MITSUBISHI ELECTRIC

Mitsubishi Electric Building Air Conditioning Control System

MJ-310E

Operation Manual (Site adjustment)

Please read this manual before using the unit.
Please keep this manual for future use.

In this manual, Microsoft® Windows NT® Version 4.0 is called Windows NT or Windows NT4.0. Microsoft® Windows®2000 professional is called Windows 2000 and Microsoft® Excel 2000 is called MS-Excel2000.

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 (Management) 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 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.

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.

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.

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.

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 unit 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.

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.

2. System Requirements

2.1 Requirements (system recommendations)

We recommend the following software and hardware when using this application.

Item	Requirement	Recommended
CPU	Pentium II 350 MHz or faster	Pentium III 500 MHz or faster
RAM	128 MB or more	
HDD	6 GB or more	
Resolution	1024 × 768 or higher,65536 colors or more	
Expansion slots	PCI - 1 slot or more	Use with an I/O board (for use with external input and output)
Serial port	2 or more	Use 2 ports when using the With WHM connection billing function.
OS	① WindowsNT 4.0 Workstation Service Pack 6 A ② Windows 2000 Professional Service Pack 1	English version only ❋ Personal computer must support each OS.
Other	Computer must be dedicated for this use	

2.2 Compatible units

The MJ-310E has two main functions: air conditioner controller and cost accounting. However, not all functions are available with all air conditioners. (○ : supported, △ : Certain restrictions apply, × : Not supported)

Model \ Function	Control/Maintenance	Billing (With WHM)	Billing (Without WHM)
Y series	○	○ (In block units)	○ (In block units)
Y series (Cooling Only)	○	○ (In block units)	○ (In block units)
SuperY series	○	○ (In block units)	○ (In block units)
R2 series	○	○ (In block units)	○ (In block units)
WR2 series	○	○ (In block units)	○ (In block units)
Multi S series	○	○ (In block units)	○ (In block units)
LOSSNAY	○ (Adapter required)	△ (A separate watt hour meter is required. Billing is done with watt-hour units)	×
OA Processing unit	○	△ (A separate watt hour meter is required. Billing is done with watt-hour units)	×
"A" control type	○ (Adapter required)	△ (A separate watt hour meter is required. Billing is done with watt-hour units)	×
"K" control type	○ (Adapter required)	△ (A separate watt hour meter is required. Billing is done with watt-hour units)	×

2.3 Restrictions

The following restrictions apply to the MJ-310E application.

(1) System configuration limits

	Number of units	Notes
IFU	1 unit	Ver 5.00 or higher
G/W	Max. 20 units	Ver 7.03 or higher
Indoor unit	Max. 50 units / G/W	Max 1000 units (including all IC, KIC, LC, and FU)

IC: Indoor unit, LC: Lossnay, FU: OA Processing unit, KIC: "A" controller, "K" controller indoor unit, G/W: Gateway

(2) Group setting restrictions

Item	Restrictions	Notes
Remote controls	2 per group	* Other remote controls besides M-NET type will not work
Number of indoor units connected to a group	1 to 16	* IC, KIC, or LC cannot be used within the same group. It is not possible for group settings to span G/W
Number of SC and RC connected to a group	4 per group	* The number of G/W is not included
Groups per floor	Max. 50 groups per floor	While it is possible to set more than 50 groups per floor, it is recommended to set only up to 50 groups per floor.

SC: System controller, RC: Remote controller

(3) Billing restrictions

The air conditioning cost calculation method use by this unit is the Mitsubishi proprietary general electric power apportioning method. Thus, it is not calculated using watt hour meters installed at the power supply to each unit. Additionally, it cannot be employed in applications demanding calculations based on watt hour meters installed at each unit. Thus when using this unit, we recommend a separate contract be established between the building owner and the tenant that specifies "air conditioning fees will be collected based on proportional usage (including special considerations for downtime)."

2.4 Other devices
Other devices specified or recommended for use with the MJ-310E are listed below.

Name	Manufacturer	Model	Notes
I/O board	NATIONAL INSTRUMENTS	① PCI-6602 (I/O board) SH-68-D1 (Cable) SCB-68 (Accessory) ② PCI-6601 (I/O board) R6868-H1 (Cable) CB-68LP (Accessory)	Only I/O boards and accessories of the specified model and manufacturer should be used
Printer	(None specified)	(None specified)	Supports a page printer only (Must run under the OS used (Windows NT4.0 or Windows 2000 Professional).) Ex) HP 4050N
Watt hour meter	① Northern Design (Electronics) Ltd. ② Elcomponent Limited	① POWER RAIL 323 + OPTION Module ② AEM31D/485	Only supports RS-485 output of the specified model and manufacturer
RS-232C/RS-485 converter	(None specified)	(None specified)	Necessary when measuring the electric power. Ex) B&B Electronics Model 485DRJ Black Box Model IC520A-F or IC108A ❈ Regarding watt hour meter ②, the converter from the manufacturer may also emit light.
UPS (Uninteruptable power supply)	(None specified)	(None specified)	Installation is recommended to prevent destruction or loss of billing and other data. (Any type suitable for use with personal computers)

3. Flow of site adjustment

3.1 Flow of site adjustment

When the task of site adjustment is subdivided into smaller tasks as shown in the figure below, the tasks can be broadly grouped into three steps. The benefit of following these three steps when carrying out the tasks of site adjustment is that if troubles do arise, it will be clear which step caused the problem. This makes it easier to solve problems and this results in a more efficient execution of site adjustment tasks.

Carry out site adjustment, by following the step by step instructions shown below.

Step 1 Air conditioner test run

Check that the air conditioners and controllers are correctly configured and that the air conditioner works.

❋ You can carry out Step 1 and Step 2 at the same time.
❋ Refer to the instructions that come with the products for the air conditioner test run.

Step 2 PC connections and settings

Connect and set up the software and hardware on the PC with MJ-310E installed. Check that it is ready for operation.

❋ See Chapter 4 in this booklet for details.

Step 3 MJ-310E system test run

Check that the MJ-310E man-machine system can correctly operate air conditioner units of all the managed systems by issuing MJ-310E commands.

3.2 Tools for site adjustment

You will need the following equipment and reference material in order to easily carry out site adjustment.

    <Measurement instruments>
       - Tester·················to check the wiring and the voltage
    <Reference material>
       - All necessary drawings of the air conditioning control system
       - MJ-310E Instruction Manual (Site Adjustment (this manual), Management Sections)
       - Operation Manual for each air conditioner unit and controller
       - MJ-310E Technical Manual (Scheduled for publication)
    <Other material>
       - Floppy disk ·······used when copying data
       - Screwdriver kit
       - Other usual maintenance tools

3.3 Step 1 - Test run by remote control

Disconnect the G/W from the higher level control system and test only the operation of the air conditioner system.

(1) Disconnect G/W

Disconnecting the G/W disconnects the system from the air conditioner units. To disconnect the G/W, remove the connectors: CN01 (DC 5V power supply), CN02 (side bus) and CN04 (main bus) which are shown in the figures below. Use the same method when removing connectors from any G/W in the system.

[Example of a system configuration]

Disconnect the G/W from the higher level control system
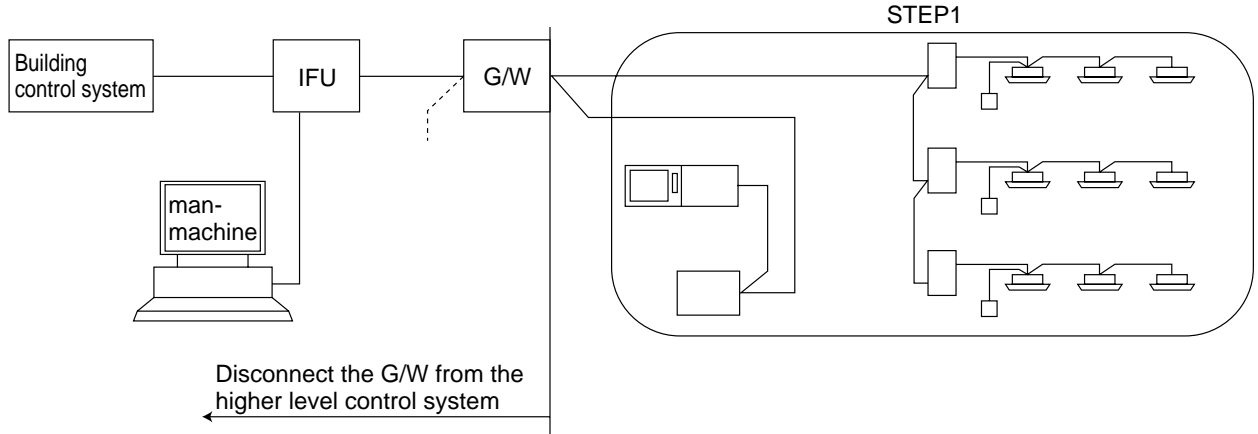
[Gateway connectors]
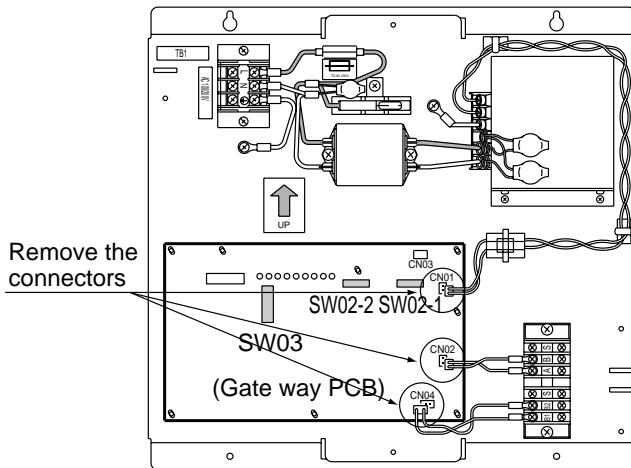
✳ Turn off the power supply before removing the connectors.
To prevent damage to the IFU board from incorrect wiring, remove the IFU connectors: CN01 (DC 5V power supply) and CN02 (main bus)

Remove the connectors

SW03

(Gate way PCB)

[IFU connectors]

✳ Turn off the power supply before removing the connectors.

Remove the connectors

D-SUB connector screw
(4 locations)

5
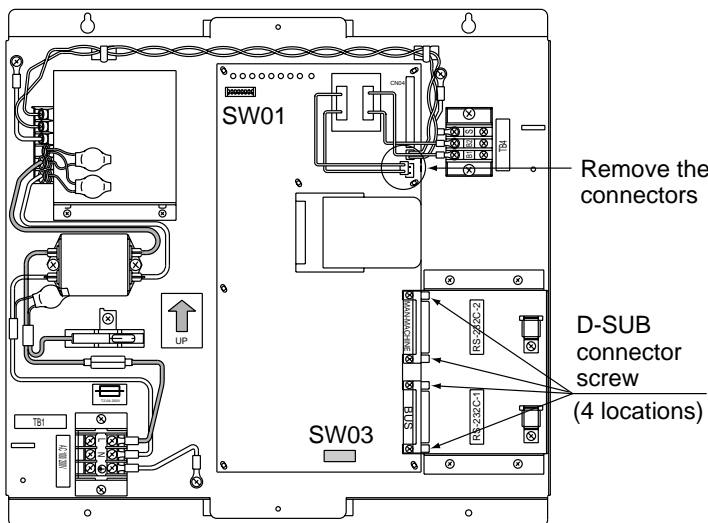
(2) Test run by remote control

Under the conditions prescribed in (1), test the operation of the air conditioner from the remote control (using either the local or central remote control).

❋ See the documentation provided with the air conditioner or central remote control for instructions on how to test the operation.

(3) Connect to G/W

After turning off the G/W power supply, connect the following connectors to the G/W.

CN01 (DC 5V power supply), CN02 (side bus), and CN04 (main bus)

Then turn on the power and confirm that the voltage is not supplied to the main bus.

Make sure another system's M-NET transmission cable is not mistakenly connected to the main bus.

If the voltage is supplied to the main bus, remove the connector (CN04) immediately.

3.4 Step 2 - Initial settings for MJ-310E

Set up the MJ-310E PC.

❋ See chapters 4 - 8 of this manual for more detail.

3.5 Step 3 - Test run from MJ-310E

To test the operation from MJ-310E, test the operation of the air conditioners after checking the following items.

(1) Check and adjust G/W settings

Make the switch settings necessary to put the G/W into operation.

[Gateway board]
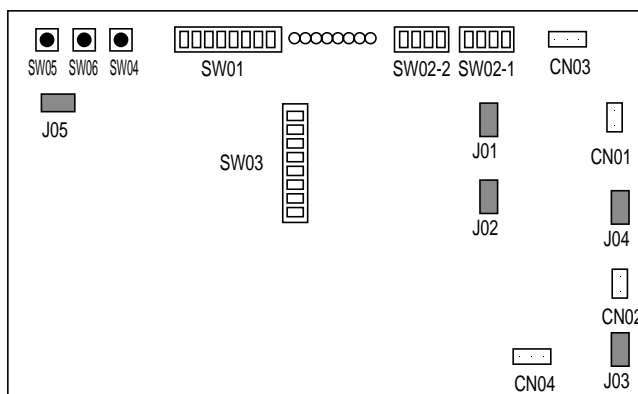
Step	Item	Details	Comment
1	Address setting	Set the G/W address	SW02-1 (1 position), SW02-2 (10 position)
2	Function setting	Set the G/W functions	
3	Jumper setting	Set the G/W functions (no need to change)	Leave at factory setting

❋ See the documentation provided with the G/W for more details on settings.

G/W DIP switch settings   ▨ : Factory settings

SW	Details	ON	OFF
SW03-1	Priority command transmission range	Only RC	SC and RC
SW03-2	Reserved	–	–
SW03-3	↑	–	–
SW03-4	↑	–	–
SW03-5	↑	–	–
SW03-6	K transmission converter	Provided	Not Provided
SW03-7	Reserved	–	–
SW03-8	Start up allowance	Yes	No

Jumper settings   ▭ : Factory settings

Jumper	Details	ON	OFF
J01	All side bus systems receive the same information at once	ON（「有」）	OFF（「無」）
J02	All main bus systems receive the same information at once	ON（「有」）	OFF（「無」）
J03	Side bus terminator	ON（「有」）	OFF（「無」）
J04	Main bus terminator	ON（「有」）	OFF（「無」）
J05	Watchdog pulse	ON（「有」）	OFF（「無」）

※J03 and J04 are not installed.

(2) Check and adjust IFU setting
Make the switch settings necessary to put the IFU into operation.

[IFU board]
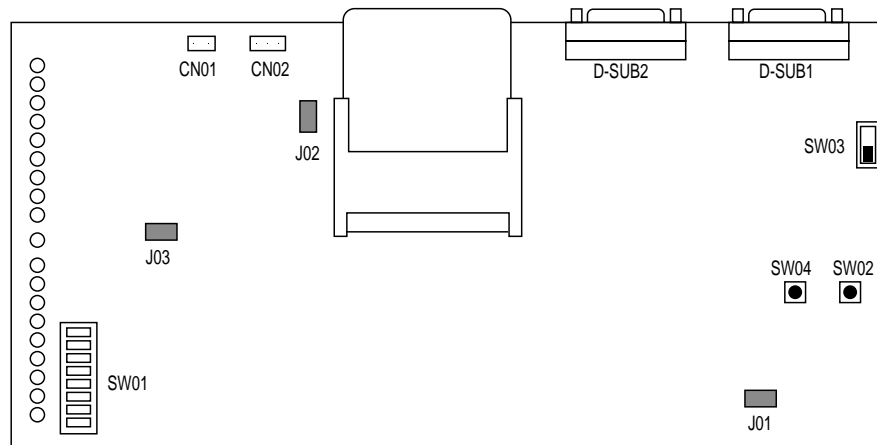
Step	Item	Details	Comment
1	Building control system communication speed setting	Set the communication speed for the connection to the building control system	Only check when connecting system to the building control system
2	Jumper setting	Set the IFU functions (no need to change)	Leave at factory settings

※See the documentation that came with the IFU for more detail on settings.

Switch setting
Set the building control system communication speed selector switch (SW3) on the printed circuit board for the initial setting only when the building control system is connected.

Function	Symbol	Setting method
Bldg. control system comm. speed switching	SW03	9600 ▣ 4800 Set to either 9600bps or 4800ps according to the system.

The blackened square shows the switch setting position

Jumper settings   ▭ : Factory settings

Jumper	Details	ON	OFF
J01	Watchdog pulse	ON（「有」）	OFF（「無」）
J02	Receives the same information at once	ON（「有」）	OFF（「無」）
J03	Terminator	ON（「有」）	OFF（「無」）

(3) Check wiring (M-NET, main bus and RS232C cable)
    Check the wiring of M-NET, main bus and RS232C cable.

[System wiring example]

Step	Item	Details	Comment
1	Stop air conditioner	Stop all air conditioner units using the respective system's remote control	
2	Switch off non-air conditioner power	Turn off the power to system equipment other than air conditioner units • All system power feed units • G/W • IFU	※ If this is done while the air conditioner is running, Error 6607 will appear on the remote control display
3	Check cable specifications Check grounding	Ensure the cables used by the M-NET central system and main bus conform to specifications Ensure there is one grounding (shielded cable) for each system	
4	Check wiring between G/W and outdoor unit	Ensure that the G/W side terminal connection is TB2 and the outdoor unit side terminal connection is TB7 as shown in the above figure Ensure there are no loose screws on the terminal block	
5	Check wiring connecting G/W units	Ensure that the connection on both G/W is at the TB4 as shown in the above figure Ensure there are no loose screws on the terminal block	
6	Check wiring between IFU and G/W	Ensure that the IFU side terminal connection is TB4 and the G/W side terminal connection is TB4 as shown in the above figure Ensure there are no loose screws on the terminal block	
7	Check wiring between the man-machine console PC and the IFU	Ensure the PC is connected by an RS-232C connector and the IFU is connected by a D-SUB2 connector Ensure there are no loose cable connector screws	
8	Remove connectors	Remove the following connectors • G/W board of each system: CN01, CN02, CN03 and CN04 • IFU board: CN01 and CN02	This prevents damage to the board from incorrect wiring connections
9	Check voltage	Check the voltage of the terminal block using the tester *Refer to "How to check voltage" outlined next	
10	Connect connectors	After all tasks are complete, restore the IFU and G/W connections	

How to check voltage

Step	Details		
1	Turn on the power of the power feed unit of one system		
2	Measure the terminal voltage of the G/W in the system with the power connected	TB1 → 0 V TB2 → DC17-30 V TB4 → 0 V	If the measured voltage is not the expected result listed on the left, assume some wiring is alternately. Check all the wiring again (※ 1)
	Measure the terminal voltage of the other G/W (Check all G/W)	TB1 → 0 V TB2 → 0 V TB4 → 0 V	
3	Disconnect the power supply to the power feed unit		
4	Connect the G/W power supply		
5	Measure the terminal voltage of the G/W with the power connected	TB1 → AC200-240 V TB4 → 0 V	If the measured voltage is not the expected result listed on the left, assume some wiring is alternately. Check all the wiring again
6	Measure the terminal voltage of the other G/W (Check all G/W)	TB4 → 0 V	
7	Disconnect the G/W power supply		
8	Repeat steps 1 - 7 for each G/W		
9	Connect the IFU power supply		
10	Measure the IFU voltage	TB1 → AC200-240 V TB4 → 0 V	※Same as Note 1
11	Disconnect the IFU power supply		

※After all tasks are complete, restore the IFU and G/W connections.

(4) Test the operation from the MJ-310E man-machine console PC.
　Carry out the following steps to test the operation from the MJ-310E console.

Step	Item	Details
1	Turn on the power supply	① Connect the power supply of the air conditioner units (including the power feed units) ② Connect the power supply to the G/W (for the air conditioner system to which power supply was connected) ③ Connect the power supply to IFU ④ Connect the power supply to the man-machine console PC
2	Start the program	Connect the power supply to the PC and start the MJ-310E program Once the program has been launched, start up the man-machine system ※See Chapter 7 for detail on program operation and program settings.
3	Test the operation	When the data registration for the man-machine system has not been performed, the initial setup screen appears automatically. You must register the necessary data in the initial setup screen. After registration, you can control operations for each group. Carry out a test of air conditioner operations

※See Chapter 11 for the details about the MJ-310E trial operation.

4. System configuration

4.1 Example of a system configuration

Power line

M/M — RS-232C — SIFU — G/W — OC

RS-232C — Converter — RS-485

WHM

WHM

(Image diagram)

WHM

RC

IC IC IC IC IC IC IC

OC

IC IC IC IC IC IC IC

RC

Power line

G/W — OC

IC IC IC IC IC IC IC

WHM — Power line

RC

WHM — Power line
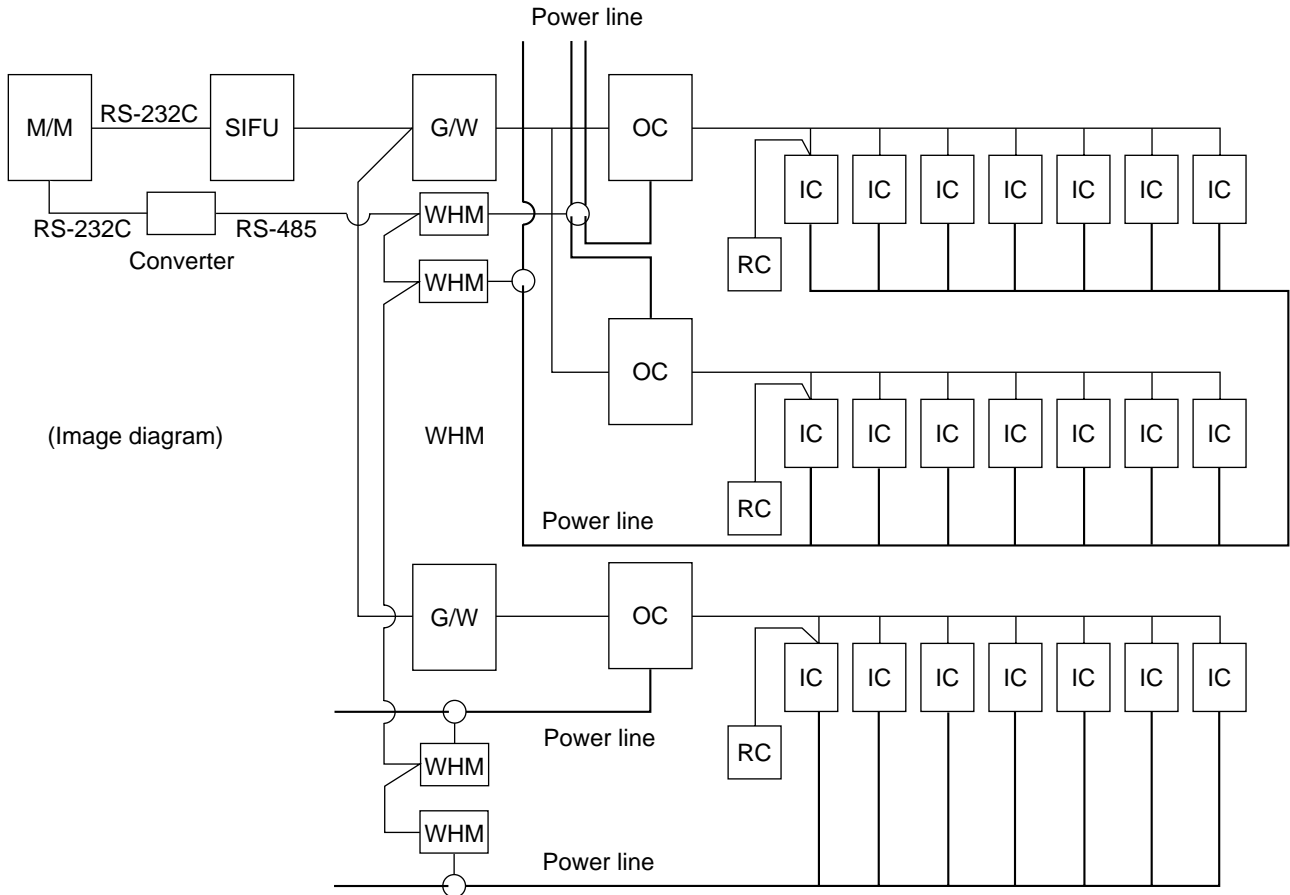
4.2 Figures showing hardware connections

4.2.1 Serial port connections

Connect the PC console with the IFU unit by using an RS-232C cable.
See the instruction manual for the PC for detail on the PC connector for this cable.

IFU-RS -232C-2

COM1 — RS-232C — IFU

(COM2)

RS-232C

The back of a PC

RS-485

RS-232C/RS-485 converter

10

4.2.2 I/O card connection

Install the I/O card that was recommended for the PC expansion slot (PCI).

 ❋Notice: If you connect to an I/O card that was not recommended, faulty oper-
 ation may occur. Please use the recommended I/O card.

