnection)"

6846 "Communication error - A control indoor/outdoor communication startup time exceeded"

7000 "System abnormality"

7100 "System abnormality - Total capacity error"

7101 "System abnormality - Capacity code error"

7102 "System abnormality - Connecting unit number excess"

7103 "System abnormality - Piping length setting error"

7104 "System abnormality - Floor height setting error"

7105 "System abnormality - Address setting over 254"

7106 "System abnormality - Attribute setting error"

7107 "System abnormality - Distributor setting error"

7108 "System abnormality - Ref. system setting error"

7109 "System abnormality - Connection setting error"

7110 "System abnormality - Ref. system connection/connection data unsettled"

7111 "System abnormality - I/O connection equipment not connected/remote controller sensor abnormality"

7112 "System abnormality - I/O type setting error"

7113 "System abnormality - Equipment unsettled"

7116 "System abnormality - Replace non-wash setting error"

7117	"System abnormality- Model identification setting error"
7130	"System abnormality - Different unit model error"
7131	"System abnormality- Mixed cooling only H/P connection error (Facility PAC)"
7132	"System abnormality - Multiple entries of operation performance (Facility PAC)"
7200	"System abnormality - Numeric values unsettled"
7201	"System abnormality - Numeric values unsettled"
73**	"System abnormality - LON-system equipment abnormality"

Note:

- The error codes list all the codes. Error codes that are not displayed with some TG-2000A systems are also listed.

(2) System error codes

The following is a list of the error codes and their meaning.

G-50A error

0003	"Communication error"
0008	"Communication error (PLC-G-50)"

PLC error

0003	"Communication error"
0006	"PLC diagnosis error"
0007	"PLC stop"

General equipment error (For both PLC and IC I/O signal)

0091	"General equipment error 1"
------	-----------------------------

IC I/O signal error

0090	" IC I/O signal error"
------	------------------------

Note:

- Displays the man-machine (integrated centralized control software TG-2000A), and G-50A, PLC and general equipment error codes by a number up to 4 digits long. The meaning is different from that of the air-conditioner unit error codes.

8.3 Filter Reset Operation

8.3.1 Automatic Status Display

This section describes the procedure when "Filter sign automatic display" (standard) of function setting was selected.

(1) Switch from Management screen to filter reset screen

[Procedure]

- 1) Select [Filter reset] button.

When the [Filter reset] function select button is clicked, the filter reset screen opens.
Select the target floor with the floor switching box.

(2) Description of filter reset screen

For the filter sign, the filter icon is displayed for the group icon.

*The filter sign is displayed only for the group concerned.

This is not compatible with the general equipment.



(3) Filter reset

[Procedure]

- 1) Select a group.

When a group displaying the filter sign is clicked, the filter reset screen opens.

To reset the whole floor, press the [Floor batch process] button.

- 2) Select the reset type.

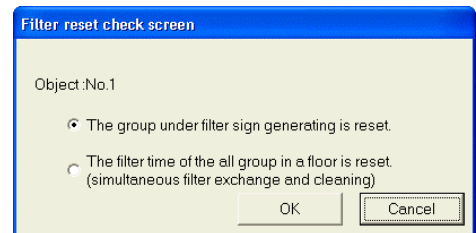
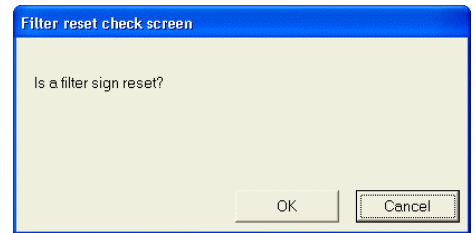
Selecting the [Floor-batch] button selects whether the unit in which the filter sign occurred or the units of all floors are reset.

* It is displayed only when All-floor is selected.

- 3) Select [OK] button.

When the [OK] button is clicked, the filter sign is reset.

* When the [Cancel] button is clicked, the filter sign screen is resumed without resetting the filter sign.



Maintenance Tip

- Always perform filter maintenance (cleaning, replacement, etc.) of the actual equipment before using this function to reset the filter sign.
- When the filter is reset after selecting all groups within a floor, the filter time is reset to "0" for the groups for which the filter sign is reset and for which the filter sign has not yet been set.

8.3.2 Manual Status Display

This section describes the procedure when "Filter sign manual display" (special) of function setting was selected.

(1) Switch from Management screen to filter reset screen

[Procedure]

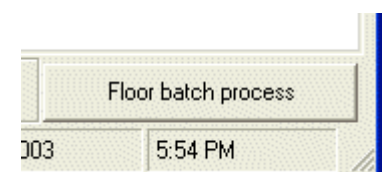
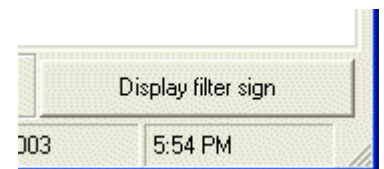
- 1) Select [Filter reset] button.

When the [Filter reset] function button is clicked, the filter reset screen opens.

Select the target floor with the Floor switching button.

- 2) Select [Filter sign display] button.

When the [Filter sign display] button located on the lower left of the screen is clicked, the filter sign is displayed with the filter maintenance information reflected. In this case, the display located on the lower left of the screen is changed to the [Floor-batch] button.



(2) Description of Filter reset screen

Same as section 8.3.1 (2).

(3) Filter reset

Same as section 8.3.1 (3).

8.4 Operation Time Display

The air-conditioner operation time is counted in a group unit and displayed.

Note:

- The "power apportioning billing" license must be registered in the centralized controller G-50A to use this operation time display function. If the license is not registered in the centralized controller G-50A, the cumulative operation time will not be displayed correctly. This operation time cannot be displayed if the charging function is set to "Off" on the man-machine's initial setting screen.
- This is not compatible with the general equipment.

(1) Switching from Monitor/Operation screen to Operation time screen

[Procedure]

- 1) Select the [Operation Time] button.

The Operation time screen opens when the [Operation Time] button is clicked. Select the target floor with the floor switching box.

(2) Explanation of Operation time screen

Group address
Displays the group address (G-50A No. - address).

Group name
Displays the group name.

Operation time
Displays the group operation time (unit: time).

Screen update button
The display can be updated with the latest information. The updated time is displayed at the Updated Time on the right of the screen.

Clear/Select All/Cancel button
Clears the operation time. Selects all objects to be cleared, or cancels the selection. Click the object group to select individual groups.

Output button
Prints or outputs the operation time data.

Group Address	Group Name	Cumulative Time (Hours)
1-001	Room 1 air-con	0
1-002	Room air-con 2	0
1-004	Room air-con 3	0
1-015	Room air-con 4	0
1-041	1-041	0
1-050	1-050	0
3-001	3-001	0
3-002	3-002	0
3-003	3-003	0
3-004	3-004	0
3-005	3-005	0
3-006	3-006	0

Note:

- Click the [Screen Update] button and update to the latest information when displaying the operation time. (This is because the set time update is carried out only once a day.)
- Once deleted, the operation time cannot be recovered.

(3) Operation time reset

[Procedure]

- 1) Select the group.

When the group to be reset is clicked on the screen, the group is selected and changes to blue. The selection is canceled when clicked again.

* All groups can be selected by clicking [Select All]. All selections can be canceled by clicking [Cancel].

- 2) Select the [Clear] button.

The operation time for the selected group is cleared when [Clear] is selected.

(4) Operation time data output

The operation time data can be printed or output to a file (CSV format).

[Procedure]

- 1) Select the [Output] button.

The Operation time output screen opens when selected.

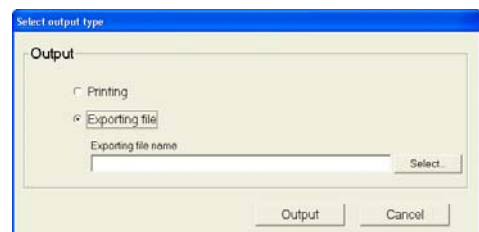
- 2) Select [Printer Output] or [File Output].

Click the [Printer Output] option button to print the data, and click the [File Output] option button to output the data to a file. When outputting to a file, input a file name, and click the [Select] button to select the storage destination.

- 3) Select the [Output] button.

All operation times for the displayed floor are output.

* If the [Cancel] button is clicked, the data is not output, and the Operation screen opens.



8.5 Abnormality Occurrence











8.5.1 Abnormality Display

It is possible to confirm the state of errors occurring on the Management screen at the lower part on the group icon or the monitor/operation screen, and on the screen of floor, block, whole buildings, and system equipment.

Equipment at which abnormalities can be detected:

Indoor unit, ventilation unit, outdoor unit, G-50A, remote controller, system remote controller, group remote controller, system controller, K-transmission converter, WHM, PLC, general equipment, DIDO controller, AI controller, PI controller

(1) Display when abnormality occurs

	Floor screen	Whole building screen	Block screen	System equipment screen
Indoor unit abnormality		"X" display * Group unit	"Abnormality" display * When there is an abnormal unit.	-
Error in PLC for general equipment		"■" display * General equipment unit	-	-
Error in general equipment for IC I/O signal		"■" display * General equipment unit	-	-
Error in measuring meter		"■" display (red) ※Measuring sensor unit	-	-
Outdoor unit abnormality		-	-	
G-50A abnormality	 * Object group	-	-	
PLC error		-	-	

There is a "Unit normal/abnormal" display on the monitor/operation screen. "Normal" or "Abnormal" blinks on the screen.



The displayed objects are G-50A, WHM, and other units (except the indoor unit, general equipment and AI controller).

* For units other than the indoor unit and general equipment, refer to the System equipment screen to find which unit is abnormal.

8.5.2 Abnormality Reset Operation

The abnormality reset operation can send an abnormality reset command to an abnormal unit.

When the cause of the error is not actually removed, however, the error is detected again even if the error is reset.

Equipment which can be reset:

Indoor unit, outdoor unit, remote controller, system remote controller, WHM, G-50A (self-detected error only)

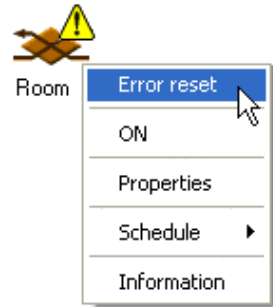
Note:

- It is unable to reset the G-50A communication error. (Except for communication errors detected by the G-50A itself)
- The error is completely reset for each G-50A.

(1) Abnormality reset method

[Procedure]

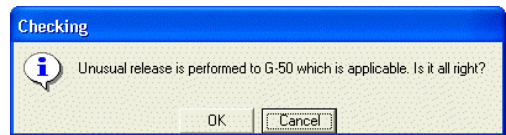
- 1) Select [Monitor/Operation].
When the [Monitor/Operation] function select button is clicked, the monitor/operation screen opens.
- 2) Select the object to be reset.
When the object to be reset is clicked, the menu screen opens.



Note:

- For a description of the underlined part, see par. "6.1 (2) Select the operation object" to be operated.

- 3) Click the [Error Reset] button.
When the Error reset is clicked, a check screen is displayed.
- 4) Select [OK] button.
When the [OK] button is clicked, the abnormality reset operation is performed.



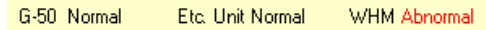
* When the [Cancel] button is clicked, the operation/ monitor screen is resumed without resetting the error.

8.5.3 PLC and Meter Troubleshooting

A meter abnormality is detected by the meter monitor when the connected meter fails or the transmission line is disconnected.

(1) Abnormality detection display

When a meter abnormality is detected, "Abnormality" appears at the "WHM" section in the system status display.



* The meter is displayed "WHM" such as a watt hour meter.

Note:

- The meter abnormal or normal state is updated periodically at the system status section on the Monitor/Operation screen.

(2) Abnormality display reset

Check the PLC (or MCT) or meter device and wiring, and remove the cause of the abnormality.

Note:

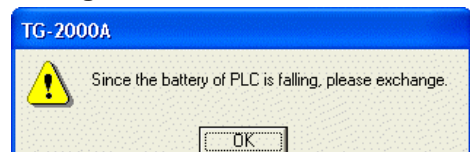
- The power apportioning billing function will be affected so pinpoint and remedy the cause as soon as possible.
- Refer to Chapter 8.6 for details on monitoring the meter's cumulative value.
- When a fault occurs in the PLC for general equipment, the cause must be pinpointed and remedied immediately. Failure to do so could prevent proper operation or monitoring.

(3) Battery voltage low abnormality display and troubleshooting

A warning appears on the screen when a drop in the PLC battery voltage is detected.

* The state is periodically monitored once a day.

Replace the PLC battery.



8.5.4 Warning Message Screen Display

The warnings and cautions displayed on the message screen and the remedy methods are explained in this section.

(1) Message: "There is the possibility of watt hour meter failure"

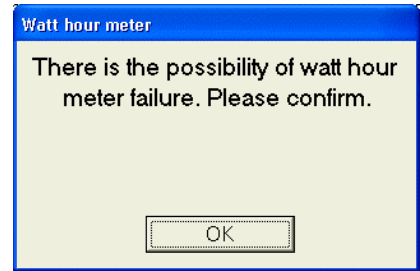
Setting conditions: When fault prediction function is valid.

Target: Charge apportioning WHM

Conditions for occurrence: When the electric amount has been 0kWh for three consecutive days even when the air-conditioner is running.

Remedy: Check the wire connections around the WHM.

Remarks : If the WHM's pulse output is 10kWh/pulse, this message may occur even when the wiring is correct.



Note:

- This "Fault prediction" can be invalidated on the "Apportion mode" screen of the billing system set-up.
When invalidated, a warning message will not appear, even if the watt hour meter fails.

(2) Message: "The free disk space of a trend output place drive has decreased. Please increase a free disk space."

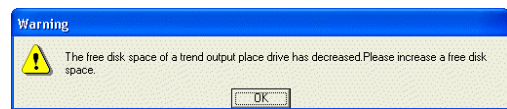
Setting conditions: When trend function is valid.

Target: Drive to which trend data is automatically output.

Conditions for occurrence: When HDD capacity drops below specified level.

Remedy : Increase the open space in the drive to which the trend data is automatically output.
Delete unnecessary trend data files, or change to another medium.

Remarks : The capacity at which the warning appears differs according to the system configuration.
(Range between 300MB and 700MB)



(3) Message: " This comment is the result of comparing of maintenance information and real system information. Please check if needed."

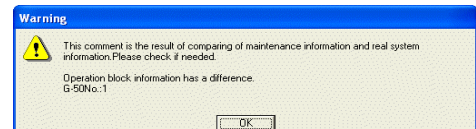
Setting conditions: Always under the following conditions.

- 1) When TG-2000A is started up.
- 2) When the setting details are sent to G-50A at shift from initial screen to Management screen.

Target: Information saved in system and G-50A system information

Conditions for occurrence: When there is a difference in the information saved in the system and the system information set in the G-50A.

Remedy : Depending on the displayed details and necessity, check the setting details or connection state, etc. If the details set in the integrated software TG-2000A are different, correct the settings, and then send them to the G-50A again.



Displayed details	Example of remedy
A group or clutch information has a difference.	Check whether there is a difference in the actual system and set information.
Charge system information has a difference.	Check whether there is a difference in the refrigerant system setting information and actual system. Check Whether the charge setting time zone settings are correct.
Energy monitoring system information on PLC has a difference.	Check whether the charge setting time zone settings are correct.
Operation block information has a difference.	Check whether there is a difference in the operation block setting information and actual system. Check whether all groups are set in the operation block.
Energy-saving information has a difference.	Check whether the energy saving and peak cut setting information differs from the actual operation.
G-50A of the abnormalities in communication exists.	Check the G-50A LAN connection or the power ON state.
There is PLC which-cannot communicate.	Check the PLC LAN connection or the power ON state.
The air conditioner monitor function cannot be used with this PLC for general equipment.	Check if the functions in the PLC for general equipment software being used differ from the functions set with the PLC for general equipment software.

Displayed details	Example of remedy
The peak cut function cannot be used with this PLC for general equipment.	Check if the functions in the PLC for general equipment software being used differ from the functions set with the PLC for general equipment software.
The general equipment status monitor function cannot be used with this PLC for general equipment.	Check if the functions in the PLC for general equipment software being used differ from the functions set with the PLC for general equipment software.
"It is updated from TG-2000A only" cannot be selected with this PLC for general equipment.	Since "It is updated from TG-2000A only" cannot be selected for the general equipment's operation and display with the PLC for general equipment software in use, cancel the check in-the "It is updated from TG-2000A only" box on the PLC for general equipment software's General Equipment Set-up screen.
The schedule function cannot be used with this PLC for general equipment.	Since "Schedule" cannot be set for the general equipment's operation and display with the PLC for general equipment software in use, cancel the check in the-"Schedule" box on the PLC for general equipment software's General Equipment Set-up screen.
More than nine general equipment cannot be controlled with this PLC for general equipment.	Since more than nine general equipment cannot be controlled with this PLC for general equipment software, invalidate the settings for the extra general equipment on the General Equipment Set-up screen. Make sure that more than nine general equipment are not actually connected to the PLC for general equipment.
Charge calculation error. Database is restored to the state before the error. (occurrence day:yyyy/mm/dd)	The data is normally forwarded to the next day, so just click "OK" button. However, if the result of per diem charge is required for liquidation, perform the remedial apportioning.

Remarks: If the details set in the integrated software TG-2000A and the actual operation match, send the settings on the initial setting screen, and then check.
The warning display screen will close when the "OK" button on this screen is pressed.
Operations and monitoring can be continued with the saved information.

(4) Display of equipments in error.

Error confirm button
Error can be confirmed with check the checkbox. New error is colored with yellow.

No.	Error confirm	Unit type	Origin address	Occurrence point	Error code	Alarm
1	<input type="checkbox"/>	G.E. (DC)	01-048-3	1-002	0130:Equipment error(3system error)	!
2	<input type="checkbox"/>	G.E. (DC)	01-048-4	1-003	0140:Equipment error(4system error)	!
3	<input type="checkbox"/>	Indoor unit, etc.	01-026	1-026	2503:Water system not operate due to drain sensor abnormality	!
4	<input type="checkbox"/>	Indoor unit, etc.	01-027	1-027	6607:Communication error -No ACK return	!
5	<input checked="" type="checkbox"/>	Indoor unit, etc.	01-028	1-028	6607:Communication error -No ACK return	!

Alarm stop button
The alarm can be stopped with this button.

Warning tone ON/OFF button
Warning tone is enabled or disabled with this button.

OK button
This screen can be closed with this button.

Setting conditions: When playing "regular warning tone" or "wav fail" is selected from the user setting.

Target : same as 8.5.1

Condition for occurrence : look at the display when abnormality occurs on the 8.5.1

Remedy : Check the setting code or connection status.

Remark : Selected "warning tone" from the user setting will be played at the same time with display appears.

Note:

- If "Does not play" is selected on the "User Setting 4" screen, the warning message will not appear, nor the warning sound will be played.
- If another error occurs in another system after "OK" is clicked, another error message will appear and the warning sound will play again.
(System:G-50A, Air-conditioner, WHM, PLC for general equipment, General equipment)
- Be aware of that when the volume is set to mute on Windows (OS), alarm does not beep.

[Operation Method]

To stop the warning tone

- Click the “stop warning tone” or “OK”.

To discriminate of the history

- Check the check box of error confirmation.
The checked history will be displayed white at the next time.

Stopping the error tone of arbitrary error code

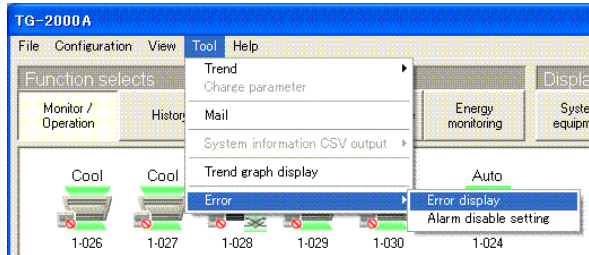
- Click the arbitrary error unit on the error tone field.

To delete the history

- Click the arbitrary history and [delete] button.

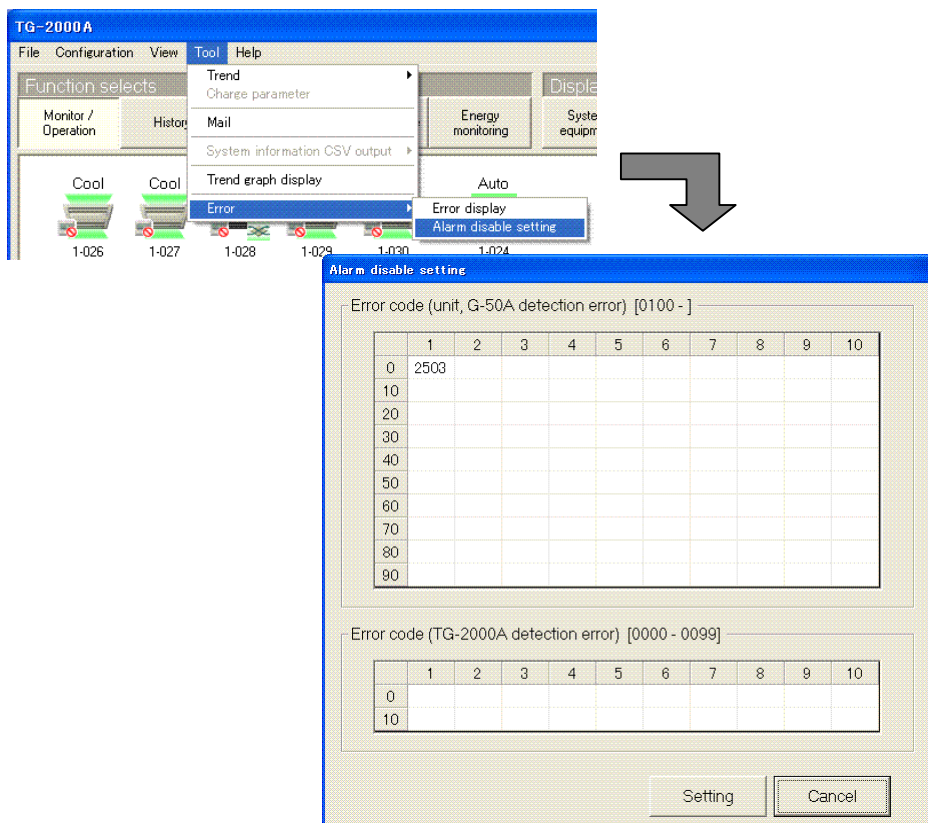
To display recall by manual operation

Pull down tool menu, select [error] and click [error display], then equipment in error will be displayed



To set up with or without warning tone from error code

Pull down tool menu, select [error] and click [alarm disable setting], then the screen of setting alarm disable will be displayed.