I/O board
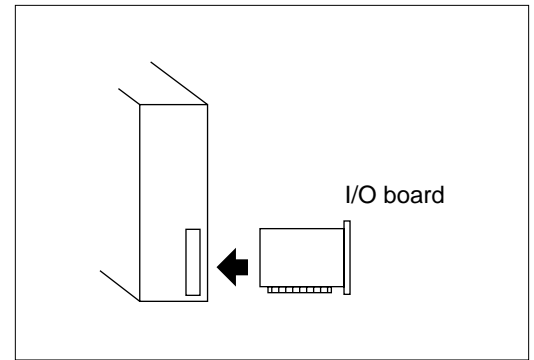
See the instructions that came with your I/O card for directions on how to connect the I/O card to your PC.
The following lists the restrictions for an example method of input output connection by I/O card.

Item	Details	Comment
Digital input	Low: -0.3 V ~ 0.8 V	TTL
	High: 2.0 V ~ Sipply + 0.3 V	
Digital output	Low: Max 0.4 V (Iout = 4 mA)	
	High: Min 2.4 V (Iout = 4 mA)	
Compatibility	TTL/CMOS	
Wiring length	10m (recommended)	Wiring distance from the accessories box.
		There is to be no effect from noise.

Example method of input connection

Accessory Box

Example method of output connection

Accessory Box

LED
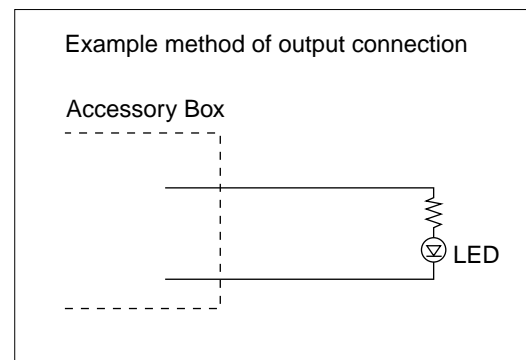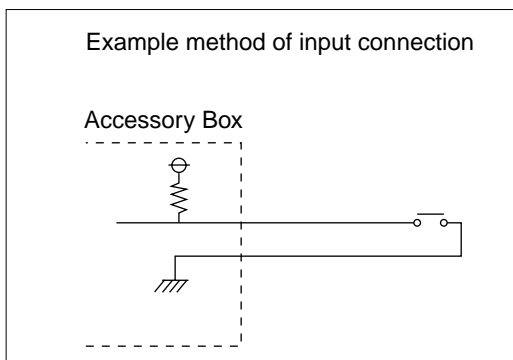
4.3 Cautionary notes on system configuration

The following gives notes of caution and describes the restrictions that apply to system configurations.

(1) Notes on system configuration
 - Group setting is possible when using the following models (Only the same G/W). Setting is not possible for mixed groups.
   a. Group with only OA Processing units
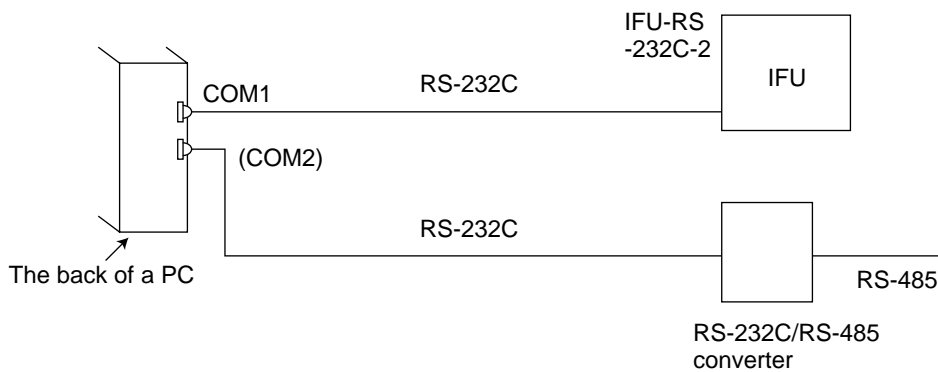   b. Group with only M control
   c. Group with only K control
   d. Group with only A control
 - Blocks used in operation can have block settings with other model groups.
 - Up to 50 groups can be installed on floors. If there are more than 50 groups in the entire building, the entire building dis-
   play cannot display all groups.
 - When setting groups, set groups with units that have the same functions.
 - When setting group functions such as operation mode and air speed, set the functions of the unit with the smallest address.
 - You can set a maximum of 2 local remote controllers in 1 group. If you combine local remote controllers and system con-
   trollers, you can only set 4 controllers.
 - The local remote controller for one group cannot use the M-NET and MA remote controllers together.
 - Duplication is allowed in floor, group and block name settings.

(2) Notes on charge system
 - If there is a group that is not set in the charge block, the electric power amount for that group will not be included in the air
   conditioning charge. If there are groups which require charging to be divided, set those groups as operation blocks or charge
   blocks to accomplish this.
 - The air conditioning charge can be calculated by block units or by power meter units. Note that even when OA processing
   units or K (A) control units are included in the block setting, they are not included in the air conditioning charge of the block
   unit.

- If some models cannot support division of OA processing units or K control units, charging by power meter can still be achieved by implementing a power meter for each of these models.
- OA Processing units and K (A) controller models are not the object of no WHM connected charging.

(3) Notes on using K control models
   When using a K transmission converter (model: PAC-SC25KAA (-E)) to manage K control models, take note of the following.
   See the documentation provided with the K transmission converter for more detail.
   - The address of the K transmission converter will be the smallest address of the K control model + 200.
   - Set the K control model addresses so that they are larger than the M transmission model addresses.
   - When setting a group containing K control models, make the group number the same as the smallest unit address in the group.

(4) Notes on using A control modes
   - Use the A/M NET Adapter (model name: PAC-SF48MA(-E)). Set the group to "Group with only A control".

(5) Using external I/O
   - Connect the external I/O to match the I/O specifications of the I/O board. Refer to the manual supplied with the I/O board.

5. Installation

5.1 Pre-installation steps for MJ-310E

Preparing for installation

Before installing the MJ-310E application, do the following checks and preparatory steps.

Steps	Action	Details	How to
1	Check the OS	Check the OS Service Pack version. - Windows NT4.0 Workstation : SP6A - Windows 2000 Professional : SP1	❀ If not the correct version, refer to the attached documentation, "Installing Windows NT4.0/2000" and upgrade the OS.
2	Check the memory	Check that there is at least 128 MB of RAM	❀ If necessary, add more RAM.
3	Set I/O board options ❀1	Connect the I/O board and set driver options	❀ For details, refer to the operation manual that came with the I/O board.
4	Printer settings ❀2	Install the printer driver and check that printing is possible.	❀ For details, refer to the attached instruction manual.
5	Set the date and time	In the Windows Control Panel, select "Date and Time" and set the date, time and region	❀ For details, refer to the Windows users manual.
6	Screen size and color settings	At the "display" in the Windows Control Panel, set the screen size to 1024 × 768 or larger and the color to 65536 colors or more.	❀ For details, refer to the Windows instruction manual.
7	Automatic login settings	Use the Windows User manager to set the login name as "Administrator" and the password as "MJ-310E".	❀ For details, refer to the Windows instruction manual.
8	Network settings ❀3	Check that the network settings have been performed (even if the adapter is not connected).	❀ For details, refer to the Windows instruction manual.

❀1 Check only if using an I/O board.
❀2 Check when using the printer.
❀3 When a network adapter is not connected, only Windows 2000 is automatically set.

There are two MJ-310E setup methods:
    Method 1) New setup.·····································See Section 5.2.
    Method 2) Upgrading with existing setup ········See Section 5.3.

The following shows the MJ-310E setup disk (CD-ROM) folder configuration and files. However, it only describes the files to be run.

New setup	Version upgrading
\Setup\Step1 ············MSDEInst.bat	\VerUp\dbverup ·······DbUpdata.bat
\Step2 ············DbSetup.bat	\mjverup ·········SetupMj.exe
\Step3 ············SetupMj.exe	

5.2 Running MJ-310E Setup (New setup)

The MJ-310E setup is performed in three stages:
    Step 1)   MSDE setup
    Step 2)   Database setup
    Step 3)   MJ-310E setup

> Maintenance Tip
>   - <u>Perform the 3 setup steps sequentially.</u> Otherwise, the MJ-310E will not operate properly.

Step 1) MSDE setup

Run the "msdeinst.bat" file in the "\Setup\Step1" folder. A DOS window will open and then close 2 or 3 minutes later when the process has finished.
<u>When the installation is completed, restart the computer.</u>
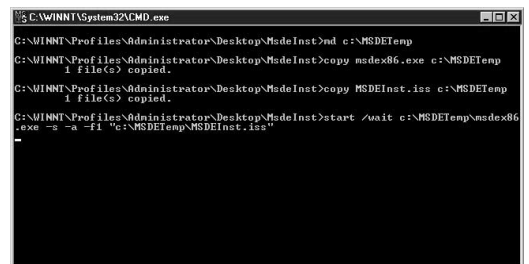
The screen during the MSDE setup

Step 2) Database setup

Run the "dbsetup.bat" file in the "\Setup\Step2" folder. After 2 or 3 seconds, the setup process will finish.

Step 3) MJ-310-E setup

Run the setup program for MJ-310E. Perform the setup in accordance with the instructions on the screen.

(1) Starting the setup program

[Procedure]

1) Starting SetupMJ.exe

Use Windows Start-Run to execute Run SetupMj.exe in the "\Setup\Step3" folder in the root directory of the Setup CD.
   (Example)   E:\Setup\Step3\SetupMj.exe
The setup start confirmation window appears. Read and check the cautions which appear on the screen.

2) Check the displayed items and click the "Next" button or the "Cancel" button

If there is no problem with the cautions, click the "Next" button to continue on to the next screen.
Click the "Cancel" button to stop the setup.

Starting the setup program

(2) Read the license agreement

[Procedure]

1) Read the license agreement and click the "Next" button or the Cancel button

The license agreement screens will be displayed one at a time. Carefully read all of the agreement and check that you agree with each item before selecting "It agrees" and clicking "Next" to continue.
If you cannot agree with the license agreement, click the "Cancel" button and stop the installation of MJ-310E.

License agreement confirmation screen

(3) Check the installation folder

[Procedure]

1) Check the location where the program is to be installed and click the "Next" button or the "Cancel" button

Check the location where the program is to be installed. If the location needs to be changed, set the new location by clicking the "Browse" button.
After checking the installation location, click the "Next" button.

Installation location confirmation screen

(4) I/O board usage confirmation

[Procedure]

1) Confirm whether or not the I/O board is being used and click the "Next" button or the "Cancel" button

After selecting "Be used" if the I/O board is being used or "Not be used" if the I/O board is not being used, click the "Next" button to continue.

❋ Skips this screen when an I/O board driver is not installed.
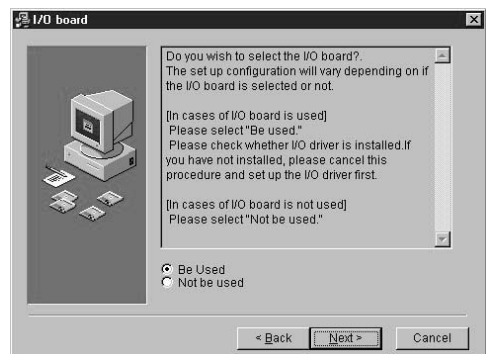
I/O board usage confirmation screen

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(5)Installation start confirmation

[Procedure]

1) Confirm that you want to start the installation and select the "Next" button or the "Cancel" button

If the "Next" button is clicked the installation will start.
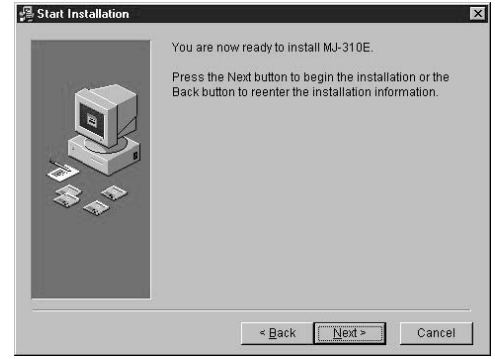
Installation starting screen

MJ-310E setup completion

[Procedure]

1) Select "Finish" button

Click "Finish" button on installation screen.
When the installation is completed, select whether or not to restart the computer. When the installation is completed, the program is registered in the start menu and automatically run from the next time the computer is started.
Store the CD is a safe place.
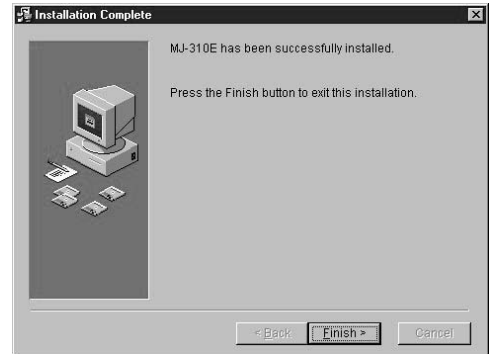
The Finish screen of installation

5.3 Running MJ-310E Upgrade

The following describes how to upgrade the MJ-310E from Ver1.00 to Ver2.00.
Step 1) MJ-310E ending
Step 2) MJ-310E uninstallation
Step 3) Database upgrading
Step 4) MJ-310E upgrading

Note:
- <u>To upgrade the MJ-310E version, perform the four steps sequentially.</u> If the four steps not performed sequentially, the MJ-310E may not operate normally.

Step 1) End the MJ-310E program

1) End the MJ-310E program

Switch from the management window to the initial window and select [File] - [End] from the menu bar. The end confirmation screen is displayed. Click [OK]. The MJ-310E program ends.

❋ The MJ-310E program must be ended to perform upgrading.

Ending MJ-310E

Step 2) Uninstall the MJ-310E

1) Start add and remove programs

Start [Add/Remove Programs] in the Control Panel.

2) Uninstall the MJ-310E

To uninstall the MJ-310E, select the MJ-310E program and run Uninstall.

3) Restart the computer

Since the program was uninstalled, reboot Windows.

Step 3) Upgrade the database

Upgrade the database as follows:

1) Start dbupdate.bat

Run "DbUpdate.bat" in the "\VerUp\dbverup" folder.
Database update processing ends in several seconds.

Database upgrade processing window

Step 4) Upgrade the MJ-310E

Upgrade the MJ-310E program from Ver1.00 to Ver2.00 as follows:

1) Start the Setup program

Use the Windows Start-Run to execute the "Run VerupMj.exe" file in the "\Verup\mjverup" folder in the root directory of the Setup CD.
    Ex) E:\Verup\mjverup\SetupMj.exe
The setup start confirmation window appears. Read and check the pre-setup cautions which appear on the screen.
Check the displayed items and click [Next].

2) Read the license agreement

Check the contents of the license agreement. If you agree with each item, select [It agrees], then click [Next] to continue.

MJ-310E upgrade processing window

3) Check the installation folder

Check the folder to be installed and click [Next].
If necessary, click the [Browse] button and set the location where the program is to be installed.

4) Check I/O board use

Check whether or not an I/O board is used and select [Be used] or [Not be used]. Then click [Next].
❈ When an I/O board driver is not installed, skip this screen.

5) Start installation

Click [Next]. Installation starts.

6) Reboot Windows

At the end of installation, click [Finish] in the installation complete window. Then reboot Windows. After Windows reboots, the MJ-310E automatically starts.

Note:
- The MJ-310E program version upgrading procedure is the same as initial setup.
- For a detailed description of the MJ-310E setup contents, see Step 3 of Section 5.2.

---

6. Part names and functions

6.1 Window elements

The window displayed when the power is turned on and no system data settings have been made is called the <u>Initial window</u>.
The Initial window has the following parts.
(The Initial window can be accessed from the menu bar with a password. For details, see section 6.3.)

Title bar ——

Menu bar ——

User setting group ——

System setting group ——

—— Title bar

—— Maintenance group

—— Exit button

—— Message bar

Initial window

> Title bar: Shows the title of the window
> Menu bar: Shows a list of functions that may be selected
> Exit button: Exits the Initial window and moves to the Management window
> Message bar: Shows time, warnings, and other comments

Click the buttons to display the window associated with that feature. An example is shown below.

Title bar ——
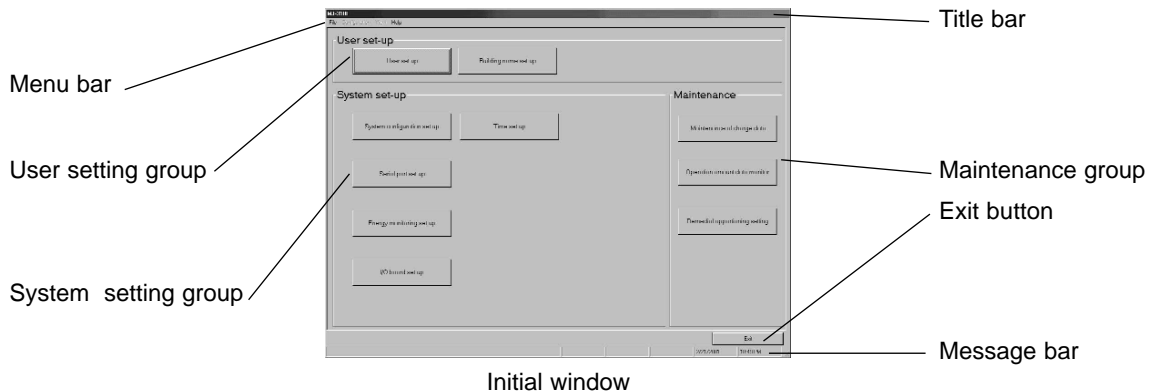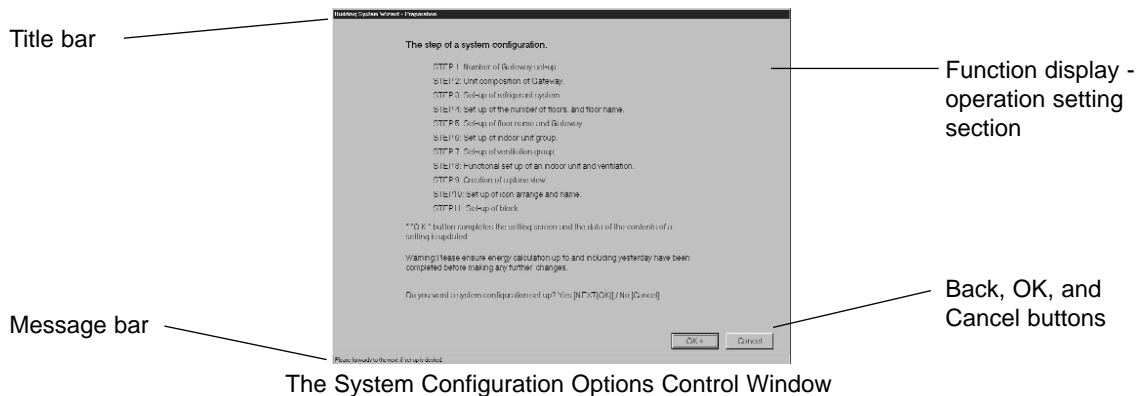
Message bar ——

—— Function display - operation setting section

—— Back, OK, and Cancel buttons

The System Configuration Options Control Window

> Title bar: Display the title of the window
> Message bar: Display comments about function display and operation
> Function display - operation setting section: Display the window contents
> Back, OK, and Cancel buttons: Choose to end, return, or cancel the setting of function display - operation settings
> Back: Cancels any changes and returns to the prior window
> Cancel: Cancels any changes to this window and returns to the Initial window
> OK: Accepts changes made to this window and advances to the next settings window

6.2 Basic mouse operation

First, use of the mouse as a pointing device will be explained. If a device other than a mouse is being used, consult with the manual for that device.

The following is a list of terms used in describing mouse operations.
> Click: This refers to pressing and releasing the button one time
> To use this function, click the button
> Double Click: This refers to pressing and releasing the button twice in quick succession
> Drag: This refers to moving the mouse pointer on top of an object on the screen, pressing and holding down the button to select the object, then, while holding the button down, moving the mouse pointer, and the object, to a different location
> Keyboard: Primarily used when entering password, characters, or numerics.

6.3 Accessing functions and moving between windows

The functions of the MJ-310E can be divided into two general categories.

    1) Functions that monitor air conditioner operation status and control functions

    2) Operation and system initialization and charge data maintenance functions

      (functions used to accomplish functions in 1) above)

This section deals mostly with functions in category 2).

The second category of functions is made up as shown on the following page. The window that displays these functions is called the <u>Initial window</u>. The window that displays category 1) functions is called the <u>Management window (Control screen)</u>.

<MJ-310E screen order>

Power On Start
MJ-310E

↓

MITSUBISHI ELECTRIC
CORP.
MJ-310E Version 2.00

Initial screen

↓

| System data | No system data |

Exit MJ-310E, shut down the OS, and turn the power off

↑

** WARNING **

Quitting this program will inhibit collection of the charging-related data.
Please process for the end , after the consent with the contents.
Okay to quit?

OK   Cancel

Exit Confirmation dialog box

↑

Select "File"-"End"

MJ-310E
File Configuration View Help

User set-up
User set-up   Building name set-up

System set-up   **Maintenance**
System configuration set-up   Time set-up   Maintenance of charge data

Serial port set-up   Operation amount data monitor

Energy monitoring set-up   Remedial apportioning setting

I/O board set-up

Exit
2/21/2001   10:49 PM

Initial window
(System Settings window)

Select Exit

↓

Password input

↑

Password input

OK   Cancel

Password screen

↑

Return to Initial window
"Configuration"-"System set"

↑

Under start-processing now.
Please wait for a while.

Startup screen

- - - - - - - - - - - - - - - - - -

Control screen
(see separate management manual)

⇔ User set-up

⇔ Building name set-up
   Building name
   ABC Building
   OK   Cancel

⇔ System configuration set-up

⇔ Serial port set-up

⇔ I/O board set-up

⇔ Energy monitoring set-up

⇔ Time set-up
   DateSet
   Day Month Year
   5   Oct   2000
   TimeSet
   Hour Minute Second
   10   49   8
   OK   Cancel

⇔ Maintenance of charge data

⇔ Operation amount data monitor
   Day Month Year   Day Month Year
   FROM 20 Feb 2001 TO 20 Feb 2001
   OK   Cancel

⇔ Remedial apportioning

❋ Items included in this manual.

Wizard name	Primary settings contained in the activated window
User Set-up	Set MJ-310E functions

Wizard name	Primary settings contained in the activated window
Building Name Set-up	Set the product name

Wizard name	Primary settings contained in the activated window
Preparation for Building System comfigurations set-up	Verifies the order of system configuration settings and displays warnings
Number of G/W set-up	Sets the number of G/W terminals
Unit composition of G/W	Set air conditioning equipment
Set-up of refrigerant system	Set refrigerant connections
Set-up of the number of floors, and floor name	Set floor number and names
Set-up of floor and G/W	Set floor and G/W assignment
Set-up of Indoor unit group	Set indoor unit and remote control groupings
Set-up of ventilation group	Set ventilators and remote control groupings
Functional set-up of an indoor unit and ventilation	Set indoor unit and ventilation group functions
Creation of a plane view	Create a floor plane to be used in the floor window of the Management window
Set-up of icon arrange and name	Layout icons on the floor plane, and set names
Set-up of block	Set groups in blocks

Wizard name	Primary settings contained in the activated window
Serial port setting	Set watt hour meter connecting port settings and watt hour meter address settings

Wizard name	Primary settings contained in the activated window
External I/O set-up preparation	Verifies the order of external I/O settings and displays warnings
Input and port settings	Set the Fire Alarm Shutdown port and valid levels
Output and port settings	Set status output port and valid levels

Wizard name	Primary settings contained in the activated window
Preparation for Energy monitoring set-up	Verifies the order of billing settings and displays warnings
Set-up for the name and the maximum count value of WHM	Assigns a name and location to the watt hour meter port, and sets the maximum integrated value
Set-up for division mode	Selects the apportioning mode for indoor and outdoor unit systems
Creation of outdoor unit which is connected to watt hour meter	Assigns outdoor units to watt hour meters
Creation of outdoor unit	Sets crank case heater capacitance for outdoor units
Creation of indoor unit which is connected to watt hour meter	Assigns indoor units to watt hour meters
Creation of indoor unit	Sets indoor unit capacity and fan capacity
Creation of block for charge	Sets apportionment unit from the operational blocks
Currency unit set	Sets the currency to use
Charge set	Sets the per unit cost of electricity including day-time and night-time rates
Standard charge set	Sets the standard change rates for each block or watt hour meter

Wizard name	Primary settings contained in the activated window
Time set-up	Sets the current time

Wizard name	Primary settings contained in the activated window
Maintenance of charge data (Present value monitor)	Data for the last 62 days from the watt hour meter, indoor units, and outdoor units can be viewed and edited. Also, current values for watt hour meters can be monitored.
Maintenance of charge data (Meter maintenance)	Watt hour meter data from the last 62 days can be viewed and edited.
Maintenance of charge data (Unit)	Data for the last 62 days from indoor units and outdoor units can be viewed and edited.

Wizard name	Primary settings contained in the activated window
Operation amount data monitor	Operation data stored in IFU can be monitored and saved.