Setting the detection error of unit and G-50A.

- Enter the arbitrary error code (no less than 0100) into a blank mass at unit, G-50A detection error.
- When it is completed, click the setting button.

Setting the detection error of TG-2000A.

- Enter the arbitrary error code (within 0000~0099) into a blank mass at TG-2000A detection error.
- When it is completed, click the setting button.

NOTE

- The error code setting with this function is automatically reflected to the screen of the equipments in error.
 - The setting description of the screen of the equipments in error, also automatically reflect to the screen of setting alarm disable
 - The entered error code will be sorted automatically.
- Detection errors are able to enter maximum 100 on unit and G-50A, and maximum 20 on TG—2000A.

(5) Message: “Charge data error may have occurred.”

Setting Conditions: When the charging function is used.

Target: Performance data of the air conditioners that are collected by the TG-2000A.

Conditions for occurrence: At least one air conditioning unit's performance data remains in error for three consecutive days.

Remedy: Check to see if TG-2000A and G-50A are communicating normally. Contact the service provider if unable to identify the problem cause.

Remarks: The error message will disappear when the performance data is correctly received from the G-50A.

The charge will be calculated correctly and carried over to the next period.



Note: • The warning message will appear when TG-2000A automatically receives the performance data from G-50A (4:00-5:00) or when the performance data monitor is manually launched and the data are collected.

(6) Message: “There is G-50 into which the license of a WEB monitor is not registered.”

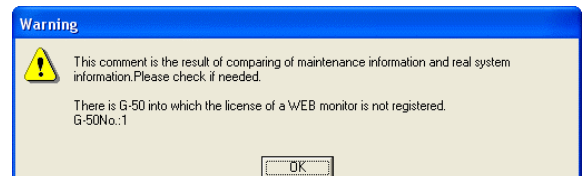
Setting Conditions: Normal

Target: Control screen

Conditions for occurrence: The license of a WEB monitor is not registered or XML communication is prohibited.

Remedy: Register the license of a WEB monitor into all G-50A.

Remarks: This message appears when the lisenca is not activated. Check the license status. If the license is not activated, register the license to enable monitoring/operation.



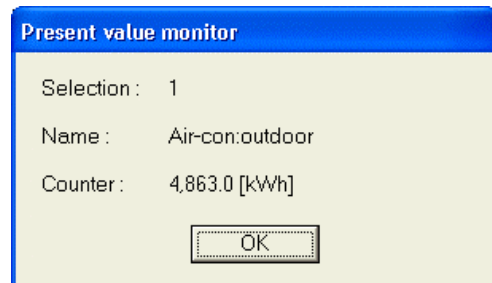
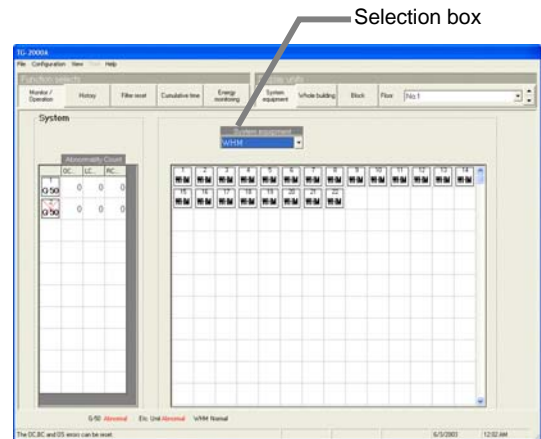
8.6 Meter Status Monitor

The meter integrated value monitor and monitor abnormal/normal status can be checked.

Meter integrated value monitoring method

[Procedure]

- 1) Select [Monitor/Operation].
When the [Monitor/Operation] button of the function selection buttons is selected, the monitor/operation screen is displayed.
- 2) Select the system equipment.
When the [System equipment] button of the display units buttons is selected, the equipment screen is displayed.
- 3) Select WHM from the selection field.
Select [WHM] from the G-50A and WHM selection field. All the WHM are displayed. When a WHM integrated value monitor is abnormal, a x is displayed at that WHM.
* The gas, water and calorific value meter are also displayed with the "WHM" icon.
- 4) Select the meter you want to monitor.
Click the meter who's WHM integrated value you want to display. The meter integrated value is displayed. When there is a monitor error, an error message is displayed.



Note:

- Meter integrated value monitoring (for PLC) is performed periodically. There may be a time lag of from 10 seconds to 1 minute from the time integrated value display was selected.
- On the present value of Measuring meter connected with MCP, there may be a time difference. (Maximum about one minute)
- The abnormality history of each meter can be displayed by selecting [History] at the function selection buttons.
- When meter is not connected, this function cannot be used.

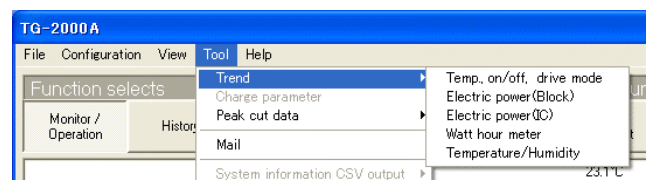
8.7 Trend Data Output

If the trend function is valid, the set temperature, intake temperature, WHM and apportioned electric amount trend data can be output in the CSV format.

Outputting the trend data

[Procedure]

- 1) Select [Trend] from the [Tool] menu.
Select [Tool] and [Trend] from the Management screen's menu.
- 2) Select the trend item.
The Trend output screen opens when the item is selected.



Item	Details
Temperature *1	Trend data for group set temperature, intake temperature, on/off, mode and error status. (The indoor unit with the minimum address is the main unit in the group.)
Apportioned electric amount (block)	Trend data for the charging block's apportioned electric amount (day unit)
Apportioned electric amount (indoor unit)	Trend data of apportioned electric amount for each indoor unit (day unit)
Watt hour meter *1	Trend data for watt hour meter (meter) cumulative electric amount (every hour)
Temperature/humidity	Trend data for temperature/humidity of MCT *2

*1: Output in one-day units (For 10-minute interval, output takes place at 00 minutes, 10 minutes and so forth every hour.) The one-hour interval (00 minutes every hour) data is output for the previous day to 31 days prior. (Temperature trends are output at interval selected from 2, 5, 10, 15, 30 or 60 minutes.)

*2: Output in one-day units. The interval can be selected from 1, 2 or 5 minutes.

* Items other than the "temperature, on/off and mode" items can be selected automatically for the charging function or the connected watt hour meter. The "temperature, on/off and mode" items can be set effectively with the user settings.

3) Select the various items.

Select or set the target to be output, the date (term), file export destination and file name.

Selecting item
Select the target for outputting the trend data.

Option
The maximum number of selectable items can be changed to the same number set on the previous version. ("Temperature" and "apportioned electric amount" items are displayed when the option is selected.)

Selecting term
Select the dates for outputting the data.

Output target selection
Reduce the number of the output target selection if an error message appears.

Export file name
Set the name of the folder and file to be output.

Select button
The folders to be output can be browsed.

Output button
The file is output when clicked.

Trend data output screen

4) Select the [Output] button.

After selecting each item, click the [Output] button. The message "Please wait" appears while the data is being output. This screen automatically closes when the output is completed.

Note:

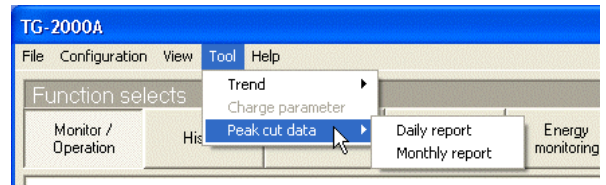
- Data in the following terms can be output with this trend output screen. If an unsupported date is selected, a file with no trend data outputs.
 "Temperature" "Watt hour meter": Data for last 31 days
 * The "Temperature" data for the previous day to 31 days before is one-hour interval data (00 minutes every hour).
 "Apportioned electric amount": Data for last 122 days
- The "Temperature" and "Watt hour meter" automatic output items are output to the automatic trend output folder once a day, and is saved for two years.
- When this function is used, please keep TG-2000A turned on.
The trend is uncollectible unless TG-2000A is operating.
- The trend output is not valid for the LOSSNAY group.

8.8 Peak Cut Status History Data Output

If the peak cut function is valid, the peak cut control status, and the history data including the 30-minute unit electric amount and one-day unit working electric amount can be output in the CSV format.

Outputting the peak cut status history data

- 1) Select [Peak cut data] from the [Tool] menu.
Select [Tool] and [Peak cut data] from the Management screen's menu.
- 2) Select the [Daily report] or [Monthly report] item.
The Trend output screen opens when the item is selected.



Item	Details
Daily report	History data showing the one-minute interval control level and 30-minute unit electric amount (day unit)
Monthly report	History data shown in one-day unit working electric amount (month unit)

- 3) Select the various items.
Select or set the dates (or month) to be output, file export destination and file name.

Selecting month
Select the dates or month to be output.

Export file name
Set the name of the folder and file to be output.

Select button
The folders to be output can be browsed.

Output button
The file is output when clicked.

Peak cut data output

- 4) Select the [Output] button.
After selecting each item, click the [Output] button. The message "Please wait" appears while the data is being output. This screen automatically closes when the output is completed.

Note:

- Data in the following terms can be output with this trend output screen. If an unsupported date is selected, a file with no trend data outputs.
"Daily report": Data for last 31 days
"Monthly report": Data for last 62 days
- These items are saved for two years in the automatic trend output folder.
- When a daily report is used, please keep TG-2000A turned on.
When the function of an automatic output is used, please keep TG-2000A turned on.

9. Air-Conditioning Energy Monitor

9.1 Charge Display Function

When the [Energy monitoring] button at the top left-hand side of the Management screen is clicked, this screen opens.

There are two types of monitoring screens: With WHM connection and Without WHM connection.

Without WHM connection : 2 displays for the outdoor and indoor units

... Proportionally divided power charge (manual input of the electric amount)

With WHM connection : 2 displays for charging block and WHM

... Proportionally divided power charge (Except manual input of the electric amount)

Note:

- This function cannot be used if the "Use charge function" is not selected by user setting. (The [Energy monitoring] button is not displayed either.)
- The various operations in this function will differ as explained below depending on whether "always connected to G50A system" or "connect when needed" is selected with the user settings. When using the direct read in of power value into computer function (RS-485 WHM), "connect when needed" cannot be selected, so use "always connected to G50A system".

When "always connected to G50A system" is selected

The data is collected from the G-50A and PLC and the apportionment is calculated once a day, and the previous month is automatically settled on the day following the settlement day. Thus, the TG-2000A must be connected and run 24 hours.

When "connect when needed" is selected

The data is collected from the G-50A and PLC, the apportionment is calculated, and the last month is settled at once when the TG-2000A is started up on the day after the settlement day. The last month's data can be collected and calculated manually by clicking the "Last month calc" button on the Air-conditioning charge screen. TG-2000A needs to be run only when necessary.

Note: Errors in the G-50A and PLC cannot be detected unless the TG-2000A is running. The data required for calculating the charges cannot be collected unless the G-50A and PLC are running correctly. Periodically confirm that these are running correctly.

- When the "Proportionally divided power charge" license number is not registered to the central controller G-50A, the air-conditioning charge function will not function properly.
- The Without WHM connection (manual input of the electric amount) air-conditioning charge (charge ratio) is temporarily calculated from the indoor unit capacity, parameters used, and charge unit cost, or it is the ratio found for each block. Since the electric amount used or charge is required separately, it cannot be used as it is.

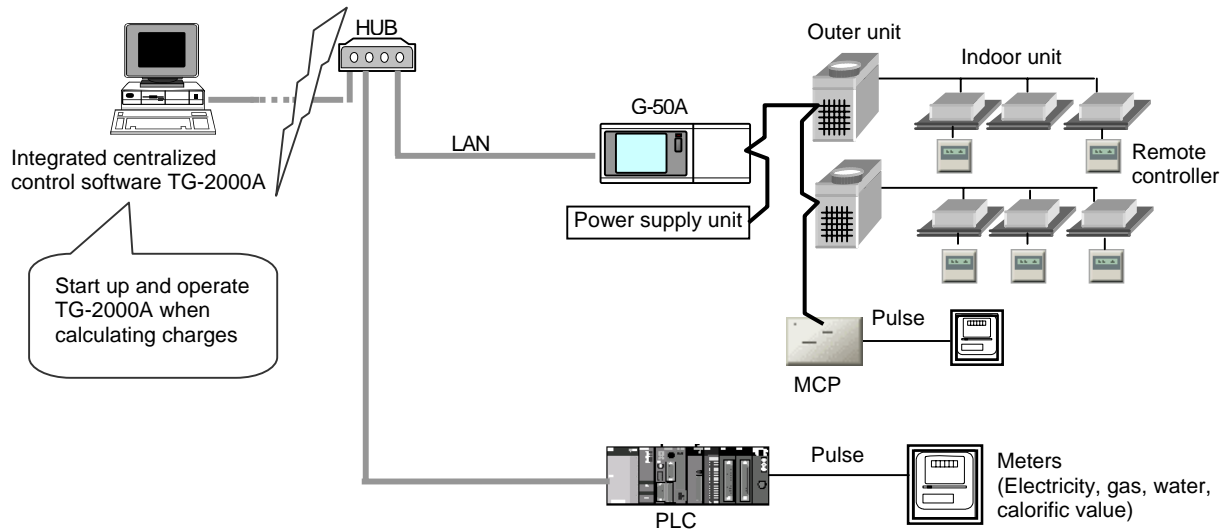
Proportional division parameter : Calculated from the capacity of each indoor unit and the parameter used.

Charge ratio : Ratio of value (given by multiplying the proportional division parameter by the unit cost) calculated for all the blocks

- When various items are not set during initial screen charge (system) setting, charges cannot be calculated normally.
- Date specification calculation does not include the standard charge.

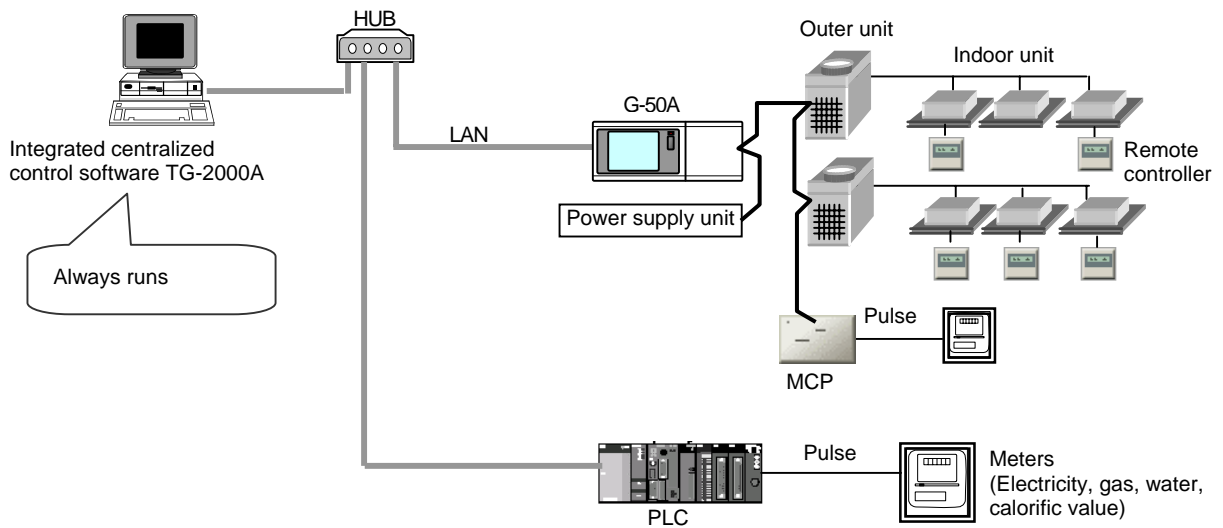
* For the charge system setting, refer to Site adjustment manual section "8.14 Energy Monitoring Set-up".

[Image of setup without constant connection (connect when needed)]



(Either PLC or MCP can be connected to the meters.)

[Image of setup in always connected to G50A system state]



(Either PLC or MCP can be connected to the meters.)

Function table

[Without WHM connection]

Charge comparison ratio display

Outdoor unit/Indoor unit buttons

Selects the outdoor unit charge or indoor unit charge.

Block name display

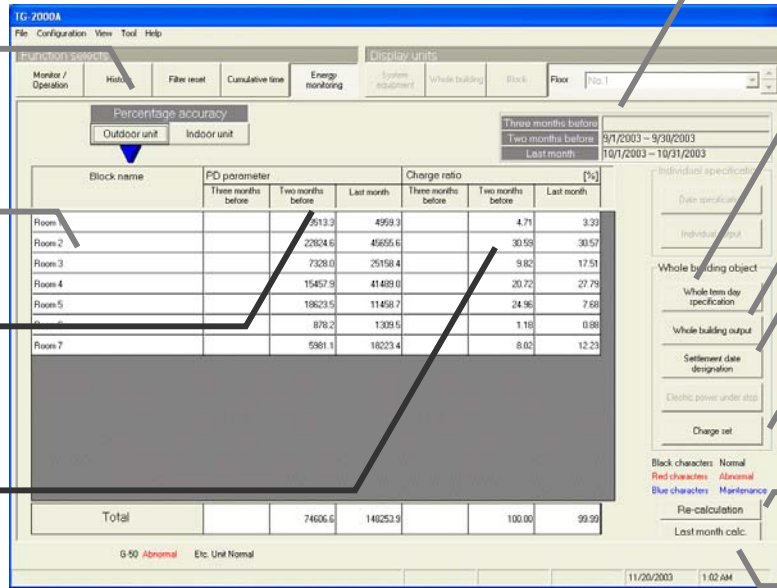
Displays the charging block name.

Display of the proportional division parameter

Displays the block's proportional division parameter.

Charge ratio display

Displays the block charge ratio.
Displays up to the second place after the decimal



Air-conditioning energy monitoring screen (For outdoor unit)

Settlement term display

Displays the settlement term.

Whole term day specification button

Designates the term and calculates.

Whole building output button

Outputs the settlement results for the whole building.

Settlement date designation button

Sets the settlement date.

Charge set button

Sets the charges, etc.

Recalculation button

Recalculates the settlement term.

Last month calc. button

Collects and calculates the last month's data.

[Description of displays and buttons]

Item	Details
Outdoor unit	Displays the block units air-conditioning charges (proportional division parameter, charge ratio) of the outdoor unit for up to three preceding months.
Indoor unit	Displays the block units air-conditioning charges (proportional division parameter, charge ratio) of the indoor unit for up to three preceding months.
Proportional division parameter display	Displays the block units proportional division parameters.
Charge ratio display	Displays the charge ratio of the block units air-conditioning charges.
Total display	Displays the monthly total of the proportional division parameter and charge ratio.
Whole building object	Sets, calculates and outputs the air-conditioning charge for the whole building (all the charging blocks).
1) Whole term day specification	Specifies the term day and calculates and outputs the air-conditioning charge (proportional division parameter and charge ratio) for all blocks.
2) Whole building output	Calculates and outputs the air-conditioning charge (proportional division parameter and charge ratio) for all blocks every month.
3) Settlement date designation	Specifies the air-conditioning charge settlement date.
4) Charge set	Calls the Air-conditioning energy monitoring basic set screen.
Recalculation	Recalculates the air-conditioning charges.
Last month calc.	Calculates the last month (collects and calculates data). (Only when "connect when needed" is selected.)

[With WHM connection]

Charge block/Meter buttons

Selects the charge block display or meter display.

Block name/meter display

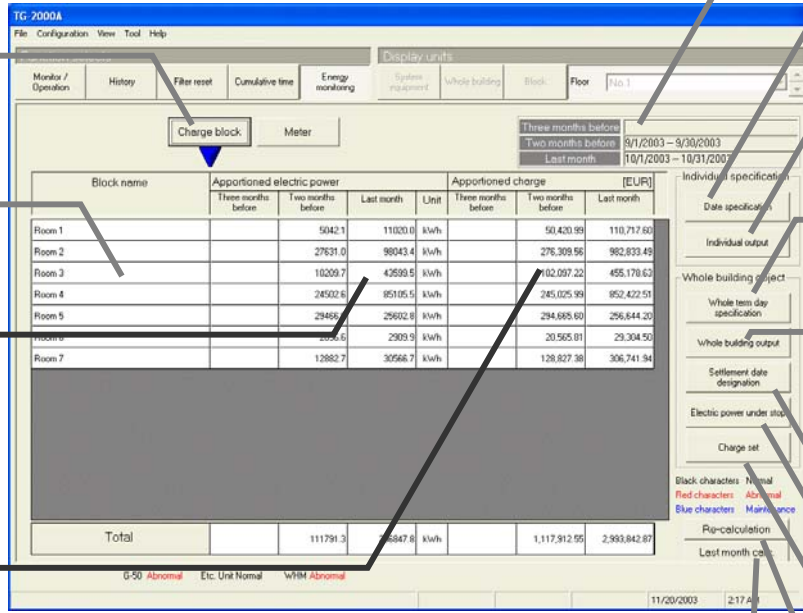
Displays the charge block name or meter name.

Apportioned electric power display

Displays the apportioned electric power for the block or meter. Displays up to the first place after the decimal point.

Air-conditioning charge display

Displays the air-conditioning charges for the block or meter.



Air-conditioning energy monitoring screen (For block)

Last month calc. button
Collects and calculates the last month's data.

Settlement term display
Displays the settlement term.

Individual output button
Outputs the settlement results in block or meter units.

Date specification button
Designates the term and calculates.

Whole term day specification button
Designates the term and calculates.

Whole building output button

Outputs the settlement results for the whole building.

Settlement date designation button
Sets the settlement date.

Electric power under stop button
Displays the electric power when stopped.

Charge set button
Sets the charges, etc.

Recalculation button
Recalculates the settlement term.