Wizard name	Primary settings contained in the activated window
Remedial apportioning	Remedial apportioning can be tentatively performed when charging trouble occurs.

Selecting the Initial Window and the Management Window.

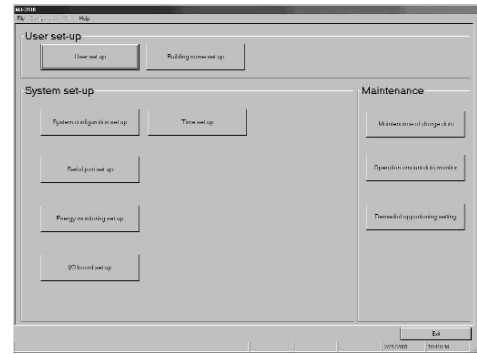**(1) Moving from the Initial window to the Management window**
After completing all the initial settings according to the instructions in chapter 8, move to the Management window.

[Procedure]

1) Select the Exit button

Select the Exit button in the lower right section of the Initial window.

The startup process begins immediately after switching to the Management window to send updated system data to the IFU. The startup process takes between 5 and 60 minutes.

Initial window

> Note:
> - The time required to startup varies depending on the system configuration.

(2) Moving from the Management window to the Initial window
Move from the Management window to the Initial window to check or change System Settings.

[Procedure]

1) Select "System Set" located under the Configuration menu in the menu bar.

Click the Configuration menu in the menu bar of the Management window, then select "System Set". A password verification box will appear.
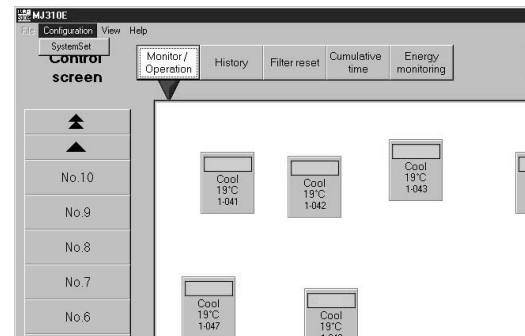
Returning to the initial window

2) Enter the password

Enter the word "SYSTEM" in the password verification box, then click the OK button. Doing so returns you to the initial window.

Password entry screen

> Maintenance Tip
> - The password cannot be changed. Please keep this manual in a safe place to prevent unauthorized personnel from accessing the system.

7. Initial Startup and Shutdown

7.1 Before startup

Please confirm the following items before starting the MJ-310E application.

(1) A test run of the air conditioning system has been completed
(2) The power to the PC, IFU, G/W, and air conditioner power has been turned on
(3) All PC hardware and cables have been connected and the proper software installed
(4) The date and time are correct

7.2 Startup

Start the MJ-310E application

Follow these steps to startup the MJ-310E application.

[Procedure]

1) Restart Windows

When Windows OS restarts, the user automatically logs on and the MJ-310E program starts. When the startup process begins, the setup screen is displayed.

After the startup screen is displayed, the behavior of the application depends on the existence of System Settings data.

Case 1: Without System Settings data: (the first startup)
The initial screen is displayed. Start with chapter 8 "Changing System Settings"
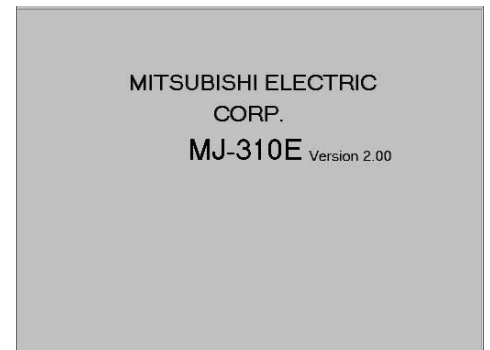
Case 2: With system setting data
After the system has been set up once, turning on the power brings up the Management window, and the startup process begins immediately.
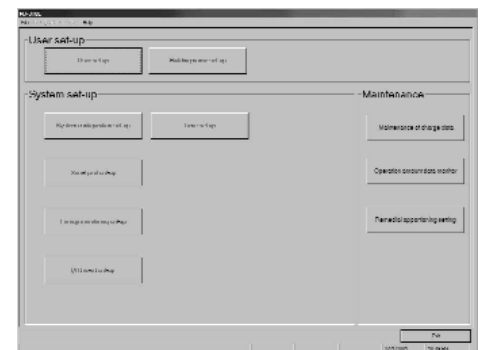The startup process takes some time.
To change the initial settings, go to the initial window. See the procedure in chapter 6.3 "Accessing functions and moving between windows"
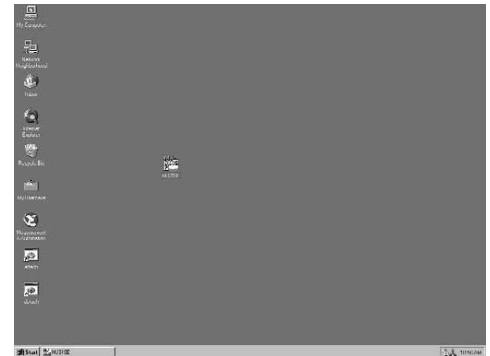
Desktop screen

Startup screen

Intial screen

Maintenance Tip
- For safety reasons, make a thorough check of all equipment and connections.
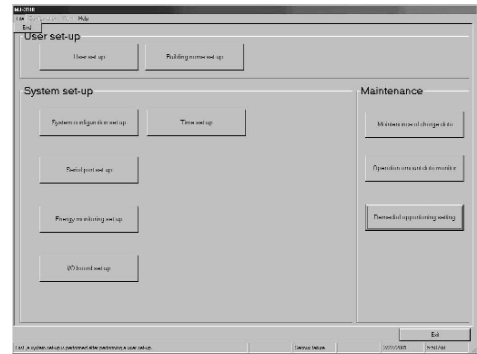
7.3 Shutdown

MJ-310E Shutdown

Follow these steps to shutdown MJ-310E.

[Procedure]

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

Always exit the application before turning off the power.
Shutdown is done from the initial screen. Select the File menu in the Menu
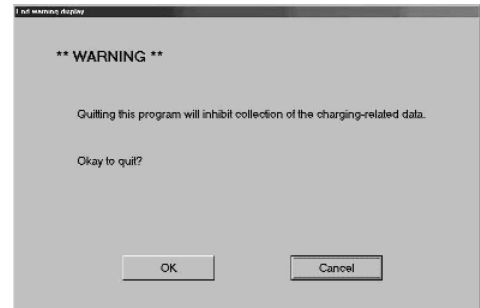Bar and select the Exit option.
Note: To switch to the Initial window, refer to chapter 6.3

Exit the application

2) Select the OK or Cancel button

The shutdown confirmation dialog box appears asking to confirm this
action. After verifying the content of the dialog box, click the OK button to
exit the application. Click the Cancel button to return to the Initial window.

Shutdown verification

Maintenance Tip
  - Always exit the MJ-310E application before turning off the PC. Failing to do so could result in damage.

Shutting down the OS

Shut down the OS (Windows NT or Windows 2000) after verifying that the MJ-310E application has been exited. Turn off the PC
after shutting down the OS.
✳: Please see the OS or PC owners manual for procedures on shutting down the OS and turning off the PC.

8. Changing System Settings

8.1 System Settings window

The following is an explanation of the items found in the System Settings window.

[User Settings group]
    User set-up: Allow or disallow certain functions
   Building name set-up: Set the building name

[System Settings group]
    System configuration set-up: Specify the units connected to the system and create a floor plane
    Serial port set-up: Set the serial port and address of the watt hour meter
    Energy monitoring set-up: Set the system billing function
    I/O board set-up: Set the external I/O functions
    Time set-up: Set the current time

[Maintenance group]
    Maintenance of charge data: Proportional billing information can be revised.
    Operation amount data monitor: Operation amount data stored in IFU can be monitored and saved.
    Remedial apportioning setting: Remedial apportioning can be tentatively performed when charging trouble occurs.

User Settings group
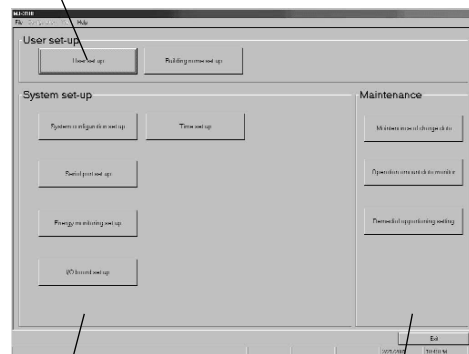
Initial window

System Settings group   Maintenance group

> Note:
> - See section 9 for the maintenance group items.

8.2 System Setting Procedure

The following is an explanation of the System Settings performed at the Initial window.

When no System Settings exist
    User set-up → Building name set-up → System configuration set-up → Serial port set-up → Energy monitoring data set-up → I/O board set-up (→ Time set-up)
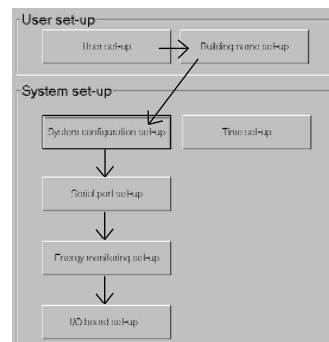
System Setting Procedure

> Note:
> - If the settings are done out of order, some items will not be available and others will have to be set again.
> - Time set-up and Building name set-up are only performed when necessary.
> - Serial port set-up and I/O board set-up need only be done if these functions are available.

When System Settings exist
    Make any changes to the settings.

> Note:
> - Changing certain settings affects the status of other settings.
> - User set-up in particular affect other settings and functions.
> - Changing the settings on the left affects the settings on the right.
>   System configuration set-up > Energy monitoring set-up
>   Serial port set-up > Energy monitoring set-up
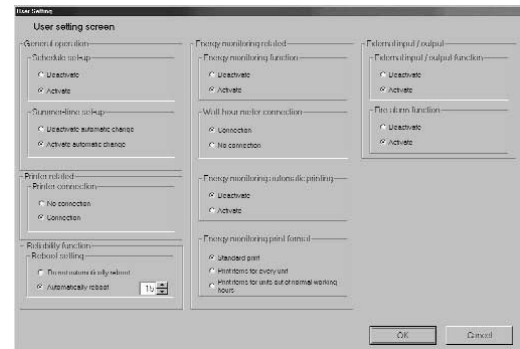
8.3 User Settings

Activating MJ-310E Functions

Use these settings to allow or disallow MJ-310E general operations, printer, billing, and external I/O functions.

[Procedure]

1) Click the User set-up button

From the Initial window, click the User set-up button in the User set-up group. The User Settings window appears.

User Settings window

8.3.1 General Operation

Setting general operation options

Follow these steps to turn on or off Schedule and Summer Time options.

[Procedure]

1) Click the option button

Set the Schedule Settings and Summer Time Settings. To do this, click the option button of the setting.
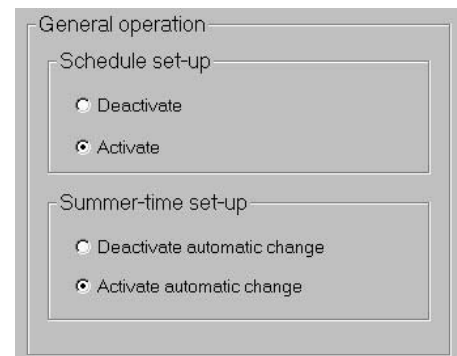
Schedule Set-up
   Off (Deactivate): Turns the scheduling function off
   On(Activate):   Turns the scheduling function on (default)

Summer Time Set-up
   Off (Deactivate): Do not automatically adjust the IFU for summer time
   On (Activate):   Automatically adjust the IFU for summer time (default)
                     Automatic updates take place at 04:05 AM

General operation option settings

> Note:
>   - When Summer Time is set to Off, changing time between summer time and standard time must be done manually.
>   - When Summer Time is set to On, time settings are sent to the IFU every day at 04:05. This action synchronizes the time on the PC and the IFU.
>   - The MJ-310E application bases it operations on the IFU time.

8.3.2 Printer

Setting printer options
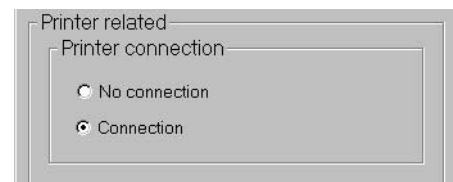
[Procedure]

1) Click the option buttons

Select printer options by clicking on the option button.
Available printer options are ON or OFF.

Printer connection
   Off (No connection):Turns the printing function off (default)
   On (Connection):   Turns the printing function on

Setting printer options

> Note:
> - Data cannot be printed if this option is OFF.

8.3.3 Reliability Functions

Setting automatic reboot function
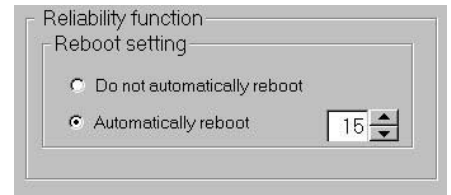
Set the automatic reboot function.

[Procedure]

1) Click the option button

To turn the automatic reboot function On or Off, click the option button.
Automatic reboot setting
    Off (Do not) :   Does not automatically reboot (default)
    On (Automatically): Automatically reboots

2) Select the reboot interval using the ▲ and ▼ buttons.

Select the automatic reboot day using the ▲ and ▼ buttons. The setting range
is the 7th thru 31st day after booting. The initial value is the 31st day.

Reboot Settings window

Maintenance Tip
-   **Manually restart the MJ-310E application and Windows NT/2000 OS on a regular basis (once a week).**

Note:
-   When WindowsNT OS is used continuously without restarting, system errors may accumulate. Thus it is necessary to restart both MJ-310E and the OS.
-   The automatic restart function serves to insure that the system restart is done on a regular basis. If there is an error during the automatic restart, the system must be restarted manually. Since there is a possibility of the error not being detected, it is recommended to periodically restart the system manually.
-   When automatic reboot is set to [ON], Windows reboots automatically at 05:35 on the 7th thru 31st day after booting. (The number of days depends on the set value.)

8.3.4 Energy monitoring related

Energy monitoring functions On or Off

Follow these steps to energy monitoring functions On or Off , automatically print air conditioning charges, and set printing options.

[Procedure]

1) Click the option button

To energy monitoring functions On or Off , automatically print air conditioning charges, and set printing options, click on the option button.

Energy monitoring related
    Off (Deactivate): Deactivates Energy monitoring related (default)
    On (Activate):   Activates Energy monitoring related

WHM connection
    On (Connection):   WHM connection charge function (default)
    Off (No connection): No WHM connection charge function

Energy monitoring automatic printing
    Off (Deactivate): Do not print Energy monitoring automatic printing
                      information (default)
    On (Activate):   Print Energy monitoring automatic printing information automatically

Energy monitoring print process
    Standard: Prints information by block only (default)
    Unit details: Include details for each unit
    Regular/Off: Include breakdown of charges by regular hours and off
                 hours
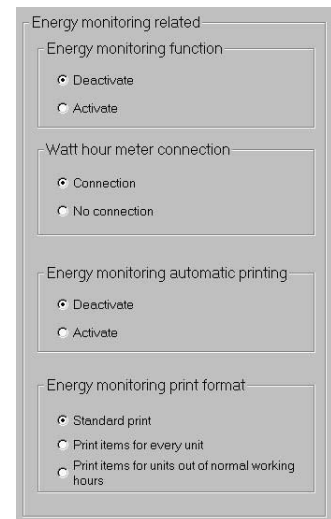
Energy monitoring Settings

Note:
-   When printing is set to Off, Print Energy monitoring Information and Printing Options are greyed out.
-   When Print Energy monitoring Information is set to Off, Printing Options are greyed out.
-   The charge function can be set only for either WHM or No WHM.

8.3.5 External Input and Output

Set External input-and-output

Turn external I/O and fire alarm options On or Off.

[Procedure]

1) Click the option button

To turn External I/O functions and Fire Alarm functions On or Off, click the option button.

External input-and-output function
Off (Deactivate): Deactivate external I/O via the I/O port (default)
On (Activate):   Activate external I/O via the I/O port

Fire Alarm function
Off (Deactivate): Do not use Fire Alarm function (default)
On (Activate):   Use Fire Alarm function
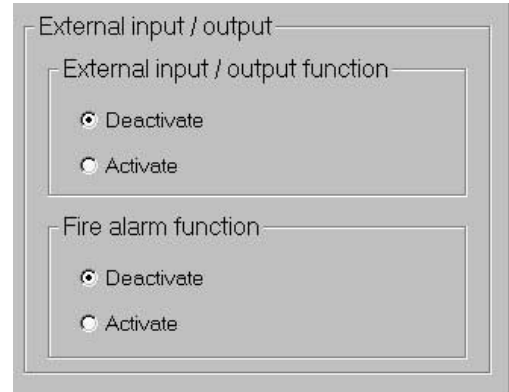
External I/O Options

Note:
- To use the Fire Alarm function (On), "the External I/O function" must also be On.
- This screen cannot be set when I/O board "Be used" was selected. (Displayed in gray.)

8.4 Building Name Set-up

Set the building name

[Procedure]

1) Click the Building name button

Click the Building Name Set-up button in the User Set-up Group in the Initial window.

2) Enter the building name

Enter the name of the building on the building name set-up screen from keyboard.

3) Click the OK or Cancel button

When finished entering the building name, click the OK button.
OK: When finished entering the building name, click the OK button. The name of the building is shown in the startup screen and the version information screen.
Cancel: To cancel this action, click Cancel. The building name is left unchanged.
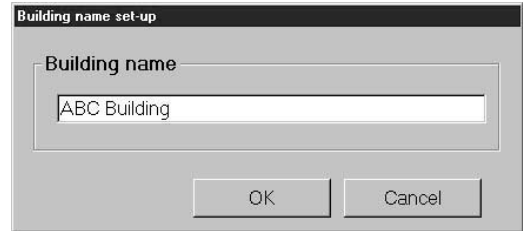
Building Name Set-up

Note:
- Building names may contain a maximum of 20 characters.

8.5 System Configuration

Set system configuration

Define the system configuration and create the floor plane displayed in the Management window.

> Maintenance Tip (Caution)
> When the energy monitoring Information function is activated, be sure to compile energy monitoring information up to the previous day and print them out or have the results in hand before making changes to the System Configuration settings. If energy monitoring information is not processed, the energy monitoring information will not be apportioned correctly.
>   The monthly bill consists of a) + b) + standard charge
>   a) energy monitoring information from the start of the current energy monitoring period to the day prior to any changes
>   b) energy monitoring information from the day after any changes to the end of the current energy monitoring period

8.5.1 Configuration Procedure and Restrictions

Check these points before setting the system configuration

Define the configuration of this air conditioning system and create the floor plane displayed in the Management Window.

[Procedure]

1) Click the System Configuration button

Click the System Configuration button in the User Settings Group in the Initial window.
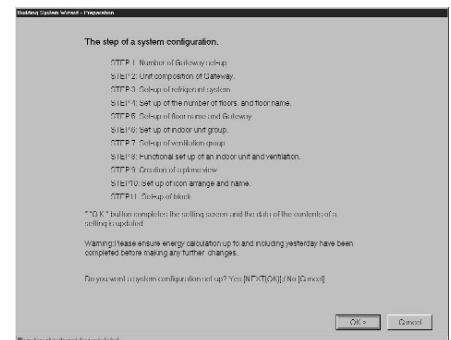Doing so brings up the System Configuration window.

2) Click the OK or Cancel button

Check the information displayed and click the OK button.
If action must be taken on one of the warning messages, click the Cancel button.
    OK: Accept the current System Configuration settings.
    Cancel: Return to the Initial window.

System Configuration settings screen

The system configuration are done in the following order.
    STEP1   Number of gateway set-up
    STEP2   Unit composition of gateway
    STEP3   Set-up of refrigerant system
    STEP4   Set-up of the number of floors, and floor name
    STEP5   Set-up of floor name and gateway
    STEP6   Set-up of Indoor unit group
    STEP7   Set-up of ventilation group
    STEP8   Functional set up of an indoor unit and ventilation
    STEP9   Creation of a plane view
    STEP10   Set-up of icon arrange and name
    STEP11   Set-up of block

> Note:
>   - The OK and Finish buttons accept the settings of the current window and advance to the next window.
>   - The Cancel button cancels any changes made and exits the System Configuration set-up.
>   - The Back button cancels any changes made and returns to the previous window.

8.5.2 Number of Gateway Set-up (STEP1)

Set-up the number of G/W

Set the number of G/W connected to the system.

[Procedure]

1) Click the ▲ or ▼ button

Use the ▲ or ▼ button to set the number of G/W.
    ▲: Up button   ▼: Down button
    The number of G/W must be between 1 and 20

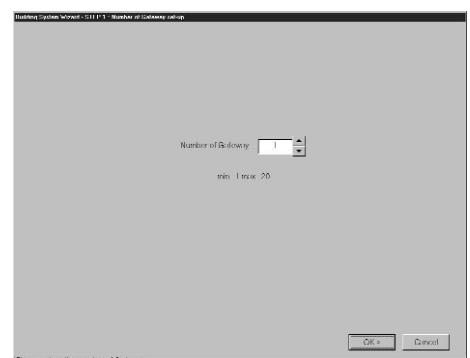2) Click the OK button or the Cancel button

When finished making settings, click the OK button.
    OK: Accept the changes and advance to the next settings window.
    Cancel: Ignore the changes and return to the Initial window.

G/W Settings window

> Note:
>   - The number can also be entered directly in the box.

8.5.3 Unit composition of G/W (STEP2)

Set the configuration of each G/W group

Set the units connected to each G/W (outdoor units, indoor units, Lossnay, remote control, central controller, etc). <u>Unit settings for all connected G/W must be done.</u>

Selecting the Gateway number

[Procedure]

1) Click the ▲ or ▼ button to select the G/W number

Use the ▲ or ▼ button to select the number of the G/W you wish to connect with a unit.

Setting IC, LC, FU, KIC, OC, BC, OS

[Procedure]

1) Click on the unit icon

Click on the unit icon on the right side of the window.
The currently selected unit is displayed at the mouse pointer. For example, when IC is selected, the letters "IC" are displayed.

2) Click the address

Click the address cell that you want to connect with the selected unit. When the cell is clicked, the selected unit icon is displayed in that cell. This indicates that that unit is connected with that address.
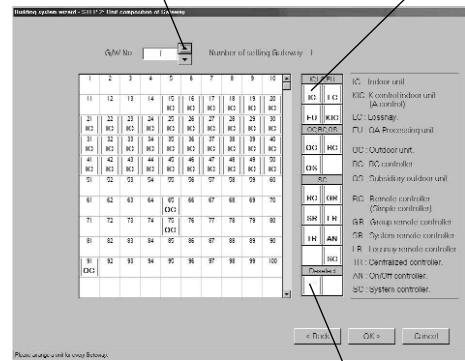
3) Repeat steps 1) and 2)

Set all the units and G/W connections in the same way.

Note:
- It is not necessary to set the MA remote control and the remote control for "A" or "K" control.
- Once an icon is selected it can be used for multiple assignments.

G/W selection button   Unit Icon

Release
G/W unit configuration window

Name	Icon	Address range
Indoor unit	IC	1-50
Lossnay	LC	↑
OAProcessing unit	FU	↑
"A" and "K" Control Units	KIC	↑
Outdoor unit	OC	51-100
BC controller	BC	↑
Subsidiary outdoor unit	OS	↑
Remote controller (Simple controller)	RC	101-200
Lossnay remote controller	LR	↑
Group remote controller	GR	201-250
System remote controller	SR	↑
Centralized controller	TR	↑
On/Off controller	AN	↑
Other system controller	SC etc.	↑

※Caution: On/Off controller is not yet on sale.

Setting RC, LR, GR, SR, TR, AN, SC

[Procedure]

1) Click the unit icon

Click a unit icon (a controller) in the list to the right of the window. The mouse pointer changes to an arrow with the selected unit letters at the tip.

2) Click a cell that has no address displayed

When a cell without an address number is clicked, the controller and address are displayed in that cell. This indicates that the controller is connected to that address.
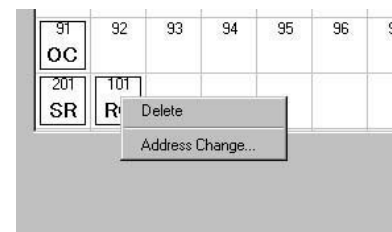
Removing a unit

[Procedure]

1) Click a connected icon

To delete a unit from the associated address, click on the icon. A window appears that allows you to delete the unit or change the address.
    For non-control units: Only the delete option is displayed
    For control units: Both delete and address update options are displayed

Delete or update selection window

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2) Click on the Delete button

Click the Delete button in the delete/address update window. The selected icon is deleted.

Change the assigned controller address

[Procedure]

1) Click an assigned icon

To delete the icon from the selected address, click the icon. The Delete/Address Update window appears.

2) Select Address Change

Select Address Update in the Delete/Address Change window. The Address Update window appears.
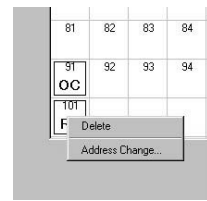
3) Select an address with the ▲ and ▼ arrows

Select the desired address by clicking on the ▲ or ▼ arrows.

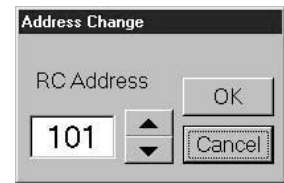**4) Click the OK or Cancel button**

When finished making selections, click the OK button.
OK: Accept the changes and update the controller address
Cancel: Ignore the changes and do not update the controller address.

Delete or Change selection

Address Change

Note:
 - Address may also be entered directly.

Exiting the gateway unit configuration settings

[Procedure]

1) Click the OK or Cancel button

When finished with the settings, click the OK button in the settings window.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.

8.5.4 Set-up of refrigerant system (STEP3)

Refrigerant System Settings

Set the refrigerant system connections for indoor units and OA processing units connected to outdoor units.
Refrigerant connection settings for all connected G/W must be done.

[Procedure]

1) Click the ▲ or ▼ button to select the G/W number

Use the ▲ or ▼ button to select the number of the G/W you wish to connect with a unit.

2) Select an IC, FU, BC or OS icon

Select an icon for an indoor unit connected to an outdoor unit refrigerant system (IC), OA processing unit (FU), BC controller (BC), subsidiary outdoor unit (OS). (Only one icon may be selected at a time.)

3) Click on a cell

Click on a cell for a distribution controller/rate unit (sub-unit) cell or an indoor unit/OA processing unit cell. The selected unit is now connected with that outdoor refrigerant system.

4) Repeat steps 1) through 3)

Set all units that are connected to the refrigerant systems of outdoor units. Make these refrigerant connection settings on all connected G/W.
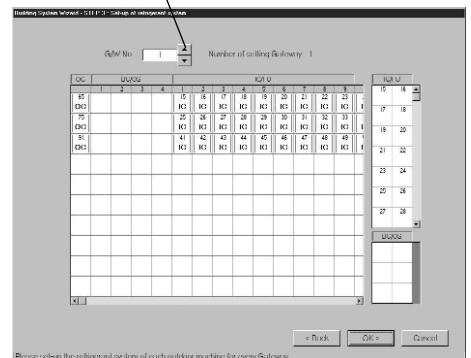
5) Click the OK, Cancel, or Back buttons

When finished making refrigerant system settings, click the OK button.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.

G/W setting button

Refrigerant system settings

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Deleting a refrigerant system connection

Follow these steps to delete any indoor unit, OA processing unit, or sub-unit (BC, OS) from the refrigerant system.
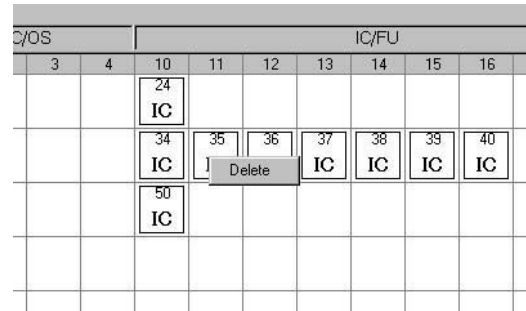
[Procedure]

1) Select the icon to be deleted

Click the icon of the indoor unit, OA processing unit, distribution controller, or rate unit. A Delete Settings window appears.

2) Click the Delete manu

In the Delete Settings window, click the Delete menu. Doing so deletes that unit icon from the refrigerant system.

Note:
- During the initial startup, the message "The refrigerant information has not been received" will appear. When it does, click the OK button.

Maintenance Tip
- When displaying refrigerant system options or starting up, this information is compared with the actual system information. The object is indoor unit (IC) only.
- If there is a difference between the settings and the actual system information, this warning appears, "The outdoor unit and indoor unit configuration information is different from the actual system." If this message appears, check the refrigerant system settings.

Delete settings window

Warning 1

Warning 2

8.5.5 Set-up of the number of floors, and floor name (STEP4)

Set the number of floors and floor names

Follow these steps to set the number of floors being managed (floor count) and floor names.

[Procedure]

1) Click the ▲ or ▼ button to select the number of floors

Clicking the ▲ or ▼ button selects the number of floors.

2) Click in the Floor name cell

Enter a name for each floor.
Click the floor name cell to be set. The cell is now ready to receive text.

3) Enter the floor name

Now enter the name of the floor. Do this for each floor.

4) Click the OK, Cancel, or Back buttons

When finished with these settings, click the OK button.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.
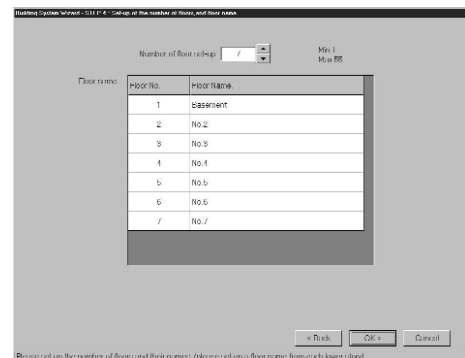
Floor number and name entry window

Note:
- The minimum number of floors is 1, the maximum is 55.
- Floor names can be a maximum of 16 characters.
- If the same floor name is used twice, a warning appears. Re-enter the floor name using a different name. (Duplicate settings are possible.)
- Enter floor names from the bottom up. This will allow the floor icons in the Management Window to be displayed in order from the bottom up.

8.5.6 Set-up of floor and Gateway (STEP5)

Set floor and G/W assignments

Follow these steps to set the G/W for each floor.

[Procedure]

1) Select the G/W

In the Floor and G/W Options window, click the check box of the G/W to be assigned to each floor.

☐ : Unassigned

■ : Assigned

Assign a G/W to every floor.

2) Click the OK, Cancel, or Back button

When finished with these settings, click the OK button.

OK: Accept the changes and advance to the next settings window.

Cancel: Ignore the changes and return to the Initial window.

Back: Ignore the changes and return to the previous window.
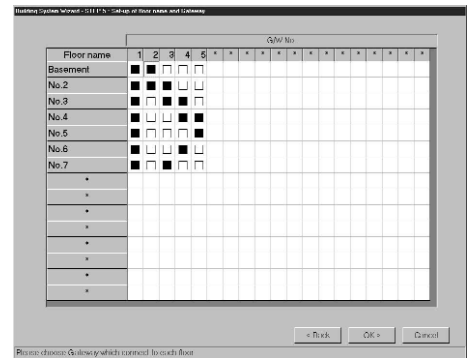
Floor and G/W Options window

Note:
- A maximum of 5 G/W can be assigned to a floor.

8.5.7 Set-up of indoor unit group (STEP6)

Set indoor unit groups

Follow these steps to set the group for the indoor unit and the controller such as a remote controller or system controller.

[Procedure]

1) Click the ▲ or ▼ button to select a floor name

In the Indoor Unit Group Options window, select the name of the floor to be assigned using the ▲ and ▼ buttons.

2) Click the ▲ or ▼ button to select the G/W number

Select the G/W assigned to that floor by clicking the ▲ or ▼ button. When doing so, the related unit is displayed in the IC, RC, or SC cell.

3) Click an icon

Click the unit icon (IC, RC, SC) to be assigned to the group. The icon clicked is now selected.

4) Select the group to be set

With the unit icon selected, click in the cell of the group to be set. The selected unit is set for that group.

Repeat steps 1) through 4) and set the indoor unit group for each G/W.


Indoor Unit Group Options window

5) Click the OK, Cancel, or Back button

When finished with these settings, click the OK button.

OK: Accept the changes and advance to the next settings window.

Cancel: Ignore the changes and return to the Initial window.

Back: Ignore the changes and return to the previous window.

Note:
- One group can hold up to 16 indoor units.
- One group can hold up to 2 remote controllers (RC).
- One group can hold up to 4 control units such as remote controllers (RC) or system controllers (SC).

Maintenance Tip
- If a group does not have at least one unit assigned to it, a warning appears. Redo the settings.
- If more than 50 groups have been assigned to one floor, a warning appears. This is because the entire building cannot be displayed at one time. Correct the settings so that 1 floor has 50 or less groups.

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8.5.8 Set-up of ventilation group (STEP7)

Set ventilation groups

Follow these steps to set groups for Lossnay and control units such as remote controllers or system controllers.

[Procedure]

1) Click the ▲ or ▼ button to select a floor name

In the Ventilation Unit Group Options window, select the name of the floor to be assigned using the ▲ and ▼ buttons.

2) Click the ▲ or ▼ button to select the G/W number

Select the G/W assigned to that floor by clicking the ▲ or ▼ button. When doing so, the related unit is displayed in the LC, LR, or SC cell.

3) Select an icon

Click the Lossnay to be assigned to the group. The unit icon clicked is now selected.

4) Select the associated group ventilator

With the unit icon selected, click in the cell of the associated group. The selected unit is set for that group.
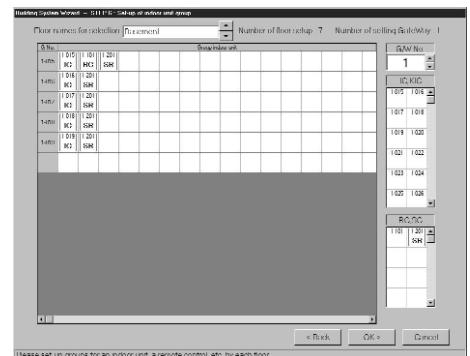Repeat steps 1) through 4) and set the ventilation group for each G/W.

5) Click the OK, Cancel, or Back button

When finished setting the ventilation group, click the OK button.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.
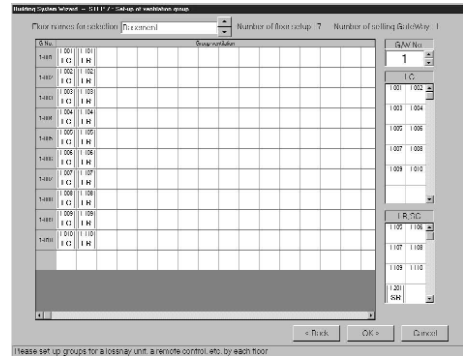
Ventilation group settings window

Note:
- One group can hold up to 16 ventilators.
- One group can hold up to 2 Lossnay remote controllers (LR).
- One group can hold up to 4 control units such as Lossnay remote controllers (LR) or system controllers (SC).

Maintenance Tip
- If a group does not have at least one unit assigned to it, a warning appears. Redo the settings for that group.
- If more than 50 groups have been assigned to one floor, a warning appears. This is because the entire building cannot be displayed at one time. Correct the settings so that 1 floor has 50 or less groups.

8.5.9 Functional set up of an indoor unit and ventilation (STEP8)

Set the indoor unit and ventilator functions

Follow these steps to set the operating mode, louver, vane, and wind speed for indoor unit and ventilator groups.

[Procedure]

1) Select the function for each item

In the Indoor Unit and Ventilator Group Function Options window, select either operating mode, louver, vane, swing, wind speed, or automatic ventilation, as the function to be set. Clicking in the cell of a function will display the options for that function.

2) Select the options for that function

After the options for that function have been displayed, select those options to be applied to that group. The selected options are displayed in the function cell. Set all indoor unit and ventilator group functions.
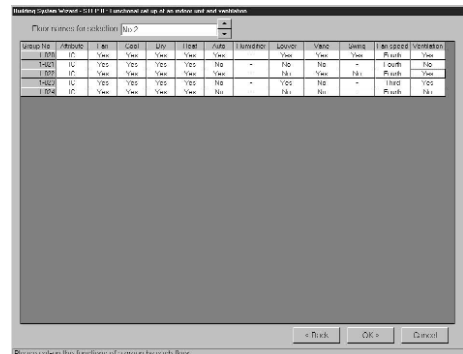
Indoor unit and ventilator group function options window

Item	Restrictions	Default setting
Mode (Fan, Cool, Dry, Heat, Auto)	Yes/No	Except auto mode: Yes Auto mode: R2 type = Yes Other types = No
Louver	Yes/No	No
Vane	Yes/No	No
Swing	Yes/No ※1	No
Fan speed	No/2 step/3 step/4 step	4 Step (Fourth)
Automatic ventilation	Yes/No	No

※1: This setting is available only when there is a vane.

3) Click the OK, Cancel, or Back button

When finished setting the indoor unit and ventilation group functions, click the OK button.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.

Tips for setting automatic ventilation
   - By setting automatic ventilation to Yes, the associated ventilator may be operated by the unit.
   - Always set a remote control, group remote controller, or centralized controller in the automatic ventilation settings.
     (Automatic ventilation settings cannot be set from the MJ-310E.)

Note:
   - Make sure the settings of the connected units match. Functions that can be set are those of the unit with the smallest address.
   - Do not set the mode of a non-existent function to Yes. This will affect the operation of the indoor unit.
   - For Lossnay groups, the humidifier only function can be selected.
   - Do not set all items to No.
   - Identifies only the outdoor units types in the automatic mode and automatically initializes whether the functions are available or unavailable.

8.5.10 Creation of a plane view (STEP9)

Create a floor plane for each floor

Follow these steps to create a floor plane for each floor. This floor plane is used in air conditioning operation and supervision for each floor. If not displaying a floor plane, it is not necessary to create one.

[Procedure]

1) Click the Base Change

In the Floor Plan Settings window, click the Update button to edit the flow chart. The paint brush appears.

Maintenance Tip
   - When Paint Brush Mode is activated, the file name and graphic size is set and should not be changed. If changed, the floor plane may not display correctly.

2) Create a floor plane flow chart

Create a floor plane flow chart with the paint brush.
Example: Select the rectangle tool (□). Drag the mouse from the upper left corner to the lower right corner.
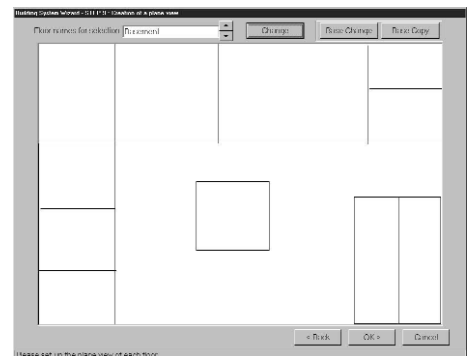Note: For details, see the Windows NT4.0/2000 users guide.
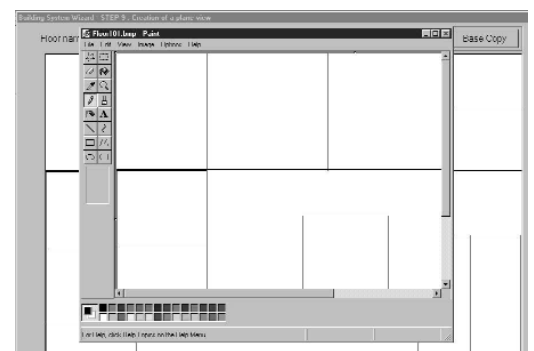
3) Exit Paint Brush Mode

Click the file menu and select the Exit Paint Brush option.
Select "Yes" on "the save confirmation screen".

4) Select a floor using the ▲ or ▼ button

Use the ▲ or ▼ button to select the floor to be modified.

Floor Plane Settings window

Paint Brush window

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5) Click the Base Copy button

To apply the created flow chart to the selected floor, click the Base Copy button. It is not necessary to click the Base Copy button when creating a new floor plane.

6) Click the Charge button

To create or edit a floor plane for the selected floor, click the Charge button. The paint brush starts up, and the floor plane can be edited

7) Create a floor plane

Use the paint brush to edit the floor plane of the selected floor.

8) Exit the paint brush

Click the paint brush File menu and select the Exit Paint Brush option.

9) Repeat steps 5) through 8)

Repeat steps 5) through 8) to create floor planes for each floor.

10)　Click the OK, Cancel, or Back buttons

After a floor plane has been created, click the OK button
OK:　　Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back:　　Ignore the changes and return to the previous window.

8.5.11 Set-up of icon arrange and name (STEP10)

Set the group icons on each floor and set their names

Follow these steps to arrange group icons on each floor plane, and enter the group name (short name, long name).

[Procedure]

1) Select the floor using the ▲ or ▼ button

In the Group Icon Layout window, use the ▲ or ▼ button to select a floor.

2) Select a group

With the floor showing, click the IC group or LC group to be assigned.

3) Select the location

Move the mouse pointer to the location where the group is to be assigned, then click that location. When you click this location, the group name entry screen will appear.

4) Enter the group name

Enter the short and long name for the group.

5) Repeat steps 1) through 4)

Layout the groups for each floor and enter their names.

6) Click the OK, Cancel, or Back button

When finished with group layout and naming, click the OK button.
OK:　　Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back:　　Ignore the changes and return to the previous window.

Floor Selection Button
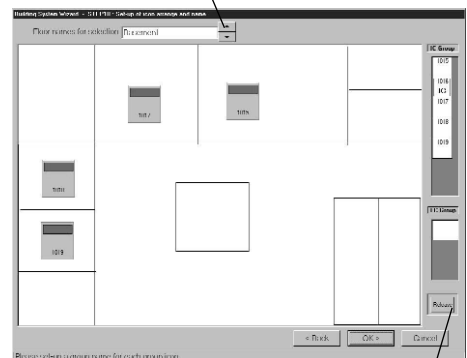
Group Icon Layout window

Release the selected icon
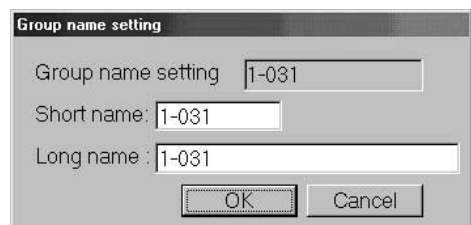
Group name set window

Note:
 - The following limitations apply to group names.
   Short name: Maximum of 8 characters
   Long name: Maximum of 24 characters
 The short names are displayed on the group icons. Depending on the characters used, the entire 8 characters may not be displayed.
 - If group icons are not assigned to every floor, a warning appears. Redo the settings and assign a group to each floor.
 - Unassigned group icons will not appear on the floor plane, but they can be operated with floor level or building level operations.

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Changing, updating and renaming groups and their layout

Follow these steps to delete a group icon, change a group name, or move a group icon.

[Procedure]

1) Click the icon

Click on the previously set group icon. The Delete/Change Name/Move window appears.

2) Click the Delete, Change Name, or Move button

To delete the group icon, click the Delete button, and the icon is deleted from the floor and returned to the group selection cell.
To change the group name, select the Change Name button. When the Change Name screen appears, enter the change.
To move the group icon, select Move. With the icon selected, click in the new address location. The icon moves to the selected location.
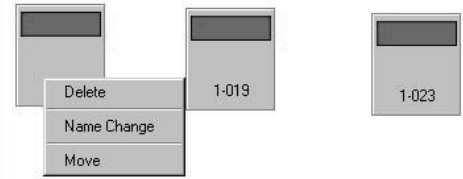
The Icon Delete/Name Change/Move window

Note:
  - The selected group icon can be released by clicking on the "Release" button.

8.5.12 Set-up of block (STEP11)

Set the block groups

Follow these steps to define block groups.

[Procedure]

1) Select a floor using the ▲ or ▼ button

From the Block Settings window, use the up or down button to select the floor.

2) Click the group icon

Select the Group icon to be added to a block by clicking on it. More than one group may be selected at one time. Click on a selected group to deselect it.

3) Click the Block Set button

With the Group icon selected, click on the Block Settings button. A Block Settings and Naming window appears.

4) Select either New or Exist

In the Block Settings and Naming window, use the option buttons to select either a new block name setting or an existing block.

5) Enter a block name or select a block name

To enter a new block name, just enter the name. To work with an existing block, select the block name.

6) Click the OK button

Click the OK button after setting the block name. The label "Block**" appears in the group icon.

7) Repeat steps 1) through 6)

Set the blocks for the groups on each floor.

8) Click the OK, Cancel, or Back button

When finished setting blocks, click the OK button.
  Finish: Accept the changes and exit the System Configuration Settings.
  Cancel: Ignore the changes and return to the Initial window.
  Back: Ignore the changes and return to the previous window.
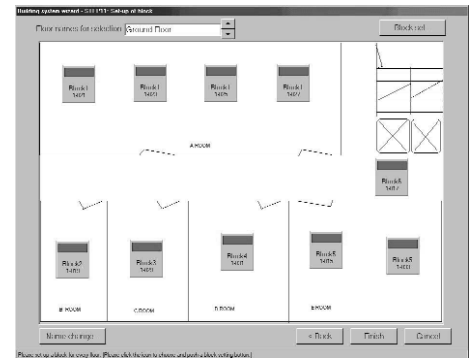
Block Settings window
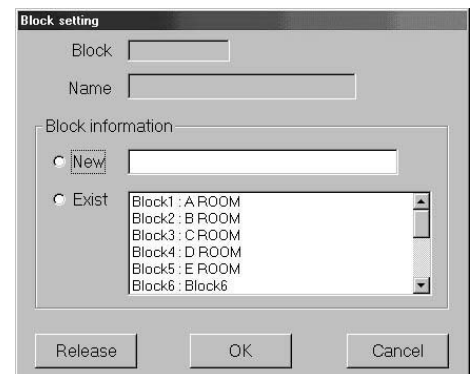
Block Settings and Naming window

Note:
  - Block names may contain a maximun of 16 characters.
  - Up to 99 blocks can be set.
  - If all group icons are not assigned to a block, a warning message appears. Correct this error to proceed.
  - When using the charge function, groups not assigned to blocks will not show up in the charge information. Be sure to assign all groups to a block.

Deleting block settings

Follow these steps to delete block settings for a group.

[Procedure]

1) Click the group icon

Select the group icon whose block settings you wish to delete by clicking on its icon.

2) Click the Block Set button

Click the Block Settings button and the Block Settings and Naming window appears.

3) Click the Delete button

Select the Delete button and the block settings for the selected group are erased. The "Block**" label in the group icon disappears.

> Note:
> - If a named block has no groups assigned to it, a message appears asking if it is okay to delete the block itself. To delete the block itself, click the OK button; to keep the block, click the Cancel button.

Changing the block name

Follow these steps to change the name of the selected block.

[Procedure]

1) Click the Name Change button

Click the Name Change button in the Block Settings window.

2) Select the block name

Select the name of the block to change. The selected block appears in the selected block cell.

3) Enter a new name

Enter the new block name.

4) Click the OK or Cancel button

After entering the block name, click the OK button. The block name is updated.

OK: Accept the new block name.
Cancel: Delete any changes and restore the earlier block name.
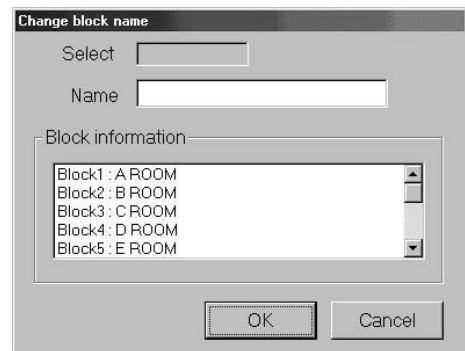
Block Name Update window

8.6 Serial Port Setting

Set the connection to the watt hour meter

Serial port setting sets the serial ports which connect to watt hour meters and the number and addresses of the watt hour meters. When the charge function is not used, and for No WHM charging, this setting is unnecessary.

> Maintenance Tip (Caution)
> When making changes to the settings, be sure to compile charge information up to the previous day and print it out or have the results in hand before making changes to the settings. If charge information is not processed, the charge information will not be apportioned correctly.
>   The monthly bill consists of a) + b) + standard charge
>   a) Charge information from the start of the current charge period to the day prior to any changes
>   b) Charge information from the day after any changes to the end of the current charge period
> There may be a discrepancy in the charge information just before or after a change to these settings.
> *For details on setting charge periods, see Operation Manual section 9.3 "Output of Air Conditioning Charges"

[Procedure]

1) Click the Serial Port Set-up button

From the Initial window, click on the Serial Port Set-up in the System Settings group. The Serial Port Set-up window appears.

2) Click the OK or Cancel button

Check the information shown and click the OK or Cancel button. If an action must be taken on one of the warning messages, click the Cancel button.
OK: Set Serial Port Set-up option.
Cancel: Return to the Initial windows

The Serial Port Set-up are done in the following order.
STEP 1   Serial port setting

3) Select the port to assign to the watt hour meter

Click the watt hour meter option button, and set the serial port to be used.

4) Select the watt hour meter name

Select a name to be assigned to the watt hour meter.

5) Set the number and address of the watt hour meters

Set the number of watt hour meters to be used and their address.

6) Set the serial No.

Input the serial No. for Model AEM31D/485 only.
Example) When S/N 70-87948, set 87948.