[Description of displays and buttons]

Item	Details
Block name display	Displays the block units air-conditioning charges for up to three preceding months.
Meter display	Displays the watt hour units air-conditioning charge for up to three preceding months.
Apportioned electric power display	Displays the Apportioned electric power for each unit.
Air-conditioning charge display	Displays the monthly air-conditioning charge: (electric use unit price + standard charge) for each unit.
Individual specification	Specifies an individual object and calculates and outputs the air-conditioning charge.
1) Date specification	Specifies the date and calculates and outputs the air-conditioning charge for the selected block.
2) Individual output	Calculates and outputs the air-conditioning charge for the selected block.
Whole building object	Sets, calculates and outputs the air-conditioning charge for the whole building.
1) Whole term day specification	Specifies the term day and calculates and outputs the air-conditioning charge for all blocks, or all watt hour meters.
2) Whole building output	Specifies the term day and calculates and outputs the air-conditioning charge for all blocks and all watt hour meters.
3) Settlement date designation	Specifies the air-conditioning charge settlement date.
4) Electric power under stop	Displays and outputs the electric power under stop.
5) Charge set	Calls the Air-conditioning energy monitoring basic set screen.
Recalculation	Recalculates the air-conditioning charges.
Last month calc.	Calculates the last month (collects and calculates data). (Only when "connect when needed" is selected.)

Maintenance Tip

- From Version 4.30, details such as the per unit and per charge unit items are compatible with the independent specification's date specification and whole building object's whole term day specification output details. The output format has changed due to this. A "Basic charge" item is provided, but since the date specification is not a one-month unit, this is blank.
- The details of the per unit and per charge unit settings follow the details set by the user.

9.2 Block and Meter Air-conditioning Energy Monitor Display

(1) Select the display object

1) Select the display object.

[Without meter connection]

Select the display object with the [Outdoor unit] or [Indoor unit] button at the top left-hand side of the screen. The display object is only Block.

[With meter connection]

Select the display object with the [Charge block] or [Watt hour meter] button at the top left-hand side of the screen.

(2) Display color

Characters color

- Black characters : Normal
- Red characters : Abnormal
- Blue characters : Maintenance

* The meter and gas meter, etc., are included in the meters.

Block name	Appportioned electric power	Appportioned charge	Date specification
Floor 1	40031.0	40031.0	24.99
Floor 2	13640.0	13640.0	0.00
Floor 3	13640.0	13640.0	0.00
Floor 4	13640.0	13640.0	0.00
Floor 5	13640.0	13640.0	0.00
Floor 6	13640.0	13640.0	0.00
Floor 7	13640.0	13640.0	0.00
Floor 8	13640.0	13640.0	0.00
Floor 9	0.0	0.0	0.00
Floor 10	40031.0	40031.0	24.99
Total	103640.0	103640.0	100.00

Air-conditioning charge display (for indoor unit)

Note:

- The proportional division parameter, charge ratio, apportioned electric power, apportioning charge, etc. displays are the values with the undisplayed digits raised to the next higher digit. The total is the total of the displayed values.
- When the maintenance function was used to change and recalculate the proportional division parameter value or apportioned electric power, the characters turn to blue.
- The charging block consists of control system blocks.
- The individual object is valid only for the With WHM connection.
- The air conditioning charges are displayed in red while the TG-2000A's billing process is stopped. When using the WHM with PLC connected, the charge apportioning will be carried over to the next day, but the TG-2000A power must be checked. Remedial apportioning is required when using the RS-485 WHM.

Reference)

- For a description of the maintenance function, refer to Site Adjustment manual section "9.2 Maintenance of Charge Data".
- For a description of the recalculation function, refer to section "9.6 Recalculate the Air-conditioning Charge".

Block name	Appportioned electric power	Appportioned charge	Date specification
Floor 1	68672.6	68672.6 kWh	1,373,847.00
Floor 2	20176.4	20176.4 kWh	507,538.00
Floor 3	20176.4	20176.4 kWh	507,538.20
Floor 4	20176.4	20176.4 kWh	507,538.20
Floor 5	20176.4	20176.4 kWh	507,538.20
Floor 6	20176.4	20176.4 kWh	507,538.20
Floor 7	20176.4	20176.4 kWh	507,538.20
Floor 8	0.0	0.0 kWh	0.00
Floor 9	0.0	0.0 kWh	0.00
Floor 10	68672.6	68672.6 kWh	1,373,847.00
Total	312871.2	312871.2 kWh	6,341,773.00

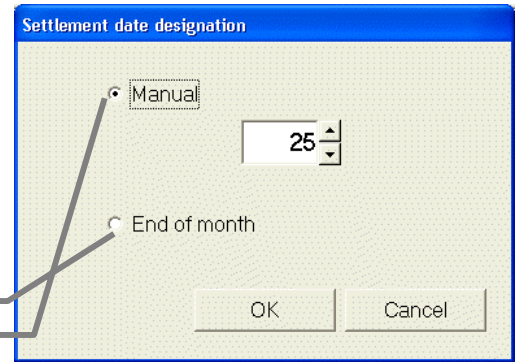
Air-conditioning charge display (for watt hour meter)

9.3 Air-conditioning Charge Output

(1) Set the automatic output function

[Procedure]

- 1) Select [Settlement date designation] button.
When the [Settlement data designation] button at the bottom right-hand side of the screen is clicked, the settlement of date designation screen opens.
- 2) Specify the settlement date.
End of month: click [End of month].
Other than the end of month: click [Manual].
Set the date by clicking the “▲/▼” buttons.



* Values can be directly input from the keyboard.

Settlement date designation display

Note:

- The air-conditioning charge for the month is settled on the next day for the settlement date (05:10 and after) for printing or file output automatically (06:45 and after).

Maintenance Tip

- To use the air-conditioning charge automatic output function, set energy monitoring automatic output of the user settings.
- Select “Air-conditioning output processing” from “Standard”, “Items for every unit”, and “Items for unit out of normal working hours”. (For more information, refer to Site Adjustment manual section “8.3 User Settings”.)

(2) Description of functions

1) Individual air-conditioning charge output

When the Air-conditioning energy monitoring screen is block display, selects and outputs the unit block and when the Air-conditioning energy monitoring screen is watt hour meter display, selects and outputs the unit watt hour meter.

Date specification : Specifies the term day and calculates and outputs the air-conditioning charge.

Individual output : Selects 1 month before, 2 months before, or 3 months before and outputs the air-conditioning charge in month units.

2) Whole building air-conditioning charge output

[Without meter connection ... Proportionally divided power charge (manual input of electric amount)]

* The meter and gas meter, etc., are included in the meters.

Specifies all blocks with the following items selected and outputs the air-conditioning charge.

Whole term day specification : Specifies the term day and calculates and outputs the air-conditioning charge.

Whole building output : Selects last month, 2 months before, or 3 months before and calculates and outputs the air-conditioning charge in month units.

[With meter connection]

Specifies all blocks or watt hour meters and outputs the air-conditioning charge.

Whole term day specification : Specifies the term day and calculates and outputs the air-conditioning charge.

Whole building output : Selects last month, 2 months before, or 3 months before and calculates and outputs the air-conditioning charge in month units.

Maintenance Tip

- When using this function to print, set “Printer setting” to “Printer” by user setting.

(3) Individual air-conditioning charge output

Set the Air-conditioning energy monitoring screen to

- Output in block units: Block display
- Output in meter units: Meter (Watt hour meter) display.

Output the air-conditioning charge by specifying the term day.

[Procedure]

- 1) Select date specification.
When the [Date specification] button of the "Individual specification" at the right-hand side of the screen is clicked, the date specification set screen opens.
- 2) Select the object to be output.
Click the object box and click the block or meter (watt hour meter) to be output.
- 3) Specify the date.
Specify the date by clicking the "▲/▼" buttons.
- 4) Select [OK] button.
OK : Accepts the changes and advances to the next set screen.
Cancel : Ignore the changes and returns to the Air-conditioning energy monitoring screen.
- 5) Check the calculation contents.
The setting in 1) to 3) displays the object, date, proportional division parameter, and charge ratio.
* Check the display contents.
- 6) Select [Output] button.
After checking the output contents, click the [Output] button.

Date specification set screen

Date specification calculation result screen

Output : Accepts the changes and advances to the Output type set screen.

* The set details are invalidated when the [Cancel] button is clicked on.

The above ends date specification calculation and output setting.

Note:

- The underlined "Output type set" screen is used in common with other functions. For more information, refer to section "9.3 (5) Output type setting".

Output the air-conditioning charge by specifying last month, 2 months before or 3 months before

[Procedure]

- 1) Select individual specification.
When the [Individual output] button of the "Individual specification" at the right-hand side of the screen is clicked, the individual output set screen opens.
- 2) Select the object to be output.
Click the object box, and click the block or watt hour meter to be output.
- 3) Specify the output month.
Specify the term by clicking the month to be output.
- 4) Select [Output] button.
After setting the output object and month, click the [Output] button.

Individual output set screen

Output : Accepts the changes and advances to the Output type set screen.

* The set details are invalidated when the [Cancel] button is clicked on.

The above ends individual output setting.

Note:

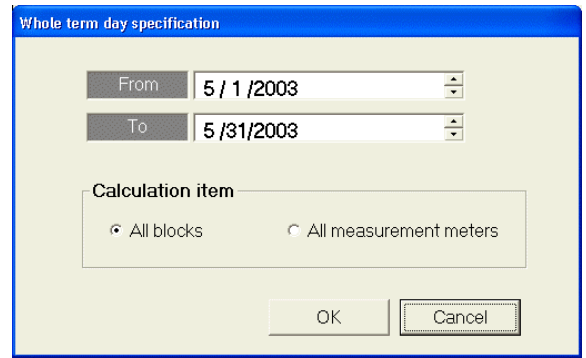
- The underlined "Output type set" screen is used in common with other functions. For more information, refer to section "9.3 (5) Output type setting".

(4) Output whole building air-conditioning charge

Output the air-conditioning charge by specifying the term

[Procedure]

- 1) Select Whole term day specification.
When the [Whole term day specification] button of the "Whole building object" at the right-hand side of the screen is clicked, the Whole term day specification set screen opens.
- 2) Select the object to be output.
Click All Blocks or All measurement meters.
- 3) Specify the term day.
Specify the term day by clicking the "▲/▼" buttons.
- 4) Select [OK] button.
After specifying the output object and term day, click the [OK] button.
OK : Accepts the changes and advances to the next set screen.
* The set details are invalidated when the [Cancel] button is clicked on.
- 5) Check the calculation result.
When the setting in 1) to 3) displays the object, term, proportional division parameter, charge ratio, or the apportioned electric power and apportioning charge.
* Check the display contents.



Whole term day specification set screen

Block name	Apportioned electric power	Unit	Apportioned charge EUR
Room 1	148.9	kWh	563
Room 2	155.1	kWh	590
Room 3	173.9	kWh	645
Room 4	167.2	kWh	643
Room 5	222.4	kWh	872
Room 6	234.7	kWh	926
Room 7	849.9	kWh	2,219

Whole term day specification calculation result screen

Note:

- For Without WHM connection proportionally divided electric charge (manual input of the electric amount), the calculation value for the object (outdoor unit or indoor unit), which is displayed when the [Whole term day specification] button is clicked, is displayed at first. When the "Indoor unit" or "Outdoor unit" is clicked, the display object is changed. In this case, the value is output for both cases.

- 6) Select [Output] button.

Output : Accepts the changes and advances to the Output type set screen.

* The set details are invalidated when the [Cancel] button is clicked on.

The above ends whole term day specification calculation and output setting.

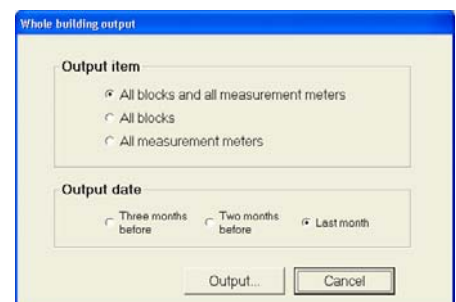
Note:

- The underlined "Output type set screen" is used in common with other functions. For more information, refer to section "9.3 (5) Output type setting".

Output the air-conditioning charge by specifying last month, 2 months before, or 3 months before

[Procedure]

- 1) Select Whole building output.
When the [Whole building output] button of the "Whole building object" at the right-hand side of the screen is clicked, the Whole building output set screen opens.
- 2) Select the object to be output.
Click All blocks, All measurement meters, or All blocks and all measurement meters.
- 3) Specify the output month.
Specify the term by clicking the month to be output.



Whole building output

4) Select [Output] button.

Output : Accepts the setting and advances to the Output type set screen.

* The set details are invalidated when the [Cancel] button is clicked on.

The above ends whole building output setting.

Note:

- The underlined Output type set screen is used in common with other functions. For more information, refer to section "9.3 (5) Output type Setting".
- When the "All blocks and all measurement meters" output item is selected, the data will be output to one file.

(5) Output type setting

The following operations are necessary at output functions (3) and (4) above.

[Procedure]

1) Select the output type.

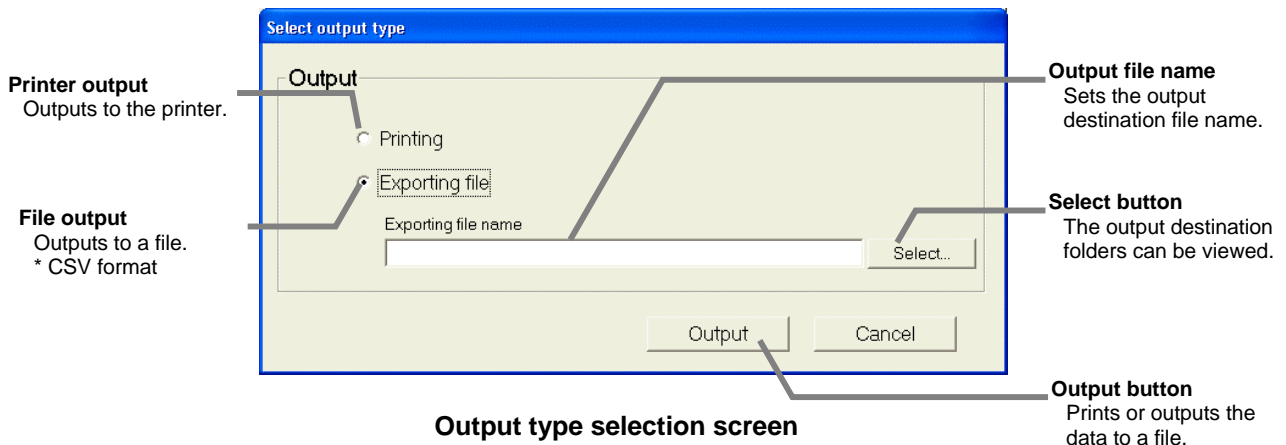
The output type is displayed.

To print, click [Printing output] and to output a file, click [Exporting file] and input the file name.

2) Select [Output] button.

When the [Output] button is clicked after selecting the output method, the output processing is executed.

* If the [Cancel] button is clicked in this case, this setting is invalidated, and the screen returns to the Air-conditioning energy monitoring screen.



9.4 Air-conditioning Charge Basic Setting

Set the basic charges, weekly charges and annual charges, etc., used for the power apportioning billing function this integrated centralized control software (TG-2000A) system.

Maintenance Tip (Caution):

Before changing the settings, settle the account to the previous day (whole designated date), and record the results by printing or writing them down. The charge apportionment is not calculated correctly if the account is not settled.

The settlement for the current month is: a) + b) + basic charges.

- a) Day after settlement to previous day → Whole designated date settlement
- b) Current day to next settlement day → Whole designated date settlement

There are cases when the changed day cannot be calculated correctly.

* Refer to the Management Manual "9.3 Output of Charge Air-conditioning" for details on setting the designated date.

Set the air-conditioning charge basic setting.

[Procedure]

- 1) Select [Charge set].

When the [Charge Set] button at the lower right of the Air-conditioning charge screen is clicked, the Password input screen opens.

- 2) Input the password.

Input the user maintenance password and click on the [OK] button. The Charge setting screen opens.

(For RS-485 WHM)

(For PLC WHM)

Password setting
Set the password (for maintenance user).

Basic charge
Set the basic charge for the block and meter (WHM).

Season period
Set the validity of season periods and the applicable periods.

Weekly charge
Set the time zone for each day, and the charge unit for the week.

Annual charge
Set the time zone pattern, and the applicable dates. The corresponding charges set for the weekly charges are used for the charge unit.

Meter charge unit
Set the charge unit used for the meters other than the WHM. The time zones set for the annual charges are used for the time zones.

Settlement data designation
Settlement date setting for every month.

Setting complete button
Select when all items have been set.

Charge set

Currency unit: EUR Change...

Standard charge: [There is no setting data.] Change...

Seasonal period: [There is no setting data.] Change...

Weekly charge: [Electric unit price for charge] Change...

Annual charge: [There is no setting data.] Change...

Measurement meter unit: [There is setting data.] Change...

Settlement data designation: [End of the month] Change...

Find

Standard charge, seasonal period, unit price for charge and time zone are set up.

3) Select and set each setting item.
* Refer to this chapter for details on setting each item.

4) Select [OK] button.
At the end of basic setting, click the [OK] button.
* When the [Cancel] button is clicked, this setting is invalidated.

Note:

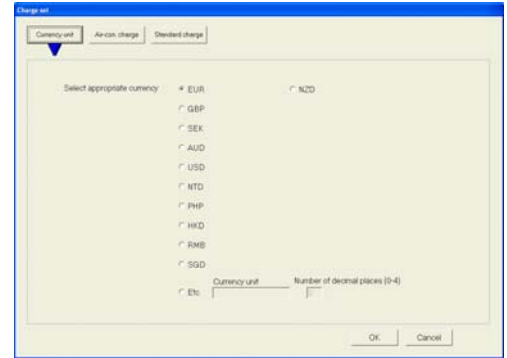
- The "Basic charge" and "Meter charge unit" functions cannot be used with power apportioning billing (manual input of electric amount).

[Using the RS-485 WHM]

Set the Currency unit

[Procedure]

- 1) Click the [Currency unit] button.
Click the [Currency unit] button in the Charge Set screen. The currency unit set screen opens. This screen is also displayed when the currency Set screen is opened.
- 2) Select the currency unit to be used.
Click the option box of the currency unit to be used. Otherwise, in "Etc." column, set a currency unit (9 characters) and the number of digits to be displayed after the decimal point (0 to 4).



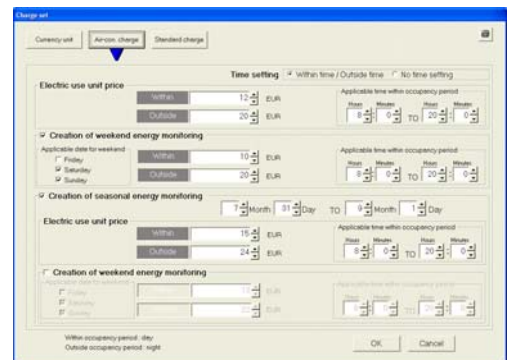
Currency unit set screen

Set the electric use unit price

Set the electric use unit price. One charge system can be selected from daytime/nighttime, weekend, seasonal charge, etc.

[Procedure]

- 1) Select the charge system to be used.
Set the charge system by clicking the option button at the charge system you want to use.
- 2) Select the unit price and applicable time or applicable day of the week.
Select the unit price, applicable time, applicable date, or applicable day of the week in accordance with the set charge system.
Some of the data can also be input from the keyboard.



Charge set

Note:

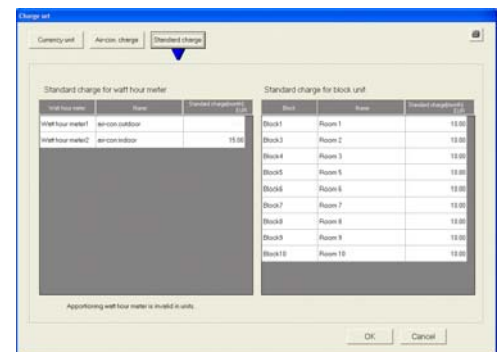
- Within a time (daytime) setting cannot span days.
- One within a time (daytime) setting per day is possible.

Set the standard (fixed) charge

Block units and watt hour meter units standard charge (per month) can be set. However, for standard charge in watt hour meter units, only the watt hour meter unit charge object (K controller, A controller, OA processing unit, etc.) can be set.

[Procedure]

- 1) Click the [Standard Charge] button.
When the [Standard Charge] button on the Charge Set screen is clicked, the standard charge set screen opens.
- 2) Set the standard charge.
Set the standard charge in watt hour meter or block units. For watt hour standard charge, only charge in watt hour meter units is the object.
Standard charge can be input from the keyboard by clicking with the cursor.
Clicking the standard charge allows the value to be input from the keyboard.



Standard charge set screen

Note:

- When there is no WHM connection the watt-hour standard charge cannot be set.

[Using the PLC WHM]

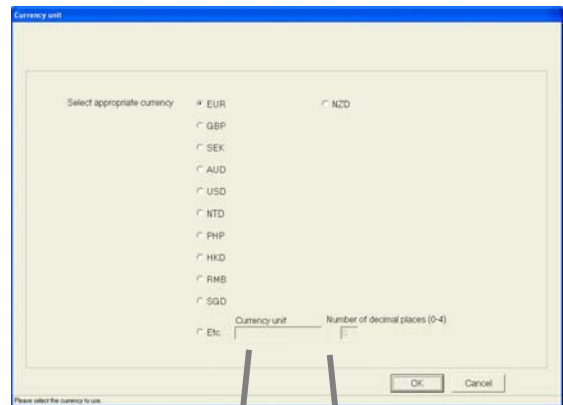
(1) Currency unit setting

Set the current unit to be used.

Set the Currency unit

[Procedure]

- 1) Click the currency unit [Change] button.
Select the currency unit [Change] button on the Charge Set screen to open the Currency Unit screen.
- 2) Set the currency unit.
Select the currency unit from the list.
If the required currency unit is not displayed in the list, select "Etc.", and enter the currency unit in the [Currency Unit] field.
Enter the number of decimal places in the [Number of decimal places (0-4)] field.
- 3) Select the [OK] button to end the settings.
* If the [Cancel] button is clicked on, the settings will be canceled and the Charge Set screen will open.



Currency unit setting screen
Currency unit setting Number of decimal places

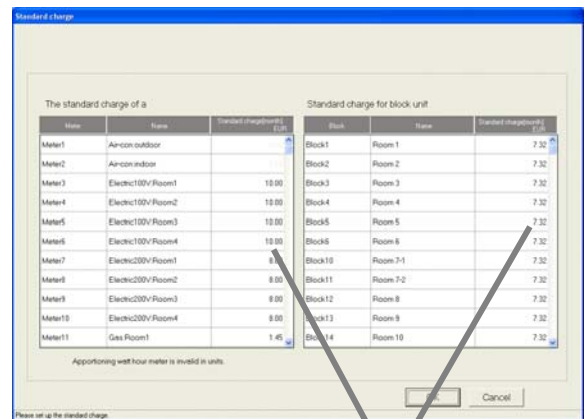
(2) Set the basic charges

Set the basic charges (monthly charges for the block unit and meter unit).