7) Select the Finish or Cancel buttons

When finished making changes, click the Finish button.
Finish: Accept the changes and return to the Initial window.
Cancel: Ignore the changes and return to the Initial window.
When address setting and communication confirmation failed, a warning message is displayed. Check the set contents.
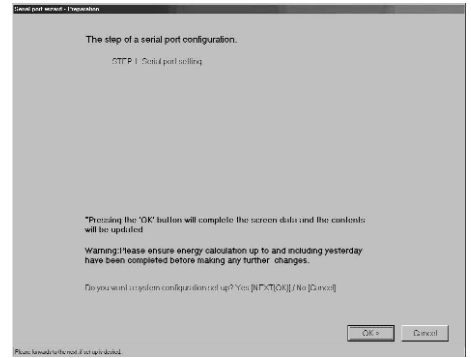
Serial port set-up proparation window
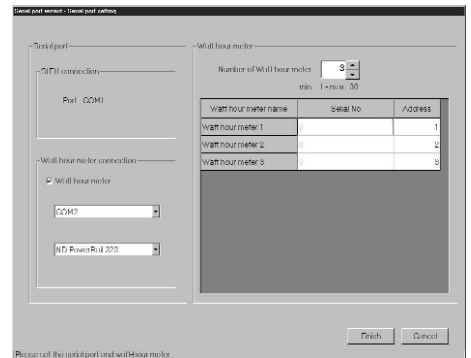
Serial port Set-up window

Warning

Note:
- The maximum number of watt hour meters is 30.
- If the address selected is already being used, a warning will appear. Choose a different address.

8.7 Energy monitoring Set-up

Set Billing System options

Follow these steps to set the information for the charge system connected to this system. If these settings are not correct, the charge function will not operate correctly.

Maintenance Tip (Caution)
When making changes to the settings, be sure to compile charge information up to the previous day and print it out or have the results in hand before making changes to the settings. If charge information is not processed, the charge information will not be apportioned correctly.
The monthly bill consists of a) + b) + standard charge
a) Charge information from the start of the current charge period to the day prior to any changes
b) Charge information from the day after any changes to the end of the current charge period
There may be a discrepancy in the charge information just before or after a change to these settings.
*For details on setting charge periods, see Operation Manual section 9.3 "Output of Air Conditioning Charges"

8.7.1 Setting Procedures and Restrictions

Set Charge System options

Follow these steps to set the charge information used in calculating the air conditioning fees.

[Procedure]

1) Click on the Energy monitoring Set-up button

From the Initial window, click on the Energy monitoring Set-up button in the System Settings group. The Energy monitoring Set-up preparation screen appears.

2) Click the OK or Cancel button

Check the information shown and click the OK or Cancel button.
If an action must be taken on one of the warning messages, click the Cancel button.
    OK: Set Energy monitoring Set-up options.
    Cancel: Return to the Initial window

The Energy monitoring Set-up are done in the following order.
    STEP1   Set-up for the name and the maximun count value of WHM
    STEP2   Set-up for division mode
    STEP3   Creation of outdoor unit which is connected to watt hour meter
    STEP4   Creation of outdoor unit
    STEP5   Creation of indoor unit which is connected to watt hour meter
    STEP6   Creation of indoor unit
    STEP7   Creation of block for charge
    STEP8   Currency unit set
    STEP9   Charge set
    STEP10   Standard charge set
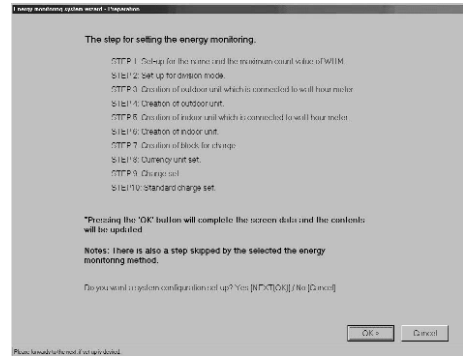
Energy monitoring Set-up Preparation window

> Note:
> - The OK and Finish buttons accept the changes to the settings.
> - The Cancel button cancels any changes made and exits the Energy monitoring Set-up.
> - The Back button cancels any changes made and returns to the previous window.
> - Items which do not have to be set are not displayed, depending on the selected charge method.
> - Numeric and character input items can be copied and pasted by right clicking the mouse.

8.7.2 Set-up for the name and the maximun count value of WHM (STEP1)

Set the watt hour meter name, location, and maximum cumulative value

For watt hour meters connected to the system, follow these procedures to set the names of watt hour meters, the locations of the meters, and the maximum cumulative values of the meters.

[Procedure]

1) Enter a name and a location

Enter name and location information for each watt hour meter.

2) Set the maximum cumulative value

Use the ▲ and ▼ buttons to set the maximum cumulative value of each watt hour meter.

3) Select OK or Cancel

When finished with the settings, click the OK button.
    OK: Accept the changes and advance to the next setting screen.
    Cancel: Cancel the changes and return to the Initial window.
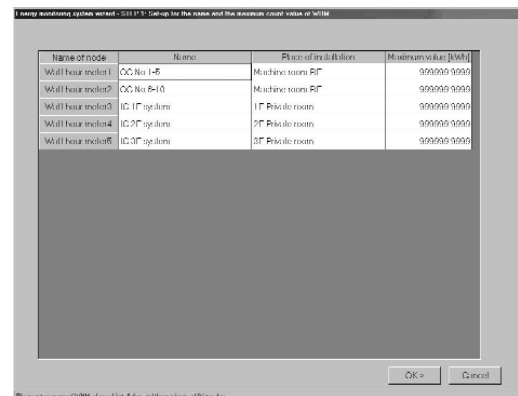
Watt Hour Meter Name and Maximum
Cumulative Value Settings window

> Note:
> - A warning message appears if the maximum cumulative value for a watt hour meter is 0. Correct this setting to proceed.
> - The maximum cumulative value should be set to the overflow value of the watt hour meters being used.
> - The maximum cumulative value may also be entered directly from the keyboard.
> - This setting window is not displayed for no watt hour meter connected charging.

8.7.3 Set-up for division mode (STEP2)

Setting the Division (Apportion) Mode

Follow these steps to set the Division Mode for outdoor and indoor units in the charge system.

[Procedure]

1) Select the Division Mode

Click the option button of the desired Division Mode.

2) Select the OK or Cancel button

When done making selections, click the OK button.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.

> Note:
> - Please select the Division Mode appropriate for the system.
> - This setting window is not displayed for no watt hour meter connected charging.
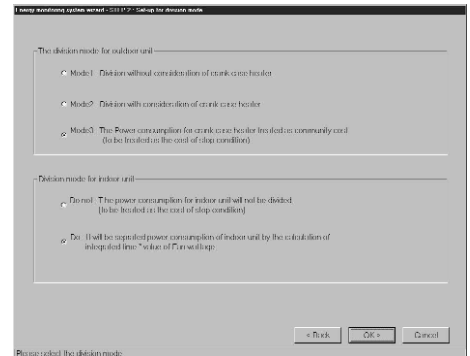
Division Mode Settings window

Outdoor Unit Division Mode
Division data for outdoor units is separated into Operating Power and Standby Power (for the crank case heater).
The Operating Power represents the amount of power used in operating the air conditioner. Select the Standby Power mode from the following list.
Mode 1: Do not include the crank case heater value in the apportioned data.
Mode 2: Division the crank case heater value as a separate item. (default)
Mode 3: Calculate the crank case heater value as a shared expense, do not division.

Indoor Unit Division Mode
Select the division mode for indoor unit power consumption (primarily FAN).
Do not: Do not division the power consumption of indoor units.
Do: Use the formula (cumulative indoor unit usage × FAN capacity) when dividing. (default)

8.7.4 Creation of outdoor unit which is connected to watt hour meter (STEP3)

Set the Outdoor Unit and watt hour Meter Relationship

Follow these steps to set the connection between the outdoor unit and the watt hour meter. Perform these steps for all outdoor units connected to a watt hour meter.

[Procedure]

1) Click on the ▲ or ▼ button to select the watt hour meter

Clicking the ▲ or ▼ button, select the target meter.
Select only meters that are connected to the outdoor unit.

2) Select the G/W number using the ▲ or ▼ button

Select the G/W number for the outdoor unit connected to the watt hour meter.

3) Select the OC icon, and click on the selected outdoor unit

Select the icon of the outdoor unit connected to the watt hour meter by clicking on the icon. Then, click in the cell of the selected outdoor unit. The outdoor unit is now connected to the watt hour meter.

Outdoor Unit and watt hour Meter
Relationship Settings window

4) Repeat steps 1) through 3)

Repeat this procedure on each of the outdoor units connected to a watt hour meter. Also, set the options for every watt hour meter that has an outdoor unit connected to it.

5) Select the OK, Cancel, or Back button

When done with these settings, click the OK button.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.

Delete watt hour Meter Relationships

Follow these steps to delete the relationship between an outdoor unit and a watt hour meter.

[Procedure]

1) Click on the icon to be deleted

Click on the icon of the outdoor unit to be deleted.
The Delete window appears.

2) Click on the Delete menu

Click the Delete menu in the Delete window.
The relationship between that unit and the watt hour meter is deleted.

Delete window

> Note:
> - If a unit has not been assigned to a watt hour meter, a warning is displayed. Correct the setting to proceed.
> - This setting window is not displayed for no watt hour meter connected charging.

8.7.5 Creation of outdoor unit (STEP4)

Set the outdoor unit crank case heater capacity

Follow these steps to set the crank case heater capacity of an outdoor unit connected to a watt hour meter. Do these steps for all connected outdoor units.

[Procedure]

1) Select the G/W number using the ▲ or ▼ button

Using the ▲ or ▼ button, select the G/W assigned to the outdoor unit whose crank case heater capacity is to be set.

2) Set the crank case heater capacity

Click on the crank case heater capacity cell of each outdoor unit, and set the capacity (W). Since the crank case heater capacity is different for each crank case type, please see the data book or catalog for details.

3) Repeat steps 1) and 2)

Repeat these steps for every unit.

4) Select the OK, Cancel or Back button

When finished setting the crank case heater capacity, click the OK button.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.
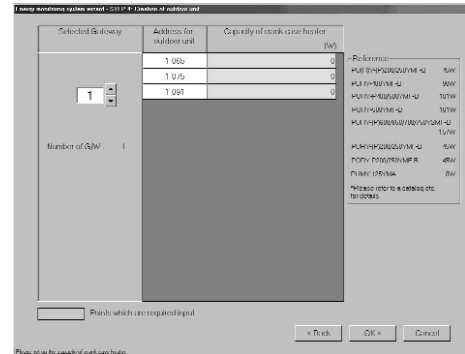
Outdoor Unit Settings window

Model Numbers	Crank Case Heater Capacity
PUY-(P)200/250YMF-B PUHY-(P)200/250YMF-B	45 W
PUHY-400YMF-B	90 W
PUHY-P400/500YMF-B PUHY-500YMF-B	101 W
PUHY-(P)600/650/700/750 YSMF-B	157 W
PURY-(P)200/250YMF-B PQRY-P200/250YMF-B	45 W
PUMY-125YMA	0 W

> Note:
> - Outdoor units connected to a watt hour meter are light blue.
> - The crank case heater capacity depends on the model. Refer to the data book, catalog, and other information.
> - A warning message appears if even one outdoor unit connected to a watt hour meter does not have its crank case heater capacity set. Make sure each capacity is set to proceed.
> - Failing to set the crank case heater capacity may effect the billing information.
> - In the case of the Super Y series, use the total crank case heater capacity for that model number.
> - When Apportion Mode 1 is selected, this window does not appear.
> - This setting window is not displayed for no watt hour meter connected charging.

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8.7.6 Creation of indoor unit which is connected to watt hour meter (STEP5)

Set the Indoor Unit and watt hour Meter Relationship

Follow these steps to set the connection between the indoor unit and the watt hour meter.

[Procedure]

1) Click on the ▲ or ▼ button to select the watt hour meter

Clicking the ▲ or ▼ button, select the target meter.
Select only meters that are connected to an indoor unit.

2) Select the G/W number using the ▲ or ▼ button

Select the G/W number for the indoor unit connected to the watt hour meter.

3) Select the IC icon, and click on the selected indoor unit

Select the icon of the indoor unit connected to the watt hour meter by clicking on the icon. Then, click in the cell of the selected indoor unit. The indoor unit is now connected to the watt hour meter.

4) Repeat steps 1) through 3)

Repeat this procedure on each of the indoor units connected to a watt hour meter. Also, set the options for every watt hour meter that has an indoor unit connected to it.
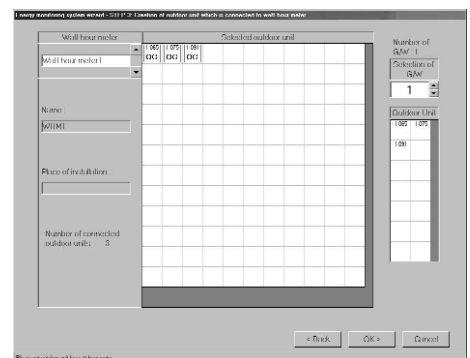
5) Select the OK, Cancel, or Back button

When done with these settings, click the OK button.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.

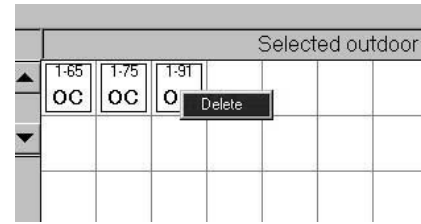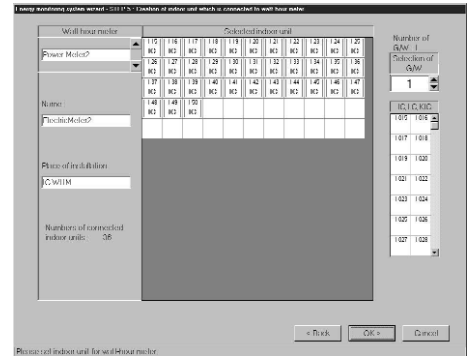Indoor Unit and watt hour Meter Relationship Settings window

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Note:
- It is not necessary to set watt hour meter relationships for KIC and LC.
- IC and KIC/LC cannot be connected to the same watt hour meter simultaneously.
- A warning message appears if an indoor unit is not connected to a watt hour meter. Make sure each unit is connected to proceed.
- When the Indoor Unit Apportion (Division) Mode is set to Do Not Apportion (Division), this window does not appear.
- This setting window is not displayed for no watt hour meter connected charging.

Deleting watt hour Meter Relationships

Follow these steps to delete the relationship between an indoor unit and a watt hour meter.

[Procedure]

1) Click on the icon to be deleted

Click on the icon of the indoor unit to be deleted.
The Delete window appears.

2) Click on the Delete menu

Select the Delete menu in the Delete window.
The relationship between that unit and the watt hour meter is deleted.
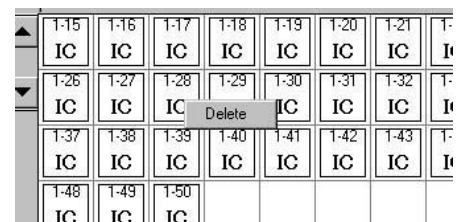
Delete window

8.7.7 Creation of indoor unit (STEP6)

Set indoor unit operating capacity and FAN capacity

Follow these steps for all the indoor units connected to the watt hour meters.

[Procedure]

1) Select the G/W number using the ▲ or ▼ button

Select the G/W number for the indoor unit whose capacity is to be set.

2) Set the capacity and FAN capacity

Click the Capacity and FAN capacity cells and enter the indoor unit operating capacity and FAN capacity. Set the indoor unit capacity to the air conditioner's cooling capacity.

3) Repeat steps 1) and 2)

Repeat this process for each indoor unit.
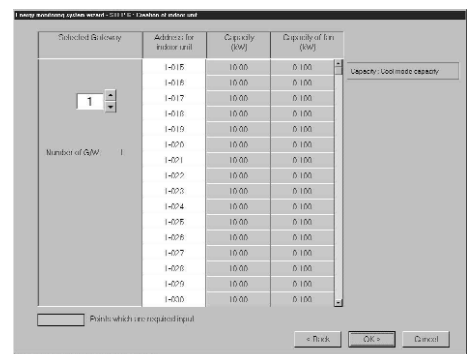
Indoor Unit Settings window

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4) Click the OK, Cancel, or Back button

When finished with the settings, click the OK button
    OK: Accept the changes and advance to the next settings window.
    Cancel: Ignore the changes and return to the Initial window.
    Back: Ignore the changes and return to the previous window.

Note:
- ICs connected to a watt hour meter are light blue. Enter the operating capacity and FAN capacity. (It is not necessary to set operating capacity and FAN capacity for KIC and LC.)
- The indoor unit capacity and FAN capacity differ depending on the machine model. Please see the data book or catalog for details.
- A warning message appears if even one indoor unit does not have its capacity set. Make sure each capacity is set to proceed.
- When the Indoor Unit Apportion (Division) Mode is set to "Do Not Apportion (Division)", set the operation capacity.
- For No watt hour meter connected charging, set the indoor unit operation capacity.

8.7.8 Creation of block for charge (STEP7)

Set Billing Blocks (Charge Blocks)

Follow these steps to set billing (charge) blocks using the control blocks.
Air conditioning charges are calculated for each billing block.
(Billing information by watt hour meter is omitted.)

[Procedure]

1) Click the option button

Select either "The same as that of the block for operation" option or "Create separately" option.
When the By Control Block option is set, there are no more options to set.
"The same as that of the block for operation": The billing block is the same as the control block.
"Create separately": Set the billing blocks separately.

Only set separately

2) Enter a name

Enter a name in the block name cell.

3) Select a block

Click the block to be set as the billing block.

4) Click the cell of the target billing block

Click the target billing block cell. The selected cell is now registered with that billing block.

5) Repeat steps 2 through 4

Set all billing blocks.

Control system block

Billing (charge) Block Settings

Note:
- Block names may be a maximum of 16 characters
- Up to 99 billing blocks can be set.
- Air conditioning charges are billed either by billing block or by watt hour meter.

Add Billing Blocks

Follow these steps to add a billing block.

[Procedure]
1) Select "Add block".

To add a billing block, click the Add block button. A billing block is added as the lowest nonexistent block No.

Delete a Billing Block

Follow these steps to delete a billing block.

[Procedure]
1) Click the block

Click the block whose setting you want to delete. The block is selected.
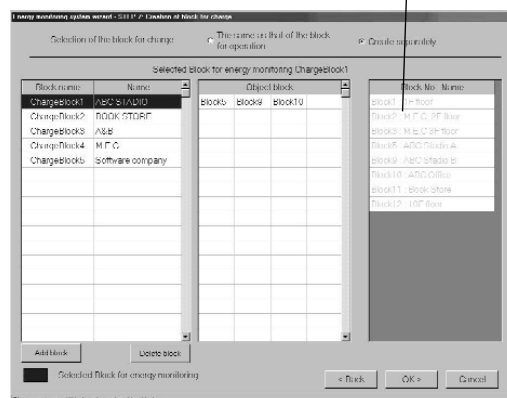
Add button   Delete button

Add & Delete setting window

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2) Click the bock delete button

   When the Block Delete button is clicked, the block settings are deleted and the block returns to the Block-No. column.

Release a Block from Billing Blocks

Follow these steps to release a block from the billing blocks.

[Procedure]

1) Select the target billing block.

   Click the billing blocks to which the target block you want to select and release belongs.

2) Select the target block.

   Click the block you want to release in the "Block Target" field from which the target block is selected. That block is moved to the "Block No. : Name" field.

Exiting the Billing Block Settings

[Procedure]

1) Click the OK, Cancel, or Back button

   To exit the billing block settings, click the OK button.
   OK: Accept the changes and advance to the next settings window.
   Cancel: Ignore the changes and return to the Initial window.
   Back: Ignore the changes and return to the previous window.

> Note:
> - If there is a control block with incomplete settings in the billing block, a warning will appear. Perform settings on all blocks to proceed.

8.7.9 Currency unit set (STEP8)

Set the Currency

Follow these steps to set the currency. Currencies that do not appear in the display can be entered manually.

Selecting a Currency from the Display

[Procedure]

1) Click the Currency option button

   Click the option button of the currency to be used.

Manually Setting the Currency

[Procedure]

1) Click the Other option button

   To display a currency that does not exist in the currency display, click the "Etc." option button.

2) Enter the currency unit

   Enter the currency unit and the number of decimal places to use.
   The number of decimal: 0~4
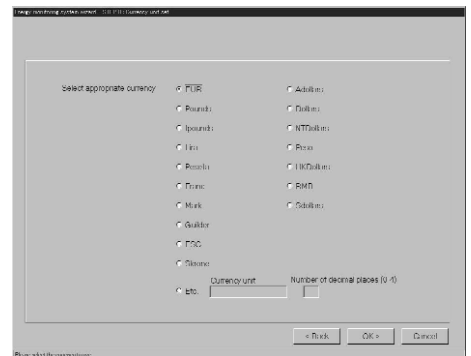
Currency Unit Settings window

Exit the Currency Settings

[Procedure]

1) Click the OK, Cancel, or Back button

   To exit the Currency Settings, click the OK button.
   OK: Accept the changes and advance to the next settings window.
   Cancel: Ignore the changes and return to the Initial window.
   Back: Ignore the changes and return to the previous window.

8.7.10 Charge set (STEP9)

Set the electric power rate schedule

Follow these steps to set the rate schedule for electric power fees. Select within/outside, weekend, and seasonal rates for this rate system.

[Procedure]

1) Select the rate schedule to be used

   Click the option button of the rate schedule to be used.
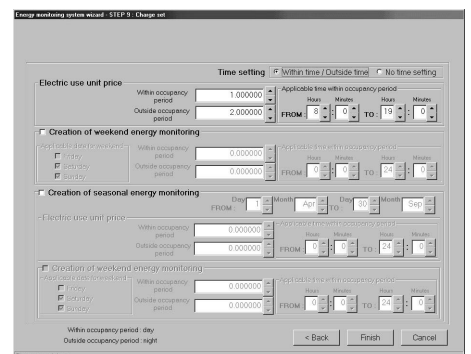
Rate Settings window

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2) Select the unit rate and applicable time period or day of the week

Set the unit rate, applicable time, month/day, or day of the week for the rate schedule. Inputting from the keyboard is also possible.

3) Click the OK, Cancel, or Back button

When finished setting the rate schedule, click the OK button.
OK (Finish): Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.

Note:
- If a required item is left blank, a warning message appears. Correct this item to proceed.

8.7.11 Standard charge set (STEP10)

Set the standard charge

Follow these steps to set the standard (fixed) monthly charge by block or by watt hour meter. The standard (fixed) monthly charge for watt hour meters can only be set on those units billed by the watt hour meter.

[Procedure]

1) Set the standard (fixed) monthly charge

Enter the standard (fixed) monthly charge by block or watt hour meter. The standard (fixed) charge for watt hour meters can only be set on those units billed by the watt hour meter.

2) Click the Finish, Cancel, or Back button

When finished with these settings, click the Finish button.
Finish: Accept the settings and exit the energy monitoring set-up.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.
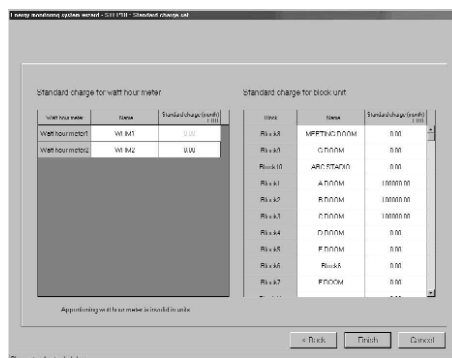
Standard Charge Settings window

Note:
- This setting window is not displayed for no watt hour meter connected charging.

8.8 External input-output setup step

Set external I/O options

Set the options for input from or output to external devices connected to this system.

8.8.1 Setting Procedure and Restrictions

Set external I/O options

Follow these steps to set the port and levels for I/O to external devices connected to this air conditioning system.

[Procedure]

1) Click the I/O Board Set-up button

From the Initial window, click on the I/O board set-up button in the System Settings group. The I/O settings preparation window appears.

2) Select the OK or Cancel button

Check the information displayed and click the OK or Cancel button.
I/O settings are done in the following order.
STEP1 Input and port set
STEP2 Output and port set
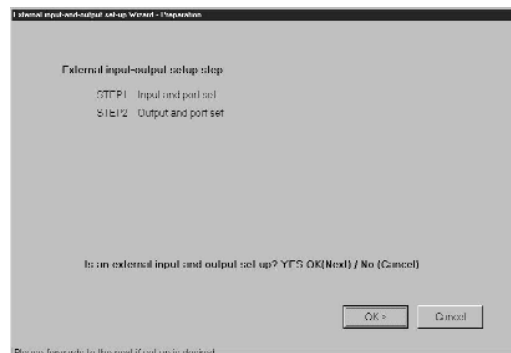
I/O Settings Preparation window

Note:
- OK, Finish: Accepts changes made to these settings.
- Cancel: Cancels any changes to these settings and exits the I/O settings.
- Back: Cancels any changes and returns to the prior window.
- Select the port by referring to the I/O board instruction manual.

Maintenance tip
- Perform these steps after connecting the I/O board.

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8.8.2 Input and port set (STEP1)

Settings for external input

Follow these steps to set the port for external input, Fire Alarm input, and to turn the function On or Off.

[Procedure]

1) Select the I/O port

To use the Fire Alarm input, click on the port to use.
Note: To turn the Fire Alarm off, set the port to Blank.

2) Select the trigger level

Select either Hi or Lo for the trigger level of the Fire Alarm.