Set the basic charges

[Procedure]

- 1) Select the basic charge [Change] button.
Select the basic charge [Change] button on the Charge Set screen to open the Basic Charge screen.
- 2) Set the basic charges.
Input and set the basic charge in the meter or block unit.
* The basic charges cannot be set for the watt hour meter used for the air conditioner unit.
- 3) Select the [OK] button
* If the [Cancel] button is clicked on, the settings will be canceled and the Rate Setting screen will open.



Basic Charge Setting screen
Basic charge
Set the basic charge (monthly unit) for the block and meter unit.

Note:

- This setting screen does not appear when using the power apportioning billing (manual input of electric amount) without WHM connected.

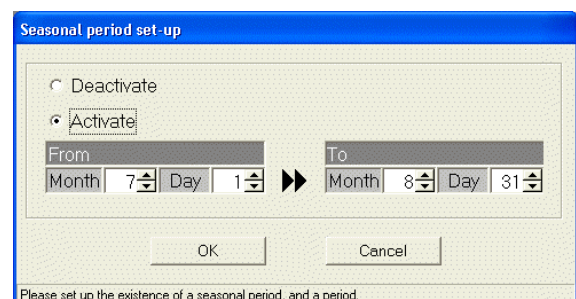
(3) Set the season interval

Set the applicable period when using the season charges.

Set the season period

[Procedure]

- 1) Select the season period [Change] button.
Select the season period [Change] button on the Charge Set screen to open the Season Period Setting screen.
- 2) Set the validity of the season setting and the period.
Select the validity of the seasonal charge setting, and if valid, set the period.



Season Period Setting screen

3) Select the [OK] button to end the settings.

- * If the [Cancel] button is clicked on, the settings will be canceled and the Charge Set screen will open.

Note:

- Set the validity of season and the period on this Season Period Setting screen. The season period charge units are set with the weekly charge settings.

(4) Weekly charge setting

Set the weekly charge unit and charge time zone. Up to five charge units, and up to ten charge time zones per day can be set. The charge unit can be set for the normal system and season period system.

Set the charge unit and charge time zone.

[Procedure]

1) Select the weekly charge [Change] button.
 Select the weekly charge [Change] button on the Charge Set screen to open the Weekly Rate Setting screen.

2) Select the day to be set.
 Click on the day to be set, and then select the [Set] button in the submenu. The Time Zone Setting screen appears.

3) Set the charge unit and charge time zone.
 Set the start and end times of the time zone, and select the charge unit.

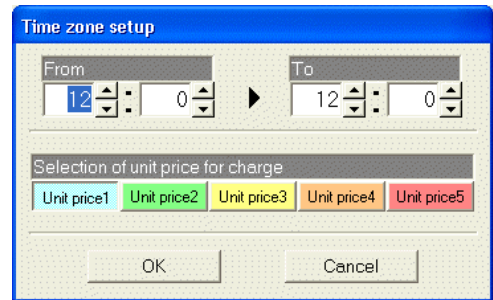
4) Select the [OK] button on the Time zone setting screen.
 After setting the charge unit and time zone, select the [OK] button on the Time Zone Setting screen.

- * The settings can also be input from the keyboard.
- * Repeat steps 2) to 4) and set all days.
- * If there is a season period setting, set the charges for both the normal and season operations. (Switch between the [Normal Charge] and [Season Charge] buttons.)

5) Set the charge unit.
 Set the charge units in charge units 1 to 5. The units can be input from the keyboard.

- *Set only the charge units to be used. When using season charges, also set the charge units for these.

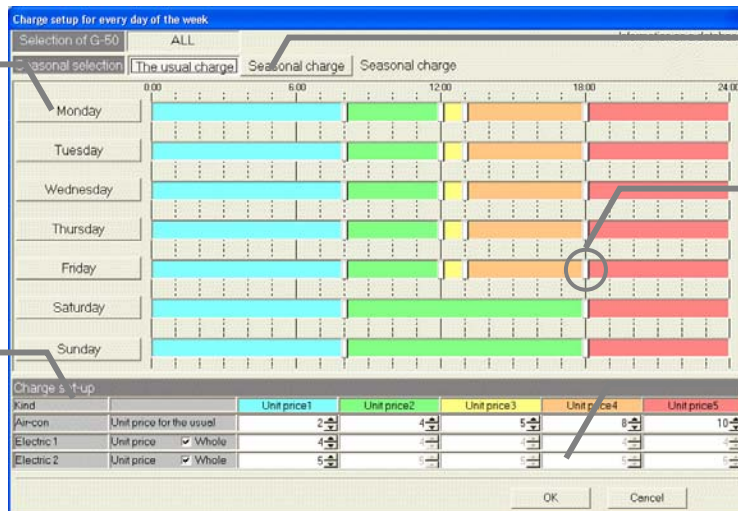
6) Select the [OK] button to end the settings.
 * If the [Cancel] button is clicked on, the settings will be canceled and the Charge Set screen will open.



Time Zone Setting window

Day button
 The Set, Cancel, Copy, Paste menu appears when clicked.

Charge setting
 Set the charge units for the WHM.



Normal charge/Season charge buttons
 Switch between the Normal charge and Search charge screens.

Time zone delimiter mark
 Shows the time zone delimiter. The delimiter mark can be dragged and moved. (10-minute increments.)

Charge unit
 Set the charge unit

Weekly Charge Setting window

Note:

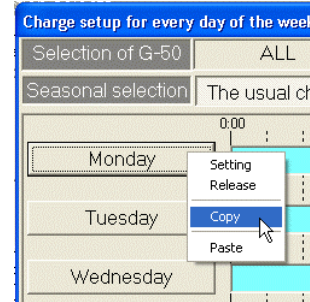
- If there is an open field (including a 0 value) in the setting items, a caution appears. Check the settings.
- The weekly charges can also be set from the Management screen.
- As the default, the time zone only for the charge unit 1 is set. The default charge unit is 0.
- The air-conditioning charge's "charge percentage" is calculated using the charge unit set on this screen, even for the power apportionment billing (manual input of electric amount) function (*). Always set the charges. *: Power apportionment billing function without WHM connected.
- The charge units are also used for the annual charge settings, so take care when making any changes.

Copying, pasting and deleting charge time zones

Copy, paste or delete the charge time zones.

[Procedure]

- 1) Select the day button.
When the day button on the Weekly Rate Setting screen is opened, a submenu opens.
- 2) Select the [Copy], [Paste], [Delete] buttons.
The details set in the day's time zone can be copied, pasted or deleted.



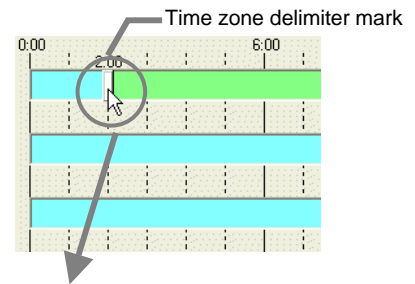
Item	Details
Copy	The details set for that day's time zone are copied when the [Copy] button is clicked.
Paste	The copied time zone settings are pasted when the [Paste] button is clicked.
Delete	The details set for that day's time zone are deleted, and only the default time zone setting in charge unit 1 is set when the [Delete] button is clicked.

Change the pattern

Use this function to change the set pattern.

[Procedure]

- 1) Drag the time zone delimiter mark.
The time zone delimiter time can be moved by dragging and moving the delimiter mark. The time can be moved in 10-minute increments.

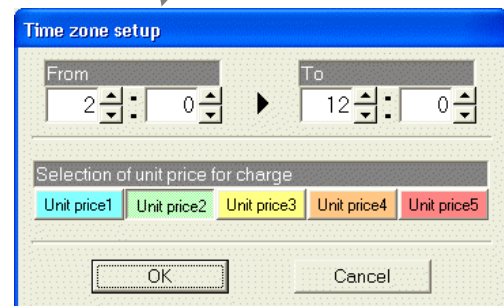


Change the charge unit

The time zone charge units in a set pattern can be changed.

[Procedure]

- 1) Select the time zone.
The Time Zone Setting window opens when selected.
- 2) Select the charge unit.
Click on the charge unit to be changed.
- 3) Select the [OK] button after making changes.



(5) Annual charge setting

The charge time zone for days that do not apply to the weekly charge settings, such as holidays and summer vacation, can be set in the annual charge time zone. The charge time zone for up to 50 days up to 24 months (including current month) can be set in advance. To set the annual charge zones, first set the charge zone patterns (up to five in patterns 1 to 5). Then, assign patterns to days such as the holidays or summer vacation. The values for the weekly charge zones are used so the charge units do not need to be set.

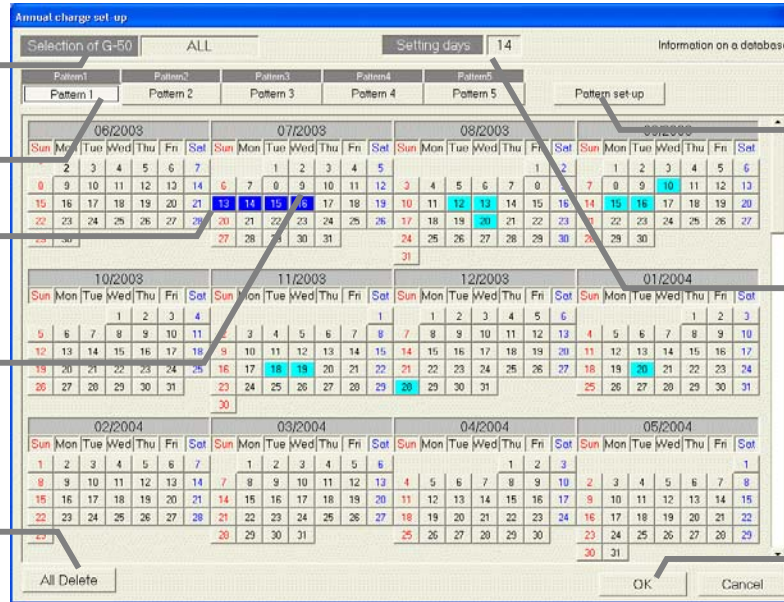
Object display
Displays the display object.

Pattern buttons
Buttons for the five patterns.

Pattern setting/cancel
When the date is clicked, the selected pattern can be set or canceled.

Setting state display
The date for which annual charges are set is displayed in blue, dark gray, light gray or light blue.

All Cancel button
All annual charge settings can be canceled.



Pattern Setting/Change button
The charge pattern can be set or changed.

No. of days set in year display
The number of days for which annual charges are set are displayed.

OK button
Click when finished.

Annual Charge Setting screen

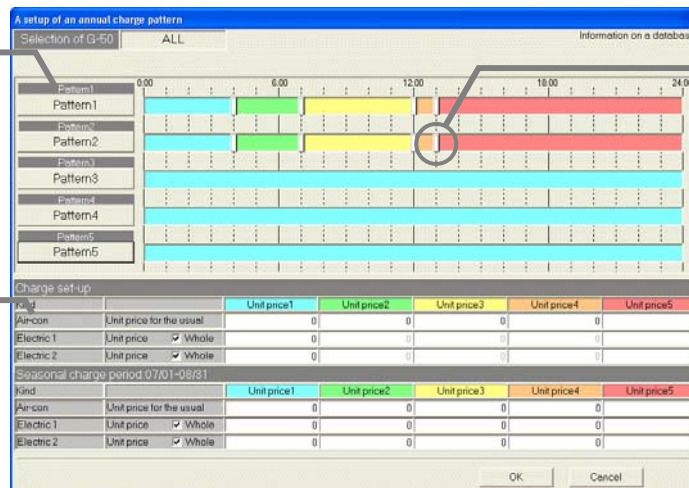
Set the pattern and charge time zone

[Procedure]

- 1) Select the annual charge [Change] button.
Select the annual charge [Change] button on the Charge Set screen to open the Annual Charge Setting screen.
- 2) Select the [Pattern Set/Change] button.
Select the [Pattern Set/Change] button on the Annual Charge Setting screen to open the Annual Charge Pattern Setting screen.
- 3) Set the charge unit and charge time zone.
Set the start and end times of the time zone, and select the charge unit.
* The settings can also be input from the keyboard.
- 4) Select the [OK] button on the Time Zone Setting window.
After setting the pattern charge time zone, select the [OK] button on the Time Zone Setting screen.
* The settings can also be input from the keyboard.
* Repeat steps 2) to 4) and set the required patterns.

Pattern button
Up to five patterns can be set for the annual charges. When the pattern button is clicked, the Set, Cancel, Copy, Paste, Set Pattern Name menu opens.

Charge unit display
Displays the details set for the charge unit.



Time zone delimiter mark
Shows the time zone delimiter. The delimiter mark can be dragged and moved.

Annual Charge Pattern Setting screen

5) Select the Pattern button.

Click and select the button for the time zone pattern to be set.

6) Select the date.

Click the date for which the annual charges in that pattern are to be set. The date box changes to blue, and the annual charges are set.

7) Select the [OK] button to end the settings.

* If the [Cancel] button is clicked on, the settings will be canceled and the Charge Set screen will open.

Note:

- If there is an open field (including a 0 value) in the setting items, a caution appears. Check the settings.
- The annual charges can also be set from the Management screen.
- As the default, the time zone only for the charge unit 1 is set.

Displaying the annual charge settings

The settings from the current month to 24 months in advance are displayed in the annual charge settings. The annual charge settings following the current day can be changed.

Colors used for date box in calendar

Blue : Annual charge is set for object pattern

Light blue : Annual charge is set for non-object pattern

Light gray : No annual charge is set

Setting the annual pattern name

A name (example: holiday setting) can be set for patterns 1 to 5 on the Annual charge pattern setting screen.

[Procedure]

1) Select the Pattern button.

A submenu opens when the pattern button is pressed on the Annual Charge Pattern Setting screen.

2) Select the [Pattern Name Setting] button.

The Pattern Name Setting window opens when the submenu [Pattern Name Setting] is selected.

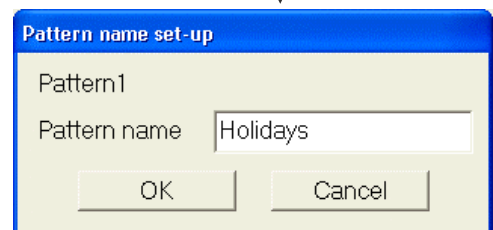
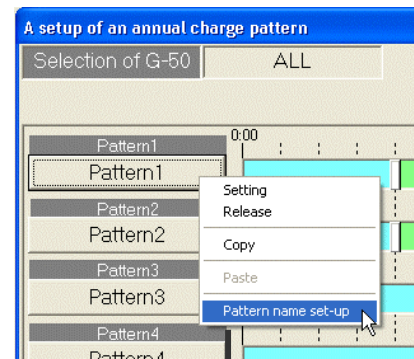
3) Set the pattern name

Input the pattern name. The application being used can be input and displayed on the Annual Rate Setting screen.

* Up to 10 characters can be set.

4) Select the [OK] button to end the settings.

* If the [Cancel] button is clicked, the settings are canceled and the Annual Charge Pattern Setting screen opens.



Changing the pattern

Use this function to change a set pattern.

[Procedure]

1) Select [Pattern Set/Change].

The Annual Charge Pattern Setting screen opens when the [Pattern Set/Change] button is selected on the Annual Rate Setting screen.

2) Change the details set for the time zone.

The procedure is the same as changing, copying, pasting or deleting the weekly charge pattern.

3) Select the [OK] button to end the settings.

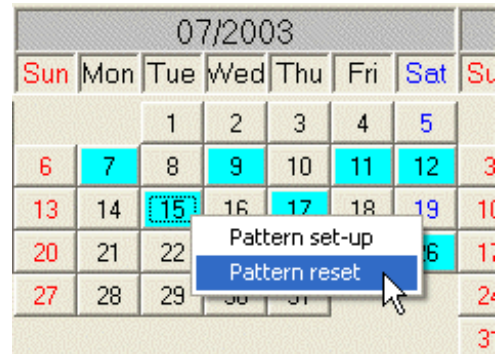
Note:

- The date of the annual charges used in the pattern is also affected when the pattern is changed.

Cancel the annual charge pattern

[Procedure]

- 1) Select the date for which an annual charge is set.
Click the date for which the annual charge pattern is to be canceled. The setting is canceled if it is the same as the selected pattern.
- 2) Select the [Pattern Cancel] button from the submenu.
If the selected date differs from the selected pattern, the submenu appears. Select the [Pattern Cancel] button, and cancel the pattern assignment set for that date.



(6) Meter charge unit setting

The charge unit for the gas, water and calorific value meter can be set. The time zone and start time, etc., are the same as the air-conditioner.

Day display

Charge setting
The meter charge unit can be set.

Batch button
The charge units 1 to 5 can be set in a batch.

Usual charge/Season charge buttons
Switch between the Normal charge and Search charge screens.

Time zone delimiter mark
Shows the time zone delimiter. The delimiter mark can be dragged and moved.

Charge unit
Set the charge unit

Item	Unit price	Unit price1	Unit price2	Unit price3	Unit price4	Unit price5
Gas	Unit price	10	10	10	10	10
Water	Unit price	3	3	3	3	3
Calorie	Unit price	1	2	4	6	7

Meter charge unit setting screen

Set the charge unit.

[Procedure]

- 1) Select the meter charge unit [Change] button.
Select the meter charge unit [Change] button on the Charge Set screen to open the setting screen.
- 2) Set the charge unit.
Set the charge unit for each meter.
 - * Set all charge units 1 to 5. The settings can also be made from the keyboard.
 - * If a season period applies, set both the normal and seasonal charges. (Switch with the [Usual Charge] and [Season Charge] button.)
- 3) Select the [OK] button to end the settings.
 - * If the [Cancel] button is clicked on, the settings will be canceled and the Charge Set screen will open.

9.5 Under Stop Charge

“Under stop charge” is the standby use electric power charge by watt hour meter used by the outdoor unit crankcase heater.

Output and display the electric power and charge under stop

[Procedure]

1) Select Electric power under stop.

When the [Electric power under stop] button of the “Whole building object” at the right-hand side of the screen is clicked, the Electric power under stop screen opens.

2) Check the display contents.

The electric power under stop for up to three months is displayed.

3) Select [Output] button.

After specifying the output object and date, click the [Output] button.

Output : Accepts the changes and advances to the Output type set screen.

Cancel : Ignore the changes and returns to the Air-conditioning energy monitoring screen.



Standard electric power under air-conditioning unit stop(Reference value)		
Three months before	14.6 kWh	58.48 EUR
Two months before	9.4 kWh	37.64 EUR
Last month	12.9 kWh	51.63 EUR

Electric power under stop screen

The above ends electric power under stop output setting.

Note:

- The underlined “Output type set screen” is used in common with other functions. For more information, refer to section “9.3 (5) Output type setting”.
- For Without WHM connection, this function cannot be used.
- Electric power under stop
Outdoor unit electric power under stop = outdoor unit crankcase heater capacity (W) × 24 hours
This is the guide for the electric power.

Maintenance Tip

- Use this function (under stop charge) only when “Make crankcase heater portion common expense (make under stop charge)” was selected by charge system setting “Charge proportional division method selection”.
(For a description of “Charge proportional division method selection,” refer to Site Adjustment manual section “8.12 Energy monitoring Set-up”.)

9.6 Recalculate the Air-conditioning Charge

This function recalculates the air-conditioning charge for one month based on the proportional division parameter or apportioning electric power already calculated.

When the maintenance function was used to correct the proportional division parameter or apportioning electric power, use this function to recalculate the air-conditioning charge.

Recalculate the air-conditioning charge

[Procedure]

- 1) Select [Recalculation].

When the [Recalculate] button at the bottom right-hand side of the screen is clicked, the recalculation screen opens.

- 2) Select the recalculation month.

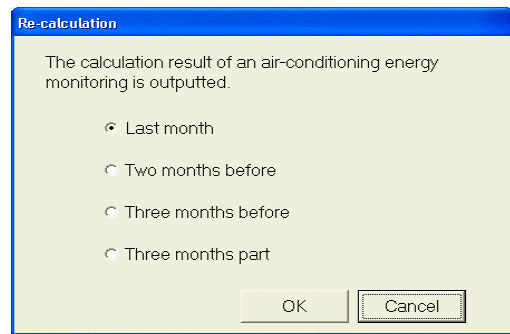
"Last month" "Two months before" "Three months before" "Three months part"

- 3) After specifying the recalculation month, click the [OK] button.

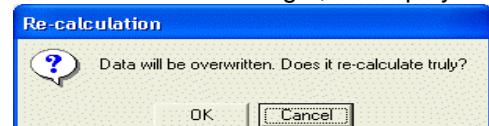
This setting is validated, by which the air-conditioning charge for the designated month is recalculated, which is reflected upon the Air-conditioning energy monitoring screen.

Caution) The calculation confirmation screen, which is shown on the right, is displayed before the calculation is executed. If the [OK] button is clicked, the recalculation is executed.

- * If the [Cancel] button is clicked in this case, this setting is invalidated, and the screen returns to the Air-conditioning energy monitoring screen.



Recalculation screen



Calculation confirmation screen

Note:

- For a description of the apportioning electric power or proportional division parameter correction method, refer to Site Adjustment manual section "9.2 Maintenance of Charge Data".

9.7 Last month calculation (Only when "connect when needed" is selected.)

Calculate the last month

This function reads out the last month's data collected by the G-50A and PLC, calculates the apportionment, calculates the air-conditioning charges, settles the account, and calculates the air-conditioning charges for the last month.

This function is valid only when "connect when needed" is selected.

[Procedure]

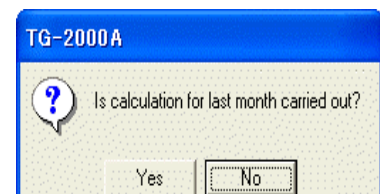
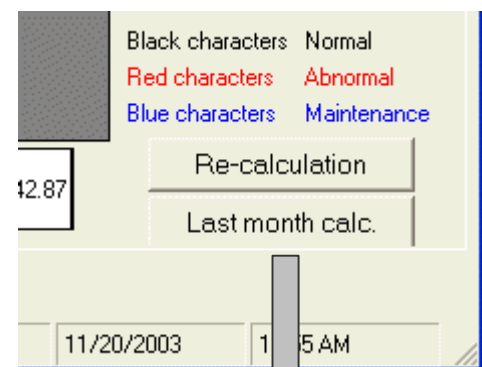
- 1) Select [Last month calc.]

When the [Last month calc.] button at the lower right of the screen is clicked, the screen for confirming the last month's settlement will appear.

- 2) Select "Yes" or "No".

When "Yes" is clicked, the last month's data will be collected, and the apportionment will be calculated and settled. The results are reflected on the Air-conditioning charge display screen.

- * It may take some time to calculate the last month's settlement, so wait for the message "Please wait" to go out.



Last month's calculation confirmation screen

Note:

- If there is a problem, such as a communication error with even one G-50A or PLC while calculating the last month, a message will appear. Check the connection, resolve the problem, and then calculate the charges again.
- If the last month has already been calculated (already displayed on the Energy Monitoring screen), the data will be overwritten when this function is executed.

10. Trend Graph

10.1 Graph Display

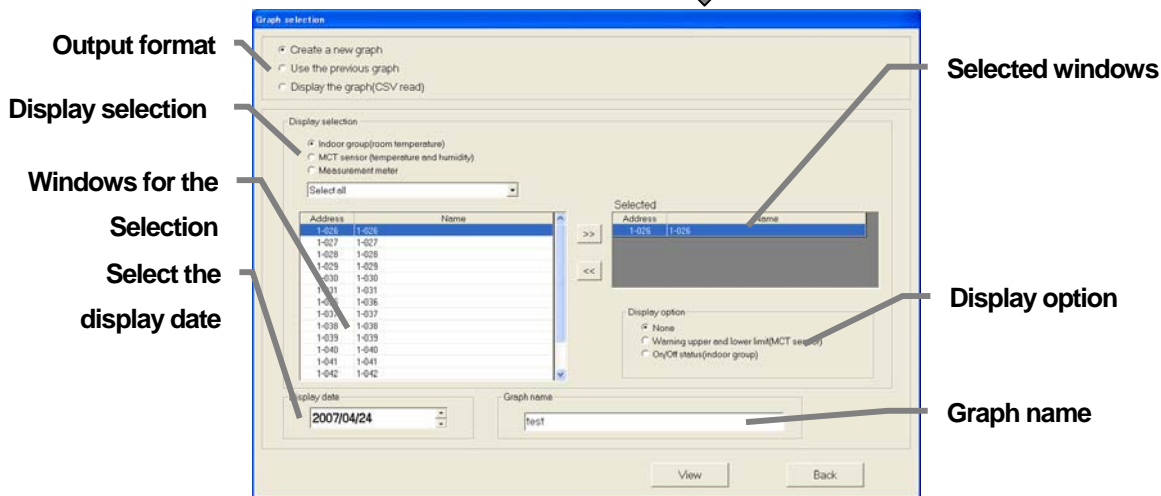
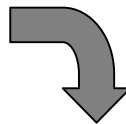
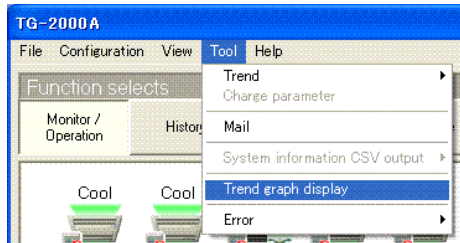
This function can display the graph of ON/OFF status and room temperature for the air conditioner, settlement value for watt hour meter and the value of measuring temperature/humidity.

To select a graph

[Procedure]

1) To display the screen of selecting a graph.

Pull down tool menu and select [Trend graph display]. Graph selection display will appear.



Graph collecting screen

2) To select the output format of the graph.

- New graph : Creating a new graph.
- Creating a graph with other data : Creating a graph with other data.
- Graph display(CSV read) : Creating a graph from CSV file.

[Procedure]

In the case creating a new graph.

- (1) Click the [Create a new graph] and select the display category.
- (2) Click the arbitrary unit from current window to register as the selected window with the ">>" button or Double-click the arbitrary unit.
 - *1: Enable to select up to 5 units at once.
 - *2: Enable to display up to 2 types of the graph at once.
- (3) Display option setting for each purpose.
 - The function of display option is creating a graph with the selected information.
 - *1: Each unit has restrictions on the selection.
- (4) Click the display date.
- (5) Enter the name of the graph.
- (6) Click the display button.

In the case of graphing with another data.

Creating a graph based on a saved data.

(1) Select a diversion data as in CSV file.

Require those procedures to change or add the graph.

- Click the arbitrary unit from current window to register for the selected window with the >> button or w-click the arbitrary unit.
- Set the display option for each purpose.
The function of display option is creating a graph with the selected information.
- Click the date for display.
- Enter the name of the graph.

(2) Click the display button.

In the case of graphing as in graph display (CSV read).

Recreating a graph by using a saved graph.

(1) Select the CSV file.

(2) Click the display button.

Note:

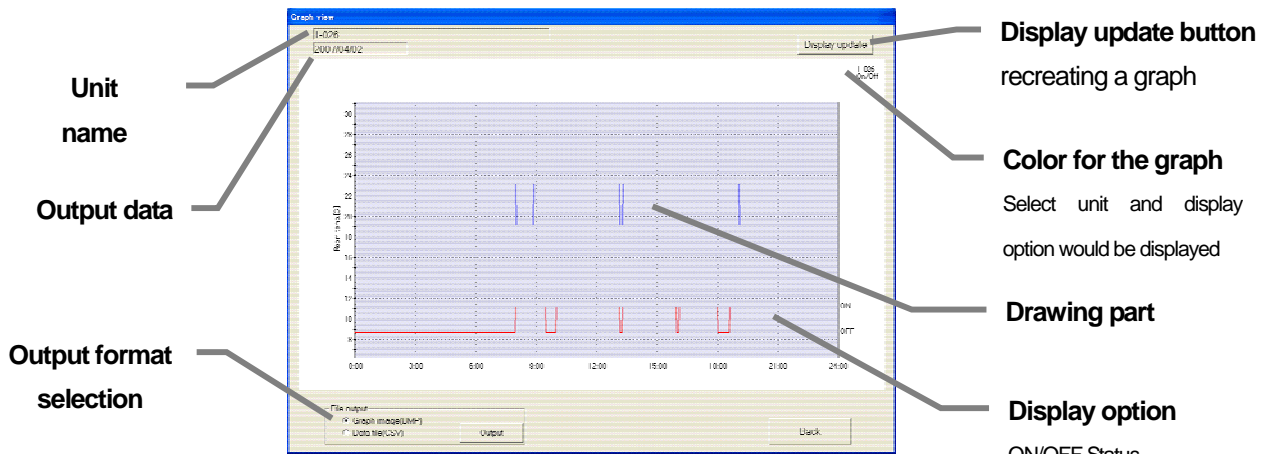
- CSV file, which can be used for creating a graph with diversion data, or graph display (CSV read) read only CSV file output from the graph display screen showed below.

3) To terminate the graph display function.

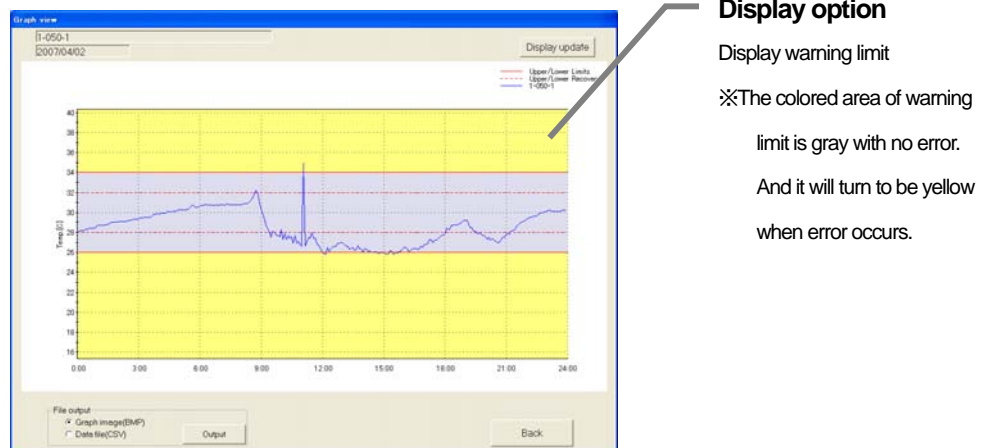
Click the back button to return to the administration screen.

4) To indicate the information of the graph display screen.

Conform the indicated information of each selected unit.



Graph display screen (Display option : ON/OFF status)



Graph display screen (Display option : Display warning limit setting)

5) To up date a graph.

Reread the information of a graph and up date.

6) To save the graph.

Save the graph as in BMP format or CSV file.

In the case of saving the graph as in BMP form.

(1)Select graph image(BMP) from the category of output file filed.

(2)Click the output button.

In the case of putting the graph out as in CSV form.

(1)Select data file (CSV) from the category of output file.

(2)Click the output button.

7) To back to the graph selection screen.

Click the back button.

11. System Display (View screen)

It is possible to display the current system configuration, monitoring screen, WHM setting, and energy monitoring setting.

This function checks the system status, but cannot change it.

11.1 System Configuration Display

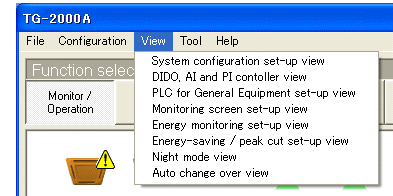
For the units corresponding to the icons displayed on each set screen, see the table at the right.

Select "System configuration view" in the "View" menu bar

The system configuration screen appears.

Note:

- When changing the system configuration, refer to Site Adjustment manual section "8.7 System Configuration set-up".



Operate the buttons [Next], [Exit], and [Back], which are displayed on each screen, as follows.

Item	Details
Next	Advances to the next screen.
Exit	Returns to the Management screen.
Back	Returns to last screen.

(1) Unit composition of G-50A

Displays the number of set G-50A and the unit configuration of each G-50A.

Select the G-50A to be displayed by clicking the "▲/▼" buttons.

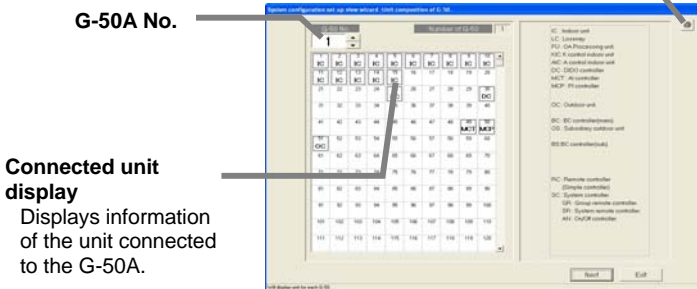
The numeric in the frame is the address. The displayed icons indicate that the units are connected to the selected G-50A.

The screen can also be printed with the print button.

After checking the set contents, click the [Next] button.

Print button

This button will appear when "Connection" is selected in the "Printer connection" setting in "User setting up window 2".



Icon	Name
IC	Indoor unit
LC	LOSSNAY
FU	OA processing unit
KIC	K control indoor unit
AIC	A control indoor unit
DC	DIDO Controller
MCT	AI Controller
MCP	PI Controller
OC	Outdoor unit
BC	BC controller (main)
OS	Constant speed unit
BS	BC controller (sub)
RC	Remote controller/ LOSSNAY remote controller (compact remote controller)
GR	Group remote controller
SR	System remote controller
AN	On/Off controller
SC	System controllers
KA	K-transmission converter
TR	Central controller (MJ-103)

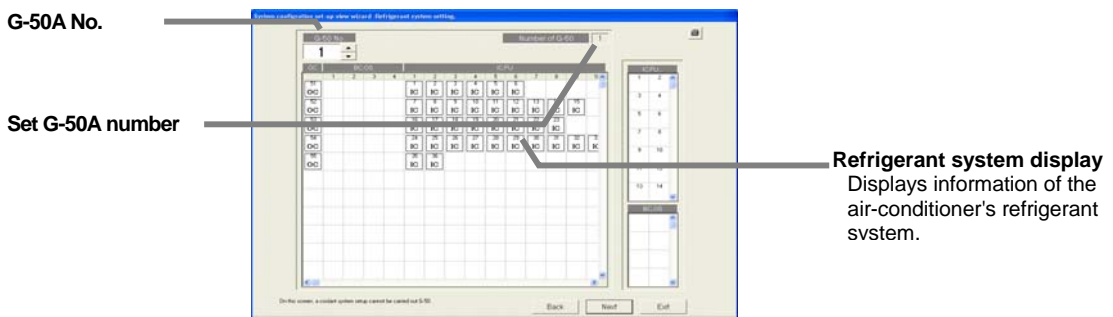
(2) Refrigerant system setting

Displays the refrigerant system of each outdoor unit at each G-50A.

Indicates that units in the same row are connected to the OC at the left-hand side of the screen.

Select the G-50A to be displayed by clicking the "▲/▼" buttons.

The screen can also be printed with the print button.



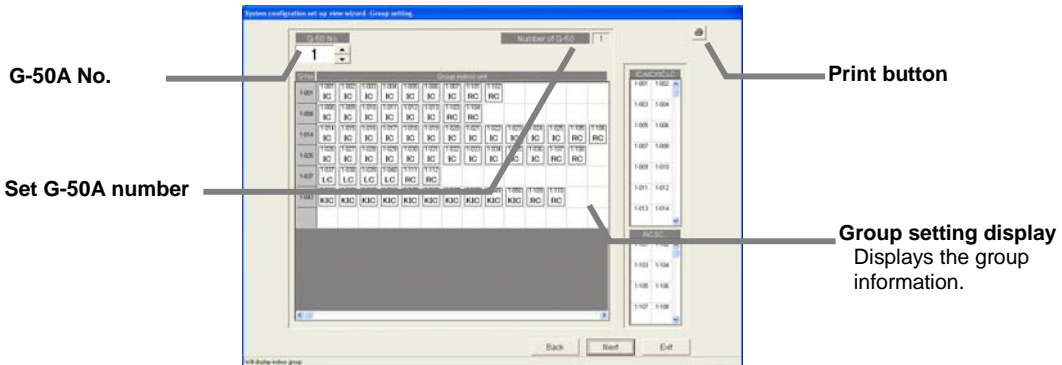
(3) Group setting

Displays the group setting of each indoor unit and ventilator on each G-50A.

Indicates that units on the same group No. row at the left-hand side of the screen are connected to the same group.

Select the display G-50A by clicking the “▲▼” buttons.

When G-50A is selected using the “▲▼” buttons next to G-50A No., the units of each G-50A are displayed. The screen can also be printed with the Print button.



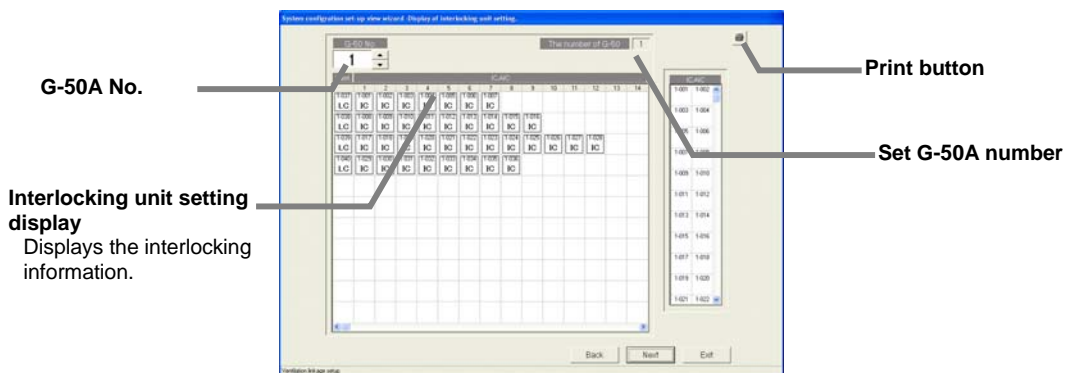
(4) Display of interlocking unit setting

Display the interlocking unit setting for each G-50A.

It indicates that the indoor unit located on the same row as the ventilation unit No. shown at the left end is set to Interlocking.

Click the “▲▼” buttons to select the G-50A to be displayed.

When the “▲▼” buttons located next to the G-50A No. is clicked to select the G-50A, the interlocking setting is displayed for each G-50A. The screen can be printed with the Print button.



(5) Display of indoor unit function setting

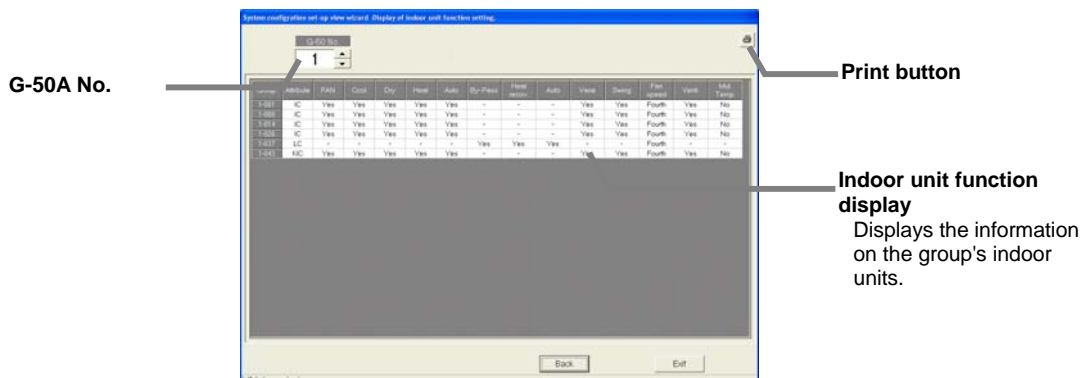
Display the function setting of each indoor unit and ventilation group for the G-50A.

Displays Yes/No of each function located on the same row as the group No. shown at the left end.

The functions arranged from left are Attribute, indoor unit operation mode (Fan, Cool, Dry, Heat, AUTO), Ventilation mode (Bypass, heat-recovery ventilation, Auto), Air direction, Swing, Fan speed, Interlocking ventilation and Mid. Temp. function.

Click the “▲▼” buttons to select the G-50A to be displayed.

The screen can be printed with the Print button.



11.2 Displaying the DIDO, AI and PI controller setting

Pull down menu bar and select [view] and click [DIDO, AI and PI controller setting view] .
Current status of DDC, AI controller MC, PI controller MC will appear.

NOTE

- In the case of changing the settings of DIDO, AI and PI controller, check the filed adjustment "8.8 DIDO, AI and PI controller set-up."

[Next] [Exit] [Back] buttons in each screen means like bellow.

Button	Meaning
Next	Go to the next screen
Exit	Return to the administration screen
Back	Return to the previous screen

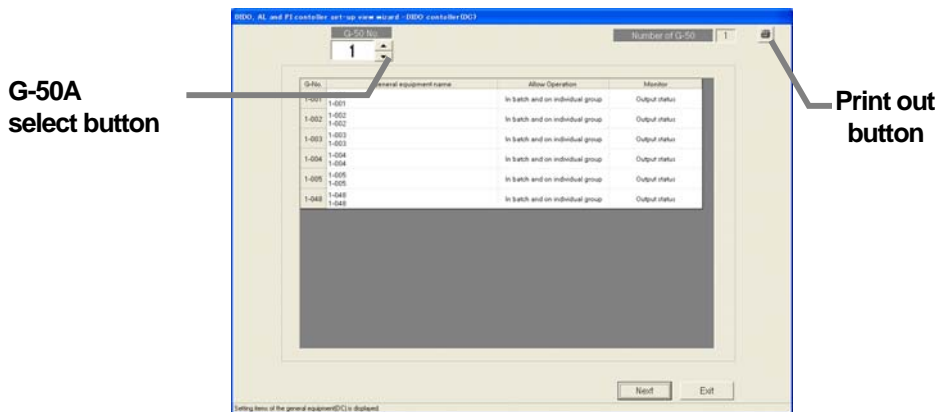
(1) Display of DIDO controller(general equipment) setting

Display of G-50A setting No. and format of general equipment for each G-50A.

Click the G-50A to display with the 「▲/▼」 button.

Registered G-50A's general equipment name, operation category, display setting will be appeared.

Clicking the Print button can print out the screen.



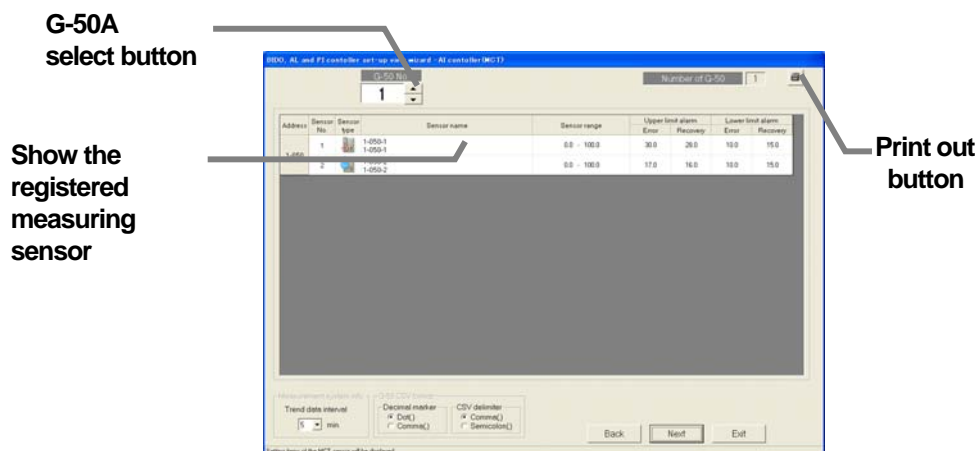
(2) Display of AI controller setting

Display of G-50A setting No. and format of measuring sensor for each G-50A.

Click the G-50A to display with the 「▲/▼」 button.

Registered G-50A's measuring sensor type, sensor type, range, upper/lower limit alarm value will be displayed.

Clicking the Print button can print out the screen.



(3) Display of PI controller (Measurement meter)setting

Display of G-50A setting No. and format of measurement for each G-50A.

Click the G-50A to display with the 「▲/▼」 button.

Registered G-50A's measurement type, name, placement, and unit, pulse will appear.

Clicking the Print button can print out the screen.

G-50A select button

Display the registered measurement meter

Print out button

Address	Ch	Kind	Measurement meter name	Place of installation	Unit	Pulse (kWh/Year)
1		Air-con	Meter1-049-1	1st floor	kWh	10
2		Air-con	Meter1-049-2		kWh	10
3		Electric T	Meter1-049-3		kWh	10
4		Water	Meter1-049-4		m ³	10

Back Exit

Print

11.3 PLC for General Equipment Setting Display

Click [PLC for general equipment setting view] in the [View] menu (menu bar).
The currently set monitor display settings appear.