3) Click the OK, Cancel, or Back button

When done with these settings, click the OK button.
OK: Accept the changes and advance to the next settings window.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.
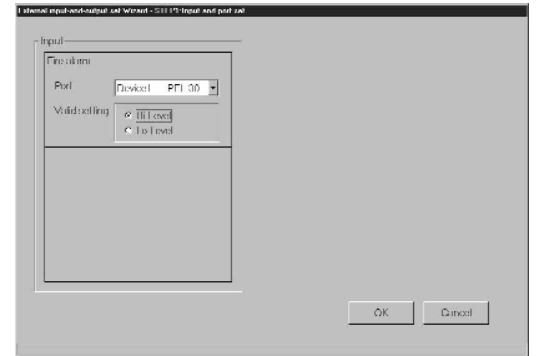
Input and Port Settings window

Maintenance tip
- Even if the Fire Alarm is activated, it may not function properly due to PC or I/O board failures.

8.8.3 Output and port set (STEP2)

Settings for external input

Follow these steps to set the port for external output of the Status Output (On/Off, Normal/Abnormal) and to turn the function On or Off.

[Procedure]

1) Select the I/O port

Select the port to use for the On/Off status output or Normal/Abnormal status output.
Note: To turn this function off, set the port to Blank.

2) Select the trigger level

Select either Hi or Lo for the trigger level of the Status Output.
For the On/Off status output, set the On trigger level, for the Normal/Abnormal status output, set the Abnormal trigger level.

3) Click the Finish, Cancel, or Back button

When done with these settings, click the Finish button.
Finish: Accept the settings and exit the External input-output setup step.
Cancel: Ignore the changes and return to the Initial window.
Back: Ignore the changes and return to the previous window.
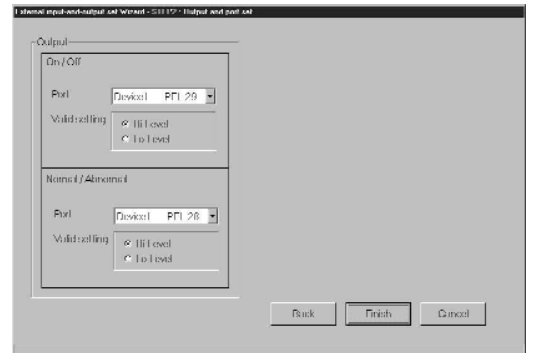
Output Port Settings window

Note:
- Status Output consists of the following messages.
     Operating: Output when one or more units is running
     Stopped: Output when all units have stopped
     Abnormal: Output when one or more units has an abnormal status (includes IFU, G/W etc.)
     Normal: Output when all units have a normal status (includes IFU, G/W etc.)
- Watt hour meter abnormalities are not included in abnormality output.

8.9 Time Set-Up

Perform charge apportioned data maintenance.

Follow these steps to set the date and time.

[Procedure]

1) Select the ▲ or ▼ button for Date Set

Set the year, month, and day using the ▲ and ▼ button on each option.

2) Select the ▲ or ▼ button for Time Set

Set the hour, minute, and second using the ▲ and ▼ button on each option.

3) Click the OK or Cancel button

When done with these settings, click the OK button.
OK: Accept the changes and return to the Initial window.
Cancel: Ignore the changes and return to the Initial window.
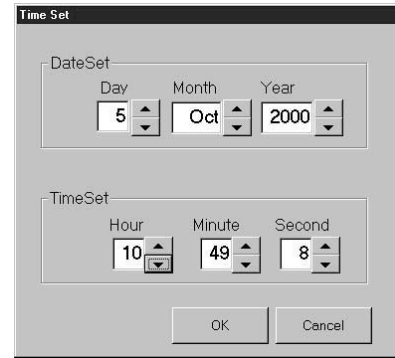
Time settings window

Note:
 - The time cannot be set in the following cases. However, this only applies when the billing function is on.
   (1) When the current time is between 22:00 and 04:30.
   (2) When setting the time to between 22:00 and 04:30.

Maintenance Tip
 - Set these time and date settings from the MJ-310E application. When the MJ310E program is running, do not change the Windows system time. Changing the Windows clock will not change the MJ-310E clock.

Time Change Not Allowed dialog box1

Time Change Not Allowed dialog box2

9. Charge Data Correction and Remedy

9.1 Result of air-conditioning charge calculation

Air-conditioning charge calculation is based on the power amount and indoor unit operation amount data. When data cannot be collected and calculation is unmatched for some reason, irregular processing is performed.
[Charge data maintenance] and [Remedial apportioning] may be necessary, depending on the contents of this irregular processing.
The table below shows assumed cases.

Table: Assumed cases and recovery method

Assumed case	Air-conditioning energy monitoring screen	Charging data status	Correction method
HDD failure	(Display impossible)	Charging data destroyed	Remedial apportioning
HDD failure (with backup)	Red characters (abnormal)	Charging data is abnormal and cannot be apportioned (Interval: Last backup day ~ recovery day)	Remedial apportioning
Computer crash (MJ-310E stopped)	Red characters (abnormal)	Charging data is abnormal and cannot be apportioned (Interval: Shutdown day ~ recovery day)	Remedial apportioning
Watt hour meter transmission line open Watt hour meter failure (Monitoring impossible)	Red characters (abnormal)	Charging data is abnormal and cannot be apportioned (Interval: Error generation day ~ recovery day)	Remedial apportioning
Watt hour meter CT failure (Monitoring possible)	Red characters (abnormal)	Forwarded to next day and apportioned to recovery day (Data may not be correct)	Charging data maintenance
IFU failure	Red characters (abnormal)	Forwarded to next day and apportioned to recovery day (Collected for several days and apportioned)	(Unnecessary) ※1
G/W failure	Black characters (normal)	Apportioned, but data is not correct (Interval: Error day ~ recovery data)	Charging data maintenance
Calculation unmatch	Black/red characters (Normal/abnormal)	Irregular processing performed and apportioned or forwarded to next day	(Unnecessary) ※1
System information setting error	Black characters (normal)	Apportioned based on set information	Charging data maintenance or remedial apportioning

Note:
- If there are two or more assumed cases, make overall judgment. The recovery order is shown below for reference.
    Charging data maintenance > remedial apportioning > unnecessary
- When forwarding of apportionment spans the settlement-of-accounts day, the forwarded portion is added to the next day. When you want to separate this month's portion and next month's portion, divide the proportion division electric power forwarded and collected by [Charging data maintenance window] by the number of days in next month and this month.
- For no WHM connected, watthour meter failures do not occur. [Remedial apportioning] cannot be used either.
- The charge data status is irregularly processed according to the case which occurred.
- For system information setting error, there may be cases when remedial apportioning is impossible, depending on the type of error setting.

The following outlines charging data maintenance and remedial apportioning.

	Overview	Remarks
Charging data maintenance (See section 9.2)	Change the proportional division electric power data you want to correct in indoor units for each day. After all changes are complete, recalculate the power amount and compute the air-conditioning charge. The watt hour meter data can also be corrected in watt hour meter units.	Use when you want to correct or change the electric power apportioned by: - Generation of forwarded and collected apportioning value - Watt hour meter CT failure - G/W failure
	The current watt hour meter count value can also be monitored.	Use to confirm connection to watt hour meter, etc.
Remedial apportioning (See section 9.3)	Since the air-conditioning charge for the interval to be apportioned cannot be calculated, the apportioning interval air-conditioning charge is found from the air-conditioning charge data, etc. Then, the settlement-of-accounts air-conditioning charge is calculated by totaling the found apportioning interval air-conditioning charge and the normal interval air-conditioning charge.	Use un-apportioning generated by the following as the object. - HDD failure - Watt hour meter failure (monitoring impossible) - Computer crash etc.

9.2 Maintenance of charge data

Perform charge apportioned data maintenance

The unit apportioned value data and watt hour meter data by day can be changed and corrected. The charge data is displayed by day for the indoor unit power consumption and watt hour meter consumption values.

9.2.1 Preparing for charging data maintenance

Prepare and perform the following for charging data maintenance:

(1) Maintenance object and date check

Check the object unit and date whose apportioning data you want to correct due to a failure.

Check by referring to the failure recovery data and charging data display color (normal, abnormal, maintenance, un-apportioned), system configuration, etc.

(2) Reference data preparation

Prepare the normal apportioning data and indoor unit FAN operation amount, capacity save ratio, and other data.

The FAN operation amount, capacity save ratio, and other data can be displayed as shown in par. 9.2.3. The indoor unit capacity and other data can be printed with "Print System Display".

(3) Correction charge data study

Study the maintenance object unit, interval (date) and charging data correction value from (1) and (2) above.

At the end of the preparations above, perform charging data maintenance.

> Note:
> - For the charging data result (normal, abnormal, maintenance, un-apportioned), refer to Sections 9.2.3 Unit maintenance and 9.2.4 Unit data maintenance.
> - The contents will appear in the air-conditioning charge after recalculation at the end of charging data maintenance.

9.2.2 Maintenance Methods and Restrictions

Display the Maintenance Window

Follow these steps to display the Meter Maintenance window.

[Procedure]

1) Click the Maintenance of charge data button

From the Initial window, click the Maintenance of charge data button in the Maintenance group. The Charge Data Maintenance window appears.

Unit Data Maintenance   → See par 9.2.3
Watt hour Meter Data Maintenance   → See par 9.2.4
Verify Operation of the watt hour Meter → See par 9.2.5
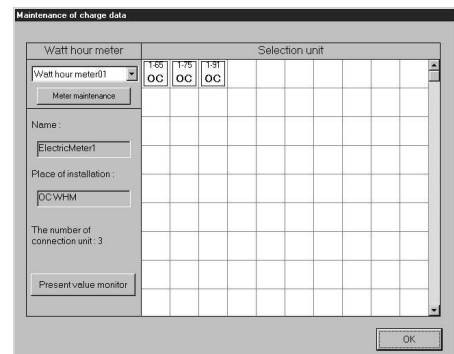
Charge Data Maintenance window (with WHM)
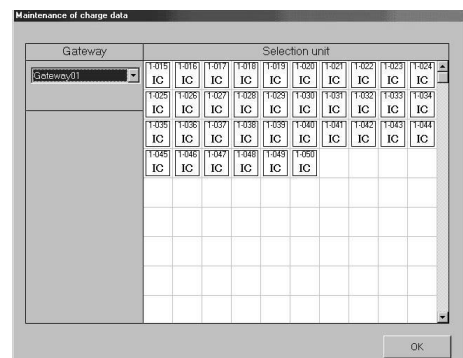
Charge Data Maintenance window (without WHM)

> Note:
> - The items that can be changed in this window are the power consumption values of indoor units and the consumption values of watt hour meters.
>   However, changing the values of watt hour meters has no effect on the values of the indoor units.
> - Charge Data can be stored for up to 62 days excluding the present day.

9.2.3 Unit Data Maintenance

Maintaining Apportioned Unit Values

The kWh values may be changed. This window displays the apportioning kWh values for units, the capacity ratio rate, and the FAN operating time for regular hours and off hours.

[Procedure]

1) Select the ▼ button on the watt hour meter

When the ▼ button in the watt hour meter field in the charging data maintenance window is clicked, all the watt hour meters are displayed. Selecting the consumption value you want to amend displays the connected unit in the "Unit selection column".
❋ If no WHM connected, G/W selection field ▼ is clicked instead.

2) Click the unit icon

Select the icon of the unit to be displayed or changed. The unit data maintenance window appears.
Selecting the OC icon displays the IC connected to the OC.

3) Select the value to be changed

Select the cell of the data to be changed (regular hours, off hours). The cursor appears in that cell.

4) Make changes to the data

Enter the changes to the data (for each time slot).

5) Repeat steps 1) through 3)

Repeat these steps to make changes to other items.

6) Click the OK or Cancel button

When done with these settings, click the OK button.
OK: Accept the changes and return to the Initial window.
Cancel: Ignore the changes and return to the Initial window.

Unit Data Maintenance window

[Unit Data Display Colors]
  Black: Normal
  Red: Abnormal
  Blue: Maintenance
  Green: Un-apportioned data
  Gray: No data

[Time zone]
  Within (day):   regular hours
  Outside (night): off hours

Note:
  - Altered unit data will appear in the air-conditioning charge after recalculation.
  - The data for that day may not be correct if there was an abnormality on the previous day.
    For example, when the previous day was abnormal, it may be forwarded to the next day.
  - The proportional division electric power displayed in red is changed to maintenance (blue) and recalculated and appears in the air-conditioning charge results. (However, all the electric power displayed in red in the air-conditioning charge settlement-of-accounts term must be maintained.)
  - When the outdoor unit apportioning mode is 2, the crank case heater proportional division electric power also changes.

9.2.4 Watt Hour Meter Data Maintenance

Maintaining watt hour Meter Data

This data may be changed. Follow these steps to display watt hour meter data broken down by regular hours and off hours.

[Procedure]

1) Click the ▼ button and select a watt hour meter

When the ▼ button in the watt hour meter field in the charging data maintenance window is clicked, all the watt hour meters are displayed. Selecting the consumption value you want to display and clicking the meter "Meter Maintenance" button displays the consumption value maintenance screen.

2) Select the watt hour meter data

Select the cell of the data to be changed (regular hours, off hours). The cursor appears in that cell.

3) Make changes to the data

Enter the changes to the data (for each time slot).

4) Repeat steps 1) through 3)

Repeat these steps to make changes to other items.

Watt Hour Meter Maintenance window

[Watt Hour Meter Data Display Colors]
  Black: Normal
  Red: Abnormal
  Blue: Maintenance
  Gray: No data

[Time zone]
  Within (day):   regular hours
  Outside (night): off hours

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5) Click the OK or Cancel button

When done with these settings, click the OK button
   OK: Accept the changes and return to the Initial window.
   Cancel: Ignore the changes and return to the Initial window.

Note:
- Corrected watt hour meter data will appear in the air-conditioning charge after recalculation. However, only watt hour units watt hour meters are the object. The corrected watt hour meter data does not appear at indoor units or watt hour meters connected to indoor units.
- The data for that day may not be correct if there was an abnormality on the previous day.
  For example, when the previous day was abnormal, it may be forwarded to the next day.
- The proportional division electric power displayed in red is changed to maintenance (blue) and recalculated and appears in the air-conditioning charge results. (However, all the electric power displayed in red in the air-conditioning charge settlement-of-accounts term must be maintained.)
- This function cannot be used for no WHM connected.

9.2.5 Verify Operation of the Watt Hour Meter

watt hour Meter Monitor Function

Follow these steps to display the watt hour meter monitor.

[Procedure]

1) Select the watt hour meter

From the Charge Data Maintenance window, select the meter to monitor using the ▼ button.

2) Click the Present Value Monitor button

Click the Present Value Monitor button. The Monitor window appears for the selected meter.

3) Click the OK button

When finished viewing these values, click the OK button.
When the [Monitor] button is clicked, the watt hour meter count value is monitored again.
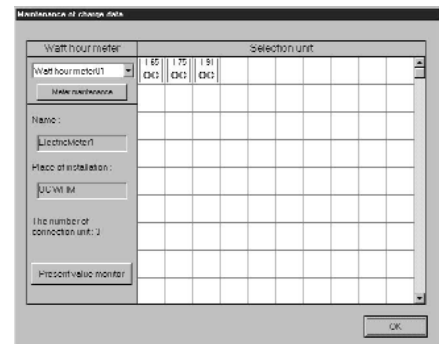
Note:
- This window can be used to verify the connection to the watt hour meters.
- This function cannot be used for no WHM connected.

Charge Data Maintenance window
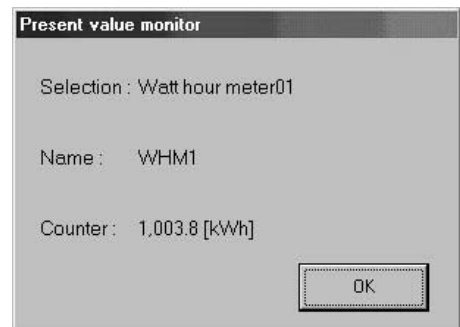
Watt hour Meter Current Value window

9.3 Charging Remedy

Performing charging remedy

When charge apportioning was not performed (electric power not apportioned) due to watt hour meter failure or data was destroyed by HDD failure, the air-conditioning charge can be easily computed by using this remedial function.

9.3.1 Preparing to perform charging remedy

Remedial apportioning simply apportions the entire un-apportioned part and calculated the air-conditioning charge using the normal apportioning data. For remedial apportioning,
- settlement-of-accounts term
- apportioning interval
- total billing air-conditional charge
- failure day power count value
- operation data monitoring

must be prepared or performed.
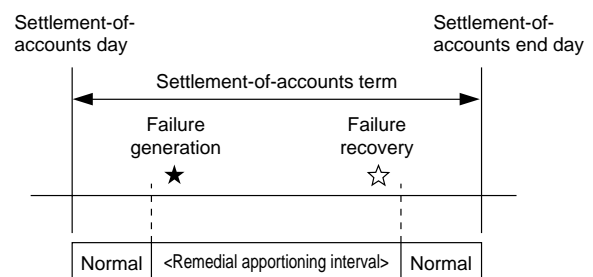
Normal apportioning + Remedial apportioning + Normal apportioning

The table below shows the items necessary for each assumed case to perform remedial apportioning √ indicates that the item must be performed.

Item		Assumed case					Remarks
		Watt hour meter failure (Monitoring impossible)	HDD failure (no backup)	HDD failure (backup)	Computer crash	System information setting error	
Preparation	Settlement-of-accounts term	√	√	√	√	√	Essential
	Remedial apportioning interval	√	√	√	√	√	Essential
	Total billing amount	√	√	√	√	√	※1
	Watt hour meter count value for failure day	(√) ※2	√				
Implementation	Operation amount data monitoring		√	√	√		See par. 9.3.2
	Remedial apportioning	√	√	√	√	√	See par. 9.3.3

※1 When there is one tariff, preparations are unnecessary.
※2 When replacing a watt hour meter, study the watt hour meter count value for the day the failure was thought to have occurred.

> Note:
> - This remedial apportioning simply calculates the air-conditioning charge. It cannot recover to normal apportioning.
> - When the settlement-of-accounts term is one month, the air-conditioning charge including the basic charge can be calculated.
> - When the operation amount data must be monitored, do it before remedial apportioning.
> - This function cannot be used for no WHM connected.

9.3.2 Operation data monitoring

Monitoring operation amount data

Use the operation amount data monitor to monitor the operation amount data stored in the IFU.

[Operating instructions]

1) Click the [Operation amount data monitor]

Click the [Operation amount data monitor] icon of the maintenance group in the initial window.
The operation amount data monitor window appears.

Operation amount data monitoring screen

2) Set the interval to be monitored

Use the ▲ and ▼ buttons to set the interval over which the operation amount data stored in the IFU is to be monitored.
※ Numbers can be manually input.

3) Click [OK] or [Cancel]

When setting of the operation amount data monitoring interval is complete, click the [OK] button.
The operation amount data monitor confirmation window appears.

4) Click the [OK] or [Cancel] button

Confirm the monitoring interval at the operation data monitor confirmation window. After confirmation, click the [OK] button.
Whether or not the monitor end time exceeds the standard time is automatically checked.
If the monitor end time does not exceed the standard time, the "Monitoring" screen appears and monitoring of the operation amount data begins.
When monitoring is complete, the display returns to the initial window.

Operation amount data monitoring window

    Required monitoring time: Approx. 0.1 ~ 7.5 hours
    Approx. 7 minutes (1 day, 1000 units)

If the monitor end time exceeds the standard time, the "Cannot monitor operation amount data" screen appears.
In this case, wait until 04:30 or later and try again.
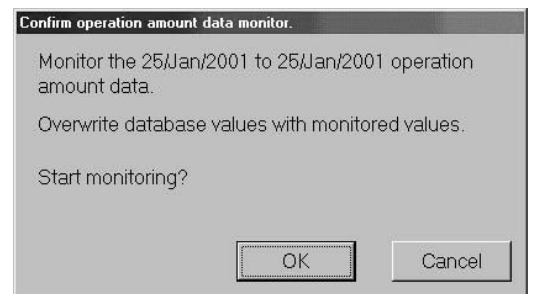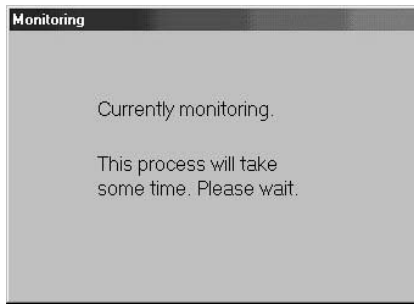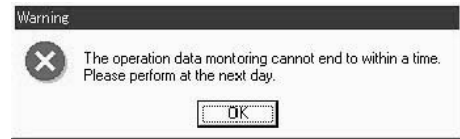
Monitoring window

Cannot monitor operation amount data window

Note:
- When the operation amount data must be monitored, do it before remedial apportioning. When monitoring the operation amount data, the data is rewritten to the database.
- Operation amount data monitoring takes some time. Wait until the end of monitoring.
- Do not monitor operation amount data spanning several days. The data cannot be correctly monitored.
- When the IFU power is interrupted (0:00 ~ 0:30 hours), when trouble occurs, or when the date changes, monitoring cannot be performed normally.
- This function cannot be used between 22:00 and 04:30 hours.
- Calculation of the monitoring time is based on 1 minute (1 day × 100 units).
- Other functions of the MJ-310E cannot be used while the operation amount data is being monitored.

9.3.3 Remedial apportioning setting window

(1) Check the items necessary for remedial apportioning

When charging is not apportioned, the charging data is destroyed, etc., the air-conditioning charge can be calculated by a simple method. The items which must be set depend on the assumed case and the charging configuration. The table below shows which setting items are required and are not required.

Assumed case	Charging configuration	Settlement-of-accounts term	Total air-conditioning charge	Standard charge	Remedial apportioning interval	Power count	Remark
HDD failure (no backup)	1 system	✓		✓ ※1	✓	✓	See par. 9.3.4
	Multiple systems	✓	✓	✓ ※1	✓	✓	
HDD failure (backup)	1 system	✓		✓ ※1	✓		See par. 9.3.5
	Multiple systems	✓	✓	✓ ※1	✓		
Computer crash	1 system	✓		✓ ※1	✓		See par. 9.3.6
	Multiple systems	✓	✓	✓ ※1	✓		
Watt hour meter failure (Monitoring impossible)	1 system	✓		✓ ※1	✓	✓ ※2	See par. 9.3.7
	Multiple systems	✓	✓	✓ ※1	✓	✓ ※2	
System information setting error	1 system	✓		✓ ※1	✓	✓ ※2	See par. 9.3.8
	Multiple systems	✓	✓	✓ ※1	✓	✓ ※2	

✓ shows that the item must be set.
※1 When the settlement-of-accounts term is 1 month, the standard charge can be set.
   Moreover, when remedial apportioning including the standard charge is not performed, it cannot be reflected in the air-conditioning charge result.
※2 The power count value may have to be set depending on the failure cause or the contents of the setting error.

(2) Set the remedial apportioning setting items

[Operating instructions]

1) Click the [Remedial apportioning] button

   Click the [Remedial apportioning] button in the initial window.
   The remedial proportioning setting window appears.

2) Set the apportioning interval (Calculation)

   Set the interval to be adjusted by this remedial apportioning and set the year, month, and day using the ▲ and ▼ buttons. An interval from the previous day to the last 122 days can be set.

3) Set the total air-conditioning charge

   Set the settlement-of-accounts term total air-conditioning charge. When the basic charge is included, the total air-conditioning charge also includes the basic charge for 1 month.   ※ Numbers can be manually input.

Remedial apportioning setting window

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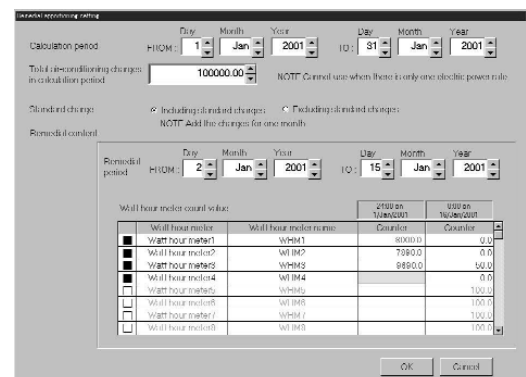
4) Select the basic charge setting

When the settlement-of-accounts term is 1 month, whether or not the basic charge is to be included can be selected. Select [Include] or [Not include] with the option button.

5) Set the remedial apportioning interval

Use the ▲ and ▼ buttons to set the remedial apportioning interval dates.

6) Set the power count value

Displays the power count value at 00:00 hours of the remedial apportioning start day. (The count value at 24:00 hours of the previous day.) Select the field of the watt hour meter you want to change with the mouse and set or change the power count value. The count value field of the selected watt hour meter changes to a blue cell. When the count value data changes, the new data is displayed in blue.