Note:

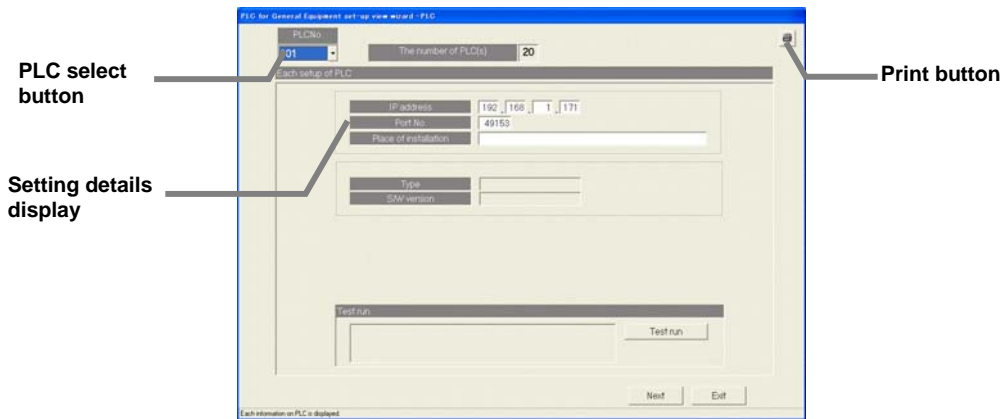
- Refer to the Site Adjustment manual "8.9 PLC for General Equipment set-up" for details on changing the monitor display settings.
- The details set as the initial setting are displayed.

Operate the buttons [Next], [Exit], and [Back], which are displayed on each screen, as follows.

Item	Details
Next	Advances to the next screen.
Exit	Returns to the Management screen.
Back	Returns to last screen.

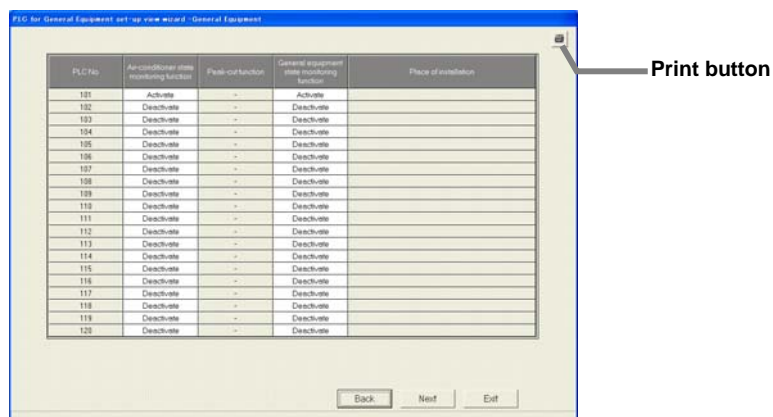
(1) Displaying the PLC settings

Display the IP address information on each PLC for general equipment.
Select the PLC to be displayed by clicking the "▼" button.
The IP address and port No. information for the selected PLC is displayed.
The screen can be printed with the print button.



(2) Displaying the function settings

The PLC for general equipment function setting information is displayed.
The screen can be printed by pressing the Print button.



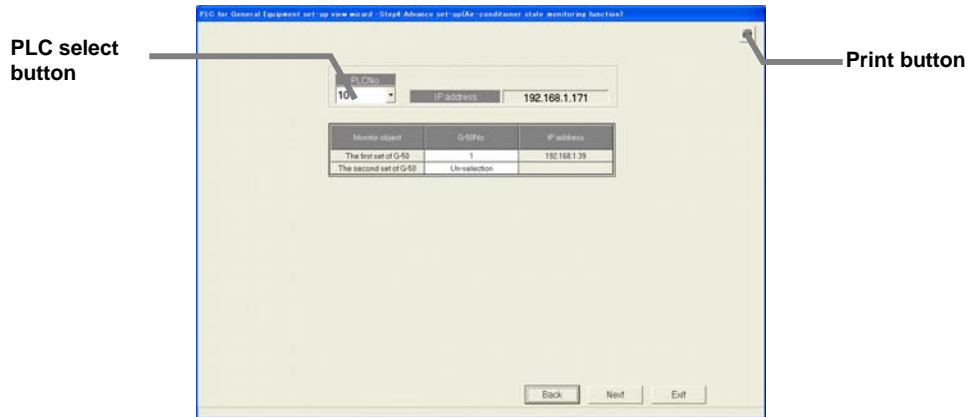
(3) Displaying the advanced settings (air conditioner status monitor setting)

The G-50A No. to be monitored and the IP address information is displayed for each PLC for general equipment.

Click on the "▼" button to select the PLC to display.

The G-50A No. to be monitored and the IP address information for the selected PLC will appear.

The screen can be printed by pressing the Print button.

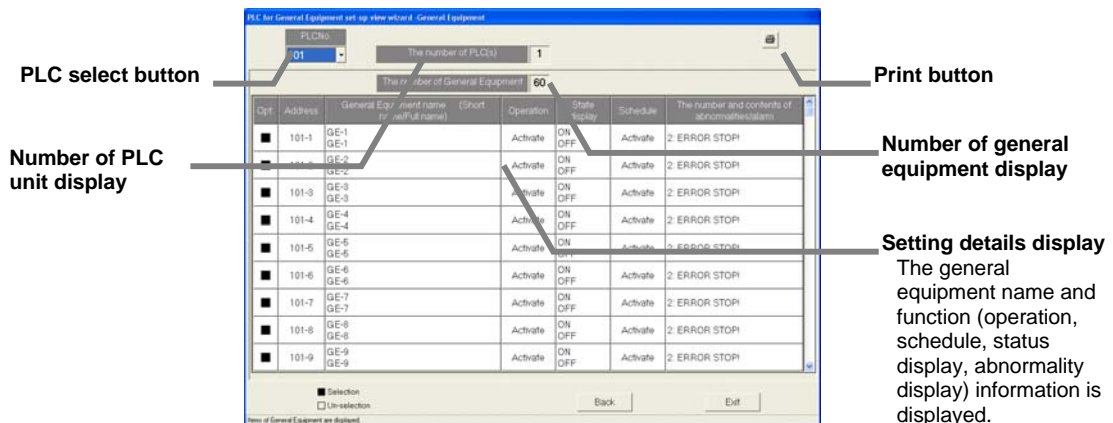


(4) Displaying the general equipment settings

Displays the name and function information of each general equipment for each PLC.

Select the PLC to be displayed by clicking the PLC selection "▼" button.

The screen can be printed with the print button.



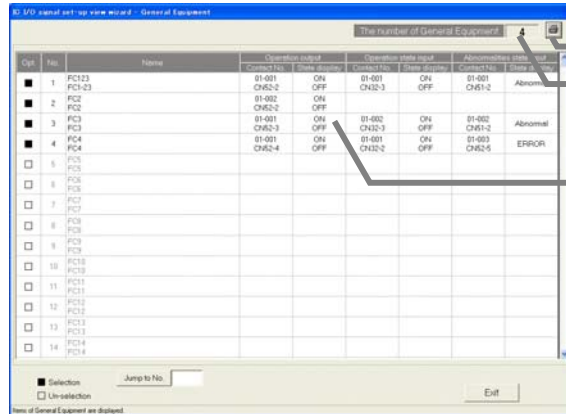
11.4 Displaying the IC I/O Signal Settings

Select [View] – [IC I/O signal set-up] in the menu bar.

The IC I/O signal set-up screen will open.

Note:

- Refer to the Site Adjustment "8.9 IC I/O signal Set-up" for details on changing the IC I/O signal settings.



Print button

Number of general equipment display

Setting details display

The general equipment name, functions (status display, error display), and contact No. information is displayed.

11.5 Display of Monitor Display Setting

Click [Monitoring screen view] in the [View] menu (menu bar).

With the above step, the current monitor display setting contents are displayed.

Note:

- For changing the monitor display setting, refer to Section “8.11 Monitoring screen setting” in Site adjustment.

Operate the buttons [Next], [Exit], and [Back], which are displayed on each screen, as follows.

Item	Details
Next	Advances to the next screen.
Exit	Returns to the Management screen.
Back	Returns to last screen.

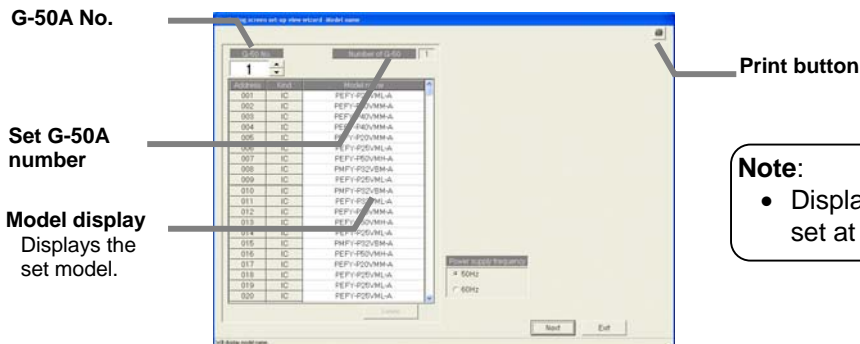
(1) Model name

Displays the outdoor unit, indoor unit, and ventilation unit model set data for each G-50A.

Select the G-50A to be displayed by clicking the “▲/▼” buttons.

The numeric in the frame is the address. The displayed icons indicate that the units are connected to the selected G-50A.

The screen can also be printed with the print button.

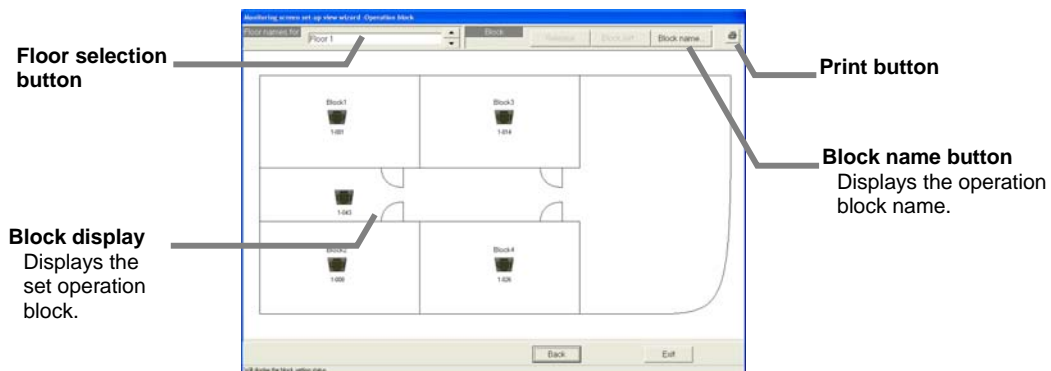


(2) Operation block

Displays the block setting status of each indoor unit group at each floor. Block No. is displayed at each block set group.

Select the floor to be displayed by clicking the “▲/▼” buttons next to the floor name.

This screen can also be printed with the Print button.



Note:

- When the “Block name” button is clicked, the set block name can be checked.

11.6 Watt Hour Meter/Meter Setting Display

Select "Watt Hour Meter set-up view" and "Meter set-up view" in the "View" menu bar. The meter setting screen is displayed.

Note:

- When changing meter setting, refer to Site Adjustment manual Section "8.12 or 8.13 Meter Set-up".

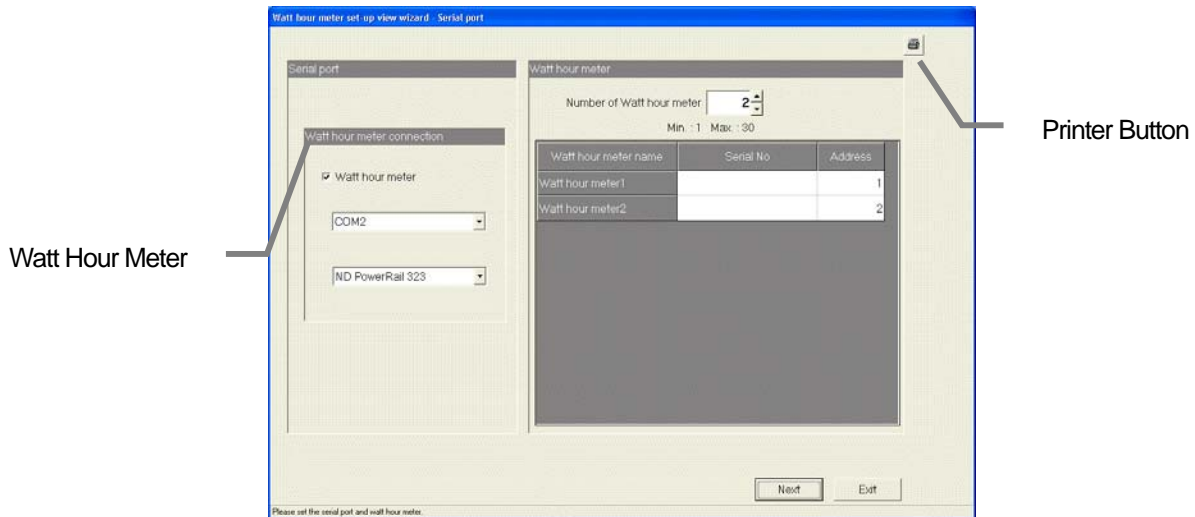
Operate the buttons [Next], [Exit], and [Back], which are displayed on each screen, as follows.

Item	Details
Next	Advances to the next screen.
Exit	Returns to the Management screen.
Back	Returns to last screen.

[Using the RS-485 WHM]

(1) WHM model No. and number used

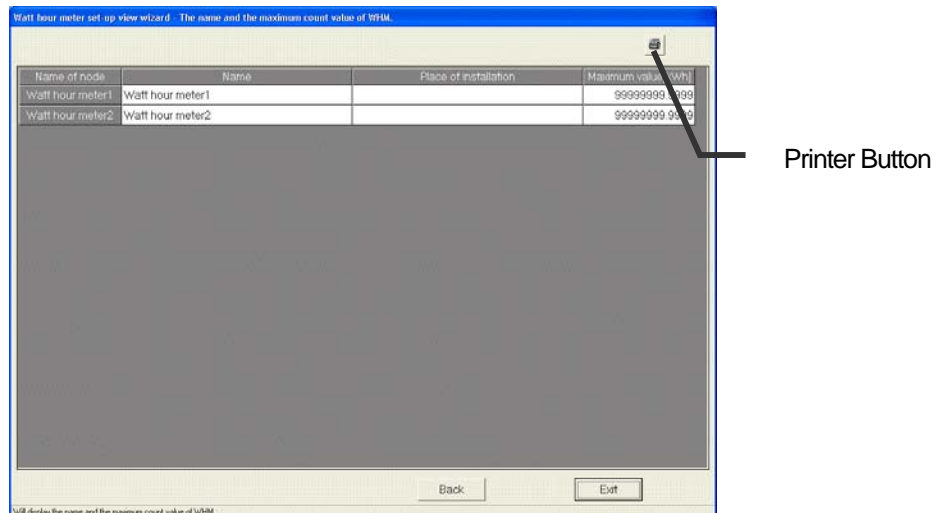
Displays the WHM model No. and number of WHM used. This screen can also be printed with the Print button. After checking the contents, click the [Next] button.



WHM model No. and number used screen

(2) WHM name, location, and maximum count value

Displays the WHM name, location, and maximum count value setting status. This screen can also be printed with the Print button. After checking the contents, click the [Exit] button.



WHM name, location, and maximum count value screen

[Using the PLC WHM]

(1) PLC setting display

Displays the number of connected PLCs and the IP addresses.
The screen can be printed with the print button.

G-50A No. →

Print button →

Setting details display
Displays the PLC IP address and port No.

(2) Number of meters, name, place and pulse unit (weight) display

Displays the number of meters (WHM), name, place and pulse unit setting state.
The screen can be printed with the print button.

PLC select button →

Print button →

Setting details display
Displays the meter (WHM) service terminal, name, place and pulse unit, etc.

Opt	Sign	Sub No.	Kind	Name	Place of installation	Unit	Pulse (Unit/pulse)
<input checked="" type="checkbox"/>		1	Air-con	Meter1		kWh	1
<input checked="" type="checkbox"/>		2	Air-con	Meter2		kWh	1
<input checked="" type="checkbox"/>		3	Electric 1	Meter3		kWh	1
<input checked="" type="checkbox"/>		4	Electric 2	Meter4		kWh	1
<input checked="" type="checkbox"/>		5	Gas	Meter5		m ³	1
<input checked="" type="checkbox"/>		6	Water	Meter6		m ³	1
<input checked="" type="checkbox"/>		7	Calorie	Meter7		MJ	1
<input type="checkbox"/>		8	Air-con	Meter8		kWh	0
<input type="checkbox"/>		9	Air-con	Meter9		kWh	0
<input type="checkbox"/>		10	Air-con	Meter10		kWh	0
<input type="checkbox"/>		11	Air-con	Meter11		kWh	0
<input type="checkbox"/>		12	Air-con	Meter12		kWh	0

11.7 Charge System Display

Select "Energy monitoring view" in the "View" menu bar
The charge system screen is displayed.

Note:

- When changing the charge system, refer to Site Adjustment manual Section "8.14 Energy monitoring Set-up"
- Some charge system display screens may not be displayed, depending on the setting mode.
- The charge setting can be checked or changed with "Charge set" on the "Energy monitoring" screen.

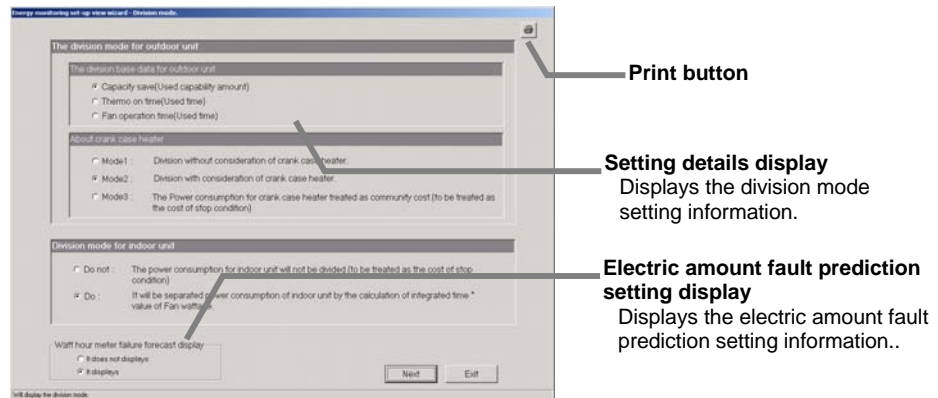
Operate the buttons [Next], [Exit], and [Back], which are displayed on each screen, as follows.

Item	Details
Next	Advances to the next screen.
Exit	Returns to the Management screen.
Back	Returns to last screen.

(1) Division mode

Displays the division mode setting state.

This screen can also be printed with the Print button.

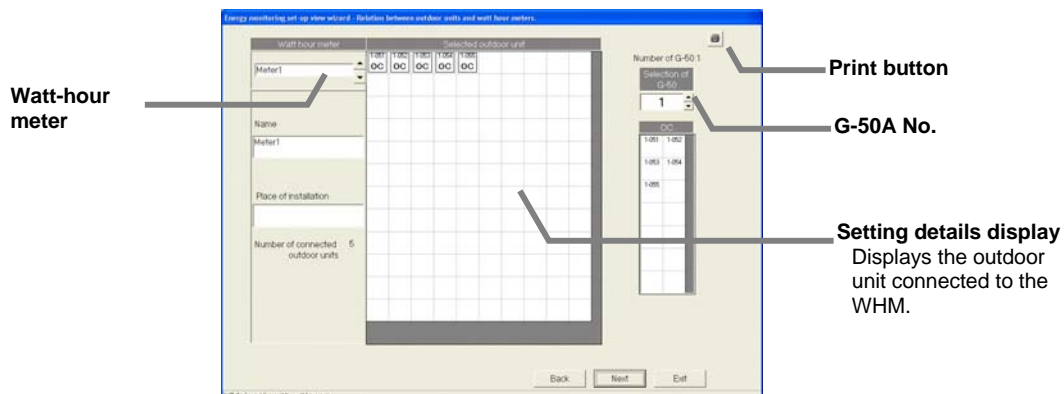


(2) Relation between outdoor units and watt hour meters

Select the watt-hour meter by clicking the "▲/▼" buttons.

The data for the outdoor unit connected to the watt-hour meter is displayed.

This screen can also be printed with the Print button.

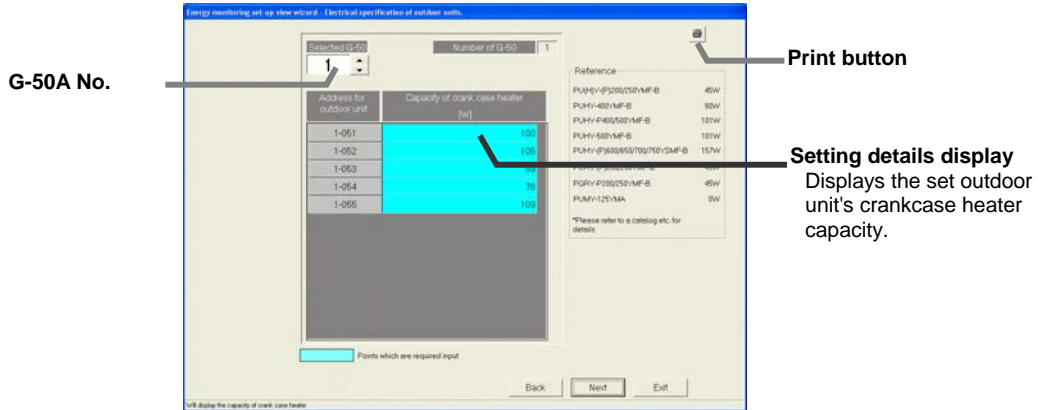


Note:

- This display shows the contents set by charge system.

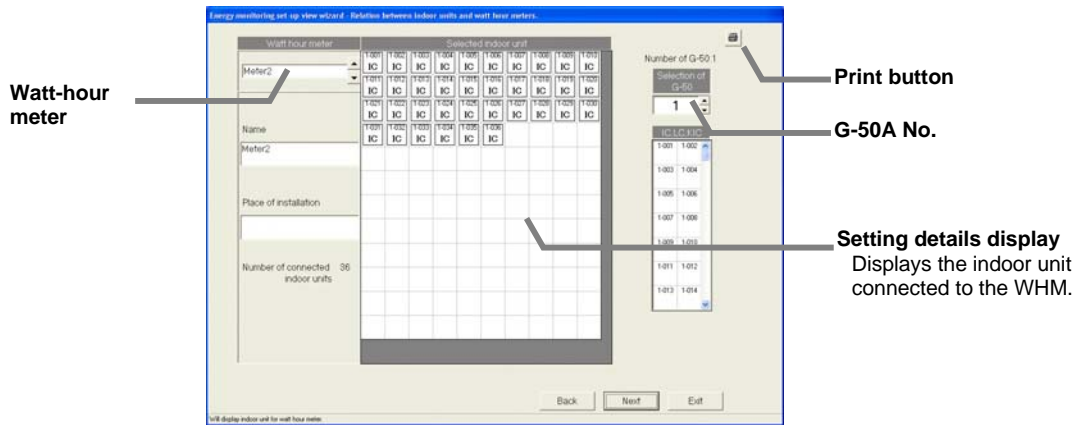
(3) Electrical specification of outdoor units

Select the G-50A to be displayed by clicking the “▲▼” buttons.
 The outdoor unit crankcase heater set data is displayed.
 This screen can also be printed with the Print button.



(4) Relation between indoor units and watt hour meters

Select the watt-hour meter by clicking the “▲▼” buttons.
 The data for the indoor unit connected to the watt-hour meter is displayed.
 This screen can also be printed with the Print button.

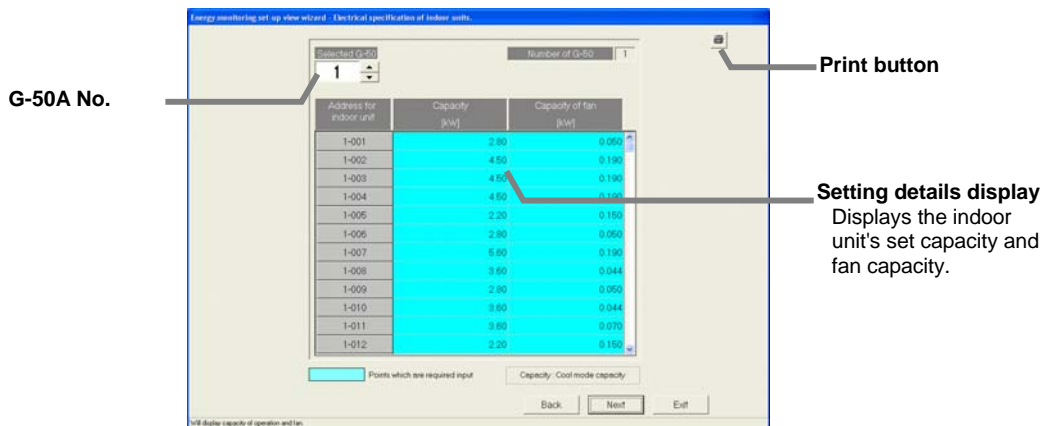


Note:

- This display shows the contents set by charge system.

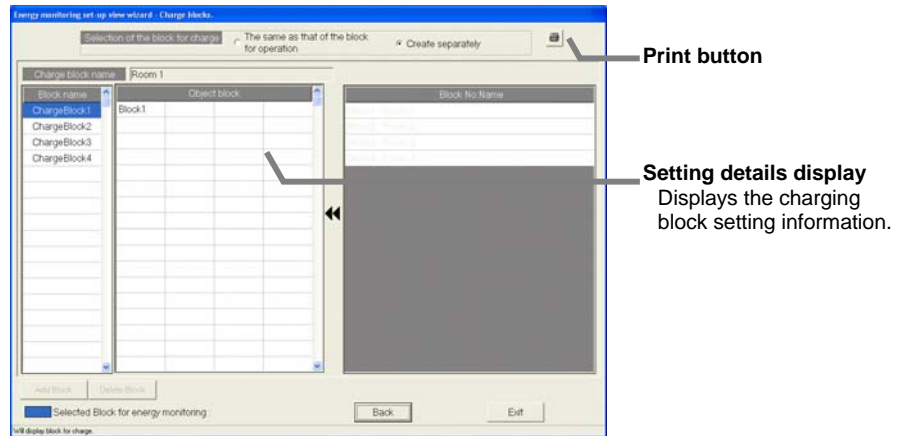
(5) Electrical specification of indoor units

Select the G-50A to be displayed by clicking the “▲▼” buttons.
 The setting information on the operation capacity of the indoor unit and fan capacity is displayed.
 This screen can also be printed with the Print button.



(6) Charging blocks

Displays the charging block setting data. Charging block consists of operation blocks. This screen can also be printed with the Print button.



Note:

- The basic charge, charge setting, and currency setting can be checked or changed with "Charge set" on the "Energy monitoring" screen.

11.8 Energy Saving Setting Display

Select [View] - [Energy saving setting] in the menu bar.

The energy saving setting screen will open.

Note:

- Refer to the Site Adjustment "8.17 Energy saving setting " for details on changing the energy saving settings.
- Some energy saving setting screens may not appear depending on the selected functions.

Operate the buttons [Next], [End], and [Back], which are displayed on each screen, as follows.

Item	Details
Next	Opens the next screen.
End	Returns to the Management screen.
Back	Returns to the previous screen.

(1) Displaying the service watt hour meter settings (Display only WHM connection settings)

The watt hour meters for which the G-50A is monitoring the service power rate are displayed.

The screen can be printed by pressing the Print button.

Selected watt hour meter

The watt hour meters for which the G-50A is monitoring the service power rate are displayed.

G-50A No.

G-50A No.	The watt hour meter for peak cut	Kind	Name	IP address	Sub-No	Note
1	Meter1	Air-con	Meter1	192.168.1.151	1	
2	Meter1	Air-con	Meter1	192.168.1.151	1	
3	Meter1	Air-con	Meter1	192.168.1.151	1	
4	Meter1	Air-con	Meter1	192.168.1.151	1	
5	Meter2	Air-con	Meter2	192.168.1.151	2	
6	Meter2	Air-con	Meter2	192.168.1.151	2	
7	Meter2	Air-con	Meter2	192.168.1.151	2	
8	Meter2	Air-con	Meter2	192.168.1.151	2	
9	Meter2	Air-con	Meter2	192.168.1.151	2	
10	Meter2	Air-con	Meter2	192.168.1.151	2	

Print button

(2) Displaying the energy saving/peak cut set-up

The energy saving control or peak cut control details are displayed. The screen is the peak cut control setting screen.

The screen can be printed by pressing the Print button.

Control start power for each level

This appears only when WHM connection is set.

Print button

Setting details display

Displays the control details setting state.

Note:

- For the "energy saving control" function, only the lowest level 0 of the indoor unit and outdoor unit's energy saving function settings are displayed.

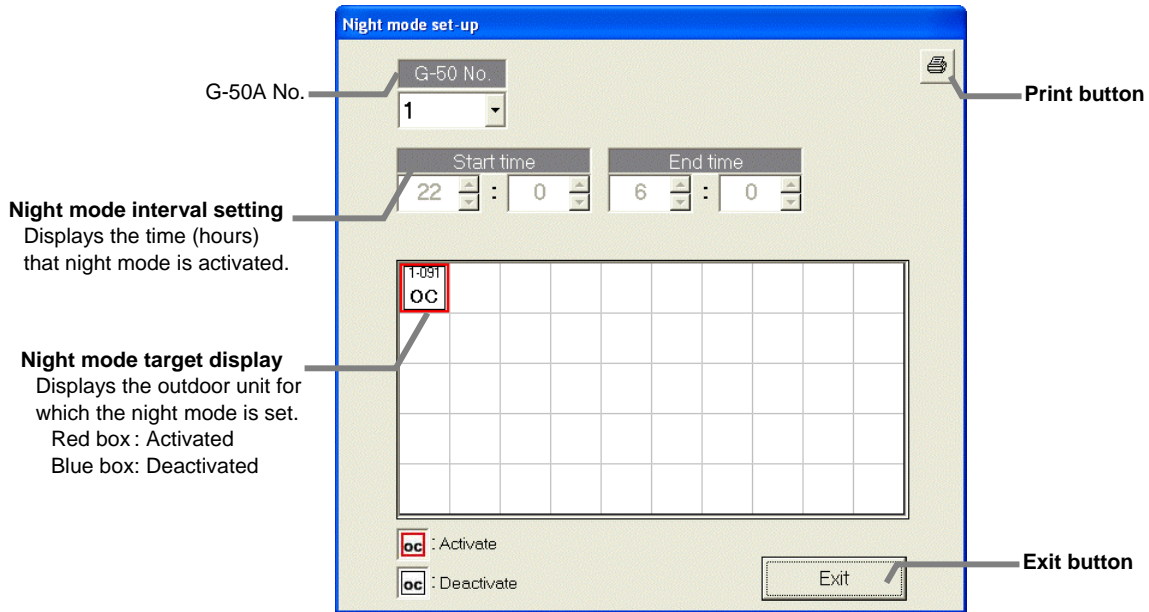
11.9 Night Mode Set-up Display

Select [View] - [Night mode set-up] in the menu bar.
The Night mode screen will open.

Note:

- Refer to the Site Adjustment "8.18 Night mode set-up" for details on Night mode set-up.

The state of the night mode set for each G-50A outdoor unit.
The screen can be printed by pressing the Print button.



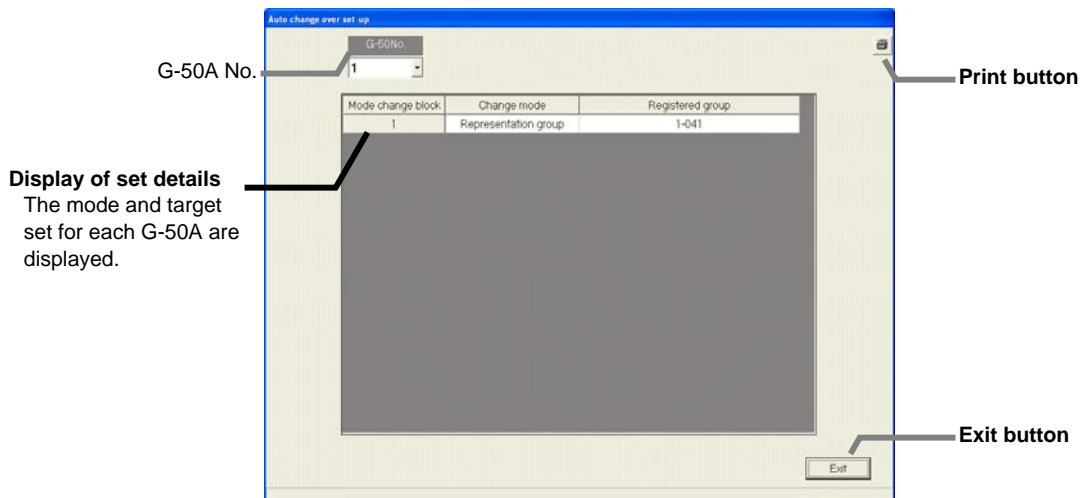
11.10 Auto Change Over Set-up Display

Select [View] - [Auto change over set-up] in the menu bar.
The Auto change over set-up screen will open.

Note:

- Refer to the Site Adjustment "8.17 Auto change over set-up" for details on Auto change over set-up.

The status of the auto change over setting in each G-50A is displayed.
The screen can be printed by pressing the Print button.



12. Help

12.1 Contents

Click "Contents" in the "Help" menu (menu bar).

The following manuals are accessible from the Help menu. Acrobat® Reader is required to read these manuals. (5.0E or later recommended)

Manuals PDF	Normal Startup		Startup in the Wide Area Mode	
	System Screen	Management Screen	System Screen	Management Screen
Management	V	V	V	V
Site Adjustment	V		V	
Wide Area			V	V

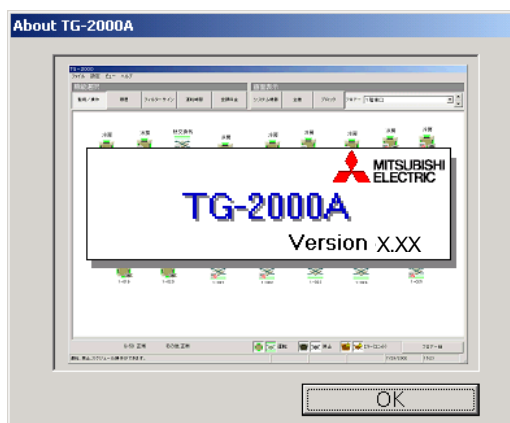
V : Viewable

12.2 Version Information

Click "Version" in the "Help" menu (menu bar).

The version information is displayed.

Displays the type designation and version of this program and the user set building name.



13. System Operation Precautions

The following describes the precautions to be taken when operating the system. Always read this section before using the system.

13.1 Usage Right

Mitsubishi Electric Corporation and its suppliers are not responsible for incidental, secondary, or special damage to the user even if notified of the possibility of that type of damage by the seller. Mitsubishi Electric is not responsible for any rights claimed by a third-party.

13.2 Operation and Setting Precautions

- (1) **Change of system configuration, monitoring screen setting, and energy monitoring setting**
 - When the charge (charge calculation) function is used, be sure to reset the system before changing the system configuration, monitoring screen setting, and energy monitoring setting.
 - When the system configuration setting or monitoring screen setting is changed, change or check the energy monitoring setting at the same time.
- (2) **Change of meter setting(PI controller setting), energy monitoring setting, charge setting**
 - In the following cases, always settle the account before changing the settings.
When changing the meter settings (PI controller setting), energy monitoring settings and charge settings.
Check the following settings after making changes.
Meter settings, energy monitoring settings and charge settings.
- (3) **Time setting**
 - Do not change the time setting except during test operation. When the charge function is used, the air-conditioning charge is affected.
Do not attempt to change the date in particular during operation.
 - When using the charge function, there are times when the time cannot be changed. **Do not attempt to change the time for the web browser operation.**
 - While this integrated centralized control software TG-2000A is running, do not use Windows "Date and time properties".
 - We recommend that the time be corrected periodically. We recommend that the time be corrected once a month especially when the charge function is used. The time depends on the accuracy of the PC and G-50A clocks. The error in G-50A clock is 60 sec./month (typ.).
- (4) **Energy saving and peak cut settings**
 - Mitsubishi will not be held liable for any damage that occurs from use of the peak cut settings.
 - Peak cut control may not be carried out correctly if the central controller G-50A fails or is disconnected, etc. Mitsubishi will not be held liable for damage arising from these cases.
 - Adjust the energy saving and peak cut control details according to the working environment and requirements.
- (5) **Operation and monitor of the general equipment**
 - There may be cases when the general equipment cannot be monitored or operated due to a disconnection in the wiring with the general equipment or a fault in the PLC (or DIDO controller). Mitsubishi will not be held liable in the event of any damage.
- (6) **Set temperature range limit**
 - When this setting is made with TG-2000A, the operation and the change must be made with TG-2000A.
(The change that is made with ME remote controller, PAR-F27MEA cannot be reflected.)
 - When there is a blackout, the power is reset, G-50A is turned off or G-50A is malfunctioning, the set temperature range limit of ME simple remote controller, PAC-SE51CRA-F will be removed.
 - In some case, this function cannot be used depending on the indoor unit model being used when using the MA remote controller (PAR-21MAA and PAC-YT51CRB).

13.3 Air-conditioning Charge Precautions

(1) Using the charge function

- When using this program's charge function, we recommend that you consent to "Collect air-conditioning charges (including temporary action when failure occurs) by proportional division calculation considered by operation status." by individual contract with the building owner.

The air conditioning cost calculation method use by this integrated centralized control software TG-2000A is the Mitsubishi proprietary general electric power apportioning method.

Depending on each country's laws and regulations, etc., there may be cases these measured charges cannot be used for certificate of transaction.

Before starting use, the building owner and building tenant should bind an agreement or contract indicating that the air conditioning charges are part of the usage fees with an independent contract indicating "The air conditioning charges are collected with an apportioning method that considers the air conditioner's operation state instead of charges according to the measured power rate (including during emergency operation when a failure occurs)".

- UPS equipment is recommended to prevent TG-2000A stoppage and data loss, etc. when a power failure or momentary interruption occurs.
- Storing the air-conditioning charge result (block and watt hour meter units) to a device than this computer is recommended.
(For example, print the air-conditioning charge results on paper and store them.)
- We recommend that the database backup function be used.

* Refer to Site Adjustment manual section 8.3.3.

- It is necessary to register the charge license with all centralized G-50A controllers registered in this integrated centralized control software TG-2000A system. Note that the charge calculation function will not operate properly even if the charge calculation license is registered only to a part of the central control G-50A.
- The meter (watt hour meter, gas meter, etc.) performance and accuracy relay on the meter. Mitsubishi will not be held liable in any case. Make sure that the pulses output from the meters are not incorrectly detected.

This TG-2000A charge function has the "always connected to G50A system" state and the "connect when needed" state.

When "always connected to G50A system" is selected

The power apportion data is collected from the G-50A and PLC (PI controller) and the apportionment is calculated once a day, and the previous month is automatically settled on the day following the settlement day. Thus, the TG-2000A must be run 24 hours.

When "connect when needed" is selected

The power apportion data is collected from the G-50A and PLC, the apportionment is calculated, and the last month is settled at once automatically when the TG-2000A is started up on the day after the settlement day. (This can also be completed manually.)

Note that the G-50A and PLC (PI controller) connect data even while the TG-2000A is stopped, so the G-50A and PLC (PI controller) must be run 24 hours.

If the TG-2000A is stopped, there may be cases when the charging data cannot be collected if the state is abnormal, such as if the G-50A or PLC (PI controller) is faulty or stopped. The G-50A and PLC (PI controller) faults cannot be detected if the TG-2000A is not running.

(2) Air-conditioning charge calculation (proportional division)

- This is our unique method which makes judgment from the operating status of the air conditioners and proportionally divides the total electric power.
The following precautions are required.
 - (1) A watt hour meter is not installed on each air conditioner's power supply section to calculate the rate.
 - (2) When multiple outdoor units are connected to one watt hour meter, they will be apportioned and calculated as one outdoor unit. Thus, an error may occur more easily than when a watt hour meter is installed for each outdoor unit.
 - (3) This system cannot be used for applications requiring calculations made by installing a watt hour meter on each air conditioner.
 - (4) Even if the air conditioner is run for the same length of time, the air conditioning charges may differ according to the air conditioner's operation load state.

- (5) The air conditioner is energized even when stop, so the air conditioning charges are calculated even if the air conditioner is not used.
- (6) If a fault occurs in the computer, G-50A or PLC (PI controller), remedial measures will be taken with the past average apportioned rate, etc.

- When a system abnormality occurs, postpone proportional division calculation to the next day or do not perform proportional division calculation. When you want to correct the proportional division data, use the Charge data maintenance or Remedial apportioning function.
- Since the air-conditioning charge is calculated in block or watt hour meter units, indoor units that are not registered in the charge block are not reflected in the air-conditioning charge.
- There is an error due to the digits not displayed in the air-conditioning charge calculation results.
- The apportioned charges will be incorrect when the PLC, G-50A or watt hour meter fails or is replaced.

In this case, use the "charge data maintenance", "remedial apportioning" or "charge comparison data maintenance" function according to the trouble, and recover the state.

- When WHM replacement accompanied WHM trouble, the air-conditioning charge becomes an abnormal charge proportional division value. In this case, use the "Maintenance of change data" or "Remedial apportioning setting" function.
- The charge proportion is displayed by rounding the un-displayed digit. The charge proportion total is given by totaling the charge proportion (rounded) of each charge block, and may be a number other than 100% in some cases.

(When the charge proportion total is not 100%, it is recommended to use the proportion (to find the air-conditioning charge for each charge block) to the charge proportion/charge proportion total of the corresponding charge block.)

Due to limits in the display, less than 100 blocks should be used for power apportion billing (manual power rate input). *Untill TG-2000A Ver.4.5*

- To exclude certain units from charge apportioning, set the capacity of each unit to [0kW].

(3) System change

- When changing the system configuration and charge system settings, carry out settlement of accounts from the day after the settlement of accounts day up to yesterday. For settlement of accounts for the current month, total and use the air-conditioning charge calculated before and after the change. Add the basic charge because the calculated air-conditioning charge total does not include the basic charge.

(4) "Maintenance of change data" and "Remedial apportioning setting" functions

- When an abnormality occurred in air-conditioning charge proportional division, it can be remedied with the "Maintenance of change data" or "Remedial apportioning setting" function. Refer to the Site Adjustment manual for a description of the method.
- When a WHM trouble or other abnormality occurred with this charge function, it is recommended that the agreement of the owner and tenant be obtained to use the "Maintenance of change data" or "Remedial apportioning setting" function to deal with the trouble.

13.4 Others

(1) Windows (rebooting)

- Periodically (about once a week) terminate this program and Windows and reboot. Windows conceals obstructions to continuous operation for a long time and there are various possibilities. To reduce the affect on TG-2000A operation, end and reboot it. End and reboot it to minimize the affect on TG-2000A operation.

Execute the manual re-booting during time of 08:00 to 21:45.

- An automatic reboot function can be set at this program, but there are cases where automatic reboot cannot restart TG-2000A. Therefore, we recommend that you manually terminate this program and Windows and reboot.

(2) Windows (task bar)

- Do not use the Windows task bar during TG-2000A operation.

(3) Printer output

- When using this system with a printer, always turn on the printer power and replenish the paper so that printing can be performed. When printing is not possible, a "Cannot print" message is displayed.

(4) Operation processing

- When multiple processes and control overlap, operation may be delayed.
- The air-conditioner's operation is periodically monitored. There may be a time lag until the monitored details are reflected on this man-machine.