Note:
- The initial count value is the interval for the previous month.
- When there is one electric power tariff, the total air-conditioning charge does not have to be set and it is not displayed.
- [Include] standard charge can be selected only when the settlement-of-accounts term is 1 month.
- Set the power count value only when necessary. The power count value initial value is the value stored in the database. When there is no data, a blank is displayed.
- When the recovery day exceeds the settlement-of-accounts day, it recommends that this month and next month perform charging remedy.
- See the execution examples for each assumed case starting from section 9.3.4.

(3) Calculate remedial apportioning

[Operation contents]

1) Click the [OK] or [Cancel] button

When the necessary settings at the remedial apportioning setting window are complete, click the [OK] button. The remedial apportioning confirmation window appears.

2) Click the [Yes] or [No] button

Confirm remedial apportioning at the confirmation display window, and click the [Yes] button. The [Calculating] window appears.
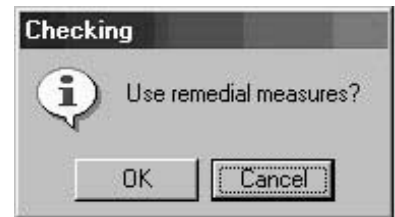
Note:
- When the [OK] button in the remedial apportioning setting window is clicked, the settings are checked for errors. If there is an error in the set contents, an alarm window appears.
- Remedial apportioning calculation can be cancelled by clicking the [Cancel] button in the Calculating window.
- Remedial calculation takes several minutes.

Remedial apportioning confirmation window
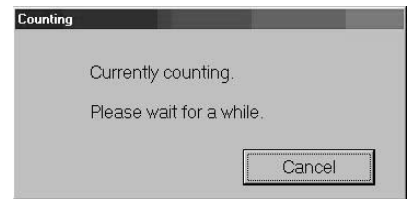
Calculating window

When there is an error in the remedial apportioning setting, a setting error warning message like that shown below is displayed.
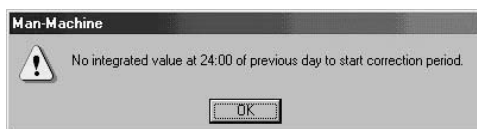
Alarm display 1

Alarm display 2

(4) Remedial apportioning calculated result display

At the end of remedial apportioning calculation, the remedial apportioning result window appears.

Apportioning conditions display

Remedial air-conditioning charge display

Output button

Count save button

Back button

End button

Remedial apportioning result window
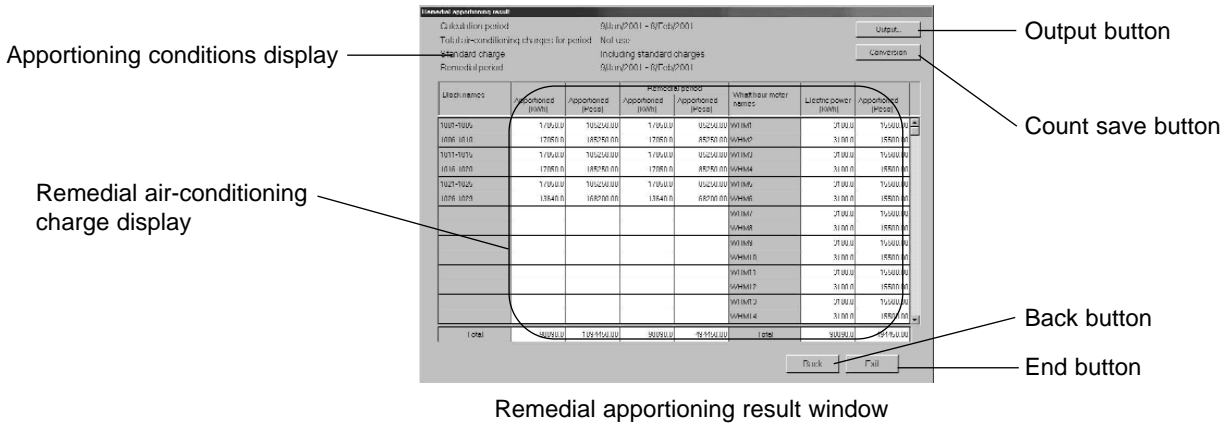
[Description of displays and buttons]
(1) Apportioning conditions display
    Displays the counted and remedially apportioned conditions.
(2) Remedial air-conditioning charge
    Displays the remedied air-conditioning charge calculated result in block and watt hour meter units. Block units display is the remedial apportioning interval reference value.
(3) Output button
    The remedial apportioning air-conditioning charge result can be output to a printer or file.
(4) Calculation save button
    When the remedial apportioning air-conditioning charge result is the same as the calculated result, it can be written over the air-conditioning charge result in month units.
(5) Back button
    Returns to the remedial apportioning conditions setting window.
(6) End button
    Ends the remedial apportioning window.

9.3.4 Remedy when computer HDD fails (no backup)

The following describes the remedy when the computer HDD failed and the charging data was lost.

1) HDD recovery

Recover the computer HDD by replacement, etc. and install the necessary OS.

2) MJ-310E installation

Install MJ-310E MSDE, database and this program. Refer to the setup method and install.

3) System configuration and charging system restoration

Recover the system information by resetting the air-conditioning system configuration, charging system, etc.

4) Running the operation amount backup monitor

Monitor backup of the operation amount before the recovery day.
Set the interval from the preceding month's count end day to the day before the recovery day.
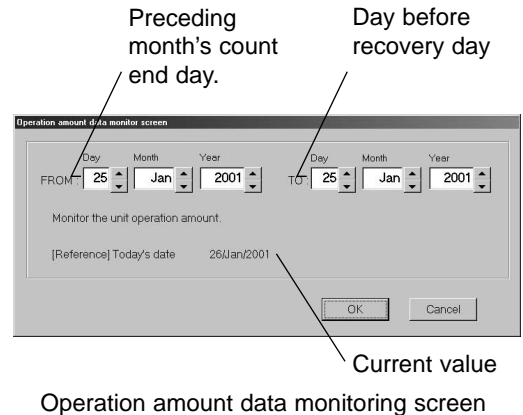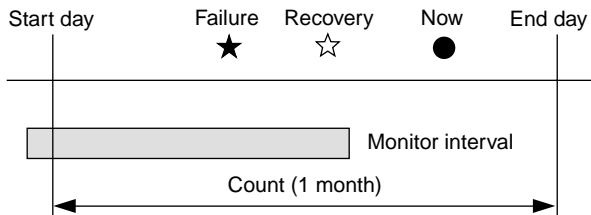
Preceding month's count end day.

Day before recovery day

Current value

Operation amount data monitoring screen

Note:
- Operation amount data backup monitoring for the failure day is also possible.
- Since the operation amount data is the counted value, the data for the preceding month's count end day must also be monitored.

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(5) Wait until the day after the settlement-of-accounts day

Continue normal operation up to the day after the settlement-of-accounts day.

> Note:
> - The system operates normally up to the day after the settlement-of-accounts day because remedial apportioning is performed for one month.

(6) Start remedial apportioning

Start remedial apportioning by clicking the [Remedial apportioning] button in the initial window. This is described with the time series example below.

> Note:
> - Perform remedial proportioning from the day after the settle-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

7) Settlement-of-accounts term setting

Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting window. The initial value is the settlement-of-accounts term of the previous month.

8) Total air-conditioning charge setting

Set the total air-conditioning charge for the settlement-of-accounts term.

> Note:
> - When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including this standard charge.
> - When there is one power charge (no time setting), the total air-conditioning charge does not have to be set. This item appears in gray.
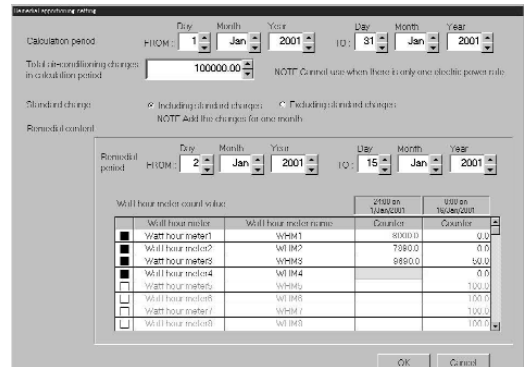
Remedial apportioning setting window

9) Include/Not include standard charge setting

When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

10) Remedial interval setting

Set the remedial apportioning interval. The remedial start day is the settlement-of-accounts start day and the remedial end day is the settlement-of-accounts end day.

> Note:
> - "Recovery day" is the day the system was recovered from an HDD failure and normal operation was restarted.

11) Watt hour meter count value setting

Set the watt hour meter count value of each watt hour meter from the air-conditioning charge result (watt hour meter) for the month before last. The watt hour meter calculated result for the month before last is the watt hour meter count value for the last day. Use that value.
The watt hour meter count value for all the watt hour meters must be corrected and input. When the count value data changes, the display turns blue. The initial value before correction and input is a blank display.

When setting of the remedial apportioning window is complete, perform Section 9.3.3 "(3) Calculate remedial apportioning".

Watt hour meter air-conditioning charge result

9.3.5 Remedy when computer HDD fails (backup)

The following describes the remedy when the computer HDD fails and the charge data is backed up.

1) HDD recovery

Recover from computer HDD failure by replacing the HDD, etc. and install the necessary OS.

2) MJ-310E installation

Install MJ-310E MSDE, database, and this program. Refer to the setup method and install.

3) System configuration and charging system restoration

Install the database backing up the air conditioning system configuration, charging system, charging data, etc.

> Note:
> - For the specific procedure, consult your distributor or sales company.

4) Operation amount backup monitoring

Monitor backup of the operation amount from the backup day to the recovery day. Set the start day as the backup day and the end day as the day before recovery day.
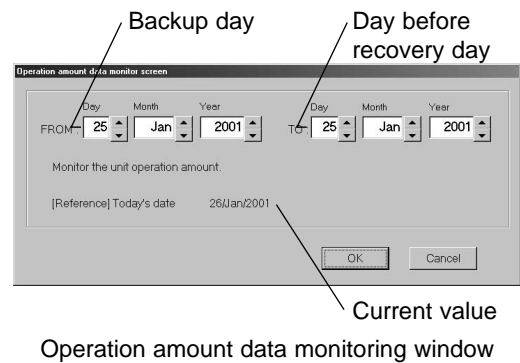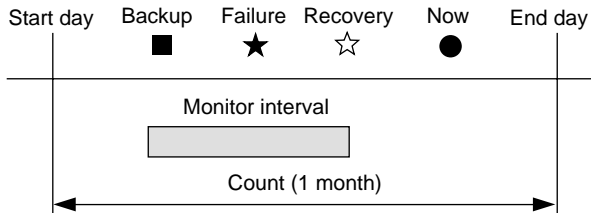
Operation amount data monitoring window

> Note:
> - Operation amount data backup monitoring for the failure day is also possible.
> - Since the operation amount data is the counted value, the data for the back-up day must also be monitored.

(5) Wait until the day after the settlement-of-accounts day

Continue normal operation up to the day after the settlement-of-accounts day.

> Note:
> - The system operates normally up to the day after the settlement-of-accounts day because remedial apportioning is performed for one month.

(6) Start remedial apportioning

Start remedial apportioning by clicking the [Remedial apportioning] button in the initial window. This is described with the time series example below.

> Note
> - Perform remedial proportioning from the day after the settle-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

7) Settlement-of-accounts term setting

Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting window. The initial value is the settlement-of-accounts term of the previous month.

8) Total air-conditioning charge setting

Set the total air-conditioning charge for the settlement-of-accounts term.

> Note:
> - When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including this standard charge.
> - When there is one power charge, the total air-conditioning charge does not have to be set. This item appears in gray.

Remedial apportioning setting window

9) Include/Not include basic charge setting

When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

10) Remedial interval setting

Set the remedial apportioning interval. The remedial start day is the backup day and the remedial end day is the recovery day.

> Note:
> - "Recovery day" is the day the system was recovered from a HDD failure and is the day normal operation was restarted.
> - When charge is not apportioned normally for the day before the remedial apportioning start day, change the remedial apportioning start day to the day after the day normally charged before the backup day.

11) Watt hour meter count value setting

The value at 24:00 hours of the day before backup is displayed at the watt hour meter count value of each watt hour meter. The watt hour meter count value does not have to be corrected.

> Note:
> - When a value is not displayed in the watt hour meter count value field, there is no data in the database. Since a setting error is possible, check the remedial apportioning start day.
> - Normal charge apportioning is necessary for the day before backup.

When setting of the remedial apportioning window is complete, perform Section 9.3.3 "(3) Calculate remedial apportioning".

9.3.6 Apportioning method when computer crashes

The following describes the apportioning method when the computer crashes and the charging data is abnormal and apportioning (un-apportioned) cannot be performed.

> Note:
> - Whether or not un-apportioning of charging data was generated by a computer crash can be checked at the "Charging data maintenance" window.
> - When the charging data is not apportioned, this remedial apportioning is unnecessary.

This is described with the time serial example below.
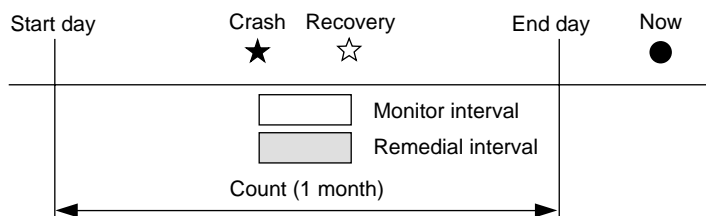
1) Computer down time check

Check the time the computer was shut down at the "Charging data maintenance" window. When nothing exists in the charging data, the numbers are displayed in gray.

2) Operation amount backup monitoring

Monitor backup of the operation amount from the day the computer crashed to the day it was recovered. Set the start day as the computer crash day and the end day as the day before recovery day.

> **Note:**
> - Operation amount backup monitoring can be performed for the recovery day also.

3) Start remedial apportioning

Start remedial apportioning by clicking the "Remedial apportioning" button in the initial window.

> **Note:**
> - Begin remedial apportioning from the day after the settlement-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

4) Settlement-of-accounts term setting

Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting window. The initial value is the settlement-of-accounts term of the previous month.

5) Total air-conditioning charge setting

Set the settlement-of-accounts term total air-conditioning charge.

> **Note:**
> - When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including that standard charge.
> - When there is one power charge, the total air-conditioning charge does not have to be set. This item appears in gray.

Remedial apportioning setting window

6) Include/Not include standard charge setting

When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

7) Remedial interval setting

Set the apportioning interval. The apportioning start day is the computer crash day and the apportioning end day is the recovery day.

> **Note:**
> - When the charge for the day before the apportioning start day is not apportioned normally, change the apportioning start day to the day after the first day charged normally before the computer crashed.

8) watt hour meter count value setting

The value at 24:00 hours of the day before the computer crashed is displayed in the watt hour meter count value of each watt hour meter. The watt hour meter count value does not have to be corrected.

> **Note:**
> - When a value is not displayed in the watt hour meter count value field, there is no data in the database. Since there may be a setting error, check the remedial start day.
> - The charge for the day before the computer crashed must be apportioned normally.

When setting of the remedial apportioning window is complete, perform Section 9.3.3 "(3) Calculate remedial apportioning".

9.3.7 Remedy when watt hour meter fails (monitoring impossible)

The following describes the remedy when a watt hour meter fails and the charging data is abnormal and is not apportioned.

1) Recovery from watt hour meter failure

Locate and remove the cause of the watt hour meter failure. The cause of the failure may be an open transmission line, CT failure, or failure of the watt hour meter itself.

2) Wait until the day after the settlement-of-accounts day

After recovery, continue normal operation until the day after the settle-of-accounts day.

> Note:
> - Operate normally up to the day after the settlement-of-accounts day because remedial apportioning is performed for one month.

3) Start remedial apportioning

Start remedial apportioning by clicking the "Remedial apportioning" icon in the initial window. This is described by the time series example below.

> Note:
> - Perform remedial proportioning from the day after the settle-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

4) Settlement-of-accounts term setting

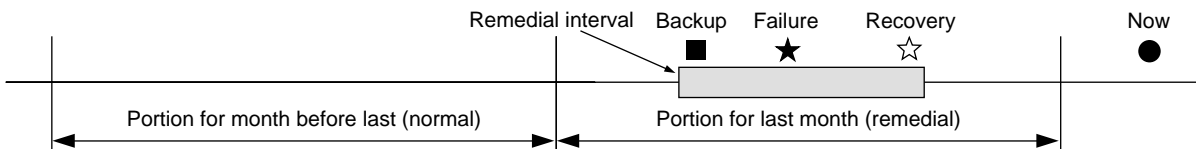Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting window. The initial value is the settlement-of-accounts term of the previous month.

5) Total air-conditioning charge setting

Set the total air-conditioning charge for the settlement-of-accounts term.

> Note:
> - When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including this standard charge.
> - When there is one power charge, the total air-conditioning charge does not have to be set. This item appears in gray.

Remedial apportioning setting window

6) Include/Not include standard charge setting

When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

7) Remedial interval setting

Set the remedial apportioning interval. The remedial start day is the failure generation day and the remedial end day is the recovery day.

> Note:
> - "Recovery day" is the day watt hour meter monitoring was recovered and is the day that normal operation was started.
> - When the day before the remedial start day was not charge apportioned normally, change the remedial start day to the day after the day normally charged before the failure day.

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8) Watt hour meter count value setting

The value at 24:00 of the day before the failure day (value for 00:00 of the failure day) is displayed at the watt hour meter count value of each watt hour meter.

<u>Failure cause: watt hour meter transmission line open (When watt hour meter counts normally.)</u>
The watt hour meter count value does not have to be corrected.

<u>Failure cause: watt hour meter failure or CT failure (When watt hour meter does not count normally)</u>
Only the watt hour meter count value of the failed watt hour meter must be corrected. Refer to the watt hour meter count value for the week before the failure and study the electric power consumption for the remedial interval.
Examples 1 and 2 study the power consumption for the three days from the failure day (00:00) to the day after recovery (00:00) and calculate the power count value for 00:00 of the failure day (24:00 of the day before the failure day), with the count value for the day after recovery as the standard.
The power count value is corrected to the calculated value for 00:00 of the failure day.

Ex. 1) Remedial interval power consumption study (Remedial interval = 3 days) (00:00 value) Units: kWh

	7 days before	6 days before	5 days before	4 days before	3 days before	2 days before	1 day before	Failure day	Day after recovery
Count value	200	300	410	500	620	780	800	900	950
Consumptio		100	110	90	120	160	20	100	300	

❋ The average day's power consumption and remedial interval power consumption are assumed to be 100kWh and <u>300kWh</u>, respectively. The power count value is set at [950-300=<u>650</u>] kWh.

Ex. 2) Remedial interval power consumption study (Remedial interval = 3 days) (00:00 value) Units: kWh

	7 days before	6 days before	5 days before	4 days before	3 days before	2 days before	1 day before	Failure day	Day after recovery
Count value	200	300	410	500	620	780	800	900	5
Consumptio		100	110	90	120	160	20	100	300	

❋ The average day's power consumption and remedial interval power consumption are assumed to be 100kWh and <u>300kWh</u>, respectively. The power count value is set at [5-300+9999+1=<u>9705</u>] kWh.
(Watt hour meter maximum count value: 9999   Minimum count value: 1)

> Note:
> - The watt hour meter count value for each date can be displayed by integrated value by changing the remedial apportioning start day.
> - The day before the failure day must be charge apportioned normally.
> - The indoor unit operation amount can also be referenced in watt hour meter count value calculation and study. The average value can also be studied from the monthly units watt hour meter air-conditioning charge result. It is recommended that the calculation method suited to the system conditions be used.
> - When the calculated watt hour meter count value is a negative value, set the value
>   calculated count value + watt hour meter maximum count value + minimum count value.

When setting of the remedial apportioning window is complete, perform Section 9.3.3 "(3) Calculate remedial apportioning".

9.3.8 Remedy for system information setting error

The following describes the remedy when a system information (system configuration, charging system, etc.) setting error was found.

> Note:
> - It may not be possible to remedy a setting error even by remedial apportioning depending on the type of system setting error.
> - This remedial apportioning cannot be used for system configuration and other changes.

1) System setting error recovery

Find and correct the system setting error. Setting errors include group setting, watt hour meter correspondence setting, etc.

> Maintenance tip
> - Before system setting error recovery, perform interval settlement-of-accounts up to the day before the setting error and output the result.

2) Continue operation until the day after the settlement-of-accounts day

Continue normal operation up to the day after the settlement-of-accounts day.

> Note:
> - Normal operation is continued up to the day after the settlement-of-accounts day because remedial apportioning is performed for one month.

3) Start remedial apportioning

Start remedial apportioning by clicking the [Remedial apportioning] button in the initial window. This is described by the time series example below.

Note:
- Begin remedial apportioning from the day after the settlement-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

4) Settlement-of-accounts term setting

Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting window. The initial value is the settlement-of-accounts term of the last month.

5) Total air-conditioning charge setting

Set the total air-conditioning charge for the settlement-of-accounts term.

Note:
- When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including that standard charge.
- When there is one power charge, the total air-conditioning charge does not have to be set. This item appears in gray.

Remedial apportioning setting window

6) Include/Not include standard charge setting

When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

7) Remedial interval setting

Set the remedial apportioning interval. The remedial start day is the settlement-of-accounts day and the remedial end day is the system setting error recovery day.

Note:
- "Recovery day" is the day the system recovered from a system setting error and normal operation started.

8) watt hour meter count value setting

The value at 24:00 hours of the day before the count start day is displayed in the watt hour meter count value of each watt hour meter.
Setting error: When watt hour meter and unit wiring connection match
The watt hour meter count value does not have to be corrected.

Failure cause: When watt hour meter and unit wiring connection is wrong
Refer to the indoor unit operation amount and calculate and study the remedial interval power consumption for each watt hour meter. Only the watt hour meters where the watt hour meter and unit wiring connection is wrong have to be studied.

Note:
- The watt hour meter count value for each date can be displayed by changing the remedial apportioning start day.
- The day before the failure day must be charge apportioned normally.
- The indoor unit operation amount can also be referenced in watt hour meter count value calculation and study. It is recommended that the calculation method suited to the system conditions be used.
- When the calculated watt hour meter count value is a negative value, set the value
    calculated count value + watt hour meter maximum count value + minimum count value. (Refer to the example in Section 9.3.7.)

When setting of the remedial apportioning window is complete, perform Section 9.3.3 "(3) Calculate remedial apportioning".

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10. Error code list

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

0110	"Equipment abnormality"
0120	"Equipment abnormality"
0403	"Serial transmission trouble."
0900	"Test run"
1000	"Ref.cycle abnormality"
10*0	"Ref.cycle abnormality in line **"
11**	"Ref.cycle temperature abnormality - Common operand: **"
12**	"Ref.cycle temperature abnormality allowance - Common operand: **"
13**	"Ref.cycle pressure abnormality - Common operand: **"
14**	"Ref.cycle pressure abnormality - Common operand: **"
1500	"Ref.cycle not operate due to overcharge"
1501	"Ref.cycle not operate due to undercharge"
1502	"Ref.cycle not operate due to liquid back"
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"
1559	"Oil balance circuit abnormality"
1600	"Preliminary overcharge refrigerant trouble"
1601	"Preliminary lacked refrigerant trouble"
1605	"Preliminary suction pressure trouble"
1607	"Configuration detection abnormality"
1608	"Control valve abnormality"
1659	"Preliminaly oil balance circuit abnormality"
2000	"Water system abnormality"
20*0	"Water system abnormality in line **"
21**	"Water system temperature abnormality - Common operand: **"
22**	"Allowance of water system temperature abnomality - 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"
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"
2600	"Water system operation restricted due to water leak"
2601	"Water system operation restricted due to 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	"Control box temperature abnormality"
3252	"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: **"
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"
4103	"Electric system not operate due to reversed 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"
4107	"Electric system not operate due to overlord"
4108	"Electric system not operate due to overcurrent relay 51C"
4109	"Electric system not operate due to overcurrent relay 51F"
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"
4116	"Electric system not operate due to motor abnormality"
4158	"Electric system - Preliminary overcurrent protection (51C)"

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"
422*	"Inverter bus voltege insufficiency - Inverter No.: *"
4230	"Inverter radiating thermostat abnormality"
423*	"Inverter radiating thermostat abnormality - Inverter No.: *"
4240	"Inverter overcurrent protection"
424*	"Inverter overcurrent protection - Inverter No.: *"
4250	"Inverter IPM abnormality"
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.: **"
52**	"Pressure sensor trouble - Sensor No.: **"
53**	"Current sensor trouble - Sensor No.: **"
54**	"Humidity sensor trouble - Sensor No.: **"
55**	"Gas sensor trouble - Sensor No.: **"
56**	"Air speed sensor trouble - Senser 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"
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)"
6605	"Communication error - No response frame"
6606	"Communication error - Transmission processor"
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 pomp 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, Inddor/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"
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 - Connection data unsettled"
7111	"System abnormality - I/O connection equipment not connected"
7112	"System abnormality - I/O type setting error"
7113	"System abnormality - Equipment unsettled"
7200	"System abnormality - Numeric values unsettled"
7201	"System abnormality - Numeric values unsettled"

11. Setting check list

11.1 Setting check list

Follow a setting item check list according to each function you want to use.