(5) Computer power supply

- Either "Activate" or "Deactivate" can be selected for "always connected to G-50A system" of the TG-2000A.
- When "Activate" is selected, the following functions are carried out automatically. When "Deactivate" is selected, these are carried out semi-automatically..
 - Power apportion billing data collection
 - Apportioning, settlement calculation process
 - Automatic output of settlement results
- The functions that run in the "always connected to G50A system" state can be used in "Activate" state, but cannot be used in the "Deactivate" state. These functions will not operate when the system is stopped.
 - Trend functions (temperature, on/off, mode, power amount, humidity)
 - Peak cut functions (only peak cut operation history functions)
- Set the TG-2000A to the "Deactivate" state when using the following functions.
 - Summer time ----- From the day prior to and after shifting to and from summer time
 - Season period --- From the day prior to and after shifting between normal and seasonal power apportion billing.
- The G-50A, PLC and etc. errors cannot be detected while the TG-2000A is stopped. If the G-50A, PLC, PI controller, DIDO controller or AI controller is faulty, stopped or the power is OFF, the data required for charging will not be collected, and schedule operation of the air conditioner or general equipment will not be possible. Periodically confirm that the operation is correctly, and that no abnormalities are occurring.
- When "Activate" is selected, leave the computer power ON so that the integrated software TG-2000A program runs 24 hours. (to prevent the program from stopping, do not use the "System standby" or "System halt state" power supply optional functions.)
- The integrated software TG-2000A program runs for 24 hours, so always leave the computer's power ON.

(6) Function

- The functions and specifications may be partially changed without notice for improvement.

14. Maintenance and Service

For maintenance and service, please contact a Mitsubishi official sales electric office or supplier.

- * Contact the local manufacturer if any faults occur in the locally prepared computer or HUB, etc.

Appendix 1: Using Charge Calculation Tool

These attached sheets describe using the charge calculation tool (Excel file) that supports the air-conditioning charge calculation for each charge block by using the air-conditioning charge proportion result output file and the value indicated by the watt hour meter.

It is possible for this tool to develop data for the air-conditioning charge calculation/bill form for each charge block, and to change the bill form.

1. Preparations

The following shows the items required for charge calculation.

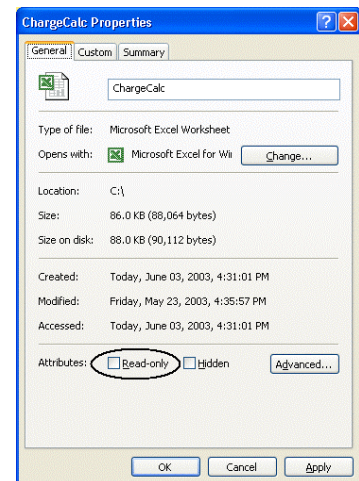
A power meter reading is required for the power apportioning billing (manual input of electric amount).

Conditions	Preparations
Power apportioning billing (manual input of electric amount)	*Excel 2007/2003/XP/2000 *Air-conditioning charge proportion result output file *Enclosed "ChargeCalc.xls" file *Necessary data (Refer to section "2.1.5" in this Appendix 1.)
Power apportioning billing (electric amount pulse count/electric amount computer direct read)	*Excel 2007/2003/XP/2000 *Air-conditioning charge proportion result output file *Enclosed "AirconCharge.xls" file *Necessary data (Refer to section "2.2.5" in this Appendix 1.)

Since the application software shown above is installed in the computer, make preparations so that it is ready to access the file shown above.

Note:

- ChargeCalc.xls and AirconCharge.xls files are used after copying it from the integrated centralized control software CD. Since it is intended for Read only, open the Property, and click the check marked for Read only located at the Attribute before using it.
- Chargecalc.xls and AirconCharge.xls files uses a macro.
When the Unable to use macro message is displayed, therefore, change the macro security level so that the macro can be used.

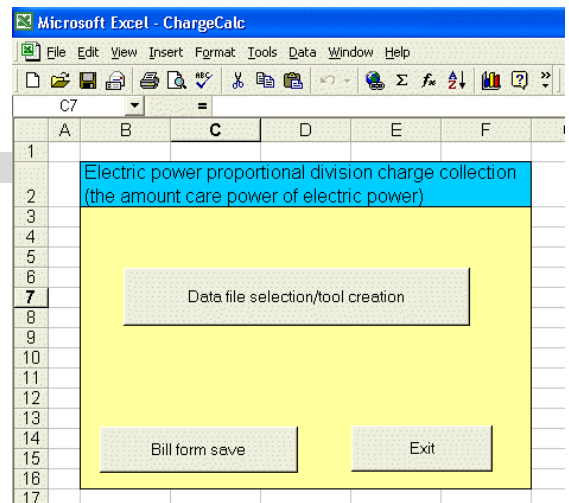


2. Charge calculation procedure

2.1 For power apportioning billing (manual input of electric amount)

The following describes the procedure to calculate the air-conditioning charge from the electric energy calculated by watt hour meter using the charge proportion output result (file) output to each charge block by the air-conditioning charge function of the integrated software.

- 1) Start ChargeCalc.xls file.
Double-click ChargeCalc.xls file with Explorer to open the Excel, by which the charge calculation (manual input of electric energy) screen is displayed.
- 2) Select the [Data file selection/tool creation] button.
Click the [Data file selection/tool creation] button located on the charge calculation (manual input of electric energy) screen).
With the above step, the File open screen is displayed.



ChargeCalc.xls screen

3) Select the data file.

Select the data file to be read.

4) Select the [Open] button.

To read the data file, select the [Open] button, by which the Excel screen of "Air-conditioning charge calculation support tool from calculation proportion" is displayed automatically by the different file name.

*ChargeCalc.xls is closed, and the Excel file of the new book is created and displayed.

Block name	Charge ratio Outdoor unit %	Charge ratio Indoor Unit %	Charge Outdoor unit [EUR]	Charge Indoor unit [EUR]	Air-conditioning charge sum total [EUR]
Block1	30.63	42.95	6126000	2142500	8268500
Block2	17.34	14.29	3468000	714500	4182500
Block3	17.36	14.29	3472000	714500	4186500
Block4	17.38	14.29	3476000	714500	4190500
Block5	17.29	14.29	3458000	714500	4172500

Example of air-conditioning charge calculation support tool usage screen

5) Input the data of the necessary items.

In this case, input the necessary data shown below.

- Billing month
- Electric energy of outdoor unit (for billing period)
 - * It is necessary to inspect the watt hour meter.
- Electric energy of indoor unit (for billing period)
 - * It is necessary to inspect the watt hour meter.
- Unit cost of electric charge
- Currency unit

When such data is input, the air-conditioning charge result total (charge for electricity used) is displayed for each charge block.

2.2 For power apportioning billing

(Electric amount pulse count/ Direct read in of power value into computer)

This section explains the procedures of filling out the print form for each block using the air-conditioning charge output results (file) output for each charging block by the integrated software's air-conditioning charge calculation function.

1) Start the "AirConCharge.xls" file.

Double-click "AirConCharge.xls" file with Explorer, and open up Excel. The Power apportioning billing screen opens.

2) Select the [Data file selection/tool creation] button.

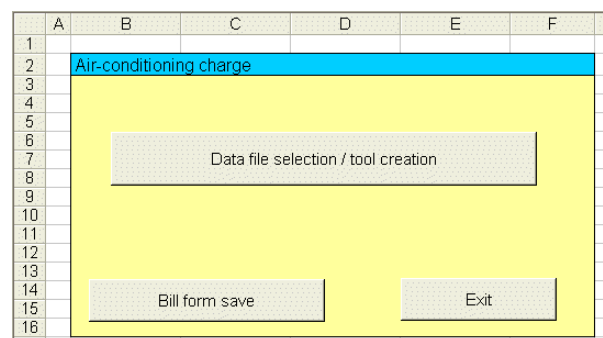
Click the [Data file selection/tool creation] button on the Power apportioning billing screen. The "Open File" screen opens.

3) Select the data file.

Select the data file to be read.

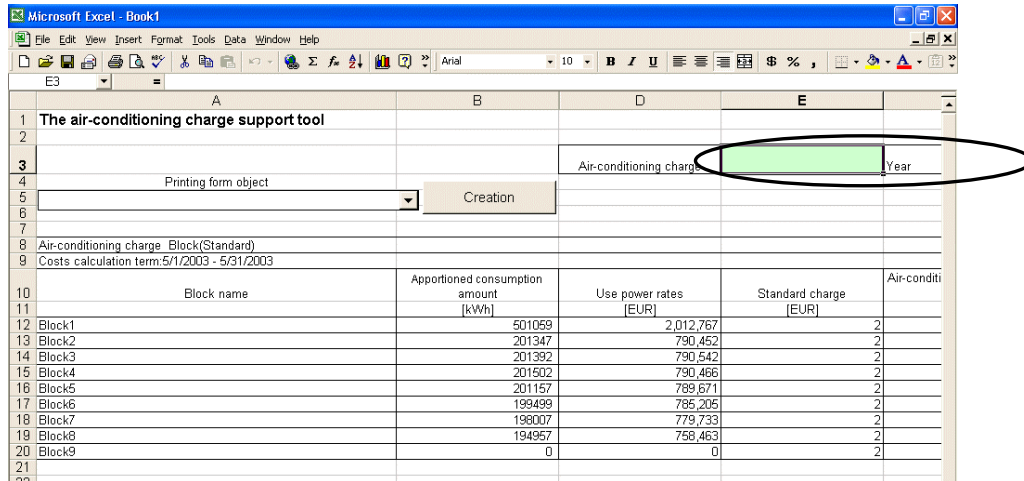
4) Select the [Open] button.

To read the data file, select the [Open] button, by which the Excel screen of " Air-conditioning charge support tool " is displayed automatically by the different file name.



AirConCharge.xls screen

* Air-conditioning charge support.xls closes, and an Excel file is created and displayed in a new book.



Example of air-conditioning charge support tool screen

5) Input the data of the necessary items.

In this case, input the necessary data shown below.

- Billing month and year

3. Method for developing printing charges

The following describes the procedure to develop the air-conditioning charge for each charge block calculated in the last chapter (Chapter 2) into an optional form.

1) Select the charge block.

Select the charge block desired to be developed into an optional form from the "Printing form object".

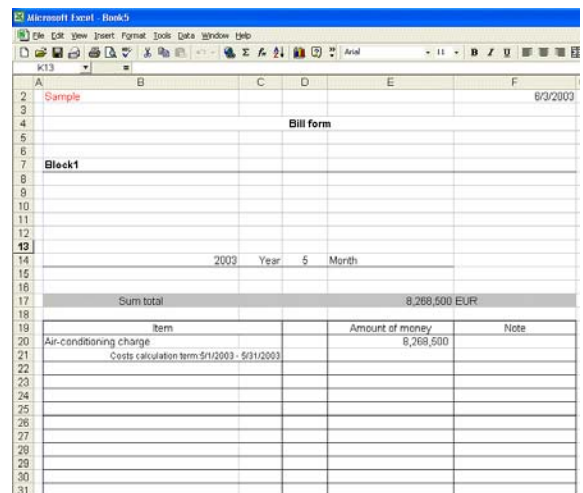
2) Select the [Create] button.

When the [Create] button is clicked, the following items are reflected upon the Excel file of the new book by the optional form.

- Billing date
- Charge block name: Tenant name
- Billing period
- Air-conditioning charge total (charge for electricity used)
- Unit (currency unit)

3) Input the added contents and data as required.

When the contents or data is input additionally into the Bill form of the new book, it becomes possible to print the data using the Excel function.



Note:

- It is possible to print the bill form sheet output to each charge block with expenses other than water, gas, and air-conditioning charges by inputting them manually.
- To display the decimal point, change the "cell setting" in Excel.

4. Change of bill form

The following describes the procedure to change the Bill form output for each charge block.

1) Start the file.

Double-click the ChargeCalc.xls or AirConCharge.xls file with Explorer to open the file using Excel, by which the charge calculation screen is displayed.

2) Select the Bill form sheet.

Select the Bill form sheet from chargecalc.xls or AirConCharge.xls.

3) Change the bill form.

Change the bill form so it is suitable to use. After changing the bill form, check the output cell position of Charge block name, Billing month, and Air-conditioning charge total, and proceed to step 4).

4) Select the [Insert], [Name], and [Define] from the menu.

When the [Insert], [Name], and [Define] are sequentially selected from the Excel menu, the Definition of name screen is displayed, on which it is possible to change the output cell position.

5) Select the item to be changed.

Select and click the item of the output cell to change from the following items.

- Block (charge block name)
- Charge (air-conditioning charge total)
- Year (billing year)
- Month (billing month)
- Term (billing term)
- Date (date of bill issued)
- Unit (currency unit)

6) Select the output cell after selecting the reference range column.

Click the Reference range column on the Definition of name screen, and then click the cell to be output, by which the cell to output is displayed by a dotted line in the reference range column.

7) Select [OK] button.

When the [OK] button on the Definition of name screen is clicked, the output cell position is changed.

8) Perform steps 4) to 7) above repeatedly for the remaining items.

Perform steps 4) to 7) for the remaining items which can be output to change the output cell position.

9) Select the HOME sheet.

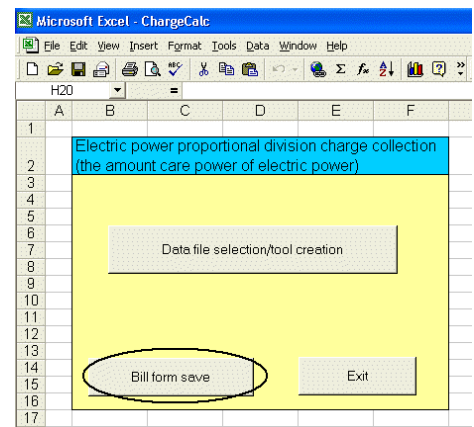
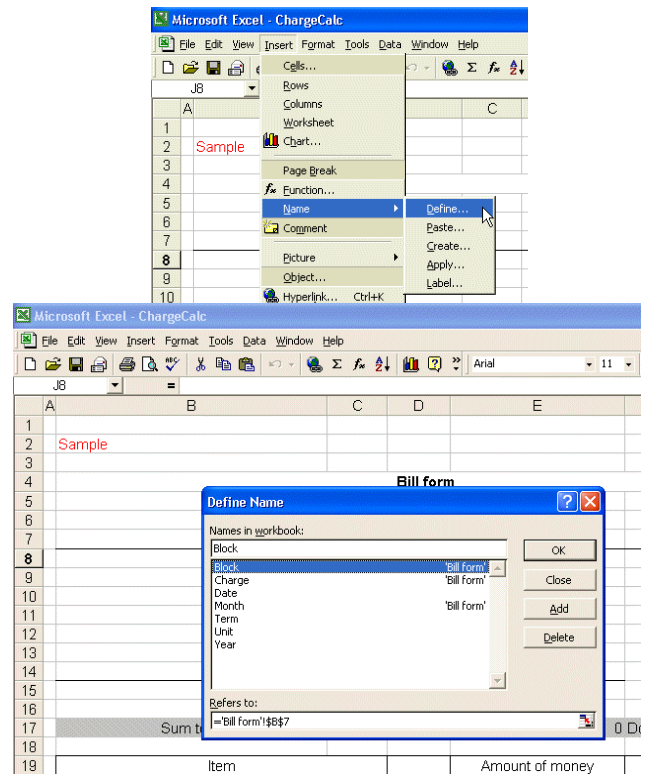
When the HOME sheet is clicked after changing the output cell, the sheet display is changed.

10) Select the [Bill form Save] button.

When the [Bill form Save] button located on the HOME sheet is clicked, the bill form changed is saved.

11) Select the [Exit] button.

Click the [Exit] button located on the HOME sheet to close the file.



Note:

- When the Bill form is changed, be sure to click the [Bill form Save] button to save the data. Note that the software is terminated without saving the bill form when the [Data file selection/tool creation] button is clicked after changing the form.

Appendix 2: Using the Trend Graph Display Tool

This appendix explains the procedures of displaying the trend graph using the CSV file in which the trend or peak cut data has been output.

This tool allows the trend graphs to be displayed easily. When used with other tools, the trend graphs can be displayed freely.

1. Preparation

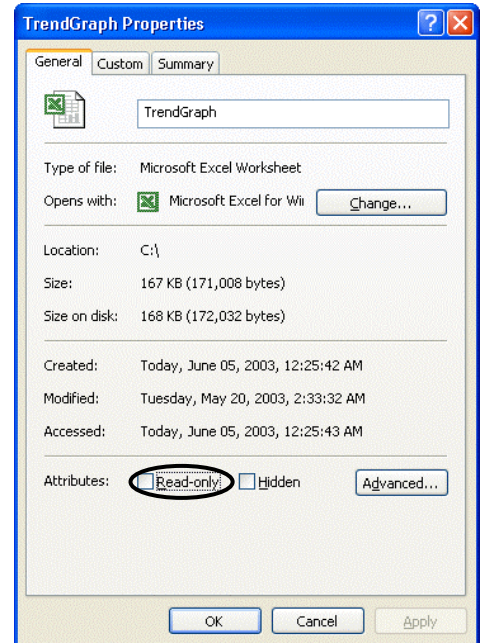
Prepare the following items to display the trend graphs.

- Excel 2007/2003/XP/2000
- Trend data or peak cut data output file
- Enclosed "TrendGraph.xls" file

The above application and software are installed in the computer. Enable it so that the above file can be accessed.

Note:

- Disable the "Read-only" check in the Properties for the "TrendGraph.xls" file.
- The "TrendGraph.xls" file uses macros. If a message indicating that macros cannot be used appears, change the macro security level to enable the macros.

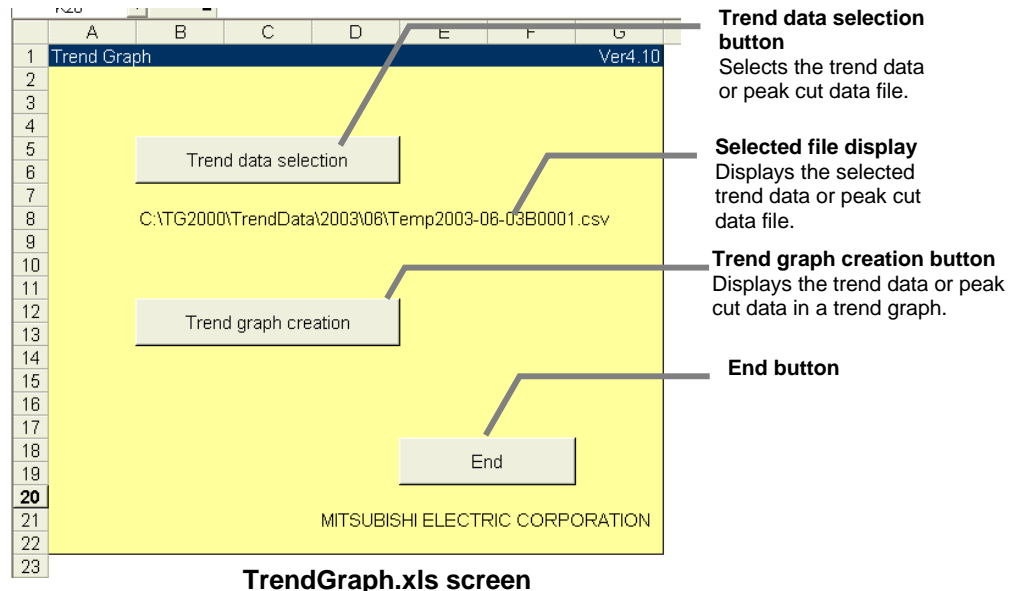


2. Trend graph display procedures

Display the trend graph using the integrated software's trend or peak cut data output file.

1) Start the "TrendGraph.xls" file.

The Trend graph main screen opens when the "TrendGraph.xls" file is opened with Excel.



2) Select the [Trend data selection] button

The "Open File" screen opens when the [Trend data selection] button is clicked.

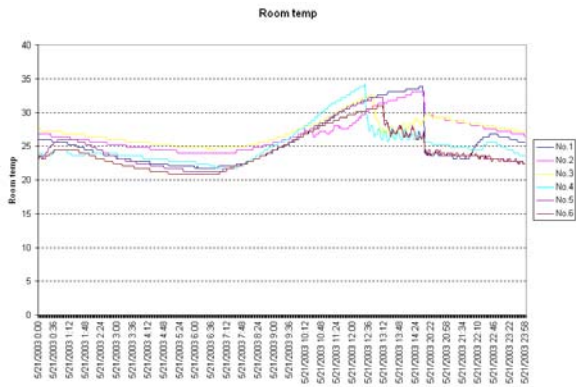
3) Select the data file.

Select the data file from which the data is to be imported. The selected file name appears.

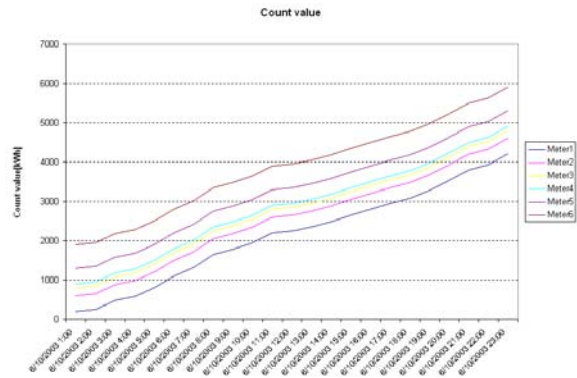
4) Select the [Trend graph creation] button.

The Trend graph screen appears automatically in another Excel file when the [Trend graph creation] button is clicked.

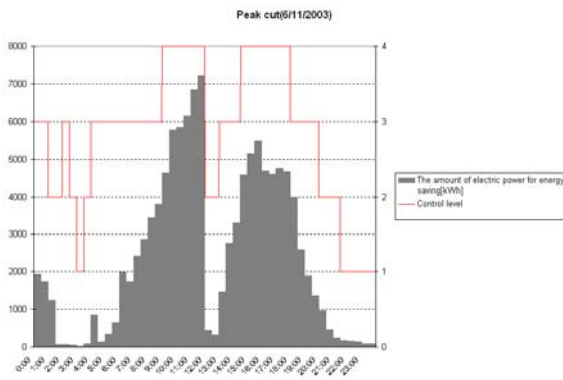
Examples of screens showing the trend graphs are shown below.



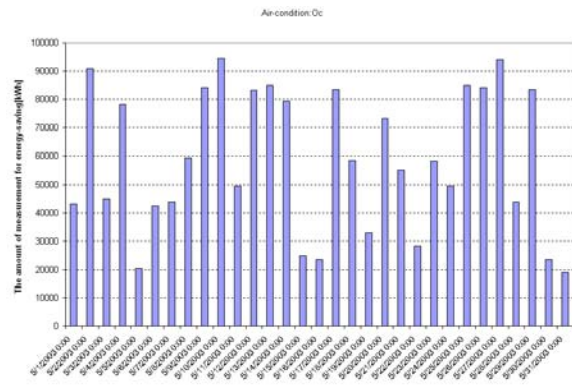
Example of intake temperature trend graph



Example of WHM trend graph



Example of daily report trend graph



Example of monthly report trend graph



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