	Detail of function
Case 1	Manage groups by address
Case 2	Manage groups and blocks by name (shown by floor plan)
Case 3	Case 2 + Manage scheduling
Case 4	Case 3 + Manage air conditioner charging

Check the following items for the above cases.

Setting item		Case 1	Case 2	Case 3	Case 4
User settings		√	√	√	√
Time settings		√	√	√	√
System configuration settings	Set number of G/W	√	√	√	√
	Configure G/W units	√	√	√	√
	Set the cooling system	√	√	√	√
	Set the number of floors and name them	√	√	√	√
	Set the floors and G/W units	√	√	√	√
	Set the Indoor unit groups	√	√	√	√
	Set the ventilation groups	√	√	√	√
	Set the indoor units and ventilation functions	√	√	√	√
	Create floor plans		√	√	√
	Position and name group icons	√	√	√	√
	Set blocks		√	√	√
Setting schedule				√	√
Setting charge system					√
Check initial settings of charge system setting					√

11.2 Test run check

> **Note:**
> - Before carrying out a test run check, complete the test run checks of the systems under the control of the system controller.
> - See Chapter 3 for details on site adjustment.

Test run check sheet
Once the initial settings have been carried out as prescribed by the section on field adjustment in this manual, follow the order of testing prescribed by the test run check sheet and check the following items: (1) - (4).

(1) Check operation start-up
- Once the necessary information has been entered in the initial screen, advance to the control screen.
- Check that the screen which indicates operation start-up is in progress appears.
- The time depends on the number of air conditioner units that are connected. The operation start-up should take between 5 - 60 minutes to complete.
- Check the display of each floor to make sure there is no error mark.
- If an error occurs, check the error history on the history screen.

(2) Man machine on-off (on-off from the MJ-310E console PC)
   - Operate an air conditioner unit from the man machine console.
   - Confirm the displays of the local remote controller, system controller and man machine console indicate the air conditioner is operating. If a local remote controller or system controller is not connected, check that the air conditioner unit is operating.
   - Carry out air conditioner operation in order of group, block, floor and entire building.
   - If operation from the man machine console operated the wrong air conditioner, check the following settings.
     →Position and name of group icon setting (See section 8.5.11)
     →Indoor unit and ventilation group setting (See section 8.5.7 and 8.5.8)
     →Block setting (See section 8.5.12)

(3) Local remote controller on-off
   ❋This step is only required when a local remote controller is connected.
   - Operate the air conditioner unit from the local remote controller.
   - Confirm the system controller and man machine console indicates that the air conditioner unit is operating.
   - On the man machine console display, check the floor screen, block screen and entire building screen are correct.

(4) System remote controller on-off
   ❋This step is only required when a system remote controller is connected.
   - Operate the air conditioner unit from the system remote controller.
   - Confirm the local remote controller and man machine console indicates that the air conditioner unit is operating.
   - On the man machine console display, check the floor screen, block screen and entire building screen are correct.

To make the check sheets easy to read, allocate 1 check sheet page for each installation floor unit or G/W unit.

Test run check Sheet

Name of managed equipment							Test operation procedure and check results							
Floor	G/W address	Unit address	Unit model	Group address	Group name	Block name	Start-up check error display	M-M on-off group units			M-M on-off block units			
								LRC display	SC display	AC status	LRC display	SC display	AC status	

M-M: Man machine console   SC: System controller   LRC: Local remote controller   AC: Air conditioner unit

| Date | | | Tester | |

	Test operation procedure and check results														
	M-M on-off Floor units			M-M on-off Entire building			Local remote controller on-off				System controller on-off				
	LRC display	SC display	AC status	LRC display	SC display	AC status	M-M display			SC display	M-M display			LRC display
							Floor	Block	Entire building		Floor	Block	Entire building	

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11.3 Charging test run check

Note:
- The charging test run check takes at least 3 days.
- Leave enough time for the transfer when carrying out the charging test operation.
- Carry out this check when system is modified while the system is up and running.

Flow of charging test run

	Test item	Comment
Day 1	(1) Check the charge setting details on the man machine console	✳ After checking the setting, allow MJ-310E to operate as it was
Day 2	(2) Check the meter values of the power meter (No. 1)	
	(3) Let the air conditioner units run	
	(4) Check the meter values of the power meter (No. 2)	
Day 3	(5) Check the results of charging division	
	(6) Check the settlement results	
	(7) Decision standards	

Charging test run check sheet
Perform the charging test run check after the test run check is complete. Follow the order of testing prescribed by the charging test run check sheet and check the following items: (1) - (7).

Note:
- When the results do not conform to the decision standards outlined in (6), fix the problem and restart the check from (1).

(1) Check the charge setting details on the man machine console.
   Write the charge setting details down on the charging test run check sheet.
   Check the details of the data to ensure charging is operating correctly.
      - Division mode selection (See section 8.7.3)
         → Set the mode used
            ✳ When WHM not connected, mode setting is unnecessary.
      - Charging setting (See section 8.7.10)
         → For charging test run check purposes, set "Fixed Charge Setting"
            (This means the charge is always fixed and there is no day/night setting, no weekend charge setting, and no seasonal charge setting.)
            Set "10" for the unit price.
      - Basic charging setting (See section 8.7.11)
         → For charging test run check purposes, set "10,000"
      - Settlement day setting (See 5.2.2 in Chapter 5 of Management).
         → For charging test run check purposes, set it to the next day
      - Charge block setting (See section 8.7.8.)
         → Set the charge block to be manipulated
            ✳ To set the charge block, (operation block) must be set. (See section 8.5.12.)

   Check the following details for each indoor unit.
      - Addresses of the outdoor units in the same cooling system (See section 8.5.4)
      - Which indoor units correspond to each power meter (See section 8.7.6)
      - Performance of indoor units (See section 8.7.7)
      - Fan capacity (See section 8.7.7)
         ✳ The number of items to be confirmed depends on the charge apportioning method.

   Check the following details for each outdoor unit.
      - Which outdoor units correspond to each power meter. (See section 8.7.4)
      - Capacity of crank case heater (See section 8.7.5)
        (If using the SuperY series, include the crank case heater capacity of the outdoor sub unit (OS).)
         ✳ The number of items to be confirmed depends on the charge apportioning method.

   Check the following details for power meter.
      - Address (See section 8.6)
      - Maximum wattage total (See section 8.6)
         ✳ When WHM is not connected, the set contents do not have to be checked.

Note:
- Always ensure the details of each setting are correct.
   (Incorrect setting details will affect air conditioner charging.)

(2) Check the meter values of the power meter (No. 1)
   Check the name and the meter value of all the power meters connected to RS-485 and write them down on the charging test run check sheet.
   (The wattage total of the power meter can be monitored by using the function "Keep charge data". For details see section 9.2.5)

> Note:
>   - Perform this the day after the charging setting details on the man machine console were checked.

(3) Let the air conditioner units run
   Operate all the air conditioner units from the man machine console (MJ-310E).
   Check that all air conditioner units are running and write it down on the charging test run check sheet.

> Note:
>   - You must run all air conditioner units for longer than 2 hours.
>   (When they do not run for that length of time, the results will not pass the decision standards outlined in (6) Decision standards.)

(4) Check the meter values of the power meter (No. 2)
   After the air conditioners running operation is complete, check the name and the meter value of all the power meters connected to RS-485 and write them down on the charging test run check sheet.

> Note:
>   - Check that the measured meter value is larger than the value measured at step (2) above. If the values are the same, operate the air conditioner again for at least 2 hours. (It is recommended that test run be performed with the local remote controler and centralized controller.)

(5) Check the results of charging division
   Check the following on the keep charge data screen and write them down on the charging test run check sheet.
       - Electric power amount for all the indoor units on the previous day (within-outside)
       - Electric power amount of the power meter (within-outside)

> Note:
>   - Perform this on the day after the air conditioner running operation (charging test run).

(6) Check the settlement results
   Perform this two days after the charging test run. You should either print the settlement results or export them to a file.
   (The settlement is carried out later than 04:20 on the day after the settlement day.)

(7) Decision standards
   With WHM connection   : Check a ~ d.
   Without WHM connection: Check e.
   a. Check that the electric power amount of the power meter (during hours) is not "0".
      If the electric power amount (during hours) is not "0" then that is deemed OK.
      (For reference) The electric power amount (out of hours) is a fixed charge setting and so a value of "0" is deemed OK.
      If the electric power amount (during hours) is "0", check the following details and rectify the problem.
        - Check if the meter value of the power meter check increased by more than 1kWh from No. 1 to No. 2.
          If the value did not increase, redo the power meter check and also redo the running operation of the air conditioner units.
        - Check the transmission cable connection between the RS-232C of the PC and the power meter.

   b. Check that the division result (during hours) is not "0".
      If the electric power amount (during hours) is not "0", then that is deemed OK.
      (For reference) The electric power amount (out of hours) is a fixed charge setting and so a value of "0" is deemed OK.
      If the electric power amount (during hours) is "0", check the following details and rectify the problem.
        - Indoor unit performance
        - Indoor unit fan capacity
        - Fan running time and the power saving amount on the keep charge data screen.

   c. Check to see if the total of the division results of all the indoor units matches the total of the power meter.
      Because division errors occur, a difference less than (the number of blocks × 0.1) kWh is deemed OK.
      If the difference exceeds (the number of blocks × 0.1) kWh then check the following settings and rectify the problem.
        - charge block setting (block setting)
        - outdoor unit to power meter relationship
        - indoor unit to power meter relationship

   d. Check that the standard charge portion is included in the block settlement amount of the settlement results.
      Block settlement amount = (total of block indoor units division electric power amount totals) × charge unit + standard charge
      Because settlement errors occur, a difference less than number of blocks × minimum exchange unit is deemed OK. When the difference exceeds number of blocks × minimum exchange unit, check and correct the following setting.
        - charge block setting (block setting)
        - standard charge setting

e. Check whether or not there is a value of [0] at the charge electric power amount.
   If there is no [0] value at the charge electric amount, it is deemed OK.
   If there is a [0] value at the charge electric amount, check and correct the following contents.
     - Charge block setting (block setting)
     - Indoor unit capacity

Note:
- Only judgment standard d can be recalculated and rechecked.

Maintenance Tip:
- After the charging test run check, check the result of the print out of the settlement day calculation for day 1.
- If the system is modified, always check the calculation results of the next settlement day or one day after the change and 10 days after the change.

To make the check sheets easy to read, allocate 1 check sheet page for each installation floor unit or G/W unit.

After the charging test run check is completed, restore the regular field settings.

Note:
- During charging test run, set the items shown below to the test run value. Set them to the value to be used.
  Charge setting, standard charge setting, settlement date

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Charging test run check sheet

[Checking order →]

Item	Division mode selection	Charge setting	Basic charge	Setting details of indoor unit	Setting details of outdoor unit	
Check						

Name of managed equipment										
Floor	Gateway address	Unit address	Group address	Block name	Indoor unit performance	Fan capacity	Indoor unit WHM No.	Outdoor unit WHM No.	Outdoor unit address	Crank case heater capacity

Check results of power meter						
Power meter No.	Model name	Maximum wattage total	Meter value No. 1	Meter value No. 2	Electric power amount during hours	Electric power amount out of hours
WHM1						
WHM2						
WHM3						
WHM4						
WHM5						
WHM6						

Power meter setting details	Meter value check No. 1	Operation check	Meter value check No. 2	Charge division results check	Decision check	Settlement check

	Check results			MEMO
Operation check	Division power amount			
	Within	Outside	Check	

Total	

Setting details check after test operation

Item	Division mode setting		Charge setting							Settlement day setting	Standard charge setting
	Indoor unit	Outdoor unit	Within / Outside	Weekend	Seasonal	Charge unit used (top: within / bottom: outside)					
						Standard	Weekend	Seasonal standard	Seasonal weekend		
Check											

Appendix 1: Installing Windows NT 4.0

This chapter describes how to install Windows NT 4.0 on a PC and assumes one of the following.
- Windows NT 4.0 is not installed on the PC
- PC requires an upgrade to Windows NT Workstation 4.0 or
- Windows NT 4.0 requires reinstallation.

If Windows NT 4.0 is already installed on the PC, you do not need to read this chapter.

Note:
- The installation method may vary depending on the PC.

1. Preparing for Setup

What you need

- Microsoft Windows NT Workstation Setup Disk 1, 2 & 3
- Microsoft Windows NT Workstation CD-ROM Disc 1
- Blank floppy disk to use as a recovery disk

Note:
- When you select a PC for installation that was previously in use, ensure you backup data before commencing installation as a precaution against the possibility of serious data loss.

2. Set-up Procedure

1) Insert Setup Disk 1 into drive A and turn on the computer.
2) The following message appears.
    Please insert the disk labeled
    Windows NT Workstation Setup Disk #2
    Into Drive A:
    Press ENTER when ready.
   Remove Setup Disk 1 and replace it with Setup Disk 2. Then press ENTER.

3) A screen entitled "Welcome to setup" appears.
   Select the option "To setup Windows NT now" and press ENTER.

4) You will be asked whether or not to detect mass storage devices in the PC.
   Select "detect mass storage devices in your computer" and press ENTER.

5) The following message will appear.
    Please insert the disk labeled
    Windows NT Workstation Setup Disk #3
    Into Drive A:
    Press ENTER when ready.
   Remove Setup Disk 2 and replace it with Setup Disk 3. Then press ENTER.

6) If the PC has a standard configuration, the following message will appear.
    "Setup has recognized the following mass storage in your computer"
   If you want to add an additional device, press the "S" key.
   If you do not want to add any more devices, press ENTER. (The following directions assume that you choose not to add an additional device.)

7) The following message will appear.
    "Please insert the compact disc labeled Windows NT Workstation CD-ROM"
   Insert Microsoft Windows NT Workstation CD-ROM Disc 1 into the CD-ROM drive and press Enter.

8) The Windows NT license agreement will then appear. Use Page Down to read it all. To accept the license conditions and continue, press the "F8" key.
   If Setup discovers Windows NT already on the hard disk, the following options appear.
    "To upgrade Windows NT in the directory"
   and
    "To cancel upgrade and install a fresh copy of Windows NT"
   In this case, select "New version" and press "N" key.

9) When a screen appears during the Setup to confirm hardware configuration, check that the hardware displayed matches the hardware that is being used and then press ENTER.
An example of this display is shown below.

Computer   :Standard PC
Display   :Auto Detect
Keyboard   :Enhanced Keyboard
Keyboard Layout   :US
Pointing Device   :Microsoft Mouse port mouse
NO change   :The above list maches my computer

If you need to make changes to items in the list, use the up and down arrow keys to select the item you want to change and press ENTER. A list of options for that item will then appear.
If all the items in the list are correct, select "The above list matches my computer" and press ENTER.

10) You will be asked to select which partition to install NT on. Select the partition and press ENTER.

11) You will be asked which file system (FAT, NTFS) you want to use. Select the file system that you want (the item is inverted when selected) and press ENTER.
The following describes when FAT is selected. Select "Format the portion using the FAT file system".
❋ As a safeguard to prevent any effect from files already on the HDD, it is recommended to format the partition.

12) A message to indicate the drive is ready to be formatted.
Press the "F" key to start formatting the drive.

13) The formatting will start. When the formatting is complete, you will be asked to specify the directory name for the target installation directory. Enter the directory name and press ENTER to continue.

14) Setup then searches the hard disk for corrupted data. Select to run a more detailed secondary search and press ENTER.
After this, Setup will copy files from the CD-ROM to the hard disk and then the initialization process will be performed.

15) The following message will appear.
"This portion of setup has completed successfully.
If there is a floppy disk inserted in drive A:, remove it.
Also remove any compact discs from your CD-ROM drive(s)."
Follow these directions and press ENTER. The computer will restart.
After the computer restarts, Setup will continue.

16) The following message will appear.
"Please insert the compact disc labeled "Microsoft Windows NT Workstation CD-ROM Disc 1" into your CD-ROM drive and then click OK."
Follow these directions and click the "OK" button.

17) A graphic adjustment screen will appear.
Follow the directions of this screen and click "Next".

18) Select the setup method.
The following describes when the standard setup is selected. Select "Typical".

19) Enter your name and your company's name and click "Next".

20) Enter you Product ID and click "Next".

21) Enter a computer name and click "Next".

22) Set the Administrator account password to "MJ-310E" and click the "Next" button.

23) A new screen will appear and you will be prompted to create a recovery disk.
Insert the blank disk into drive A. Select "Yes" and click "Next".

24) Select how you want Windows NT to install components. Select either "Typical install" or "Custom install".
Select "Custom install" and click "Next".

25) Setup will proceed to Windows NT network installation.
Click "Next".

26) Here you specify whether or not to connect to a network.
Select "This computer will participate on a network" and click the "Next" button.

When using a network	When there is no network adapter
The network driver installation screen is displayed. Select the specified network driver and click the "Next" button.	The network driver installation screen is displayed. Click "Select from list". Select "MS Loopback Adapter" from the driver list which is displayed. After checking that "MS Loopback Adapter" is selected, click the "Next" button.
The protocol selection screen is displayed. Unless another protocol is necessary, select only the "Net BEUI protocol" and click the "Next" button.	The protocol selection screen is displayed. Select only the "Net BEUI protocol" and click the "Next" button.
The network services which are to be installed are displayed. Leave the default settings as they are and click the "Next" button.	The network services which are to be installed are displayed. Leave the default settings as they are and click the "Next" button.
The network component installation confirmation screen is displayed. Click the "Next" button.	The network component installation confirmation screen is displayed. Click the "Next" button. The "MS Loopback Adapter" setting window is displayed during the installation. Leave the default settings as they are and click the "Continue" button.
The screen for the settings which can be used by this machine on the network is displayed. Leave the default settings as they are and click the "Next" button. The installation confirmation screen is displayed. Click the "Next" button.	The screen for the settings which can be used by this machine on the network is displayed. Leave the default settings as they are and click the "Next" button. The installation confirmation screen is displayed. Click the "Next" button.
The workgroup setting screen is displayed. Input the specified workgroup name or domain name and click the "Next" button.	The "workgroup" setting screen is displayed. Leave the default settings as they are and click the Next button.
The network setting completion screen is displayed. Click the "Finish" button.	The network setting completion screen is displayed. Click the "Finish" button.

27) The "Date/Time Properties" screen will appear.
If the date, time or time zone is incorrect, then enter the correct details.
Then click "Close".

28) If "VGA compatible display adapter" was detected for the display, click "OK".

29) The NT installation then starts. Then a message appears to start writing data for the recovery disk. The disk is already in drive A: so just click "OK".

30) After a message appears to indicate that NT 4.0 installation was successfully completed, remove the disk and CD-ROM from their respective drives and click the restart icon.

31) When "Welcome to Windows NT" appears, click "Close".

The installation of Windows NT 4.0 is complete.

Note:
- This chapter summarized the installation procedure.
  For instructions in more detail, refer to the user documentation that is provided with "Windows NT Workstation 4.0".

Appendix 2: Installing Windows 2000 Professional

This chapter assumes that Windows 2000 Professional is to be installed on a PC on which Windows 2000 Professional is not installed. Therefore, you can skip this chapter when Windows 2000 Professional is already installed on the PC.

> Note:
> - The installation method may vary depending on the PC.

1. Preparing for setup

What you need

- Microsoft Windows 2000 Profession Setup Disks #1, #2, #3, #4
  (Necessary only with PC without a CD-ROM inserted in the startup drive. Refer to How to Create Setup Disks ※1.)
- Microsoft Windows 2000 Professional CD-ROM

※ 1) How to Create Setup Disks

- (1) Get four 1.44MB Format floppy disks. Stick a label with "Setup Disk #1, Setup Disk Setup #2, Setup Disk Setup #3, Disk #4" written on it to each disk.
- (2) Insert the Windows 2000 Professional CD-ROM into the CD-ROM drive.
- (3) When the setup window started automatically, close the setup window.
- (4) Execute the following command from the command prompt or [Run…] in the [Start] menu.
  D:/bootdisk/Makeboot.exe A:
       (D: is the CD-ROM drive and A: is the floppy disk drive.)
- (5) Insert the floppy disk labeled "Setup Disk #1" into the floppy disk drive and press Enter.
- (6) Afterward, create the remaining Setup Disks (#2 to #4) by following the instructions on the screen.

> Note:
> - If Windows 2000 Professional is installed on a PC already in use, important data may be destroyed. Therefore, keep the backup beforehand.

2. Setup Procedure

1) Insert Setup Disk #1 into drive A and turn on the computer. (When the computer has a CD-ROM inserted in the startup drive, a Setup Disk is unnecessary. Insert the Windows 2000 Professional CD-ROM into the CD-ROM drive and turn on the computer. Then proceed to Step 4).)
2) The following message appears.
   "Please insert the disk labeled Windows 2000 Professional Setup Disk #2 into Drive A:"
   Remove Setup Disk #1 and replace it with Setup Disk 2. Then press Enter.
3) Thereafter, sequentially insert Setup Disk #3 and #4 into drive A in accordance with the instructions on the screen and press Enter.
4) After the files are copied, a screen entitled "Welcome to setup" appears.
   Select the option "To setup Windows 2000 now" and press Enter.
5) The following message will appear.
   "Insert CD labeled:
   Windows 2000 Professional CD-ROM into you CD-ROM drive."
   Insert the Windows 2000 Professional CD-ROM into the CD-ROM drive and press Enter.
6) The Windows 2000 license agreement will then appear. Use Page Down to read it all. To accept the license conditions and continue, press the "F8" key.
7) If Setup finds Windows 2000 already on the hard disk, the following options appear.
   "To repair the selected Windows 2000 installation, press R."
   "To continue installing a fresh copy of Windows 2000 without repairing, press ESC"
   In this case, select "Fresh copy" and press the ESC key.
8) You will be asked to select which partition to install Windows 2000 on. Select the partition and press Enter.
9) When the vacant space on the selected partition is small, the following message will appear.
   "To continue Setup using the selected partition, press C.
   Setup will ask you again before reformatting the partition."
   "To select a different partition, press ESC."
   To continue Setup, press "C". To change the partition, press ESC. (When ESC was selected, Setup returns to Step 8).)
10) When the following message was displayed,
   "To continue Setup using this partition, press C."
   "To select a different partition, press ESC."
   press "C" to continue Setup. (When ESC was pressed, Setup returns to Step 8).)
11) You will be asked which file system (FAT, NTFS) you want to use. Select the file system that you want (the item is inverted when selected) and press Enter. The following describes when FAT is selected. Select "Format the partition using the FAT file system".

12) A message to indicate the drive is ready to be formatted appears.
   "To format the drive, press F."
   "To select a different partition for Windows 2000, press ESC."
   Press the "F" key to start formatting the drive. (When ESC was pressed, Setup returns to Step 8).)
13) Formatting will start. When formatting is complete, copying of files from CD-ROM to hard disk begins. When all the files have been copied, the computer automatically restarts. Immediately before restarting, remove the floppy disk from drive A and the CD-ROM from the CD-ROM drive. After the computer restarts, Setup will continue.
14) The Windows 2000 Setup Wizard starts. First, device installation is automatically performed.
15) The "Regional Settings" screen appears. Click "Next>".
16) The "Personalize Your Software" screen appears. Enter your Name and Organization and click "Next>".
17) The "Your Product Key" screen appears. Enter your Product Key and click "Next>".
18) The "Computer Name and Administrator Password" screen appears.
   Enter a computer name at "Computer Name".
   Enter MJ-310E at "Administrator Password". (*** is displayed instead of the characters entered.)
   Enter MJ-310E at "Confirm password". (*** is displayed instead of the characters entered.)
   Click "Next>".
19) The "Date and Time Settings" screen appears. When the date and time are incorrect, enter the correct values. Then click "Next>".
20) The "Networking Settings" screen appears.
   (When there is no network adapter, the "Networking Settings" screen is skipped and Setup advances to Step 23).) "Typical Setting" or "Custom Setting" can be selected. Select "Custom Setting" and click "Next>".
21) The "Networking Components" screen appears. Set the necessary components, then click "Next>".
22) The "Workgroup or Computer Domain" screen appears. Enter your Workgroup name or Domain name and click "Next>".
23) Installation of components starts. (If the Windows 2000 Professional CD-ROM is not in the CD-ROM drive, a message will be displayed. Insert the CD-ROM and click "OK".)
   Then, the "Performing Final Tasks" screen appears and Setup automatically advances to the Setup Wizard finish screen. At the Setup Wizard finish screen, remove the CD-ROM, then click "Finish". The computer automatically restarts.
24) The "Welcome to the Network Identification Wizard" screen appears. Click "Next>".
25) The "Users of This Computer" screen appears.
   Select "Windows always assumes the following user has logged on to this computer." and select Administrator at "User Name".
   Enter MJ-301E at "Password". (*** is displayed instead of the characters entered.)
   Enter MJ-301E at "Confirm password". (*** is displayed instead of the characters entered.)
   Click "Next>".
26) The setup finish screen appears. Click "Finish>".

The installation of Windows 2000 Professional is complete.

Note:
- This chapter summarized the installation procedure.
   For instructions in more detail, refer to the user documentation that is provided with "Windows 2000 Professional".

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